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Info for UST#
04878. See
if it can be
DHEE REC.

Thanks,
Jst

UST PROGRAM T-1
DOCKETING #

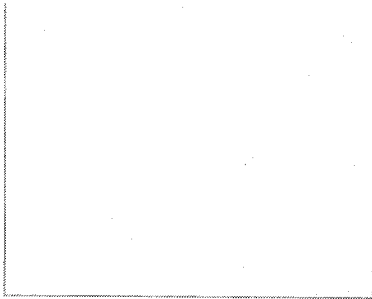
Search Type: Starting With
Search Date: 3/30/2010

Search Criteria: Sunstar
Search Time: 11:06

Click on the Business Entity Name or Control No to view more information.

Records Found:19

Business Entity Name	Control No	Type	Status	Entity Creation Date
SUN STAR BUILDING MAINTENANCE, INC.	J604438	Profit Corporation	Automated Administrative dissolution/Revocation	3/17/1986
SUN STAR FOODS, INC.	H858081	Profit Corporation	Revoked	11/20/1978
SUN STAR IMPORT, INC.	0454630	Profit Corporation	Admin. Dissolved	9/10/2004
SUN STAR INCORPORATED		Name Reservation	Name Reservation Rejected	10/20/2009
SUN STAR MORTGAGE CORPORATION	0406528	Profit Corporation	Active/Noncompliance	12/30/2003
SUN STAR PRODUCTION, INC.	K949766	Profit Corporation	Abandoned	7/16/1999
SUN STAR PRODUCTION, INC.	0001458	Profit Corporation	Automated Administrative dissolution/Revocation	1/5/2000
SUNSTAR ACCEPTANCE CORPORATION	K222583	Profit Corporation	Withdrawn	11/13/1992
SUNSTAR COMMUNICATIONS, INC.	J801111	Profit Corporation	Automated Administrative dissolution/Revocation	1/5/1988
SUNSTAR ENTERPRISES, INC.	K220779	Profit Corporation	Active/Compliance	10/19/1992
SUNSTAR FLOOR PRODUCTS, L.L.C.	0456202	Limited Liability Company	Active/Owes Current Year AR	9/20/2004
SUNSTAR II, LLC (NEVADA)	08058925	Limited Liability Company	Active/Owes Current Year AR	7/14/2008
SUNSTAR MANUFACTURED HOMES, LLC	0448383	Limited Liability Company	Admin. Dissolved	8/12/2004
SUNSTAR PETROLEUM, LLC	09061983	Limited Liability Company	Active/Compliance	9/2/2009
SUNSTAR PROPERTY HOLDINGS, LLC	09048931	Limited Liability Company	Active/Compliance	7/10/2009
SUNSTAR TECHNOLOGIES, INC.	K616642	Profit Corporation	Automated Administrative dissolution/Revocation	2/12/1996



<u>SUNSTAR, INC.</u>	<u>0628347</u>	Profit Corporation	Admin. Dissolved	4/4/2006
<u>SUNSTAR, INCORPORATED</u>	<u>K406256</u>	Profit Corporation	Automated Administrative dissolution/Revocation	2/2/1994
<u>SUNSTAR, LLC (DE)</u>	<u>08046428</u>	Limited Liability Company	Active/Owes Current Year AR	5/19/2008

Records Returned 1 of 19 total 19



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Date: 3/30/2010 (Annual Registration History etc.)

Business Name History

Name	Name Type
SUNSTAR, INCORPORATED	Current Name

Profit Corporation - Foreign - Information

Control No.: K406256
Status: Automated Administrative dissolution/Revocation
Entity Creation Date: 2/2/1994
Dissolve Date: 7/9/2005
Jurisdiction: SC
Principal Office Address: 7373 HODGSON MEMORIAL DR # 6 SAVANNAH GA 31406-1503

Registered Agent

Agent Name: J. BAKER MCGEE
Office Address: 313 ALBANY AVENUE WAYCROSS GA 31502
Agent County: WARE

Officers

Title: CEO
Name: ROBERT H PUCCINI
Address: 7373 HODGSON MEMORIAL DR BLD 6 SAVANNAH GA 31406

Title: CFO
Name: ROBERT H PUCCINI
Address: 7373 HUDGSON MEMORIAL DR BLD 6 SAVANNAH GA 31406

Title: Secretary
Name: WILLIAM S BOWEN JR
Address: 412 WOODLAWN TERRACE BLACKSHEAR GA 31516



C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

**BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071**

JAN 20 2012



Re: **QAPP Contractor Addendum Request**
Groundwater Sampling Contract
Solicitation # IFB-5400002759, PO#4600088529

Dear Mr. Shane:

In accordance with bid solicitation # IFB-5400002759 and the UST Management Division Quality Assurance Program Plan (QAPP), it is requested that you submit a Contractor Addendum for each site listed below. The Addendums must be submitted within 15 business days in my attention. The project manager for each site will issue a notice to proceed once the Addendum has been reviewed and approved. Please note, site reconnaissance should be conducted during the Addendum review so that any issues that arise may be addressed prior to commencing work at the site.

UST Permit #	Site Name	County	# samples and requested analysis*	Project Manager
14597	Hoopers Auto Service	Anderson	15-BTEXMN, DCA, Oxygenates, & EDB	R. Miner
04878	Nickelpumper 233	Jasper	5-BTEXMN, DCA, Oxygenates, & EDB	D. Ebinger
03051	Arnold Stewart	Dorchester	24-BTEXMN, DCA, Oxygenates, & EDB	A. Smith
19449	Wando Lounge	Berkeley	18-BTEXMN, DCA, Oxygenates	A. Smith
04474	Stewart Sandwich	Greenville	10-BTEXMN, DCA, & EDB	A. Smith
07608	Frm Red Diamond	Richland	11-BTEXMN, DCA, & Oxygenates	A. Smith
16410	Brown's Market	Spartanburg	9-BTEXMN, DCA, Oxygenates, EDB, & lead	M. Milenkova
03538	Coastal 76 Truck Stop	Florence	14-BTEXMN, DCA, Oxygenates, EDB, & lead	M. Milenkova
08604	Roadrunner Market	Spartanburg	10-BTEXMN, DCA, Oxygenates, EDB, & lead	M. Milenkova
00141	Chevron Food Mart	Aiken	11-BTEXMN, DCA, Oxygenates, EDB, & lead	M. Hornosky

* The number of samples does not include trip blanks, field blanks, or field duplicates.

Please contact me with the sampling schedule before commencing work at these facilities. In addition, a weekly update for each site is required to be submitted via e-mail to the site's project manager and myself. If you have any questions or need further assistance, please contact me at (803) 896-6397 or thomadl@dhec.sc.gov.

Sincerely,

Debra L. Thoma, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land & Waste Management

Enc: Site Information Packets
cc: Technical Files



Midlands
Environmental
Consultants, Inc.

February 6, 2012

Ms. Debra Thoma, Hydrogeologist
Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Subject: QAPP Contractor Addendum – Revision 0
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 12-3785
Certified Site Rehabilitation Contractor UCC-0009



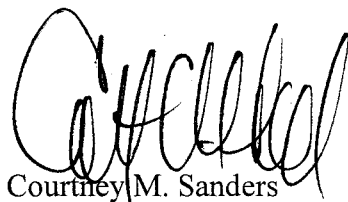
Dear Ms. Thoma,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached QAPP Contractor Addendum for the referenced site.

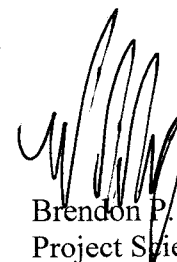
On January 30, 2012, MECI personnel performed a site visit to the subject site to evaluate site conditions, locate monitoring wells and identify potential problems for future sampling activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.



Courtney M. Sanders
Staff Biologist



Brendon P. Kelly
Project Scientist

Section A: Project Management

A1 Title and Approval Page

Quality Assurance Project Plan
Addendum to the SC DHEC UST Programmatic QAPP
For
Nickelpumper 233, SCDHEC Site ID# 04878

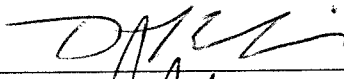
3296 Point South Drive, Yemassee, South Carolina

Prepared by:
Courtney M. Sanders
Staff Biologist
Midlands Environmental Consultants, Inc.
(Certified Site Rehabilitation Contractor UCC-0009)
235-B Dooley Road
Lexington, SC 29073
(803)808-2043

Date: February 6, 2012


Approvals

David Ebinger
SC DHEC Project Manager



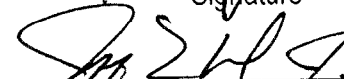
Signature Date 2/21/12

Brendon P. Kelly
Contractor QA Manager



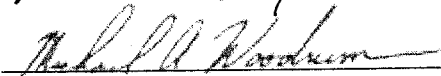
Signature Date 2/6/12

Jeff L. Coleman
Site Rehabilitation Contractor



Signature Date 2/6/12

Michael Woodrum
Laboratory Director



Signature Date 2-6-12

A2 Table of Contents

A1 Title and Approval Page	1
A2 Table of Contents	2
A3 Distribution List	3
Table 1A Addendum Distribution List	3
A4 Project Organization	3
Table 2A Addendum Role Identification and Contact Information	4
Figure 1A Organizational Chart	4
A5 Problem Definition/Background	5
A6 Project/Task Description	6
A7 Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs)	6
A8 Training and Certificates	6
Table 3A Required Training and Licenses	7
A9 Documents and Records	8
Table 4A Record Identification, Storage, and Disposal	8
Section B Measurement/Data Acquisition	8
B1 Sampling Process/Experimental Design	8
Table 5A Sampling Activities	9
B2 Sampling Methods	9
Table 6A Field Corrective Action	10
B3 Sample Handling and Custody	10
B4 Analytical Methods	11
Table 7A Analytical SOPs and Referenced Methods	12
Table 8A SOP Abbreviation Key	12
Table 9A Corrective Action Procedures	13
Table 10A Sample Disposal Procedures	14
B5 Quality Control Requirements:	14
B6 Field Instrument and Equipment Testing, Inspection and Maintenance	14
Table 11A Instrument and Equipment Maintenance	16
Table 12A Instrument and Equipment Inspection	17
B7 Instrument Calibration and Frequency	17
Table 13A Instrument Calibration Criteria and Corrective Action	18
B8 Inspection/Acceptance Requirements for Supplies and Consumables	18
Table 14A List of Consumables and Acceptance Criteria	19
B9 Data Acquisition Requirements (Non-Direct Measurements)	19
Table 15A Non-Direct Measurements	19
B10 Data Management	19
Section C Assessment and Oversight	20
C1 Assessment and Response Actions	20
C2 Reports to Management	21
Section D Data Validation and Usability	21

A3 Distribution List

Name	Title	Organization/Address	Telephone Number	Fax Number	Email Address
David Ebinger	SC DHEC Technical Project Manager	SCDHEC, UST Management Division, 2600 Bull St., Columbia, SC, 29201	803-896-6649	803-896-6245	ebingedj@dhec.sc.gov
Jeff L. Coleman	Site Rehabilitation Contractor	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	jlc@meci.net
Courtney M. Sanders	Quality Assurance Officer	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	cms@meci.net
Brendon P. Kelly	Field Manager	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	bpk@meci.net
Michael Woodrum	Laboratory Director	Shealy Environmental Services, Inc. 106 Vantage Point Dr. West Columbia, SC 29172	803-791-9700	803-791-9111	mwoodrum@shealylab.com
	Well Services/Driller				

Table 1A Addendum Distribution List

A4 Project Organization

Role from the UST Master QAPP	Person in this Role for Project	Organization/Address	Telephone Number	Fax Number	Email Address
Project Manager	David Ebinger	SCDHEC, UST Management Division, 2600 Bull St., Columbia, SC, 29201	803-896-6649	803-896-6245	ebingedj@dhec.sc.gov
Site Rehabilitation Contractor	Jeff L. Coleman	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	jlc@meci.net
Quality Assurance Officer	Courtney M. Sanders	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	cms@meci.net
Field Manager	Brendon P. Kelly	Midlands Environmental Consultants, Inc. 235-B Dooley Road	803-808-2043	803-808-2048	bpk@meci.net

Role from the UST Master QAPP	Person in this Role for Project	Organization/Address	Telephone Number	Fax Number	Email Address
		Lexington, SC 29073			
Analytical Laboratory Director	Michael Woodrum	Shealy Environmental Services, Inc. 106 Vantage Point Dr. West Columbia, SC 29172	803-791-9700	803-791-9111	mwoodrum@shealylab.com
Project Verifier	Courtney M. Sanders or Brendon P. Kelly	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	cms@meci.net

Table 2A Addendum Role Identification and Contact Information

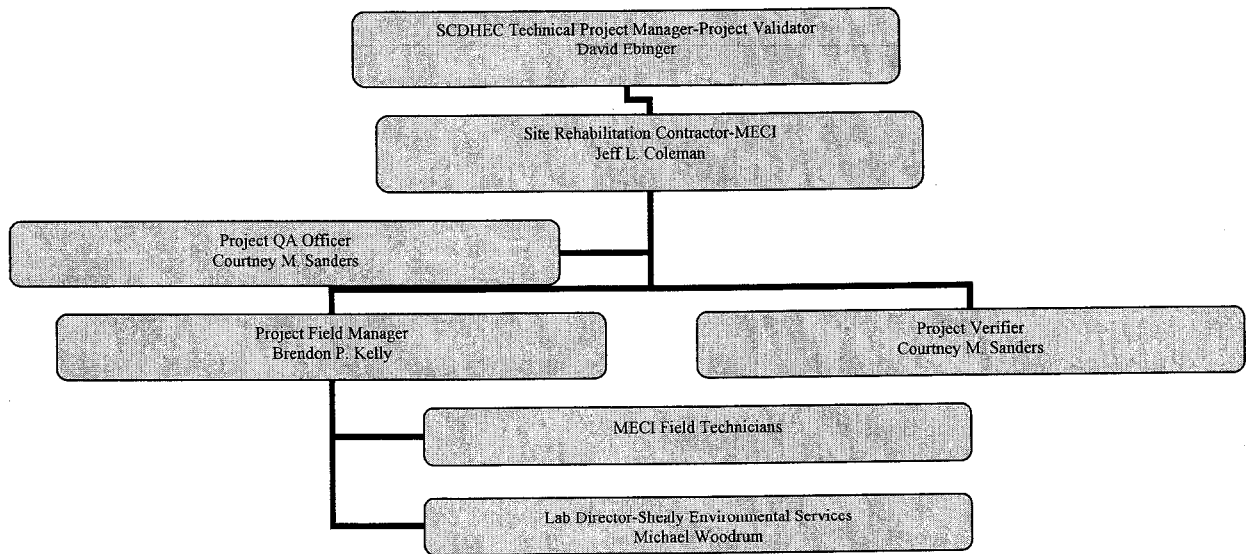


Figure 1A Organizational Chart

Project Manager (David Ebinger) – The project manager is responsible for direct oversight of contractors conducting assessment and site rehabilitation of releases at UST sites.

Site Rehabilitation Contractor (Jeff L. Coleman.) – The Site Rehabilitation Contractor is an independent contractor responsible for managing and coordinating field and office activities needed for assessments or cleanup.

- Final Review of all work produced for a scope of work.
- Final say on technical interpretation of data.

Quality Assurance Officer (Courtney M. Sanders) – The Quality Assurance Officer is responsible for the oversight of all quality assurance activities associated with projects performed by the Site Rehabilitation Contractor.

- In charge of producing and maintaining the QAPPA for MECI.
- Reviews (and Audits, if necessary) all work produced in conjunction with a scope of work.
- Quality control of data entry and report preparation.

Field Manager (Brendon P. Kelly) –The field manager will oversee all work done on any given project.

- Assign, direct and oversee all field personnel working on each project.
- Responsible for coordinating with the SCDHEC project manager, should any problems or clarifications arise.
- Responsible for all reporting done in conjunction with field work.

Analytical Laboratory Director (Michael Woodrum)– The Laboratory Director is directly responsible for the Analytical Laboratory used during a scope of work. The Analytical Laboratory receives the soil and water samples from the site rehabilitation contractor, performs the requested analyses, and provides analytical reports.

Project Verifier (Courtney M. Sanders) – The project verifier is responsible for verifying the quality of data produced during a scope of work. This includes review of field work and laboratory reports for potential quality issues.

Field Technicians (various employees) – Responsible for all field activities for a given scope of work.

- Conduct all initial site visit, and record findings
- Conduct all field activities associated with a scope of work. All work will be conducted according to the MECI SOP. Will be responsible for reporting any potential problems or inconsistencies found during assessment activities.
- Completes the chain of custody upon completion of sampling event and delivers samples to lab or office for later lab pick-up.

A5 Problem Definition/Background

Discuss the background (as much as is known) of the site and appropriate historical information, and why this site is being assessed.

The subject site (Nickelpumper 233) is located at 3296 Point South Drive, Yemassee, Jasper County, South Carolina. The subject site formally maintained one 6,000 gallon gasoline underground storage tank (UST), one 8,000 gallon gasoline UST and one 10,000 gallon gasoline UST. These UST's were reported out of compliance on September 17, 2009. SCDHEC reported and confirmed a release from these UST's in May of 2002. The subject site is currently rated a Class 2BB.

The site is being sampled in conjunction with the SCDHEC Groundwater Sampling Contract (Solicitation # IFB-5400002759, PO# 4600088529).

Please answer the following: Does this project fall under UST or Brownfields area?

Underground Storage Tank Division

A6 Project/Task Description

- 1. Summarize what is known about the work to be done. This can be a short sentence indicating what the Scope of this project is (see Master QAPP Section A6).**

The subject site (Nickelpumper 233) will be sampled in conjunction with the SCDHEC Groundwater Sampling Contract (Solicitation # IFB-5400002759, PO# 4600088529). During assessment activities monitoring wells will be sampled for petroleum constituents.

- 2. The work will begin within fourteen (14) days of receipt of approved QAPP contractors addendum after cost approval and sampling should be complete by twenty-one (21) days of receipt of approved QAPP contractors addendum.**
- 3. Are there are time or resource constraints? Include those factors that may interfere with the tentative schedule.**

Factors that may prevent schedule work will be, but not limited to, inclement weather, equipment malfunction, and machine failure.

A7 Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs)

The subject site is located at 3296 Point South Drive, Yemassee, Jasper County, South Carolina. The site is currently a vacant lot.

A8 Training and Certificates

Required training and licenses:

Title/Job	Name	Training Required	Date training received	Type of License	License Number
Principal Geologist	Bryan T. Shane, P.G.	Professional Geologist	10/30/1993	State of South Carolina	1102
Senior Scientist	Jeff Coleman	OSHA 40 hr HAZWOPER	7/27/2007	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	7/27/2011	N/A	N/A
Project Scientist	Brendon Kelly	OSHA 40 hr HAZWOPER	8/21/2009	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/15/11	N/A	N/A
Staff Geologist	John Bryant	OSHA 40 hr HAZWOPER	4/17/2009	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/14/2010	N/A	N/A
Field	Brian Owen	OSHA 40 hr	8/21/2009	N/A	N/A

Title/Job	Name	Training Required	Date training received	Type of License	License Number
Technician		HAZWOPER			
		OSHA 8 hr HAZWOPER refresher	12/15/11	N/A	N/A
Staff Biologist	Courtney Sanders	OSHA 40 hr HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/15/11	N/A	N/A
Staff Biologist	Kyle Pudney	OSHA 40 hr HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/15/11	N/A	N/A
Staff Biologist	Chris Lashley	OSHA 40 hr HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/15/11	N/A	N/A
Staff Biologist	Gavin Globensky	OSHA 40 hr HAZWOPER	7/29/2011	N/A	N/A
Staff Biologist	Ryan Ariail	OSHA 40 hr HAZWOPER	9/23/2011	N/A	N/A
Lab Manager	Michael Woodrum	***	***	Lab Certification	SC 32010

Table 3A Required Training and Licenses

Brendon P. Kelly of Midlands Environmental Consultants, Inc. is responsible to ensuring that personnel participating in this project receive the proper training. All training records will be stored in the following location: 235-B Dooley Road, Lexington, SC 29073.

It is understood that training records will be produced if requested by SC DHEC.

The Following Laboratory(ies) will be used for this Project:

Commercial Lab(s)

Full Name of the Laboratory Shealy Environmental Services, Inc.

Name of Lab Director Michael Woodrum

SC DHEC Certification Number 32010

Parameters this Lab will analyze for this project:

BTEX, Naph, MTBE, 1,2 DCA, 8-oxygenates (EPA Method 8260-B), EDB (EPA Method 8011).

Please note: SC DHEC may require that the contractor submit some or all of the Laboratory's SOPs as part of this QAPP.

A9 Documents and Records

Personnel will receive the most current version of the QAPP Addendum via:
 (Check all that apply)

US Mail Courier Hand delivered

Other (please specify): E-mailed electronic copies

Record	Produced By	Hardcopy/ Electronic	Storage Location For how long?	Archival
Instrument Raw Data	Target, Thermospec, or Iteva software	Hardcopy and Electronic	Hardcopy: Offsite storage for 7 yrs Electronic: Two external storage device backups – one offsite, one onsite storage for 10 yrs	Yes
Final Reports	LIMS	Electronic	Electronic: Two external storage device backups – one offsite, one onsite storage for 10 years	Yes
Field Work	Field Staff	Hardcopy	MECI office: 235B Dooley Road / Min. 5 years	Yes
Chain of Custody	Field Staff	Hardcopy	MECI office: 235B Dooley Road / Min. 5 years	Yes
QAPP Addendum	Brendon Kelly	Hardcopy & Electronic	MECI office: 235B Dooley Road / Min. 5 years	Yes
Internal QC record	Brendon Kelly	Hardcopy	MECI office: 235B Dooley Road / Min. 5 years	Yes
Sampling Report	Brendon Kelly	Hardcopy & Electronic	MECI office: 235B Dooley Road / Min. 5 years	Yes

Table 4A Record Identification, Storage, and Disposal

Section B Measurement/Data Acquisition

B1 Sampling Process/Experimental Design

Item	Start Date	End Date	Comments
Site Reconnaissance	1/30/12	1/30/12	Already Completed
QAPP preparation	2/6/12	2/6/12	In progress
QAPP approval	2/7/12	2/28/12	Assuming three week turnaround
Monitoring well Sampling	2/29/12	3/14/12	Sampled within 2 weeks of QAPP approval
Report Preparation	3/15/12	4/5/12	Three weeks to prepare/submit report

Item	Start Date	End Date	Comments

Table 5A Sampling Activities

B2 Sampling Methods

Please note: The contractor must follow sampling protocols as given in the UST QAPP.

Estimate the number of samples of each matrix that are expected to be collected:

Soil	_____
Ground Water from monitoring wells	_____ 3 _____
From Drinking/Irrigation water wells	_____
Field Duplicate Collection	_____ 1 _____
Field Blank Collection	_____ 1 _____
Trip Blank	_____ 1 _____
From surface water features	_____
Total number of Water samples	_____ 6 _____

Notes:

During the January 30, 2012 site visit, three (3) monitoring wells were located. Monitoring well MW-4 was not located with the help of a metal detector. If this well is located at the time of the sampling event, it will be sampled accordingly.

Water supply well WSW-1 was not located. MECI personnel spoke with a representative at the Econo Lodge hotel at the address provided, and they did not know of any water supply well, and said they were on county water.

Samples will be analyzed by Shealy Environmental Services, Inc. for BTEX, Napth, MTBE, 1,2 DCA, 8-Oxygenates (8260-B), EDB (8011).

For the sample matrices indicated above, please describe how samples will be collected and the equipment needed.

Please see MECI Monitoring Well Sampling SOP for sampling procedures and type of materials used for sampling

Will Sampling Equipment have to be cleaned and decontaminated or is everything disposable?

All equipment, excluding electronic water level indicators and field probes, is disposable.

If sampling equipment must be cleaned please give a detailed description of how this is done and the disposal of by-products from the cleaning and decontamination.

Please see MECI Monitoring Well Sampling SOP for decontamination procedures.

Identify any equipment and support facilities needed. This may include such things as Fed-ex to ship the samples, a Geoprobe, field analysis done by another contractor (who must be certified), and electricity to run sampling equipment.

All samples will be shipped to the lab via courier or overnight shipping company. Please see MECI Monitoring Well Sampling SOP for sample shipping procedures.

Address the actions to be taken when problems occur in the field, and the person responsible for taking corrective action and how the corrective action will be documented.

Failure	Response	Documentation	Individual Responsible
Water level indicator not working properly	Attempt to clean probe, change battery, use back-up indicator if need be.	Record on field sheets, notify office staff. Take indicator out of rotation until problem identified and corrected.	Field Staff, Field Manager
Field meters not working	Attempt to clean probes, recalibrate in the field.	Record on field sheets, notify office staff. Take meters out of rotation until problem identified and corrected.	Field Staff, Field Manager
Wells not located	Use metal detector, measure from known points, contact project manager for additional information.	Record method used to attempt to locate the well on field sheets, and possibly reasoning for the well to be missing	Field Staff

Table 6A Field Corrective Action

B3 Sample Handling and Custody

1. How will the samples get from the Site to the Lab to ensure holding requirements are met?

Following sample collection, the samples are immediately place in a laboratory provided cooler, pre-filled with wet ice obtained from the MECI office. Samples are transported to the MECI office once a sampling event is complete. A Chain of Custody (CoC) is filled out following the sampling event by the field staff. See attached CoC. If a lab provided courier is scheduled to visit the MECI offices the day following a sampling event, sampling coolers are repacked with wet ice, and left at the office for pick-up the following morning. If no courier is schedule to visit the MECI office the day following a sampling event, all sampling

coolers are repacked with ice and are dropped off at a lab approved shipping company for overnight delivery to the lab.

2. How will the contactors cool the samples and keep the samples cool?

All samples are kept on wet ice, obtained from MECI office.

3. How will the lab determine the temperature of the samples upon receipt? Will they be using a temperature blank?

A calibrated thermometer and temperature blank will be used to document sample temperature. The temperature blank is immediately checked by the sample receiving technician upon arrival at the laboratory.

4. Where will the samples be stored in the Lab once they are received?

All samples are stored in clean refrigeration units monitored and maintained at 4 degrees C + or - 2 degrees. Volatile organic samples are stored separately from all other samples.

5. Describe the chain of custody procedure and attach a copy of each chain of custody that will be used. If a Chain of Custody SOP exists from the Lab and the Contractor is willing to adhere to it, then this may be attached.

A chain of custody (COC) will be filled out for each sampling event at each project site. COC to be signed by MECI and Shealy Environmental technician at time physical transfer of samples occurs to courier. Shealy uses the following COC procedures to protect sample integrity following pickup by their courier: A full time Sample Receiving Technician receives all samples and completes a Sample Receipt Checklist (SRC), which will identify any anomalies, if any exist the Sample Receiving Technician or Project Manager must resolve the deviation internally and/or notify the client to resolve the anomaly

B4 Analytical Methods

1. Identify the SOPs which will be used to analyze the samples, the method which the SOP references and the equipment or instrumentation that is needed:

Parameter	SOP ID*	Method Referenced	Equipment	Comments
BTEX+Naph+MTBE+Oxygentaes	S-VO-002	8260B	GC/MS	
PAH's	S-SV-021	8270D	GC/MS	
EDB	S-SV-012	8011	GC	
Lead,T.	S-IM-022	6010C	ICP	
Ferrous Iron	S-IN-009	SM 3500-FED	Spectrophotometer	
Nitrate	S-IN-042	353.2	Auto-analyzer/Lachate	
Sulfate	S-IN-010	300.0	Ion Chromatograph	
Methane	S-VO-004	RSK-175	GC	
TOC	S-IN-030	Walkley-Black	N/A	

DRO - TPH	S-SV-001	8015C	GC	
pH	MECI SOP 4.3.6	*	YSI 63	
Conductivity	MECI SOP 4.3.6	*	YSI 63	
Dissolved Oxygen	MECI SOP 4.3.6	*	YSI 550A	
Temperature	MECI SOP 4.3.6	*	YSI 550A	

Table 7A Analytical SOPs and Referenced Methods

- This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP. See also Table 8A SOP Abbreviation Key.

Abbreviation	Lab Identification of this SOP	Full Name of the SOP
S-VO-002	S-VO-002	GC/MS VOLATILES ANALYSIS BASED ON EPA METHODS 8260B AND 624 PREPARED BY EPA METHODS 5030B, 5035 AND 3585
S-SV-021	S-SV-021	GC/MS ANALYSIS BASED ON EPA METHOD 8270D PREPARED BY EPA METHODS 3520C, 3550C AND 3580A
S-SV-012	S-SV-012	GC/ECD ANALYSIS OF EDB AND DBCP BASED ON METHOD 8011 & 504.1
S-IM-022	S-IM-022	INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROSCOPY-PECTROMETRIC METHOD for TRACE ELEMENT ANALYSES METHOD 6010C
S-IN-009	S-IN-009	FERROUS IRON (PHENANTHROLINE METHOD) STANDARD METHOD 3500-Fe D
S-IN-042	S-IN-042	NITRATE+NITRITE NITROGEN BY EPA METHOD 353.2, NITRATE NITROGEN BY 353.2 SUBTRACTION, AND NITRITE NITROGEN BY EPA METHOD 353.2
S-IN-010	S-IN-010	INORGANIC ANIONS BY ION CHROMATOGRAPHY EPA METHOD 300.0 and SW-846 9056 and 9056A
S-VO-004	S-VO-004	STANDARD OPERATING PROCEDURE GC ANALYSIS BASED ON METHOD RSKSOP-175
S-IN-030	S-IN-030	TOTAL ORGANIC CARBON (TOC) WALKLEY-BLACK PROCEDURE
S-SV-001	S-SV-001	GC/FID DIESEL RANGE ORGANICS ANALYSIS BASED ON METHOD 8015B and/or 8015C PREPARED BY EPA METHODS 3520C, 3550C and 3580A
MECI SOP 4.3.6	MECI SOP 4.3.6	Sampling Standard operating procedures

Table 8A SOP Abbreviation Key

2. Identify procedures to follow when failures occur, identify the individual responsible for corrective action and appropriate documentation:

Failure	Response	Documented Where?	Individual Responsible
Field meters	Attempt to clean	Record on field sheets, notify	Field Staff, Field Manager

not working	probes, recalibrate in the field.	office staff. Take meters out of rotation until problem identified and corrected.	
COC or Sample Receiving issues	Call Client	Sample Receiving Checklist (SRC)	PM – Kelly Maberry kmaberry@shealylab.com
Analytical errors	Corrective Action Form (CAF)	CAF filled out by PM	Lab Director –Michael Woodrum mwoodrum@shealylab.com
QA/QC Failure	Corrective Action Form (CAF)	CAF filled out by PM	Lab Director –Michael Woodrum mwoodrum@shealylab.com QA/QC Officer – Jami Savje Jsavje@shealylab.com
On time delivery	Corrective Action Form (CAF)	CAF filled out by PM	Lab Director –Michael Woodrum mwoodrum@shealylab.com QA/QC Officer – Jami Savje Jsavje@shealylab.com

Table 9A Corrective Action Procedures

3. Identify sample disposal procedures.

Analysis	Matrix	Schedule for disposal	Method for disposal	Comments
BTEX+Naph+MTBE+Oxygenates	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
PAH's	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
EDB	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	

Lead	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
Ferrous Iron	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
Nitrate,Sulfate	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
Methane	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
All	Water	On-Site	Portable Granulated Activated Carbon (GAC) Unit	All waste water produced from sampling and decontamination activities will be run through a GAC unit

Table 10A Sample Disposal Procedures

4. Provide SOPs for the Kerr Method or the Ferrous Iron Method if these are parameters for this study. This can be attached or written here. If attached please note that it is an attachment and where it is located (if applicable).

B5 Quality Control Requirements:

All QC will follow the requirements laid out in Section B5 of the UST Programmatic QAPP.

B6 Field Instrument and Equipment Testing, Inspection and Maintenance

1. Identify all field and laboratory equipment needing periodic maintenance, the schedule for this, and the person responsible. Note the availability and location of spare parts.

Instrument	Serial Number	Type of Maintenance	Frequency	Parts needed/Location	Person responsible
Volatiles Mass Spec	Shealy SOP S-SV-021 Page 7	Change traps, clean ion source, replace filaments	Periodic	Laboratory	MSV Analyst
Semivolatiles Mass Spec	Shealy SOP S-SV-021 Page 7	Injection port maintenance, ion source maintenance, column replacement	Periodic	Laboratory	MSSV Analyst
ECD GC	Shealy SOP S-SV-012 Page 5	Injection port maintenance, column replacement	Periodic	Laboratory	GC Analyst
Dionex IC	Shealy SOP S-IN-010 Page 6	Replace auto sampler filter, tubing, line filter, sample Line and Waste Line, as needed. Check Reagent levels, flow rate, waste line.	Periodic	Laboratory	IC Analyst
ICP	Shealy SOP S-IM-005 Page 6 & 7	Clean Sample introduction system, auto sampler, torch, Change spray chamber, torch tubing, tubing	Periodic	Laboratory	ICP Analyst
Leeman Mercury Analyzer	Shealy SOP S-IM-006 Page 5	Clean GLS, Change Pump tubing, Nafion Dryer, Lamp	Periodic	Laboratory	Mercury Analyst
Flow Injection Analysis – Lachat 8000	Shealy SOP S-IN-042 Page 5	Replace sample and reagent lines, replace light source, re-wrap heating coil, replace column	Periodic/As Needed	Laboratory	Nitrate Analyst
YSI 63	09C 101302, 10K 101895, 07M 100905	Replace probe tip	Yearly	Order from YSI	B. Kelly
YSI 63	09C 101302, 10K 101895, 07M 100905	Replace batteries	As Needed	In stock at office	Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	General inspection for wear and tear on equipment	Daily	Major fixes will be done out of office	Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	Check buffer solutions for expiration	Weekly	In stock at office	B. Kelly
YSI 550A	04L 2026AK,	Replace membrane	4 to 8	In stock at office	Field Staff

	08B 101407, 04A 0912AI		weeks		
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	Replace batteries	As Needed	In stock at office	Field Staff
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	General inspection for wear and tear on equipment	Daily	Major fixes will be done out of office	Field Staff

Table 11A Instrument and Equipment Maintenance

2. Identify the testing criteria for each lab or field instrument that is used to ensure the equipment is performing properly. Indicate how deficiencies, if found, will be resolved, re-inspections performed, and effectiveness of corrective action determined and documented. Give the person responsible for this

Instrument/Equipment & Serial Number	Type of Inspection	Requirement	Individual Responsible	Resolution of Deficiencies
Volatiles Mass Spec Shealy SOP S-SV-021 Page 7	Daily calibration check	Method Requirements	MSV Analyst	Recalibration or instrument maintenance
Semi-volatiles Mass Spec Shealy SOP S-SV-021 Page 7	Daily calibration check	Method Requirements	MSSV Analyst	Recalibration or instrument maintenance
ECD GC Shealy SOP S-SV-012 Page 5	Daily calibration check	Method Requirements	GC Analyst	Recalibration or instrument maintenance
Dionex IC Shealy SOP S-IN-010 Page 6	Daily calibration check	Method Requirements	IC Analyst	Recalibration or instrument maintenance
ICP Shealy SOP S-IM-005 Page 6 & 7	Daily calibration check	Method Requirements	ICP Analyst	Recalibration or instrument maintenance
Leeman Mercury Analyzer Shealy SOP S-IM-006 Page 5	Daily calibration check	Method Requirements	Mercury Analyst	Recalibration or instrument maintenance
Flow Injection Analysis – Lachat 8000 Shealy SOP S-IN-042 Page 5	Daily and continuing calibration check	See calibration criteria	Nitrate Analyst	Recalibration or instrument maintenance
YSI 63 - 09C 101302, 10K 101895, 07M 100905	Daily calibration check	See calibration criteria	Field Staff	Recalibrate, general maintenance then recalibrate. Ship off for service by manufacturer
YSI 550A - 04L 2026AK, 08B 101407, 04A 0912AI	Daily calibration check	See calibration criteria	Field Staff	Recalibrate, general maintenance then recalibrate. Ship off for service by

				manufacturer

Table 12A Instrument and Equipment Inspection

B7 Instrument Calibration and Frequency

1. Identify equipment, tools, and instruments for field or lab work that should be calibrated and the frequency.
2. Describe how the calibrations should be performed and documented, indicating test criteria and standards or certified equipment.
3. Identify how deficiencies should be resolved and documented. Identify the person responsible for corrective action.

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference*
Volatiles Mass Spec	Minimum of 5 calibration standards for all compounds	When indicated by continuous calibration verification standard	Method Criteria	Detailed in SOP	MSV Analyst	S-VO-002
Semi-volatile Mass Spec	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	MSSV Analyst	S-SV-021
GC ECD	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	GC Analyst	S-SV-012
Dionex IC	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	IC Analyst	S-IN-010
ICP	Minimum of 3 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	ICP Analyst	S-IM-022
Cetac Mercury Analyzer	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	Mercury Analyst	S-IM-006
Lacaht QuickChem 8000	Minimum of 5 calibration standards	Daily or when indicated by calibration verification standard	Method Criteria	Detailed in SOP	Nitrate Analyst	S-IN-042
YSI 63	pH Calibration	Daily	+/- 0.2 pH units	clean/replace probe tip,	Field Staff	4.3.6

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference*
				recalibrate		
YSI 63	Conductivity Calibration	As directed by manufacturer	+/- 10 uS	clean/replace probe tip, recalibrate	Field Staff	4.3.6
YSI 550A	DO calibration	Daily	+/- 0.25 mg/l	clean/replace probe tip, recalibrate	Field Staff	4.3.6
YSI 550A	Temperature Calibration	Daily	+/- 1 °C	clean/replace probe tip, recalibrate	Field Staff	4.3.6
Electronic Water Level Indicator	Checked vs. Standard	Monthly	+/- 0.01 foot per 10 foot length	Replace probe tape	Field Staff	***
Oil/Water Interface probe	Checked vs. Standard	Monthly	+/- 0.01 foot per 10 foot length	Replace probe tape	Field Staff	***

Table 13A Instrument Calibration Criteria and Corrective Action

* This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP. See also Table 8A SOP Abbreviation Key.

B8 Inspection/Acceptance Requirements for Supplies and Consumables

1. Identify critical supplies and consumables for field and laboratory, noting supply source, acceptance criteria, and procedures for tracking, storing and retrieving these materials.
2. Identify the individual(s) responsible for this.

Item	Vendor	Acceptance criteria	Handling/Storage Conditions	Person responsible for inspection and tracking.
Laboratory Chemicals	Fisher, VWR	Certificates of analysis and laboratory testing	Laboratory storage	Receiving and laboratory personnel
Laboratory standards	O2Si, Restek, High Purity, VHG, Supelco	Certificates of analysis and laboratory verifications	Vendor specific storage conditions	Laboratory Analysts
Sample Containers	Daniels Scientific, QEC	Certificates of analysis and laboratory testing	Bottle storage area	Sample receiving personnel
Clear, Disposable polyethylene Bailers	Preferred Pump	Individual sleeves intact, ball valve operational	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
Nylon Rope	Preferred Pump	Covered with plastic	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
Nitrile Gloves	Preferred Pump	Unopened box, no holes	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
40 mL HCL preserved amber vials	Shealy Environmental Services	Custody seal intact	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
250 mL HNO3	Shealy	Custody seal intact	Stored in Vehicle	B. Kelly, Field Staff

preserved metals vials	Environmental Services		Bay, Off of the ground	
Coolers	Shealy Environmental Services	Intact	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
pH Buffer	TRS Environmental, Enviroequipment	Within expiration date	Stored in calibration room	B. Kelly, Field Staff
Conductivity Standard	TRS Environmental, Enviroequipment	Within expiration date	Stored in calibration room	B. Kelly, Field Staff
DO Membranes	YSI, Enviroequipment	Clean, in box	Stored in calibration room	B. Kelly, Field Staff
Batteries	Any Store	Not previously used	Stored in calibration room	B. Kelly, Field Staff

Table 14A List of Consumables and Acceptance Criteria

B9 Data Acquisition Requirements (Non-Direct Measurements)

1. Identify data sources, for example, computer databases or literature files, or models that should be accessed or used.
2. Describe the intended use of this information and the rationale for their selection, i.e., its relevance to project.
3. Indicate the acceptance criteria for these data sources and/or models.

Data Source	Used for	Justification for use in this project	Comments
Historical Data	Site Maps and Well Construction Information	Well Location and Detail	

Table 15A Non-Direct Measurements

4. Identify key resources/support facilities needed.

There are no non-direct measurements in this project

B10 Data Management

1. Describe the data management scheme from field to final use and storage.

Following sample collection and chain of custody production, samples are shipped to the lab. Field work from the field staff is reviewed by the MECI project manager, and converted into digital form. All data entry is subsequently checked to validate the data entry. The original copies of the field work are stored in MECI files for a minimum of 5 years. Digital copies of the work are stored on the MECI server, which is backed

up weekly, and stored for a minimum of 5 years. The digital copy of the field work is presented to SCDHEC with the final report.

2. How does the lab and field staff ensure that no unauthorized changes are made to the chain of custody, sampling notebooks, laboratory notebooks and computer records?

The laboratory maintains comprehensive Quality Control and Training Programs. All sample receipt data, sample log-in, and analytical data is peer reviewed, including review for inappropriate changes. Data management, review procedures and the Quality Systems Program are documented in the laboratory's Quality Manual and Standard Operating Procedures. The Quality Assurance Department oversees adherence to and review of these programs.

All MECI field work is produced using ink-pens. Any attempt to alter field data, after sampling is complete, can be readily identified. MECI keeps a carbon copy of the chain of custody after it is shipped to the lab. This copy is kept with the field work. If any change to the CoC are suspected, this original carbon copy can be used to identify potential changes.

3. How does the lab ensure that there are no errors in samples records including times when sample information is compiled, data calculated and/or transmitted?

Sample data acquisition software is reviewed periodically. The LIMS database is backed up daily and is able to be restored in the event of a system failure. These procedures are documented in laboratory SOP S-AD-003, LIMS. The IT Manager is responsible for these systems and procedures."

4. How will the data be archived once the report is produced? How can it be retrieved? (This applies to both electronic and hard copies).

Laboratory Hardcopy data stored off site is logged, maintained and archived by the Quality Assurance Department. Laboratory Electronic Data Reports are maintained through IT back up under the responsibility of the IT Systems Manager.

MECI keeps all field work and paper copies of reports in its in-house filing system. All paper copies are stored for a minimum of 5 years. Any file can be retrieved easily by going to the correct filing cabinet/box.

All electronic copies of reports generated are kept on the MECI server. This server is backed-up on a weekly basis. Any file stored on the MECI server can be retrieved instantly, by accessing the server. All electronic files are stored for a minimum of 5 years on the server.

Section C Assessment and Oversight

C1 Assessment and Response Actions

1. *The Contractor is supposed to observe field personnel daily during sampling activities to ensure samples are collected and handled properly and report problems to DHEC within 24 hours. .*

Please state who is responsible for doing this and what observations will be made. Will this person have the authority to stop work if severe problems are seen?

Field audits can be conducted on any field personnel at any time. MECI field audits can be conducted by the Field Manger, who will be responsible for ensuring that field personnel adhere to the QAPP. If during a random field audit, severe problems are found, work will be stopped by the field manager and the QA officer contacted to determine corrective action. All problems must be corrected prior to any additional work being performed. Should it be requested, an On-site Field Audit can be scheduled with the SCDHEC project manager. If severe problems are identified by the SCDHEC project manager, the project manager can stop the work until the problems are corrected.

- 2. The SCDHEC UST QAPP states that the Lab will receive an Offsite Technical System Audit. For this project, what assessments will be done on the Commercial Lab(s) that are being used—other than their certification audit? When or how often are these done? Who will the results be given to and who has the ability to stop work if problems are severe?*

The laboratory participates in annual Proficiency Testing through an approved vendor, Wibby Environmental. If during a random audit, severe problems are found, work will be stopped by the according Wibby Environmental representative and the QA officer contacted to determine corrective action. Proficiency Testing results are provided to the Office of Environmental Laboratory Certification.

C2 Reports to Management

See the SC DHEC UST Programmatic QAPP (UST Master QAPP).

Section D Data Validation and Usability

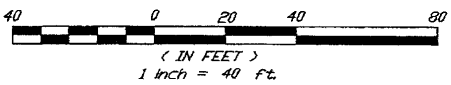
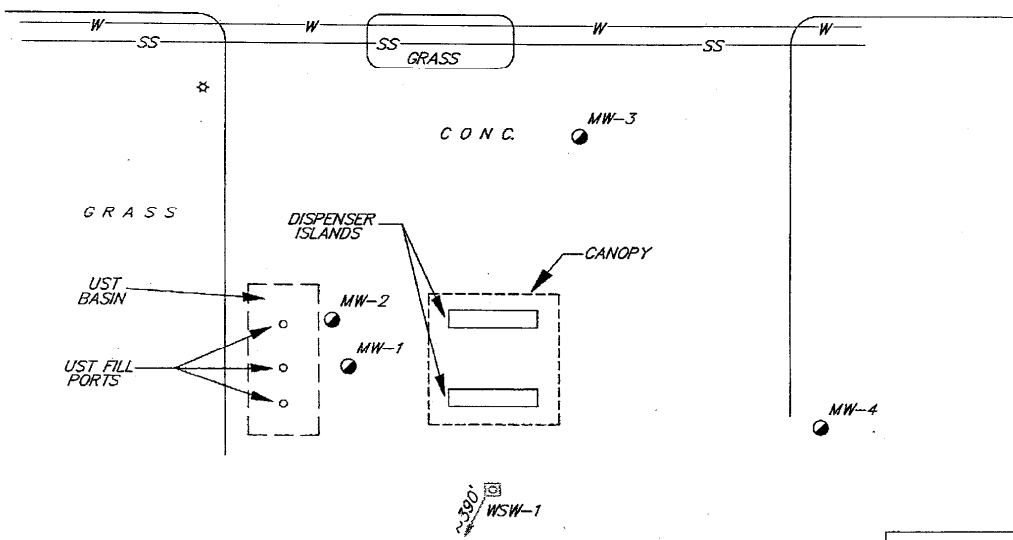
See the SC DHEC UST Programmatic QAPP (UST Master QAPP).

LEGEND

- TYPE III MONITORING WELL
- W— UNDERGROUND WATER LINE
- SS— UNDERGROUND SANITARY SEWER LINE
- * LIGHT POLE



POINT SOUTH DRIVE



SITE MAP	
Nickelpumper #233	3296 Point South Drive
Yemassee, Jasper County, SC	UST Permit #04878
Date: 04/22/09	Drawn by: LHM Figure: 3
GEOLOGICAL RESOURCES, INC.	



Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number 12602

Form with sections for Client, Report to Contact, Sampler, Quote No., Address, Telephone No. / Fax No. / Email, Waybill No., City, State, Zip Code, Project Name, Project Number, P.O Number, Matrix, Sample ID / Description, Date, Time, Analysis, Remarks / Cooler ID, Turn Around Time Required, Sample Disposal, QC Requirements, Possible Hazard Identification, and a table for Relinquished/Received by.



C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

FEB 23 2012



**BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071**

Re: Notice to Proceed-Groundwater Sampling/QAPP Contractor Addendum Approval
Groundwater Sampling Contract
Solicitation # IFB-5400002759, PO#4600088529
NICKELPUMPER 233: 3296 Point South Dr, Yemassee, SC 29945
UST Permit #04878
MECI CA#: 38723 Shealy CA#: 38722
JASPER

Dear Mr. Shane:

In accordance with bid solicitation # IFB-5400002759 and the UST Management Division Quality Assurance Program Plan (QAPP), the Site-Specific Contractor Addendum has been reviewed and approved. In accordance with the QAPP, a weekly status report of the project should be provided via e-mail. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. In addition, a discussion of the problem(s) encountered, including quality assurance problems, the actions taken, and the results must be included in the final report submitted to the UST Management Division.

MECI will perform services at the site on behalf of the site's responsible party (RP); however, payment will be made from the SUPERB Account. The site's RP has no obligation for payment for this scope of work. Please coordinate access to the facility with the property owner. The Department grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included with the final report. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs. **Please note, the final report is due within 3 weeks from the date the site is sampled. If the site is not sampled by the specified due date or the report is not received in the specified time period, a late fee may be imposed.**

The final report should contain the requirements of Section III.2.15 of the bid solicitation. The final report should be submitted to Debra Thoma, the contract manager.

If you have any site-specific questions, please contact me at (803) 896-6649 or via e-mail at ebingedj@dhec.sc.gov. If you have any contract specific questions, please contact Debra Thoma at (803) 896-6397 or via e-mail at thomadl@dhec.sc.gov.

Sincerely,



David J Ebinger, Project Manager
Corrective Action Section
UST Management Division
Bureau of Land & Waste Management

- enc: Approved QAPP Contractor Addendum Signature Page
Approved Cost Agreement
- cc: Debra Thoma, Corrective Action Section, UST Management Division
Kelly Maberry, Shealy Environmental, 106 Vantage Point Dr., West Columbia, SC, 29172 (w/ approved CA)
Technical Files (w/ Finalized & Approved QAPP Signature Page)



South Carolina Department of Health and Environmental Control

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone: 803-896-6240

MEMORANDUM

TO: Midlands Environmental Consultants, Inc

FROM: David J Ebinger

RE: NOTICE TO PROCEED

Facility Name: NICKELPUMPER 233

Permit Number: 04878

County: JASPER

Work To Be Completed: NOTICE TO PROCEED:

Groundwater Sampling: MW-1, 2, 3, 4

Water Supply Sampling: WSW-1

Analytical Parameters: BTEXNM + 1,2-DCA + Oxygenates + EDB

Shealy Environmental 38722

MECI 38723

Section A: Project Management

A1 Title and Approval Page

Quality Assurance Project Plan
Addendum to the SC DHEC UST Programmatic QAPP
For
Nickelpumper 233, SCDHEC Site ID# 04878

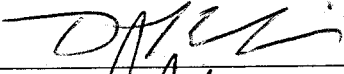
3296 Point South Drive, Yemassee, South Carolina

Prepared by:
Courtney M. Sanders
Staff Biologist
Midlands Environmental Consultants, Inc.
(Certified Site Rehabilitation Contractor UCC-0009)
235-B Dooley Road
Lexington, SC 29073
(803)808-2043

Date: February 6, 2012

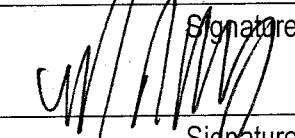
Approvals

David Ebinger
SC DHEC Project Manager



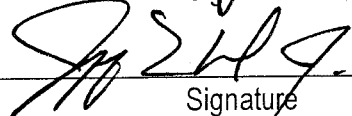
Signature Date 2/21/12

Brendon P. Kelly
Contractor QA Manager



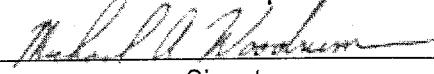
Signature Date 2/6/12

Jeff L. Coleman
Site Rehabilitation Contractor



Signature Date 2/6/12

Michael Woodrum
Laboratory Director



Signature Date 2-6-12

Approved Cost Agreement 38723

Facility: 04878 NICKELPUMPER 233

EBINGEDJ

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
04 MOB/DEMOB		B PERSONNEL	2.0000	100.00	200.00
10 SAMPLE COLLECTION		A GROUND WATER	4.0000	4.50	18.00
		C WATER SUPPLY	1.0000	2.00	2.00
		H FIELD BLANK	1.0000	2.00	2.00
17 DISPOSAL		A WASTEWATER	30.0000	0.10	3.00
18 MISCELLANEOUS		QAPP PREP	1.0000	0.00	0.00
Total Amount					225.00

Approved Cost Agreement 38722

Facility: 04878 NICKELPUMPER 233

EBINGEDJ

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
11 ANALYSES					
	GW GROUNDWATER	A1 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	8.0000	35.00	280.00
		F EDB	8.0000	20.00	160.00
			Total Amount		440.00

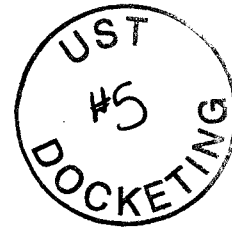


Midlands Environmental Consultants, Inc.

March 12, 2012

Ms. Debra Thoma, Hydrogeologist
Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: Report of Groundwater Sampling
Nickelpumper 233
3296 Point South Drive
Yemassee, South Carolina
SCDHEC Site ID Number 04878; CA # 38723
MECI Project Number 12-3785
Certified Site Rehabilitation Contractor UCC-0009



Dear Ms. Thoma,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Report of Groundwater Sampling for the referenced site. This report describes site activities conducted at the site in general accordance with South Carolina Department of Health and Environmental Control's (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP).

PROJECT INFORMATION

The subject site (Nickelpumper 233) is located at 3296 Point South Drive, Yemassee, Jasper County, South Carolina. The subject site formally maintained one 6,000 gallon gasoline underground storage tank (UST), one 8,000 gallon gasoline UST and one 10,000 gallon gasoline UST. These UST's were reported out of compliance on September 17, 2009. SCDHEC reported and confirmed a release from these UST's in May of 2002. The subject site is currently rated a Class 2BB.

The above information is based on reports and correspondence obtained from MECI field notes and SCDHEC files.

MONITORING WELL SAMPLING AND CHEMICAL ANALYSIS

On February 28, 2012, MECI personnel collected groundwater samples from three (3) monitoring wells at the subject site. Monitoring well MW-4 and water supply well WSW-1 were not located at the time of sampling. MECI personnel utilized an electronic water level indicator for water level measurements and an oil/water interface probe for free phase petroleum product level measurements. Based on a request by SCDHEC personnel, not all of the wells were to be purged prior to sampling.

One (1) monitoring well was purged prior to sampling. Purging was completed by bailing at least three well volumes of water from the well, until pH, conductivity, dissolved oxygen stabilized to within 10%, or all water was evacuated from the well, whichever occurred first. Sampling/purging was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. A new set of nitrile gloves were worn at each monitoring well, and at all time samples were handled. Field measurements of pH, conductivity, dissolved oxygen, water temperature, and turbidity were obtained before well sampling process. MECI utilized YSI550A meter for DO (mg/L) and temperature readings (°C), YSI63 meters for pH and conductivity (uS) readings and a 60 cm turbidity tube for turbidity readings. The attached Field Data Information Sheets presents the results of the field measurements obtained. The wells were sampled in accordance with SCDHEC's Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP, Dated June 2011) and MECI's Standard Operating Procedures (MECI SOP, Dated August, 2011).

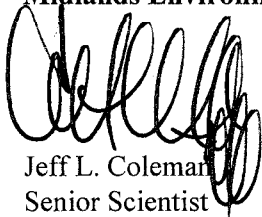
Groundwater samples obtained were sent to Shealy Environmental Services, Inc. of West Columbia, SC (SCDHEC Laboratory Certification #32010) for analysis. The following sampling matrix contains well development and requested analyses for each well:

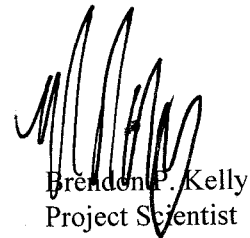
Monitoring Well	Purge	No Purge	Gauge Only	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	Sulfate (EPA Method 375.2)	Nitrate (EPA Method 335.2)	Methane (RSK Method)	PAH's (EPA Method 8270)	Ferrous Iron (Field Test)
	Analyte Sampled													
MW-1		X			X	X	X	X						
MW-2	X				X	X	X	X						
MW-3		X			X	X	X	X						
MW-4				X										
WSW-1				X										
MW-1 Duplicate					X	X	X	X						
Field Blank					X	X	X	X						
Trip Blank					X		X	X						
Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dichloroethane PAH = polycyclic aromatic hydrocarbons Trip Blank provided by Shealy Environmental, temperature obtained upon receipt at Laboratory														

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 2.0 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is attached at the end of this report.

Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
 Midlands Environmental Consultants, Inc.


 Jeff L. Coleman
 Senior Scientist


 Brenden P. Kelly
 Project Scientist

Attachments:

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?			X
3	Is name, address, & phone number of current property owner provided?			X
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			X
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?			X
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?			X
11	Has the site-specific geology and hydrogeology been described?			X
12	Has the primary soil type been described?			X
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			X
18	Has justification been provided for the locations of the monitoring wells?			X
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?			X
20	Has the groundwater sampling methodology been detailed? See MECI SOP	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	X		
22	Has the purging methodology been detailed? See MECI SOP	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? See attached Field Data Information Sheets	X		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	X		
25	Does the report include a brief discussion of the assessment done and the results?			X
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?			X
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)			X
34	Has the current and historical laboratory data been provided in tabular format?			X
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)			X
40	Has the site potentiometric map been provided? (Figure 5)			X
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			X
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? See attached	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			X
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	X		

Site Activity Summary

UST Permit #: 04878
Facility Name: Nickelpumper 233
County: Jasper
Field Personnel: B. Owen


**Midlands
Environmental
Consultants, Inc.**
 235-B Dooley Road, Lexington, SC 29073
 (803) 808-2043 fax: 808-2048

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Initial Dissolved Oxygen (mg/l)	# Gals. Purged	Comments
MW-1	Y	2/28/12	11:40	2.5-12.5	***	3.19	***	4.92	***	Odor
MW-2	Y	2/28/12	11:30	2-12	***	0.60	***	6.41	2.0	No Odor
MW-3	Y	2/28/12	11:51	2-12	***	2.26	***	1.70	***	No Odor
MW-4	N	***	***	2-12	***	***	***	***	***	Not Located utilizing a Metal Detector and Shovel
WSW-1	N	***	***	***	***	***	***	***	***	Water supply well not located / A concrete pad was located in the area of the suspected water supply well
MW-1 Duplicate	Y	2/28/12	11:40	***	***	***	***	***	***	MW-1 Duplicate Sample
Field Blank	Y	2/28/12	12:00	***	***	***	***	***	***	Field Blank
Trip Blank	Y	2/28/12	12:05	***	***	***	***	***	***	Trip Blank
									2.0	TOTAL GALLONS PURGED

**South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program
Field Data Information Sheet for Groundwater Sampling**

Date (mm/dd/yy): 2/28/2012

Field Personnel: B. Owen

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 18.0 °C

Quality Assurance

pH/Conductivity Meter	DO Meter
YSI 63	YSI 550A
09C 101302	04L 2026AK
10K 101895	08B 101895
07M 100905	04A 0912AI
Calibration Buffer: <u>4, 7, & 10</u>	<u>X</u>

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time
-----------------	-----------	-------------	-----------

Facility Name: Nickelpumper 233

Site ID#: 04878 **Monitoring Well #** MW-2

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

*** Free Product Thickness:** _____ feet

Depth to Free Product (DFP) _____ feet

Depth to Ground Water (DGW) 17.05 feet

Total Well Depth (TWD) 18 feet

Length of the water column (LWC=TWD-DGW) 0.95 feet

1 casing volume (CV=LWC X C)= _____ X 0.163 = 0.15 gallons

3 casing volume (3 X CV)= 3 X 0.15 = 0.46 gallons

Total Volume of Water Purged Before Sampling 0.5 gals.

**If free product is present over 1/8 inch, sampling will not be required.*

Cumulative Volume Purged (gallons)	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Time (military)	14:00	15:00	15:10				
pH (s.u.)	6.72	7.02	7.10				
Specific Conductivity (µmhos/cm)	71.7	85.9	90.5				
Water Temperature (°C)	22.3	22.4	22.4				
Dissolved Oxygen	0.20	0.56	0.48				
Turbidity (NTU)	>240	>240	>240				
PID readings, if required							

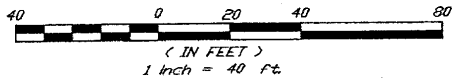
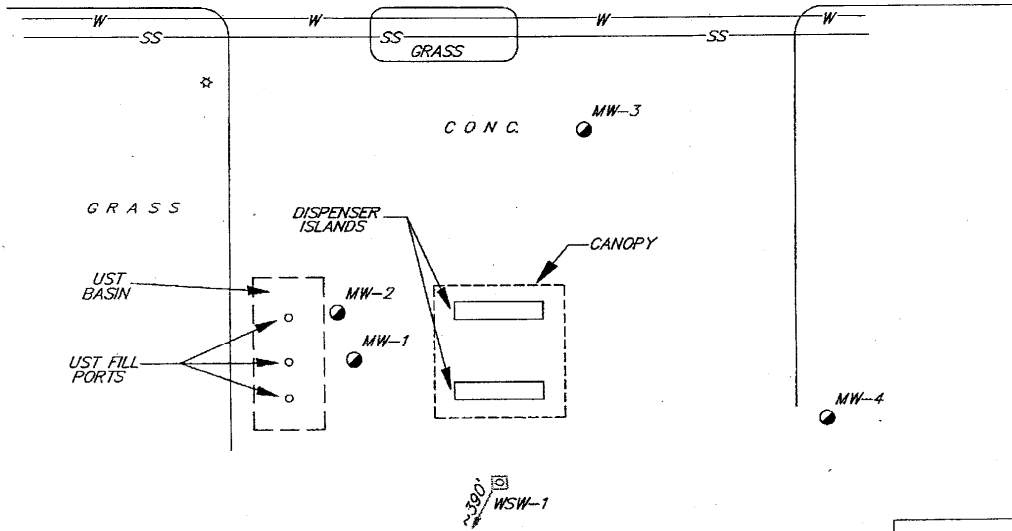
Remarks: _____ Sample Time: 15:10 Parameters within 10%

LEGEND

- TYPE III MONITORING WELL
- W— UNDERGROUND WATER LINE
- SS— UNDERGROUND SANITARY SEWER LINE
- ☆ LIGHT POLE



POINT SOUTH DRIVE



SITE MAP	
Nickelpumper #233	3296 Point South Drive
Yemassee, Jasper County, SC	UST Permit #04878
Date: 04/25/05	Drawn by: LMR
Figure: 3	
GEOLOGICAL RESOURCES, INC.	



Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number 10659

Form containing client information (Client: SCDHEC, Address: 2600 Bull St., City: Columbia, SC, Zip: 29170), report contact (D. Thomas), sampler (Brian Owen), project name (Michele Dupree - 333), project number (0574/SP232), and a detailed analysis table with columns for Matrix (G, GW, DW, WW, S, Other) and Analysis results. Includes a 'Turn Around Time Required' section and a 'Relinquished by' section with dates and times.

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) Yes No Ice Pack Receipt Temp. °C Temp. Blank Y / N



March 12, 2012

Re: Treatment of Purge Water
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 12-3785

To Whom It May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

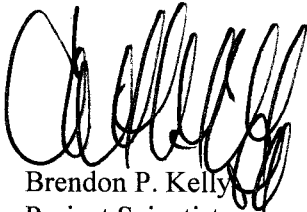
All purge waters were treated on-site using an up-flow treatment drum loaded with 30 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

A total of 2.0 gallons were treated on February 28, 2012 at the referenced site.

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.



Brendon P. Kelly
Project Scientist

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

SC DHEC - UST Management

2600 Bull Street
Columbia, SC 29201
Attention: Debra Thoma

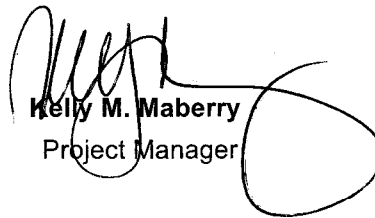


Project Name: **Nickel Pumper 233**

Project Number: **UST Permit #04878/CA #38722**

Lot Number: **NB28052**

Date Completed: **03/07/2012**


Kelly M. Maberry
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.



SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010

NELAC No: E87653

NC DENR No: 329

Case Narrative SC DHEC - UST Management Lot Number: NB28052

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

GC/MS Volatiles

The LCS/LCSD associated with batch 79206 had tert-Amyl methyl ether, tert-Butyl formate, 3,3-dimethyl-1-butanol, ethanol and ethyl-tert-butyl ether recovered above the acceptance limits. This demonstrates a high bias on analytical results. There were no detections for these compounds in the samples associated with this batch; therefore, data quality is not impacted.

The LCS/LCSD associated with batches 79299 and 79390 had ethanol recovered above the acceptance limits. This demonstrates a high bias on analytical results. There were no detections for this compound in the samples associated with these batches; therefore, data quality is not impacted.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary SC DHEC - UST Management Lot Number: NB28052

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-1	Aqueous	02/28/2012 1140	02/28/2012
002	MW-2	Aqueous	02/28/2012 1130	02/28/2012
003	MW-3	Aqueous	02/28/2012 1151	02/28/2012
004	Field Blank	Aqueous	02/28/2012 1200	02/28/2012
005	Trip Blank	Aqueous	02/28/2012 1205	02/28/2012
006	MW-1 Duplicate	Aqueous	02/28/2012 1140	02/28/2012

(6 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary SC DHEC - UST Management Lot Number: NB28052

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-1	Aqueous	Benzene	8260B	2500		ug/L	5
001	MW-1	Aqueous	1,2-Dichloroethane	8260B	69		ug/L	5
001	MW-1	Aqueous	Ethylbenzene	8260B	720		ug/L	5
001	MW-1	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	1300		ug/L	5
001	MW-1	Aqueous	Naphthalene	8260B	190		ug/L	5
001	MW-1	Aqueous	Toluene	8260B	2900		ug/L	5
001	MW-1	Aqueous	Xylenes (total)	8260B	2300		ug/L	5
001	MW-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	7200		ug/L	5
001	MW-1	Aqueous	tert-butyl alcohol (TBA)	8260B	11000		ug/L	5
002	MW-2	Aqueous	Benzene	8260B	550		ug/L	7
002	MW-2	Aqueous	1,2-Dichloroethane	8260B	15	J	ug/L	7
002	MW-2	Aqueous	Ethylbenzene	8260B	700		ug/L	7
002	MW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	190		ug/L	7
002	MW-2	Aqueous	Naphthalene	8260B	250		ug/L	7
002	MW-2	Aqueous	Toluene	8260B	3300		ug/L	7
002	MW-2	Aqueous	Xylenes (total)	8260B	3300		ug/L	7
002	MW-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	280	J	ug/L	7
003	MW-3	Aqueous	Benzene	8260B	0.39	J	ug/L	9
003	MW-3	Aqueous	Ethylbenzene	8260B	3.2	J	ug/L	9
003	MW-3	Aqueous	Naphthalene	8260B	19		ug/L	9
003	MW-3	Aqueous	Xylenes (total)	8260B	2.8	J	ug/L	9
003	MW-3	Aqueous	tert-butyl alcohol (TBA)	8260B	11	J	ug/L	9
006	MW-1 Duplicate	Aqueous	Benzene	8260B	280		ug/L	14
006	MW-1 Duplicate	Aqueous	1,2-Dichloroethane	8260B	8.1		ug/L	14
006	MW-1 Duplicate	Aqueous	Ethylbenzene	8260B	83		ug/L	14
006	MW-1 Duplicate	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	140		ug/L	14
006	MW-1 Duplicate	Aqueous	Naphthalene	8260B	22		ug/L	14
006	MW-1 Duplicate	Aqueous	Toluene	8260B	330		ug/L	14
006	MW-1 Duplicate	Aqueous	Xylenes (total)	8260B	290		ug/L	14
006	MW-1 Duplicate	Aqueous	tert-Amyl alcohol (TAA)	8260B	1200		ug/L	14
006	MW-1 Duplicate	Aqueous	tert-butyl alcohol (TBA)	8260B	1200		ug/L	14

(31 detections)

Description: MW-1

Matrix: Aqueous

Date Sampled: 02/28/2012 1140

Date Received: 02/28/2012

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	03/02/2012 1437	AAC		79206
2	5030B	8260B	10	03/04/2012 1636	JJG		79299

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	2500		50	2.0	ug/L	2
1,2-Dichloroethane	107-06-2	8260B	69		25	1.5	ug/L	1
Ethylbenzene	100-41-4	8260B	720		25	8.5	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	1300		25	2.0	ug/L	1
Naphthalene	91-20-3	8260B	190		25	8.5	ug/L	1
Toluene	108-88-3	8260B	2900		50	17	ug/L	2
Xylenes (total)	1330-20-7	8260B	2300		25	8.5	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	70-130		92	70-130
Bromofluorobenzene		97	70-130		98	70-130
Toluene-d8		99	70-130		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	03/02/2012 1437	AAC		79206
2	5030B	8260B	1	03/05/2012 2218	JJG		79390
3	5030B	8260B	20	03/07/2012 1646	AAC		79561

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		50	2.0	ug/L	1
Ethanol	64-17-5	8260B	ND		5000	170	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		500	5.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		500	1.0	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	7200		100	6.7	ug/L	2
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	11000		2000	130	ug/L	3
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
Bromofluorobenzene		97	70-130		100	70-130		99	70-130
1,2-Dichloroethane-d4		91	70-130		90	70-130		100	70-130
Toluene-d8		99	70-130		99	70-130		97	70-130

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Description: MW-1

Matrix: Aqueous

Date Sampled: 02/28/2012 1140

Date Received: 02/28/2012

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	8011	8011	1	03/06/2012 0612	PMS	03/02/2012 1728	79247			
Parameter		CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run	
1,2-Dibromoethane (EDB)		106-93-4	8011	ND		0.020	0.020	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits							
1,1,1,2-Tetrachloroethane		107	57-137							

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Description: MW-2

Matrix: Aqueous

Date Sampled: 02/28/2012 1130

Date Received: 02/28/2012

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	10	03/02/2012 1459	AAC		79206

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	550		50	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	15	J	50	3.0	ug/L	1
Ethylbenzene	100-41-4	8260B	700		50	17	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	190		50	4.0	ug/L	1
Naphthalene	91-20-3	8260B	250		50	17	ug/L	1
Toluene	108-88-3	8260B	3300		50	17	ug/L	1
Xylenes (total)	1330-20-7	8260B	3300		50	17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	70-130
Bromofluorobenzene		96	70-130
Toluene-d8		95	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	10	03/02/2012 1459	AAC		79206
2	5030B	8260B	10	03/05/2012 1143	AAC		79325

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		100	4.0	ug/L	1
Ethanol	64-17-5	8260B	ND		10000	330	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		1000	10	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1000	2.0	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	280	J	1000	67	ug/L	2
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		100	2.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		1000	67	ug/L	2
tert-Butyl formate (TBF)	762-75-4	8260B	ND		1000	10	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		96	70-130		97	70-130
1,2-Dichloroethane-d4		89	70-130		96	70-130
Toluene-d8		95	70-130		99	70-130

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Description: MW-2

Matrix: Aqueous

Date Sampled: 02/28/2012 1130

Date Received: 02/28/2012

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	8011	8011	1	03/06/2012 0716	PMS	03/02/2012 1728	79247			
Parameter		CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run	
1,2-Dibromoethane (EDB)		106-93-4	8011	ND		0.020	0.020	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits							
1,1,1,2-Tetrachloroethane		98	57-137							

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Description: MW-3

Matrix: Aqueous

Date Sampled: 02/28/2012 1151

Date Received: 02/28/2012

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	1	03/05/2012 2154	JJG		79390

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	0.39	J	5.0	0.20	ug/L	2
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	2
Ethylbenzene	100-41-4	8260B	3.2	J	5.0	1.7	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	2
Naphthalene	91-20-3	8260B	19		5.0	1.7	ug/L	2
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	2
Xylenes (total)	1330-20-7	8260B	2.8	J	5.0	1.7	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		101	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	1	03/05/2012 2154	JJG		79390

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	2
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	2
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	2
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	2
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	2
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	2
tert-butyl alcohol (TBA)	75-65-0	8260B	11	J	100	6.7	ug/L	2
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		101	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	03/06/2012 0737	PMS	03/02/2012 1728	79247

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
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PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Description: MW-3

Matrix: Aqueous

Date Sampled: 02/28/2012 1151

Date Received: 02/28/2012

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	03/06/2012 0737	PMS	03/02/2012 1728	79247		
Parameter		CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)		106-93-4	8011	ND		0.020	0.020	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,1,1,2-Tetrachloroethane		108	57-137						

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Description: Field Blank

Matrix: Aqueous

Date Sampled: 02/28/2012 1200

Date Received: 02/28/2012

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	03/04/2012 1533	JJG		79299		
Parameter		CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene		71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene		91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	1.7	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		97	70-130						
Bromofluorobenzene		99	70-130						
Toluene-d8		99	70-130						

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	03/04/2012 1533	JJG		79299		
Parameter		CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)		108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol		64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		100	1.0	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
Bromofluorobenzene		99	70-130						
1,2-Dichloroethane-d4		97	70-130						
Toluene-d8		99	70-130						

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	03/06/2012 0759	PMS	03/02/2012 1728	79247		
Parameter		CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
<p>PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)</p>									

Description: Field Blank

Matrix: Aqueous

Date Sampled: 02/28/2012 1200

Date Received: 02/28/2012

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	8011	8011	1	03/06/2012 0759	PMS	03/02/2012 1728	79247			
Parameter	CAS Number		Analytical Method	Result	Q	PQL	MDL	Units	Run	
1,2-Dibromoethane (EDB)	106-93-4		8011	ND		0.020	0.020	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits							
1,1,1,2-Tetrachloroethane		99	57-137							

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Description: Trip Blank

Matrix: Aqueous

Date Sampled: 02/28/2012 1205

Date Received: 02/28/2012

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/04/2012 1554	JJG		79299

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		97	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/04/2012 1554	JJG		79299

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		93	70-130
Toluene-d8		97	70-130

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Description: MW-1 Duplicate

Matrix: Aqueous

Date Sampled: 02/28/2012 1140

Date Received: 02/28/2012

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/04/2012 1615	JJG		79299

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	280		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	8.1		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	83		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	140		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	22		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	330		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	290		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		92	70-130
Bromofluorobenzene		97	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	03/04/2012 1615	JJG		79299

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	1200		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	1200		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		92	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	03/06/2012 0820	PMS	03/02/2012 1728	79247

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
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PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Client: SC DHEC - UST Management

Laboratory ID: NB28052-006

Description: MW-1 Duplicate

Matrix: Aqueous

Date Sampled: 02/28/2012 1140

Date Received: 02/28/2012

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	03/06/2012 0820	PMS	03/02/2012 1728	79247

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		123	57-137

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79206-001

Matrix: Aqueous

Batch: 79206

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	03/02/2012 1055
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	03/02/2012 1055
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	03/02/2012 1055
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	03/02/2012 1055
Ethanol	ND		1	1000	33	ug/L	03/02/2012 1055
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	03/02/2012 1055

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		88	70-130
Toluene-d8		97	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79206-002

Matrix: Aqueous

Batch: 79206

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl methyl ether (TAME)	50	77	N	1	155	70-130	03/02/2012 0931
tert-Butyl formate (TBF)	250	520	N	1	208	70-130	03/02/2012 0931
Diisopropyl ether (IPE)	50	51		1	102	70-130	03/02/2012 0931
3,3-Dimethyl-1-butanol	1000	2000	N	1	197	70-130	03/02/2012 0931
Ethanol	5000	18000	N	1	366	70-130	03/02/2012 0931
Ethyl-tert-butyl ether (ETBE)	50	110	N	1	221	70-130	03/02/2012 0931

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		90	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79206-003

Matrix: Aqueous

Batch: 79206

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl methyl ether (TAME)	50	76	N	1	152	1.8	70-130	20	03/02/2012 0952
tert-Butyl formate (TBF)	250	500	N	1	202	3.1	70-130	20	03/02/2012 0952
Diisopropyl ether (IPE)	50	50		1	101	1.1	70-130	20	03/02/2012 0952
3,3-Dimethyl-1-butanol	1000	1900	N	1	190	3.4	70-130	20	03/02/2012 0952
Ethanol	5000	18000	N	1	366	0.088	70-130	20	03/02/2012 0952
Ethyl-tert-butyl ether (ETBE)	50	110	N	1	217	1.6	70-130	20	03/02/2012 0952
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		96	70-130						
1,2-Dichloroethane-d4		87	70-130						
Toluene-d8		99	70-130						

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79206-001

Matrix: Aqueous

Batch: 79206

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	0.20	ug/L	03/02/2012 1055
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	03/02/2012 1055
Ethylbenzene	ND		1	5.0	1.7	ug/L	03/02/2012 1055
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	03/02/2012 1055
Naphthalene	ND		1	5.0	1.7	ug/L	03/02/2012 1055
Toluene	ND		1	5.0	1.7	ug/L	03/02/2012 1055
Xylenes (total)	ND		1	5.0	1.7	ug/L	03/02/2012 1055
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		97	70-130				
1,2-Dichloroethane-d4		88	70-130				
Toluene-d8		97	70-130				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79206-002

Matrix: Aqueous

Batch: 79206

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	49		1	98	70-130	03/02/2012 0931
1,2-Dichloroethane	50	45		1	89	70-130	03/02/2012 0931
Ethylbenzene	50	52		1	105	70-130	03/02/2012 0931
Methyl tertiary butyl ether (MTBE)	50	51		1	102	70-130	03/02/2012 0931
Naphthalene	50	44		1	89	70-130	03/02/2012 0931
Toluene	50	50		1	101	70-130	03/02/2012 0931
Xylenes (total)	100	110		1	107	70-130	03/02/2012 0931
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		99	70-130				
1,2-Dichloroethane-d4		90	70-130				
Toluene-d8		102	70-130				

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79206-003

Matrix: Aqueous

Batch: 79206

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	49		1	98	0.65	70-130	20	03/02/2012 0952
1,2-Dichloroethane	50	44		1	87	2.2	70-130	20	03/02/2012 0952
Ethylbenzene	50	52		1	104	0.30	70-130	20	03/02/2012 0952
Methyl tertiary butyl ether (MTBE)	50	50		1	99	2.4	70-130	20	03/02/2012 0952
Naphthalene	50	42		1	85	4.5	70-130	20	03/02/2012 0952
Toluene	50	49		1	99	1.8	70-130	20	03/02/2012 0952
Xylenes (total)	100	110		1	106	0.78	70-130	20	03/02/2012 0952
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		96	70-130						
1,2-Dichloroethane-d4		87	70-130						
Toluene-d8		99	70-130						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Page: 19 of 30
Level 1 Report v2.1

Volatile Organic Compounds by GC/MS - Duplicate

Sample ID: NB28052-001DU

Matrix: Aqueous

Batch: 79206

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Sample Amount (ug/L)	Result (ug/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
Benzene	2500	2200		5	6.0	20	03/02/2012 2016
1,2-Dichloroethane	69	64		5	7.4	20	03/02/2012 2016
Ethylbenzene	720	650		5	9.6	20	03/02/2012 2016
Methyl tertiary butyl ether (MTBE)	1300	1200		5	11	20	03/02/2012 2016
Naphthalene	190	170		5	11	20	03/02/2012 2016
Toluene	2900	2500		5	5.7	20	03/02/2012 2016
Xylenes (total)	2300	2200		5	5.9	20	03/02/2012 2016
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene	98		70-130				
1,2-Dichloroethane-d4	88		70-130				
Toluene-d8	98		70-130				

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79299-001

Matrix: Aqueous

Batch: 79299

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	03/04/2012 1433
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	03/04/2012 1433
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	03/04/2012 1433
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	03/04/2012 1433
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	03/04/2012 1433
Ethanol	ND		1	1000	33	ug/L	03/04/2012 1433
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	03/04/2012 1433
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	03/04/2012 1433
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene	98		70-130				
1,2-Dichloroethane-d4	94		70-130				
Toluene-d8	97		70-130				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79299-002

Matrix: Aqueous

Batch: 79299

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	870		1	87	70-130	03/04/2012 1309
tert-Amyl methyl ether (TAME)	50	35		1	71	70-130	03/04/2012 1309
tert-Butyl formate (TBF)	250	230		1	94	70-130	03/04/2012 1309
Diisopropyl ether (IPE)	50	44		1	89	70-130	03/04/2012 1309
3,3-Dimethyl-1-butanol	1000	870		1	87	70-130	03/04/2012 1309
Ethanol	5000	9700	N	1	195	70-130	03/04/2012 1309
Ethyl-tert-butyl ether (ETBE)	50	50		1	99	70-130	03/04/2012 1309
tert-butyl alcohol (TBA)	1000	1000		1	102	70-130	03/04/2012 1309

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		93	70-130
Toluene-d8		100	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79299-003

Matrix: Aqueous

Batch: 79299

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	820		1	82	6.2	70-130	20	03/04/2012 1330
tert-Amyl methyl ether (TAME)	50	35		1	70	1.5	70-130	20	03/04/2012 1330
tert-Butyl formate (TBF)	250	230		1	92	2.2	70-130	20	03/04/2012 1330
Diisopropyl ether (IPE)	50	44		1	88	0.30	70-130	20	03/04/2012 1330
3,3-Dimethyl-1-butanol	1000	830		1	83	5.2	70-130	20	03/04/2012 1330
Ethanol	5000	9000	N	1	180	7.7	70-130	20	03/04/2012 1330
Ethyl-tert-butyl ether (ETBE)	50	49		1	98	1.4	70-130	20	03/04/2012 1330
tert-butyl alcohol (TBA)	1000	970		1	97	5.2	70-130	20	03/04/2012 1330

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		95	70-130
Toluene-d8		98	70-130

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79299-001

Matrix: Aqueous

Batch: 79299

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	0.20	ug/L	03/04/2012 1433
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	03/04/2012 1433
Ethylbenzene	ND		1	5.0	1.7	ug/L	03/04/2012 1433
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	03/04/2012 1433
Naphthalene	ND		1	5.0	1.7	ug/L	03/04/2012 1433
Toluene	ND		1	5.0	1.7	ug/L	03/04/2012 1433
Xylenes (total)	ND		1	5.0	1.7	ug/L	03/04/2012 1433
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		98	70-130				
1,2-Dichloroethane-d4		94	70-130				
Toluene-d8		97	70-130				

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79299-002

Matrix: Aqueous

Batch: 79299

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	45		1	90	70-130	03/04/2012 1309
1,2-Dichloroethane	50	41		1	82	70-130	03/04/2012 1309
Ethylbenzene	50	49		1	98	70-130	03/04/2012 1309
Methyl tertiary butyl ether (MTBE)	50	43		1	85	70-130	03/04/2012 1309
Naphthalene	50	41		1	83	70-130	03/04/2012 1309
Toluene	50	45		1	91	70-130	03/04/2012 1309
Xylenes (total)	100	100		1	100	70-130	03/04/2012 1309
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		99	70-130				
1,2-Dichloroethane-d4		93	70-130				
Toluene-d8		100	70-130				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79299-003

Batch: 79299

Matrix: Aqueous

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	44		1	88	1.4	70-130	20	03/04/2012 1330
1,2-Dichloroethane	50	41		1	82	0.23	70-130	20	03/04/2012 1330
Ethylbenzene	50	49		1	97	0.58	70-130	20	03/04/2012 1330
Methyl tertiary butyl ether (MTBE)	50	42		1	84	1.0	70-130	20	03/04/2012 1330
Naphthalene	50	40		1	80	2.7	70-130	20	03/04/2012 1330
Toluene	50	45		1	90	1.2	70-130	20	03/04/2012 1330
Xylenes (total)	100	99		1	99	0.82	70-130	20	03/04/2012 1330
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		98	70-130						
1,2-Dichloroethane-d4		95	70-130						
Toluene-d8		98	70-130						

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79325-001

Batch: 79325

Matrix: Aqueous

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	03/05/2012 0849
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	03/05/2012 0849
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		98	70-130				
1,2-Dichloroethane-d4		92	70-130				
Toluene-d8		96	70-130				

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79325-002

Batch: 79325

Matrix: Aqueous

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	930		1	93	70-130	03/05/2012 0723
tert-butyl alcohol (TBA)	1000	710		1	71	70-130	03/05/2012 0723

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79325-002

Matrix: Aqueous

Batch: 79325

Prep Method: 5030B

Analytical Method: 8260B

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		92	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79325-003

Matrix: Aqueous

Batch: 79325

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	810		1	81	14	70-130	20	03/05/2012 0744
tert-butyl alcohol (TBA)	1000	720		1	72	1.3	70-130	20	03/05/2012 0744

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		91	70-130
Toluene-d8		102	70-130

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79390-001

Matrix: Aqueous

Batch: 79390

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	03/05/2012 2055
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	03/05/2012 2055
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	03/05/2012 2055
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	03/05/2012 2055
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	03/05/2012 2055
Ethanol	ND		1	1000	33	ug/L	03/05/2012 2055
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	03/05/2012 2055
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	03/05/2012 2055

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79390-001

Matrix: Aqueous

Batch: 79390

Prep Method: 5030B

Analytical Method: 8260B

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		95	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79390-002

Matrix: Aqueous

Batch: 79390

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	820		1	82	70-130	03/05/2012 1931
tert-Amyl methyl ether (TAME)	50	36		1	71	70-130	03/05/2012 1931
tert-Butyl formate (TBF)	250	230		1	90	70-130	03/05/2012 1931
Diisopropyl ether (IPE)	50	45		1	89	70-130	03/05/2012 1931
3,3-Dimethyl-1-butanol	1000	840		1	84	70-130	03/05/2012 1931
Ethanol	5000	7700	N	1	155	70-130	03/05/2012 1931
Ethyl-tert-butyl ether (ETBE)	50	49		1	99	70-130	03/05/2012 1931
tert-butyl alcohol (TBA)	1000	940		1	94	70-130	03/05/2012 1931

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		99	70-130
Toluene-d8		101	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79390-003

Matrix: Aqueous

Batch: 79390

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	790		1	79	3.8	70-130	20	03/05/2012 1952
tert-Amyl methyl ether (TAME)	50	35		1	70	1.2	70-130	20	03/05/2012 1952
tert-Butyl formate (TBF)	250	220		1	89	1.7	70-130	20	03/05/2012 1952
Diisopropyl ether (IPE)	50	44		1	87	1.7	70-130	20	03/05/2012 1952
3,3-Dimethyl-1-butanol	1000	810		1	81	3.2	70-130	20	03/05/2012 1952
Ethanol	5000	7500	N	1	151	2.5	70-130	20	03/05/2012 1952

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79390-003

Matrix: Aqueous

Batch: 79390

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Ethyl-tert-butyl ether (ETBE)	50	48		1	97	1.7	70-130	20	03/05/2012 1952
tert-butyl alcohol (TBA)	1000	900		1	90	3.8	70-130	20	03/05/2012 1952
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		99	70-130						
1,2-Dichloroethane-d4		96	70-130						
Toluene-d8		100	70-130						

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79390-001

Matrix: Aqueous

Batch: 79390

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	0.20	ug/L	03/05/2012 2055
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	03/05/2012 2055
Ethylbenzene	ND		1	5.0	1.7	ug/L	03/05/2012 2055
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	03/05/2012 2055
Naphthalene	ND		1	5.0	1.7	ug/L	03/05/2012 2055
Toluene	ND		1	5.0	1.7	ug/L	03/05/2012 2055
Xylenes (total)	ND		1	5.0	1.7	ug/L	03/05/2012 2055
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		99	70-130				
1,2-Dichloroethane-d4		95	70-130				
Toluene-d8		98	70-130				

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79390-002

Matrix: Aqueous

Batch: 79390

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	45		1	90	70-130	03/05/2012 1931
1,2-Dichloroethane	50	42		1	83	70-130	03/05/2012 1931

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79390-002

Matrix: Aqueous

Batch: 79390

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Ethylbenzene	50	50		1	100	70-130	03/05/2012 1931
Methyl tertiary butyl ether (MTBE)	50	43		1	85	70-130	03/05/2012 1931
Naphthalene	50	41		1	83	70-130	03/05/2012 1931
Toluene	50	46		1	92	70-130	03/05/2012 1931
Xylenes (total)	100	100		1	101	70-130	03/05/2012 1931
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		100	70-130				
1,2-Dichloroethane-d4		99	70-130				
Toluene-d8		101	70-130				

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79390-003

Matrix: Aqueous

Batch: 79390

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	44		1	88	2.4	70-130	20	03/05/2012 1952
1,2-Dichloroethane	50	41		1	82	0.99	70-130	20	03/05/2012 1952
Ethylbenzene	50	49		1	98	1.9	70-130	20	03/05/2012 1952
Methyl tertiary butyl ether (MTBE)	50	42		1	83	2.5	70-130	20	03/05/2012 1952
Naphthalene	50	41		1	83	0.048	70-130	20	03/05/2012 1952
Toluene	50	45		1	90	2.0	70-130	20	03/05/2012 1952
Xylenes (total)	100	98		1	98	3.1	70-130	20	03/05/2012 1952
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		99	70-130						
1,2-Dichloroethane-d4		96	70-130						
Toluene-d8		100	70-130						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79561-001

Matrix: Aqueous

Batch: 79561

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	03/07/2012 1041
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		102	70-130				
1,2-Dichloroethane-d4		99	70-130				
Toluene-d8		98	70-130				

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79561-002

Matrix: Aqueous

Batch: 79561

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-butyl alcohol (TBA)	1000	1100		1	115	70-130	03/07/2012 0913
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		95	70-130				
1,2-Dichloroethane-d4		95	70-130				
Toluene-d8		98	70-130				

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79561-003

Matrix: Aqueous

Batch: 79561

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-butyl alcohol (TBA)	1000	1000		1	101	13	70-130	20	03/07/2012 0935
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		96	70-130						
1,2-Dichloroethane-d4		89	70-130						
Toluene-d8		99	70-130						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MB

Sample ID: NQ79247-001

Matrix: Aqueous

Batch: 79247

Prep Method: 8011

Analytical Method: 8011

Prep Date: 03/02/2012 1728

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	03/06/2012 0529
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		102	57-137				

EDB & DBCP by Microextraction - LCS

Sample ID: NQ79247-002

Matrix: Aqueous

Batch: 79247

Prep Method: 8011

Analytical Method: 8011

Prep Date: 03/02/2012 1728

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.27		1	106	60-140	03/06/2012 0550
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		100	57-137				

EDB & DBCP by Microextraction - MS

Sample ID: NB28052-001MS

Matrix: Aqueous

Batch: 79247

Prep Method: 8011

Analytical Method: 8011

Prep Date: 03/02/2012 1728

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	ND	0.25	0.29		1	118	60-140	03/06/2012 0633
Surrogate	Q	% Rec	Acceptance Limit					
1,1,1,2-Tetrachloroethane		109	57-137					

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MSD

Sample ID: NB28052-001MD

Matrix: Aqueous

Batch: 79247

Prep Method: 8011

Analytical Method: 8011

Prep Date: 03/02/2012 1728

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,2-Dibromoethane (EDB)	ND	0.25	0.31		1	123	5.1	60-140	20	03/06/2012 0654
Surrogate	Q	% Rec	Acceptance Limit							
1,1,1,2-Tetrachloroethane		116	57-137							

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results



Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number 10659

Client: SCDHEC, Report to Contact: D. THOMA, Sampler: BRIAN OWEN, Quote No.
Address: 2100 Bull St., Telephone No. / Fax No. / Email, Waybill No., Page 1 of 1
City: Columbia, State: SC, Zip Code: 29170, Preservative: 1. Unpres., 4. HNO3, 7. NaOH, 2. NaOH/ZnA, 5. HCL, 3. H2SO4, 6. Na Thio.
Project Name: Nickel Pumper 233, Project Number: 04878/38722, P.O Number, Matrix: G, Analysis: Bk, Naph, MHL, 12 DCN, 8-05, EDB
Sample ID / Description: MN-1, MW-2, MW-3, MW-4, WSW-1, FIELD BLANK, TRIP BLANK, MN-1 DUPLICATE
Date, Time, G-Grab, C-Composite, GW, DW, WW, S, Other, Analysis, Bk, Naph, MHL, 12 DCN, 8-05, EDB, Remarks / Cooler ID: ODOR, No ODOR, No ODOR, NL, NL, —, —, ODOR
Turn Around Time Required (Prior lab approval required for expedited TAT)
Sample Disposal: Return to Client, Disposal by Lab
QC Requirements (Specify)
Possible Hazard Identification: Non-Hazard, Flammable, Skin Irritant, Poison, Unknown
1. Relinquished by: [Signature], Date: 2-28-12, Time: 1548, Received by: [Signature], Date: 2-28-12, Time: 1548
2. Relinquished by, Date, Time, Received by, Date, Time
3. Relinquished by, Date, Time, Received by, Date, Time
4. Relinquished by: [Signature], Date: 2-28-12, Time: 1615, Laboratory Received by: [Signature], Date: 2-28-12, Time: 1615
Note: All samples are retained for six weeks from receipt unless other arrangements are made.
LAB USE ONLY
Received on Ice (Check) Yes No Ice Pack Receipt Temp. 1.0 °C Temp. Blank Y / N

Sample Receipt Checklist (SRC)

Client: SC DHEC

Cooler Inspected by/date: Leah / 2/28/12 Lot #: NB 280 52

Means of receipt: <input checked="" type="checkbox"/> SESI <input type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	1. Were custody seals present on the cooler?	
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?	
Cooler ID/temperature upon receipt <u>1.0</u> °C / °C / °C / °C			
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____ (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		5. Were proper custody procedures (relinquished/received) followed?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	5a Were samples relinquished by client to commercial courier?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		8. Were tests to be performed listed on the COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		12. Was adequate sample volume available?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		13. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	16. Were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) _____			
Sample(s) _____ were received with bubbles >6 mm in diameter.			
Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.			

Corrective Action taken, if necessary:

Was client notified: Yes No Did client respond: Yes No

SESI employee: _____ Date of response: _____

Comments: _____

Verification, Validation and Usability Report (VVUR)

UST Permit #: 04878

Docket: 5

Date: March 14, 2012

Facility Name: NICKELPUMPER 233

Report Received: March 12, 2012

Signature: *DM*

Cost Agreement: 38723

UST Project Manager: David Ebinger

Project Objective: plume delineation

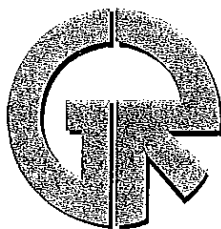
Scope of Work: Groundwater Sampling: MW-1, 2, 3, 4
 Water Supply Sampling: WSW-1
 Analytical Parameters: BTEXNM + 1,2-DCA + Oxygenates + EDB

	Item	Comments	Impact on Usability	Corrective Action
Completeness	<p>Data Deliverables and QAPP Ensure that all required information on sampling and analysis was provided (including planning documents). Note both Present / Missing items SRC = Sample Receipt Checklist COC = Chain of Custody LCN = Lab Case Narrative (or similar report containing qualifications)</p>	<p>Present: Report, Contractor Checklist, Field Data (tabular form), Purge Notes, Site Map, COC(copy), Disposal Manifest (onsite treatment) Laboratory Report: LCN, Sample Summary, Executive Summary, Analytical Data, QC Summary, COC, SRC</p> <p>Missing: none</p>	--	
	<p>Meteorological Data and Site Conditions Evaluate the possible effects of meteorological (e.g., wind, rain, temperature) and site conditions on sample results. Review field reports to identify whether any unusual conditions were present and how the sampling plan was executed.</p>	<p>Ambient temperature: 18 deg C (from purge sheet) No other conditions provided</p>	--	
	<p>Verification Report (Contractor Checklist) Summarize deviations from methods, procedures, or contracts. Include qualified data and explanation of all data qualifiers.</p>	#37 No topo has been provided, nor is it required - N/A is appropriate response	--No impact	Notify contractor
	<p>Analytes Ensure that required lists of analytes were reported as specified.</p>	Complete	--	
	<p>Sampling Plan Ensure that required sample locations were reported as specified. Determine if alterations to sample locations continue to satisfy the project objectives.</p>	<p>Missing samples: MW-4, WSW-1 Not located</p>	--Unlikely	
	<p>Chain-of-Custody Examine the traceability of the data from time of sample collection until reporting of data. Examine chain-of-custody records against contract, method, or procedural requirements. Establish that any problems with documentation or custody procedures do not prevent the data from being used for the intended purpose.</p>	COC does not indicate preservative, number of containers or matrix	--Likely	Notify contractor
	<p>Work Scope Examine deviations from contract / work plan - repairs, waste disposal etc (no impact on data quality)</p>		X	
Conformance	<p>Sample Receipt Checklist (or equivalent) Ensure consistency with COC, LCN. Examine checklist against contract, method or procedural requirements.</p>	SRC, LCN and COC are consistent	--	
	<p>Holding Times Identify holding time criteria, and either confirm that they were met or document any deviations. Ensure that samples were analyzed within holding times specified in method, procedure, or contract requirements. If holding times were not met, confirm that deviations were documented, that appropriate notifications were made (consistent with procedural requirements), and that approval to proceed was received prior to analysis.</p>	<p>Specified hold time for VOCs with preservative: 14 days sampled 2/28 all analysis completed by 3/7 Preservative Not Indicated</p>	--Likely	
	<p>Sample Handling Ensure that required sample handling, receipt, and storage procedures were followed, and that any deviations were documented.</p>	As specified	--	
	<p>Sampling Methods and Procedures Establish that required sampling methods were used and that any deviations were noted. Ensure that the sampling procedures and field measurements met performance criteria and that any deviations were documented (e.g., techniques, equipment, decontamination, volume, temperature, preservatives, etc.)</p>	MW-1 and MW-3 were not purged as required (previous sampling event > 12 months prior)	--Likely	failure of duplicate to meet req'd RPDs?
	<p>Analytical Methods and Procedures Establish that required analytical methods were used and that any deviations were noted. Ensure that the QC samples met performance criteria and that any deviations were documented.</p>	QC results indicate high bias for TAME, TBF, ETBA and ethanol - ND in all samples	--No impact	
	<p>Lab Data Qualifiers Determine that the laboratory data qualifiers were defined and applied as specified in methods, procedures, or contracts.</p>	As specified	--	

<p>Confirmatory Analyses Evaluate agreement of laboratory results.</p> <p>Evaluate the implications of unacceptable QC sample results on the data usability for the associated samples: blank contamination, matrix effects...</p> <p>Co-located Field Duplicates Compare results of collocated field duplicates with criteria established in the QAPP. RPD (%) = $\frac{ (CS - CD) / (CS + CD) }{2} \times 100$</p>	<p>Trip blanks - ND Field blanks: ND</p>	<p>--</p>	
	<p>#04878 02-28-2012 MW-1 Dup</p> <p>Benzene RPD: 160 Toluene RPD: 159 Ethylbenzene RPD: 159 Tot Xylenes RPD: 155 MIBE RPD: 161 Naphthalene RPD: 158 1,2-DCA RPD: 158 TAA RPD: 143 TBA RPD: 161</p> <p>01-00-1900</p> <p>01-00-1900</p>	<p>++Significant</p>	

Comments

<p>Reconciliation with User Requirements</p> <p>Completeness Evaluate the impact of missing information. Ensure that enough information was obtained for the data to be usable (completeness as defined in DQOs documented in the QAPP)</p> <p>Critical Samples Establish that critical samples and critical target analytes/COCs, as defined in the QAPP, were collected and analyzed. Determine if the results meet criteria specified in the QAPP.</p> <p>Conformance Criteria Evaluate QC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods).</p> <p>Describe the exact process for handling data that do not meet DQOs (i.e., when measurement performance criteria are not met). Depending on how those data will be used, specify the restrictions on use of those data for environmental decision-making.</p> <p>Comparability Ensure that results from different data collection activities achieve an acceptable level of agreement.</p>	<p>Data should not be relied on</p>
	<p>Data should not be relied on</p>
	<p>MW-1 Duplicate is not consistent with MW-1 values from this and prior events; MW-2, 3 are consistent with prior events</p>



Geological Resources, Inc.

January 8, 2003

Mr. Umar Khattak
Environmental Health Manager
Bureau of Underground Storage Tank Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201-1708

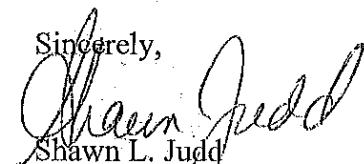
Re: Nickelpumper #233
Site ID# 04878
CP # 17312:P; PO # 408994

Dear Mr. Khattak:

Please find enclosed two copies of the **original report** for the above referenced site.

The original invoice has been submitted to Ms. Pat Holland of the Finance Section as specified in the contract.

Sincerely,


Shawn L. Judd
Project Coordinator

4913 Albemarle Road Suite 101 Charlotte, NC 28205
Phone: (704) 563-1663 / (888) 870-4133 Fax: (704) 563-1662

www.geologicalresourcesinc.com

INITIAL GROUND WATER ASSESSMENT REPORT

Facility Name: Nickelpumper #233

UST Permit Number: 04878

UST Owner or Operator's Name: Not provided by SCDHEC

Address: Not provided by SCDHEC

Phone Number: Not provided by SCDHEC

Property Owner's Name (if different than USTowner/operator): Not provided by SCDHEC

Address: Not provided by SC DHEC

Phone Number: Not provided by SCDHEC

Contractor: Geological Resources, Inc. Cert. #: 74

Address: 4913 Albemarle Road, Suite 101, Charlotte, North Carolina 28205

Phone Number: (704) 563-1663

Well Driller: Terry D. Kennedy Cert. #: B 01693

Address: 4913 Albemarle Road, Suite 101, Charlotte, North Carolina 28205

Phone Number: (704) 563-1663

Receptor and Site Data

Please place a check in the appropriate answer block for each question:

Receptor Survey Questions	No	Yes*
Is there a drinking water supply well (public or private) or surface water intake within 1,000 feet of the UST?	X	
Are irrigation or other non-drinking water wells located within 1,000 feet of the UST?	X	
Are there other potential receptors (i.e. utilities, surface waters, wetlands) less than 500 feet from the UST?		X

If "yes" provide additional information:

Sanitary sewer line on-site ~50' north of UST basin; water line on-site ~50' north of UST basin;

swamp/pond ~327' north/northeast of site.

Were any water wells within a 250 foot radius sampled? Yes X No

Is there a public water supply line in the area? X Yes No

Is the current use of the facility and surrounding properties commercial, residential, agricultural or residential or industrial?

Site: Commerical Adjacent Properties: Vacant/Commerical

Soil and Boring/Monitoring Well Data

Primary Soil Type: Sand

Well Installation Method and Date: Hollow stem auger on 12/17/02

Development Method: Disposable polyethylene bailer

Soil Sample Obtained at: 4.5-5.0 feet.

Soil Analytical Data (mg/kg)

Boring #: MW-1

Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Total Lead
4.29	54.4	15	91.6	9.05	7.3

Benzo(a)-anthracene	Benzo(b)-fluoranthene	Benzo(k)-fluoranthene	Chrysene	Dibenzo(a,h)-anthracene	Total PAHs
<0.066	<0.066	<0.066	<0.066	<0.066	<0.33

Ground Water Data

Depth to Ground Water: 3.21

Well Purging/Sampling Method: Disposable polyethylene bailer

Date Sampled: 12/17/02

Free Product Thickness: Sheen

Equilibrated Values *

Temperature (C°): pH (s.u.):

Dissolved Oxygen (mg/l): Specific Conductance (μ mhos/cm):

* Sheen- no readings; bailed 9 gallons for development; bailed 5 gallons prior to sampling.

Ground Water Analytical Data ($\mu\text{g/l}$)

Well #: MW-1

Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	EDB
9,250	16,200	3,600	18,700	18,000	<250	0.27

Benzo(a)-anthracene	Benzo(b)-fluoranthene	Benzo(k)-fluoranthene	Chrysene	Dibenzo(a,h)-anthracene	Total PAHs	Total Lead
<10.0	17.0	<10.0	<10.0	<10.0	17.0	33.0

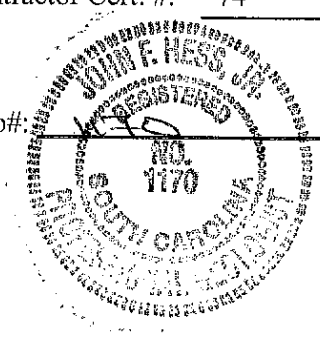
Appendices

- Appendix A: Well Construction Record
- Appendix B: Ground Water Sampling Data Sheet
- Appendix C: Laboratory Data
- Appendix D: Topographic Map
- Appendix E: Site Base Map
- Appendix F: Material Manifest
- Appendix G: IGWA Invoice

Report Completed By: Geological Resources, Inc. Contractor Cert. #: 74

Date: 1/8/03

Reviewed by:  Registration No#:



APPENDIX A
Well Construction Record

**Water Well Record
Bureau of Water**

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION: Not provided by SCDHEC Name: _____ Address: _____ (last) _____ (first) City: Dillon State: SC Zip: _____ Telephone: Work: _____ Home: _____			6. PERMIT NUMBER: UMW-16621		
LOCATION OF WELL: Name: Nicklepumper #233 Street Address: 3296 Point South Drive City: Point South Zip: SC COUNTY: Jasper Latitude: 032° 37' 47.1" N Longitude: 080° 52' 44.4 W			7. USE: <input type="checkbox"/> Residential <input type="checkbox"/> Public Supply <input type="checkbox"/> Process <input type="checkbox"/> Irrigation <input type="checkbox"/> Air Conditioning <input type="checkbox"/> Emergency <input type="checkbox"/> Test Well <input checked="" type="checkbox"/> Monitor Well <input type="checkbox"/> Replacement		
3. SYSTEM NAME: _____ SYSTEM NUMBER: _____ Nicklepumper #233 MW-1			8. WELL DEPTH (completed) _____ Date Started: 12/17/02 <u>12.5 Feet</u> Date Completed: 12/17/02		
4. CUTTING SAMPLES: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Geophysical Logs: <input type="checkbox"/> Yes (please enclose) <input checked="" type="checkbox"/> No			9. <input type="checkbox"/> Mud Rotary <input type="checkbox"/> Jetted <input checked="" type="checkbox"/> Bored <input type="checkbox"/> Dug <input type="checkbox"/> Air Rotary <input type="checkbox"/> Driven <input type="checkbox"/> Cable tool <input checked="" type="checkbox"/> Other		
			10. CASING: <input checked="" type="checkbox"/> Threaded <input type="checkbox"/> Welded Diam.: _____ 2" Type: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Galvanized <input type="checkbox"/> Steel <input type="checkbox"/> Other _____ 0 in. to 2.5 ft. depth _____ in. to _____ ft. depth		Height: Above/Below Surface _____ 0 ft. Weight _____ Sch. 40 lb./ft. Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
			11. SCREEN Type: _____ PVC Diam.: _____ 2" Slot/Gauge: _____ 10 Length: _____ 10 Set Between: _____ 2.5 ft. and _____ 12.5 ft. _____ ft. and _____ ft.		
			Sieve Analysis Yes (please enclose) <u>No</u>		
			12. STATIC WATER LEVEL _____ 3.21 ft. below land surface after 24 hours		
			13. PUMPING LEVEL Below Land Surface. _____ ft. after _____ hrs. Pumping _____ G.P.M. Pumping Test: <input type="checkbox"/> Yes (please enclose) <input checked="" type="checkbox"/> No Yield: _____		
			14. WATER QUALITY Chemical Analysis <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Bacterial Analysis <input type="checkbox"/> Yes <input type="checkbox"/> No Please enclose lab results.		
			15. ARTIFICIAL FILTER (filter pack) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Installed from _____ 1 ft. to _____ 12.5 ft. Effective size #2 Uniformity Coefficient _____		
			16. WELL GROUTED? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Neat Cement <input type="checkbox"/> Sand Cement <input type="checkbox"/> Concrete <input type="checkbox"/> Other _____ Depth: From _____ 0 ft. to _____ 0.5 ft.		
			17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ 5 ft. _____ W direction _____ Type well disinfected <input type="checkbox"/> Yes Type: _____ _____ upon completion <input checked="" type="checkbox"/> No Amount: _____		
			18. PUMP: Date installed: _____ Not installed Mfr. Name: _____ Model No.: _____ H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm TYPE: <input type="checkbox"/> Submersible <input type="checkbox"/> Jet (shallow) <input type="checkbox"/> Turbine <input type="checkbox"/> Jet (deep) <input type="checkbox"/> Reciprocating <input type="checkbox"/> Centrifugal		
			19. WELL DRILLER: Terry Kennedy CERT. NO. B 01693 Address: 4913 Albemarle Road, Suite 101, Charlotte, NC 28205 Telephone No.: 704-563-1663		
5. REMARKS: Bentonite seal from 0.5'-1.0'			WATER WELL CONTRACTORS CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief. Signed: <u>Terry Kennedy</u> Date: <u>12/17/02</u> Authorized Representative		

APPENDIX B
Ground Water Sampling Data Sheet

Field Data Information Sheet for Ground-Water Sampling
 South Carolina Department of Health and Environmental Control
 Bureau of Underground Storage Tank Management

Date (mm/dd/yy): 12/17/02
 Field Personnel: TK, HK
 General Weather Conditions: Clear, Cool
 Ambient Air Temperature: 18 °C

Quality Assurance

pH Meter serial no. _____ Conductivity Meter serial no. _____
 pH=4.0 Standard _____
 pH=7.0 Standard _____
 pH=10.0 Standard _____

Chain of Custody

Relinquished by _____ Date/Time _____ Received by _____ Date/Time _____

Facility Name: Nicklepumper #233
 Site ID # 04878 Monitoring Well # MW-1
 Well Diameter (D): .167 feet
 Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
 for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
 Depth to Ground Water (DGW) 3.21 feet
 Total Well Depth (TWD) 12.61 feet
 Length of the water column (LWC = TWD-DGW) 9.4 feet

1 casing volume (CV = LWC X C) 4.59 gals (standard purge volume)
 3 casing volume 3 X CV = _____ gals

Total volume of Water Purged Before Sampling _____ gals
 Total volume of Water Purged for Post Sampling _____ gals
 Total Purged _____ gals

*If free product is present over 1/8 inch, sampling will not be required.

	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)	Initial						
	0.25						
Time (military)	1147						1200 15:55
pH (s.u.)							
Specific Cond. (umhos/cm)							
Water Temperature (degrees C)							
Turbidity (subjective: clear, slightly cloudy, cloudy)							
Dissolved Oxygen (mg/l)							
PID readings, if required							
Remarks: <u>SHEEN - NO READINGS - BAILED 5 GALLONS PRIOR TO SAMPLING</u> <u>BAILED 9 GALLONS FOR DEVELOPMENT</u>							

APPENDIX C
Laboratory Data

FROM

(THU) 1 2 2003 13:41/ST.13:38/NO.5012020814 P 13

TestAmerica

INCORPORATED

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
 JOHN BROWN
 4913 ALBEMARLE RD
 CHARLOTTE, NC 28205

Lab Number: 02-A208053
 Sample ID: MW-1
 Sample Type: Soil
 Site ID:

Project:
 Project Name: NICKLE PUMPER 233 #04878
 Sampler: TERRY KENNEDY

Date Collected: 12/17/02
 Time Collected: 9:55
 Date Received: 12/18/02
 Time Received: 9:00
 Page: 1

Analyte	Result	Units	Report Limit	Nil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	77.7	%		1	12/21/02	13:35	K. Keller	CLP	0692
ORGANIC PARAMETERS									
Benzo (a) anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Benzo (b) fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Benzo (k) fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Chrysene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Dibenzo (a, h) anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
VOLATILE ORGANICS									
Benzene	4.29	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Ethylbenzene	15	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Naphthalene	9.05	mg/kg	1.98	500	12/20/02	22:22	CHollingsw	8260B	341
Toluene	54.4	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Xylenes (Total)	91.6	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
METALS									
Lead	7.3	mg/kg	0.99	1	12/23/02	16:43	C. Martin	6010B	2072

Sample report continued . . .

FROM

(THU) 1 2 2003 13:41/ST. 13:38/NO. 5012020814 P 14

TestAmerica

INCORPORATED

ANALYTICAL REPORT

Laboratory Number: 02-A208053
 Sample ID: MW-1
 Project:
 Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	30.0 gm	1.0 ml	12/21/02		M. Cauthen	3550
Volatile Organics	6.9 g	5.0 ml	12/17/02	9:55	K. Turner	6035

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	104.	56. - 155.
VOA Surr Toluene-d8	119.	79. - 130.
VOA Surr, 4-BFB	102.	62. - 155.
VOA Surr, DEFM	108.	74. - 127.
BNA Surr-Nitrobenzene-d5	76.	34. - 105.
BNA Surr-2-Fluorobiphenyl	80.	36. - 100.
BNA Surr-Terphenyl-d14	81.	45. - 108.

LABORATORY COMMENTS:

ND - Not detected at the report limit.
 B - Analyte was detected in the method blank.
 J - Estimated Value below Report Limit.
 E - Estimated Value above the calibration limit of the instrument.
 # - Recovery outside Laboratory historical or method prescribed limits.
 All results reported on a wet weight basis.

End of Sample Report.

FROM

(THU) 1 2 2003 13:41/ST.13:38/NO.5012020814 P 15

Test America

INCORPORATED

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
 JOHN BROWN
 4913 ALBEMARLE RD
 CHARLOTTE, NC 28205

Lab Number: 02-A208054
 Sample ID: MW-1
 Sample Type: Water
 Site ID:

Project:
 Project Name: NICKLE PUMPER 233 #04878
 Sampler: TERRY KENNEDY

Date Collected: 12/17/02
 Time Collected: 12:00
 Date Received: 12/18/02
 Time Received: 9:00
 Page: 1

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Benzo(b)fluoranthene	17.0	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Benzo(k)fluoranthene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Chrysene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Dibenzo(a,h)anthracene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
VOLATILE ORGANICS									
Benzene	9250	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Toluene	16200	ug/L	500.	500.	12/27/02	23:25	C. Wani	8260B	5272
Ethylbenzene	3600	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Xylenes (Total)	18700	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Methyl-t-butyl ether	18000	ug/L	500.	500.	12/27/02	23:25	C. Wani	8260B	5272
Naphthalene	ND	ug/L	250.	50.0	12/24/02	14:35	C. Wani	8260B	5269
VOLATILE ORGANICS by GC									
Ethylene Dibromide	0.27	ug/L	0.02	1.0	12/21/02	15:50	Carmichael	8011	193
METALS									
Lead	33.0	ug/L	3.0	1.0	12/20/02	10:46	C. Johnson	6010B	8676

Sample report continued . . .

FROM

(THU) 1 2 2003 13:42/ST. 13:38/NO. 5012020814 P 16

TestAmerica

INCORPORATED

ANALYTICAL REPORT

Laboratory Number: 02-A208054

Sample ID: MW-1

Project:

Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	200. ml	1.0 ml	12/21/02		M. Cauthen	3510/625

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	107.	73. - 133.
VOA Surr Toluene-d8	89.	80. - 121.
VOA Surr, 4-BFB	90.	80. - 128.
VOA Surr, DBFM	101.	81. - 121.
BNA Surr-Nitrobenzene-d5	73.	40. - 127.
BNA Surr-2-Fluorobiphenyl	68.	42. - 113.
BNA Surr-Terphenyl-d14	48.	41. - 129.

LABORATORY COMMENTS:

- ND = Not detected at the report limit.
 B = Analyte was detected in the method blank.
 J = Estimated Value below Report Limit.
 E = Estimated Value above the calibration limit of the instrument.
 # = Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

TestAmerica

INCORPORATED

12/30/02

GEOLOGICAL RESOURCES 2110
JOHN BROWN
4913 ALBEMARLE RD
CHARLOTTE, NC 28205

This report includes the analytical certificates of analysis for all samples listed below. These samples relate to your project NICKLE PUMPER 233 #04878. The Laboratory Project number is 313818.

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report.

Page 1

Sample Identification	Lab Number	Collection Date
MW-1	02-A208053	12/17/02
MW-1	02-A208054	12/17/02

These results relate only to the items tested.
This report shall not be reproduced except in full and with permission of the laboratory.

Report Approved By: Paul E. Lane, Jr.

Report Date: 12/30/02

Paul E. Lane, Jr., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Roxanne L. Connor, Technical Services

Gail A. Lage, Technical Serv.
Glenn L. Norton, Technical Serv.
Kelly S. Comstock, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 84009

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
 JOHN BROWN
 4913 ALBEMARLE RD
 CHARLOTTE, NC 28205

Lab Number: 02-A208053
 Sample ID: MW-1
 Sample Type: Soil
 Site ID:

Project:
 Project Name: NICKLE PUMPER 233 #04878
 Sampler: TERRY KENNEDY

Date Collected: 12/17/02
 Time Collected: 9:55
 Date Received: 12/18/02
 Time Received: 9:00
 Page: 1

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	77.7	%		1	12/21/02	13:35	K. Keller	CLP	8692
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M. Schott	8270C	1600
Benzo(b)fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M. Schott	8270C	1600
Benzo(k)fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M. Schott	8270C	1600
Chrysene	ND	mg/kg	0.066	1	12/22/02	23:16	M. Schott	8270C	1600
Dibenzo(a,h)anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M. Schott	8270C	1600
VOLATILE ORGANICS									
Benzene	4.29	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Ethylbenzene	15	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Naphthalene	9.05	mg/kg	1.98	500	12/20/02	22:22	CHollingsw	8260B	341
Toluene	54.4	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Xylenes (Total)	91.6	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
METALS									
Lead	7.3	mg/kg	0.99	1	12/23/02	16:43	C. Martin	6010B	2072

Sample report continued . . .

ANALYTICAL REPORT

Laboratory Number: 02-A208053
 Sample ID: MW-1
 Project:
 Page 2

 Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	30.0 gm	1.0 ml	12/21/02		M. Cauthen	3550
Volatile Organics	6.3 g	5.0 ml	12/17/02	9:55	K. Turner	5035

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	104.	56. - 155.
VOA Surr Toluene-d8	119.	79. - 130.
VOA Surr, 4-BFB	102.	62. - 155.
VOA Surr, DBFM	108.	74. - 127.
BNA Surr-Nitrobenzene-d5	78.	34. - 105.
BNA Surr-2-Fluorobiphenyl	80.	36. - 100.
BNA Surr-Terphenyl-d14	81.	45. - 108.

LABORATORY COMMENTS:

ND = Not detected at the report limit.
 B = Analyte was detected in the method blank.
 J = Estimated Value below Report Limit.
 E = Estimated Value above the calibration limit of the instrument.
 # = Recovery outside Laboratory historical or method prescribed limits.
 All results reported on a wet weight basis.

End of Sample Report.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
 JOHN BROWN
 4913 ALBEMARLE RD
 CHARLOTTE, NC 28205

Lab Number: 02-A208054
 Sample ID: MW-1
 Sample Type: Water
 Site ID:

Project:
 Project Name: NICKLE PUMPER 233 #04878
 Sampler: TERRY KENNEDY

Date Collected: 12/17/02
 Time Collected: 12:00
 Date Received: 12/18/02
 Time Received: 9:00
 Page: 1

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
ORGANIC PARAMETERS									
Benzo (a) anthracene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Benzo (b) fluoranthene	17.0	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Benzo (k) fluoranthene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Chrysene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Dibenzo (a, h) anthracene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
VOLATILE ORGANICS									
Benzene	9250	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Toluene	16200	ug/L	500.	500.	12/27/02	23:25	C. Wani	8260B	5272
Ethylbenzene	3600	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Xylenes (Total)	18700	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Methyl-t-butyl ether	18000	ug/L	500.	500.	12/27/02	23:25	C. Wani	8260B	5272
Naphthalene	ND	ug/L	250.	50.0	12/24/02	14:35	C. Wani	8260B	5269
VOLATILE ORGANICS by GC									
Ethylene Dibromide	0.27	ug/L	0.02	1.0	12/21/02	15:50	Carmichael	8011	193
METALS									
Lead	33.0	ug/L	3.0	1.0	12/20/02	10:46	C.Johnson	6010B	8676

Sample report continued . . .

ANALYTICAL REPORT

Laboratory Number: 02-A208054
 Sample ID: MW-1
 Project:
 Page 2

Sample Extraction Data

Parameter	Wt/vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	200. ml	1.0 ml	12/21/02		M. Cauthen	3510/625

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	107.	73. - 133.
VOA Surr Toluene-d8	89.	80. - 121.
VOA Surr, 4-BFB	90.	80. - 128.
VOA Surr, DBFM	101.	81. - 121.
BNA Surr-Nitrobenzene-d5	73.	40. - 127.
BNA Surr-2-Fluorobiphenyl	68.	42. - 113.
BNA Surr-Terphenyl-d14	48.	41. - 129.

LABORATORY COMMENTS:

- ND = Not detected at the report limit.
- B = Analyte was detected in the method blank.
- J = Estimated Value below Report Limit.
- E = Estimated Value above the calibration limit of the instrument.
- # = Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

TestAmerica

INCORPORATED

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 1

Laboratory Receipt Date: 12/18/02

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for MS/MSD analysis for that method and the method requirements for MS/MSD analysis could not be met.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
UST ANALYSIS								
Benzo(a)anthracene	mg/kg	< 0.066	1.65	1.67	99	42. - 123.	1600	02-A207665
Benzo(b)fluoranthene	mg/kg	< 0.066	1.55	1.67	93	40. - 123.	1600	02-A207665
Benzo(k)fluoranthene	mg/kg	< 0.066	1.82	1.67	109	42. - 130.	1600	02-A207665
Chrysene	mg/kg	< 0.066	2.01	1.67	120	40. - 123.	1600	02-A207665
Dibenzo(a,h)anthracene	mg/kg	< 0.066	1.78	1.67	107	16. - 139.	1600	02-A207665
Benzo(a)anthracene	mg/l	< 0.0010	0.0400	0.0500	80	49. - 126.	2677	blank
Benzo(b)fluoranthene	mg/l	< 0.0010	0.0370	0.0500	74	45. - 127.	2677	blank
Benzo(k)fluoranthene	mg/l	< 0.0010	0.0420	0.0500	84	46. - 134.	2677	blank
Chrysene	mg/l	< 0.0010	0.0500	0.0500	100	48. - 126.	2677	blank
Dibenzo(a,h)anthracene	mg/l	< 0.0010	0.0300	0.0500	60	31. - 149.	2677	blank

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for MS/MSD analysis for that method and the method requirements for MS/MSD analysis could not be met.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
VOA PARAMETERS								
Benzene	mg/l	< 0.0010	0.0512	0.0500	102	78. - 132.	5269	02-A209083
Benzene	mg/kg	< 0.0003	0.0520	0.0500	104	63. - 133.	341	blank
Toluene	mg/l	< 0.0006	0.0472	0.0500	94	77. - 134.	5272	blank
Toluene	mg/kg	< 0.0008	0.0512	0.0500	102	61. - 131.	341	blank
VOA Surr 1,2-DCA-d4	% Rec				104	73. - 133.	5272	
VOA Surr Toluene-d8	% Rec				88	80. - 121.	5272	
VOA Surr, 4-BFB	% Rec				89	80. - 128.	5272	
VOA Surr, DBFM	% Rec				102	81. - 121.	5272	

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:
Project Name: NICKLE PUMPER 233 #04878
Page: 2
Laboratory Receipt Date: 12/18/02

BNA Surr-Nitrobenzene-d5	% Rec	69	40. - 127.	2677
BNA Surr-2-Fluorobiphenyl	% Rec	63	42. - 113.	2677
BNA Surr-Terphenyl-d14	% Rec	72	41. - 129.	2677

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for MS/MSD analysis for that method and the method requirements for MS/MSD analysis could not be met.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
METALS								
Lead	mg/l	< 0.0030	0.0520	0.0500	104	80 - 120	8676	Duplicate
Lead	mg/kg	9.38	91.0	100.	82	80 - 120	2072	Duplicate

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for MS/MSD analysis for that method and the method requirements for MS/MSD analysis could not be met.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
MISC PARAMETERS								
Ethylene Dibromide	mg/l	< 0.00002	0.00029	0.00029	100	40 - 140	193	02-A208120

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
UST PARAMETERS						
Benzo(a)anthracene	mg/kg	1.65	1.62	1.83	35.	1600
Benzo(b)fluoranthene	mg/kg	1.55	1.52	1.95	40.	1600
Benzo(k)fluoranthene	mg/kg	1.82	1.78	2.22	36.	1600
Chrysene	mg/kg	2.01	1.95	3.03	34.	1600
Dibenzo(a,h)anthracene	mg/kg	1.78	1.62	9.41	37.	1600
Benzo(a)anthracene	mg/l	0.0400	0.0350	13.33	37.	2677

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 3

Laboratory Receipt Date: 12/18/02

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
Benzo(b)fluoranthene	mg/l	0.0370	0.0320	14.49	38.	2677
Benzo(k)fluoranthene	mg/l	0.0420	0.0380	10.00	36.	2677
Chrysene	mg/l	0.0500	0.0440	12.77	38.	2677
Dibenzo(a,h)anthracene	mg/l	0.0300	0.0270	10.53	45.	2677

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
VOA PARAMETERS						
Benzene	mg/l	0.0512	0.0521	1.74	15.	5269
Benzene	mg/kg	0.0520	0.0514	1.16	19.	341
Toluene	mg/l	0.0472	0.0467	1.06	16.	5272
Toluene	mg/kg	0.0512	0.0496	3.17	28.	341
VOA Surr 1,2-DCA-d4	% Rec		104.			5272
VOA Surr 1,2-DCA-d4	% Rec		107.			341
VOA Surr Toluene-d8	% Rec		89.			5272
VOA Surr Toluene-d8	% Rec		115.			341
VOA Surr, 4-BFB	% Rec		89.			5272
VOA Surr, 4-BFB	% Rec		101.			341
VOA Surr, DBFM	% Rec		102.			5272
VOA Surr, DBFM	% Rec		113.			341
BNA Surr-Nitrobenzene-d5	% Rec		62.			2677
BNA Surr-2-Fluorobiphenyl	% Rec		59.			2677
BNA Surr-Terphenyl-d14	% Rec		64.			2677

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 4

Laboratory Receipt Date: 12/18/02

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
METALS						
Lead	mg/l	0.0520	0.0510	1.94	20	8676
Lead	mg/kg	91.0	91.5	0.55	20	2072

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
MISC PARAMETERS						
Ethylene Dibromide	mg/l	0.00029	0.00031	6.67	50	193

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
UST PARAMETERS						
Benzo (a) anthracene	mg/kg	1.67	1.62	97	42 - 123	1600
Benzo (b) fluoranthene	mg/kg	1.67	1.52	91	40 - 123	1600
Benzo (k) fluoranthene	mg/kg	1.67	1.75	105	42 - 130	1600
Chrysene	mg/kg	1.67	1.95	117	40 - 123	1600
Dibenzo (a, h) anthracene	mg/kg	1.67	1.68	101	16 - 139	1600
Benzo (a) anthracene	mg/l	0.0500	0.0390	78	49 - 126	2677
Benzo (b) fluoranthene	mg/l	0.0500	0.0350	70	45 - 127	2677
Benzo (k) fluoranthene	mg/l	0.0500	0.0430	86	46 - 134	2677
Chrysene	mg/l	0.0500	0.0490	98	48 - 126	2677
Dibenzo (a, h) anthracene	mg/l	0.0500	0.0290	58	31 - 149	2677

Project QC continued . . .

TestAmerica

INCORPORATED

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 5

Laboratory Receipt Date: 12/18/02

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
VOA PARAMETERS						
Benzene	mg/l	0.0500	0.0494	99	78 - 127	5269
Benzene	mg/l	0.0500	0.0478	96	78 - 127	5269
Benzene	mg/kg	0.0500	0.0487	97	77 - 123	341
Ethylbenzene	mg/l	0.0500	0.0545	109	78 - 125	5269
Ethylbenzene	mg/l	0.0500	0.0530	106	78 - 125	5269
Ethylbenzene	mg/kg	0.0500	0.0462	92	73 - 134	341
Naphthalene	mg/l	0.0500	0.0452	90	52 - 140	5269
Naphthalene	mg/l	0.0500	0.0446	89	52 - 140	5269
Naphthalene	mg/kg	0.0500	0.0540	108	54 - 135	341
Toluene	mg/l	0.0500	0.0447	89	78 - 127	5272
Toluene	mg/l	0.0500	0.0476	95	78 - 127	5272
Toluene	mg/kg	0.0500	0.0470	94	76 - 120	341
Xylenes (Total)	mg/l	0.150	0.166	111	77 - 126	5269
Xylenes (Total)	mg/l	0.150	0.159	106	77 - 126	5269
Xylenes (Total)	mg/kg	0.150	0.137	91	75 - 123	341
Methyl-t-butyl ether	mg/l	0.0500	0.0547	109	66 - 137	5272
Methyl-t-butyl ether	mg/l	0.0500	0.0561	112	66 - 137	5272
Ethylene Dibromide	mg/l	0.00029	0.00031	107	73 - 141	193
VOA Surr 1,2-DCA-d4	% Rec			105	73 - 133	5272
VOA Surr 1,2-DCA-d4	% Rec			104	73 - 133	5272
VOA Surr 1,2-DCA-d4	% Rec			105	56 - 155	341
VOA Surr Toluene-d8	% Rec			89	80 - 121	5272
VOA Surr Toluene-d8	% Rec			88	80 - 121	5272
VOA Surr Toluene-d8	% Rec			114	79 - 130	341
VOA Surr, 4-BFB	% Rec			89	80 - 128	5272
VOA Surr, 4-BFB	% Rec			88	80 - 128	5272
VOA Surr, 4-BFB	% Rec			98	62 - 155	341
VOA Surr, DBFM	% Rec			103	81 - 121	5272
VOA Surr, DBFM	% Rec			101	81 - 121	5272

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 6

Laboratory Receipt Date: 12/18/02

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
VOA Surr, DBFM	% Rec			112	74 - 127	341
BNA Surr-Nitrobenzene-d5	% Rec			64	40 - 127	2677
BNA Surr-2-Fluorobiphenyl	% Rec			60	42 - 113	2677
BNA Surr-Terphenyl-d14	% Rec			69	41 - 129	2677

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
METALS						
Lead	mg/l	0.0500	0.0490	98	80 - 120	8676
Lead	mg/kg	100.	91.4	91	80 - 120	2072

Continuing Calibration Verification

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
METALS						

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
MISC PARAMETERS						
Ethylene Dibromide	mg/l	0.00029	0.00031	107	73 - 141	193

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 9

Laboratory Receipt Date: 12/18/02

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
---------	-------------	-------	------------	---------------	---------------

****MISC PARAMETERS****

Ethylene Dibromide	< 0.00002	mg/l	193	12/21/02	13:59
--------------------	-----------	------	-----	----------	-------

= Value outside Laboratory historical or method prescribed QC limits.

End of Report for Project 313818

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 8

Laboratory Receipt Date: 12/18/02

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Analysis Date	Analysis Time
Xylenes (Total)	< 0.0009	mg/l	5269	12/24/02	11:51
Xylenes (Total)	< 0.0009	mg/l	5269	12/25/02	0:25
Xylenes (Total)	< 0.0013	mg/kg	341	12/20/02	14:49
Methyl-t-butyl ether	< 0.0005	mg/l	5272	12/27/02	16:04
Methyl-t-butyl ether	< 0.0005	mg/l	5272	12/28/02	9:15
VOA Surr 1,2-DCA-d4	105.	% Rec	5272	12/27/02	16:04
VOA Surr 1,2-DCA-d4	106.	% Rec	5272	12/28/02	9:15
VOA Surr 1,2-DCA-d4	109.	% Rec	341	12/20/02	14:49
VOA Surr Toluene-d8	90.	% Rec	5272	12/27/02	16:04
VOA Surr Toluene-d8	88.	% Rec	5272	12/28/02	9:15
VOA Surr Toluene-d8	119.	% Rec	341	12/20/02	14:49
VOA Surr, 4-BFB	88.	% Rec	5272	12/27/02	16:04
VOA Surr, 4-BFB	89.	% Rec	5272	12/28/02	9:15
VOA Surr, 4-BFB	102.	% Rec	341	12/20/02	14:49
VOA Surr, DBFM	101.	% Rec	5272	12/27/02	16:04
VOA Surr, DBFM	101.	% Rec	5272	12/28/02	9:15
VOA Surr, DBFM	114.	% Rec	341	12/20/02	14:49
BNA Surr-Nitrobenzene-d5	93.	% Rec	2677	12/23/02	15:01
BNA Surr-2-Fluorobiphenyl	85.	% Rec	2677	12/23/02	15:01
BNA Surr-Terphenyl-d14	113.	% Rec	2677	12/23/02	15:01

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
METALS					
Lead	< 0.0022	mg/l	8676	12/20/02	10:46
Lead	< 0.39	mg/kg	2072	12/23/02	16:43

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 7

Laboratory Receipt Date: 12/18/02

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
UST PARAMETERS					
Benzo(a)anthracene	< 0.066	mg/kg	1600	12/22/02	14:51
Benzo(b)fluoranthene	< 0.066	mg/kg	1600	12/22/02	14:51
Benzo(k)fluoranthene	< 0.066	mg/kg	1600	12/22/02	14:51
Chrysene	< 0.066	mg/kg	1600	12/22/02	14:51
Dibenzo(a,h)anthracene	< 0.066	mg/kg	1600	12/22/02	14:51
Benzo(a)anthracene	< 0.0010	mg/l	2677	12/23/02	15:01
Benzo(b)fluoranthene	< 0.0010	mg/l	2677	12/23/02	15:01
Benzo(k)fluoranthene	< 0.0010	mg/l	2677	12/23/02	15:01
Chrysene	< 0.0010	mg/l	2677	12/23/02	15:01
Dibenzo(a,h)anthracene	< 0.0010	mg/l	2677	12/23/02	15:01

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
VOA PARAMETERS					
Benzene	< 0.0005	mg/l	5269	12/24/02	11:51
Benzene	< 0.0005	mg/l	5269	12/25/02	0:25
Benzene	< 0.0003	mg/kg	341	12/20/02	14:49
Ethylbenzene	< 0.0003	mg/l	5269	12/24/02	11:51
Ethylbenzene	< 0.0003	mg/l	5269	12/25/02	0:25
Ethylbenzene	< 0.0005	mg/kg	341	12/20/02	14:49
Naphthalene	< 0.00120	mg/l	5269	12/24/02	11:51
Naphthalene	< 0.00120	mg/l	5269	12/25/02	0:25
Naphthalene	0.00120	mg/kg	341	12/20/02	14:49
Toluene	< 0.0006	mg/l	5272	12/27/02	16:04
Toluene	< 0.0006	mg/l	5272	12/28/02	9:15
Toluene	< 0.0008	mg/kg	341	12/20/02	14:49

Project QC continued . . .

TestAmerica INCORPORATED

To assist us in using the proper analytical methods,
is this work being conducted for regulatory purposes?
Compliance Monitoring

Client Name: Geological Resources Client #: 7110
 Address: 4913 ALBEMARLE RD STE 101
 City/State/Zip Code: CHARLOTTE, NC 28205
 Project Manager: JOHN HESS
 Telephone Number: 704 563 1663 Fax: 704 563 1662
 Sampler Name: (Print Name) TERRY KENNEDY
 Sampler Signature: [Signature]

Project Name: NICKLEPUMPER 233 #04878
 Project #: _____
 Site/Location ID: POINT SOUTH State: SC
 Report To: JOHN HESS
 Invoice To: _____
 Quote #: 4204217199 PO#: _____

Analyze For:

TAT Standard Rush (surcharges may apply)	Date Needed: <u>12/24/02</u>	Fax Results: <input checked="" type="radio"/> Y <input type="radio"/> N	Date Sampled	Time Sampled	Field Filtered	Matrix	Preservation & # of Containers	Methanol	H ₂ SO ₄	NaOH	HCl	HNO ₃	MW - Wastewater GW - Groundwater SL - Sludge DW - Drinking Water	Other (Specify)	EPA Method	Other (Specify)	QC Deliverables			REMARKS		
																	None	Level 2 (Batch QC)	Level 3		Level 4	Other:
MW-1	12/17/02		5:05	5:15		S	1						GW	137	8260 BTEX NH4							
MW-1	12/17/02		12:00	12:00		GW	1						GW	137	8260 BTEX NH4							

Special Instructions: Need Comding For Soil Per lead for soil

LABORATORY COMMENTS:
 Init Lab Temp: _____
 Rec Lab Temp: _____

Custody Seals: Y N N/A
 Bottles Supplied by Test America: Y N

Method of Shipment: _____

Relinquished By: <u>[Signature]</u>	Date: <u>12/17/02</u>	Received By:	Date:
Relinquished By:	Date:	Received By:	Date:
Relinquished By:	Date:	Received By:	Date:

TestAmerica INCORPORATED

Fax 300-10
Charlotte office
FAX # (704) 392-9073

To assist us in using the proper analytical methods,
is this work being conducted for regulatory purposes?
Compliance Monitoring

Client Name: GENERAL RESOURCES Client #: 1110
Address: 4913 ALBEMARLE RD STE 101
City/State/Zip Code: CHARLOTTE, NC 28205
Project Manager: JOHN HESS
Telephone Number: 704 563 1663 Fax: 704 563 1662

Project Name: NICKLE PUMPER 233 #04878
Project #: _____
Site/Location ID: FOUNT SOUTH State: SC
Report To: JOHN HESS
Invoice To: _____

Sampler Name: (Print Name) FERRY, KENNEDY
Sampler Signature: [Handwritten Signature]

Quote #: 4204217199 PO#: _____

TAT Standard <input type="checkbox"/> Standard <input type="checkbox"/> Rush (surcharges may apply) Date Needed: <u>12/24/02</u> Fax Results: <u>Y N</u>	SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix S - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other	Preservation & # of Containers						Other (Specify) <u>SILICATE</u>	Analyze For:	OC Deliverables None <input type="checkbox"/> Level 1 <input type="checkbox"/> Level 2 (Batch OC) <input type="checkbox"/> Level 3 <input type="checkbox"/> Level 4 Other: _____	REMARKS
							HNO ₃	HCl	NaOH	H ₂ SO ₄	Methanol	None				
	MW-1 208053	12/17/02 0955		G		S	1					132	Pb			
	MW-1 208054	12/17/02 1200		C		GW	1					1	EDB			
													8270 PMS			

Special Instructions:	Relinquished By:	Relinquished Date:	Relinquished Time:	Received By:	Received Date:	Received Time:	LABORATORY COMMENTS:		
							Init Lab Temp:	Rec Lab Temp:	Method of Shipment:
<u>[Handwritten Signature]</u>	<u>[Handwritten Signature]</u>	<u>12/17/02</u>	<u>1800</u>	<u>[Handwritten Signature]</u>	<u>12/18/02</u>	<u>9:00</u>	Init Lab Temp: <u>65</u>	Rec Lab Temp: <u>65</u>	Method of Shipment: _____
							Custody Seals: Y N N/A	Bottles Supplied by Test America: Y N	

TESTAMERICA, INC.-NASHVILLE

COOLER RECEIPT FORM

Client: Revolvers Resources

BC# 313818

Cooler Received On: 12/18/02 And Opened On: 12/18/02 By: MARVIN BLUMHOEFER

M. Blumhofer
(Signature)

1. Temperature of Cooler when opened 11.8 Degrees Celsius
2. Were custody seals on outside of cooler?..... YES NO N/A
 - a. If yes, how many, what kind and where: 2 front
 - b. Were the seals intact, signed, and dated correctly?..... YES NO N/A
3. Were custody seals on containers and intact?..... NO YES N/A
4. Were custody papers inside cooler?..... YES NO N/A
5. Were custody papers properly filled out (ink, signed, etc)?..... YES NO N/A
6. Did you sign the custody papers in the appropriate place?..... YES NO N/A
7. What kind of packing material used? Bubblewrap Peanuts Vermiculite Other None
8. Was sufficient ice used (if appropriate)?..... YES NO N/A
9. Did all bottles arrive in good condition (unbroken)?..... YES NO N/A
10. Were all bottle labels complete (#, date, signed, pres, etc)?..... YES NO N/A
11. Did all bottle labels and tags agree with custody papers?..... YES NO N/A
12. Were correct bottles used for the analysis requested?..... YES NO N/A
13. a. Were VOA vials received?..... YES NO N/A
 - b. Was there any observable head space present in any VOA vial?..... NO YES N/A
14. Was sufficient amount of sample sent in each bottle?..... YES NO N/A
15. Were correct preservatives used?..... YES NO N/A
If not, record standard ID of preservative used here _____
16. Was residual chlorine present?..... NO YES N/A
17. Corrective action taken, if necessary:

See attached for resolution

SAMPLE NONCONFORMANCE/COC REVISION FORM

TestAmerica
INCORPORATED

Nashville Division

313818

ACCT NO. 2110

DATE RECEIVED 12.18.2

COMPANY Geologic Resources

Relinquished by: <u>MDB</u>	Date/Time:	Received by:	Date/Time
<u>12-18-2 16:00</u>		<u>JDH</u>	<u>12/18/02 1600</u>
Relinquished by:	Date/Time:	Received by: <u>MDB</u>	Date/Time:
<u>JDH</u>	<u>12-18-02/1700</u>	<u>12-18-2</u>	<u>17:00</u>
Relinquished by:	Date/Time:	Received by:	Date/Time:

PROBLEM(S):

FOC/TOC?

METALS LIST?

TPH METHOD?

TCLP WHAT?

EDB METHOD?

HERB LIST- LONG OR SHORT?

NEED LIST OF COMPOUNDS:

8260 INSTEAD OF 8021?

TEMPERATURE UPON RECEIPT

SATURDAY DELIVERY MARKED?

ICE -- OR-- NO ICE??

FIELD TEST-- OUT OF HOLD

NO COC - PLEASE FAX

NO ANALYSIS REQUESTED

DOCUMENTATION LEVEL?

OUT OF HOLDING TIME-- TEST

OTHER: EDB Method

RESOLUTION: 8011

CONTACTED	DATE/TIME	EMAIL	LEFT MESSAGE
<u>Charles Cabaniss</u>	<u>12-18-02/1600</u>		

SAMPLE NONCONFORMANCE/COC REVISION FORM



DATE RECEIVED: 12/18/02

ACCT NO.: 2110

SDG NUMBER: 313818

COMPANY NAME: GRI

Relinquished by:	Date/Time:	Received by:	Date/Time
<u>JH</u>	<u>12-20-02 / 1550</u>		
Relinquished by:	Date/Time:	Received by: <u>MOB</u>	Date/Time: <u>12-20-02 16:30</u>
Relinquished by:	Date/Time:	Received by:	Date/Time:

NONCONFORMANCE ISSUE(S):

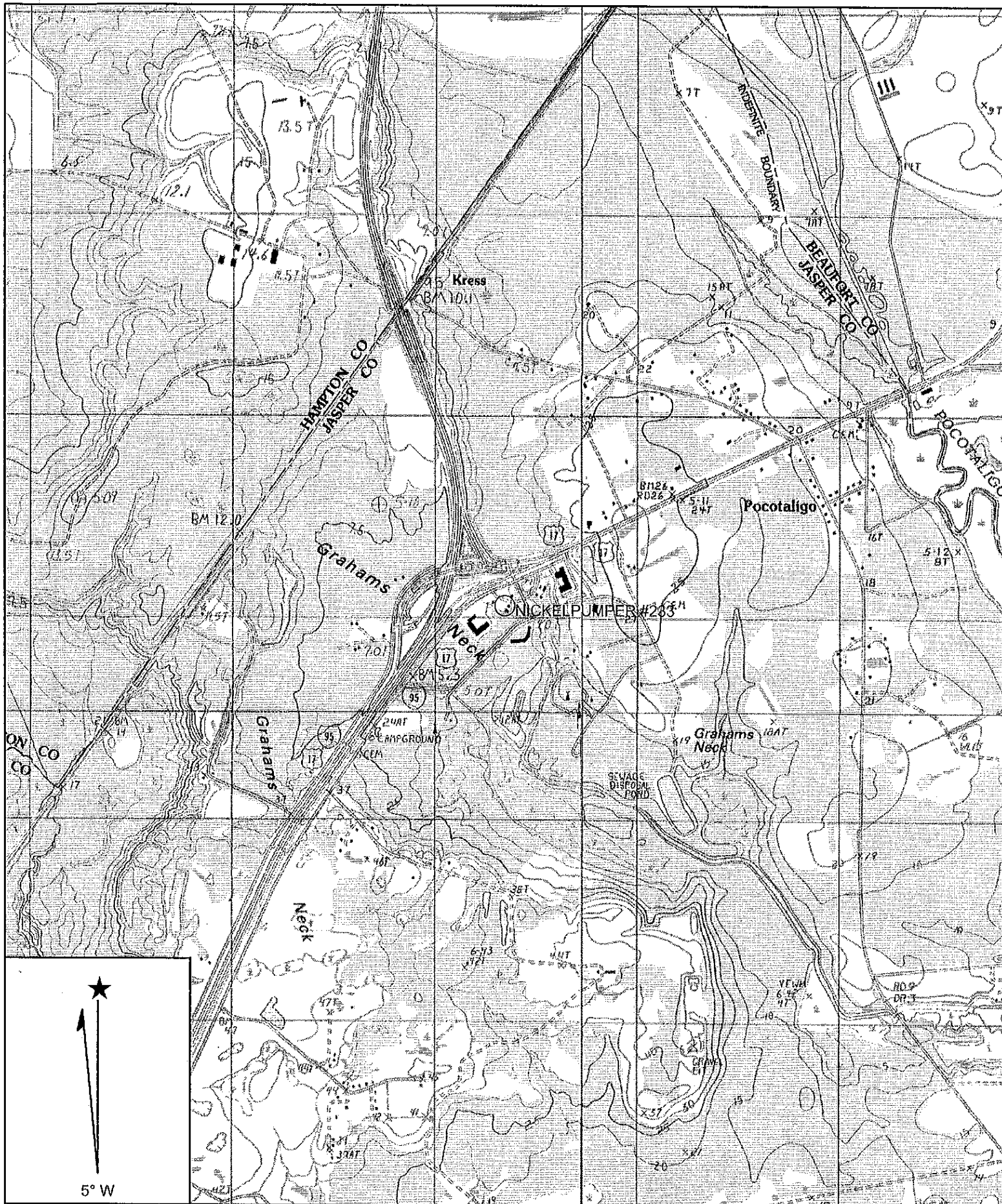
- | | |
|---------------------------|------------------------------------|
| OIL & GREASE METHOD? | METALS LIST? |
| TPH METHOD? | TCLP WHAT? |
| EDB METHOD? | HERB LIST- LONG OR SHORT? |
| NEED LIST OF COMPOUNDS? | RUN SOILS BY 8260 INSTEAD OF 8021? |
| TEMPERATURE UPON RECEIPT? | SATURDAY DELIVERY MARKED? |
| ICE -- OR-- NO ICE?? | SAMPLES TO BE SUBCONTRACTED? |
| NO COC - PLEASE FAX | NO ANALYSIS REQUESTED? |
| DOCUMENTATION LEVEL? | OUT OF HOLDING TIME -- TEST: |

OTHER: Add Pb to 02A-208053

RESOLUTION: per FAX from TA-CLT Svc Ctr.

PERSON CONTACTED	DATE/TIME	VIA E-MAIL or VOICEMAIL	NOTES AND/OR COMMENTS:

APPENDIX D
Topographic Map



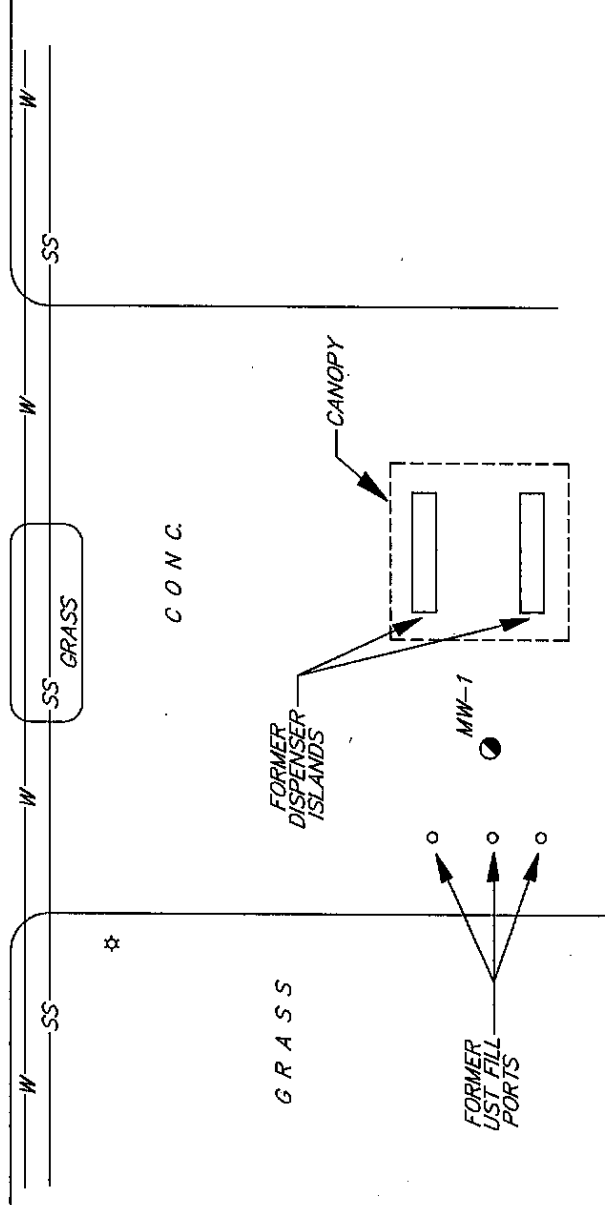
Name: MC PHERSONVILLE
 Date: 1/8/103
 Scale: 1 inch equals 2000 feet

Location: 032° 37' 47.1" N 080° 52' 44.4" W
 Caption: SITE LOCATION MAP
 Nickelpumper #233
 Figure 1

APPENDIX E
Site Base Map



POINT SOUTH DRIVE

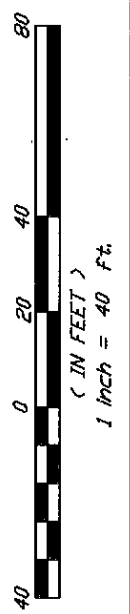


LEGEND

	TYPE III MONITORING WELL
	UNDERGROUND WATER LINE
	UNDERGROUND SANITARY SEWER LINE
	LIGHT POLE

SITE MAP

Nickelpumper #233	3296 Point South Drive
Yemassee, Jasper County, SC	UST Permit #04878
Date: 07/07/03	Drawn by: M. Filardi
GEOLOGICAL RESOURCES, INC.	
Figure: 2	



APPENDIX F
Material Manifest



HAZ-MAT
 TRANSPORTATION AND DISPOSAL
 P. O. BOX 37392 • CHARLOTTE, N.C. 28237
 (704) 332-5600
 FAX (704) 375-7183

Manifest No. 14537
 P.O. No. _____
 Job No. 02 3787

NON-HAZARDOUS SPECIAL WASTE

Section I. GENERATOR (Generator completes all of Section I)

GENERATOR LOCATION		WORK CONTRACTED BY	
NAME <u>HAZ-MAT TRANSPORTATION & DISPOSAL, INC.</u>		Bill To (If different from information at left)	
ORIGINATING ADDRESS <u>3076 ...</u>		NAME <u>HAZ-MAT TRANSPORTATION & DISPOSAL, INC.</u>	
MAILING ADDRESS _____		ADDRESS <u>4913 ...</u>	
CITY _____	STATE <u>NC</u>	ZIP _____	CITY <u>Charlotte</u>
PHONE NO. _____			STATE <u>NC</u>
CONTACT NAME _____			ZIP _____
DES. OF WASTE: <u>11.0 - ...</u>			PHONE NO. <u>704-332-5600</u>
			CONTACT NAME <u>...</u>

No.	Type	Units	Quantity

Section II. INVOICE INFORMATION **GALLONS** **DRUMS**

DESCRIPTION	QUANTITY	LINE TOTAL
1. WATER, OIL & COOLANT PUMPED FROM TANKS OR DRUMS		
2. OFF SPEC LIGHT OIL, WATER & GAS PUMPED FROM TANKS OR DRUMS		
3. 55 GALLON DRUMS REMOVED - SOLID		
4. 55 GALLON DRUMS REMOVED - LIQUID	14	
5.		
6.		
7.		
8.		
9. ARRIVAL TIME:		
10. DEPARTURE TIME:		

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name _____ Signature _____ Shipment Date 12/23/02

Section III. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-j)

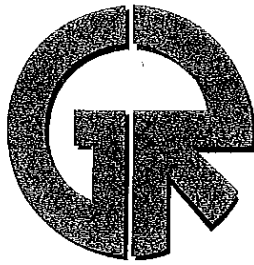
HAZ-MAT		TRANSPORTER II	
TRANSPORTATION AND DISPOSAL P. O. BOX 37392 • CHARLOTTE, N.C. 28237		e. Name _____	
a. Driver Name / Title _____		f. Address <u>4913 ...</u>	
b. Phone No. _____	c. Truck No. _____	g. Driver Name / Title <u>...</u>	
Hazardous Waste Transporter Permits EPA NCR 000003186 EPA NCD048461370		h. Phone No. <u>704-332-5600</u>	
d. _____		i. Truck No. _____	
Driver Signature	Shipment Date	j. Transporter II Permit Nos. _____	
		Driver Signature _____	
		Shipment Date <u>12/23/02</u>	

Section IV. FACILITY INFORMATION AND CERTIFICATE OF DISPOSAL

Site Name: <u>Haz-Mat Transportation & Disposal, Inc.</u>	a. Phone No. <u>704-332-5600</u>
Physical Address: <u>210 Dalton Avenue</u>	b. Mailing Address: <u>P.O. Box 37392</u>
<u>Charlotte, N.C. 28237</u>	<u>Charlotte, N.C. 28237</u>

e. Discrepancy Indication Space
 This is to certify that all non-hazardous material removed from above location has been received and will be disposed of in accordance with applicable local, state and federal regulations in the following manner: (1) Petroleum products are blended into a beneficial reusable fuel for use in large industrial burners. (2) Waste waters are to be treated with polymers, pH adjusters, and a flocculant, then flows through a dissolved air flotation system for pretreatment separation, then into the CMUD sanitation sewer system under permit IUP#5012. (3) Sludges from treatment systems are hauled to E.P.A. approved facilities for proper disposal. Manifest and certificate of disposal are on file. (4) Our treatment system operates on a first in, first out basis and product should be processed within seven days.

SIGNATURE OF FACILITY AGENT _____ DATE _____ MONTH _____ DAY _____ YEAR _____



819

Geological Resources, Inc.

April 28, 2005

Mr. Stephanie Briney
Division of UST Management
South Carolina DHEC
2600 Bull Street
Columbia, SC 29201-1708

Re: Nickle Pumper #233
UST Permit #: 04878
CA #: 24342

File

Dear Ms. Briney:

Please find enclosed the original plus one copy of the Tier I report for activities conducted at the above referenced site. The original invoice has been submitted to Ms. Pat Holland of the Finance Section.

If you have any questions, please call me at (704) 845-4010.

Sincerely,

Shawn L. Judd
Shawn L. Judd
Project Coordinator

**TIER I ASSESSMENT REPORT
NICKLE PUMPER #233
3296 POINT SOUTH DRIVE
YEMASSEE, SOUTH CAROLINA
JASPER COUNTY
UST PERMIT #: 04878
CA #: 24342**

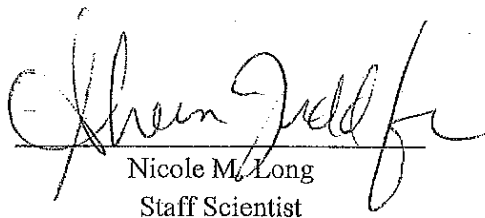
Prepared For:

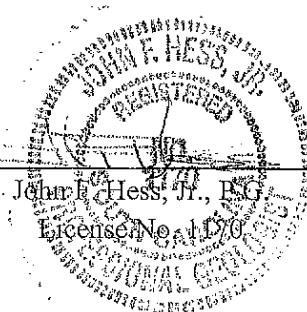
Sunstar, Inc.
9366 Ford Avenue
Richmond Hill, Georgia 31324

Prepared By:

Geological Resources, Inc.
2301-F Crown Point Executive Drive
Charlotte, North Carolina 28227

April 28, 2005


Nicole M. Long
Staff Scientist



TIER I ASSESSMENT REPORT OF FINDINGS

I. INTRODUCTION

A. Owner/Operator Information

Name: Sunstar, Inc.

Address: 9366 Ford Avenue, Richmond Hill, Georgia 31324

Telephone Number: Unknown

B. Property Owner Information

Name: Sunstar, Inc.

Address: 9366 Ford Avenue, Richmond Hill, Georgia 31324

Telephone Number: Unknown

C. Contractor Information

Name: Geological Resources, Inc.

Address: 2301-F Crown Point Executive Drive, Charlotte, North Carolina 28227

Telephone Number: (704) 845-4010

D. Site Information

Name: Nickle Pumper #233

Address: 3296 Point South Drive, Yemassee, South Carolina 29945

Description of Adjacent Land Use: Commercial

Predicted Future Land Use: Commercial

E. Site History

Date Release Reported to SCDHEC: May 16, 2002

Estimated Quantity of Release: Unknown

Cause of Release: Unknown

UST No.	Product	Date Installed	Currently In-Use?	Date Closed
1	Gasoline	1975	No	Temporarily of out service
2	Gasoline	1975	No	Temporarily of out service
3	Gasoline	1975	No	Temporarily of out service

Other releases at this site?

Yes

No

If yes, date reported to SCDHEC: N/A

Status of release: N/A

No further action date: N/A

II. SITE CHARACTERISTICS

A. Site Geography: The site is located at 3296 Point South Drive in Jasper County at latitude 32° 37' 46.1" north and longitude 80° 52' 44.1" west. The majority of the site is vacant with the exception of a free standing canopy on the southern end of the property. The property to the north contains a vacant building and a former petroleum retail facility. The property to the east is an open field. The property to the south contains a Days Inn and the property to the west contains a car wash. Please note that the UST basin contains one 6,000-gallon gasoline UST, one 8,000-gallon gasoline UST and one 10,000-gallon gasoline UST which are temporarily out of service. The former dispenser island is located on the southern portion of the property. Concrete covers the UST basin as well as the areas to the north, east and south of the source area. Grass covers the area to the west of the source area.

B. Mean Elevation of Site: Approximately 10 feet above mean sea level.

Additional Comments: N/A

C. Exposure Analysis

Describe all potential receptors and preferred pathways within a 1,000-foot radius of the site.

Two water supply wells (WSW-1 and WSW-2) were identified within a 1,000-foot of the source area. Water supply well WSW-1 is located approximately 400 feet east of the source and is reportedly used for irrigation purposes only. Water supply well WSW-2 is located approximately 850 feet east of the source area on private property. However, the water supply well is owned by the Beaufort-Jasper Water & Sewer Authority. Public water is provided in the area by the Beaufort-Jasper Water & Sewer Authority. Two ponds are located approximately 400 feet northeast and 700 feet southeast of the source area, respectively.

Additional Comments: According to Mr. Hal Jones, Planning and Building Services Director at the Jasper County Planning and Building Services Department, the site and all properties located within a 1,000-foot radius are currently zoned General Commercial (GC).

D. Utilities Survey

List the utilities on-site, and adjacent to the site within a 250-foot radius, that could serve as exposure points or ingestion pathways.

Utility	On-site or Distance/Direction from Site	Depth to Utility
Electric	On-site/approximately 2 feet south of the source area. Off-site/approximately 135 feet east of the source area.	~3'
Water	On-site/approximately 80 feet north of the source area. Off-site/parallel to Point South Drive.	~3'
Sanitary Sewer	On-site/approximately 80 feet north of the source area. Off-site/parallel to Point South Drive.	~3'
Storm Sewer	On-site/approximately 80 feet north of the source area. Off-site/parallel to Point South Drive.	~3'

Additional Comments: N/A

E. Site Geology

Provide a brief description of the regional geology and hydrogeology.

The site is located in the Coastal Plain Physiographic Province of South Carolina. The Coastal Plain is part of an extensive geologic province that roughly parallels the Atlantic Ocean and continues northward and southward through the neighboring states. In South Carolina, the Coastal Plain is expressed physiographically in three regional belts: The Upper Coastal Plain, The Middle Coastal Plain and the Lower Coastal Plain. The surface deposits in the Coastal Plain are generally characterized by a recurrent sequence of clean fine to medium sand, muddy fine sand, and clean to muddy, medium to coarse sand or gravelly sand. These textures represent changes in depositional environments from beach to backbarrier, to river, respectively. The major aquifer systems in the Middle and Lower Coastal Plain are the Middendorf Aquifer System, the Black Creek Aquifer System, the Tertiary Aquifer System and the Surficial Aquifer System. The Surficial Aquifer System consists mostly of beds of unconsolidated sand, shelly sand and shell. In places, clay beds are sufficiently thick and continuous to divide the system into two or three aquifers. However, the system is mostly undivided. Complex interbedding of fine-and coarse-grained textured sediments is typical of the system. The thickness of the Surficial Aquifer System is typically less than 50 feet and thickens coastward. The sediments that comprise the Surficial Aquifer System range from late Miocene to Holocene in age.

Provide a brief description of the site specific geology and stratigraphy:

The site is underlain by silty fine sand grading downward to fine sandy clay. The percentages of sand, silt and clay in a soil sample collected from MW-2 at a depth of 7 feet were 82.2%, 17.8% and 0.0%, respectively. The depths to ground water in monitoring wells at the site measured on April 12, 2005 ranged from 1.56 to 3.36 feet. Based on data obtained on April 11, 2005, the triangulated direction of ground water flow was toward the southeast.

F. Soil Boring Data

Drilling Date(s): 04/10/05 through 04/11/05

Provide a brief justification for the location of the soil borings.

SB-1 - UST Basin

SB-2/MW-2 - UST Basin

SB-3 - Product Piping/Dispenser Island

SB-4 - Product Piping

SB-5 - Product Piping/Dispenser Island

SB-6 - Product Piping

SB-7 - Dispenser Island

SB-8/MW-4 - Background Boring

Background Boring:

Borehole: SB-8/MW-4

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-4'	N/A	Grayish brown silty fine sand; loose.	Wet; no odor.
4-12'	N/A	Greenish gray fine sandy clay; firm.	Wet; no odor.

UST Area Borings:

Borehole: SB-1

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-2'	1,519 @ 1.5'	Grayish brown silty fine sand; loose.	Dry; petroleum odor.

Borehole: SB-2/MW-2

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-10'	2,000 + @ 1.5'	Grayish brown silty fine sand; loose.	Wet @ 3'; strong petroleum odor.
10-12'	N/A	Greenish gray fine sandy clay; firm.	Wet; strong petroleum odor.

Product Piping/Dispenser Borings:

Borehole: SB-3

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-2'	1.5	Grayish brown silty fine sand; loose.	Dry; minor petroleum odor.

Borehole: SB-4

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-2'	N/A	Grayish brown silty fine sand; loose.	Dry; minor petroleum odor.

Borehole: SB-5

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-2'	N/A	Grayish brown silty fine sand; loose.	Dry; minor petroleum odor.

Product Piping/Dispenser Island Borings:

Borehole: SB-6

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-2'	N/A	Brown silty fine sand; loose.	Dry; strong petroleum odor.

Borehole: SB-7

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-2'	N/A	Grayish brown silty fine sand; loose.	Dry; no odor.

Soil Analytical Data (mg/kg):

COC	RBSL ¹	SB-1	SB-2 / MW-2	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8 / MW-4
Benzene	0.007	0.0458²	3.66	0.0033	0.0146	0.0201	3.88	<0.0024 ³	NR ⁴
Toluene	1.450	0.0061	92.7	0.0075	0.179	0.0097	99.8	<0.0024	NR
Ethylbenzene	1.150	0.244	29.6	0.132	<0.0777	0.0294	36.5	<0.0024	NR
Xylenes	14.500	0.901	246	0.0403	0.150	0.0211	196	<0.0024	NR
Total BTEX	---	1.1969	371.96	0.1831	0.3436	0.0803	336.18	<0.0096	NR
Naphthalene	0.036	0.0968	18.9	0.00574	0.00947	0.00614	19.1	<0.00606	NR
Benzo(a)anthracene	0.066	<0.085 ³	<0.080	<0.077	<0.074	<0.077	<0.076	<0.078	NR
Benzo(b)fluoranthene	0.066	<0.085	<0.080	<0.077	<0.074	<0.077	<0.076	<0.078	NR
Benzo(k)fluoranthene	0.066	<0.085	<0.080	<0.077	<0.074	<0.077	<0.076	<0.078	NR
Chrysene	0.066	<0.085	<0.080	<0.077	<0.074	<0.077	<0.076	<0.078	NR
Dibenzo(a,h)anthracene	0.066	<0.085	<0.080	<0.077	<0.074	<0.077	<0.076	<0.078	NR
TPH 3550	---	NR	364	NR	NR	NR	NR	NR	NR
TOC (background boring)	---	NR	NR	NR	NR	NR	NR	NR	41,600

Notes:

1. May 2001 Risk-Based Screening Levels for sandy soil for all separation distances.
2. Concentrations in bold face type exceeded the RBSL.
3. Less than the report limit specified in the laboratory report.
4. Analysis not requested.

Discuss the horizontal and vertical extent of COC in soil.

Concentrations of one or more BTEX constituents and/or naphthalene that exceeded the RBSLs were reported in soil samples collected from SB-1, SB-2 and SB-4 through SB-6. However, due to the shallow depth to ground water, the COC are probably present due to fluctuations in the water table and not as a direct result of the release.

Additional Comments: NA

**G. Chemicals of Concern - Ground Water
Well Installation Information**

Well No.	Installation Date	Development Date	Sampling Date
MW-1	12/17/02	04/12/05	04/12/05
MW-2	04/11/05	04/12/05	04/12/05
MW-3	04/11/05	04/12/05	04/12/05
MW-4	04/11/05	04/12/05	04/12/05

Soil Analytical Data - Monitoring Wells

Soil samples were collected from SB-2 and SB-8 during the installation of MW-2 and MW-4, respectively. Please refer to the table containing soil analytical data for the results of analyses.

Summary of Monitoring Well and Ground Water Data (feet)

Well No.	TOC Elevation	Depth to Water	Water Table Elevation	Screened Interval
MW-1	100.00	2.00	98.00	2.5-12.5
MW-2	100.01	1.91	98.10	2-12
MW-3	99.50	1.56	97.94	2-12
MW-4	99.55	3.36	96.19	2-12

Dissolved Oxygen Measurements (mg/L)

	MW-1	MW-2	MW-3	MW-4
Dissolved Oxygen	4.1	5.3	4.6	6.5

Ground Water Analytical Data¹

COC	RBSL ²	MW-1	MW-2	MW-3	MW-4	WSW-1
Free Product Thickness	---	---	---	---	---	---
Benzene	5	7,000³	918	24.6	<1.0 ⁴	<1.0
Toluene	1,000	15,200	4,720	19.3	<1.0	<1.0
Ethylbenzene	700	2,140	440	57.4	<1.0	<1.0
Xylenes	10,000	10,100	1,920	96.1	<1.0	<1.0
Total BTEX	---	34,440	7,998	197.4	<4.0	<4.0
MTBE	40	9,450	1,600	2.4	68.6	<1.0
Naphthalene	25	830	201	83.5	<5.00	<5.00
EDB	0.05	0.29	<0.02	<0.02	<0.02	NR ⁵
Lead	15	22.0	92.0	156	22.0	NR
Benzo(a)anthracene	10	NR	<2.3	<2.0	<2.0	NR
Benzo(b)fluoranthene	10	NR	<2.3	<2.0	<2.0	NR
Benzo(k)fluoranthene	10	NR	<2.3	<2.0	<2.0	NR
Chrysene	10	NR	<2.3	<2.0	<2.0	NR
Dibenzo(a,h)anthracene	10	NR	<2.3	<2.0	<2.0	NR
Methane	---	NR	1.10	0.329	<0.026	NR
Nitrate	---	NR	<0.10	<0.10	<0.10	NR
Sulfate	---	NR	3.52	9.50	8.61	NR
Ferrous Iron	---	NR	21.1	67.8	3.87	NR

Notes:

1. COC concentrations reported in µg/l; natural attenuation parameter concentrations reported in mg/l.
2. May 2001 Risk-Based Screening Levels.
3. Concentrations in bold face type exceeded the RBSLs.
4. Less than the report limit specified in the laboratory report.
5. Analysis not requested.

Additional Comments: NA

H. Aquifer Characteristics

Hydraulic Conductivity: 2.41×10^{-5} to 6.98×10^{-5} feet/minute (3.47×10^{-2} to 0.10 feet/day)

Hydraulic Gradient: 0.02 feet/foot

Effective Porosity: 0.23

Estimated Seepage Velocity: 3.02×10^{-3} to 8.70×10^{-2} feet/day (1.10 to 3.18 feet/year)

Additional Comments: N/A

III. TIER I EVALUATION

A. Current Land Use

Identify any potential receptors or human exposure pathways (e.g. basements, contaminated soils from UST closures, etc.) within a 1,000-foot radius for current land use.

Media (For Exposure)	Exposure Route	Pathway Selected for Evaluation (Yes/No)	Exposure Point or Reason for Non-Selection	Data Requirements (IF Pathway Selected)
Air	Inhalation Explosion Hazard	Yes <u>No</u> Yes <u>No</u>	Utilities do not intersect contaminant plume.	None
Ground Water	Ingestion Dermal Contact Volatile Inhalation	<u>Yes</u> No <u>Yes</u> No <u>Yes</u> No	Two water supply wells were identified within a 1,000-foot radius of the source area.	Tier II Evaluation
Surface Water	Ingestion Dermal Contact Volatile Inhalation	<u>Yes</u> No <u>Yes</u> No <u>Yes</u> No	Two surface water bodies were identified within a 1,000-foot radius of the source area.	Tier II Evaluation
Surficial Soil	Ingestion Dermal Contact Volatile Inhalation Leaching to Ground Water	Yes <u>No</u> Yes <u>No</u> Yes <u>No</u> Yes <u>No</u>	The UST basin and dispenser island are paved; depth to the seasonal high water table <4 feet.	None
Subsurface Soil	Ingestion Dermal Contact Volatile Inhalation Leaching to Ground Water	Yes <u>No</u> Yes <u>No</u> Yes <u>No</u> Yes <u>No</u>	The UST basin and dispenser island are paved; depth to the seasonal high water table <4 feet.	None

B. Future Land Use

Identify any potential receptors or human exposure pathways (e.g. basements, contaminated soils from UST closures, etc.) within a 1,000-foot radius for future land use.

Media (For Exposure)	Exposure Route	Pathway Selected for Evaluation (Yes/No)	Exposure Point or Reason for Non-Selection	Data Requirements (If Pathway Selected)
Air	Inhalation Explosion Hazard	Yes <u>No</u> Yes <u>No</u>	Utilities do not intersect contaminant plume.	None
Ground Water	Ingestion Dermal Contact Volatile Inhalation	<u>Yes</u> No <u>Yes</u> No <u>Yes</u> No	Two water supply wells were identified within a 1,000-foot radius of the source area.	Tier II Evaluation
Surface Water	Ingestion Dermal Contact Volatile Inhalation	<u>Yes</u> No <u>Yes</u> No <u>Yes</u> No	Two surface water bodies were identified within a 1,000-foot radius of the source area.	Tier II Evaluation
Surficial Soil	Ingestion Dermal Contact Volatile Inhalation Leaching to Ground Water	Yes <u>No</u> Yes <u>No</u> Yes <u>No</u> Yes <u>No</u>	The UST basin and dispenser island are paved; depth to the seasonal high water table <4 feet.	None
Subsurface Soil	Ingestion Dermal Contact Volatile Inhalation Leaching to Ground Water	Yes <u>No</u> Yes <u>No</u> Yes <u>No</u> Yes <u>No</u>	The UST basin and dispenser island are paved; depth to the seasonal high water table <4 feet.	None

Recommendations for Further Action:

Concentrations of each BTEX constituent and naphthalene that exceeded the RBSLs were reported in soil samples collected at the site. However, the surficial soils are within the zone of water table fluctuation. Therefore, no additional soil assessment or remediation should be required. Concentrations of each BTEX constituent, naphthalene, MTBE, EDB and lead that exceeded the RBSLs were reported in ground water samples collected at the site. Due to the presence of water supply wells and two surface water bodies within a 1,000-foot radius of the source area, a Tier II evaluation should be performed.

Attachments:

Figures:

Figure 1: USGS Topographic Map

Figure 2: Site Vicinity Map

Figure 3: Site Map

Figure 4: Soil Quality Map

Figure 5: Ground Water Quality Map

Appendices:

Appendix A: Well Construction Records

Appendix B: Ground Water Sampling Data Sheets

Appendix C: Laboratory Reports

Appendix D: Slug Test Data

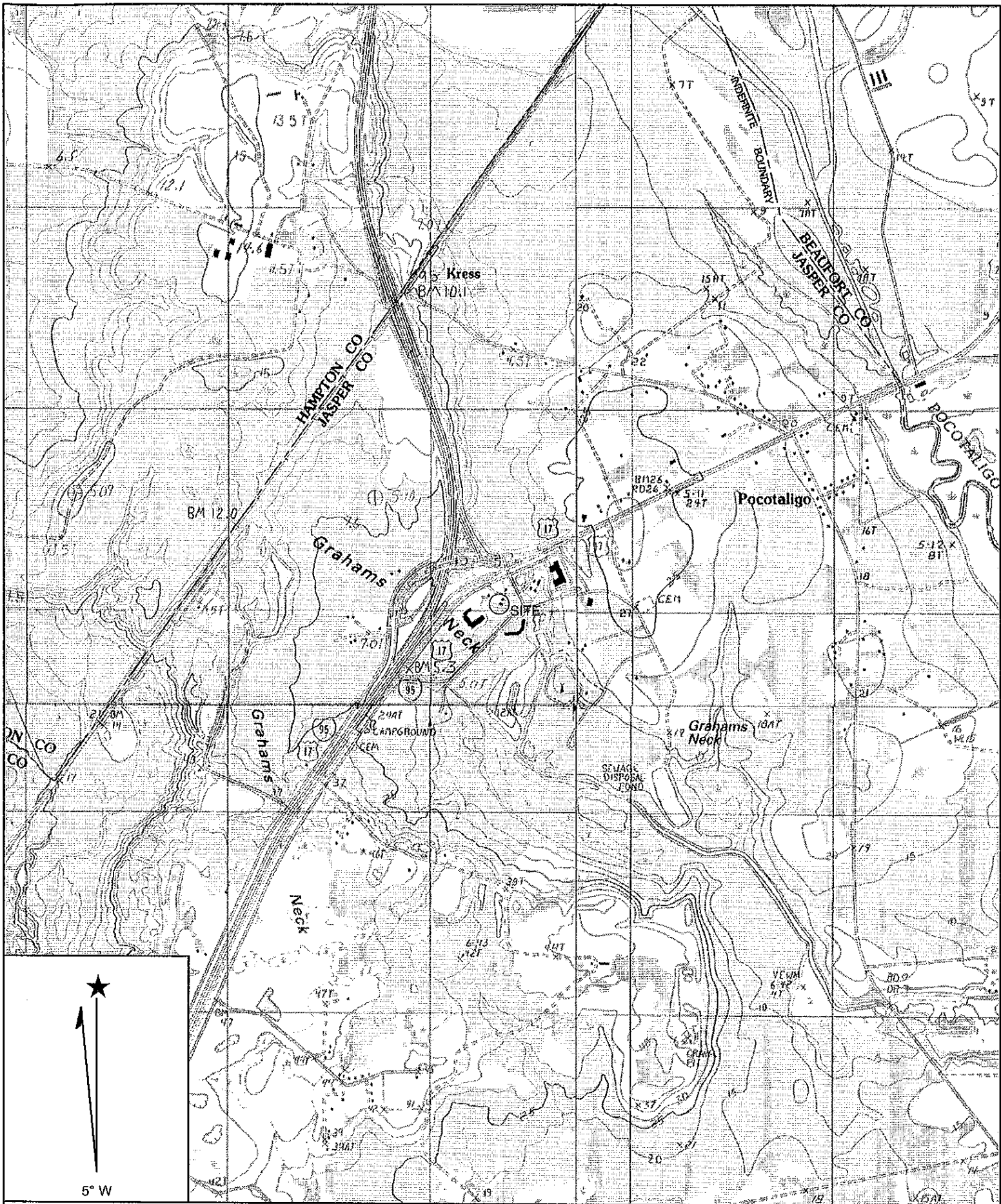
Appendix E: Certificate of Disposal

Appendix F: Jasper County Tax Assessor's Office & Planning Officials

Appendix G: Summary of Adjacent Property Owner Information

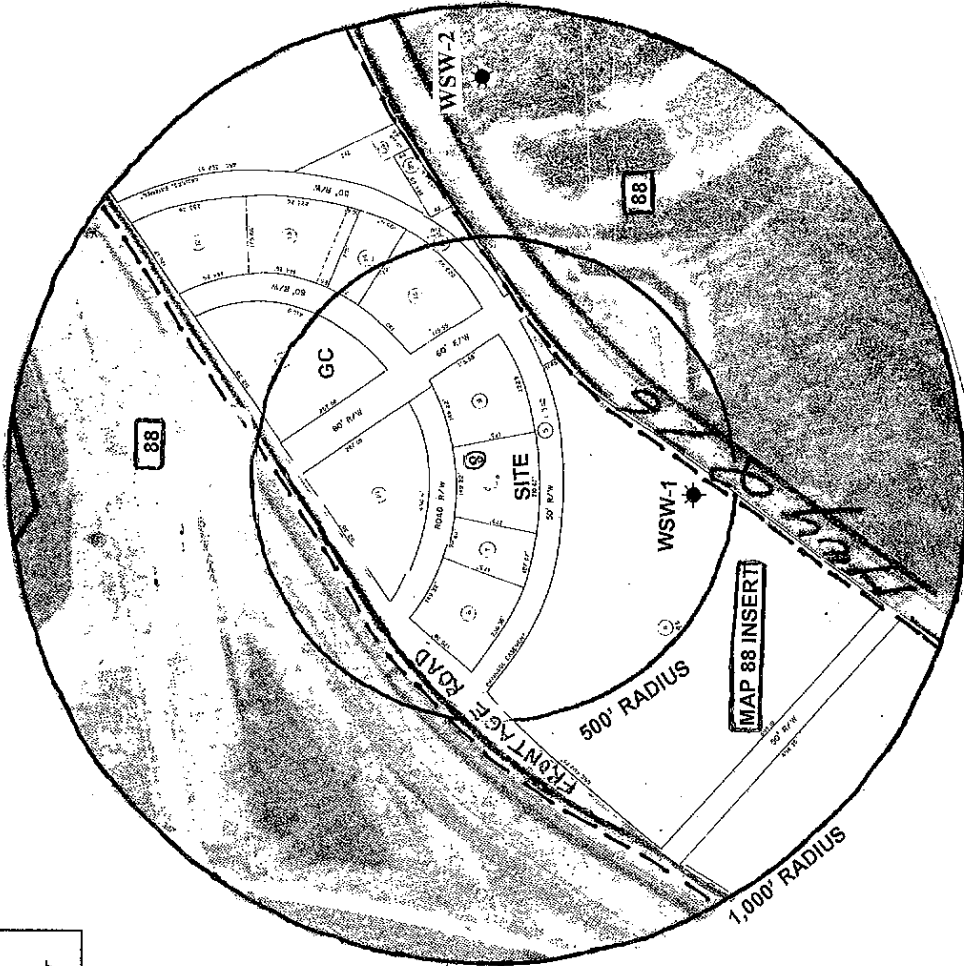
Appendix H: Summary of Water Supply Well Owner Information

FIGURES



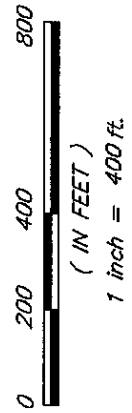
Name: MC PHERSONVILLE
 Date: 4/25/105
 Scale: 1 inch equals 2000 feet

Location: 032° 37' 46.1" N 080° 52' 44.1" W
 Caption: USGS TOPOGRAPHIC MAP
 Nickelpumper #233
 Figure 1 UST Permit #:04878



LEGEND

	JASPER COUNTY TAX MAP
	JASPER COUNTY LOT NUMBER
	PROPERTY LINE
	TAX MAP BOUNDARY LINE
	WATER SUPPLY WELL
	GENERAL COMMERCIAL ZONING DISTRICT



SITE VICINITY MAP

Nickelumpoor #233
 Yamassas, Beaufort County, SC
 UST Permit # 04678
 Date: 04/25/05
 Drawn by: L.M.
 Figure: 2

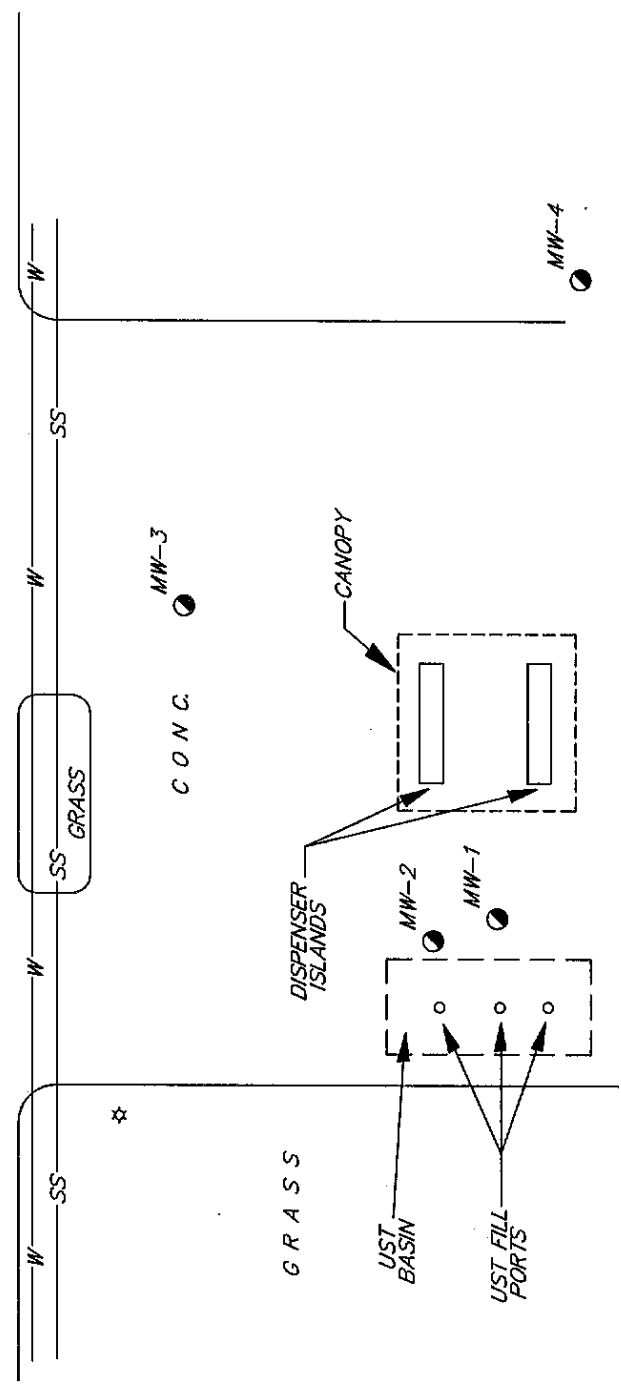
Geological Resources, Inc.
 Environmental and Mining Geologists
 Charlotte, North Carolina
 Greensboro, North Carolina



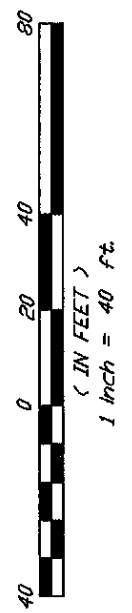
LEGEND

●	TYPE III MONITORING WELL
—W—	UNDERGROUND WATER LINE
—SS—	UNDERGROUND SANITARY SEWER LINE
*	LIGHT POLE

POINT SOUTH DRIVE



WSW-1
390°



SITE MAP

Nickelpumper #233	3286 Point South Drive
Yemassee, Jasper County, SC	UST Permit #M4878
Date: 04/25/05	Drawn by: L.M. Figure: 3
GEOLOGICAL RESOURCES, INC.	

LEGEND

- TYPE III MONITORING WELL
- W— UNDERGROUND WATER LINE
- SS— UNDERGROUND SANITARY SEWER LINE
- ☆ LIGHT POLE

1.5
0.0458
0.0061
0.244
0.901
0.0968
<0.425

- SAMPLE DEPTH (feet)
- BENZENE
- TOLUENE
- ETHYLBENZENE
- XYLENES
- NAPHTHALENE
- TOTAL PAHs

CONCENTRATIONS IN mg/kg

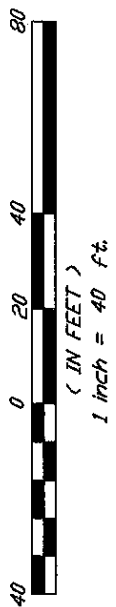
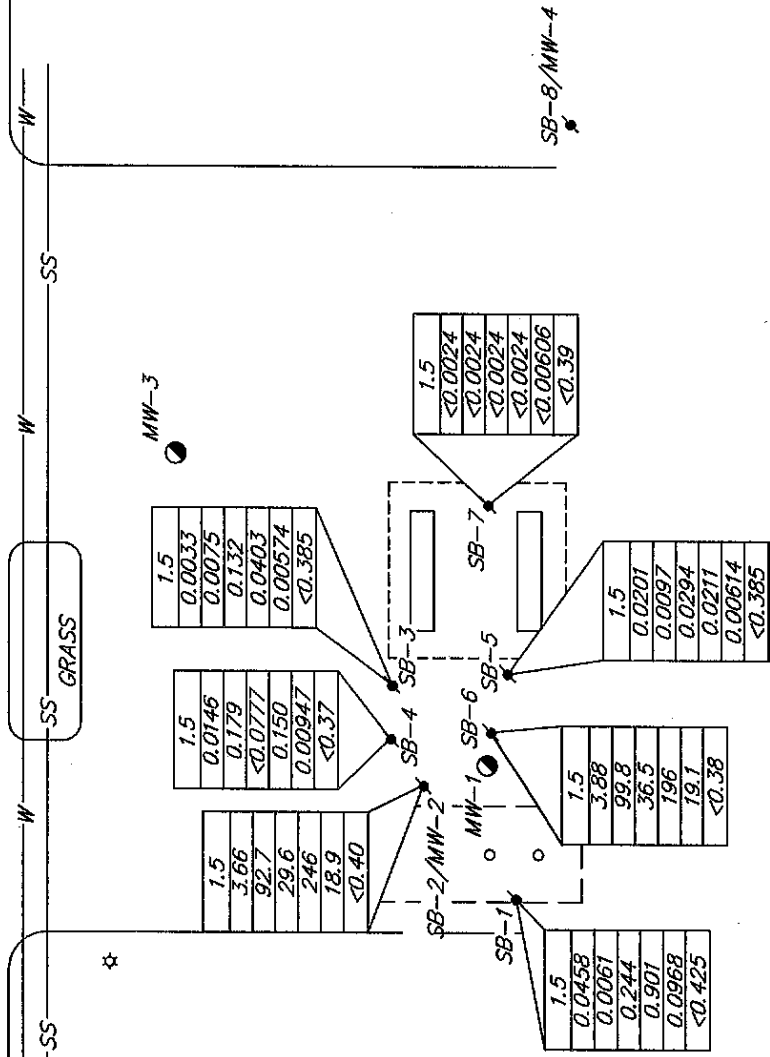
LESS THAN THE REPORT LIMIT SPECIFIED IN THE LABORATORY REPORT

<0.085

NOTES:

TPH 3550 CONCENTRATION IN SB-2/MW-2 = 364 mg/kg
 TOC CONCENTRATION IN SB-8/MW-4 = 41,600 mg/kg

POINT SOUTH DRIVE



SOIL QUALITY MAP (04/11/05)	
Nickelbump #233	3286 Point South Drive
Yemassee, Jasper County, SC	UST Permit #04878
Date: 04/25/05	Drawn by: L.M. Figure 4
GEOLOGICAL RESOURCES, INC.	



POINT SOUTH DRIVE

W SS GRASS W

GRASS

<1.0
<1.0
<1.0
<1.0
68.6
<5.00
<0.02
22.0
<10.0

MW-4
(96.19)

24.6
19.3
57.4
96.1
2.4
83.5
<0.02
156
<10.0

MW-3
(97.94)

918
4,720
440
1,920
1,600
201
<0.02
92.0
<11.5

7,000
15,200
2,140
10,100
9,450
830
0.29
22.0
NR

<1.0
<1.0
<1.0
<5.00
NR
NR
NR

WSW-1
~390'

97.94
(98.10)

MW-2
(98.10)

MW-1

LEGEND

- TYPE III MONITORING WELL
 - ⊠ WATER SUPPLY WELL
 - W— UNDERGROUND WATER LINE
 - SS— UNDERGROUND SANITARY SEWER LINE
 - ☆ LIGHT POLE
 - (97.94) GROUND WATER ELEVATION (ft)
 - ▬ WATER TABLE SURFACE CONTOUR
 - 7,000 BENZENE
 - 15,200 TOLUENE
 - 2,140 ETHYLBENZENE
 - 10,100 XYLENES
 - 9,450 MTBE
 - 830 NAPHTHALENE
 - 0.29 EDB
 - 22.0 TOTAL LEAD
 - NR TOTAL PAHs
- CONCENTRATIONS IN ug/l
- <0.02 LESS THAN THE REPORT LIMIT SPECIFIED IN THE LABORATORY REPORT
- NR ANALYSIS NOT REQUESTED



GROUND WATER QUALITY MAP (04/12/05)
Nickelbumpier #233 3286 Point South Drive
Yemassee, Jasper County, SC UST Permit #04872
Date: 04/25/05 | Drawn by: LHM | Figure: 5
GEOLOGICAL RESOURCES, INC.

APPENDICES

APPENDIX A
Well Construction Records



Water Well Record

Bureau of Water

2600 Bull Street, Columbia, SC-29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:

Name: SonStar Inc.
 (last) (first)
 Address: 9366 Ford Avenue
 City: Richmond Hill State: GA Zip: 31324
 Telephone: Work: Unknown Home:

7. PERMIT NUMBER:

OMW 9130

8. USE:

- Residential Public Supply Process
 Irrigation Air Conditioning Emergency
 Test Well* Monitor Well Replacement

2. LOCATION OF WELL:

COUNTY: Jasper

Name: Dickie Dumper #233
 Street Address: 3296 Point South Drive
 City: Fernandale, SC Zip: 29945

Latitude: 32° 37' 46.1" N Longitude: 80° 52' 44.1" W

9. WELL DEPTH (completed)

Date Started: 4/11/05

12 ft. Date Completed: 4/11/05

10. CASING:

- Threaded Welded
 Diam.: 2"
 Type: PVC Galvanized
 Steel Other
2 in. to 12 ft. depth
 in. to ft. depth

Height: Above Below
 Surface ft.
 Weight lb./ft.
 Drive Shoes? Yes No

3. PUBLIC SYSTEM NAME:

PUBLIC SYSTEM NUMBER:

Dickie Dumper #233 MW-2

4. ABANDONMENT:

Yes No

Grouted Depth: from ft. to ft.

11. SCREEN:

Type: Sched Diam.: 2"
 Slot/Gauge: 0.01 Length: 10'
 Set Between: 0 ft. and 2 ft. NOTE: MULTIPLE SCREENS
 ft. and ft. USE SECOND SHEET
 Sieve Analysis Yes (please enclose) No

12. STATIC WATER LEVEL

1.91 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface:

 ft. after hrs. Pumping G.P.M.
 Pumping Test: Yes (please enclose) No
 Yield:

14. WATER QUALITY

Chemical Analysis Yes No Bacterial Analysis Yes No
 Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack)

Installed from Yes No ft. to 12 ft.
 Effective size #2 Uniformity Coefficient

16. WELL GROUTED?

Yes No
 Neal Cement Bentonite Bentonite/Cement Other
 Depth: From 0 ft. to 0.5 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:

Type ft. direction
 Well Disinfected Yes No Type: Amount:

18. PUMP:

Date Installed: Not Installed
 Mfr. Name: Model No.:
 H.P. Volts Length of drop pipe ft. Capacity gpm
 TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER:

Burt Brown CERT. NO.: 1695
 Address: (Print) 23d + Crown point ex. dr. Level: A B C D (circle one)
Charlotte, NC 28227
 Telephone No.: 704-845-4400 Fax No.: 704-845-4012

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under

my direction and this report is true to the best of my knowledge and belief.

Signed: H. Burt Brown Date: 4/11/05
 Well Driller

If D Level Driller, provide supervising driller's name:

Formation Description	Thickness of Stratum	Depth to Bottom of Stratum
Orange Brown loose fine sand, wet @ ~3' strong	0	10'
Petroleum Odor		
Greenish gray firm	10'	12'
Fine Sand Clay		
Wet, Strong Petroleum Odor		

*Indicate Water Bearing Zones

(Use a 2nd sheet if needed)

5. REMARKS:

Bentonite 0.5-1"
MW-2

6. TYPE: Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other Caugered



Water Well Record
Bureau of Water
 2600 Bull Street, Columbia, SC-29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
 Name: Sunstar Inc. (last) (first)
 Address: 936b Ford Avenue
 City: Richmond Hill State: GA Zip: 31324
 Telephone: Work: Unknown Home: _____

2. LOCATION OF WELL: COUNTY: Jasper
 Name: Nickle Pumper #233
 Street Address: 3296 Point South Dr.
 City: Yemassee, SC Zip: 29945
 Latitude: 32° 37' 46.1" N Longitude: 80° 52' 44.1" W

3. PUBLIC SYSTEM NAME: Nickle Pumper #233 PUBLIC SYSTEM NUMBER: MW-3

4. ABANDONMENT: Yes No
 Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Corayon brown loose	0'	8'
Fine silty sand, wet @ ~3' strong		
Petroleum odor		
Greenish gray	8'	12'
firm fine sand		
Clay, wet, strong		
Petroleum odor		

*Indicate Water Bearing Zones (Use a 2nd sheet if needed)
 5. REMARKS:
Bentonite 0.5-1'
MW-3

6. TYPE: Mud Rotary Jailed Bored
 Dug Air Rotary Driven
 Cable-tool Other Augered

7. PERMIT NUMBER: UMW 19130

8. USE: Residential Public Supply Process
 Irrigation Air Conditioning Emergency
 Test Well Monitor Well Replacement

9. WELL DEPTH (completed) _____ ft. Date Started: 4/11/05
 _____ ft. Date Completed: 4/11/05

10. CASING: Threaded Welded
 Diam.: 2"
 Type: PVC Galvanized
 Steel Other
 _____ in. to _____ ft. depth
 _____ in. to _____ ft. depth
 Height: Above Below
 Surface _____ ft.
 Weight _____ lb./ft.
 Drive Shoe? Yes No

11. SCREEN: Type: Sen 40 Diam.: 2"
 Slot/Gauge: 0.01 Length: 10'
 Set Between: 0 ft. and 2 ft. NOTE: MULTIPLE SCREENS
 _____ ft. and _____ ft. USE SECOND SHEET
 Sieve Analysis Yes (please enclose) No

12. STATIC WATER LEVEL 1.5' ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
 _____ ft. after _____ hrs. Pumping _____ G.P.M.
 Pumping Test: Yes (please enclose) No.
 Yield: _____

14. WATER QUALITY
 Chemical Analysis Yes No Bacterial Analysis Yes No
 Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) Yes No
 Installed from 1 ft. to 12 ft.
 Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? Yes No
 Neat Cement Bentonite Bentonite/Cement Other
 Depth: From 0 ft. to 0.5 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. direction
 Type _____
 Well Disinfected Yes No Type: _____ Amount: _____

18. PUMP: Date Installed: _____ Not Installed
 Mr. Name: _____ Model No.: _____
 H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
 TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: Burt Brown CERT. NO.: 10095
 Address: (Print) 2301-Ferrow Point ex. dr. Level: A B C D (circle one)
Chapel Hill, NC 28227
 Telephone No.: 704-845-4010 Fax No.: 704-845-4012

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under
 my direction and this report is true to the best of my knowledge and belief.

Signed: H. Burt Brown Date: 4/11/05
 Well Driller

If D Level Driller, provide supervising driller's name:



Water Well Record
Bureau of Water
 2600 Bull Street, Columbia, SC-29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:

Name: SunStar Inc.
 (last) (first)
 Address: 936b Ford Avenue
 City: Richmond Hill State: GA Zip: 31324
 Telephone: Work: Unknown Home: _____

2. LOCATION OF WELL:

COUNTY: Jasper
 Name: Nickle Pumper #233
 Street Address: 3296 Point South Dr.
 City: Yemassee, SC Zip: 29945
 Latitude: 32° 37' 46.1" N Longitude: 80° 52' 44.1" W

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:

Nickle Pumper #233 MW-4

4. ABANDONMENT: Yes No

Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
<u>Cerayish brown loose</u>	<u>0'</u>	<u>8'</u>
<u>fine silty sand,</u>		
<u>wet @ ~3' strong</u>		
<u>petroleum odor</u>		
<u>crayish gray firm</u>	<u>8'</u>	<u>12'</u>
<u>fine sandy clay</u>		
<u>wet, strong petroleum</u>		
<u>odor</u>		

*Indicate Water Bearing Zones
 (Use a 2nd sheet if needed)

5. REMARKS:

Bentonite 0.5-1'
MW-4

- 6. TYPE:** Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other augered

7. PERMIT NUMBER:

OMW 19130

8. USE:

- Residential Public Supply Process
 Irrigation Air Conditioning Emergency
 Test Well Monitor Well Replacement

9. WELL DEPTH (completed)

Date Started: 4/1/05
 Date Completed: 4/1/05

10. CASING: Threaded Welded

Diam.: 2"
 Type: PVC Galvanized
 Steel Other
2 in. to 12 ft. depth
 _____ in. to _____ ft. depth

Height: Above Below
 Surface _____ ft.
 Weight _____ lb./ft.
 Drive Shoe? Yes No

11. SCREEN:

Type: Sch 40 Diam.: 2"
 Slot/Gauge: 0.01 Length: 10'
 Set Between: 0 ft. and 2 ft. NOTE: MULTIPLE SCREENS
 _____ ft. and _____ ft. USE SECOND SHEET
 Sieve Analysis Yes (please enclose) No

12. STATIC WATER LEVEL 3.30 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.

_____ ft. after _____ hrs. Pumping _____ G.P.M.
 Pumping Test: Yes (please enclose) No
 Yield: _____

14. WATER QUALITY

Chemical Analysis Yes No Bacterial Analysis Yes No
 Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) Yes No

Installed from _____ ft. to 12 ft.
 Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? Yes No

Neat Cement Bentonite Bentonite/Cement Other
 Depth: From 0 ft. to 0.5' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction

Type _____
 Well Disinfected Yes No Type: _____ Amount: _____

18. PUMP: Date Installed: _____ Not installed

Mfr. Name: _____ Model No.: _____
 H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
 TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: Burt Brown CERT. NO.: 1695

Address: (Print) 2301-F crown point ex. dr. Level: A B C D (circle one)
Charlotte, NC 28227
 Telephone No.: 704 8454010 Fax No.: 704 8454012

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under

my direction and this report is true to the best of my knowledge and belief.

Signed: H. Burt Brown
 Well Driller

Date: 4/1/05

If D Level Driller, provide supervising driller's name:

APPENDIX B
Ground Water Sampling Data Sheets

Field Data Information Sheet for Ground-Water Sampling
 South Carolina Department of Health and Environmental Control
 Bureau of Underground Storage Tank Management

Date (mm/dd/yy): 4/2/05
 Field Personnel: Frank Ken
 General Weather Conditions: cloudy
 Ambient Air Temperature: 72 °C
 Quality Assurance
 pH Meter serial no. 80700 Conductivity Meter serial no. _____
 pH=4.0 Standard Standard
 pH=7.0 Standard Standard
 pH=10.0 Standard Standard
 Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Nickle Pumper #233
 Site ID #: 04878
 Monitoring Well #: MW-2
 Well Diameter (D): 0.67 feet
 Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
 for a 4 inch well C = 0.652
 * Free Product Thickness: _____ feet
 Depth to Ground Water (DGW) _____ feet
 Total Well Depth (TWD) _____ feet
 Length of the water column (LWC = TWD-DGW) _____ feet
 1 casing volume (CV = LWC X C) = 1.604 gals (standard purge volume)
 3 casing volume 3 X CV = 4.93 gals (standard purge volume)
 Total volume of Water Purged Before Sampling _____ gals
 Total volume of Water Purged for Post Sampling _____ gals
 Total Purged _____ gals
 *If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)		<u>0.25</u>	<u>1.25</u>					
Time (military)		<u>1542</u>	<u>1545</u>					<u>1555</u>
pH (s.u.)		<u>4.5</u>	<u>4.6</u>					
Specific Cond. (umhos/cm)		<u>0.15</u>	<u>0.16</u>					
Water Temperature (degrees C)		<u>19</u>	<u>20</u>					
Turbidity (subjective: clear, slightly cloudy, cloudy)		<u>clearly</u>	<u>cloudy</u>					
Dissolved Oxygen (mg/l)		<u>10/8</u>	<u>5.3</u>					

Remarks: bailed essentially dry after 2.00 gallons removed

Field Data Information Sheet for Ground-Water Sampling
 South Carolina Department of Health and Environmental Control
 Bureau of Underground Storage Tank Management

Date (mm/dd/yy): 4/19/05
 Field Personnel: RP, BB
 General Weather Conditions: cloudy
 Ambient Air Temperature: 72 °C
 Quality Assurance
 pH Meter serial no. 809061 Conductivity Meter serial no. _____
 pH=4.0 Standard _____
 pH=7.0 Standard _____
 pH=10.0 Standard _____
 Chain of Custody _____
 Relinquished by _____ Date/Time _____ Received by _____ Date/Time _____

Facility Name: Nickle Pumper #233
 Site ID # 04878 Monitoring Well # FW-4
 Well Diameter (D): 2' feet
 Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
 for a 4 inch well C = 0.652
 * Free Product Thickness: _____ feet
 Depth to Ground Water (DGW) 3.36 feet
 Total Well Depth (TWD) 12.0 feet
 Length of the water column (LWC = TWD-DGW) 8.64 feet
 1 casing volume (CV = LWC X C) = 1.40 gals (standard purge volume)
 3 casing volume 3 X CV = 4.20 gals (standard purge volume)
 Total volume of Water Purged Before Sampling 7.25 gals
 Total volume of Water Purged for Post Sampling 7.25 gals
 Total Purged 14.50 gals
 *If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)	<u>1.75</u>						<u>1.75</u>	
Time (military)	<u>1500</u>	<u>1505</u>					<u>1509</u>	<u>1508</u>
pH (s.u.)	<u>5.4</u>	<u>5.0</u>					<u>4.8</u>	
Specific Cond. (umhos/cm)	<u>114</u>	<u>114</u>					<u>113</u>	
Water Temperature (degrees C)	<u>17</u>	<u>17</u>					<u>17</u>	
Turbidity (subjective: clear, slightly cloudy, cloudy)	<u>cloudy</u>	<u>cloudy</u>	<u>cloudy</u>				<u>cloudy</u>	
Dissolved Oxygen (mg/l)	<u>2.7</u>	<u>6.5</u>	<u>failed</u>				<u>3.8</u>	
PID readings, if required								
Remarks:	<u>DYD 2.25</u>							

APPENDIX C
Laboratory Reports

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51746
Sample ID: SB-1 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 9:53
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	79.1	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	0.0458	mg/kg	0.0020	1.0	4/15/05	19:44	J. Adams	8260B	2206
Ethylbenzene	0.244	mg/kg	0.0995	50.0	4/15/05	18:12	J. Adams	8260B	2209
Naphthalene	0.0968	mg/kg	0.00498	1.0	4/15/05	19:44	J. Adams	8260B	2206
Toluene	0.0061	mg/kg	0.0020	1.0	4/15/05	19:44	J. Adams	8260B	2206
Xylenes (Total)	0.901	mg/kg	0.0995	50.0	4/15/05	18:12	J. Adams	8260B	2209

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	30.0 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	6.35 g	5.0 ml	4/11/05	9:53	N. Noman	5035

Surrogate	% Recovery	Target Range

ANALYTICAL REPORT

Laboratory Number: 05-A51746
Sample ID: SB-1 (1.5)
Project:
Page 2

Surrogate -----	% Recovery -----	Target Range -----
VOA Surr, 1,2-DCAd4	105.	72. - 125.
VOA Surr Toluene-d8	101.	80. - 124.
VOA Surr, 4-BFB	96.	25. - 185.
VOA Surr, DBFM	99.	73. - 124.
BNA Surr-Nitrobenzene-d5	87.	10. - 153.
BNA Surr-2-Fluorobiphenyl	80.	35. - 106.
BNA Surr-Terphenyl-d14	91.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

End of Sample Report.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51747
Sample ID: SB-2 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 10:29
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	84.1	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
TPH (Diesel Range)	364.	mg/kg	59.5	5.0	4/15/05	9:31	M. Jarrett	8015B	9877
Benzo(a)anthracene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M. Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M. Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M. Schott	8270C	1011
Chrysene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M. Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M. Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	3.66	mg/kg	0.200	100.	4/16/05	5:18	J. Adams	8260B	2223
Ethylbenzene	29.6	mg/kg	2.00	1000	4/16/05	3:16	J. Adams	8260B	2232
Naphthalene	18.9	mg/kg	0.498	100.	4/16/05	5:18	J. Adams	8260B	2223
Toluene	92.7	mg/kg	2.00	1000	4/16/05	3:16	J. Adams	8260B	2232
Xylenes (Total)	246.	mg/kg	2.00	1000	4/16/05	3:16	J. Adams	8260B	2232

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	29.8 gm	1.0 ml	4/14/05		J. Davis	3550
EPH/DRO	25.0 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	5.97 g	5.0 ml	4/11/05	10:29	N. Noman	5035

ANALYTICAL REPORT

Laboratory Number: 05-A51747
Sample ID: SB-2 (1.5)
Project:
Page 2

Surrogate	% Recovery	Target Range
-----	-----	-----
TPH Hi Surr., o-Terphenyl	90.	35. - 135.
VOA Surr, 1,2-DCAd4	103.	72. - 125.
VOA Surr Toluene-d8	101.	80. - 124.
VOA Surr, 4-BFB	110.	25. - 185.
VOA Surr, DBPM	105.	73. - 124.
BNA Surr-Nitrobenzene-d5	97.	10. - 153.
BNA Surr-2-Fluorobiphenyl	81.	35. - 106.
BNA Surr-Terphenyl-d14	82.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

The TRPH-Diesel MS/MSD were not reported due to the matrix of the sample spiked.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE; NC 28227

Lab Number: 05-A51748
Sample ID: SB-3 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 11:11
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	85.9	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	0.0033	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	2206
Ethylbenzene	0.132	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	2206
Naphthalene	0.00574	mg/kg	0.00410	1.0	4/15/05	16:40	J. Adams	8260B	2206
Toluene	0.0075	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	2206
Xylenes (Total)	0.0403	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	2206

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	30.2 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	7.10 g	5.0 ml	4/11/05	11:11	N. Noman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51748
Sample ID: SB-3 (1.5)
Project:
Page 2

Surrogate	% Recovery	Target Range
VOA Surr, 1,2-DCAd4	100.	72. - 125.
VOA Surr Toluene-d8	109.	80. - 124.
VOA Surr, 4-BFB	110.	25. - 185.
VOA Surr, DBFM	96.	73. - 124.
BNA Surr-Nitrobenzene-d5	93.	10. - 153.
BNA Surr-2-Fluorobiphenyl	85.	35. - 106.
BNA Surr-Terphenyl-d14	91.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51749
Sample ID: SB-4 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 11:26
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report	Dil	Analysis		Analyst	Method	Batch
			Limit		Factor	Date			
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	89.5	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	0.0146	mg/kg	0.0016	1.0	4/15/05	20:14	J. Adams	8260B	2206
Ethylbenzene	ND	mg/kg	0.0777	50.0	4/15/05	18:43	J. Adams	8260B	2209
Naphthalene	0.00947	mg/kg	0.00389	1.0	4/15/05	20:14	J. Adams	8260B	2206
Toluene	0.179	mg/kg	0.0777	50.0	4/15/05	18:43	J. Adams	8260B	2209
Xylenes (Total)	0.150	mg/kg	0.0777	50.0	4/15/05	18:43	J. Adams	8260B	2209

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	30.5 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	7.19 g	5.0 ml	4/11/05	11:26	N. Noman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51749
Sample ID: SB-4 (1.5)
Project:
Page 2

Surrogate	% Recovery	Target Range
VOA Surr, 1,2-DCAd4	96.	72. - 125.
VOA Surr Toluene-d8	104.	80. - 124.
VOA Surr, 4-BFB	99.	25. - 185.
VOA Surr, DBFM	99.	73. - 124.
BNA Surr-Nitrobenzene-d5	81.	10. - 153.
BNA Surr-2-Fluorobiphenyl	78.	35. - 106.
BNA Surr-Terphenyl-d14	81.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.
Ethylbenzene by 8260 reported with an elevated PQL due to contamination from previous samples. Sample volume insufficient to repeat without dilution.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51750
Sample ID: SB-5 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 13:23
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report	Dil	Analysis		Analyst	Method	Batch
			Limit		Factor	Date			
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	87.0	%		1.0		4/14/05		A. Runnels CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	0.0201	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	2206
Ethylbenzene	0.0294	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	2206
Naphthalene	0.00614	mg/kg	0.00409	1.0	4/15/05	17:11	J. Adams	8260B	2206
Toluene	0.0097	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	2206
Xylenes (Total)	0.0211	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	2206

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	29.8 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	7.02 g	5.0 ml	4/11/05	13:23	N. Noman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51750
Sample ID: SB-5 (1.5)
Project:
Page 2

Surrogate	% Recovery	Target Range
VOA Surr, 1,2-DCA _{d4}	100.	72. - 125.
VOA Surr Toluene- _{d8}	104.	80. - 124.
VOA Surr, 4-BFB	114.	25. - 185.
VOA Surr, DBFM	97.	73. - 124.
BNA Surr-Nitrobenzene- _{d5}	82.	10. - 153.
BNA Surr-2-Fluorobiphenyl	78.	35. - 106.
BNA Surr-Terphenyl- _{d14}	87.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51751
Sample ID: SB-6 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 13:50
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	88.6	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	3.88	mg/kg	0.172	100.	4/16/05	5:48	J. Adams	8260B	2223
Ethylbenzene	36.5	mg/kg	1.72	1000	4/16/05	3:46	J. Adams	8260B	2232
Naphthalene	19.1	mg/kg	4.30	1000	4/16/05	3:46	J. Adams	8260B	2232
Toluene	99.8	mg/kg	1.72	1000	4/16/05	3:46	J. Adams	8260B	2232
Xylenes (Total)	196.	mg/kg	1.72	1000	4/16/05	3:46	J. Adams	8260B	2232

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	29.8 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	6.56 g	5.0 ml	4/11/05	13:50	N. Roman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51751
Sample ID: SB-6 (1.5)
Project:
Page 2

Surrogate	% Recovery	Target Range
-----	-----	-----
VOA Surr, 1,2-DCAd4	101.	72. - 125.
VOA Surr Toluene-d8	103.	80. - 124.
VOA Surr, 4-BFB	111.	25. - 185.
VOA Surr, DBFM	102.	73. - 124.
BNA Surr-Nitrobenzene-d5	87.	10. - 153.
BNA Surr-2-Fluorobiphenyl	78.	35. - 106.
BNA Surr-Terphenyl-d14	85.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51752
Sample ID: SB-7 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 14:20
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	86.2	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	2206
Ethylbenzene	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	2206
Naphthalene	ND	mg/kg	0.00606	1.0	4/15/05	17:41	J. Adams	8260B	2206
Toluene	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	2206
Xylenes (Total)	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	2206

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	29.7 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	4.79 g	5.0 ml	4/11/05	14:20	N. Noman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51752
Sample ID: SB-7 (1.5)
Project:
Page 2

Surrogate	% Recovery	Target Range
-----	-----	-----
VOA Surr, 1,2-DCAd4	87.	72. - 125.
VOA Surr Toluene-d8	103.	80. - 124.
VOA Surr, 4-BFB	102.	25. - 185.
VOA Surr, DBFM	97.	73. - 124.
BNA Surr-Nitrobenzene-d5	85.	10. - 153.
BNA Surr-2-Fluorobiphenyl	77.	35. - 106.
BNA Surr-Terphenyl-d14	87.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
 JOHN BROWN
 2301 CROWN POINT EXEC.DR, STE F
 CHARLOTTE, NC 28227

Lab Number: 05-A51753
 Sample ID: SB-8 (1.5)
 Sample Type: Soil
 Site ID:

Project:
 Project Name: NICKEL PUMPER
 Sampler: KEN PIMIENTA

Date Collected: 4/11/05
 Time Collected: 15:21
 Date Received: 4/13/05
 Time Received: 8:00

Analyte	Result	Units	Report	Dil	Analysis		Analyst	Method	Batch
			Limit		Factor	Date			
GENERAL CHEMISTRY PARAMETERS									
TOC	41600	mg/kg	1000	1.0	4/17/05	10:41	M.Checolle	9060M	962

LABORATORY COMMENTS:

ND = Not detected at the report limit.
 B = Analyte was detected in the method blank.
 J = Estimated Value below Report Limit.
 E = Estimated Value above the calibration limit of the instrument.
 # = Recovery outside Laboratory historical or method prescribed limits.
 Extracted TOC result corrected for dry weight.

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 1

Laboratory Receipt Date: 4/13/05

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for the defined analytical batch for MS/MSD analysis on an true sample matrix. Laboratory reagent water was used for QC purposes.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
UST ANALYSIS								
Benzo(a)anthracene	mg/kg	< 0.066	1.65	1.67	99	36. - 138.	1011	'51752
Benzo(b)fluoranthene	mg/kg	< 0.066	1.58	1.67	95	30. - 137.	1011	'51752
Benzo(k)fluoranthene	mg/kg	< 0.066	1.52	1.67	91	28. - 142.	1011	'51752
Chrysene	mg/kg	< 0.066	1.48	1.67	89	33. - 137.	1011	'51752
Dibenzo(a,h)anthracene	mg/kg	< 0.066	1.62	1.67	97	19. - 149.	1011	'51752
VOA PARAMETERS								
Benzene	mg/kg	< 0.0008	0.0451	0.0500	90	53 - 136	2206	blank
Benzene	mg/kg	< 0.0008	0.0451	0.0500	90	53 - 136	2223	blank
Toluene	mg/kg	< 0.0005	0.0452	0.0500	90	43 - 139	2206	blank

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
UST PARAMETERS						
Benzo(a)anthracene	mg/kg	1.65	1.72	4.15	31.	1011
Benzo(b)fluoranthene	mg/kg	1.58	1.52	3.87	40.	1011
Benzo(k)fluoranthene	mg/kg	1.52	1.68	10.00	33.	1011
Chrysene	mg/kg	1.48	1.55	4.62	31.	1011
Dibenzo(a,h)anthracene	mg/kg	1.62	1.75	7.72	34.	1011
VOA PARAMETERS						
Benzene	mg/kg	0.0451	0.0458	1.54	34.	2206
Benzene	mg/kg	0.0451	0.0458	1.54	34.	2223
Toluene	mg/kg	0.0452	0.0464	2.62	39.	2206
VOA Surr, 1,2-DCAd4	% Rec		95.			2206
VOA Surr Toluene-d8	% Rec		102.			2206
VOA Surr, 4-BFB	% Rec		102.			2206
VOA Surr, DBEM	% Rec		100.			2206

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 2

Laboratory Receipt Date: 4/13/05

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
UST PARAMETERS						
TPH (Diesel Range)	mg/kg	40.0	38.9	97	54 - 126	9877
UST PARAMETERS						
Benzo(a)anthracene	mg/kg	1.67	1.82	109	41 - 138	1011
Benzo(b)fluoranthene	mg/kg	1.67	1.82	109	34 - 136	1011
Benzo(k)fluoranthene	mg/kg	1.67	1.58	95	32 - 142	1011
Chrysene	mg/kg	1.67	1.65	99	38 - 135	1011
Dibenzo(a,h)anthracene	mg/kg	1.67	1.82	109	25 - 149	1011
VOA PARAMETERS						
Benzene	mg/kg	0.0500	0.0468	94	76 - 124	2206
Benzene	mg/kg	0.0500	0.0468	94	76 - 124	2223
Ethylbenzene	mg/kg	0.0500	0.0462	92	70 - 128	2206
Naphthalene	mg/kg	0.0500	0.0383	77	59 - 152	2206
Naphthalene	mg/kg	0.0500	0.0383	77	59 - 152	2223
Toluene	mg/kg	0.0500	0.0472	94	72 - 125	2206
Xylenes (Total)	mg/kg	0.150	0.136	91	71 - 129	2206
VOA Surr, 1,2-DCAd4	% Rec			97	72 - 125	2206
VOA Surr Toluene-d8	% Rec			102	80 - 124	2206
VOA Surr, 4-BFB	% Rec			102	25 - 185	2206
VOA Surr, DBEM	% Rec			100	73 - 124	2206
MISC PARAMETERS						
TOC	mg/kg	29900	29700	99	90 - 110	962

Duplicates

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch	Sample Dup'd
TOC	mg/kg	< 1000	< 1000	N/A	25.	962	05-A53628

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 3

Laboratory Receipt Date: 4/13/05

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
UST PARAMETERS					
TPH (Diesel Range)	< 0.10	mg/kg	9877	4/14/05	17:27
Benzo(a)anthracene	< 0.066	mg/kg	1011	4/15/05	14:24
Benzo(b)fluoranthene	< 0.066	mg/kg	1011	4/15/05	14:24
Benzo(k)fluoranthene	< 0.066	mg/kg	1011	4/15/05	14:24
Chrysene	< 0.066	mg/kg	1011	4/15/05	14:24
Dibenzo(a,h)anthracene	< 0.066	mg/kg	1011	4/15/05	14:24
VOA PARAMETERS					
Benzene	< 0.0008	mg/kg	2206	4/15/05	11:57
Benzene	< 0.0008	mg/kg	2223	4/16/05	1:44
Ethylbenzene	< 0.0005	mg/kg	2206	4/15/05	11:57
Naphthalene	< 0.00130	mg/kg	2206	4/15/05	11:57
Naphthalene	0.00130	mg/kg	2223	4/16/05	1:44
Toluene	< 0.0005	mg/kg	2206	4/15/05	11:57
Xylenes (Total)	< 0.0013	mg/kg	2206	4/15/05	11:57
VOA Surr, 1,2-DCAd4	108.	% Rec	2206	4/15/05	11:57
VOA Surr Toluene-d8	103.	% Rec	2206	4/15/05	11:57
VOA Surr, 4-BFB	99.	% Rec	2206	4/15/05	11:57
VOA Surr, DBFM	104.	% Rec	2206	4/15/05	11:57
MISC PARAMETERS					
TOC	< 1000	mg/kg	962	4/17/05	10:41

= Value outside Laboratory historical or method prescribed QC limits.

4/22/05

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR,STE F
CHARLOTTE, NC 28227

This report includes the analytical certificates of analysis for all samples listed below. These samples relate to your project identified below:

Project Name: NICKEL PUMPER
Project Number: .
Laboratory Project Number: 412553.

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. Any QC recoveries outside laboratory control limits are flagged individually with an #. Sample specific comments and quality control statements are included in the Laboratory notes section of the analytical report for each sample report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

Page 1

Sample Identification	Lab Number	Collection Date
-----	-----	-----
SB-1 (1.5)	05-A51746	4/11/05
SB-2 (1.5)	05-A51747	4/11/05
SB-3 (1.5)	05-A51748	4/11/05
SB-4 (1.5)	05-A51749	4/11/05
SB-5 (1.5)	05-A51750	4/11/05
SB-6 (1.5)	05-A51751	4/11/05
SB-7 (1.5)	05-A51752	4/11/05
SB-8 (1.5)	05-A51753	4/11/05

Sample Identification	Lab Number	Page 2 Collection Date
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These results relate only to the items tested.
This report shall not be reproduced except in full and with
permission of the laboratory.

Report Approved By: Roxanne L Connor Report Date: 4/22/05

Johnny A. Mitchell, Laboratory Director
Michael H. Dunn, M.S., Technical Director
Pamela A. Langford, Senior Project Manager
Eric S. Smith, QA/QC Director
Sandra McMillin, Technical Services

Gail A. Lage, Senior Project Manager
Glenn L. Norton, Technical Services
Kelly S. Comstock, Technical Services
Roxanne L. Connor, Senior Project Manager
Mark Hollingsworth, Director of Project

Laboratory Certification Number: 84009

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and may contain information that is privileged and confidential. If you are not the intended recipient,
or the employee or agent responsible for delivering this material to the intended recipient, you are
hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited.
If you have received this material in error, please notify us immediately at 615-726-0177.

COOLER RECEIPT FORM

BC#



Client Name: CPI

Cooler Received/Opened On: 4/13/05 Accessed By: Mark Beasley

M. Beasley
Log-in Personnel Signature

1. Temperature of Cooler when triaged: 0.0 Degrees Celsius
2. Were custody seals on outside of cooler?..... YES...NO...NA
a. If yes, how many and where: _____
3. Were custody seals on containers?..... NO...YES...NA
4. Were the seals intact, signed, and dated correctly?..... YES...NO...NA
5. Were custody papers inside cooler?..... YES...NO...NA
6. Were custody papers properly filled out (ink, signed, etc)?..... YES...NO...NA
7. Did you sign the custody papers in the appropriate place?..... YES...NO...NA
8. What kind of packing material used? Bubblewrap Peanuts Vermiculite Other None
9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None
10. Did all containers arrive in good condition (unbroken)?..... YES...NO...NA
11. Were all container labels complete (#, date, signed, pres., etc)?..... YES...NO...NA
12. Did all container labels and tags agree with custody papers?..... YES...NO...NA
13. Were correct containers used for the analysis requested?..... YES...NO...NA
14. a. Were VOA vials received?..... YES...NO...NA
b. Was there any observable head space present in any VOA vial?..... NO...YES...NA
15. Was sufficient amount of sample sent in each container?..... YES...NO...NA
16. Were correct preservatives used?..... YES...NO...NA
If not, record standard ID of preservative used here _____
17. Was residual chlorine present?..... NO...YES...NA
18. Indicate the Airbill Tracking Number (last 4 digits for Fedex only) and Name of Courier below:
9756 _____

UPS Velocity DHL Route Off-street Fedex Misc.

19. If a Non-Conformance exists, see attached or comments below:

TestAmerica

ANALYTICAL TESTING CORPORATION

412553

Client Name

Client #

Q110

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes? Compliance Monitoring

Address:

City/State/Zip Code:

Project Manager:

Telephone Number:

Sampler Name: (Print Name)

Sampler Signature:

Project Name:

Project #:

Steel location ID:

Report To:

Invoice To:

Quote #:

PO#:

2801 F CROWN Bldg EXCDR
Charlotte NC 28227

Shawn Tindl

(704) 845-4010 Fax: (704) 845-4012

Ken Ringer

Ken Ringer

Nickel Pumping

Yuma, SC

Shawn Tindl

Eastie Kennedy

4204271199

State: SC

TAT

Standard
Rush (surcharges may apply)

Date Needed:

Fax Results: Y N

SAMPLE ID

Date Sampled

Time Sampled

G = Grab, C = Composite

Field Filtered

SL - Sludge DW - Drinking Water
GW - Groundwater S - Soil/Solid
WW - Wastewater Specify Other

HNO₃

HCl

NaOH

H₂SO₄

Methanol

None

Other (Specify)

Matrix Preservation & # of Containers

Analyze For:

REMARKS

QC Deliverables

None

Level 2

(Batch QC)

Level 3

Level 4

Other:

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix	Preservation & # of Containers	Analyze For	REMARKS
SB-1 (1.5)	4/16	953	G		S	2		51746
SB-2 (1.5)	1029	6	G		S	3		47
SB-3 (1.5)	1111	6	G		S	3		48
SB-4 (1.5)	1126	6	G		S	2		49
SB-5 (1.5)	1325	6	G		S	2		50
SB-6 (1.5)	1340	6	G		S	2		51
SB-7 (1.5)	1420	6	G		S	2		52
SB-8 (1.5)	1521	6	G		S	1		51753

SCSL

LABORATORY COMMENTS:

Init Lab Temp:

Rec Lab Temp: 0.0

Custody Seals: Y N N/A
Bottles Supplied by Test America: Y N

Method of Shipment:

Relinquished By: Ken Ringer Date: 4/17/05 Time: 1600

Relinquished By: Ken Ringer Date: 4/17/05 Time: 5:00

Relinquished By: Ken Ringer Date: 4/17/05 Time: 1600

Nashville Division

COOLER RECEIPT FORM

BC#



Client Name : GRF

Cooler Received/Opened On: 04/13/05 Accessioned By: Benjamin C. Wright

[Signature]
Log-in Personnel Signature

1. Temperature of Cooler when triaged: 1.5 Degrees Celsius
2. Were custody seals on outside of cooler?..... YES......NO...NA
a. If yes, how many and where: _____
3. Were custody seals on containers ?..... NO...YES...NA
4. Were the seals intact, signed, and dated correctly?..... YES...NO... NA
5. Were custody papers inside cooler?..... YES...NO...NA
6. Were custody papers properly filled out (ink, signed, etc)?..... YES...NO...NA
7. Did you sign the custody papers in the appropriate place?..... YES...NO...NA
8. What kind of packing material used? Bubblewrap Peanuts Vermiculite Other None
9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None
10. Did all containers arrive in good condition (unbroken)?..... YES...NO...NA
11. Were all container labels complete (#, date, signed, pres., etc)?..... YES...NO...NA
12. Did all container labels and tags agree with custody papers?..... YES...NO...NA
13. Were correct containers used for the analysis requested?..... YES...NO...NA
14. a. Were VOA vials received?..... YES...NO...NA
b. Was there any observable head space present in any VOA vial?..... NO...YES...NA
15. Was sufficient amount of sample sent in each container?..... YES...NO...NA
16. Were correct preservatives used?..... YES...NO...NA

If not, record standard ID of preservative used here _____

17. Was residual chlorine present?..... NO...YES... NA

18. Indicate the Airbill Tracking Number (last 4 digits for Fedex only) and Name of Courier below:

9750

Fed-Ex UPS Velocity DHL Route Off-street Misc.

19. If a Non-Conformance exists, see attached or comments below:

TestAmerica

ANALYTICAL TESTING CORPORATION

412501

Client Name: GRI

Address: 2301-F Crown Point Exec DC

City/State/Zip Code: Charlotte NC 28227

Project Manager: Shawn Judd

Telephone Number: (704) 245-4010

Sampler Name: (Print Name) Bey Pinetta

Sampler Signature: *[Signature]*

Client #:

2110

Project Name: Nickel Pumper

Project #:

Site/Location ID: Yamasee State: SC

Report To: Shawn Judd

Invoice To: Carrie Kennedy

Quote #: 4204217199 PO#:

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring

QC Deliverables	None	Level 2 (Batch QC)	Level 3	Level 4	Other:	REMARKS
51510						51510
Y 11						Y 11
V 12						V 12
V 13						V 13
51509						51509

Matrix	Preservation & # of Containers	Analyze For	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix	HNO ₃	HCl	NaOH	H ₂ SO ₄	Methanol	Other (Specify)
GW - Groundwater S - Soil/Solid	1	Fe 2+ 3500D	4/12/05	1355			GW	1	10			None	
SL - Sludge DW - Drinking Water	2	Nitrate/50/500	4/12/05	1529			GW	1	10				
GW - Groundwater S - Soil/Solid	2	Lead 7421	4/12/05	1508			GW	1	10				
GW - Groundwater S - Soil/Solid	3	TRAHS 2270	4/12/05	1539			GW	3					
		Methane KSKTS											
		EDB 8011											
		BTEX NAP MIDE 8260B											

Special Instructions: SCSL

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
<i>[Signature]</i>	4/12/05	1600	<i>[Signature]</i>	4/12/05	1600

LABORATORY COMMENTS:
 Init Lab Temp:
 Rec Lab Temp:
 Custody Seals: Y N NIA
 Bottles Supplied by Test America: Y N
 Method of Shipment:

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51509
Sample ID: WSW-1
Sample Type: Water
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/12/05
Time Collected: 15:59
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report	Dil	Analysis		Analysis		Batch
			Limit	Factor	Date	Time	Analyst	Method	
VOLATILE ORGANICS									
Benzene	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Toluene	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Ethylbenzene	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Xylenes (Total)	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Methyl-t-butyl ether	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Naphthalene	ND	ug/l	5.00	1.0	4/14/05	0:07	B.Herford	8260B	516

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	95.	70. - 130.
VOA Surr Toluene-d8	104.	78. - 121.
VOA Surr, 4-BFB	122.	78. - 126.
VOA Surr, DBFM	96.	79. - 122.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51510
Sample ID: MW-1
Sample Type: Water
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/12/05
Time Collected: 16:10
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analysis Analyst	Analysis Method	Batch
VOLATILE ORGANICS									
Benzene	7000	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
Toluene	15200	ug/l	500.	500.	4/14/05	20:07	B.Herford	8260B	543
Ethylbenzene	2140	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
Xylenes (Total)	10100	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
Methyl-t-butyl ether	9450	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
Naphthalene	830.	ug/l	250.	50.0	4/14/05	19:35	B.Herford	8260B	8273
VOLATILE ORGANICS by GC									
Ethylene Dibromide	0.29	ug/l	0.02	1.0	4/15/05	5:05	M. Ricke	8011	9117
METALS									
Lead	22.0	ug/l	3.0	1.0	4/20/05	12:16	R.Street	7421	2813

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	96.	70. - 130.
VOA Surr Toluene-d8	102.	78. - 121.
VOA Surr, 4-BFB	112.	78. - 126.
VOA Surr, DBFM	98.	79. - 122.
Surr., 1,3-DCB	86.0	83. - 134.

LABORATORY COMMENTS:

ND = Not detected at the report limit.
B = Analyte was detected in the method blank.
J = Estimated Value below Report Limit.
E = Estimated Value above the calibration limit of the instrument.
= Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51511
Sample ID: MW-2
Sample Type: Water
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/12/05
Time Collected: 15:55
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analysis Analyst	Method	Batch
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
Benzo(b)fluoranthene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
Benzo(k)fluoranthene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
Chrysene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
Dibenzo(a,h)anthracene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
VOLATILE ORGANICS									
Benzene	918.	ug/l	10.0	10.0	4/14/05	20:39	B.Herford	8260B	8273
Toluene	4720	ug/l	50.0	50.0	4/14/05	21:11	B.Herford	8260B	543
Ethylbenzene	440.	ug/l	10.0	10.0	4/14/05	20:39	B.Herford	8260B	8273
Xylenes (Total)	1920	ug/l	10.0	10.0	4/14/05	20:39	B.Herford	8260B	8273
Methyl-t-butyl ether	1600	ug/l	10.0	10.0	4/14/05	20:39	B.Herford	8260B	8273
Naphthalene	201.	ug/l	50.0	10.0	4/14/05	20:39	B.Herford	8260B	8273
VOLATILE ORGANICS by GC									
Ethylene Dibromide	ND	ug/l	0.02	1.0	4/15/05	5:25	M. Ricke	8011	9117
MISCELLANEOUS GC PARAMETERS									
Methane	1100	ug/L	26.	1.0	4/15/05	11:40	K. Roberso	RSK175M	8128
METALS									
Ferrous Iron	21100	ug/l	1000	10.0	4/13/05	17:28	W. Choate	3500D	8555
Lead	92.0	ug/l	6.0	2.0	4/20/05	12:16	R.Street	7421	2813
MISCELLANEOUS CHEMISTRY									
Nitrate-N as N	ND	mg/l	0.10	1.0	4/13/05	14:10	G. Baun	9056	8149
Sulfate	3.52	mg/l	1.00	1.0	4/13/05	14:10	G. Baun	9056	8149

ANALYTICAL REPORT

Laboratory Number: 05-A51511
Sample ID: MW-2

Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	875. ml	1.0 ml	4/14/05		J. Davis	3510/625

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	96.	70. - 130.
VOA Surr Toluene-d8	102.	78. - 121.
VOA Surr, 4-BFB	114.	78. - 126.
VOA Surr, DBEM	97.	79. - 122.
BNA Surr-Nitrobenzene-d5	61.	31. - 112.
BNA Surr-2-Fluorobiphenyl	56.	33. - 101.
BNA Surr-Terphenyl-d14	61.	31. - 111.
Surr., 1,3-DCB	95.0	83. - 134.
Surr - Acetylene	98.0	70. - 130.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

M = Method RSK175M/8015BM modified for use with Headspace analyzer.

Sample for Ferrous Iron analysis received outside method prescribed holding time.

End of Sample Report.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51512
Sample ID: MW-3
Sample Type: Water
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/12/05
Time Collected: 15:29
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analysis Analyst	Analysis Method	Batch
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug	8270C	5522
Benzo(b)fluoranthene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug	8270C	5522
Benzo(k)fluoranthene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug	8270C	5522
Chrysene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug	8270C	5522
Dibenzo(a,h)anthracene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug	8270C	5522
VOLATILE ORGANICS									
Benzene	24.6	ug/l	1.0	1.0	4/14/05	15:50	B. Herford	8260B	8273
Toluene	19.3	ug/l	1.0	1.0	4/14/05	15:50	B. Herford	8260B	8273
Ethylbenzene	57.4	ug/l	1.0	1.0	4/14/05	15:50	B. Herford	8260B	8273
Xylenes (Total)	96.1	ug/l	1.0	1.0	4/14/05	15:50	B. Herford	8260B	8273
Methyl-t-butyl ether	2.4	ug/l	1.0	1.0	4/14/05	15:50	B. Herford	8260B	8273
Naphthalene	83.5	ug/l	5.00	1.0	4/14/05	15:50	B. Herford	8260B	8273
VOLATILE ORGANICS by GC									
Ethylene Dibromide	ND	ug/l	0.02	1.0	4/15/05	5:44	M. Ricke	8011	9117
MISCELLANEOUS GC PARAMETERS									
Methane	329.	ug/L	26.	1.0	4/15/05	11:43	K. Roberso	RSK175M	8128
METALS									
Ferrous Iron	67800	ug/l	5000	50.0	4/13/05	17:28	W. Choate	3500D	8555
Lead	156.	ug/l	9.0	3.0	4/20/05	12:16	R. Street	7421	2813
MISCELLANEOUS CHEMISTRY									
Nitrate-N as N	ND	mg/l	0.10	1.0	4/13/05	14:10	G. Baun	9056	8149
Sulfate	9.50	mg/l	1.00	1.0	4/13/05	14:10	G. Baun	9056	8149

ANALYTICAL REPORT

Laboratory Number: 05-A51512
Sample ID: MW-3

Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	1000 ml	1.0 ml	4/14/05		J. Davis	3510/625

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	95.	70. - 130.
VOA Surr Toluene-d8	102.	78. - 121.
VOA Surr, 4-BFB	113.	78. - 126.
VOA Surr, DBFM	97.	79. - 122.
BNA Surr-Nitrobenzene-d5	64.	31. - 112.
BNA Surr-2-Fluorobiphenyl	56.	33. - 101.
BNA Surr-Terphenyl-d14	64.	31. - 111.
Surr., 1,3-DCB	109.	83. - 134.
Surr - Acetylene	94.0	70. - 130.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

M = Method RSK175M/8015BM modified for use with Headspace analyzer.

Sample for Ferrous Iron analysis received outside method prescribed holding time.

End of Sample Report.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR,STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51513
Sample ID: MW-4
Sample Type: Water
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/12/05
Time Collected: 15:08
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report	Dil	Analysis		Method	Batch	
			Limit	Factor	Date	Time			Analyst
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	ug/l	2.0	1.0	4/16/05	9:26	U. Burroug	8270C	5522
Benzo(b)fluoranthene	ND	ug/l	2.0	1.0	4/16/05	9:26	U. Burroug	8270C	5522
Benzo(k)fluoranthene	ND	ug/l	2.0	1.0	4/16/05	9:26	U. Burroug	8270C	5522
Chrysene	ND	ug/l	2.0	1.0	4/16/05	9:26	U. Burroug	8270C	5522
Dibenzo(a,h)anthracene	ND	ug/l	2.0	1.0	4/16/05	9:26	U. Burroug	8270C	5522
VOLATILE ORGANICS									
Benzene	ND	ug/l	1.0	1.0	4/14/05	16:22	B. Herford	8260B	8273
Toluene	ND	ug/l	1.0	1.0	4/14/05	16:22	B. Herford	8260B	8273
Ethylbenzene	ND	ug/l	1.0	1.0	4/14/05	16:22	B. Herford	8260B	8273
Xylenes (Total)	ND	ug/l	1.0	1.0	4/14/05	16:22	B. Herford	8260B	8273
Methyl-t-butyl ether	68.6	ug/l	1.0	1.0	4/14/05	16:22	B. Herford	8260B	8273
Naphthalene	ND	ug/l	5.00	1.0	4/14/05	16:22	B. Herford	8260B	8273
VOLATILE ORGANICS by GC									
Ethylene Dibromide	ND	ug/l	0.02	1.0	4/15/05	6:03	M. Rieke	8011	9117
MISCELLANEOUS GC PARAMETERS									
Methane	ND	ug/L	26.	1.0	4/15/05	11:46	K. Roberso	RSK175M	8128
METALS									
Ferrous Iron	3870	ug/l	100.	1.0	4/13/05	17:28	W. Choate	3500D	8555
Lead	22.0	ug/l	3.0	1.0	4/20/05	12:16	R. Street	7421	2813
MISCELLANEOUS CHEMISTRY									
Nitrate-N as N	ND	mg/l	0.10	1.0	4/13/05	14:10	G. Baun	9056	8149
Sulfate	8.61	mg/l	1.00	1.0	4/13/05	14:10	G. Baun	9056	8149

ANALYTICAL REPORT

Laboratory Number: 05-A51513
 Sample ID: MW-4

Page 2

 Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	975. ml	1.0 ml	4/14/05		J. Davis	3510/625

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	96.	70. - 130.
VOA Surr Toluene-d8	100.	78. - 121.
VOA Surr, 4-BFB	113.	78. - 126.
VOA Surr, DBPM	96.	79. - 122.
BNA Surr-Nitrobenzene-d5	58.	31. - 112.
BNA Surr-2-Fluorobiphenyl	55.	33. - 101.
BNA Surr-Terphenyl-d14	48.	31. - 111.
Surr., 1,3-DCB	111.	83. - 134.
Surr - Acetylene	94.0	70. - 130.

LABORATORY COMMENTS:

ND = Not detected at the report limit.
 B = Analyte was detected in the method blank.
 J = Estimated Value below Report Limit.
 E = Estimated Value above the calibration limit of the instrument.
 # = Recovery outside Laboratory historical or method prescribed limits.
 M = Method RSK175M/8015BM modified for use with Headspace analyzer.
 Sample for Ferrous Iron analysis received outside method prescribed holding time.

End of Sample Report.

TestAmerica

ANALYTICAL TESTING CORPORATION

2900 FOSTER CREIGHTON DRIVE • NASHVILLE, TENNESSEE 37204
800-765-0900 • 615-726-3404 FAX

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 1

Laboratory Receipt Date: 4/13/05

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for the defined analytical batch for MS/MSD analysis on a true sample matrix. Laboratory reagent water was used for QC purposes.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
UST ANALYSIS								
Benzo(a)anthracene	mg/l	< 0.0008	0.0350	0.0500	70	28. - 144.	5522	BLANK
Benzo(b)fluoranthene	mg/l	< 0.0006	0.0340	0.0500	68	26. - 140.	5522	BLANK
Benzo(k)fluoranthene	mg/l	< 0.0005	0.0320	0.0500	64	28. - 137.	5522	BLANK
Chrysene	mg/l	< 0.0004	0.0360	0.0500	72	29. - 138.	5522	BLANK
Dibenzo(a,h)anthracene	mg/l	< 0.0006	0.0280	0.0500	56	21. - 153.	5522	BLANK
VOA PARAMETERS								
Benzene	mg/l	< 0.0010	0.0534	0.0500	107	62 - 146	516	51509
Benzene	mg/l	< 0.0010	0.0532	0.0500	106	62 - 146	8273	52302
Toluene	mg/l	< 0.0010	0.0550	0.0500	110	68 - 141	516	51509
Toluene	mg/l	< 0.0010	0.0552	0.0500	110	68 - 141	8273	52302
VOA Surr 1,2-DCA-d4	% Rec				94	70 - 130	516	
VOA Surr 1,2-DCA-d4	% Rec				93	70 - 130	8273	
VOA Surr Toluene-d8	% Rec				100	78 - 121	516	
VOA Surr Toluene-d8	% Rec				102	78 - 121	8273	
VOA Surr, 4-BFB	% Rec				103	78 - 126	516	
VOA Surr, 4-BFB	% Rec				106	78 - 126	8273	
VOA Surr, DBFM	% Rec				100	79 - 122	516	
VOA Surr, DBFM	% Rec				98	79 - 122	8273	
BNA Surr-Nitrobenzene-d5	% Rec				64	31 - 112	5522	
BNA Surr-2-Fluorobiphenyl	% Rec				63	33 - 101	5522	
BNA Surr-Terphenyl-d14	% Rec				69	31 - 111	5522	
METALS								
Ferrous Iron	mg/l	0.168	1.03	1.00	86	80 - 120	8555	05-A51530
Ferrous Iron	mg/l	0.168	1.06	1.00	89	80 - 120	8555	05-A51530
Lead	mg/l	< 0.0030	0.0450	0.0500	90	80 - 120	2813	05-A54725
MISC PARAMETERS								
Nitrate-N as N	mg/l	< 0.10	3.08	3.00	103	80 - 120	8149	05-A51511
Sulfate	mg/l	3.52	18.2	15.0	98	80 - 120	8149	05-A51511

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PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 2

Laboratory Receipt Date: 4/13/05

Ethylene Dibromide	mg/l	< 0.00002	0.00034	0.00029	117	40 - 140	9117	05-A49910
Methane	mg/L	< 0.026	1.41	1.33	106	40 - 140	8128	05-A50818

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
USY PARAMETERS						
Benzo(a)anthracene	mg/l	0.0350	0.0330	5.88	28.	5522
Benzo(b)fluoranthene	mg/l	0.0340	0.0340	0.00	32.	5522
Benzo(k)fluoranthene	mg/l	0.0320	0.0350	8.96	31.	5522
Chrysene	mg/l	0.0360	0.0340	5.71	29.	5522
Dibenzo(a,h)anthracene	mg/l	0.0280	0.0280	0.00	37.	5522
VOA PARAMETERS						
Benzene	mg/l	0.0534	0.0543	1.67	25.	516
Benzene	mg/l	0.0532	0.0540	1.49	25.	8273
Toluene	mg/l	0.0550	0.0572	3.92	29.	516
Toluene	mg/l	0.0552	0.0560	1.44	29.	8273
VOA Surr 1,2-DCA-d4	% Rec		93.			516
VOA Surr 1,2-DCA-d4	% Rec		94.			8273
VOA Surr Toluene-d8	% Rec		101.			516
VOA Surr Toluene-d8	% Rec		103.			8273
VOA Surr, 4-BFB	% Rec		105.			516
VOA Surr, 4-BFB	% Rec		105.			8273
VOA Surr, DBFM	% Rec		99.			516
VOA Surr, DBFM	% Rec		99.			8273
BNA Surr-Nitrobenzene-d5	% Rec		63.			5522
BNA Surr-2-Fluorobiphenyl	% Rec		61.			5522
BNA Surr-Terphenyl-d14	% Rec		63.			5522
METALS						
Ferrous Iron	mg/l	1.03	1.06	2.87	20	8555
Lead	mg/l	0.0450	0.0450	0.00	20	2813
MISC PARAMETERS						
Ethylene Dibromide	mg/l	0.00034	0.00029	15.87	50	9117
Methane	mg/L	1.41	1.38	2.15	50	8128

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 3

Laboratory Receipt Date: 4/13/05

Nitrate-N as N	mg/l	3.08	3.10	0.65	20	8149
Sulfate	mg/l	18.2	18.2	0.00	20	8149

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
UST PARAMETERS						
Benzo(a)anthracene	mg/l	0.0500	0.0320	64	34 - 136	5522
Benzo(b)fluoranthene	mg/l	0.0500	0.0330	66	31 - 132	5522
Benzo(k)fluoranthene	mg/l	0.0500	0.0340	68	34 - 132	5522
Chrysene	mg/l	0.0500	0.0340	68	34 - 132	5522
Dibenzo(a,h)anthracene	mg/l	0.0500	0.0270	54	28 - 146	5522
VOA PARAMETERS						
Benzene	mg/l	0.0500	0.0534	107	76 - 127	516
Benzene	mg/l	0.0500	0.0544	109	76 - 127	8273
Ethylbenzene	mg/l	0.0500	0.0559	112	80 - 124	516
Ethylbenzene	mg/l	0.0500	0.0581	116	80 - 124	8273
Naphthalene	mg/l	0.0500	0.0600	120	61 - 143	516
Naphthalene	mg/l	0.0500	0.0642	128	61 - 143	8273
Toluene	mg/l	0.0500	0.0546	109	79 - 124	516
Toluene	mg/l	0.0500	0.0557	111	79 - 124	543
Toluene	mg/l	0.0500	0.0557	111	79 - 124	8273
Xylenes (Total)	mg/l	0.150	0.168	112	80 - 125	516
Xylenes (Total)	mg/l	0.150	0.174	116	80 - 125	8273
Methyl-t-butyl ether	mg/l	0.0500	0.0518	104	66 - 136	516
Methyl-t-butyl ether	mg/l	0.0500	0.0534	107	66 - 136	8273
Ethylene Dibromide	mg/l	0.00029	0.00033	114	70 - 133	9117
Methane	mg/L	1.33	1.35	102	79 - 121	8128
VOA Surr 1,2-DCA-d4	% Rec			93	70 - 130	516
VOA Surr 1,2-DCA-d4	% Rec			94	70 - 130	543
VOA Surr 1,2-DCA-d4	% Rec			94	70 - 130	8273
VOA Surr Toluene-d8	% Rec			102	78 - 121	516
VOA Surr Toluene-d8	% Rec			101	78 - 121	543
VOA Surr Toluene-d8	% Rec			101	78 - 121	8273
VOA Surr, 4-BFB	% Rec			104	78 - 126	516
VOA Surr, 4-BFB	% Rec			103	78 - 126	543
VOA Surr, 4-BFB	% Rec			103	78 - 126	8273
VOA Surr, DBFM	% Rec			99	79 - 122	516
VOA Surr, DBFM	% Rec			98	79 - 122	543

PROJECT QUALITY CONTROL DATA
 Project Number:
 Project Name: NICKEL PUMPER
 Page: 4
 Laboratory Receipt Date: 4/13/05

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
VOA Surr, DBFM	% Rec			98	79 - 122	8273
BNA Surr-Nitrobenzene-d5	% Rec			61	31 - 112	5522
BNA Surr-2-Fluorobiphenyl	% Rec			59	33 - 101	5522
BNA Surr-Terphenyl-d14	% Rec			65	31 - 111	5522
METALS						
Ferrous Iron	mg/l	1.00	1.02	102	80 - 120	8555
Lead	mg/l	0.0500	0.0440	88	80 - 120	2813
MISC PARAMETERS						
Nitrate-N as N	mg/l	3.00	3.09	103	90 - 110	8149
Sulfate	mg/l	15.0	15.0	100	90 - 110	8149

Duplicates

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch	Sample Dup'd
Ferrous Iron	mg/l	1.66	1.66	0.00	15.	8555	05-A51535

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
UST PARAMETERS					
Benzo(a)anthracene	< 0.0008	mg/l	5522	4/15/05	22:33
Benzo(b)fluoranthene	< 0.0006	mg/l	5522	4/15/05	22:33
Benzo(k)fluoranthene	< 0.0005	mg/l	5522	4/15/05	22:33
Chrysene	< 0.0004	mg/l	5522	4/15/05	22:33
Dibenzo(a,h)anthracene	< 0.0006	mg/l	5522	4/15/05	22:33

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PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 5

Laboratory Receipt Date: 4/13/05

VOA PARAMETERS

Benzene	< 0.0003	mg/l	516	4/13/05	23:35
Benzene	< 0.0003	mg/l	8273	4/14/05	14:47
Ethylbenzene	< 0.0002	mg/l	516	4/13/05	23:35
Ethylbenzene	< 0.0002	mg/l	8273	4/14/05	14:47
Naphthalene	< 0.00120	mg/l	516	4/13/05	23:35
Naphthalene	< 0.00120	mg/l	8273	4/14/05	14:47
Toluene	< 0.0002	mg/l	516	4/13/05	23:35
Toluene	< 0.0002	mg/l	543	4/14/05	14:47
Toluene	< 0.0002	mg/l	8273	4/14/05	14:47
Xylenes (Total)	< 0.0006	mg/l	516	4/13/05	23:35
Xylenes (Total)	< 0.0006	mg/l	8273	4/14/05	14:47
Methyl-t-butyl ether	< 0.0002	mg/l	516	4/13/05	23:35
Methyl-t-butyl ether	< 0.0002	mg/l	8273	4/14/05	14:47
VOA Surr 1,2-DCA-d4	95.	% Rec	516	4/13/05	23:35
VOA Surr 1,2-DCA-d4	95.	% Rec	543	4/14/05	14:47
VOA Surr 1,2-DCA-d4	95.	% Rec	8273	4/14/05	14:47
VOA Surr Toluene-d8	102.	% Rec	516	4/13/05	23:35
VOA Surr Toluene-d8	102.	% Rec	543	4/14/05	14:47
VOA Surr Toluene-d8	102.	% Rec	8273	4/14/05	14:47
VOA Surr, 4-BFB	111.	% Rec	516	4/13/05	23:35
VOA Surr, 4-BFB	110.	% Rec	543	4/14/05	14:47
VOA Surr, 4-BFB	110.	% Rec	8273	4/14/05	14:47
VOA Surr, DBFM	96.	% Rec	516	4/13/05	23:35
VOA Surr, DBFM	97.	% Rec	543	4/14/05	14:47
VOA Surr, DBFM	97.	% Rec	8273	4/14/05	14:47
BNA Surr-Nitrobenzene-d5	57.	% Rec	5522	4/15/05	22:33
BNA Surr-2-Fluorobiphenyl	52.	% Rec	5522	4/15/05	22:33
BNA Surr-Terphenyl-d14	67.	% Rec	5522	4/15/05	22:33

METALS

Ferrous Iron	< 0.100	mg/l	8555	4/13/05	17:28
Lead	< 0.0012	mg/l	2813	4/20/05	12:16

MISC PARAMETERS

Nitrate-N as N	< 0.10	mg/l	8149	4/13/05	14:10
Sulfate	< 1.00	mg/l	8149	4/13/05	14:10
Ethylene Dibromide	< 0.00002	mg/l	9117	4/15/05	1:13
Methane	< 0.026	mg/L	8128	4/15/05	10:31

= Value outside Laboratory historical or method prescribed QC limits.

4/22/05

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

This report includes the analytical certificates of analysis for all samples listed below. These samples relate to your project identified below:

Project Name: NICKEL PUMPER
Project Number: .
Laboratory Project Number: 412501.

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. Any QC recoveries outside laboratory control limits are flagged individually with an #. Sample specific comments and quality control statements are included in the Laboratory notes section of the analytical report for each sample report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

Sample Identification	Lab Number	Page 1 Collection Date
-----	-----	-----
WSW-1	05-A51509	4/12/05
MW-1	05-A51510	4/12/05
MW-2	05-A51511	4/12/05
MW-3	05-A51512	4/12/05
MW-4	05-A51513	4/12/05

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Sample Identification	Lab Number	Page 2 Collection Date
-----	-----	-----

These results relate only to the items tested.
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Report Approved By: *Gail A. Lage* Report Date: 4/20/05

Johnny A. Mitchell, Laboratory Director
Michael H. Dunn, M.S., Technical Director
Pamela A. Langford, Senior Project Manager
Eric S. Smith, QA/QC Director
Sandra McMillin, Technical Services

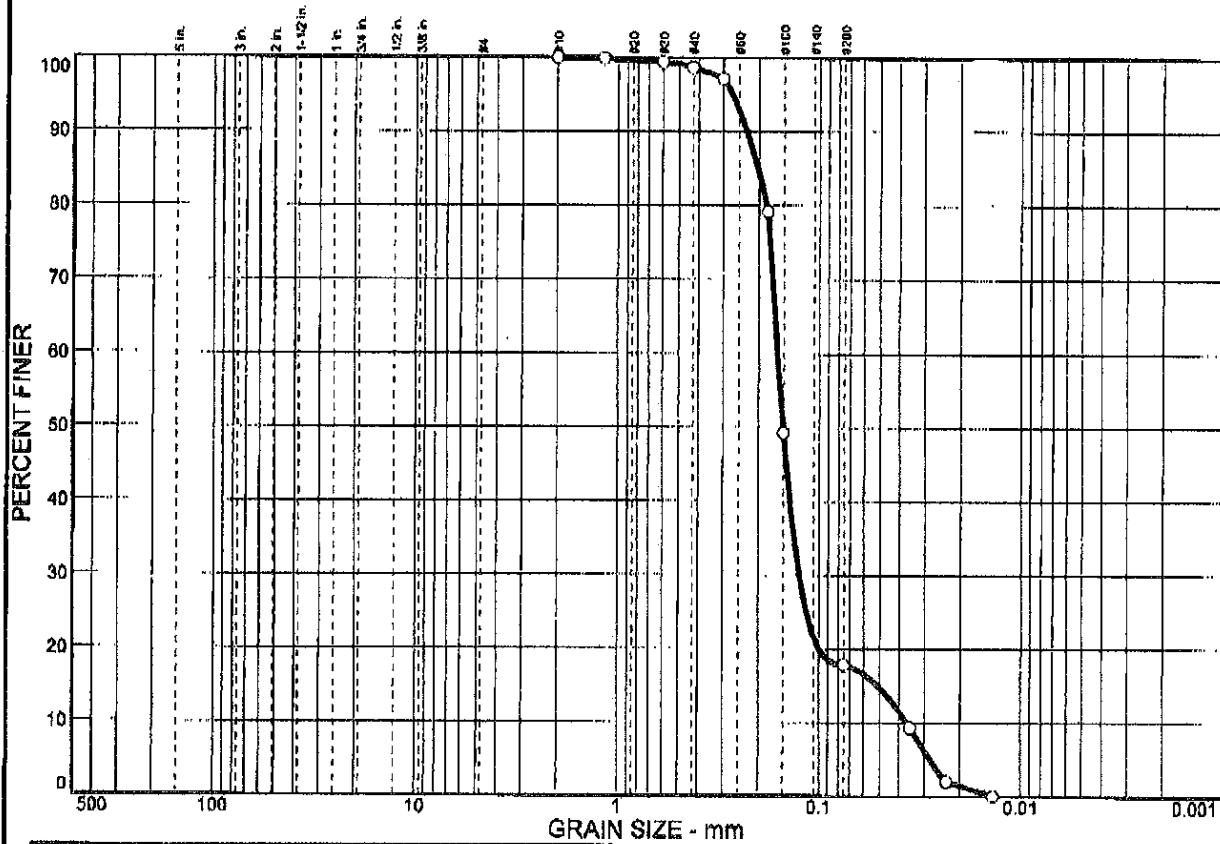
Gail A. Lage, Senior Project Manager
Glenn L. Norton, Technical Services
Kelly S. Comstock, Technical Services
Roxanne L. Connor, Senior Project Manager
Mark Hollingsworth, Director of Project

Laboratory Certification Number: 84009

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APPENDIX D
Slug Test Data

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.3	80.9	17.8	0.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#16	99.9		
#30	99.4		
#40	98.7		
#50	97.2		
#80	79.2		
#100	49.3		
#200	17.8		

Soil Description
Tan poorly graded fine Silty SAND (SM) with trace medium sand

Atterberg Limits
PL= NT LL= NT PI= NT

Coefficients
D₈₅= 0.202 D₆₀= 0.161 D₅₀= 0.151
D₃₀= 0.125 D₁₅= 0.0512 D₁₀= 0.0367
C_u= 4.39 C_c= 2.64

Classification
USCS= SM AASHTO= A-2-4(0)

Remarks
Nickel Pumper MW-2

(no specification provided)

Sample No.: MW-2

Source of Sample:

Date: 4-21-05

Location: Nickel Pumper

Elev./Depth: 7-feet

GET SOLUTIONS, INC.

Client: Geological Resources, Inc.

Project: Soils Laboratory Services: Various Sites

Project No: OB03-119T

Figure



Summary of Slug Test
Division of Underground Storage Tank Management

Site Data

UST Permit #: 04878 County: Jasper
 Facility Name: Nickel Pumper

Slug Data

See Appendix _____ Table _____ Figure _____ for a list of all data measurements. [water level logs, etc. (complete as appropriate)].

Water Level Recovery Data was measured by Hermit Data Logger
 [Hermit Data Logger, Manually with Water Level Indicator, etc. (list method)].

Complete the following table for each well tested.

COMPLETE A SECOND SHEET IF MORE THAN FOUR WELLS ARE TESTED

Slug Test Conducted in Well(s) Number	MW-3	MW-4		
Initial Rise/Drawdown in Well (feet)	1.38	1.75		
Radius of Well Casing (feet)	0.083	0.083		
Effective Radius of Well (feet)	0.208	0.208		
Static Saturated Aquifer Thickness (feet)	10.41	8.55		
Length of Well Screen (feet)	10	10		
Static Height of Water Column in Well (ft)	10.41	8.55		

Calculations

See Appendix _____ Table _____ Figure _____ for calculations (complete as appropriate).

The method for aquifer calculations was Bouwer-Rice - Unconfined (i.e. Bouwer-Rice, Cooper, etc.).

Calculated values by well were as follows:

Slug Test Conducted in Well(s) Number	MW-3	MW-4	
Hydraulic Conductivity (K)	6.97×10^{-5} ft/min	2.41×10^{-5} ft/min	

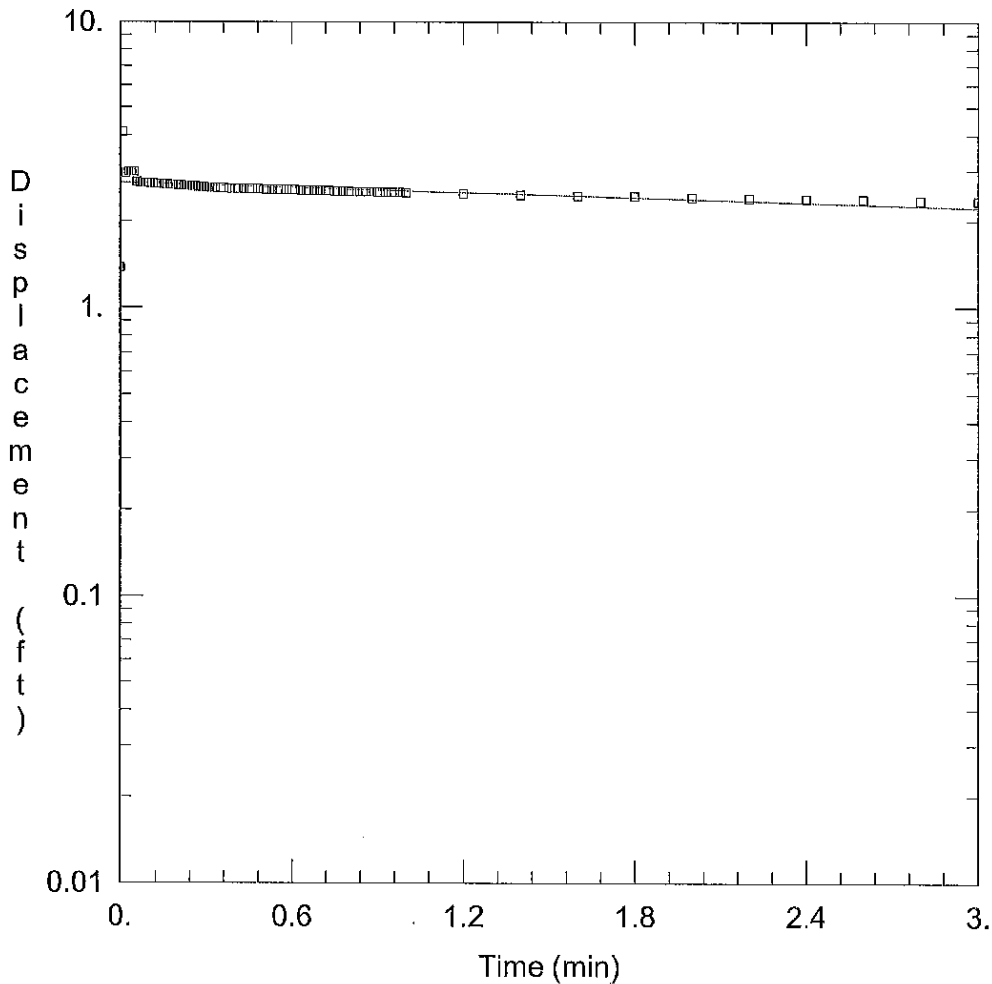
Thickness of the aquifer used to calculate hydraulic conductivity was 10.41 and 8.55 feet.

The aquifer is _____ confined _____ semi-confined water table (check as appropriate).

The estimated seepage velocity is 3.18 to 1.10 feet per year based on

a hydraulic conductivity of 6.97×10^{-5} to 2.41×10^{-5} ft/min, a hydraulic gradient of 0.02, and

a porosity of 23 percent for silty fine sand soil (list type i.e., silty sand, clay, etc).



TEST 19 MW-3

Data Set: F:\Temp Work Folder\Projects\SC State Lead\Nickle Pumper Tier 1\Slug Tests\MW-3.aqt
 Date: 04/25/05 Time: 14:47:28

PROJECT INFORMATION

Company: Geological Resources, Inc.
 Client: Nickelpumper #233
 Project: 04878
 Test Location: Yemassee, SC
 Test Well: MW-3
 Test Date: 04/12/05

AQUIFER DATA

Saturated Thickness: 10.41 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-3)

Initial Displacement: 1.38 ft Casing Radius: 0.083 ft
 Wellbore Radius: 0.208 ft Well Skin Radius: 0.208 ft
 Screen Length: 10. ft Total Well Penetration Depth: 10.41 ft
 Gravel Pack Porosity: 0.045

SOLUTION

Aquifer Model: Unconfined Solution Method: Bower-Rice
 K = 6.975E-05 ft/min y0 = 2.718 ft

Nickel Pumper

Test # 19 Ref # : 1.59 MW-3 TD = 12

0.00	4.08	0.16	2.68	0.32	2.61
0.01	4.11	0.17	2.67	0.33	2.61
0.02	2.93	0.18	2.67	0.35	2.60
→ 0.03	2.97	0.19	2.67	0.36	2.60
0.04	2.97	0.20	2.66	0.38	2.59
0.05	2.97	0.21	2.66	0.40	2.59
0.06	2.73	0.22	2.65	0.41	2.59
0.07	2.71	0.23	2.65	0.43	2.59
0.08	2.71	0.24	2.65	0.45	2.58
0.09	2.71	0.25	2.64	0.46	↓
0.10	2.70	0.26	2.64	0.48	↓
0.11	2.70	0.27	2.62	0.50	2.57
0.12	2.69	0.28	2.62	0.51	2.57
0.13	2.69	0.29	2.62	0.53	↓
0.14	2.68	0.30	2.61	0.55	↓
0.15	2.68	0.31	2.61	0.56	2.56

cont'd.

0.5P	2.56	0.83	2.52	2.00	2.41
0.60	↓	0.85	↓	2.20	2.39
0.61	↓	0.86	↓	2.40	2.38
0.63	2.55	0.88	↓	2.60	2.37
0.65	↓	0.90	2.51	2.80	2.35
0.66	↓	0.91	↓	3.00	2.34
0.68	↓	0.93	↓		
0.70	↓	0.95	↓		
0.72	2.54	0.96	↓		
0.73	2.54	0.98	↓		
0.75	2.53	1.00	2.50		
0.76	↓	1.20	2.49		
0.78	↓	1.40	2.46		
0.80	↓	1.60	2.44		
0.81	2.52	1.80	2.43		

$$\text{Sat. Thick.} = 12 - 1.59 = 10.41$$

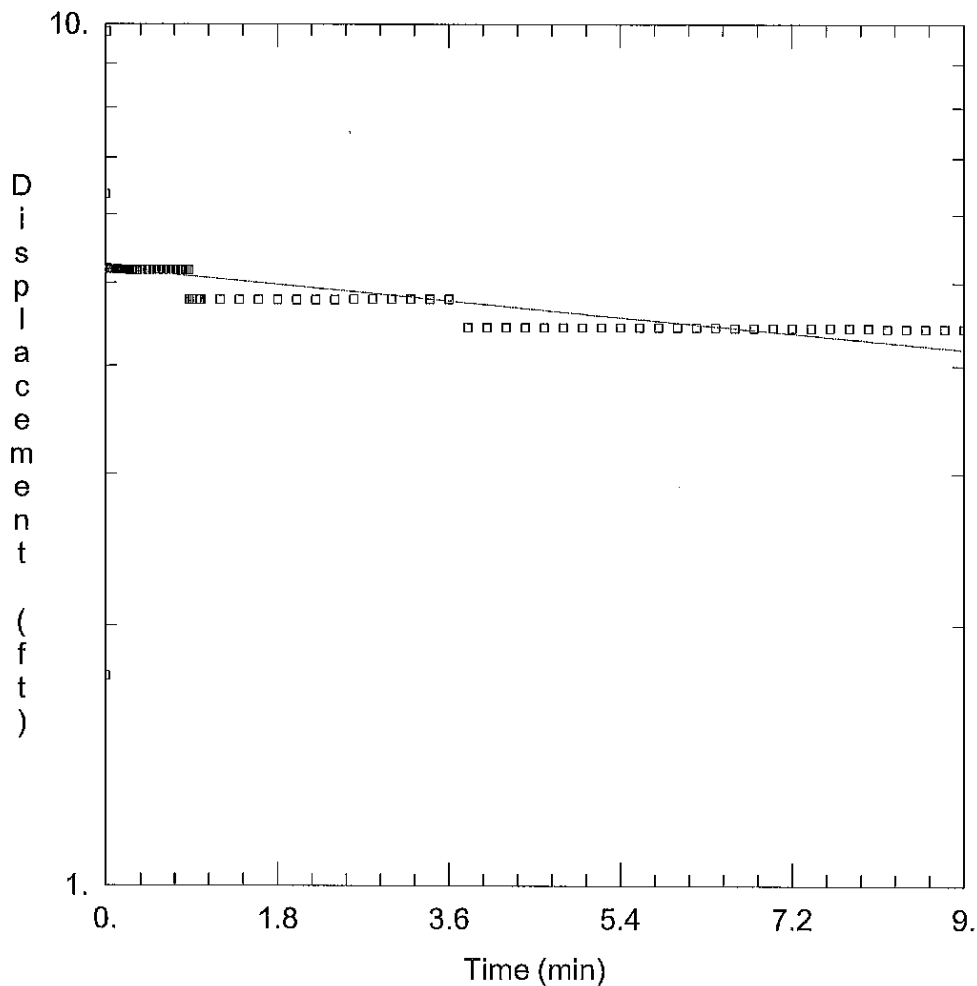
$$\text{Juit. Disp.} = 2.97 - 1.59 = 1.38$$

$$K = 6.97 \times 10^{-5} \text{ ft/min}$$

$$V = 6.06 \times 10^{-6} \text{ ft/min}$$

$$= 8.73 \times 10^{-3} \text{ ft/day}$$

$$= 3.18 \text{ ft/year}$$



TEST 18 MW-4

Data Set: F:\Temp Work Folder\Projects\SC State Lead\Nickle Pumper Tier 1\Slug Tests\MW-4.aqt
 Date: 04/25/05 Time: 15:04:49

PROJECT INFORMATION

Company: Geological Resources, Inc.
 Client: Nickelpumper #233
 Project: 04878
 Test Location: Yemassee, SC
 Test Well: MW-4
 Test Date: 04/12/05

AQUIFER DATA

Saturated Thickness: 8.55 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 1.75 ft Casing Radius: 0.083 ft
 Wellbore Radius: 0.208 ft Well Skin Radius: 0.208 ft
 Screen Length: 10. ft Total Well Penetration Depth: 8.55 ft
 Gravel Pack Porosity: 0.045

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 2.414E-05 ft/min y0 = 5.206 ft

Nickel Pumper

4-12-05

Test # 18 Ref # : 345 MW-4 TD = 12

0.00	6.34	0.13	5.19	0.26	5.17	0.43	5.18
0.01	9.80	0.14	5.18	0.27	5.17	0.45	
→ 0.02	5.20	0.15	5.18	0.28	5.18	0.46	
0.03	5.19	0.16		0.29	5.18	0.48	
0.04	5.19	0.17		0.30	5.17	0.50	
0.05	5.19	0.18		0.31	5.18	0.51	
0.06	5.19	0.19		0.32	5.17	0.53	
0.07	5.19	0.20		0.33	5.17	0.55	
0.08	5.19	0.21		0.35	5.18	0.56	
0.09	5.19	0.22		0.36	5.18	0.58	
0.10	5.19	0.23		0.38	5.18	0.60	
0.11	5.19	0.24		0.40	5.18	0.61	
0.12	5.19	0.25		0.41	5.18	0.63	↓

cont'd

0.65	5.18	0.90	4.78	2.80	4.79	5.80	4.44
0.66		0.91		3.00		6.00	↓
0.68		0.93		3.20		6.20	↓
0.70		0.95		3.40		6.40	↓
0.71		0.96		3.60	↓	6.60	4.43
0.73		0.98		3.80	4.44	6.80	↓
0.75		1.00		4.00		7.00	↓
0.76		1.20		4.20		7.20	↓
0.78		1.40		4.40		7.40	↓
0.80		1.60		4.60		7.60	↓
0.81		1.80		4.80		7.80	↓
0.83		2.00		5.00		8.00	↓
0.85		2.20		5.20		8.20	4.42
0.87	↓	2.40	↓	5.40		8.40	↓
0.88	4.78	2.60	4.79	5.60	↓	8.60	↓
						8.80	↓
						9.00	↓

MW-4

$$\text{Sat. Thick.} = 12 - 3.45 = 8.55$$

$$\text{Juit. Disp} = 5.20 - 3.45 = 1.75$$

$$K = 2.41 \times 10^{-5} \text{ ft/min}$$

$$V = 2.09 \times 10^{-6} \text{ ft/min}$$

$$= 3.02 \times 10^{-3} \text{ ft/day}$$

$$= 1.10 \text{ ft/year}$$

APPENDIX E
Certificate of Disposal



HAZ-MAT

TRANSPORTATION AND DISPOSAL
P.O. BOX 37392 • CHARLOTTE, N.C. 28237
(704) 332-5600
FAX (704) 375-7183

Manifest No. 24759
P.O. No. _____
Job No. 05-2857
inv # 2753

NON-HAZARDOUS SPECIAL WASTE

Section I. GENERATOR (Generator complete all of Section I)									
GENERATOR LOCATION NAME <u>Interstate Trucking Bobby Jones, Bucks</u> <u>Grocery 341 Kirk St</u>	WORK CONTRACTED BY Bill To (If different from information at left)								
ORIGINATING ADDRESS <u>1 Rhode Rite, Michel Pumper, Gayam</u>	NAME _____								
MAILING ADDRESS <u>Convenience Plus</u>	ADDRESS _____								
CITY _____ STATE _____ ZIP _____	CITY _____ STATE _____ ZIP _____								
PHONE NO. _____	PHONE NO. _____								
CONTACT NAME _____	CONTACT NAME _____								
DES. OF WASTE: _____	<table border="1"> <tr> <td>No.</td> <td>Type</td> <td>Units</td> <td>Quantity</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	No.	Type	Units	Quantity				
No.	Type	Units	Quantity						

Section II. INVOICE INFORMATION		GALLONS	DRUMS
DESCRIPTION	QUANTITY	LINE TOTAL	
1. PETROLEUM CONTACT WATER PUMPED FROM TANKS, DRUMS OR AFVR			
2. OFF-SPEC LIGHT OIL, DIESEL OR GAS PUMPED FROM TANKS OR DRUMS			
3. SOLUBLE OILS OR COOLANTS PUMPED FROM STORAGE			
4. SEDIMENT OR SOLIDS VACUUMED FROM CONTAINMENT AREA			
5. 55-GALLON DRUM REMOVED - SOLID OR EMPTY	<u>4</u>	<u>(1)</u>	<u>Nickel Pumper</u>
6. 55-GALLON DRUM REMOVED - LIQUID	<u>3</u>	<u>(1)</u>	<u>17</u>
7.			
8.			
9.			
10. ARRIVAL TIME: _____ DEPARTURE TIME: _____			

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name Ken Pomeroy Signature _____ Shipment Date 041805

Section III. TRANSPORTER (Transporter I complete all of Section III; Transporter II complete all of Section III and Section IV)	
HAZ-MAT TRANSPORTATION AND DISPOSAL P.O. BOX 37392 • CHARLOTTE, N.C. 28237	
a. Driver Name/Title _____	e. Name _____
b. Phone No. _____ c. Truck No. _____	f. Address _____ <u>100 - 2nd Street, Charlotte, NC 28207</u>
Hazardous Waste Transporter Permits EPA NCR 000003186 EPA NCD048461370	g. Driver Name/Title _____ <u>Michael Pumper</u>
d. Driver Signature _____ Shipment Date _____	h. Phone No. _____ i. Truck No. _____
	j. Transporter II Permit Nos. _____
	Driver Signature _____ Shipment Date <u>041805</u>

Section IV. FACILITY INFORMATION AND CERTIFICATE OF DISPOSAL

Site Name: Haz-Mat Transportation & Disposal, Inc. a. Phone No. 704-332-5600
Physical Address: 210 Dalton Avenue b. Mailing Address: P.O. Box 37392
Charlotte, N.C. 28206 Charlotte, N.C. 28237

e: Discrepancy Indication Space _____
This is to certify that all non-hazardous material removed from above location has been received and will be disposed of in accordance with applicable local, state and federal regulations in the following manner: (1) Petroleum products are blended into a beneficial reusable fuel for use in large industrial burners. (2) Waste waters are to be treated with polymers, pH adjusters, and a flocculant, then flows through a dissolved air flotation system for pretreatment separation, then into the CMUD sanitation sewer system under permit IUP#5012. (3) Sludges from treatment systems are hauled to E.P.A. approved facilities for proper disposal. Manifest and certificate of disposal are on file. (4) Our treatment system operates on a first in, first out basis and product should be processed within seven days.

SIGNATURE OF FACILITY AGENT <u>Michael Pumper</u>	DATE	MONTH <u>4</u>	DAY <u>18</u>	YEAR <u>05</u>
--	------	----------------	---------------	----------------

APPENDIX F
Jasper County Tax Office and Planning Officials

JASPER COUNTY TAX OFFICE & PLANNING OFFICIALS

Tax Assessor's Office

914 Gray's Highway
Ridgeland, South Carolina 29936
Office: (843) 726-7801
Ms. Linda M. Mouzon
Tax Assessor

www.jaspercountysc.org/tax_collector.htm

Planning & Building Services

914 Gray's Highway
P.O. Box 1659
Ridgeland, South Carolina 29936
Office: (843) 726-7780
Mr. Hal Jones
Planning & Building Services Director
www.jaspercountysc.org/planning.htm

APPENDIX G
Adjacent Property Owner Information

**SUMMARY OF ADJACENT PROPERTY OWNER INFORMATION
NICKLE PUMPER #233**

Tax Map/Lot Number	Name	Address
088-48-00-8 (Site)	Sunstar, Inc.	9366 Ford Avenue Richmond Hill Georgia, 31324
088-48-00-7	Benjamin Josselson c/o James H. Moss	P.O. Drawer 507 Beaufort, South Carolina 29902
088-48-00-5 & 088-48-00-9	Point South Partners	P.O. Box 2028 Beaufort, South Carolina 29901
088-48-00-10	Country Chef LLC	97 Bull Point Drive Seabrook, South Carolina 29940
088-48-00-4	CCS Hospitality LLC	3196 Point South Drive Yemassee, South Carolina 29945

APPENDIX H
Water Supply Well Owner Information

SUMMARY OF WATER SUPPLY WELL OWNER INFORMATION
NICKLE PUMPER #233

Well No.	Tax Map/Parcel Number	Name	Address
WSW-1	088-48-00-4	CCS Hospitality LLC	3196 Point South Drive Yemassee, South Carolina 29945
WSW-2	091-00-03-11	Thomas Darrell Johnson Jr. & Wanda J. Johnson	P.O. Box 1125 Hardeeville, South Carolina 29927

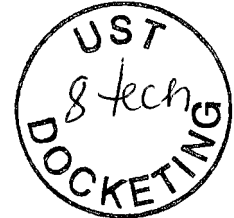


Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

DEC 23 2013

BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS INC
PO BOX 854
LEXINGTON SC 29071



Re: QAPP Contractor Addendum Directive for Small Scope Contract
Solicitation # 5400006561; PO# 4600301871

Dear Mr. Shane:

Based on the award of the referenced bid package, enclosed are the information packets to conduct assessments at several facilities. Please submit the Site-specific Quality Assurance Project Plan for an IGWA, Tier I or Assessment Plan, and Assessment Component Cost Agreement as necessary, to my attention **within fifteen (15) days from the date of this correspondence**. Plan implementation shall not commence prior to receipt of written technical and financial approval from the Department. The facilities will be assigned a Cost Agreement (CA) numbers once the QAPP Contractor Addendum has been approved by the project manager. Please reference the CA numbers and Purchase Order # 4600301871 on the appropriate invoices submitted for payment. As specified in the referenced bid, **the completed invoice forms and associated reports (include contract certification number) are expected on or before the designated due date (see below) after the technical and cost approval from the project manager.**

UST Permit #	Facility	County	Project Manager	Work Scope	Due Date*
04878	Niclepumper 233	Jasper	Bryant	MWI	60 Days
00849	Hilda Garage	Barnwell	Bryant	MWI	60 Days

*From receipt of Notice to Proceed letter

Midland's Environmental Consultants, Inc. will perform services at the sites on behalf of the site's UST owners; however, payments will be made from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. The site's UST owners have no obligation for payment for this scope of work.

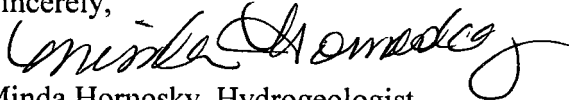
Please note if there are any changes in the established cost agreement amounts (e.g., additional water supply wells sampled, additional well footage, etc.) contact the site's project manager for

technical and/or financial approval. Failure to do so prior to submittal of invoice may result in delay of payment.

IGWA, Tier I or Assessment Quality Assurance Project Plan, Implementation and Report submittal shall be performed in accordance with the referenced contract. Per Section 3.4.2., a late fee of \$50.00/day (not to exceed 20% of the cost agreement total) may be levied for each day the report is submitted after the deadline established in the Notice to Proceed letter.

Please provide this office with a schedule of drilling dates and coordinate all work with me before commencing work at the facility. In accordance with the bid specification, a bi-monthly status report of the project should be provided by the 5th and 20th of each month via e-mail to my attention. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. If you have any questions or need further assistance, please contact me at (803) 896-6395.

Sincerely,



Minda Hornosky, Hydrogeologist
Assessment Section, Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Information Packets

cc: John Bryant, UST Management Division (w/o enc)
Technical Files (w/ enc)



Midlands
Environmental
Consultants, Inc.

January 7, 2014

Mr. John C. Bryant, Hydrogeologist
Assessment Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: QAPP Contractor Addendum – Revision 0
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 14-4714
Certified Site Rehabilitation Contractor UCC-0009



Dear Mr. Bryant,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached QAPP Contractor Addendum for the referenced site.

On December 18, 2013, MECI personnel performed a site visit to the subject site to evaluate site conditions, attempt to locate monitoring wells and identify potential problems for future assessment activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.

Ryan D. Ariail
Staff Biologist

Jeff L. Coleman
Senior Scientist

Section A: Project Management

A1 Title and Approval Page

Quality Assurance Project Plan
Addendum to the SC DHEC UST Programmatic QAPP
For
Nickelpumper 233, SCDHEC Site ID# 04878

3296 Point South Drive, Yemassee, South Carolina

Prepared by:
Jeff L. Coleman
Senior Scientist
Midlands Environmental Consultants, Inc.
(Certified Site Rehabilitation Contractor UCC-0009)
231 Dooley Road
Lexington, SC 29073
(803)808-2043

Date: January 7, 2014

Approvals

John Bryant
SC DHEC Project Manager

Signature

Date

Jeff L. Coleman
Contractor QA Manager


Signature


Date 1/7/14

Bryan T. Shane, P.G.
Site Rehabilitation Contractor


Signature

Date 1-7-14

Daniel J. Wright
Laboratory Director


Signature

Date 1/7/2014

A2 Table of Contents

A1 Title and Approval Page	1
Laboratory Director	1
A3 Distribution List	3
A4 Problem Definition/Background	3
A5 Project/Task Description	4
A6 Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs)	4
A7 Certification	4
A8 Documents and Records	5
Table 2A Record Identification, Storage, and Disposal	5
Section B Measurement/Data Acquisition	5
B1 Sampling Process/Experimental Design	6
Table 3A Sampling Activities	6
B2 Sampling Methods	6
Monitoring Well Sampling	7
Table 4A Field Corrective Action	11
B3 Sample Handling and Custody	11
B4 Analytical Methods	11
Table 5A Analytical SOPs and Referenced Methods	12
B5 Quality Control Requirements:	12
B6 Field Instrument and Equipment Testing, Inspection and Maintenance	12
B7 Instrument Calibration and Frequency	13
Table 7A Instrument Calibration Criteria and Corrective Action	14
B8 Inspection/Acceptance Requirements for Supplies and Consumables	14
B9 Data Acquisition Requirements (Non-Direct Measurements)	14
Table 8A Non-Direct Measurements	15
B10 Data Management	15
Section C Assessment and Oversight	16
C1 Assessment and Response Actions	16
C2 Reports to Management	17
Section D Data Validation and Usability	17

A3 Distribution List

Table 1A Addendum Distribution List

Name	Title	License Number/Exp. Date	Organization/Address	Telephone Number	Fax Number	Email Address
John Bryant	SC DHEC Technical Project Manager		SCDHEC, UST Management Division, 2600 Bull St., Columbia, SC, 29201	803-898-0606	803-898-0673	bryantjc@dhec.sc.gov
Bryan T. Shane, P.G.	Site Rehabilitation Contractor	Professional Geologist- SC 1102 Exp. 06/30/2015	Midlands Environmental Consultants, Inc. 231 Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	bts@meci.net
Jeff L. Coleman	Quality Assurance Officer		Midlands Environmental Consultants, Inc. 231 Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	jlc@meci.net
Kyle V. Pudney	Field Manager		Midlands Environmental Consultants, Inc. 231 Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	kvp@meci.net
Project Verifier	Jeff L. Coleman or Kyle V. Pudney		Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	jlc@meci.net
Daniel J. Wright	Laboratory Director	Lab Certification SC 32010 Exp. 12/17/2015	Shealy Environmental Services, Inc. 106 Vantage Point Dr. West Columbia, SC 29172	803-791-9700	803-791-9111	dwright@shealylab.com
William Walker	Well Services/Driller	SC Driller# B02042 Exp. 6/30/2014	William Walker Environmental Services 1317 Hummingbird Drive West Columbia, SC 29169	803-351-7936	N/A	wwenvironmental@gmail.com
Tommy Bolyard	Well Services/Driller	SC Driller# B01846 Exp. 6/30/2014	Environmental Probing and Drilling Services 17538 Greenhill Road Charlotte, NC 28278	704-607-7529	803-548-2233	EDPS@comporium.net
Registered Land Surveyor	Jay S. Joshi	PLS Certification# SC 14811 Exp. 6/30/2014	Construction Support Services, Inc. 1318 RL Coward Road Hopkins, SC 29061	803-776-9909	803-776-2688	jsjoshi@constructionsupportsc.com

A4 Problem Definition/Background

Discuss the background (as much as is known) of the site and appropriate historical information, and why this site is being assessed.

The subject site (Nickelpumper 233) is located at 3296 Point South Drive, Yemassee, Jasper County, South Carolina. The subject site formally maintained one 6,000 gallon gasoline underground storage tank (UST), one 8,000 gallon gasoline UST and one 10,000 gallon gasoline UST. These UST's were reported out of compliance on September 17, 2009. SCDHEC reported and confirmed a release from these UST's in May of 2002. The subject site is currently rated a Class 2BB.

The site is being assessed in conjunction with the SCDHEC Small Scope Assessment Contract (PO# 4600301871).

Please answer the following: Does this project fall under UST or Brownfields area?

Underground Storage Tank Division

A5 Project/Task Description

1. Summarize what is known about the work to be done. This can be a short sentence indicating what the Scope of this project is (see Master QAPP Section A6).

-The scope of this assessment will be to replace monitoring well MW-4, install four additional "shallow" wells, and to install one "deep", telescoping well.

-A comprehensive survey will also be performed to locate the horizontal and vertical positions of the well network, nearby receptors, and relevant structures (To include UST# 15151).

-Following monitoring well installation, the monitoring well network and a nearby creek will be sampled for BTEXMN, 1,2DCA, 8-Oxygenates (EPA Method 8260B) and EDB (EPA Method 8011).

2. The work will begin within fourteen (14) days of receipt of approved QAPP contractors addendum after cost approval and the scope of work should be complete by sixty (60) days of receipt of approved QAPP contractors addendum.

3. *Are there are time or resource constraints? Include those factors that may interfere with the tentative schedule.*

Factors that may prevent schedule work will be, but not limited to, inclement weather, equipment malfunction, and machine failure.

A6 Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs)

The subject site is located at 3296 Point South Drive, Yemassee, Jasper County, South Carolina. . The site is currently occupied by the vacant store front.

The proposed work will be onsite (Jasper Co. Tax Map# 088-48-00-006).

A7 Certification

The Following Laboratory(ies) will be used for this Project:

Commercial Lab(s)

Full Name of the Laboratory Shealy Environmental Services, Inc.
 Name of Lab Director Daniel J. Wright
 SC DHEC Certification Number 32010
 Parameters this Lab will analyze for this project:

The well network will be sampled for BTEX, Naph, MTBE, 1,2 DCA, 8-Oxygenates (EPA Method 8260B), EDB (EPA Method 8011), and Total Lead (EPA Method 6010).

Please note: SC DHEC may require that the contractor submit some or all of the Laboratory's SOPs as part of this QAPP.

A8 Documents and Records

**Personnel will receive the most current version of the QAPP Addendum via:
 (Check all that apply)**

US Mail Courier Hand delivered

Other (please specify): E-mailed electronic copies

Record	Produced By	Hardcopy/ Electronic	Storage Location For how long?	Archival
Instrument Raw Data	Target, Thermospec, or Iteva software	Hardcopy and Electronic	Hardcopy: Offsite storage for 7 yrs Electronic: Two external storage device backups – one offsite, one onsite storage for 10 yrs	Yes
Final Reports	LIMS	Electronic	Electronic: Two external storage device backups – one offsite, one onsite storage for 10 years	Yes
Field Work	Field Staff	Hardcopy	MECI office: 231 Dooley Road / Min. 5 years	Yes
Chain of Custody	Field Staff	Hardcopy	MECI office: 231 Dooley Road / Min. 5 years	Yes
QAPP Addendum	Jeff L. Coleman	Hardcopy & Electronic	MECI office: 231 Dooley Road / Min. 5 years	Yes
Internal QC record	Jeff L. Coleman	Hardcopy	MECI office: 231 Dooley Road / Min. 5 years	Yes
Sampling Report	Jeff L. Coleman	Hardcopy & Electronic	MECI office: 231 Dooley Road / Min. 5 years	Yes
1903 Water Well Record Form	EDPS	Hardcopy	MECI office: 231 Dooley Road / Min. 5 years	Yes

Table 2A Record Identification, Storage, and Disposal

Section B Measurement/Data Acquisition

B1 Sampling Process/Experimental Design

Item	Start Date	End Date	Comments
Site Reconnaissance	12/18/2013	12/18/2013	Already Completed
QAPP preparation	12/18/2013	1/7/2014	In progress
QAPP approval	1/7/2014	1/28/2014	Assuming three week turnaround
PUPs Request	1/28/2014	1/31/2014	Give 72 hours until PUPs ticket active
Monitoring Well Installation	1/31/2014	2/14/2014	2 Weeks to mobilize Drill Rig.
Monitoring well Sampling	2/14/2014	2/28/2014	2 Weeks to mobilize sampling crew. Standard 5 Day Turn Around Time on analytical (2 Weeks)
Report Preparation	2/28/2014	3/21/2014	Three weeks to prepare/submit report

Table 3A Sampling Activities

B2 Sampling Methods

Please note: The contractor must follow sampling protocols as given in the UST QAPP.

Estimate the number of samples of each matrix that are expected to be collected:

Soil	_____
Ground Water from monitoring wells	_____9_____
From Drinking/Irrigation water wells	_____
Field Duplicate Collection	_____1_____
Field Blank Collection	_____1_____
Trip Blank	_____1_____
From surface water features	_____2_____
Total number of samples	_____14_____

Notes:

-It is anticipated that nine (9) monitoring wells will be able to be sampled following the proposed well installation. Two (2) surface water locales will additionally be sampled during the comprehensive sampling event.

-It is anticipated that one (1) field duplicate will be sampled. One duplicate will be collected during the monitoring well sampling event.

-It is anticipated that one (1) field blank will be collected. One field blank will be collected during the monitoring well sampling event.

- It is anticipated that one (1) trip blank will be analyzed.

A selected drill company listed in Table 1A will mobilize a appropriate drilling rig to the subject site. All drilling activities will be performed under the supervision of a South Carolina Certified Well Driller and MECI field personnel.

Wells will be installed according to MECI Standard Operating Procedures (4.1.1, 4.1.5, 4.2.1, 4.2.2, & 4.2.4) and in accordance with South Carolina Well Standards, R.61-71.

Monitoring wells will be purged/sampled in accordance with MECI SOP # 4.3.1 through 4.3.5.

For the sample matrices indicated above, please describe how samples will be collected and the equipment needed.

Monitoring Well Sampling

Water Level Measurement:

-MECI personnel utilize Electronic Water Level Indicators for Water Level Measurements. Each sampling crew carries an electronic water level indicator for use on downgradient monitoring wells and an Oil/Water Interface probe for use on source area wells or wells that have historically contained measurable free phase petroleum product.

-Prior to usage, the indicator is decontaminated with isopropanol applied by a Teflon squeeze bottle and rinsed with analyte free water. This rinse water is collected and run through a portable GAC (granulated activated carbon) unit.

-The indicator is slowly lowered into the water table, and the water level is recorded to the nearest 0.01 feet.

-When free phase petroleum product is encountered, the Oil-Water Interface probe is slowly lowered into the monitoring well until product is encountered; this measurement is recorded to the nearest 0.01 feet. The meter is then lowered through the product until water is encountered. The probe is then pulled back up through the well until product is encountered again; this measurement is recorded to the nearest 0.01 feet.

-If the total depth of a monitoring well is required, after a groundwater level is recorded, the indicator probe is lowered until the bottom of the monitoring well is encountered. This depth is recorded to the nearest 0.01 feet. Following a total depth measurement, the entire length of probe tape is decontaminated with isopropanol and rinsed with analyte free water.

-All measurements will be taken from the top of the well casing.

Monitoring Well Purging:

-Where necessary, monitoring wells will be purged prior to sampling if: the well screen does not bracket the watertable, if a screened interval is not known, purging is specifically asked for by the SCDHEC project manager, or a monitoring well has not previously been sampled.

-Purging will be completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. Following purging/sampling of a well, the bailer and rope will be properly disposed. -A new set of Nitrile gloves will be worn at each monitoring well, and at any time samples are handled.

-Prior to purging, the water level of the well will be determined using an electronic water level indicator. The water level, total well depth and well diameter will be used to determine the amount of water standing in the water column. The following table presents gallons of water per foot of water column in selected diameters of wells:

Well Diameter (inches)	Gallons of Water/Foot	Well Diameter (inches)	Gallons of Water/Foot
1	0.047	8	2.611
2	0.163	10	4.08
4	0.653	12	5.875
6	1.469		

-The length of the water column multiplied by the gallons of water per foot will provide the number of gallons in one well volume of water.

-Purging will continue until three well volumes of water are evacuated, or where field measurements of pH, Specific Conductivity (uS), Temperature (°C), and Turbidity (NTU) have stabilized to within 10% of previous values or until all accessible well water is evacuated (purged dry). Field measurements of these parameters will be taken and recorded in field notes, prior to purging and after each well volume of water has been purged.

-When purging a well with a diameter larger than 2", a submersible Redi-Flo2 pump can be used.

-Prior to usage, the pump assembly will be cleaned using a laboratory grade detergent and rinsed with analyte free water.

-The pump is lowered into the water column utilizing an attached nylon rope. DO NOT LOWER THE PUMP USING THE ELECTRICAL CORD OR HOSE.

-Once the pump has been lowered to the desired depth, the nylon rope is securely attached to an anchor at the ground surface (i.e. metal stake, truck bumper, etc). The power cord is attached to the speed controller which is attached to the generator.

-Slowly increase the speed of the controller until a desired flow rate is achieved. The pump should not be allowed to run dry.

-Purge water will be treated on-site utilizing a GAC unit.

Monitoring Well No-Purge Sampling:

-No-purge sampling will be conducted in previously sampled monitoring wells if: the water level is within the screened interval of the well or specifically asked for by the SCDHEC project manager.

-Immediately prior to sampling, laboratory provided labels will be placed on all sample vials and containers. These labels will include the site name, sample ID, analysis to be completed, date and time.

-Sampling will be conducted utilizing prepackaged, clear, disposable polyethylene bailers and nylon rope. Following sampling of a well, the bailer and rope will be properly disposed. A new set of Nitrile gloves will be worn at each monitoring well, and at any time samples are handled.

-The bailer is lowered into the well until it encounters the watertable, the bailer is then allowed to fill with water and is extracted from the well. Samples are placed in laboratory provided and approved sampling containers. Following sample collection, the samples are immediately placed in laboratory provided coolers, pre-filled with wet ice obtained from the MECI office.

-When requested by the SCDHEC project manager, passive diffusion bags (PDB) can be used to obtain no purge samples from discrete intervals within a water column or from wells where it is not possible to treat purge water on-site (i.e. DNAPL contamination).

-Prior to installation of a PDB, all equipment used should be washed with isopropanol and rinsed with analyte free water (weights, PDB clamps, etc.).

-Wearing Nitrile gloves, the PDB is filled with analyte free water, sealed with a PDB clamp according to the manufacturer and attached to a nylon rope. The PDB is then lowered into the well to a specified depth.

-After a minimum of two weeks in the well, the PDB is removed from the well and a sample taken using a disposable, prepackaged, sealed sampling straw to puncture the bag and fill sample vials.

Quality Assurance:

-Once the samples are taken, they are to be immediately placed in laboratory provided coolers, pre-filled with wet ice obtained from the MECI office.

-One field duplicate will be taken for every twenty (20) monitoring wells sampled at a site. This blank is a duplicate sample taken from a monitoring well near the source area, and is sampled in accordance with MECI Standard Operating Procedures.

-One field blank will be prepared for each day a site is sampled. A field blank is prepared using lab provided DI water placed into laboratory provided sample containers.

-One trip blank per cooler used in sampling will be used at each site. The trip blank is prepared by the laboratory.

-Once a sample has been taken, a sample time will be recorded in the field notes, along with any information about monitoring well condition that should be brought to the attention of the project manager. Please see MECI SOP 4.1.1 (Soil Screening and Sampling), 4.2 (Monitoring Well Installation), 4.3 (Monitoring Well Sampling) for field procedures that we be utilized during the subject assessment.

If decontamination procedures differ from Appendix H, please provide details.

Identify any equipment and support facilities needed. This may include such things as Fed-ex to ship the samples, a Geoprobe, field analysis done by another contractor (who must be certified), and electricity to run sampling equipment.

A selected drill company listed in Table 1A will mobilize a Geoprobe drilling rig to the subject site. All drilling activities will be performed under the supervision of a South Carolina Certified Well Driller and MECI field personnel.

Wells will be installed according to MECI Standard Operating Procedures (4.2, 4.2.2, 4.2.3 & 4.2.4) and in accordance with South Carolina Well Standards, R.61-71.

Drill cuttings will be disposed of by MECI personnel at Waste Management Richland County Landfill in Elgin, SC.

Address the actions to be taken when problems occur in the field, and the person responsible for taking corrective action and how the corrective action will be documented.

Failure	Response	Documentation	Individual Responsible
Water level indicator not working properly	Attempt to clean probe, change battery, use back-up indicator if need be.	Record on field sheets, notify office staff. Take indicator out of rotation until problem is identified and corrected.	Field Staff, Field Manager
Field meters not working	Attempt to clean probes, recalibrate in the field.	Record in field sheets, notify office staff. Take meters out of rotation until problem identified and corrected.	Field Staff, Field Manager
Wells not located	Use metal detector, measure from known points, contact project manager for	Record method used to attempt to locate the well on field sheets, and possibly	Field Staff

	additional information.	reasoning for the well to be missing	
--	-------------------------	--------------------------------------	--

Table 4A Field Corrective Action

B3 Sample Handling and Custody

1. How will the samples get from the Site to the Lab to ensure holding requirements are met?

Following sample collection, the samples are immediately place in a laboratory provided cooler, pre-filled with wet ice obtained from the MECI office. Samples are transported to the MECI office once a sampling event is complete. A Chain of Custody (CoC) is filled out following the sampling event by the field staff. See attached CoC. If a lab provided courier is scheduled to visit the MECI offices the day following a sampling event, sampling coolers are repacked with wet ice, and left at the office for pick-up the following morning. If no courier is schedule to visit the MECI office the day following a sampling event, all sampling coolers are repacked with ice and are dropped off at a lab approved shipping company for overnight delivery to the lab.

- 2. If sample preservation procedures differ from the UST Programmatic QAPP, please provide details.**
- 3. If chain of custody procedures differ from the UST Programmatic QAPP, please provide details.**

B4 Analytical Methods

1. Identify the SOPs which will be used to analyze the samples, the method which the SOP references and the equipment or instrumentation that is needed:

Parameter	SOP ID*	Method Referenced	Equipment	Comments
BTEX+Naph+MTBE+Oxygentaes	S-VO-002	8260B	GC/MS	
PAH's	S-SV-021	8270D	GC/MS	
EDB	S-SV-012	8011	GC	
Lead,T.	S-IM-022	6010C	ICP	
Ferrous Iron	S-IN-009	SM 3500-FED	Spectrophotometer	
Nitrate	S-IN-042	353.2	Auto-analyzer/Lachate	
Sulfate	S-IN-010	300.0	Ion Chromatograph	
Methane	S-VO-004	RSK-175	GC	
TOC	S-IN-030	Walkley-Black	N/A	
DRO - TPH	S-SV-001	8015C	GC	
pH	Standard	MECI SOP 4.3.6	YSI 63	Place probe in sample and allow to equilibrate before recording reading
Conductivity	Standard	MECI SOP 4.3.6	YSI 63	
Dissolved Oxygen	Standard	MECI SOP 4.3.6	YSI 550A	
Temperature	Standard	MECI SOP 4.3.6	YSI 550A	

Turbidity	MECI SOP 4.3.6	*	Micro TPW/TPI Turbidimeter	
PID reading	MECI SOP 4.2.2			Use MiniRae PID to obtain reading. Place probe into soil sample bag and record the highest reading.

Table 5A Analytical SOPs and Referenced Methods

- This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP. See also Table 8A SOP Abbreviation Key.
2. Provide SOPs for the Kerr Method or the Ferrous Iron Method if these are parameters for this study. This can be attached or written here. If attached please note that it is an attachment and where it is located (if applicable).

B5 Quality Control Requirements:

All QC will follow the requirements laid out in Section B5 of the UST Programmatic QAPP.

B6 Field Instrument and Equipment Testing, Inspection and Maintenance

1. Identify all field equipment needing periodic maintenance, the schedule for this, and the person responsible.

Instrument	Serial Number	Type of Maintenance	Frequency	Person responsible
YSI 63	09C 101302, 10K 101895, 07M 100905	Replace probe tip	Yearly	J. Coleman
YSI 63	09C 101302, 10K 101895, 07M 100905	Replace batteries	As Needed	Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	General inspection for wear and tear on equipment	Daily	Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	Check buffer solutions for expiration	Weekly	J. Coleman
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	Replace membrane	4 to 8 weeks	Field Staff
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	Replace batteries	As Needed	Field Staff
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	General inspection for wear and tear on equipment	Daily	Field Staff

Micro TPW/TPI Turbidimeter	201301174 201301183	General inspection for wear and tear on equipment	Daily	Field Staff
MiniRae 3000	592-902491	Parts Inspection	As Needed	Field Staff

Table 6A Instrument and Equipment Maintenance

B7 Instrument Calibration and Frequency

1. Identify equipment, tools, and instruments for field or lab work that should be calibrated and the frequency.
2. Describe how the calibrations should be performed and documented, indicating test criteria and standards or certified equipment.
3. Identify how deficiencies should be resolved and documented. Identify the person responsible for corrective action.

Instrument	Serial Number	Type of Maintenance	Frequency	Parts needed/Location	Person responsible
Volatiles Mass Spec	Shealy SOP S-SV-021 Page 7	Change traps, clean ion source, replace filaments	Periodic	Laboratory	MSV Analyst
Semivolatiles Mass Spec	Shealy SOP S-SV-021 Page 7	Injection port maintenance, ion source maintenance, column replacement	Periodic	Laboratory	MSSV Analyst
ECD GC	Shealy SOP S-SV-012 Page 5	Injection port maintenance, column replacement	Periodic	Laboratory	GC Analyst
Dionex IC	Shealy SOP S-IN-010 Page 6	Replace auto sampler filter, tubing, line filter, sample Line and Waste Line, as needed. Check Reagent levels, flow rate, waste line.	Periodic	Laboratory	IC Analyst
ICP	Shealy SOP S-IM-005 Page 6 & 7	Clean Sample introduction system, auto sampler, torch, Change spray chamber, torch tubing, tubing	Periodic	Laboratory	ICP Analyst
Leeman Mercury Analyzer	Shealy SOP S-IM-006 Page 5	Clean GLS, Change Pump tubing, Nafion Dryer, Lamp	Periodic	Laboratory	Mercury Analyst
Flow Injection Analysis – Lachat	Shealy SOP S-IN-042 Page 5	Replace sample and reagent lines, replace	Periodic/As Needed	Laboratory	Nitrate Analyst

8000		light source, re-wrap heating coil, replace column			
YSI 63	09C 101302, 10K 101895, 07M 100905	Replace probe tip	Daily	Order from YSI	J. Coleman, Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	Replace batteries	Daily	In stock at office	Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	General inspection for wear and tear on equipment	Daily	Major fixes will be done out of office	Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	Check buffer solutions for expiration	Daily	In stock at office	J. Coleman, Field Staff
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	Replace membrane	Daily	In stock at office	Field Staff
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	Replace batteries	Daily	In stock at office	Field Staff
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	General inspection for wear and tear on equipment	Daily	Major fixes will be done out of office	Field Staff
Electronic Water Level Indicator	WLI-1, WLI-2, WLI-3	Inspection	Daily	In stock at office	Field Staff
Oil/Water Interface probe	PLI-1, PLI-2, PLI-3, PLI-4	Inspection	Daily	In stock at office	Field Staff
MiniRae 3000	592-902491	Cleaning	Daily	In stock at office	J. Coleman, Field Staff
MiniRae 3000	592-902491	Parts Inspection	Daily	In stock at office	Field Staff
Micro TPW/TPI Turbidimeter	201301174 201301183	General inspection for wear and tear on equipment	Daily	In stock at office	Field Staff

Table 7A Instrument Calibration Criteria and Corrective Action

* This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP. See also Table 8A SOP Abbreviation Key.

B8 Inspection/Acceptance Requirements for Supplies and Consumables

1. If procedures for storage, handling or transport of supplies/consumables differ from the UST Programmatic QAPP, please provide details.

B9 Data Acquisition Requirements (Non-Direct Measurements)

1. Identify data sources, for example, computer databases or literature files, or models that should be accessed or used.

2. Describe the intended use of this information and the rationale for their selection, i.e., its relevance to project.
3. Indicate the justification criteria for the use of these data sources and/or models.

Data Source	Used for	Justification for use in this project	Comments
Small scope assessment sampling and monitoring well installation reports	Historic groundwater and CoC concentration data. Lithology and well construction data from previous MWI's	Establish the type of drilling rig required, time for sampling and any other potential problems that may be encountered.	Previous assessment reports will be used to help determine the location of missing monitoring wells, and screened intervals.

Table 8A Non-Direct Measurements

4. Identify key resources/support facilities needed.

There are no non-direct measurements in this project

B10 Data Management

1. Describe the data management scheme from field to final use and storage.

Following sample collection and chain of custody production, samples are shipped to the lab. Field work from the field staff is reviewed by the MECI project manager, and converted into digital form. All data entry is subsequently checked to validate the data entry. The original copies of the field work are stored in MECI files for a minimum of 5 years. Digital copies of the work are stored on the MECI server, which is backed up weekly, and stored for a minimum of 5 years. The digital copy of the field work is presented to SCDHEC with the final report.

2. How does the lab and field staff ensure that no unauthorized changes are made to the chain of custody, sampling notebooks, laboratory notebooks and computer records?

The laboratory maintains comprehensive Quality Control and Training Programs. All sample receipt data, sample log-in, and analytical data is peer reviewed, including review for inappropriate changes. Data management, review procedures and the Quality Systems Program are documented in the laboratory's Quality Manual and Standard Operating Procedures. The Quality Assurance Department oversees adherence to and review of these programs.

All MECI field work is produced using ink-pens. Any attempt to alter field data, after sampling is complete, can be readily identified. MECI keeps a carbon copy of the chain of custody after it is shipped to the lab. This copy is kept with the field work. If any change to the CoC are suspected, this original carbon copy can be use to identify potential changes.

3. How does the lab ensure that there are no errors in samples records including times when sample information is compiled, data calculated and/or transmitted?

Sample data acquisition software is reviewed periodically. The LIMS database is backed up daily and is able to be restored in the event of a system failure. These procedures are documented in laboratory SOP S-AD-003, LIMS. The IT Manager is responsible for these systems and procedures."

4. How will the data be archived once the report is produced? How can it be retrieved? (This applies to both electronic and hard copies).

Laboratory Hardcopy data stored off site is logged, maintained and archived by the Quality Assurance Department. Laboratory Electronic Data Reports are maintained through IT back up under the responsibility of the IT Systems Manager.

MECI keeps all field work and paper copies of reports in its in-house filing system. All paper copies are stored for a minimum of 5 years. Any file can be retrieved easily by going to the correct filing cabinet/box.

All electronic copies of reports generated are kept on the MECI server. This server is backed-up on a weekly basis. Any file stored on the MECI server can be retrieved instantly, by accessing the server. All electronic files are stored for a minimum of 5 years on the server.

Section C Assessment and Oversight

C1 Assessment and Response Actions

1. *The Contractor is supposed to observe field personnel daily during sampling activities to ensure samples are collected and handled properly and report problems to DHEC within 24 hours. . Please state who is responsible for doing this and what observations will be made. Will this person have the authority to stop work if severe problems are seen?*

The field manager is in constant contact via phone with MECI field staff during field activities. The field manager ensures that MECI field staff utilize the proper sampling equipment to each site and inspects coolers and chains of custody when MECI field staff arrive back to the MECI office. If problems arise, MECI field staff will contact the field manager via phone and dependent on the severity of the issue, the field manager and the QA officer will be contacted to determine corrective action. In addition, field audits can be conducted on any field personnel at any time. MECI field audits can be conducted by the Field Manger, who will be responsible for ensuring that field personnel adhere to the QAPP. If during a random field audit, severe problems are found, work will be stopped by the field manager and the QA officer contacted to determine corrective action. All problems must be corrected prior to any additional work being performed. Should it be requested, an On-site Field Audit can be scheduled with the SCDHEC project manager. If severe problems are identified by the SCDHEC project manager, the project manager can stop the work until the problems are corrected.

2. *The SCDHEC UST QAPP states that the Lab will receive an Offsite Technical System Audit. For this project, what assessments will be done on the Commercial Lab(s) that are being used—other than their certification audit? When or how often are these done? Who will the results be given to and who has the ability to stop work if problems are severe?*

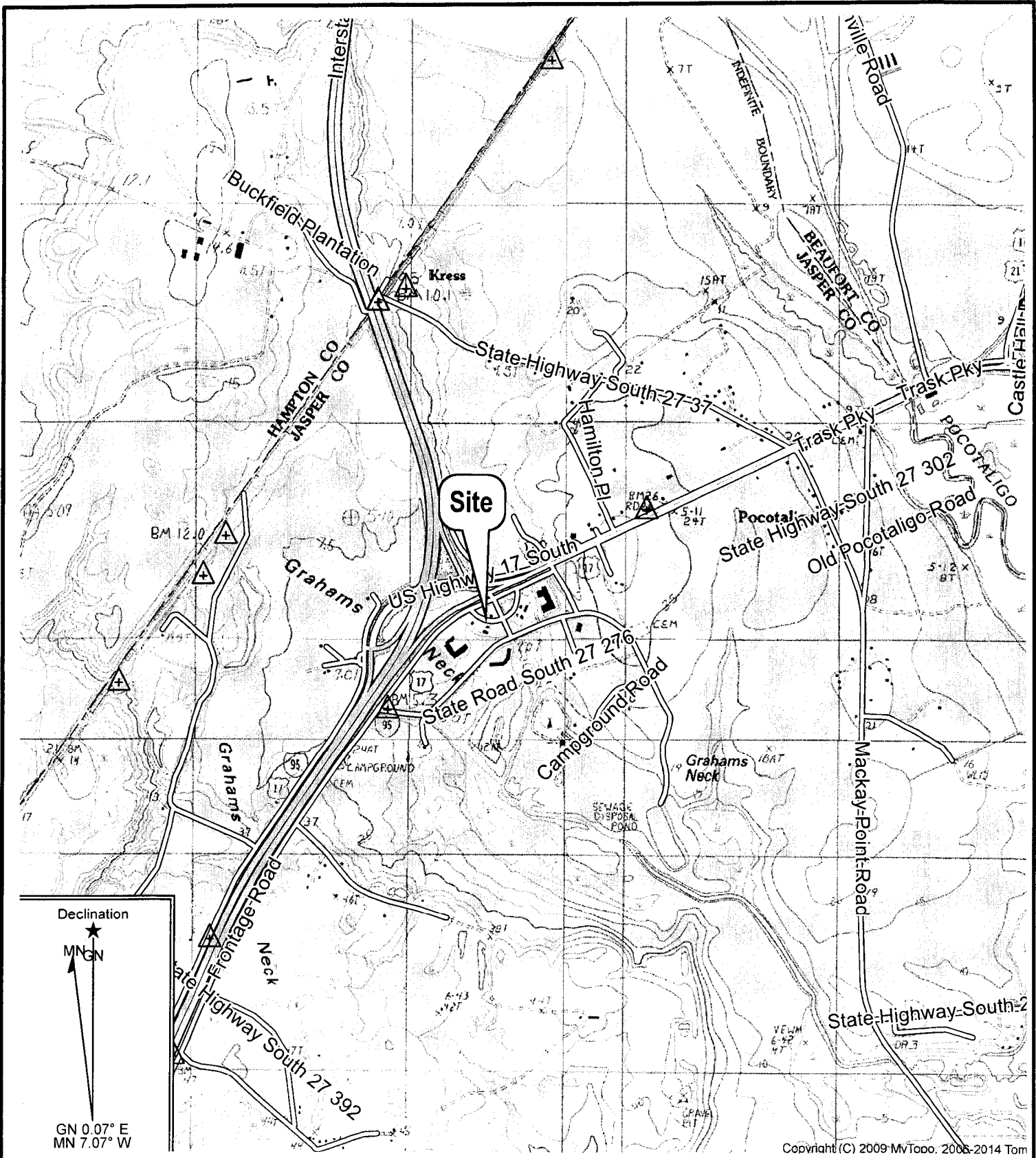
The laboratory participates in annual Proficiency Testing through an approved vendor, Wibby Environmental. If during a random audit, severe problems are found, work will be stopped by the according Wibby Environmental representative and the QA officer contacted to determine corrective action. Proficiency Testing results are provided to the Office of Environmental Laboratory Certification. Audits will be conducted on site specific basis; Analytical results reported for QAPP required duplicates, field blanks, and trip blanks will compared to samples collected from the monitoring well network. When available current analytical results will be compared to historical analytical results to further test the accuracy of quality control.

C2 Reports to Management

See the SC DHEC UST Programmatic QAPP (UST Master QAPP).

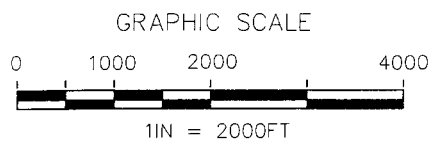
Section D Data Validation and Usability

See the SC DHEC UST Programmatic QAPP (UST Master QAPP).



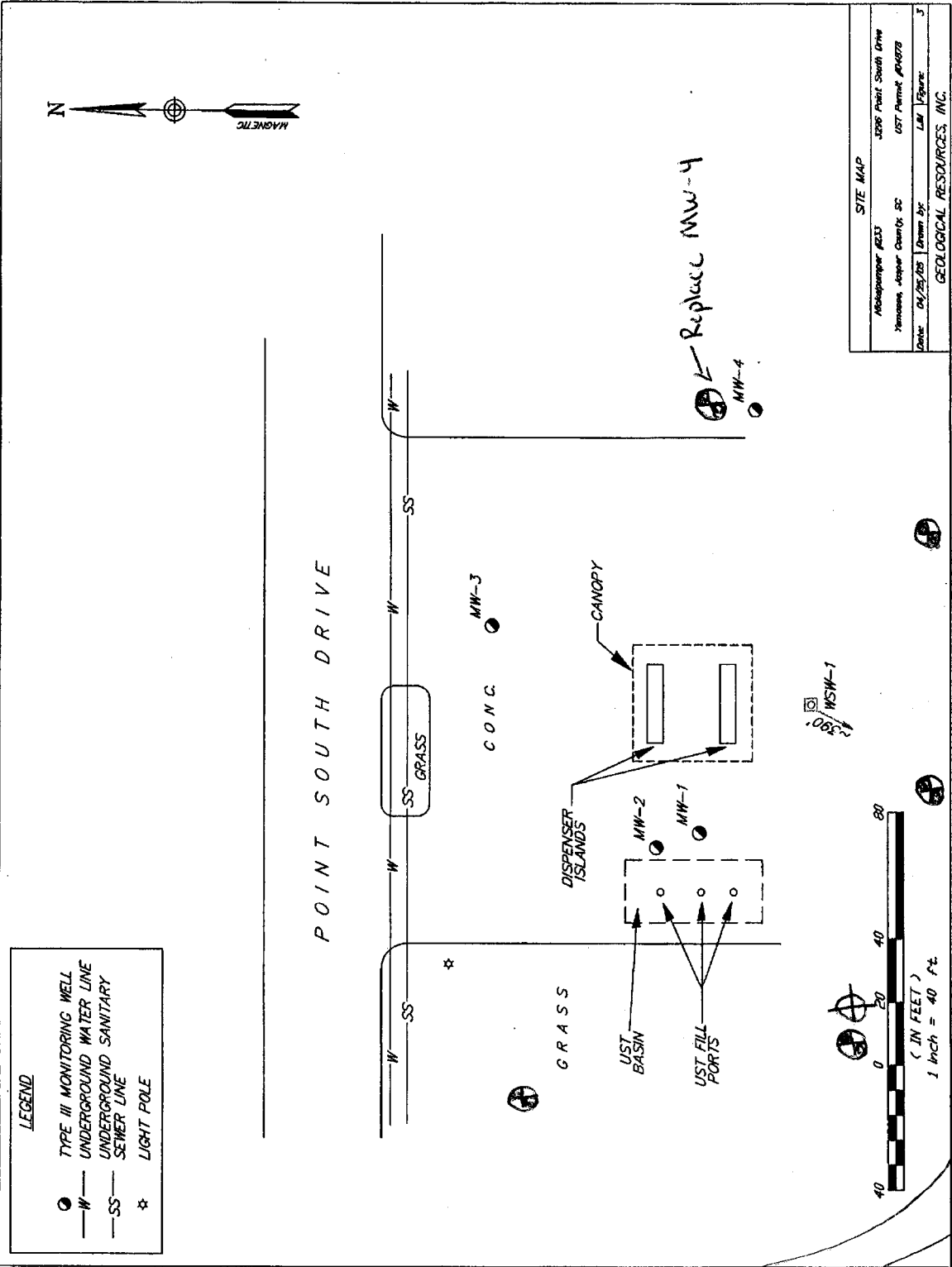
Copyright (C) 2009-MvTopo, 2008-2014 Tom

Declination
 MN GN
 GN 0.07° E
 MN 7.07° W



Reference: McPhersonville, South Carolina
 USGS 7.5 Min. Quad
 Contour Interval - 1.50 Meters

<p>Midlands Environmental Consultants, Inc.</p>	<p>Site Location</p>
<p>Nickelpumper 233 3296 Point South Drive, Yemassee, SC SCDHEC Site ID# 04878</p>	
<p>Figure 1</p>	<p>MECI 14-4714</p>



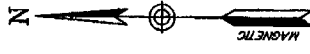
LEGEND

●	TYPE III MONITORING WELL
—W—	UNDERGROUND WATER LINE
—SS—	UNDERGROUND SANITARY SEWER LINE
*	LIGHT POLE

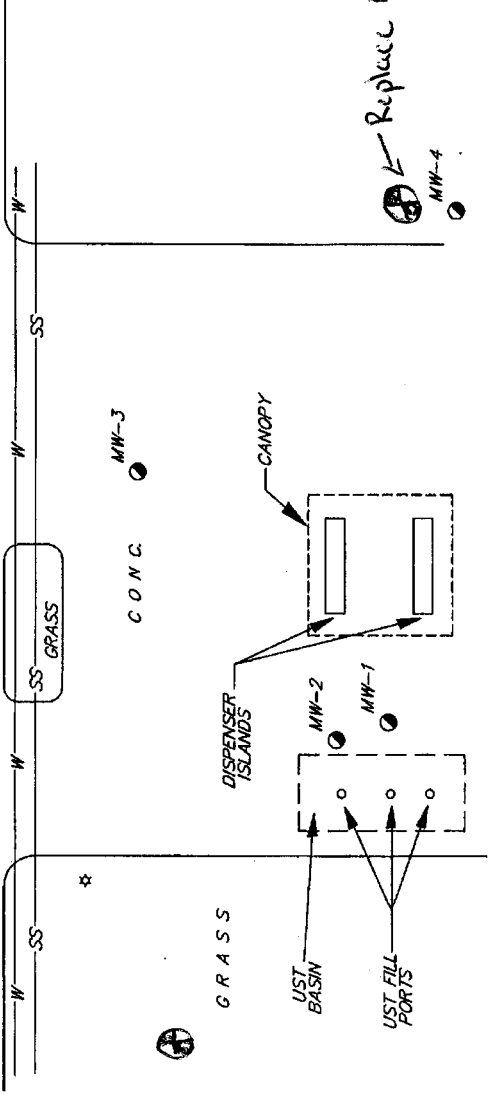
SITE MAP

Address: #233	3206 Point South Drive
Location: Fairfax County, VA	UST Permit #04878
Date: 04/25/05	Drawn by: LAR
	Figure: 3

GEOLOGICAL RESOURCES, INC.



POINT SOUTH DRIVE



Replace MW-4
MW-4

WSW-1

Stream/Creek

CK-1

CK-7

D H E C		ASSESSMENT COMPONENT INVOICE			
PROMOTE PROTECT PROSPER		SOUTH CAROLINA			
South Carolina Department of Health and Environmental Control		Department of Health and Environmental Control			
		Underground Storage Tank Management Division			
		State Underground Petroleum Environmental Response Bank Account			
Facility Name: <u>Nickelpumper 233</u>					
UST Permit #: <u>04878</u>		Cost Agreement #: <u>Proposal</u>			
ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL	
1. Plan Preparation					
A1. Site-specific Work Plan	1	each	\$400.00	\$400.00	
B1. Tax Map		each	\$70.00	\$0.00	
3. Survey (500 x 500 feet)					
A1. Comprehensive Survey	1	each	\$1,000.00	\$1,000.00	
4. Mob/Demob (Each)					
A1. Equipment	1	each	\$250.00	\$250.00	
B1. Personnel	4	each	\$200.00	\$800.00	
C1. Adverse Terrain Vehicle to install wells		each	\$0.00	\$0.00	
5. A1. Soil Borings (hand auger)*					
		feet	\$0.00	\$0.00	
6. Soil Borings (requiring equipment, push technology, etc)* or Field Screening (including water sample, soil sample, soil gas sample, etc.)*					
A1. Standard		per foot	\$6.00	\$0.00	
8. Abandonment (per foot)*					
A1. 4" diameter or less		per foot	\$2.75	\$0.00	
B1. Greater than 4" diameter		per foot	\$2.76	\$0.00	
9. Well Installation (per foot)*					
A1. Water Table (hand augered)		per foot	\$0.00	\$0.00	
B1. Water Table (drill rig)	60	per foot	\$18.87	\$1,132.20	
C1. Telescoping/ Pit Cased	55	per foot	\$31.00	\$1,705.00	
D1. Rock Drilling		per foot	\$23.00	\$0.00	
G1. Rock Multi-sampling ports/screens		per foot	\$7.00	\$0.00	
H1. Recovery Well (4 inch diameter)		per foot	\$28.00	\$0.00	
K. Re-develop Existing Well		per foot	\$4.00	\$0.00	
10. Groundwater Sample Collection / Gauge Depth to Water or Product *					
A1. Groundwater Purge	9	per well	\$15.00	\$135.00	
C1. Water Supply	2	per well/recep	\$5.00	\$10.00	
D1. Groundwater No Purge or Duplicate	2	samples	\$15.00	\$30.00	
E1. Gauge Well only		per well	\$5.00	\$0.00	
F1. Sample Below Product		well	\$5.00	\$0.00	
G1. Pasive Diffusion Bag		each	\$20.00	\$0.00	

11. Laboratory Analyses-Groundwater				
A2. BTEX+Naphth.+ Oxyg's+ 1,2 DCA + Ethanol	14	sample	\$50.00	\$700.00
AA1. Lead, Filtered		sample	\$12.00	\$0.00
D1. PAH's		sample	\$48.00	\$0.00
E1. Lead, Unfiltered		sample	\$12.00	\$0.00
F1. EDB by EPA 8011	13	sample	\$27.00	\$351.00
G1. 8 RCRA Metals		sample	\$50.00	\$0.00
H1. TPH (9070)		sample	\$0.00	\$0.00
PP. Ethanol		sample	\$0.00	\$0.00
11. Analyses-Soil				
E1. Lead		sample	\$12.00	\$0.00
Q1. BTEX + Naphth.		sample	\$32.00	\$0.00
R1. PAH's		sample	\$50.00	\$0.00
S1. 8 RCRA Metals		sample	\$50.00	\$0.00
U1. TPH-DRO (3550B/8015B)		sample	\$0.00	\$0.00
V1. TPH- GRO (5030B/8015B)		sample	\$0.00	\$0.00
W1. Grain size/hydrometer		sample	\$150.00	\$0.00
X1. Total Organic Carbon		sample	\$0.10	\$0.00
11. Analyses-Air				
Y1. BTEX + Naphthalene		sample	\$7.00	\$0.00
12. Aquifer Characterization*				
B1. Slug Test*		per test	\$100.00	\$0.00
13. A1. Free Product Recovery Test		each	\$35.00	\$0.00
16. A1. Subsequent Survey*		each	\$300.00	\$0.00
17. Disposal (gallons or tons)*				
AA. Wastewater	100	gallon	\$1.25	\$125.00
BB. Free Product		gallon	\$0.00	\$0.00
C1. Soil Treatment/Disposal	2	ton	\$50.04	\$100.08
D1. Drilling fluids		gallon	\$0.00	\$0.00
18. Miscellaneous (attach receipts)				
High Strength Well Pad Replacement		each	\$100.00	\$0.00
Free Product Hydrocarbon (Age and Type Identification)		each	\$7.00	\$0.00
		each	\$0.00	\$0.00
		each	\$0.00	\$0.00
20. Tier I Asse. (Use DHEC 3665 form)		standard	\$5,100.00	\$0.00
21. IGWA (Use DHEC 3666 form)		standard	\$1,051.00	\$0.00
25. Well Repair*				
A1. Additional Copies of the Report		each	\$0.00	\$0.00
B1. Repair 2x2 MW pad		each	\$200.00	\$0.00
C1. Repair 4x4 MW pad		each	\$199.97	\$0.00
D1. Repair well vault		each	\$200.00	\$0.00
F1. Replace well cover bolts		each	\$0.00	\$0.00
G. Replace locking well cap & lock		each	\$0.00	\$0.00
H1. Replace/Repair stick-up		each	\$0.00	\$0.00
II. Convert Flush-mount to Stick-up		each	\$0.00	\$0.00
J1. Convert Stick-up to Flush-mount		each	\$0.00	\$0.00
K1. Replace missing/illegible well ID plate		each	\$0.00	\$0.00
TOTAL				\$6,738.28



Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number

Form with sections for Client, Address, City, State, Zip Code, Project Name, Project Number, P.O. Number, Sample ID / Description, Date, Time, Matrix, Analysis, Turn Around Time Required, Sample Disposal, QC Requirements, Possible Hazard Identification, and a signature table for relinquishment and receipt.

RECEIVED

JAN 09 2014

SC Department of
Health and Environmental
Control



Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

**BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071-0854**

JAN 16 2014



Re: Notice to Proceed for Small Scope /QAPP Contractor Addendum Approval
Solicitation # 5400006561, PO# 4600301871
Nickelpumper 233, 3296 Point South Drive, Yemassee, SC 29945
UST Permit #04878; CA #47289; MWA # UMW-25363
QAPP Contractor Addendum received January 9, 2014
Jasper County

Dear Mr. Shane:

In accordance with the bid solicitation # IFB-5400006561 and the UST Management Division Quality Assurance Program Plan (QAPP) Revision 2.0, the Site-Specific Contractor Addendum has been reviewed and approved. If quality assurance problems occur, you must contact me within 24 hours by phone or e-mail and the final report must document the event(s), including quality assurance problems, and the action(s) taken.

A report meeting the contract specifications of Section 3.10, 3.11, or 3.12; contractor verification checklist; and invoice are due sixty (60) days from the date of this letter. A monitoring well approval is enclosed. The solicitation requires adherence to all applicable South Carolina certification requirements for laboratory analyses, well installation, and report preparation.

MECI will perform services at the site on behalf of the responsible party (RP); however, payment will be made from the SUPERB Account. The RP has no obligation for payment of this scope of work. Please coordinate access to the facility with the property owner. The Agency grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below Risk Based Screening Levels.

On all correspondence, please reference permit # 04878. If you have any site-specific questions, please contact me at (803) 898-0606 or e-mail bryantjc@dhec.sc.gov. If you have any contract specific questions, please contact Minda Hornosky at (803) 898-7542 or via e-mail at hornosms@dhec.sc.gov.

Sincerely,

John Bryant, Hydrogeologist
Corrective Action Section
UST Management Division, Bureau of Land & Waste Management

enc: Approved Cost Agreement (CA)
Monitoring Well Approval

cc: Minda Hornosky, Assessment Section, UST Management Division (w/CA copy)
Technical File (w/enc)



Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

Monitoring Well Approval Form

Approval is hereby granted to: Midlands Environmental Consultants, Incorporated
(on behalf of): Richard Carlson
Facility: 3296 Point South Drive, Yemassee, SC 29945
UST Permit Number: 04878
County: Jasper

This approval is for the installation of 5 shallow, and 1 pit cased monitoring wells. The monitoring wells are to be installed in the approved location. The monitoring wells are to be installed following the South Carolina Well Standards, R.61-71, and the applicable guidance documents.

Please note that R.61-71 requires the following:

1. All wells shall be drilled, constructed, and abandoned by a South Carolina certified well driller per R.61-71.D.1.
2. All monitoring wells shall be labeled as required by R.61-71.H.2.c.
3. A Water Well Record Form or other form provided or approved by the Agency shall be completed and submitted to the Agency within 30 days after well completion or abandonment unless another schedule has been approved by the Agency. The form should contain the "as-built" construction details and all other information required by R.61-71.H.1.f
4. All analytical data and water levels obtained from each monitoring well shall be submitted to the Agency within 30 days of receipt of laboratory results unless another schedule has been approved by the Agency as required by R.61-71.H.1.d.
5. If any of the information provided to the Agency changes, notification to John Bryant (tel: (803) 898-0606 or e-mail: bryantjc@dhec.sc.gov) shall be provided a minimum of twenty-four (24) hours prior to well construction as required by R.61-71.H.1.a.
6. All temporary monitoring wells shall be abandoned within 5 days of borehole completion using appropriate methods as required by R.61-71.H.4.c. All other wells shall be properly developed per R.61-71.H.2.d.
7. Agency approval is required prior to abandonment of all monitoring wells as required by R.61-71.H.1.a.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and R.61-71 of the South Carolina Well Standards and Regulations, dated April 26, 2002. A copy of this approval should be on the site during well installation.

Date of Issuance: January 13, 2014

Approval #: UMW-25363

John Bryant, Hydrogeologist
Assessment Section
Division of Assessment and Corrective Action
Bureau of Land and Waste Management

Section A: Project Management

A1 Title and Approval Page

Quality Assurance Project Plan
Addendum to the SC DHEC UST Programmatic QAPP
For
Nickelpumper 233, SCDHEC Site ID# 04878

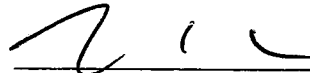
3296 Point South Drive, Yemassee, South Carolina

Prepared by:
Jeff L. Coleman
Senior Scientist
Midlands Environmental Consultants, Inc.
(Certified Site Rehabilitation Contractor UCC-0009)
231 Dooley Road
Lexington, SC 29073
(803)808-2043

Date: January 7, 2014

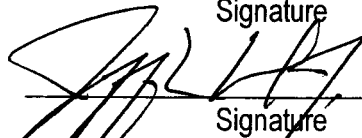
Approvals

John Bryant
SC DHEC Project Manager



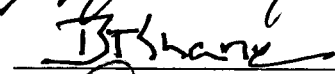
Signature Date 1/13/14

Jeff L. Coleman
Contractor QA Manager



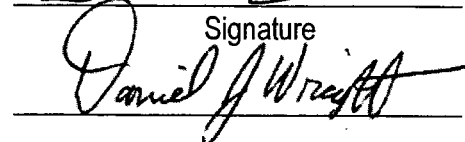
Signature Date 1/7/14

Bryan T. Shane, P.G.
Site Rehabilitation Contractor



Signature Date 1-7-14

Daniel J. Wright
Laboratory Director



Signature Date 1/7/2014

Approved Cost Agreement 47289

Facility: 04878 NICKELPUMPER 233

BRYANTJC

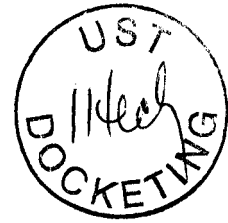
PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
01 PLAN		A1 SITE SPECIFIC WORK PLAN	1.0000	400.00	400.00
03 COMPREHENSIVE SURVEY		A1 COMPREHENSIVE SURVEY	1.0000	1,000.00	1,000.00
04 MOB/DEMOB		A1 EQUIPMENT	1.0000	250.00	250.00
		B1 PERSONNEL	4.0000	200.00	800.00
09 WELL INSTALLATION		B1 WATER TABLE (DRILL RIG)	60.0000	18.87	1,132.20
		C1 TELESCOPING	55.0000	31.00	1,705.00
10 SAMPLE COLLECTION		A1 GROUNDWATER (PURGE)	9.0000	15.00	135.00
		C1 WATER SUPPLY	2.0000	5.00	10.00
		D1 GROUNDWATER NO PURGE/DUPLICATE	2.0000	15.00	30.00
11 ANALYSES	GW GROUNDWATER	A2 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	14.0000	50.00	700.00
		F1 EDB BY 8011	13.0000	27.00	351.00
17 DISPOSAL		AA WASTEWATER	100.0000	1.25	125.00
		C1 SOIL TREATMENT DISPOSAL	2.0000	50.04	100.08
Total Amount					6,738.28



Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment



RICHARD CARLSON
1920 NORTH MAIN STREET
LOS ANGELES CA 90031-3217

JAN 27 2014

Re: Request for Right of Entry
Nickelpumper 233, 3296 Point South Drive, Yemassee, SC 29945
UST Permit # 04878
Release Reported May 16, 2002
Jasper County

Dear Mr. Carlson:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control confirmed a release from the UST system at the referenced site on May 16, 2002.

To determine what risk the above reported release may pose to the environment and public health, and in accordance with Section 280.65 of the South Carolina Underground Storage Tank Control Regulations, implementation of monitoring well installation and groundwater sampling events are necessary. The UST Division intends to conduct necessary assessment and remediation work using state funds from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Since you were not the owner or operator of the UST system, there will be no cost to you for the intended work. As the current property owner, the UST Division is requesting your permission for the contractor to enter the property to perform the necessary work and all future work. The UST Division will keep you apprised of all pending activities and provide you a copy of all reports. **Please complete the attached right of entry form and return it to my attention within 15 days from your date of receipt.**

If you have any questions, please contact me by phone at (803) 898-0606, by fax at (803) 898-0673, or by e-mail at bryantjc@dhec.sc.gov.

Sincerely,

John C. Bryant, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

enc: Right of Entry Form
cc: Technical file (no enc)

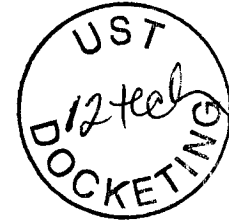


Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

RICHARD CARLSON
1920 NORTH MAIN STREET
LOS ANGELES CA 90031-3217

FEB 10 2014



Re: Request for Right of Entry-Second Request
Nickelpumper 233, 3296 Point South Drive, Yemassee, SC 29945
UST Permit # 04878
Release Reported May 16, 2002
Jasper County

Dear Mr. Carlson:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (Agency) requested access to your property on January 30, 2014 to conduct necessary assessment activities. The scope of work is for Midlands Environmental Consultants, Incorporated to install up to six groundwater monitoring wells and collect groundwater samples from the monitoring wells on your property, in order to fully assess the petroleum release. To date a reply has not been received. A copy of the letters is attached for your information.

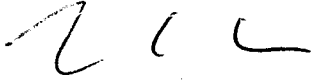
The Agency has the authority pursuant to the State Underground Petroleum Environmental Response Bank Act (S.C. Code Ann. § 44-2-10 *et seq.* (Supp. 1996)) and the UST Control Regulations (S.C. Code Ann. Regs. 61-92 (Supp.1996)) to hold the UST owner/operator, responsible for addressing the existing contamination. The Agency also has authority under the Pollution Control Act (S.C. Code Ann. § 48-1-10 *et seq.* (1976)), as amended, to require each and every individual property owner to abate pollution on his or her own property. Indeed, the South Carolina Supreme Court has held landowners strictly liable under the Pollution Control Act for contamination emanating from their property. The Agency believes it to be in your best interest to allow the UST Division and our contractor Midlands Environmental Consultants, Incorporated to address the problem as we, until now, have done. There will be no cost to you in allowing Midlands Environmental Consultants Incorporated to access your property for environmental activities. If you deny access to your property, you may be required to conduct environmental assessment activities to include cleanup activities at your own expense.

The UST Management Division requests that you allow assessment activities to proceed in a timely manner and return the required right of entry form. **Please sign the enclosed right of entry form and return it to my attention on or before Friday, February 28, 2014. If not, the Agency will pursue a court order to gain access to the property.** Please be advised if the UST Division obtains a court order to conduct the work, assessment activities may be conducted at a time that may be disruptive to you or your tenants.

Mr. Carlson
Page 2

Your cooperation is greatly appreciated. If you have any questions, please contact me at (803) 898-0606, fax me at (803) 898-0673, or e-mail me at bryantjc@dhec.sc.gov.

Sincerely,



John C. Bryant, Hydrogeologist
Assessment Section
Assessment and Corrective Action Division
Underground Storage Tank Division
Bureau of Land and Waste Management

enc: UST Agency Letter dated January 27, 2014
MECI Letter dated January 9, 2014
Right of Entry

cc: Midlands Environmental Consultants, Incorporated, PO Box 854, Lexington SC 29071
(w/enc)
Technical file (w/enc.)



Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment



RICHARD CARLSON
1920 NORTH MAIN STREET
LOS ANGELES CA 90031-3217

JAN 27 2014

Re: Request for Right of Entry
Nickelpumper 233, 3296 Point South Drive, Yemassee, SC 29945
UST Permit # 04878
Release Reported May 16, 2002
Jasper County

Dear Mr. Carlson:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control confirmed a release from the UST system at the referenced site on May 16, 2002.

To determine what risk the above reported release may pose to the environment and public health, and in accordance with Section 280.65 of the South Carolina Underground Storage Tank Control Regulations, implementation of monitoring well installation and groundwater sampling events are necessary. The UST Division intends to conduct necessary assessment and remediation work using state funds from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Since you were not the owner or operator of the UST system, there will be no cost to you for the intended work. As the current property owner, the UST Division is requesting your permission for the contractor to enter the property to perform the necessary work and all future work. The UST Division will keep you apprised of all pending activities and provide you a copy of all reports. **Please complete the attached right of entry form and return it to my attention within 15 days from your date of receipt.**

If you have any questions, please contact me by phone at (803) 898-0606, by fax at (803) 898-0673, or by e-mail at bryantjc@dhec.sc.gov.

Sincerely,

John C. Bryant, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

enc: Right of Entry Form
cc: Technical file (no enc)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
2600 Bull Street • Columbia, SC 29201 • Phone: (803) 898-3432 • www.scdhec.gov



Midlands
Environmental
Consultants, Inc.

January 9, 2014

Mr. Richard Carlson
1920 North Main Street
Los Angeles, CA 90031

Subject: Right-of-Entry
Nickelpumper 233
3296 Point South Drive
Yemassee, South Carolina
SCDHEC Site ID# 04878

To whom it may concern,

The South Carolina Department of Health and Environmental Control (SCDHEC), Division of Underground Storage Tanks has requested Midlands Environmental Consultants, Inc. (MECI) to perform assessment related activities for a release of petroleum product at the former Nickelpumper 233, located near the intersection Point South Drive and Charles Frazier Circle in Yemassee, South Carolina. Requested field activities include the installation and sampling of six groundwater monitoring wells on the property from which the release of petroleum has occurred. MECI is seeking permission to access your property (Jasper County Tax Map Number: 088-48-00-008) to better define the documented petroleum based groundwater contamination plume. Samples from your property will be obtained by the methods described below. The location of the subject site is depicted on Figure 1 and 1A. Proposed well locations are presented on Figure 2.

The wells will be finished with flush mounted covers in a 2' by 2' concrete pad. The edge of the concrete pad will be saw-cut into existing pavement as needed. All measures to minimize any inconvenience caused by drilling activities will be undertaken.

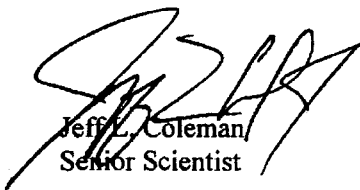
The wells consist of 2-inch diameter PVC pipe (Schedule 40 with flush-threaded joints) inserted into an 8-inch or 10-inch diameter augered borehole (Figure 3). The bottom 10 or 15-foot section of each monitoring well is a manufactured well screen with 0.020-inch slots. The well screen will be set to intercept the saturated/unsaturated zone interface (static water) encountered at the time of drilling. Washed sand backfill will be placed around the outside of the pipe to a minimum of one foot above the top of the well screen. A bentonite seal (minimum 2-foot thick) will be installed on top of the sand backfill to seal the monitoring wells at the desired level. The boreholes will then be grouted with a cement/bentonite grout to the ground surface. A steel protective flush-mounted cover and a lockable cap will then be placed over each monitoring well. All well construction will be conducted by a South Carolina Certified Well Driller, and will be approved and monitored by SCDHEC.

Right-of-Entry Permission
Nickelpumper 233 – Yemassee, SC

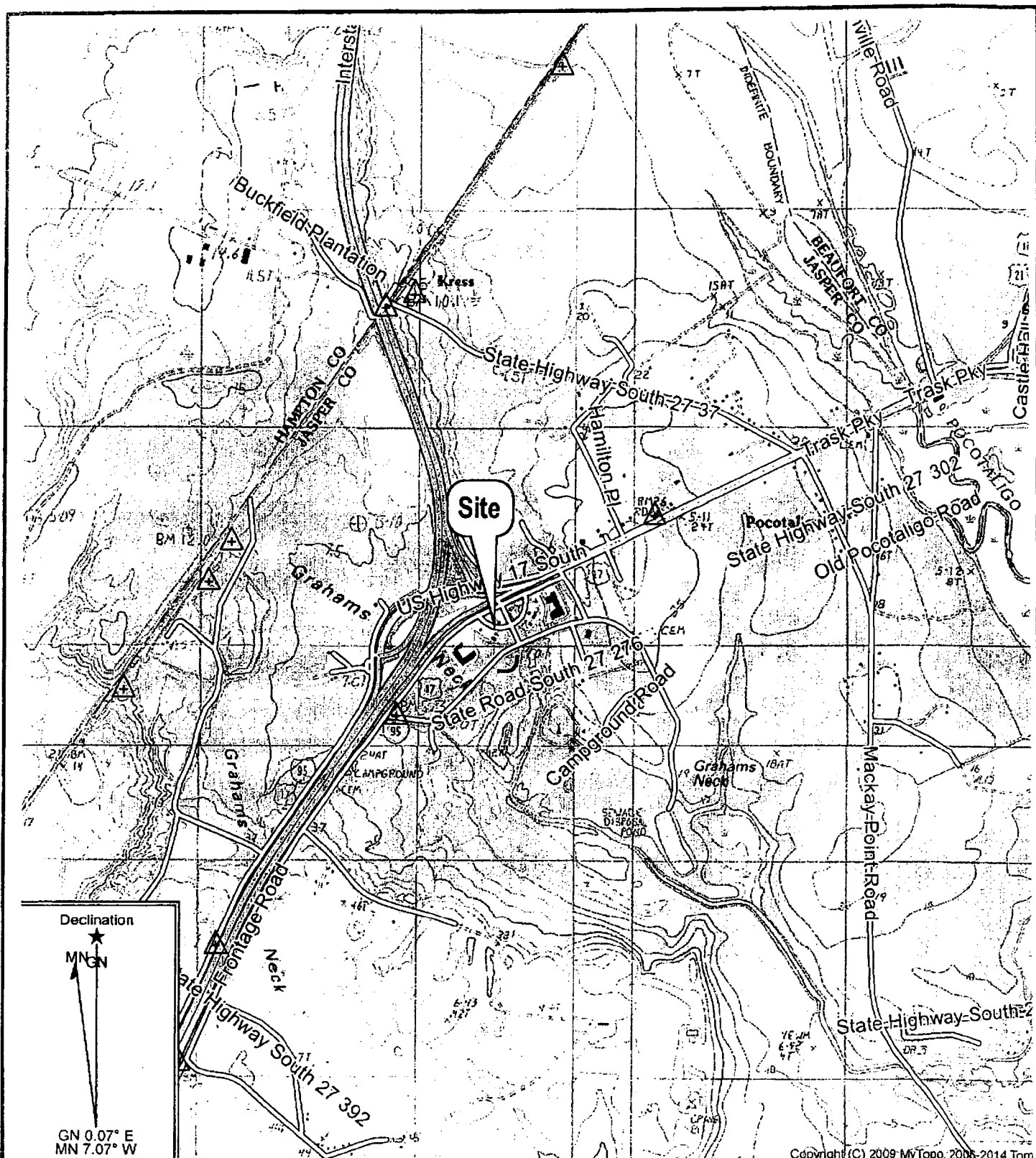
January 9, 2014

Before any work is initiated, MECI personnel will coordinate with the property owner at each phase of the above referenced assessment. Please sign and return the attached Permission Form or contact MECI at (803) 808-2043 about the right of entry to your property. Collect telephone calls will be accepted to minimize any inconvenience.

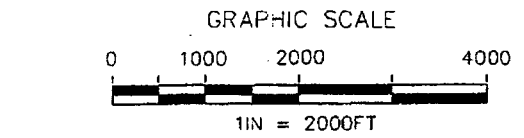
Sincerely,
Midlands Environmental Consultants, Inc.




Jeff L. Coleman
Senior Scientist

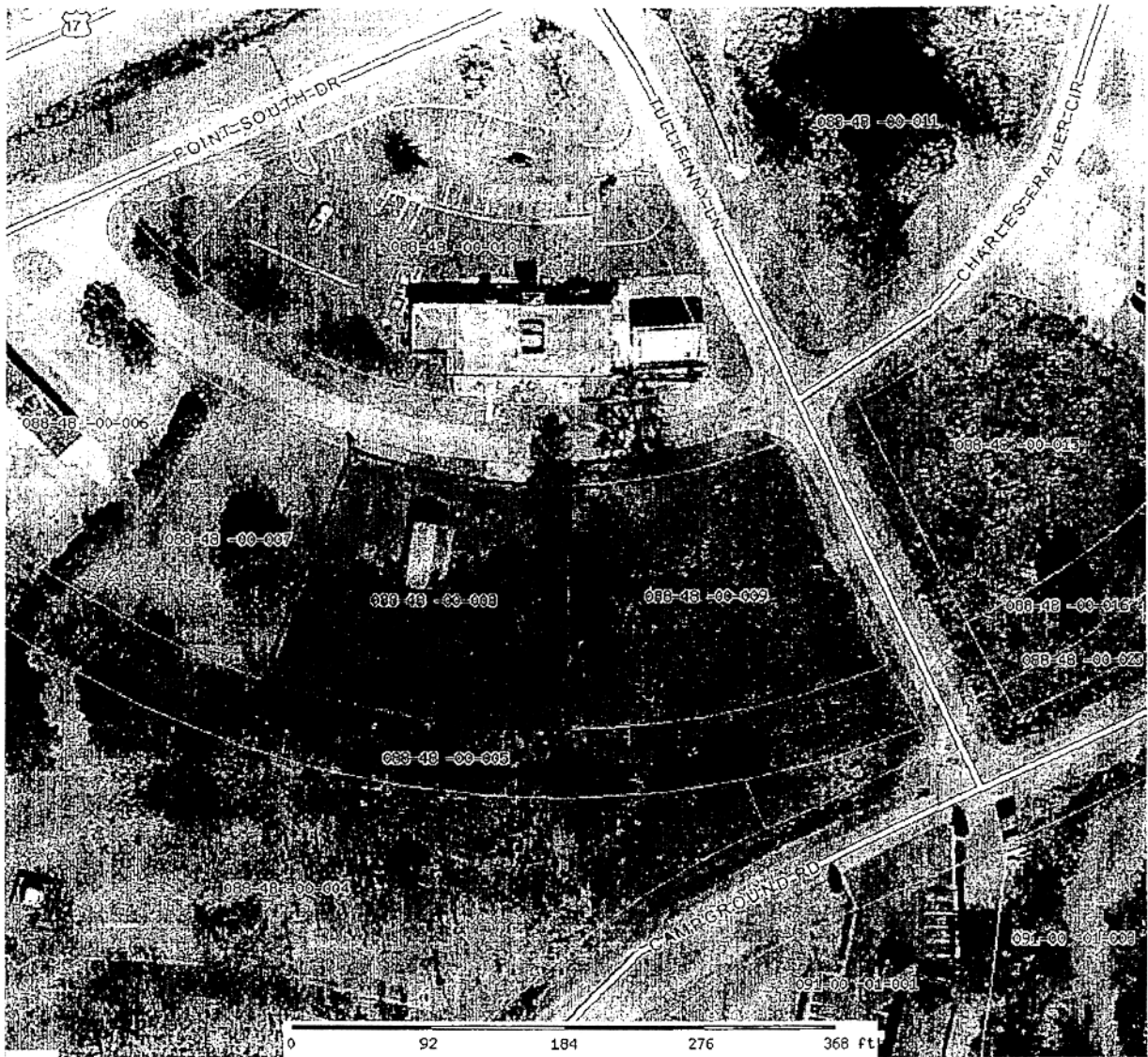


Copyright (C) 2009 MvToop. 2008-2014 Tom



Reference: McPhersonville, South Carolina
 USCS 7.5 Min. Quad
 Contour Interval - 1.50 Meters

<p>Midlands  Environmental Consultants, Inc.</p>	<p>Site Location</p>
<p>Nickelpumper 233 3296 Point South Drive, Yemassee, SC SCDHEC Site ID# 04878</p>	
<p>Figure 1</p>	<p>MECI 14-4714</p>



Jasper County Assessor			
Parcel: 088-48-00-008 Acres: 0.72			
NAME	CARLSON RICHARD	ASSESS VALUE	\$58,000.00
STATE		ASSESS VALUE	\$0.00
REMARKS	\$30,000 on 04-2010 Vacant= Qual=Q	ASSESS VALUE	\$0.00
	1920 NORTH MAIN STREET	ASSESS VALUE	\$0.00
	LOS ANGELES CA		
	90031		



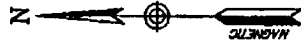
The Jasper County Assessor's Office makes every effort to produce the most accurate information possible. No warranties, expressed or implied, are provided for the data herein, its use or interpretation. The assessment information is from the last certified taxroll. All data is subject to change before the next certified taxroll. PLEASE NOTE THAT THE PROPERTY APPRAISER MAPS ARE FOR ASSESSMENT PURPOSES ONLY NEITHER JASPER COUNTY NOR ITS EMPLOYEES ASSUME RESPONSIBILITY FOR ERRORS OR OMISSIONS ---THIS IS NOT A SURVEY---

Date printed: 01/09/14 : 13:28:49

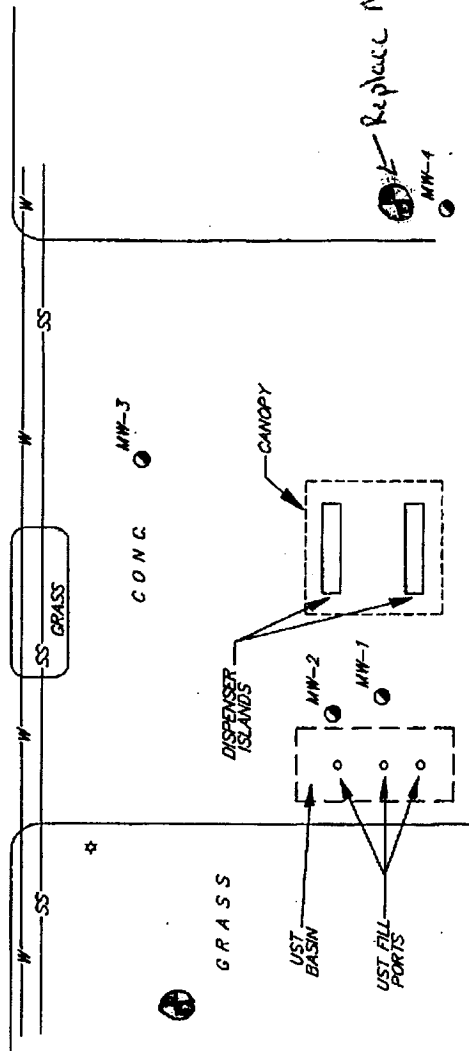
Explanation:

- - "shallow" monitoring well
- - "deep" monitoring well

LEGEND	
○	TYPE III MONITORING WELL
—W—	UNDERGROUND WATER LINE
—SS—	UNDERGROUND SANITARY SEWER LINE
☆	LIGHT POLE



POINT SOUTH DRIVE



MSW-1



SITE MAP	
Address: 3335 Point South Drive	
Location: Jasper County, SC	UST Permit #04078
Date: 04/25/02	Drawn By: L.W. Evans
GEOLOGICAL RESOURCES, INC.	

Stream/Creek

CK-1

MSW-1

TYPICAL TYPE II MONITORING WELL

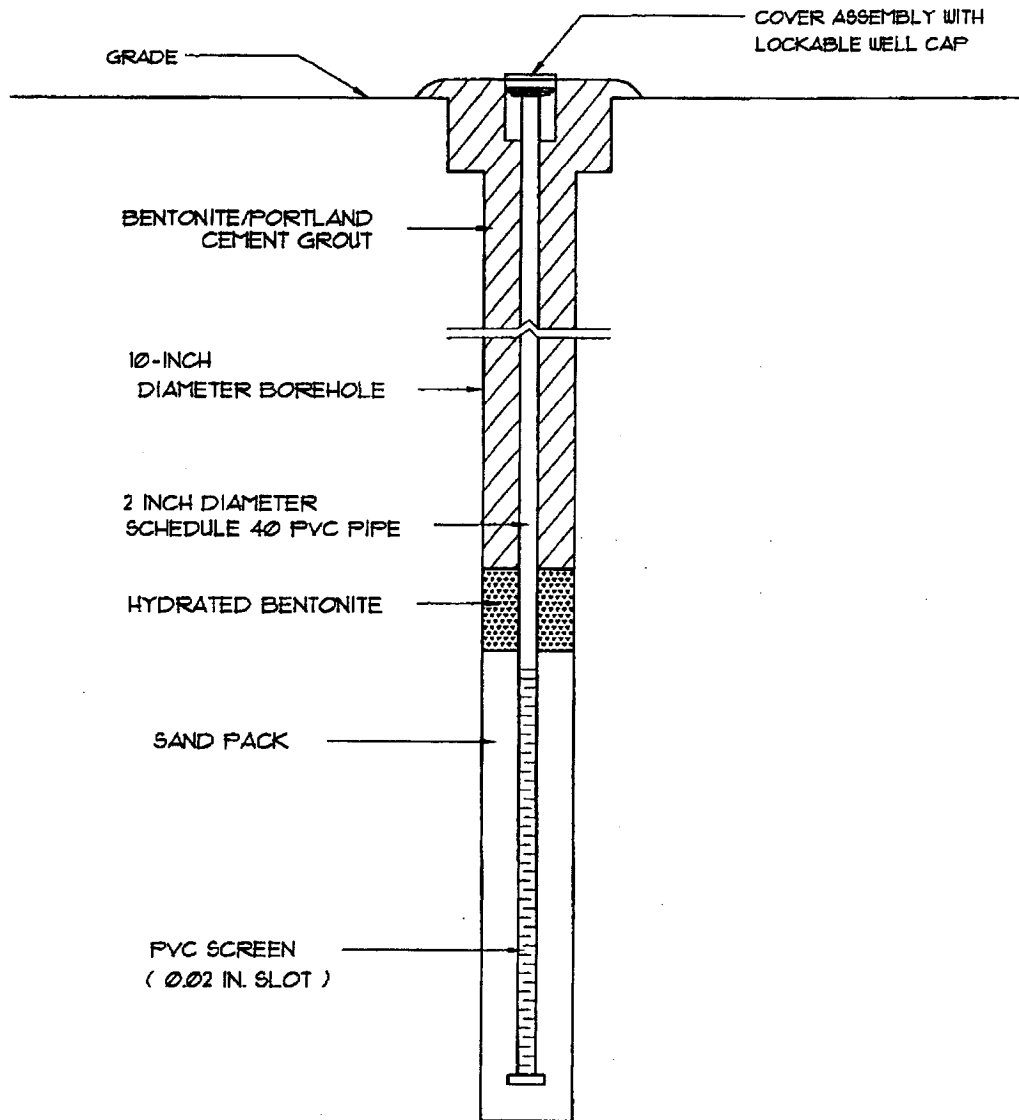


FIGURE 3

Prepared By:
Midlands Environmental Consultants, Inc.
231 Dooley Road
Lexington, SC 29013
(803) 808-7043 fax: 808-7048



PERMISSION TO ENTER PROPERTY

I, _____, hereby certify that I am the owner of record or otherwise have the legal right to grant entry and access to the property for the purpose described below ("Owner") and do hereby grant Midlands Environmental Consultants, Inc. (MECI) and its agents, employees and subcontractors, and assigns the right to enter upon the property physically located near the intersection Pint South Drive and Charles Frazier Drive (Jasper County Tax Map Number 088-048-00-008) for the purpose of performing an environmental assessment, as requested by SCDHEC which will include the following categories of work:

- Installation of six groundwater monitoring well(s);
- Measuring depth to groundwater, about once every three months;
- Collection of groundwater samples, about once every three months;
- Maintenance of the monitoring well(s).

Access to the monitoring well will be needed for a time period not likely to exceed three to five years after well installation has been completed. The property owner will be notified at least 48 hours in advance of any planned activities on the property. At any time the property owner may contact MECI if there are any questions or concerns about work performed on the property.

The Permission to Enter Property is effective upon execution of this document.

This Permission to Enter Property is granted with consideration of MECI making reasonable restoration to the property resulting from MECI activities on the property.

Consented to giving access:

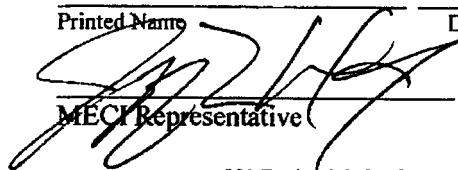
Property Owner's Signature Date Daytime Phone# _____

Printed Name Date Evening Phone# _____

Access Denied:

Property Owners Signature Date Daytime Phone# _____

Printed Name Date Evening Phone# _____

 _____
MECI Representative 1/9/24

231 Dooley Rd., Lexington, SC 29073 Telephone (803) 808-2043 * Fax (803) 808-2048

RICHARD CARLSON

RIGHT OF ENTRY - UST Permit # 04878

If you are the Property Owner or are the authorized representative for that person, but did not own the former or existing underground storage tanks at the time the release was reported, please complete this form.

I, _____, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility _____ Phone # _____

Street Address of Facility _____

Town, City, District, Suburb _____

Name of nearest intersecting street, road, highway, alley _____

Is this facility within the city limits? (yes or no) _____

Is this facility serviced by a public water or sewer utility? (yes or no) _____, if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) _____, if yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation _____, Phone number _____

Is the property currently leased or rented to someone? (yes or no) _____, if yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the monitoring wells, they should be moved before SCDHEC's contractor arrives at the site.

NAME of property owner (Please Print): _____

Phone Number (home) _____ (work) _____

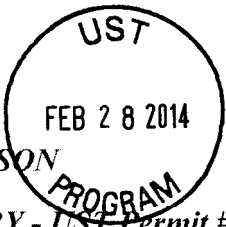
Current Mailing Address _____

Signature of Property Owner: _____

Witness _____

Date: _____ Month _____
_____ Day _____ Year _____

UST Division/ SMB



RICHARD CARLSON

RIGHT OF ENTRY - UST Permit # 04878

THERE WILL BE NO COST TO THE PROPERTY OWNER FOR ANY & ALL WORK PERFORMED ON THE PROPERTY PER LETTER 1/27/14 JAMM BELANT.

If you are the Property Owner or are the authorized representative for that person, but did not own the former or existing underground storage tanks at the time the release was reported, please complete this form.

I, RICHARD CARLSON, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility VACANT PROP. Phone # _____

Street Address of Facility 3296 POINT SOUTH DR. VACANT PROP.

Town, City, District, Suburb YEMASSEE SOUTH CAROLINA

Name of nearest intersecting street, road, highway, alley TAX MAP # 088-48-00-008

Is this facility within the city limits? (yes or no) I DON'T KNOW

Is this facility serviced by a public water or sewer utility? (yes or no) I DON'T KNOW, if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) _____, if yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation DONT KNOW, Phone number _____

Is the property currently leased or rented to someone? (yes or no) NO, if yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the monitoring wells, they should be moved before SCDHEC's contractor arrives at the site.

NAME of property owner (Please Print): RICHARD CARLSON

Phone Number (home) _____ (work) (323) 222-3007

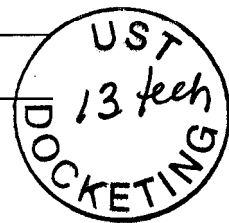
Current Mailing Address 1920 W. MAIN ST. LOS ANGELES CA 90031

Signature of Property Owner: [Signature]

Witness Peter Bartoldus

Date: FEB. 22, 2014 Month _____ Year _____ Day _____

UST Division/ SMB



Document Receipt Information

Hard Copy

CD

Email

Date Received 6-5-14

Permit Number 04878

Project Manager John Bryant

Name of Contractor MCCI

UST Certification Number _____

Docket Number 144ea

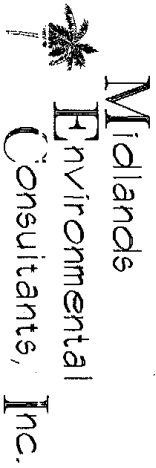
Scanned _____

Additional Assessment

ADDITIONAL ASSESSMENT REPORT

Nickelpumper 233
3296 Point South Drive
Yemassee, South Carolina
SCDHEC SITE ID 04878
CA # 47289

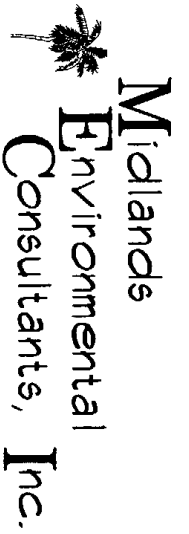
Prepared By:



231 Dooley Road, Lexington, SC 29073
(803) 808-2043 Fax: 808-2048

May 29, 2014

MECI Project No. 14-4714



May 29, 2014

Mr. John C. Bryant, Hydrogeologist
Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land & Waste Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: Additional Assessment Report
Nickelpumper 233
3296 Point South Drive
Yemassee, South Carolina
SCDHEC Site ID# 04878, CA# 47289
MECI Project Number 14-4714
Certified Site Rehabilitation Contractor UCC-0009

Dear Mr. Bryant,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached the Additional Assessment Report for the referenced site. This report describes assessment activities conducted at the site and results of those activities in general accordance with South Carolina Department of Health and Environmental Control (SCDHEC) guidelines, including adherence to the UST Division Programmatic Quality Assurance Program Plan (QAPP, Revision 2.0).

Midlands Environmental appreciates the opportunity to offer our professional environmental services to you on this project. Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.

Jeff A. Coleman
Senior Scientist

Bryan T. Shane, P.G.
Principal Geologist

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 PROJECT INFORMATION 1
2.0 SURROUNDING PROPERTY USAGE 2
3.0 AREA GEOLOGY AND HYDROGEOLOGY 2
3.1 LOCAL SUBSURFACE CONDITIONS 2
4.0 FIELD EXPLORATION 3
4.1 MONITORING WELL INSTALLATION 3
4.2 MONITORING WELL SAMPLING AND CHEMICAL ANALYSES 4
4.3 WATER SUPPLY WELL SAMPLING AND CHEMICAL ANALYSES 5
4.4 SURFACE WATER SAMPLING AND CHEMICAL ANALYSIS 5
4.5 SITE SURVEY 6
5.0 TEST RESULTS AND EVALUATION 6
5.1 GROUNDWATER ANALYTICAL RESULTS 6
5.2 SURFACE WATER ANALYTICAL RESULTS 6
6.0 ASSESSMENT SUMMARY & RECOMMENDATIONS 7
7.0 QUALIFICATIONS OF REPORT 7

TABLE OF CONTENTS (cont.)

TABLES:

- **Table 1 – SOIL ANALYTICAL RESULTS
- **Table 1A – GROUNDWATER ANALYTICAL RESULTS (FIELD SCREENING)
- Table 2 – POTENTIOMETRIC DATA
- Table 3 – GROUNDWATER COC CONCENTRATION DATA
- Table 3A – GROUNDWATER COC CONCENTRATION DATA (OXYGENATES)
- **Table 4 – AQUIFER CHARACTERISTICS
- **Table 5 – SITE CONCEPTUAL MODEL (CURRENT LAND USE)
- **Table 5A – SITE CONCEPTUAL MODEL (FUTURE LAND USE)

FIGURES:

- Figure 1 – TOPOGRAPHIC MAP
- Figure 2 – SITE BASE MAP
- **Figure 3 – SOIL SITE MAP
- Figure 4 – GROUNDWATER COC SITE MAP
- Figure 4A – GROUNDWATER COC SITE MAP (OXYGENATES)
- Figure 5 – POTENTIOMETRIC DATA SITE MAP (GROUNDWATER CONTOUR)
- **Figure 6 – GEOLOGIC CROSS SECTIONS (A TO A')
- **Figure 6A – GEOLOGIC CROSS SECTIONS (B TO B')

- APPENDIX A – SITE SURVEY
- APPENDIX B – SAMPLING LOGS, LABORATORY DATA SHEETS AND CHAIN OF CUSTODY FORMS
- **APPENDIX C – TAX MAP DATA
- **APPENDIX D – SOIL BORING/TEMPORARY MONITORING WELL LOGS & 1903 FORMS
- APPENDIX E – PERMANENT WELL LOGS & 1903 FORMS
- **APPENDIX F – AQUIFER EVALUATION SUMMARY FORMS, DATA, GRAPHS, EQUATIONS
- APPENDIX G – DISPOSAL MANIFESTS
- **APPENDIX H – LOCAL ZONING REGULATIONS
- **APPENDIX I – FATE & TRANSPORT MODELING
- APPENDIX J – ACCESS AGREEMENTS
- APPENDIX K – DATA VERIFICATION CHECKLIST

NOTE: ITEMS LISTED WITH AN ** BESIDE IT WERE NOT NEEDED AS A PART OF THIS SCOPE OF WORK

1.0 INTRODUCTION

A. Owner/Operator Information

Facility Name: Nickelpumper 233 UST Permit #: 04878
Facility Address: 3296 Point South Drive, Yemassee, SC
Name: Richard Carlson
Address: 1920 North Main Street, Los Angeles, CA 90031
Telephone #: (323) 222-3007

B. Property Owner Information

Name: Richard Carlson
Tax Map #: Jasper County Tax Map #: 088-48-00-008
Address: 1920 North Main Street, Los Angeles, CA 90031
Telephone #: (323) 222-3007

C. Contractor Information

Name: Midlands Environmental Consultants, Inc.
Certification #: 9
Address: P. O. Box 854, Lexington, SC 29071
Telephone #: (803) 808-2043

D. SCDHEC Certified Well Driller

Name: Environmental Drilling & Probing Services, LLC.
Driller: David Brown
Certification #: B 02053
Address: 17538 Greenhill Road, Charlotte, NC 28278
Telephone #: (704) 607-7529

E. SCDHEC Certified Laboratory

Name: Shealy Environmental Services, Inc.
Certification #: 32010
Address: 106 Vantage Point Drive, West Columbia, SC 29172
Telephone #: (803) 791-9700

1.1 PROJECT INFORMATION

The subject site (Nickelpumper 233) is located at 3296 Point South Drive in Yemassee, Jasper County, South Carolina (See Figure 1). The subject site formally maintained one 6,000 gallon gasoline underground storage tank (UST), one 8,000 gallon gasoline UST and one 10,000 gallon gasoline UST. These UST's were reported out of compliance on September 17, 2009. SCDHEC reported and confirmed a release from these UST's in May of 2002. The subject site is currently rated a Class 2BB.

Previous assessment activities were performed by Geological Resources, Inc. of Charlotte, North Carolina. Geological Resources, Inc. completed a Tier I Assessment in April of 2005. This assessment included the collection of soil samples, installation of three monitoring wells, aquifer slug test, and groundwater sampling. This assessment concluded that chemicals of concern (COC's) were

above Risk-Based Screening Levels (RBSL's) in monitoring wells MW-1, MW-2, MW-3, and MW-4.

The above information is based on reports and correspondence obtained from SCDHEC files and MECI field notes.

2.0 SURROUNDING PROPERTY USAGE

The site is located at 3296 South Point Drive in Yemassee, Jasper County, South Carolina. The majority of the property is vacant, with the exception of a free standing canopy located in the center of the parcel. The site is bound to the north by Charles Frazier Circle, beyond which is a property that contains a former gasoline service station (Country Chef Restaurant/UST Permit# 15151). The property to the east is an open field. The property to the south contains an Econolodge and the property to the west is a vacant open lot.

3.0 AREA GEOLOGY AND HYDROGEOLOGY

The project site is located in the Atlantic Coastal Plain Physiographic Province. The mean elevation of the property as depicted on the local USGS quadrangle (McPhersonville, SC) appears to be approximately 5 meters above sea level. The soils in this province are generally interbedded silts, sands and clays that have been deposited during successive advances and retreats of the ocean over the past several million years. This interbedding can cause perched water and makes hydrogeological interpretation difficult.

In this geologic setting, the uppermost aquifer is the surficial aquifer of sands with lenses and layers of clays and silts. Water occupies the interstices between the formation particles and is in hydrostatic balance with the atmosphere at the water table surface.

Local precipitation is the source of freshwater recharge to the Coastal Plain formations. Groundwater recharge varies considerably over the region and is attributed to the differences in precipitation and to the variability in the infiltration rates.

Coastal Plain formations generally dip toward the Atlantic Ocean. Consequently, regional groundwater movement is to the southeast. On a regional scale, hydraulic gradients are relatively low.

Locally, in the surficial aquifer, groundwater discharges into streams, lakes or springs where the groundwater table intersects lows occupied by these water bodies. The apparent direction (based on hydraulic gradient) of groundwater flow from the release is to the east, towards drainage features associated with the Pocotaligo River.

3.1 LOCAL SUBSURFACE CONDITIONS

Coastal plain sediments were encountered during drilling activities conducted at the site. The soils encountered in our borings generally consisted silty fine to medium grained sands near surface, underlain by fine sandy clays. Test Boring Records, which depict the materials encountered in each boring, are located in Appendix E.

On April 24th, 2014, the stabilized groundwater level was measured in the installed monitoring well. Depth to groundwater ranged from 0.54 to 3.90 feet from the top of casing in the wells measured. The groundwater measurements are summarized in tabular form in Table 2 and on Figure 5. Groundwater levels may fluctuate several feet with seasonal and rainfall variations and with change in the water level of adjacent drainage features. Normally, the highest groundwater levels occur in late winter and spring. The lowest levels occur in late summer and fall.

The above descriptions provide a general summary of the subsurface conditions encountered. The attached Test Boring Records (Appendix E) contain detailed information recorded at each new monitoring well location. The Test Boring Records represent our interpretation of the field logs based on examination of the field samples. The lines designating the interfaces between various strata represent approximate boundaries, and the transition between strata may be gradational.

4.0 FIELD EXPLORATION

Field exploration conducted at the site included:

- construction of six (6) groundwater monitoring wells;
- comprehensive sampling of the entire well network and nearby receptors;
- chemical analyses of groundwater samples; and,
- a comprehensive survey of subject site.

The monitoring well locations were selected based on SCDHEC instruction, property access, existing site conditions, estimated groundwater flow direction, and drilling accessibility.

4.1 MONITORING WELL INSTALLATION

On April 16th and 17th, 2014, five single cased, watertable bracketing monitoring wells and one double cased “deep” monitoring well were installed at the subject site. All monitoring wells were installed by Environmental Drilling and Probing Services, LLC, of Charlotte, NC (S.C. Driller Certification: David Brown # B 02053) to better define the contaminant plume. The watertable bracketing monitoring wells were installed using an ATV-mounted drilling rig employing 7.5-inch outer diameter hollow stem augers to construct the boreholes.

During construction of the telescoping monitoring well DW-1, a 6-inch outer casing was advanced to the desired depth and grouted in-place. The grout was allowed to cure and the remainder of the depth of the borehole was achieved using mud-rotary techniques. These wells were installed by Environmental Drilling & Probing Services, LLC of Charlotte, NC (S.C. Driller Certification: David Brown # B 02053).

The following table presents well installation details:

Well Number	Single Cased	Double Cased	Screened Interval (ft)	Total Depth (ft)
MW-4R	X		2.0-12.0	12.23
MW-5	X		2.0-12.0	12.00
MW-6	X		2.0-12.0	12.32
MW-7	X		2.0-9.0	8.95
MW-8	X		2.0-9.5	9.36
DW-1		X	43.5-48.5	48.36

The soils encountered during drilling activities generally consisted of silty fine to medium grained sands. Representative portions of soil samples were screened with a Photo Ionization Detector (PID) and classified by MECI personnel. Test boring records showing soil descriptions and screening result are attached in Appendix E.

Drill cuttings were containerized and transported to Richland Landfill in Elgin, SC by MECI personnel. A total of 2.24 tons was disposed of in this manner. A disposal manifest for these soils is presented in Appendix G.

Following completion of the monitoring wells, the wells were developed by purging until they were determined to be functioning properly and turbidity was reduced. These wells were developed utilizing a Whale-Mega Purger well pump. The drum of purge water was treated by MECI personnel using a granular activated carbon drum. A total of 50.0 gallons of purge/development water was disposed of in this manner. A disposal manifest for the treated purge water is presented in Appendix G.

4.2 MONITORING WELL SAMPLING AND CHEMICAL ANALYSES

On April 24th, 2014, MECI personnel collected groundwater samples from the eight (8) wells at the subject site. Monitoring well MW-3 was unable to be located during sampling activities. All newly installed monitoring wells and pre-existing monitoring wells were purged prior to sample collection. Eight (8) monitoring wells were purged prior to sample collection.

Purging of the monitoring wells was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. Purging was completed by hailing three to five well volumes of water from the well, until pH, conductivity, dissolved oxygen, and turbidity stabilized or until all available water was evacuated from the well, whichever occurred first. A new set of nitrile gloves were worn at each monitoring well, and at all times samples were handled. Field measurements of turbidity, pH, conductivity, dissolved oxygen, and water temperature were obtained before the well sampling process. MECI utilized YSI550A meters for DO (mg/L) and temperature readings (°C), YSI63 meters for pH and conductivity (uS) readings, and a Micro/TP/TPW Turbidimeter for turbidity readings (NTU). The attached Field Data Information Sheets presents the results of the field measurements obtained during sampling processes. All wells were sampled in accordance with SCDHEC's Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP, Revision 2.0) and MECI's Standard Operating Procedures (MECI SOP, January 2014). Groundwater samples obtained were sent to Shealy Environmental Services, Inc. of West Columbia, SC (SCDHEC Laboratory Certification #32010) for analysis.

The following sampling matrix contains well development and requested analyses for each well:

Monitoring Well	Purge	No Purge	Not Located	Analyte Sampled														
				BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	Filtered Lead (EPA Method 6010)	Sulfate (EPA Method 375.2)	Nitrate (EPA Method 335.2)	Methane (RSK Method)	PAH's (EPA Method 8270)					
MW-1	X			X	X	X	X	X										
MW-2	X			X	X	X	X	X										
MW-3			X															
MW-4R	X			X	X	X	X	X										
MW-5	X			X	X	X	X	X										
MW-6	X			X	X	X	X	X										
MW-7	X			X	X	X	X	X										
MW-8	X			X	X	X	X	X										
DW-1	X			X	X	X	X	X										
MW-Dup.				X	X	X	X	X										
Field Blank				X	X	X	X	X										
Trip Blank				X	X	X	X	X										

Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dichloroethane PAH = polycyclic aromatic hydrocarbons

** = Indicates Field Duplicate

The results of the laboratory analyses are summarized in Tables 3, Table 3A and presented in Appendix B.

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 25.0 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is presented in Appendix G.

4.3 WATER SUPPLY WELL SAMPLING AND CHEMICAL ANALYSES

On April 24th, 2014, MECI attempted to collect samples from one (1) water supply well. This water supply well is located at the Econolodge Hotel and is located approximately 372' feet southeast of MW-1. This water supply well was inactive at time of sampling and samples were unable to be collected.

4.4 SURFACE WATER SAMPLING AND CHEMICAL ANALYSIS

During the April 24th, 2014 sampling event, two samples (CK-1 & CK-2) were collected from a stream which is located along the southern boundary of the subject site. Sample CK-1 was collected approximately 140' feet southeast of MW-1 and sample CK-2 was collected approximately 161' feet southwest of MW-1.

The samples obtained from the surface water locales were analyzed for volatile organic compounds including BTEX, naphthalene, methyl-tertiary-butyl-ether, 1,2 DCA, 8 oxygenates (EPA Method

8260B) and EDB (EPA Method 8011). Results of the laboratory analyses are discussed in Section 5.2 and summarized in Table 3 & 3A. The analytical results are also presented in Appendix B.

4.5 SITE SURVEY

Following the well installation, a comprehensive survey was conducted by Construction Support Services of Columbia, SC (Jay S. Joshi P.L.S.# 14811) dated May 6th, 2014 to locate the vertical and horizontal positions of the monitoring well network and relevant structures associated with the subject site and the adjacent Country Chef Restaurant (UST# 15151). A signed/stamped copy of the comprehensive survey is attached in Appendix A. See Table 2 and Figure 5 for monitoring well elevation data.

5.0 TEST RESULTS AND EVALUATION

The following sections discuss groundwater test results for the subject site.

5.1 GROUNDWATER ANALYTICAL RESULTS

As discussed in Section 4.2, groundwater samples obtained from the monitoring wells during the April 24th, 2014 comprehensive groundwater sampling event were analyzed for dissolved phase petroleum constituents. Monitoring well MW-3 was not located during sampling activities performed at the site. The analytical results indicate petroleum impact to the surficial aquifer ("Shallow" Zone), with the highest dissolved concentrations being detected in the area of MW-1. Of the eight monitoring wells sampled, two wells (MW-1 & MW-2) detected petroleum constituents above Risk-Based Screening Levels (RBSL's). Petroleum constituents detected above the established RBSL include:

Compound	RBSL (ug/l)	Wells Above RBSL
Benzene	5	MW-1 & MW-2
Toluene	1,000	MW-2
Ethylbenzene	700	MW-1 & MW-2
Total Xylenes	10,000	None
Naphthalene	25	MW-1 & MW-2
MTBE	40	MW-1 & MW-2
EDB	0.05	None

In addition, the analytical results also detected petroleum constituents above the laboratory method detection limit in monitoring wells MW-4R; however the concentrations detected did not exceed the RBSL. The results of the analyses for each monitoring well and specific parameters are listed on Table 3, Table 3A, and provided in Appendix B.

5.2 SURFACE WATER ANALYTICAL RESULTS

As discussed in section 4.4, two surface water samples were collected from a creek which flows along the southern boundary of the subject site. Samples collected did not indicate petroleum impact to this surface water body. The results of the analysis for the surface water and specific parameters are listed on Table 3, Table 3A, and provided in the laboratory reports (Appendix B).

6.0 ASSESSMENT SUMMARY & RECOMMENDATIONS

Based on the results of our assessment activities, it appears that impact to the surficial aquifer has occurred due to a release of petroleum hydrocarbons. The analytical results indicate petroleum impact to the “shallow” surficial aquifer, with the highest dissolved concentrations being detected in the area of the former UST basin (MW-1 & MW-2). Additionally, dissolved phase petroleum constituents were not detected above RBSL’s in the monitoring well which bracket the “deep” zone aquifer. Groundwater appears to be moving to the east, toward drainage features associated with Pocolaligo River.

The analytical results indicate petroleum impact to the surficial aquifer (“Shallow” Zone), with the highest dissolved concentrations being detected in the area of MW-1. Of the eight monitoring wells sampled, two wells (MW-1 & MW-2) detected petroleum constituents above Risk-Based Screening Levels (RBSL’s). Petroleum constituents detected above the established RBSL include:

<i>Compound</i>	<i>RBSL (ug/l)</i>	<i>Wells Above RBSL</i>
Benzene	5	MW-1 & MW-2
Toluene	1,000	MW-2
Ethylbenzene	700	MW-1 & MW-2
Total Xylenes	10,000	None
Naphthalene	25	MW-1 & MW-2
MTBE	40	MW-1 & MW-2
EDB	0.05	None

In addition, the analytical results also detected petroleum constituents above the laboratory method detection limit in monitoring wells MW-4R; however the concentrations detected did not exceed the RBSL. The results of the analyses for each monitoring well and specific parameters are listed on Table 3, Table 3A, and provided in Appendix B.

Figure 4 presents the concentrations of each listed petroleum compound in the surficial aquifer at the site. Figure 4B presents the 8 oxygenates analytical data from all monitoring wells installed in conjunction with the subject UST release.

Based on current analytical results, the contaminant plume emanating from the subject site appears to be defined, both horizontally and vertically. MECI recommends continued monitoring of the well network and nearby receptors until Site Specific Target Levels (SSL’s) are generated and met. Furthermore, it may be advantageous to conduct a series of extended AFVR events on monitoring wells MW-1 & MW-2 to reduce elevated CoC concentrations.

7.0 QUALIFICATIONS OF REPORT

The activities and evaluative approaches used in this assessment are consistent with those normally employed in hydrogeological assessment and waste management projects of this type. Our evaluation of site conditions has been based on our understanding of the site, project information provided to us, and data obtained in our exploration. The general subsurface conditions utilized in our evaluation have been based on interpretation of subsurface data between borings. Contents of this report are intended for the sole use of SCDHEC and MECI under mutually agreed upon terms and conditions. If other parties wish to rely on this report please contact MECI prior to their use of

this information so that a mutual understanding and agreement of the terms and conditions of our services can be established.

-oOo-

TABLES

**TABLE 2
POTENTIOMETRIC DATA
APRIL 24, 2014 SAMPLING EVENT
NICKELPUMPER 233
YEMASSEE, SOUTH CAROLINA
MECI PROJECT NUMBER 13-4714
SCDHEC SITE ID NUMBER 04878**

Well Number	Sample Date	Screened Interval	Depth to Water (feet)	Well-head Elevation	Groundwater Elevation
MMW-1(04878)	2/28/2014 4/24/2014	2.5-12.5 ---	3.19 1.37	100.56 100.56	97.37 99.19
MMW-2(04878)	2/28/2014 4/24/2014	2.0-12.0 ---	0.60 1.02	100.57 100.57	99.97 99.55
MMW-3(04878)	2/28/2014 4/24/2014	2.0-12.0 ---	2.26 NL	100.06 100.06	97.80 NL
MMW-4(04878)	2/28/2014	2.0-12.0	NL	100.11	NL
MMW-4R(04878)	4/24/2014	2.0-12.0	2.41	99.77	97.36
MMW-5(04878)	4/24/2014	2.0-12.0	1.25	100.51	99.26
MMW-6(04878)	4/24/2014	2.0-12.0	1.89	100.52	98.63
MMW-7(04878)	4/24/2014	2.0-9.0	1.20	100.42	99.22
MMW-8(04878)	4/24/2014	2.0-9.5	0.54	99.71	99.17
DW-1(04878)	4/24/2014	43.5-48.5	3.90	100.87	96.97
MMW-1(15151)	4/24/2014	2.0-12.0	NM	100.04	NM
MMW-2(15151)	4/24/2014	2.0-12.0	NM	98.65	NM
MMW-3R(15151)	4/24/2014	2.0-12.0	NM	98.30	NM
MMW-4(15151)	4/24/2014	2.0-12.0	NM	98.76	NM
MMW-5(15151)	4/24/2014	2.0-12.0	NM	98.59	NM
MMW-6(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MMW-7(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MMW-8(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MMW-9(15151)	4/24/2014	2.0-12.0	NM	99.50	NM
MMW-10(15151)	4/24/2014	2.0-12.0	NM	99.82	NM
MMW-11(15151)	4/24/2014	2.0-12.0	NM	99.83	NM
MMW-12(15151)	4/24/2014	2.0-12.0	NM	99.93	NM
MMW-13(15151)	4/24/2014	2.0-12.0	NM	99.94	NM
MMW-14(15151)	4/24/2014	2.0-12.0	NM	99.92	NM
MMW-15(15151)	4/24/2014	2.0-12.0	NM	99.88	NM
MMW-16(15151)	4/24/2014	2.0-12.0	NM	100.05	NM
MMW-17(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MMW-18(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MMW-19(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MMW-20(15151)	4/24/2014	3.0-13.0	NM	98.95	NM
MMW-21(15151)	4/24/2014	3.0-13.0	NM	99.07	NM
MMW-22(15151)	4/24/2014	3.0-13.0	NM	99.37	NM
DW-2(15151)	4/24/2014	50.0-55.0	NM	99.72	NM
RW-1(15151)	4/24/2014	1.8-11.8	NL	NL	NL
RW-2(15151)	4/24/2014	2.0-12.0	NM	98.42	NM

Notes:
1. Elevations based on assumed sea datum.
2. Groundwater depths were measured from the top of the PVC riser pipe.
3. Groundwater levels measured on 4/24/2014.
4. NL = Not Located
5. NM = Not Measured

TABLE 3
GROUNDWATER COC CONCENTRATION DATA
APRIL 24, 2014 SAMPLING EVENT
NICKELPUMPER 233
YEMASSEE, SOUTH CAROLINA
MECI PROJECT NUMBER 14-4774
SCDHEC ID NUMBER 04878

Well Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	MTBE (ug/l)	1,2-DCA (ug/l)	EDB (ug/l)
MW-1(04878)	2/28/12	2,500	2,900	720	2,300	8,420	190	1,300	69	<0.020
	4/24/14	4,300	500	1,500	6,200	12,500	530	1,500	<500	<0.020
MW-2(04878)	2/28/12	550	3,300	700	3,300	7,850	250	190	15J	<0.020
	4/24/14	1,400	1,000	2,000	5,700	10,100	620	220J	<250	<0.019
MW-3(04878)	2/28/12	0.39J	<5.0	3.2J	2.8J	6.39J	19	<5.0	<5.0	<0.020
	4/24/14	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-4R(04878)	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	10	9.0	<5.0	<0.020
MW-5(04878)	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.021
MW-6(04878)	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-7(04878)	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.024
MW-8(04878)	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.021
DW-1(04878)	4/24/14	<25	<25	<25	<25	BDL	<25	<25	<25	<0.026
WSW-1(04878)	2/28/12	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/24/14	NS	NS	NS	NS	NS	NS	NS	NS	NS
CK-1(04878)	4/24/14	<1.0	<1.0	<1.0	<1.0	BDL	<1.0	<1.0	<1.0	<0.019
CK-2(04878)	4/24/14	<1.0	<1.0	<1.0	<1.0	BDL	<1.0	<1.0	<1.0	<0.019
MW-1 Dup.(04878)	2/28/12	280	330	83	290	983	22	140	8.1	<0.020
MW-2 Dup.(04878)	4/24/14	1,400	1,000	2,000	5,700	10,100	630	210J	<250	<0.020
Field Blank(04878)	2/28/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
Tip Blank(04878)	2/28/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	NT
	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	NT

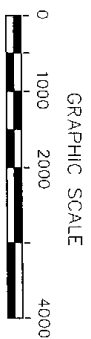
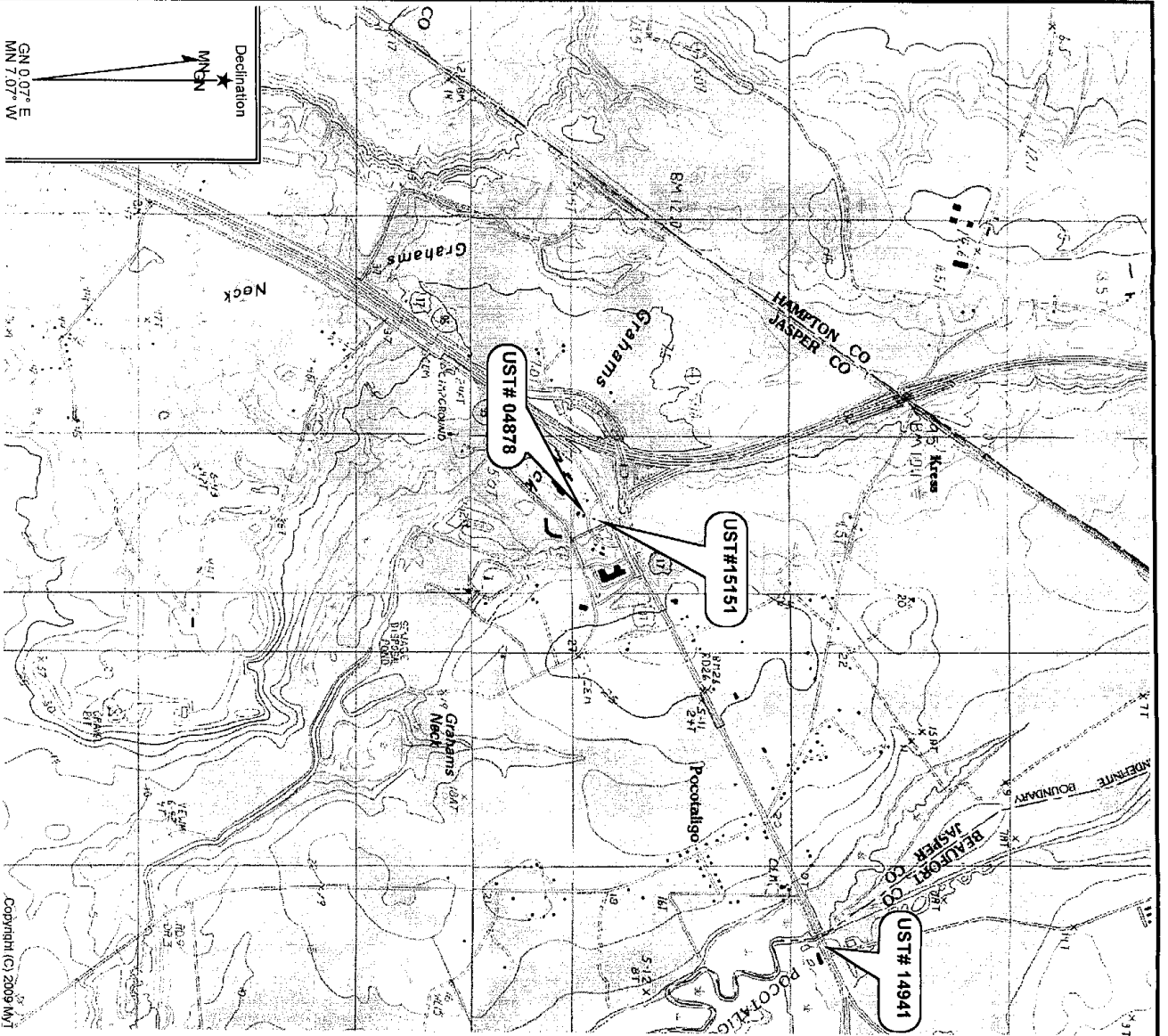
Notes:
1. BDL = Below Practical Quantitative Limits
2. ug/l = micrograms per liter
3. MTBE = Methyl-Tertiary-Butyl Ether
4. 1,2-DCA = 1,2-Dichloroethane
5. EDB = 1,2-Dibromoethane
6. NL = Not Located
7. NT = Not Tested
8. NS = Not Sampled (WSW-1 Inactive)
9. "J" Values included in Total BTEX Calculations.
10. "B" Values = Detected in Method Blank
11. "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL).


TABLE 3A
GROUNDWATER COC CONCENTRATION DATA (OXYGENATES)
APRIL 24, 2014 SAMPLING EVENT
NICKELPUMPER 233
YEMASSEE, SOUTH CAROLINA
MECI PROJECT NUMBER 14-4714
SCDHEC SITE ID NUMBER 04878

Well Number	Sample Date	TAA (µg/l)	TAME (µg/l)	TBE (µg/l)	DPE (µg/l)	3,5-Dimethyl-4-benzene (µg/l)	Ethanol (µg/l)	ETBE (µg/l)	TBA (µg/l)
MM-1(04878)	02/28/12	7,200	<50	<500	<50	<500	<5,000	<500	11,000
	04/24/14	8,800J	<1,000	<10,000	<1,000	<10,000	<100,000	<10,000	6,300J
MM-2(04878)	02/28/12	280J	<100	<1,000	<100	<1,000	<10,000	<1,000	<1,000
	04/24/14	<5,000	<500	<5,000	<500	<5,000	<50,000	<5,000	<5,000
MM-3(04878)	02/28/12	<100	<10	<100	<10	<100	<1,000	<100	11J
	04/24/14	NL	NL	NL	NL	NL	NL	NL	NL
MM-4R(04878)	04/24/14	790	<10	<100	<10	<100	<1,000	<100	79J
MM-5(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MM-6(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MM-7(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MM-8(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
DW-1(04878)	04/24/14	<500	<50	<500	<50	<500	<5,000	<500	<500
VSW-1(04878)	02/28/12	NS	NS	NS	NS	NS	NS	NS	NS
	04/24/14	NS	NS	NS	NS	NS	NS	NS	NS
CK-1(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
CK-2(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MM-1 Dup. (04878)	02/28/12	1,200	<10	<100	<10	<100	<1,000	<100	1,200
MM-2 Dup. (04878)	04/24/14	<5,000	<500	<5,000	<500	<5,000	<50,000	<5,000	<5,000
Field Blank(04878)	02/28/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
Tip Blank(04878)	02/28/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100


Notes:
1. µg/l = micrograms per liter
2. DPE = Disopropyl Ether
3. ETBE = Ethyl Tertiary Ether
4. TAA = tert-Amyl Alcohol
5. TAME = tert-Amyl Methyl Ether
6. TBA = tert-Butyl Alcohol
7. TBE = tert-Butyl Formate
8. NL = Not Located
9. NS = Not Sampled (MSW-1, leadline)
10. "J" values report concentrations above the method detection limit (MDL) and below actual reporting limit (RL).

FIGURES



Declination

 GN 0.07° E
 MN 7.07° W

Reference: McPhersonville, South Carolina
 USGS 7.5 Min. Quad
 Contour Interval - 1.50 Meters

 Midlands Environmental Consultants, Inc.

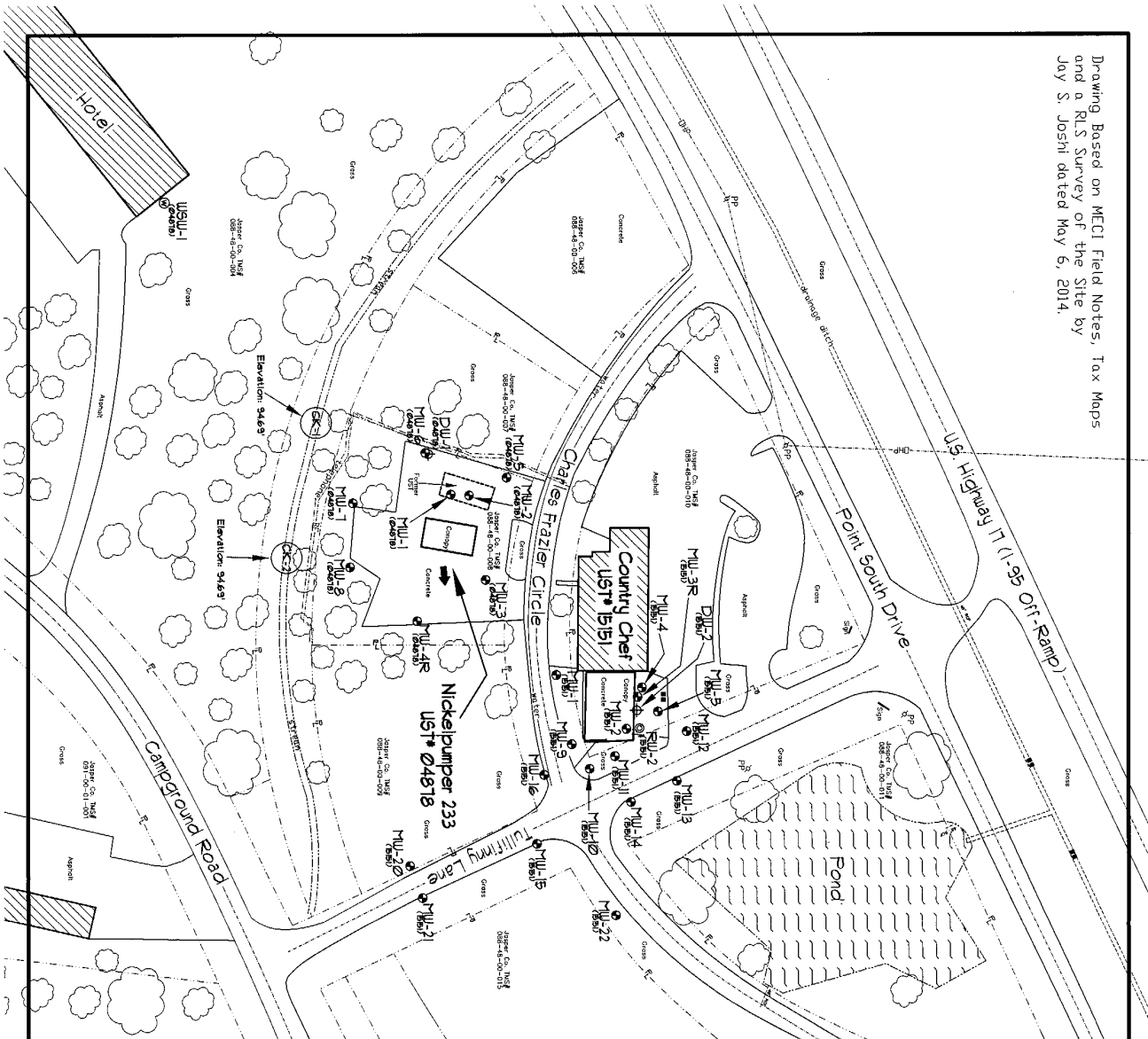
Site Location

Nickelpumper 233
 3296 Point South Drive, Yemassee, SC
 SCDHEC Site ID# 04878

Figure 1
 MECI 14-4714

Copyright (C) 2009 MVI

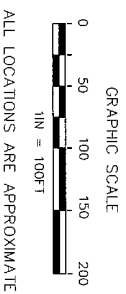
Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- ⊙ Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Recovery Well
- ⊙ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↓ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

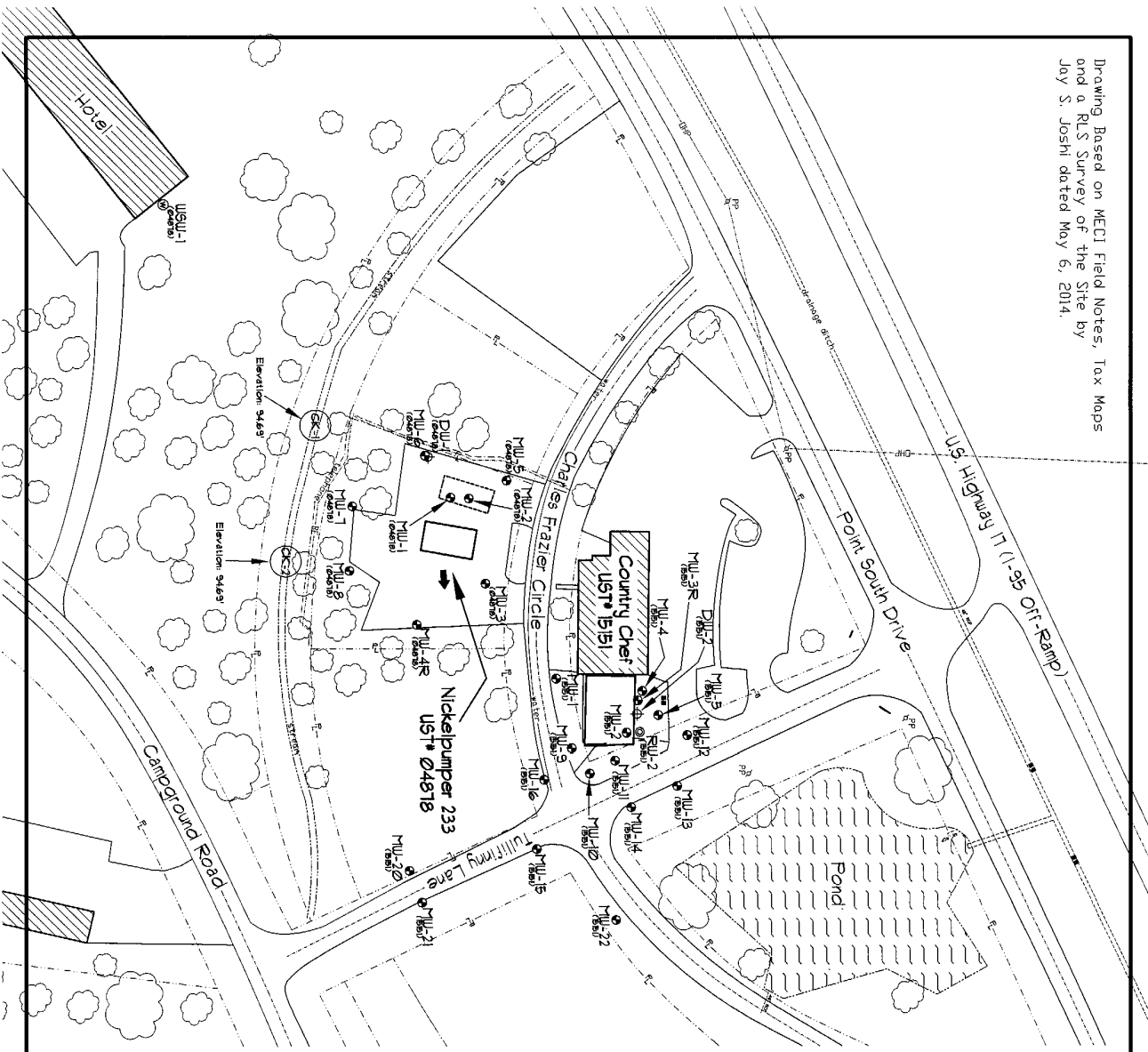
- BE/OHP--- Buried Electric/Overhead Power Line
- P--- Property Line
- W--- Buried Water Line
- TEL--- Buried Telephone Line
- DITCH--- Drainage Ditch
- S/P--- Stream/Pond Edge



ALL LOCATIONS ARE APPROXIMATE

Site Base Map	
Nickelpumper 233 3796 Point South Drive Yemassee, South Carolina 9CDHEC Site ID 04818	
JOB NO. 14-2714	DATE May 26, 2014
FIGURE	2

Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- ⊙ Location of Waterable Bracketing Monitoring Well
- ⊕ "Deep" Monitoring Well
- ⊙ Location of 4-inch Recovery Well
- ⊙ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ⬇ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- ⊙ Storm Sewer Drop Inlet

Groundwater COC Concentration Data

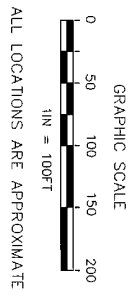
Sample #	Benzo(a)pyrene (ug/l)	Fluorene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	TPHE (ug/l)	1,2-DCA (ug/l)	EDA (ug/l)
MW-1(04878)	4,300	500	1,500	6,200	12,500	530	1,500	<500	<0.020
MW-2(04878)	1,400	1,000	2,000	5,700	10,100	620	2,200	<250	<0.019
MW-3(04878)	NL	NL	NL	<5.0	NL	NL	9.0	<5.0	<0.020
MW-4R(04878)	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.021
MW-5(04878)	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.024
MW-6(04878)	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.024
MW-7(04878)	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.021
MW-8(04878)	<25	<25	<25	<25	BDL	<25	<25	<25	<0.026
WSW-1(04878)	NS	NS	NS	NS	NS	NS	NS	NS	NS
CK-1(04878)	<1.0	<1.0	<1.0	<1.0	BDL	<1.0	<1.0	<1.0	<0.019
CK-2(04878)	<1.0	<1.0	<1.0	<1.0	BDL	<1.0	<1.0	<1.0	<0.019
MW-2 Dup (04878)	1,400	1,000	2,000	5,700	10,100	630	2,100	<250	<0.020
Field Blank	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
Trp Blank	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	NL

Notes: Groundwater samples collected on April 24, 2014.

NS = Not Sampled (WSW-1 Inactive)

NL = Not Located

BDL = Below Detected Limits



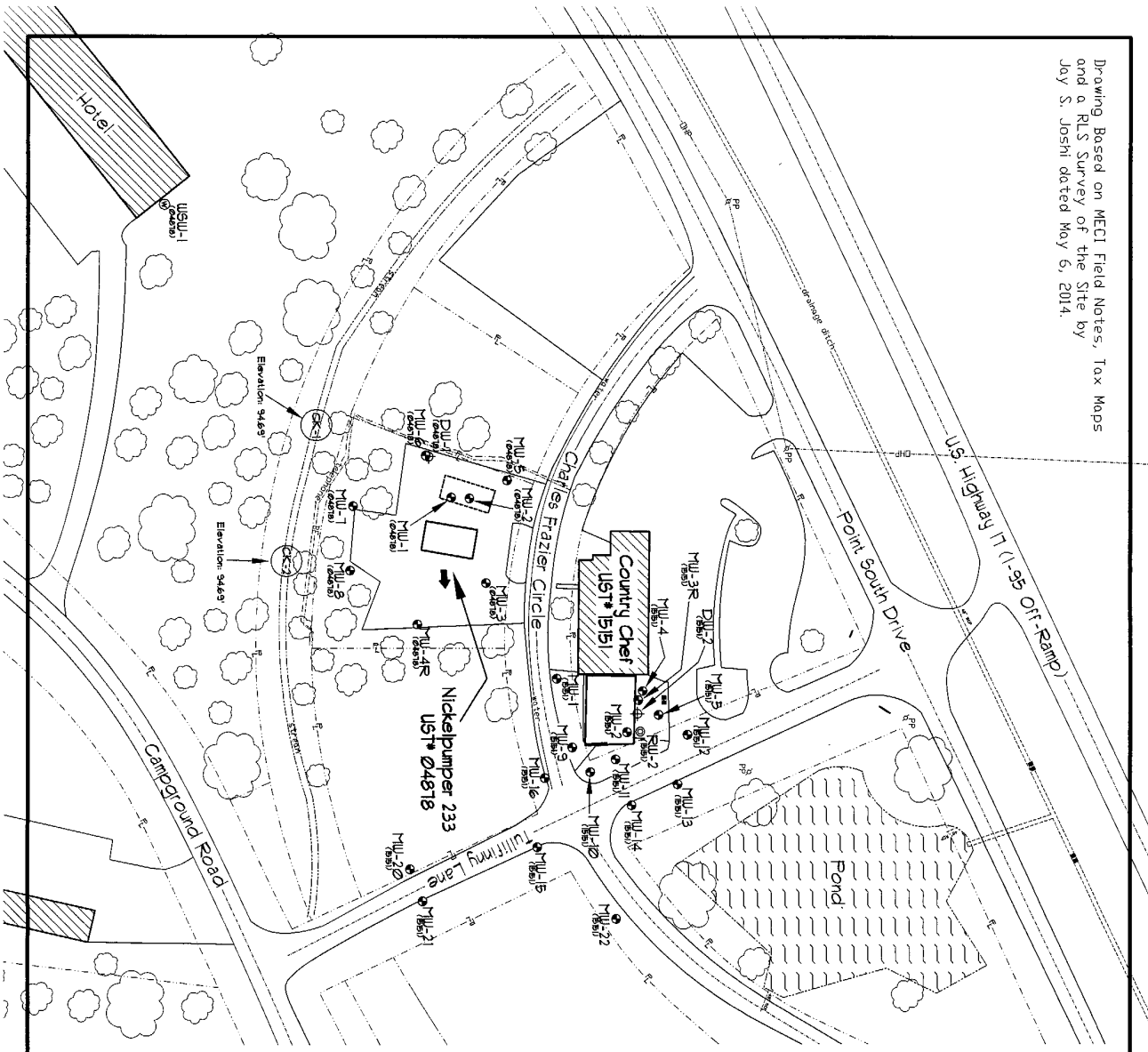
Groundwater COC Site Map

Nickelpumper 233
3796 Point South Drive
Yemassee, South Carolina
SCDHEC Site ID 04878

Midlands Environmental Consultants, Inc.

JOB NO. 14-0714
DATE May 29, 2014
FIGURE 4

Drawing Based on MECl Field Notes, Top Maps and a RLS Survey of the Site by Jay S. Joshi dated May 5, 2014.



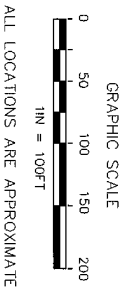
Explanation:

- Location of Waterable Bracketing Monitoring Well
- ⊕ "Deep" Monitoring Well
- ⊙ Recovery Well
- ⊗ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ⬆ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

Sample #	TAA (ug/l)	TAME (ug/l)	TBF (ug/l)	DtPE (ug/l)	3-3-Dimethyl-1-butanol (ug/l)	Ethanol (ug/l)	ETBE (ug/l)	TBA (ug/l)
MW-1(04878)	8,800J	<1,000	<10,000	<1,000	<10,000	<100,000	<10,000	6,300J
MW-2(04878)	<5,000	<500	<500	<500	<5,000	<50,000	<5,000	<5,000
MW-3(04878)	NL	NL	NL	NL	NL	NL	NL	NL
MW-4R(04878)	750	<10	<100	<10	<100	<1,000	<100	79J
MW-5(04878)	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-6(04878)	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-7(04878)	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-8(04878)	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-1(04878)	<500	<50	<500	<50	<500	<5,000	<500	<500
NSW-1(04878)	NS	NS	NS	NS	NS	NS	NS	NS
CK-1(04878)	<100	<10	<100	<10	<100	<1,000	<100	<100
CK-2(04878)	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-2 Dup.(04878)	<5,000	<500	<5,000	<500	<5,000	<50,000	<5,000	<5,000
Field Blank	<100	<10	<100	<10	<100	<1,000	<100	<100
Trip Blank	<100	<10	<100	<10	<100	<1,000	<100	<100

Notes: Groundwater samples collected on April 24, 2014.

- NS = Not Sampled (MSW-1 inactive)
- NL = Not Located
- DtPE = Diisopropyl Ether
- ETBE = Ethyl tert-butyl Ether
- TAA = tert-Amyl Alcohol
- TAME = tert-Amyl Methyl Ether
- TBA = tert-Butyl Alcohol
- TBF = tert-Butyl Formate



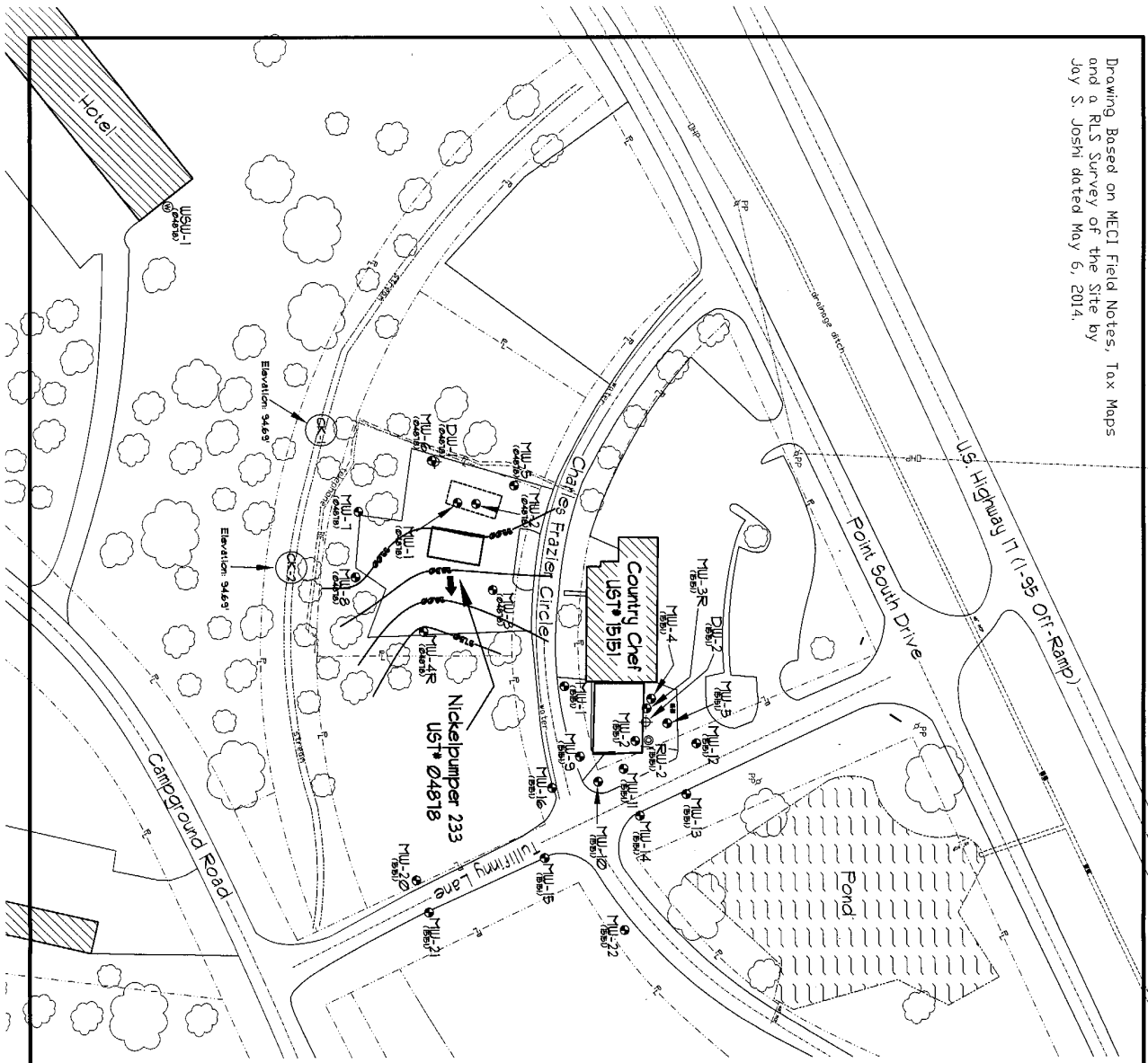
Groundwater COC Site Map
(Oxygenes)

Nickelpumper 233
3796 Point South Drive
Yemassee, South Carolina
ECPHEC Site ID 04878

Midlands Environmental Consultants, Inc.

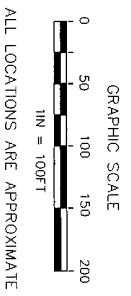
JOB NO. 14-0714
DATE May 28, 2014
FIGURE: 4A

Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Waterable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-inch Recovery Well
- ⊙ Location of Weller Supply Well
- ⊙ Location of Surface Water Sample Collection
- ⊙ Estimated Groundwater Flow Direction
- ⊙ Estimated Location of Remoted Underground Storage Tanks
- ⊙ Storm Sewer Drop Inlet



Potentiometric Data				
Well #	Screened Interval (ft)	Depth to Water (ft)	Well Head Elevation	Groundwater Elevation
MW-1(04878)	2.5-12.5	1.37	100.56	99.19
MW-2(04878)	2.0-12.0	1.02	100.57	99.55
MW-3(04878)	2.0-12.0	NL	100.06	NL
MW-4(04878)	2.0-12.0	2.41	100.11	97.36
MW-4R(04878)	2.0-12.0	1.25	100.51	99.26
MW-5(04878)	2.0-12.0	1.89	100.42	98.63
MW-6(04878)	2.0-9.0	1.20	100.42	99.22
MW-7(04878)	2.0-9.5	0.54	99.17	96.97
MW-8(04878)	43.5-48.5	3.90	100.87	94.69
DW-1(04878)	***	***	***	94.28
CK-1(04878)	***	***	***	***
MW-1(15151)	2.0-12.0	NM	100.04	NM
MW-2(15151)	2.0-12.0	NM	98.65	NM
MW-3R(15151)	2.0-12.0	NM	98.30	NM
MW-4(15151)	2.0-12.0	NM	98.76	NM
MW-5(15151)	2.0-12.0	NM	98.59	NM
MW-6(15151)	2.0-12.0	NL	NL	NL
MW-7(15151)	2.0-12.0	NL	NL	NL
MW-8(15151)	2.0-12.0	NM	99.50	NM
MW-9(15151)	2.0-12.0	NM	99.82	NM
MW-10(15151)	2.0-12.0	NM	99.83	NM
MW-11(15151)	2.0-12.0	NM	99.93	NM
MW-12(15151)	2.0-12.0	NM	99.94	NM
MW-13(15151)	2.0-12.0	NM	99.92	NM
MW-14(15151)	2.0-12.0	NM	99.88	NM
MW-15(15151)	2.0-12.0	NM	100.05	NM
MW-16(15151)	2.0-12.0	NL	NL	NL
MW-17(15151)	2.0-12.0	NL	NL	NL
MW-18(15151)	2.0-12.0	NL	NL	NL
MW-19(15151)	2.0-13.0	NM	98.95	NM
MW-20(15151)	3.0-13.0	NM	99.07	NM
MW-21(15151)	3.0-13.0	NM	99.37	NM
MW-22(15151)	50.0-55.0	NM	99.72	NM
DW-2(15151)	1.8-11.8	NL	NL	NL
RW-1(15151)	2.0-12.0	NM	98.42	NM
RW-2(15151)	2.0-12.0	NM	98.42	NM

Notes: Depth to groundwater measured on April 24, 2014. Contour Interval = 0.50 Feet

Site Datum Based on Assumed Spot Elevation. Monitoring wells MW-6(04878), DW-1(04878), and all wells associated with USF Permit #15151 were not used in contouring. Ground Water Contours Computer Generated using Surfer by Golden Graphics and Modified by MECI Personnel.

Potentiometric Data Site Map
(Groundwater Contour)

Nickelpumper 233
3796 Point South Drive
Yemassee, South Carolina
SCDHEC Site ID 04878

Midlands Environmental Consultants, Inc.

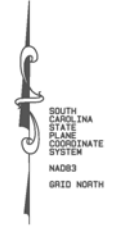
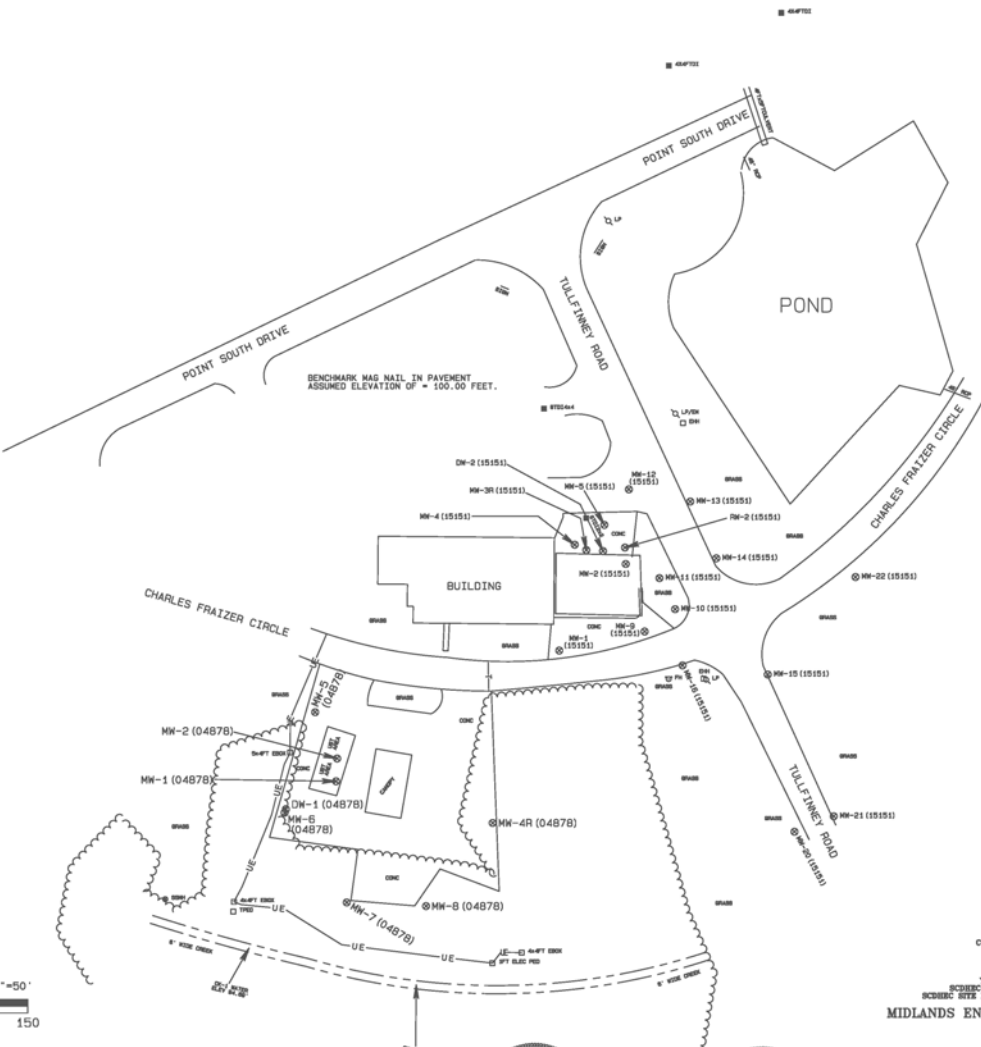
JOB NO. 14-0714
DATE May 29, 2014
FIGURE 5

**APPENDIX A:
SITE SURVEY**

WELLS NICKLEPUMPER 04878		
WELL ID	TOL. ELEV.	TOC ELEV.
MN-1 (04878)	101.00	100.56
MN-2 (04878)	100.91	100.57
MN-4R (04878)	100.32	99.77
MN-5 (04878)	101.11	100.51
MN-6 (04878)	101.03	100.52
MN-7 (04878)	100.62	100.42
MN-8 (04878)	99.99	99.71
DW-1 (04878)	101.04	100.87

LEGEND AND ABBREVIATIONS:	
⊙	MN = MONITORING WELL
⊙	TPED = TELEPHONE PEDESTAL
⊙	SDMH = STORM DRAIN MAN HOLE
⊙	SMH = SANITARY SEWER MAN HOLE
⊙	TMH = TELEPHONE MAN HOLE
⊙	WM = WATER METER
⊙	MV = WATER VALVE
⊙	PH = FUSE HYDRANT
⊙	FP = FLAG POLE
⊙	PP = POWER POLE
⊙	GM = GAS METER
⊙	GV = GAS VALVE
⊙	UST = UNDERGROUND STORAGE TANK
⊙	USTV = UNDERGROUND STORAGE TANK FILL
⊙	USTV = UNDERGROUND STORAGE TANK VENT
⊙	CTCR = CONCRETE TOP CATCH BASIN
⊙	STBR = SIGN
⊙	RCR = REINFORCED CONCRETE PIPE
⊙	CVAC/VACUUM AND AIR DISPENSER
⊙	PHONE = PAY TELEPHONE
⊙	FD = FUEL DISPENSER
⊙	KTANK = KEROSENE TANK
⊙	KDISP = KEROSENE DISPENSER
—	— = OVERHEAD POWER LINE
—	— = WOODLINE

WELLS COUNTRY CHEF 15151		
WELL ID	TOL. ELEV.	TOC ELEV.
MN-1 (15151)	100.23	100.04
MN-2 (15151)	98.72	98.65
MN-3R (15151)	98.77	98.30
MN-4 (15151)	98.94	98.76
MN-5 (15151)	98.90	98.59
MN-9 (15151)	98.85	99.50
MN-10 (15151)	100.07	99.82
MN-11 (15151)	100.07	99.83
MN-12 (15151)	100.16	99.93
MN-13 (15151)	100.09	99.94
MN-14 (15151)	100.13	99.82
MN-15 (15151)	100.02	99.88
MN-16 (15151)	100.19	100.05
MN-20 (15151)	99.37	98.95
MN-21 (15151)	99.45	99.07
MN-22 (15151)	99.56	99.37
DW-2 (15151)	98.80	99.72
RM-2 (15151)	98.87	98.42



THIS PARCEL MAY BE SUBJECT TO EASEMENT AND/OR RIGHT-OF-WAY NOT SHOWN. FINAL RESULTS CONCLUSIVE OF TITLE SEARCH.

NOTES FOR THE PURPOSE OF RECORDATION BY COUNTY ENGINEER OF THE COMMISSION OF PROPERTY.

NOTES: I HEREBY CERTIFY THAT THE SURVEYING INFORMATION SHOWN HEREIN IS TRUE AND CORRECT AS MADE BY DIRECT SUPERVISION.

COMPREHENSIVE SITE SKETCH OF NICKLEPUMPER # 233 3363 POINT SOUTH DRIVE YORKLANDER, HANCOCK COUNTY, SC. SCHEMATIC SITE ID #04878 NICKLEPUMPER #233. RECORD SITE ID#15151 COUNTRY CHEF RESTAURANT. PREPARED FOR MIDLANDS ENVIRONMENTAL CONSULTANTS, INC.



JAY S. JOSHI PLS # 14811
 PO BOX 90408, COLUMBIA, SC, 29290
 DATE: MAY 6, 2014 JOB #042814P 803-778-9909

APPENDIX B:

SAMPLING LOGS, LABORATORY DATA SHEETS, & CHAIN-OF-CUSTODY FORMS

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program
Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 4/24/2014

Field Personnel: T. Elder, D. McCartha

General Weather Conditions: Overcast

Ambient Air Temperature: 21.0 °C

Quality Assurance

<u>pH/Conductivity Meter</u>	<u>DO Meter</u>
YSI 63	YSI 550A
09C 101302 <u> X </u>	04L 2026AK <u> X </u>
10K 101895 <u> </u>	08B 101895 <u> </u>
07M 100905 <u> </u>	04A 0912AI <u> </u>
Calibration Buffer: <u>4, 7, & 10</u>	
<u>Chain of Custody</u>	

Relinquished by Date/Time Received by Date/Time

Facility Name: Nicklepumper 233

Site ID#: 04878 Monitoring Well # MW-1

Water Supply Well Public Private

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness: feet

Depth to Free Product (DFP) feet

Depth to Ground Water (DGW) 1.37 feet

Total Well Depth (TWD) 12.5 feet

Length of the water column (LWC=TWD-DGW) 11.13 feet

1 casing volume (CV=LWC X C)= X 0.163 1.81 gallons

3 casing volume (3 X CV)= 5 9.07 gallons

Total Volume of Water Purged Before Sampling 3 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Time (military)	12:35	12:38					
pH (s.u.)	Sheen	Sheen					
Specific Conductivity (µmhos/cm)	Sheen	Sheen					
Water Temperature (°C)	Sheen	Sheen					
Dissolved Oxygen	Sheen	Sheen					
Turbidity (NTU)	Sheen	Sheen					
PID readings, if required							

Remarks: Sample Time: 12:38 Dry @ 3.0 Gallons

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 4/24/2014

Field Personnel: T. Elder, D. McCartha

General Weather Conditions: Overcast

Ambient Air Temperature: 21.0 °C

Quality Assurance

pH/Conductivity Meter	DO Meter
YSI 63	YSI 550A
09C 101302 <u>X</u>	04L 2026AK <u>X</u>
10K 101895 <u> </u>	08B 101895 <u> </u>
07M 100905 <u> </u>	04A 0912AI <u> </u>
Calibration Buffer: <u>4, 7, & 10</u>	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Nicklepumper 233

Site ID#: 04878 Monitoring Well # MW-2

Water Supply Well Public Private

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness: feet

Depth to Free Product (DFP) feet

Depth to Ground Water (DGW) 1.02 feet

Total Well Depth (TWD) 12 feet

Length of the water column (LWC=TWD-DGW) 10.98 feet

1 casing volume (CV=LWC X C)= X 0.163 1.79 gallons

3 casing volume (3 X CV)= 5 8.95 gallons

Total Volume of Water Purged Before Sampling 2 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Time (military)	12:27	12:30					
pH (s.u.)	Sheen	Sheen					
Specific Conductivity (µmhos/cm)	Sheen	Sheen					
Water Temperature (°C)	Sheen	Sheen					
Dissolved Oxygen	Sheen	Sheen					
Turbidity (NTU)	Sheen	Sheen					
PID readings, if required							

Remarks: Sample Time: 12:30 **Dry @ 2.0 Gallons**
Duplicate Sample Collected

**South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program**

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 4/24/2014

Field Personnel: T. Elder, D. McCartha

General Weather Conditions: Overcast

Ambient Air Temperature: 21.0 °C

Quality Assurance

pH/Conductivity Meter		DO Meter	
YSI 63		YSI 550A	
09C 101302	<u>X</u>	04L 2026AK	<u>X</u>
10K 101895	<u> </u>	08B 101895	<u> </u>
07M 100905	<u> </u>	04A 0912AI	<u> </u>
Calibration Buffer:	<u>4, 7, & 10</u>		

Chain of Custody

Relinquished by Date/Time Received by Date/Time

Facility Name: Nicklepumper 233

Site ID#: 04878 **Monitoring Well #** MW-4R

Water Supply Well **Public** **Private**

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness: feet

Depth to Free Product (DFP) feet

Depth to Ground Water (DGW) 2.41 feet

Total Well Depth (TWD) 12 feet

Length of the water column (LWC=TWD-DGW) 9.59 feet

1 casing volume (CV=LWC X C)= X 0.163 1.56 gallons

3 casing volume (3 X CV)= 5 7.82 gallons

Total Volume of Water Purged Before Sampling 2.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:20	11:22						
pH (s.u.)	5.43	5.49						
Specific Conductivity (µmhos/cm)	71.8	46.9						
Water Temperature (°C)	18.4	17.8						
Dissolved Oxygen	11.10	10.96						
Turbidity (NTU)	21.0	95.2						
PID readings, if required								

Remarks: Sample Time: 11:22 **Dry @ 2.5 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program
Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 4/24/2014

Field Personnel: T. Elder, D. McCartha

General Weather Conditions: Overcast

Ambient Air Temperature: 21.0 °C

Quality Assurance

pH/Conductivity Meter	DO Meter	
YSI 63	YSI 550A	
09C 101302 <u> X </u>	04L 2026AK <u> X </u>	
10K 101895 <u> </u>	08B 101895 <u> </u>	
07M 100905 <u> </u>	04A 0912A1 <u> </u>	
Calibration Buffer: <u>4, 7, & 10</u>		

Chain of Custody

Relinquished by <u> </u>	Date/Time <u> </u>	Received by <u> </u>	Date/Time <u> </u>
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Facility Name: Nicklepumper 233

Site ID#: 04878 Monitoring Well # MW-5

Water Supply Well Public Private

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness: feet

Depth to Free Product (DFP) feet

Depth to Ground Water (DGW) 1.25 feet

Total Well Depth (TWD) 12 feet

Length of the water column (LWC=TWD-DGW) 10.75 feet

1 casing volume (CV=LWC X C)= X 0.163 1.75 gallons

3 casing volume (3 X CV)= 5 8.76 gallons

Total Volume of Water Purged Before Sampling 7 gals.

**If free product is present over 1/8 inch, sampling will not be required.*

Cumulative Volume Purged (gallons)	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:13	12:15	12:17	12:19				
pH (s.u.)	6.10	6.03	5.73	5.81				
Specific Conductivity (µmhos/cm)	17.8	41.1	53.6	60.9				
Water Temperature (°C)	21.8	21.4	20.9	20.0				
Dissolved Oxygen	5.55	5.01	4.79	4.63				
Turbidity (NTU)	43.2	89.6	126.4	196.7				
PID readings, if required								

Remarks: Sample Time: 12:19 **Dry @ 7.0 Gallons**

**South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program**

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 4/24/2014

Field Personnel: T. Elder, D. McCartha

General Weather Conditions: Overcast

Ambient Air Temperature: 21.0 °C

Quality Assurance

<u>pH/Conductivity Meter</u>		<u>DO Meter</u>	
YSI 63		YSI 550A	
09C 101302	<u>X</u>	04L 2026AK	<u>X</u>
10K 101895	<u> </u>	08B 101895	<u> </u>
07M 100905	<u> </u>	04A 0912AI	<u> </u>
Calibration Buffer: <u>4, 7, & 10</u>			

Chain of Custody

<u> </u>	<u> </u>	<u> </u>	<u> </u>
Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Nicklepumper 233

Site ID#: 04878 Monitoring Well # MW-6

Water Supply Well Public Private

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness: feet

Depth to Free Product (DFP) feet

Depth to Ground Water (DGW) 1.89 feet

Total Well Depth (TWD) 12 feet

Length of the water column (LWC=TWD-DGW) 10.11 feet

1 casing volume (CV=LWC X C)= X 0.163 1.65 gallons

3 casing volume (3 X CV)= 5 8.24 gallons

Total Volume of Water Purged Before Sampling 2.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Time (military)	11:49	11:52					
pH (s.u.)	5.91	5.86					
Specific Conductivity (μmhos/cm)	60.1	59.6					
Water Temperature (°C)	18.0	18.7					
Dissolved Oxygen	9.41	10.11					
Turbidity (NTU)	22.1	195.6					
PID readings, if required							

Remarks: Sample Time: 11:52 **Dry @ 2.5 Gallons**

**South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program
Field Data Information Sheet for Groundwater Sampling**

Date (mm/dd/yy): 4/24/2014

Field Personnel: T. Elder, D. McCartha

General Weather Conditions: Overcast

Ambient Air Temperature: 21.0 °C

Quality Assurance

pH/Conductivity Meter		DO Meter	
YSI 63		YSI 550A	
09C 101302	<u>X</u>	04L 2026AK	<u>X</u>
10K 101895	<u> </u>	08B 101895	<u> </u>
07M 100905	<u> </u>	04A 0912A1	<u> </u>
Calibration Buffer:	<u>4, 7, & 10</u>		

Chain of Custody

Relinquished by Date/Time Received by Date/Time

Facility Name: Nicklepumper 233

Site ID#: 04878 **Monitoring Well #** MW-7

Water Supply Well **Public** **Private**

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness: feet

Depth to Free Product (DFP) feet

Depth to Ground Water (DGW) 1.20 feet

Total Well Depth (TWD) 9 feet

Length of the water column (LWC=TWD-DGW) 7.80 feet

1 casing volume (CV=LWC X C)= X 0.163 1.27 gallons

3 casing volume (3 X CV)= 5 6.36 gallons

Total Volume of Water Purged Before Sampling 1 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Time (military)	11:35	11:37					
pH (s.u.)	5.41	5.50					
Specific Conductivity (µmhos/cm)	1.3	1.9					
Water Temperature (°C)	16.7	16.1					
Dissolved Oxygen	11.13	11.04					
Turbidity (NTU)	173.1	171.5					
PID readings, if required							

Remarks: Sample Time: 11:37 **Dry @ 1.0 Gallons**

**South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program**

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 4/24/2014

Field Personnel: T. Elder, D. McCartha

General Weather Conditions: Overcast

Ambient Air Temperature: 21.0 °C

Quality Assurance

pH/Conductivity Meter		DO Meter	
YSI 63		YSI 550A	
09C 101302	<u>X</u>	04L 2026AK	<u>X</u>
10K 101895	<u> </u>	08B 101895	<u> </u>
07M 100905	<u> </u>	04A 0912AI	<u> </u>
Calibration Buffer:	<u>4, 7, & 10</u>		

Chain of Custody

Relinquished by Date/Time Received by Date/Time

Facility Name: Nicklepumper 233

Site ID#: 04878 **Monitoring Well #** MW-8

Water Supply Well **Public** **Private**

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness: feet

Depth to Free Product (DFP) feet

Depth to Ground Water (DGW) 0.54 feet

Total Well Depth (TWD) 9.5 feet

Length of the water column (LWC=TWD-DGW) 8.96 feet

1 casing volume (CV=LWC X C)= X 0.163 1.46 gallons

3 casing volume (3 X CV)= 5 7.30 gallons

Total Volume of Water Purged Before Sampling 1 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Time (military)	11:25	11:26					
pH (s.u.)	5.27	5.21					
Specific Conductivity (µmhos/cm)	50.6	51.0					
Water Temperature (°C)	16.9	16.8					
Dissolved Oxygen	10.28	10.23					
Turbidity (NTU)	26.1	26.0					
PID readings, if required							

Remarks: Sample Time: 11:26 **Dry @ 1.0 Gallons**

South Carolina Department of Health and Environmental Control
 Bureau of Land and Waste Management Underground Storage Tank Program
Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 4/24/2014

Field Personnel: T. Elder, D. McCartha

General Weather Conditions: Overcast

Ambient Air Temperature: 21.0 °C

Quality Assurance

pH/Conductivity Meter		DO Meter	
YSI 63		YSI 550A	
09C 101302	<u>X</u>	04L 2026AK	<u>X</u>
10K 101895	<u> </u>	08B 101895	<u> </u>
07M 100905	<u> </u>	04A 0912AI	<u> </u>
Calibration Buffer:	<u>4, 7, & 10</u>		

Chain of Custody

Relinquished by _____ Date/Time _____

Received by _____ Date/Time _____

Facility Name: Nicklepumper 233

Site ID#: 04878 Monitoring Well # DW-1

Water Supply Well _____ Public _____ Private _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
 for a 4 inch well C=0.652

* Free Product Thickness: _____ feet

Depth to Free Product (DFP) _____ feet

Depth to Ground Water (DGW) 3.90 feet

Total Well Depth (TWD) 48.5 feet

Length of the water column (LWC=TWD-DGW) 44.60 feet

1 casing volume (CV=LWC X C)= _____ X 0.163 7.27 gallons

3 casing volume (3 X CV)= 5 36.35 gallons

Total Volume of Water Purged Before Sampling 6 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:57	11:59						
pH (s.u.)	5.60	5.31						
Specific Conductivity (µmhos/cm)	44.7	50.9						
Water Temperature (°C)	19.2	20.4						
Dissolved Oxygen	10.01	13.20						
Turbidity (NTU)	23.4	295.8						
PID readings, if required								

Remarks: _____ Sample Time: 11:59 Dry @ 6.0 Gallons

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

Midlands Environmental Consultants, Inc.
235 Dooley Rd
Lexington, SC 29073
Attention: Bryan Shane

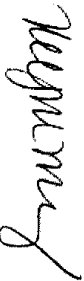
Project Name: **Nickle Pumper 233**

Project Number: **14-4714**

Lot Number: **PD26007**

Date Completed: **05/01/2014**

Kelly M. Maberry
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.
The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

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SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative

Midlands Environmental Consultants, Inc.

Lot Number: PD26007

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Sample Receiving

EDB was not analyzed for the Trip Blank, as only 2 vials were received.

GC/MS Volatiles

The MS associated with sample -010 had tert-butyl formate recovered outside of the acceptance limits. The LCS/LCSD were recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

Sample -008 was diluted 5x due to insufficient sample volume caused by sediment in the vials. The reporting limits have been raised accordingly.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Midlands Environmental Consultants, Inc.

Lot Number: PD26007

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-1	Aqueous	04/24/2014 1238	04/25/2014
002	MW-2	Aqueous	04/24/2014 1230	04/25/2014
003	MW-4R	Aqueous	04/24/2014 1122	04/25/2014
004	MW-5	Aqueous	04/24/2014 1219	04/25/2014
005	MW-6	Aqueous	04/24/2014 1152	04/25/2014
006	MW-7	Aqueous	04/24/2014 1137	04/25/2014
007	MW-8	Aqueous	04/24/2014 1126	04/25/2014
008	DW-1	Aqueous	04/24/2014 1159	04/25/2014
009	CK-1	Aqueous	04/24/2014 1250	04/25/2014
010	CK-2	Aqueous	04/24/2014 1253	04/25/2014
011	MW-2 Dup	Aqueous	04/24/2014 1230	04/25/2014
012	Field Blank	Aqueous	04/24/2014 1305	04/25/2014
013	Trip Blank	Aqueous	04/24/2014 1306	04/25/2014

(13 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Midlands Environmental Consultants, Inc.

Lot Number: PD26007

Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001 MW-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	8800	J	ug/L	5
001 MW-1	Aqueous	Benzene	8260B	4300		ug/L	5
001 MW-1	Aqueous	Ethylbenzene	8260B	1500		ug/L	5
001 MW-1	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	1500		ug/L	5
001 MW-1	Aqueous	Naphthalene	8260B	530		ug/L	5
001 MW-1	Aqueous	tert-butyl alcohol (TBA)	8260B	6300	J	ug/L	5
001 MW-1	Aqueous	Toluene	8260B	8700		ug/L	5
001 MW-1	Aqueous	Xylenes (total)	8260B	6200		ug/L	5
002 MW-2	Aqueous	Benzene	8260B	1400		ug/L	6
002 MW-2	Aqueous	Ethylbenzene	8260B	2000		ug/L	6
002 MW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	220	J	ug/L	6
002 MW-2	Aqueous	Naphthalene	8260B	620		ug/L	6
002 MW-2	Aqueous	Toluene	8260B	1000		ug/L	6
002 MW-2	Aqueous	Xylenes (total)	8260B	5700		ug/L	6
003 MW-4R	Aqueous	tert-Amyl alcohol (TAA)	8260B	750		ug/L	7
003 MW-4R	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	9.0		ug/L	7
003 MW-4R	Aqueous	Naphthalene	8260B	10		ug/L	7
003 MW-4R	Aqueous	tert-butyl alcohol (TBA)	8260B	79	J	ug/L	7
011 MW-2 Dup	Aqueous	Benzene	8260B	1400		ug/L	15
011 MW-2 Dup	Aqueous	Ethylbenzene	8260B	2000		ug/L	15
011 MW-2 Dup	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	210	J	ug/L	15
011 MW-2 Dup	Aqueous	Naphthalene	8260B	630		ug/L	15
011 MW-2 Dup	Aqueous	Toluene	8260B	1000		ug/L	15
011 MW-2 Dup	Aqueous	Xylenes (total)	8260B	5700		ug/L	15

(24 detections)

Client: Midlands Environmental Consultants, Inc.
 Description: MW-1
 Date Sampled: 04/24/2014 1238
 Date Received: 04/25/2014

Laboratory ID: PD26007-001
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	100	04/29/2014 1706	DCS		45777		
Parameter	CAS	Analytical Method	Number	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	8800	J	10000	670	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		1000	20	ug/L	1	
Benzene	71-43-2	8260B	4300		500	20	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		10000	100	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		500	30	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1000	40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		10000	100	ug/L	1	
Ethanol	64-17-5	8260B	ND		100000	3300	ug/L	1	
Ethylbenzene	100-41-4	8260B	1500		500	170	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		10000	20	ug/L	1	
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	1500		500	40	ug/L	1	
Naphthalene	91-20-3	8260B	530		500	170	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	6300	J	10000	670	ug/L	1	
Toluene	108-88-3	8260B	8700		500	170	ug/L	1	
Xylenes (total)	1330-20-7	8260B	6200		500	170	ug/L	1	

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	04/30/2014 1347	MEM	04/29/2014 1408	45751		
Parameter	CAS	Analytical Method	Number	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1	
Surrogate	1,1,1,2-Tetrachloroethane	Q	% Recovery	Acceptance Limits	113	57-137			

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
 Shealy Environmental Services, Inc.
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Volatile Organic Compounds by GCMS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	5030B	8260B	50	04/29/2014 1728	DCS		45777	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		5000	340	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		500	10	ug/L	1
Benzene	71-43-2	8260B	1400		250	10	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5000	50	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		250	15	ug/L	1
Diisopropyl ether (DPE)	108-20-3	8260B	ND		500	20	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		5000	50	ug/L	1
Ethanol	64-17-5	8260B	ND		50000	1700	ug/L	1
Ethylbenzene	100-41-4	8260B	2000		250	85	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		5000	10	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	220	J	250	20	ug/L	1
Naphthalene	91-20-3	8260B	620		250	85	ug/L	1
tert-butyl alcohol (TBA)	75-85-0	8260B	ND		5000	340	ug/L	1
Toluene	108-88-3	8260B	1000		250	85	ug/L	1
Xylenes (total)	1330-20-7	8260B	5700		250	85	ug/L	1
Surrogate	Q	% Recovery	Run 1	Acceptance Limits				
1,2-Dichloroethane-d4	104		70-130					
Bromofluorobenzene	99		70-130					
Toluene-d8	103		70-130					

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	8011	8011	1	04/30/2014 1357	MEM	04/29/2014 1408	45751	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1
Surrogate	Q	% Recovery	Run 1	Acceptance Limits				
1,1,1,2-Tetrachloroethane	138		57-137					

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 J = Estimated result - PQL and ≥ MDL
 P = The RPD between two GC columns exceeds 40%
 H = Out of holding time
 N = Recovery is out of criteria
 B = Detected in the method blank
 E = Quantitation of compound exceeded the calibration range
 Where applicable, all soil sample analysts are reported on a dry weight basis unless flagged with a "W"
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 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax: (803) 791-9111 www.shealylab.com
 Page: 6 of 30
 Level 1 Report V2.1

Client: Midlands Environmental Consultants, Inc.
 Description: MW-4R
 Date Sampled: 04/24/2014 1122
 Date Received: 04/25/2014

Laboratory ID: PD26007-003
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	5030B	8260B	1	04/29/2014 1812	DCS		45777	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	750		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (DPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	3.3	ug/L	1
Ethyl-tert-butyl ether (ETBE)	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Naphthalene	1634-04-4	8260B	9.0		5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)	91-20-3	8260B	10		5.0	1.7	ug/L	1
Toluene	75-85-0	8260B	79	J	100	6.7	ug/L	1
Xylenes (total)	108-88-3	8260B	ND		5.0	1.7	ug/L	1
	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Q % Recovery Acceptance

1,2-Dichloroethane-d4	105	70-130
Bromofluorobenzene	101	70-130
Toluene-d8	100	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	8011	8011	1	04/30/2014 1408	MEM	04/29/2014 1408	45751	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1
Surrogate				Q	% Recovery	Acceptance Limits		
1,1,1,2-Tetrachloroethane	117			117		57-137		

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
 Shealy Environmental Services, Inc.
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	5030B	8260B	1	04/29/2014 18:28	DCS		45779	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (DPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-85-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	8011	8011	1	04/30/2014 14:18	MEM	04/29/2014 14:08	45751	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.021	0.021	ug/L	1
Surrogate	1,1,1,2-Tetrachloroethane	Q	104		57-137			

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
 B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL
 P = The RPD between two GC columns exceeds 40%
 H = Out of holding time
 N = Recovery is out of criteria
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 Page: 8 of 30
 Level 1 Report V2.1

Client: Midlands Environmental Consultants, Inc.
 Description: MW-6
 Date Sampled: 04/24/2014 1152
 Date Received: 04/25/2014

Laboratory ID: PD26007-005
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	50308	8260B	1	04/29/2014 1851	DCS		45179		
Parameter	CAS	Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (DPE)	108-20-3	8260B	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	8260B	ND		5.0	1.7	ug/L	1

Q % Recovery Acceptance

Surrogate	Run 1	Q % Recovery	Acceptance Limits
1,2-Dichloroethane-d4	91	70-130	
Bromofluorobenzene	98	70-130	
Toluene-d8	98	70-130	

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	04/30/2014 1429	MEM	04/29/2014 1408	45751		
Parameter	CAS	Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	8011	ND		0.020	0.020	ug/L	1
Surrogate	Q <td>Run 1 <td>Acceptance <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </td></td>	Run 1 <td>Acceptance <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </td>	Acceptance <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
1,1,1,2-Tetrachloroethane	107	57-137							

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: Midlands Environmental Consultants, Inc.
 Description: MW-7
 Date Sampled: 04/24/2014 11:37
 Date Received: 04/25/2014

Laboratory ID: PD26007-006
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	8030B	8260B	1	04/30/2014 0050	JUG		45838	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (DPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tert-butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	% Recovery	Run 1 Acceptance Limits
1,2-Dichloroethane-d4	104		70-130
Bromofluorobenzene	100		70-130
Toluene-d8	101		70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	8011	8011	1	04/30/2014 1439	MEM	04/29/2014 1408	45751	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.024	0.024	ug/L	1
Surrogate	Q <td>% Recovery <td>Run 1 Acceptance Limits</td> </td>	% Recovery <td>Run 1 Acceptance Limits</td>	Run 1 Acceptance Limits					
1,1,1,2-Tetrachloroethane	83		57-137					

PQL = Practical quantitation limit
 B = Detected in the method blank
 E = Quantitation of compound exceeded the calibration range
 H = Out of holding time
 ND = Not detected at or above the MDL
 J = Estimated result < PQL and ≥ MDL
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
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 Page: 10 of 30
 Level 1 Report v2.1

Client: Midlands Environmental Consultants, Inc.
 Description: MW-8
 Date Sampled: 04/24/2014 1126
 Date Received: 04/25/2014

Laboratory ID: PD28007-007
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	5030B	8260B	1	04/30/2014 0112	JUG		45838	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	8011	8011	1	04/30/2014 1450	MEM	04/29/2014 1408	45751	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.021	0.021	ug/L	1
Surrogate				Q	% Recovery	Run 1 Acceptance Limits		
1,1,1,2-Tetrachloroethane				87		57-137		

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
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Client: Midlands Environmental Consultants, Inc.
 Description: DW-1
 Date Sampled: 04/24/2014 1159
 Date Received: 04/25/2014

Laboratory ID: PD26007-008
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	50308	8260B	5	04/30/2014 0733	JUG		45838	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		500	34	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	1.0	ug/L	1
Benzene	71-43-2	8260B	ND		25	1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	5.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		25	1.5	ug/L	1
Diisopropyl ether (DPE)	108-20-3	8260B	ND		50	2.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		500	5.0	ug/L	1
Ethanol	64-17-5	8260B	ND		5000	170	ug/L	1
Ethyl-tert-butyl ether (ETBE)	100-41-4	8260B	ND		25	8.5	ug/L	1
Methyl tertiary butyl ether (MTBE)	637-92-3	8260B	ND		500	1.0	ug/L	1
Naphthalene	1634-04-4	8260B	ND		25	2.0	ug/L	1
tert-butyl alcohol (TBA)	91-20-3	8260B	ND		25	8.5	ug/L	1
Toluene	75-85-0	8260B	ND		500	34	ug/L	1
Xylenes (total)	108-98-3	8260B	ND		25	8.5	ug/L	1
	1330-20-7	8260B	ND		25	8.5	ug/L	1

Q % Recovery Acceptance Limits

Surrogate	Run 1	Acceptance
1,2-Dichloroethane-d4	103	70-130
Bromofluorobenzene	101	70-130
Toluene-d8	103	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	8011	8011	1	04/30/2014 1501	MEM	04/29/2014 1408	45751	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.026	0.026	ug/L	1
Surrogate	Q	Run 1	Acceptance					
1,1,1,2-Tetrachloroethane	88	57-137						

PQL = Practical quantitation limit
 B = Detected in the method blank
 E = Quantitation of compound exceeded the calibration range
 H = Out of holding time
 ND = Not detected at or above the MDL
 J = Estimated result < PQL and ≥ MDL
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
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 Page: 12 of 30
 Level 1 Report v2.1

Client: Midlands Environmental Consultants, Inc.
 Description: CK-1
 Date Sampled: 04/24/2014 1250
 Date Received: 04/25/2014

Laboratory ID: PD28007-009
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	5030B	8260B	1	04/30/2014 0005	JUG		45838	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-95-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.13	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.15	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.33	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.33	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.33	ug/L	1

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	8011	8011	1	04/30/2014 1511	MEM	04/29/2014 1408	45751	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1
Surrogate				Q	% Recovery	Acceptance Limits		
1,1,1,2-Tetrachloroethane	101			101		57-137		

PQL = Practical quantitation limit. B = Detected in the method blank. E = Quantitation of compound exceeded the calibration range. H = Out of holding time.
 ND = Not detected at or above the MDL. J = Estimated result < PQL and > 2 MDL. P = The RPD between two GC columns exceeds 40%. N = Recovery is out of criteria.
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W".
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 Page: 13 of 30
 Level 1 Report V2.1

Client: Midlands Environmental Consultants, Inc.
 Description: CK-2
 Date Sampled: 04/24/2014 1253
 Date Received: 04/25/2014

Laboratory ID: PD26007-010
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	80308	8260B	1	04/30/2014 0027	JUG		45838

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.13	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.15	ug/L	1
Diisopropyl ether (DPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	3.3	ug/L	1
Ethyl-tert-butyl ether (ETBE)	100-41-4	8260B	ND		1.0	0.33	ug/L	1
Methyl tert-butyl ether (MTBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Naphthalene	1634-04-4	8260B	ND		1.0	0.40	ug/L	1
tert-butyl alcohol (TBA)	91-20-3	8260B	ND		1.0	0.40	ug/L	1
Toluene	75-65-0	8260B	ND		100	6.7	ug/L	1
Xylenes (total)	108-98-3	8260B	ND		1.0	0.33	ug/L	1
	1330-20-7	8260B	ND		1.0	0.33	ug/L	1

EDB & DBCP by Microextraction

Surrogate	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dichloroethane-d4	105	8011	ND		0.020	0.020	ug/L	1
Bromofluorobenzene	101	8011	ND		0.020	0.020	ug/L	1
Toluene-d8	104	8011	ND		0.020	0.020	ug/L	1

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	04/30/2014 1522	MEM	04/29/2014 1408	45751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane	93	57-137

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a W
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Client: Midlands Environmental Consultants, Inc.
 Description: MW-2 Dup
 Date Sampled: 04/24/2014 1230
 Date Received: 04/25/2014

Laboratory ID: PD28007-011
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	5030B	8260B	50	04/29/2014 1750	DCS		45777	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		5000	340	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		500	10	ug/L	1
Benzene	71-43-2	8260B	1400		250	10	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5000	50	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		250	15	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		500	20	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		5000	50	ug/L	1
Ethanol	64-17-5	8260B	ND		50000	1700	ug/L	1
Ethylbenzene	100-41-4	8260B	2000		250	85	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		5000	10	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	210	J	250	20	ug/L	1
Naphthalene	91-20-3	8260B	630		250	85	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		5000	340	ug/L	1
Toluene	108-88-3	8260B	1000		250	85	ug/L	1
Xylenes (total)	1330-20-7	8260B	5700		250	85	ug/L	1

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	8011	8011	1	04/30/2014 1614	MEM	04/29/2014 1408	45752	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1
Surrogate	1,1,1,2-Tetrachloroethane	113	57-137					

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
 B = Detected in the method blank
 J = Estimated result < PQL and > MDL
 P = The RPD between two GC columns exceeds 40%
 E = Quantitation of compound exceeded the calibration range
 H = Out of holding time
 N = Recovery is out of criteria
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 Page: 15 of 30
 Level 1 Report 12.1

Client: Midlands Environmental Consultants, Inc.
 Description: Field Blank
 Date Sampled: 04/24/2014 1305
 Date Received: 04/25/2014

Laboratory ID: PD26007-012
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	04/30/2014 0155	JUG		45838

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (DPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Q % Recovery Acceptance Limits

Surrogate	Run 1	% Recovery	Acceptance Limits
1,2-Dichloroethane-d4	102	70-130	
Bromofluorobenzene	101	70-130	
Toluene-d8	102	70-130	

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	04/30/2014 1646	MEM	04/29/2014 1408	45752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Run 1	% Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane	103	57-137	

PQL = Practical quantitation limit. B = Detected in the method blank. E = Quantitation of compound exceeded the calibration range. H = Out of holding time.
 ND = Not detected at or above the MDL. J = Estimated result < PQL and > MDL. F = The RPD between two GC columns exceeds 40%. N = Recovery is out of criteria.
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W".
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 Page: 16 of 30
 Level 1 Report V2.1

Client: Midlands Environmental Consultants, Inc.
 Description: Trip Blank
 Date Sampled: 04/24/2014 1306
 Date Received: 04/25/2014

Laboratory ID: PD26007-013
 Matrix: Aqueous

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	
1	5030B	8260B	1	04/30/2014 0217	JUG		45538	
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (DPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-85-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1
Surrogate	Q	Run 1	Acceptance	Limits				
1,2-Dichloroethane-d4	103	70-130						
Bromofluorobenzene	102	70-130						
Toluene-d8	102	70-130						

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
 Shealy Environmental Services, Inc.
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QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ45777-001
 Batch: 45777
 Analytical Method: 8260B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Result	Q	Dil	POL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	04/29/2014 1056
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	04/29/2014 1056
Benzene	ND		1	5.0	0.20	ug/L	04/29/2014 1056
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	04/29/2014 1056
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	04/29/2014 1056
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	04/29/2014 1056
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	04/29/2014 1056
Ethanol	ND		1	1000	33	ug/L	04/29/2014 1056
Ethylbenzene	ND		1	5.0	1.7	ug/L	04/29/2014 1056
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	04/29/2014 1056
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	04/29/2014 1056
Naphthalene	ND		1	5.0	1.7	ug/L	04/29/2014 1056
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	04/29/2014 1056
Toluene	ND		1	5.0	1.7	ug/L	04/29/2014 1056
Xylenes (total)	ND		1	5.0	1.7	ug/L	04/29/2014 1056
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene	101				70-130		
1,2-Dichloroethane-d4	105				70-130		
Toluene-d8	103				70-130		

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ45777-002
 Batch: 45777
 Analytical Method: 8260B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	860		1	86	70-130	04/29/2014 0928
tert-Amyl methyl ether (TAME)	50	49		1	97	70-130	04/29/2014 0928
Benzene	50	45		1	90	70-130	04/29/2014 0928
tert-Butyl formate (TBF)	250	230		1	92	70-130	04/29/2014 0928
1,2-Dichloroethane	50	47		1	94	70-130	04/29/2014 0928
Diisopropyl ether (IPE)	50	45		1	91	70-130	04/29/2014 0928
3,3-Dimethyl-1-butanol	1000	930		1	93	70-130	04/29/2014 0928
Ethanol	5000	4300		1	87	60-140	04/29/2014 0928
Ethylbenzene	50	49		1	99	70-130	04/29/2014 0928
Ethyl-tert-butyl ether (ETBE)	50	42		1	84	70-130	04/29/2014 0928
Methyl tertiary butyl ether (MTBE)	50	46		1	92	70-130	04/29/2014 0928

POL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

P = The RPD between two GC columns exceeds 40%
 J = Estimated result < POL and ≥ MDL
 N = Recovery is out of criteria
 + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ45777-002
 Batch: 45777
 Analytical Method: 8260B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Naphthalene	50	46		1	92	70-130	04/29/2014 0928
tert-butyl alcohol (TBA)	1000	910		1	91	70-130	04/29/2014 0928
Toluene	50	48		1	96	70-130	04/29/2014 0928
Xylenes (total)	100	100		1	102	70-130	04/29/2014 0928
Surrogate			Q	% Rec	Acceptance Limit		
Bromofluorobenzene	100		70-130				
1,2-Dichloroethane-d4	105		70-130				
Toluene-d8	104		70-130				

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ45777-003
 Batch: 45777
 Analytical Method: 8260B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	900		1	90	3.8	70-130	20	04/29/2014 0950
tert-Amyl methyl ether (TAME)	50	49		1	97	0.19	70-130	20	04/29/2014 0950
Benzene	50	45		1	90	0.16	70-130	20	04/29/2014 0950
tert-Butyl formate (TBF)	250	230		1	90	2.2	70-130	20	04/29/2014 0950
1,2-Dichloroethane	50	46		1	92	1.9	70-130	20	04/29/2014 0950
Diisopropyl ether (IPE)	50	45		1	90	1.1	70-130	20	04/29/2014 0950
3,3-Dimethyl-1-butanol	1000	930		1	93	0.081	70-130	20	04/29/2014 0950
Ethanol	5000	4600		1	91	5.0	60-140	20	04/29/2014 0950
Ethylbenzene	50	50		1	100	0.84	70-130	20	04/29/2014 0950
Ethyl-tert-butyl ether (ETBE)	50	42		1	84	0.47	70-130	20	04/29/2014 0950
Methyl tertiary butyl ether (MTBE)	50	45		1	91	1.0	70-130	20	04/29/2014 0950
Naphthalene	50	47		1	94	1.3	70-130	20	04/29/2014 0950
tert-butyl alcohol (TBA)	1000	960		1	96	4.5	70-130	20	04/29/2014 0950
Toluene	50	48		1	97	0.17	70-130	20	04/29/2014 0950
Xylenes (total)	100	100		1	102	0.17	70-130	20	04/29/2014 0950
Surrogate			Q	% Rec	Acceptance Limit				
Bromofluorobenzene	100		70-130						
1,2-Dichloroethane-d4	104		70-130						
Toluene-d8	104		70-130						

PQL = Practical quantitation limit

ND = Not detected at or above the MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

P = The RPD between two GC columns exceeds 40%

J = Estimated result < PQL and ≥ MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ45779-001
Batch: 45779
Analytical Method: 8280B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	04/29/2014 1123
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	04/29/2014 1123
Benzene	ND		1	5.0	0.20	ug/L	04/29/2014 1123
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	04/29/2014 1123
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	04/29/2014 1123
Diisopropyl ether (DPE)	ND		1	10	0.40	ug/L	04/29/2014 1123
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	04/29/2014 1123
Ethanol	ND		1	1000	33	ug/L	04/29/2014 1123
Ethylbenzene	ND		1	5.0	1.7	ug/L	04/29/2014 1123
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	04/29/2014 1123
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	04/29/2014 1123
Naphthalene	ND		1	5.0	1.7	ug/L	04/29/2014 1123
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	04/29/2014 1123
Toluene	ND		1	5.0	1.7	ug/L	04/29/2014 1123
Xylenes (total)	ND		1	5.0	1.7	ug/L	04/29/2014 1123
Surrogate	Q	% Rec		Acceptance Limit			
Bromofluorobenzene	96			70-130			
1,2-Dichloroethane-d4	91			70-130			
Toluene-d8	100			70-130			

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ45779-002
Batch: 45779
Analytical Method: 8280B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	1000		1	100	70-130	04/29/2014 0951
tert-Amyl methyl ether (TAME)	50	50		1	100	70-130	04/29/2014 0951
Benzene	50	47		1	94	70-130	04/29/2014 0951
tert-Butyl formate (TBF)	250	240		1	98	70-130	04/29/2014 0951
1,2-Dichloroethane	50	47		1	94	70-130	04/29/2014 0951
Diisopropyl ether (DPE)	50	44		1	89	70-130	04/29/2014 0951
3,3-Dimethyl-1-butanol	1000	1100		1	106	70-130	04/29/2014 0951
Ethanol	5000	4500		1	90	60-140	04/29/2014 0951
Ethylbenzene	50	48		1	96	70-130	04/29/2014 0951
Ethyl-tert-butyl ether (ETBE)	50	44		1	89	70-130	04/29/2014 0951
Methyl tertiary butyl ether (MTBE)	50	47		1	95	70-130	04/29/2014 0951

PQL = Practical quantitation limit

ND = Not detected at or above the MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

P = The RPD between two GC columns exceeds 40%

J = Estimated result < PQL and \geq MDL

+ = RPD is out of criteria

N = Recovery is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQA45779-002
Batch: 45779
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Naphthalene	50	37		1	74	70-130	04/29/2014 0951
tert-butyl alcohol (TBA)	1000	990		1	99	70-130	04/29/2014 0951
Toluene	50	47		1	95	70-130	04/29/2014 0951
Xylenes (total)	100	98		1	98	70-130	04/29/2014 0951
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene	98		70-130				
1,2-Dichloroethane-d4	83		70-130				
Toluene-d8	95		70-130				

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQA45779-003
Batch: 45779
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	990		1	99	1.1	70-130	20	04/29/2014 1014
tert-Amyl methyl ether (TAME)	50	51		1	102	1.8	70-130	20	04/29/2014 1014
Benzene	50	46		1	92	1.5	70-130	20	04/29/2014 1014
tert-Butyl formate (TBF)	250	250		1	101	3.5	70-130	20	04/29/2014 1014
1,2-Dichloroethane	50	48		1	97	2.7	70-130	20	04/29/2014 1014
Diisopropyl ether (DPE)	50	48		1	97	8.4	70-130	20	04/29/2014 1014
3,3-Dimethyl-1-butanol	1000	970		1	97	9.4	70-130	20	04/29/2014 1014
Ethanol	5000	4100		1	81	9.6	60-140	20	04/29/2014 1014
Ethylbenzene	50	48		1	97	1.1	70-130	20	04/29/2014 1014
Ethyl-tert-butyl ether (ETBE)	50	45		1	90	1.2	70-130	20	04/29/2014 1014
Methyl tertiary butyl ether (MTBE)	50	49		1	98	3.9	70-130	20	04/29/2014 1014
Naphthalene	50	37		1	74	0.12	70-130	20	04/29/2014 1014
tert-butyl alcohol (TBA)	1000	830		1	83	1.8	70-130	20	04/29/2014 1014
Toluene	50	48		1	96	1.2	70-130	20	04/29/2014 1014
Xylenes (total)	100	100		1	100	1.8	70-130	20	04/29/2014 1014
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene	95		70-130						
1,2-Dichloroethane-d4	82		70-130						
Toluene-d8	93		70-130						

PQL = Practical quantitation limit

ND = Not detected at or above the MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

P = The RPD between two GC columns exceeds 40%

J = Estimated result < PQL and ≥ MDL

N = Recovery is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ45838-001
 Batch: 45838
 Analytical Method: 8280B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	04/29/2014 2208
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	04/29/2014 2208
Benzene	ND		1	5.0	0.20	ug/L	04/29/2014 2208
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	04/29/2014 2208
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	04/29/2014 2208
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	04/29/2014 2208
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	04/29/2014 2208
Ethanol	ND		1	1000	33	ug/L	04/29/2014 2208
Ethylbenzene	ND		1	5.0	1.7	ug/L	04/29/2014 2208
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	04/29/2014 2208
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	04/29/2014 2208
Naphthalene	ND		1	5.0	1.7	ug/L	04/29/2014 2208
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	04/29/2014 2208
Toluene	ND		1	5.0	1.7	ug/L	04/29/2014 2208
Xylenes (total)	ND		1	5.0	1.7	ug/L	04/29/2014 2208
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene	100				70-130		
1,2-Dichloroethane-d4	103				70-130		
Toluene-d8	102				70-130		

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ45838-002
 Batch: 45838
 Analytical Method: 8280B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	850		1	85	70-130	04/29/2014 2041
tert-Amyl methyl ether (TAME)	50	48		1	97	70-130	04/29/2014 2041
Benzene	50	44		1	89	70-130	04/29/2014 2041
tert-Butyl formate (TBF)	250	220		1	90	70-130	04/29/2014 2041
1,2-Dichloroethane	50	47		1	95	70-130	04/29/2014 2041
Diisopropyl ether (IPE)	50	44		1	89	70-130	04/29/2014 2041
3,3-Dimethyl-1-butanol	1000	880		1	88	70-130	04/29/2014 2041
Ethanol	5000	4100		1	82	60-140	04/29/2014 2041
Ethylbenzene	50	49		1	98	70-130	04/29/2014 2041
Ethyl-tert-butyl ether (ETBE)	50	41		1	83	70-130	04/29/2014 2041
Methyl tertiary butyl ether (MTBE)	50	43		1	86	70-130	04/29/2014 2041

PQL = Practical quantitation limit

ND = Not detected at or above the MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "w"

P = The RPD between two GC columns exceeds 40%

J = Estimated result < PQL and ≥ MDL

N = Recovery is out of criteria

* = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ45838-002
 Batch: 45838
 Analytical Method: 8260B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Naphthalene	50	50		1	100	70-130	04/29/2014 2041
tert-butyl alcohol (TBA)	1000	930		1	93	70-130	04/29/2014 2041
Toluene	50	48		1	95	70-130	04/29/2014 2041
Xylenes (total)	100	100		1	101	70-130	04/29/2014 2041
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene	100		70-130				
1,2-Dichloroethane-d4	101		70-130				
Toluene-d8	102		70-130				

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ45838-003
 Batch: 45838
 Analytical Method: 8260B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	870		1	87	1.8	70-130	20	04/29/2014 2102
tert-Amyl methyl ether (TAME)	50	47		1	94	3.1	70-130	20	04/29/2014 2102
Benzene	50	44		1	87	2.2	70-130	20	04/29/2014 2102
tert-Butyl formate (TBF)	250	220		1	87	2.8	70-130	20	04/29/2014 2102
1,2-Dichloroethane	50	46		1	93	2.3	70-130	20	04/29/2014 2102
Diisopropyl ether (IPE)	50	44		1	88	1.1	70-130	20	04/29/2014 2102
3,3-Dimethyl-1-butanol	1000	860		1	86	1.7	70-130	20	04/29/2014 2102
Ethanol	5000	4000		1	80	3.4	60-140	20	04/29/2014 2102
Ethylbenzene	50	48		1	95	2.6	70-130	20	04/29/2014 2102
Ethyl-tert-butyl ether (ETBE)	50	42		1	83	0.62	70-130	20	04/29/2014 2102
Methyl tertiary butyl ether (MTBE)	50	43		1	86	0.62	70-130	20	04/29/2014 2102
Naphthalene	50	50		1	100	0.65	70-130	20	04/29/2014 2102
tert-butyl alcohol (TBA)	1000	890		1	89	3.7	70-130	20	04/29/2014 2102
Toluene	50	47		1	93	2.0	70-130	20	04/29/2014 2102
Xylenes (total)	100	99		1	99	1.9	70-130	20	04/29/2014 2102
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene	99		70-130						
1,2-Dichloroethane-d4	100		70-130						
Toluene-d8	101		70-130						

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
 P = The RPD between two GC columns exceeds 40%
 J = Estimated result < PQL and ≥ MDL
 N = Recovery is out of criteria
 + = RPD is out of criteria
Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ45838-001
Batch: 45838
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	DII	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	04/29/2014 2208
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	04/29/2014 2208
Benzene	ND		1	1.0	0.13	ug/L	04/29/2014 2208
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	04/29/2014 2208
1,2-Dichloroethane	ND		1	1.0	0.15	ug/L	04/29/2014 2208
Diisopropyl ether (DIP)	ND		1	10	0.40	ug/L	04/29/2014 2208
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	04/29/2014 2208
Ethanol	ND		1	1000	33	ug/L	04/29/2014 2208
Ethylbenzene	ND		1	1.0	0.33	ug/L	04/29/2014 2208
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	04/29/2014 2208
Methyl tertiary butyl ether (MTBE)	ND		1	1.0	0.40	ug/L	04/29/2014 2208
Naphthalene	ND		1	1.0	0.40	ug/L	04/29/2014 2208
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	04/29/2014 2208
Toluene	ND		1	1.0	0.33	ug/L	04/29/2014 2208
Xylenes (total)	ND		1	1.0	0.33	ug/L	04/29/2014 2208
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene	100		70-130				
1,2-Dichloroethane-d4	103		70-130				
Toluene-d8	102		70-130				

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ45838-002
Batch: 45838
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	DII	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	850		1	85	70-130	04/29/2014 2041
tert-Amyl methyl ether (TAME)	50	48		1	97	70-130	04/29/2014 2041
Benzene	50	44		1	89	70-130	04/29/2014 2041
tert-Butyl formate (TBF)	250	220		1	90	70-130	04/29/2014 2041
1,2-Dichloroethane	50	47		1	95	70-130	04/29/2014 2041
Diisopropyl ether (DIP)	50	44		1	89	70-130	04/29/2014 2041
3,3-Dimethyl-1-butanol	1000	880		1	88	70-130	04/29/2014 2041
Ethanol	5000	4100		1	82	60-140	04/29/2014 2041
Ethylbenzene	50	49		1	98	70-130	04/29/2014 2041
Ethyl-tert-butyl ether (ETBE)	50	41		1	83	70-130	04/29/2014 2041
Methyl tertiary butyl ether (MTBE)	50	43		1	86	70-130	04/29/2014 2041

PQL = Practical quantitation limit

ND = Not detected at or above the MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

P = The RPD between two GC columns exceeds 40%

J = Estimated result < PQL and ≥ MDL

N = Recovery is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ45838-002
 Batch: 45838
 Analytical Method: 82808

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Naphthalene	50	50		1	100	70-130	04/29/2014 2041
tert-butyl alcohol (TBA)	1000	930		1	93	70-130	04/29/2014 2041
Toluene	50	48		1	95	70-130	04/29/2014 2041
Xylenes (total)	100	100		1	101	70-130	04/29/2014 2041
Surrogate						Acceptance Limit	
Bromofluorobenzene	100		70-130				
1,2-Dichloroethane-d4	101		70-130				
Toluene-d8	102		70-130				

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ45838-003
 Batch: 45838
 Analytical Method: 82808

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	870		1	87	1.8	70-130	20	04/29/2014 2102
tert-Amyl methyl ether (TAME)	50	47		1	94	3.1	70-130	20	04/29/2014 2102
Benzene	50	44		1	87	2.2	70-130	20	04/29/2014 2102
tert-Butyl formalde (TBF)	250	220		1	87	2.8	70-130	20	04/29/2014 2102
1,2-Dichloroethane	50	46		1	93	2.3	70-130	20	04/29/2014 2102
Diisopropyl ether (IPE)	50	44		1	88	1.1	70-130	20	04/29/2014 2102
3,3-Dimethyl-1-butanol	1000	860		1	86	1.7	70-130	20	04/29/2014 2102
Ethanol	5000			1	80	3.4	60-140	20	04/29/2014 2102
Ethylbenzene	50	48		1	95	2.6	70-130	20	04/29/2014 2102
Ethyl-tert-butyl ether (ETBE)	50	42		1	83	0.62	70-130	20	04/29/2014 2102
Methyl tertiary butyl ether (MTBE)	50	43		1	86	0.62	70-130	20	04/29/2014 2102
Naphthalene	50	50		1	100	0.65	70-130	20	04/29/2014 2102
tert-butyl alcohol (TBA)	1000	890		1	89	3.7	70-130	20	04/29/2014 2102
Toluene	50	47		1	93	2.0	70-130	20	04/29/2014 2102
Xylenes (total)	100	99		1	99	1.9	70-130	20	04/29/2014 2102
Surrogate							Acceptance Limit		
Bromofluorobenzene	99		70-130						
1,2-Dichloroethane-d4	100		70-130						
Toluene-d8	101		70-130						

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

P = The RPD between two GC columns exceeds 40%
 J = Estimated result < PQL and ≥ MDL
 N = Recovery is out of criteria
 * = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - Duplicate

Sample ID: PD26007-009DU
 Batch: 45838
 Analytical Method: 8260B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Result (ug/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	ND	ND	1	1	0.00	20	04/30/2014 0534
tert-Amyl methyl ether (TAME)	ND	ND	1	1	0.00	20	04/30/2014 0534
Benzene	ND	ND	1	1	0.00	20	04/30/2014 0534
tert-Butyl formate (TBF)	ND	ND	1	1	0.00	20	04/30/2014 0534
1,2-Dichloroethane	ND	ND	1	1	0.00	20	04/30/2014 0534
Diisopropyl ether (DIP)	ND	ND	1	1	0.00	20	04/30/2014 0534
3,3-Dimethyl-1-butanol	ND	ND	1	1	0.00	20	04/30/2014 0534
Ethanol	ND	ND	1	1	0.00	20	04/30/2014 0534
Ethylbenzene	ND	ND	1	1	0.00	20	04/30/2014 0534
Ethyl-tert-butyl ether (ETBE)	ND	ND	1	1	0.00	20	04/30/2014 0534
Methyl tertiary butyl ether (MTBE)	ND	ND	1	1	0.00	20	04/30/2014 0534
Naphthalene	ND	ND	1	1	0.00	20	04/30/2014 0534
tert-butyl alcohol (TBA)	ND	ND	1	1	0.00	20	04/30/2014 0534
Toluene	ND	ND	1	1	0.00	20	04/30/2014 0534
Xylenes (total)	ND	ND	1	1	0.00	20	04/30/2014 0534
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4	112	98	70-130				
Bromofluorobenzene	98	108	70-130				
Toluene-d8	108		70-130				

Volatile Organic Compounds by GC/MS - MS

Sample ID: PD26007-010MS
 Batch: 45838
 Analytical Method: 8260B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	ND	1000	870	1	1	87	70-130	04/30/2014 0556
tert-Amyl methyl ether (TAME)	ND	50	51	1	1	102	70-130	04/30/2014 0556
Benzene	ND	50	48	1	1	97	72-127	04/30/2014 0556
tert-Butyl formate (TBF)	ND	250	0.13	N	1	0.052	70-130	04/30/2014 0556
1,2-Dichloroethane	ND	50	53	1	1	105	59-143	04/30/2014 0556
Diisopropyl ether (DIP)	ND	50	49	1	1	98	70-130	04/30/2014 0556
3,3-Dimethyl-1-butanol	ND	1000	950	1	1	95	70-130	04/30/2014 0556
Ethanol	ND	5000	4500	1	1	89	70-130	04/30/2014 0556
Ethylbenzene	ND	50	52	1	1	103	79-132	04/30/2014 0556
Ethyl-tert-butyl ether (ETBE)	ND	50	45	1	1	91	70-130	04/30/2014 0556
Methyl tertiary butyl ether (MTBE)	ND	50	49	1	1	98	60-140	04/30/2014 0556

PQL = Practical quantitation limit

ND = Not detected at or above the MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

P = The RPD between two GC columns exceeds 40%

J = Estimated result < PQL and ≥ MDL

N = Recovery is out of criteria
 + = RPD is out of criteria

N = Recovery is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: PDZ6007-010MS
 Batch: 45838
 Analytical Method: 8280B

Matrix: Aqueous
 Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Naphthalene	ND	50	46		1	91	62-136	04/30/2014 0556
tert-butyl alcohol (TBA)	ND	1000	1100		1	106	70-130	04/30/2014 0556
Toluene	ND	50	52		1	104	75-125	04/30/2014 0556
Xylenes (total)	ND	100	100		1	104	70-130	04/30/2014 0556
Surrogate							Acceptance Limit	
1,2-Dichloroethane-d4	111		70-130					
Bromofluorobenzene	99		70-130					
Toluene-d8	108		70-130					

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

P = The RPD between two GC columns exceeds 40%
 J = Estimated result < PQL and ≥ MDL
 + = RPD is out of criteria
 N = Recovery is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MB

Sample ID: PQA5751-001 Matrix: Aqueous
 Batch: 45751 Prep Method: 8011
 Analytical Method: 8011 Prep Date: 04/29/2014 1408

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	04/30/2014 1121
Surrogate		Q	% Rec	Acceptance Limit			
1,1,1,2-Tetrachloroethane		106		57-137			

EDB & DBCP by Microextraction - LCS

Sample ID: PQA5751-002 Matrix: Aqueous
 Batch: 45751 Prep Method: 8011
 Analytical Method: 8011 Prep Date: 04/29/2014 1408

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.29		1	116	60-140	04/30/2014 1131
Surrogate			Q	% Rec	Acceptance Limit		
1,1,1,2-Tetrachloroethane			94		57-137		

EDB & DBCP by Microextraction - MB

Sample ID: PQA5752-001 Matrix: Aqueous
 Batch: 45752 Prep Method: 8011
 Analytical Method: 8011 Prep Date: 04/29/2014 1408

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	04/30/2014 1553
Surrogate		Q	% Rec	Acceptance Limit			
1,1,1,2-Tetrachloroethane		107		57-137			

PQL = Practical quantitation limit

ND = Not detected at or above the MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - LCS

Sample ID: PQ45752-002 Matrix: Aqueous
 Batch: 45752 Prep Method: 8011
 Analytical Method: 8011 Prep Date: 04/29/2014 1408

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.34		1	136	60-140	04/30/2014 1604
Surrogate		Acceptance Limit					
1,1,1,2-Tetrachloroethane	115	57-137					

EDB & DBCP by Microextraction - MS

Sample ID: PD26007-011MS Matrix: Aqueous
 Batch: 45752 Prep Method: 8011
 Analytical Method: 8011 Prep Date: 04/29/2014 1408

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	ND	0.25	0.28		1	112	60-140	04/30/2014 1625
Surrogate		% Rec	Acceptance Limit					
1,1,1,2-Tetrachloroethane		111	57-137					

EDB & DBCP by Microextraction - MSD

Sample ID: PD26007-011MD Matrix: Aqueous
 Batch: 45752 Prep Method: 8011
 Analytical Method: 8011 Prep Date: 04/29/2014 1408

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD Limit	% Rec Limit	% RPD Limit	Analysis Date
1,2-Dibromoethane (EDB)	ND	0.25	0.27		1	110	2.0	60-140	20	04/30/2014 1635
Surrogate		% Rec	Acceptance Limit							
1,1,1,2-Tetrachloroethane		105	57-137							

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
 P = The RPD between two GC columns exceeds 40%
 J = Estimated result < PQL and ≥ MDL
 N = Recovery is out of criteria
 + = RPD is out of criteria
Note: Calculations are performed before rounding to avoid round-off errors in calculated results



Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number 09598

Client MECI	Residual to Custodian B. Shane	Signature of Custodian Daniel McSwain	Sample No. 1 of 2
Address 3296 Point South Dr. West Columbia, SC 29172	Telephone No. / Fax No. / E-mail 903-808-2043	Signature of Client Daniel McSwain	Client No.
City / State / Zip Code West Columbia, SC 29172	Preservative 1. Hours: 4-800 2. NACH 2. K. 0497 W 3. 5-01 3. 102524 4. 8 to 100	Signature of Analyst Daniel McSwain	Client Name
Sample Name Miche Pumper 2.33	Matrix	Signature of Receiver Daniel McSwain	Client Address
Sample ID / Description	Date	Time	Analysis
MW-1	4-24	12:38	G X
MW-2		12:30	X
MW-3			
MW-4R		11:22	X
MW-5		12:14	X
MW-6		11:52	X
MW-7		11:37	X
MW-8		11:26	X
DW-1		11:54	X
CK-1	4-24	12:50	G K
Analysis	BTEX, MATH MIBE 120CA 8-CRY EOB		
Notes	PD26007 Odor, Odor, DUP Not Sampled No Odor No Odor No Odor No Odor No Odor No Odor Low detection limit		
1. Received by Daniel McSwain	Date 4-24	Time 16:25	Signature [Signature]
2. Received by [Signature]	Date 4/25/14	Time 9:05	Signature [Signature]
3. Received by [Signature]	Date 4/25/14	Time 1350	Signature [Signature]
4. Laboratory Receipt [Signature]	Date 4-25-14	Time 1350	Signature [Signature]
Note: All samples are retained for six weeks from receipt unless other arrangements are made.			
LAB USE ONLY Received by: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Made <input type="checkbox"/> Receipt No. 13			



Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No: (803) 791-9700 Fax No: (803) 791-9111
www.shealylab.com

Number **09599**

Client MECI		Report to Contact B. Shane			Sample Printed Name Todd Elder		Order No.
Address 3296 Point South Lantern Pt. Yemassee SC 29945		Telephone No. / Fax No. / Email 803-808-2043			Work No.		Page 2 of 2
Project Name Nicore Pumper 233		Preservative Type: 4 HCl / 1 NaOH pH: 5.0 Temp: 5.0					Analysis Type: PD260N
Sample ID / Description (Use initials for accuracy only to be placed in the lab)	Date	Time	Location (G, W, W, W, S, Other)	Analysis (List parameters)	Remarks / Comments		
CK-2	4-24	12:53	G R	1375 / WATR 17-DO / 8-CR / EOR	PD260N		
NYSW-1	4-24				6 DL		
mw-2 Out	4-24	12:30	X		Non-operable		
Field Blank		13:05					
Trip Blank	4-24	13:06	G				

1. Date of Receipt 4-24	2. Date of Release 16:25	3. Date of Receipt 4/25/14	4. Date of Release 4-25-14
Signature: Todd Elder	Signature: [Signature]	Signature: [Signature]	Signature: [Signature]
Time: 13:50	Time: 1350	Time: 1350	Time: 1350

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: P-AD-016
 Revision Number: 14

Page 1 of 1
 Release Date: 09/26/13
 Effective Date: 03/07/14

Sample Receipt Checklist (SRC)

Client: MECC Cooler Inspected by/date: KAP / 4-26-14 Lot #: PD26007

Means of receipt: <input checked="" type="checkbox"/> SESI <input type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other	
Yes <input type="checkbox"/> No <input type="checkbox"/>	1. Were custody seals present on the cooler?
Yes <input type="checkbox"/> No <input type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?
Cooler ID/Original temperature upon receipt/Derived (corrected) temperature upon receipt:	
<u>1930/12/12 °C / / °C / / °C</u>	
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles <input type="checkbox"/> IR Gun ID: #3 <input type="checkbox"/> IR Gun Correction Factor: +0.1 °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
Yes <input type="checkbox"/> No <input type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/> No <input type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input type="checkbox"/> No <input type="checkbox"/>	5. Were proper custody procedures (relinquished/retained) followed?
Yes <input type="checkbox"/> No <input type="checkbox"/>	5a. Were samples relinquished by client to commercial courier?
Yes <input type="checkbox"/> No <input type="checkbox"/>	6. Were sample IDs listed on the COC?
Yes <input type="checkbox"/> No <input type="checkbox"/>	7. Were sample IDs listed on all sample containers?
Yes <input type="checkbox"/> No <input type="checkbox"/>	8. Was collection date & time listed on the COC?
Yes <input type="checkbox"/> No <input type="checkbox"/>	9. Was collection date & time listed on all sample containers?
Yes <input type="checkbox"/> No <input type="checkbox"/>	10. Did all container label information (ID, date, time) agree with the COC?
Yes <input type="checkbox"/> No <input type="checkbox"/>	11. Were tests to be performed listed on the COC?
Yes <input type="checkbox"/> No <input type="checkbox"/>	12. Did all samples arrive in the proper containers for each test?
Yes <input type="checkbox"/> No <input type="checkbox"/>	13. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input type="checkbox"/> No <input type="checkbox"/>	14. Was adequate sample volume available?
Yes <input type="checkbox"/> No <input type="checkbox"/>	15. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/> No <input type="checkbox"/>	16. Were any samples containers missing?
Yes <input type="checkbox"/> No <input type="checkbox"/>	17. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/> No <input type="checkbox"/>	18. Were bubbles present > "pea size" (1/4" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/> No <input type="checkbox"/>	19. Were all metals/O&G/GHEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/> No <input type="checkbox"/>	20. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/> No <input type="checkbox"/>	21. Were all applicable NH ₃ /TKS/cyanide/phenol (<0.2mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/> No <input type="checkbox"/>	22. Were collection temperatures documented on the COC for NC samples?
Yes <input type="checkbox"/> No <input type="checkbox"/>	23. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc.) correctly transcribed from the COC into the comment section in LIMS?
Yes <input type="checkbox"/> No <input type="checkbox"/>	24. Was the quote number used taken from the container label?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) _____	were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) using SR # _____
Sample(s) _____	were received with bubbles >6 mm in diameter.
Sample(s) _____	were received with TRC >0.2 mg/L (H #21 is No)
Sample(s) _____	SC Drinking Water Project Sample(s) pH verified to be >2 by _____ Date: _____
Sample(s) _____	were not received at a pH of >2 and were adjusted accordingly using SR# _____
Sample labels applied by: <u>KAP</u>	Verified by: _____ Date: <u>4-26-14</u>
Comments: _____	

APPENDIX C:
TAX MAP
(Not Applicable)

APPENDIX D:
SOIL BORING/FIELD SCREENING LOGS & 1903 FORMS
(Not Applicable)

**APPENDIX E:
WELL COMPLETION LOGS & 1903 FORMS**

Depth (Feet)	Description	PID PPM	Well Diagram	Penetration Blows Per Foot														
				0	10	20	40	60	80	100								
0-5	Concrete																	
5-12.4	COASTAL PLAIN RESIDUUM: Brown, Silty Medium to Coarse SAND	12.4																
12.4-15	Grey, CLAY																	
15-12.0	Boring terminated at 12.0 Feet Below Ground Surface (BGS). Monitoring Well Installed to 12.0 Feet BGS. Groundwater Measured at 2.41 Feet Below Top of Casing on 4/24/2014.	0.0																
12.0-20																		
20-25																		
25-30																		
30-35																		
35-40																		

TEST BORING RECORD

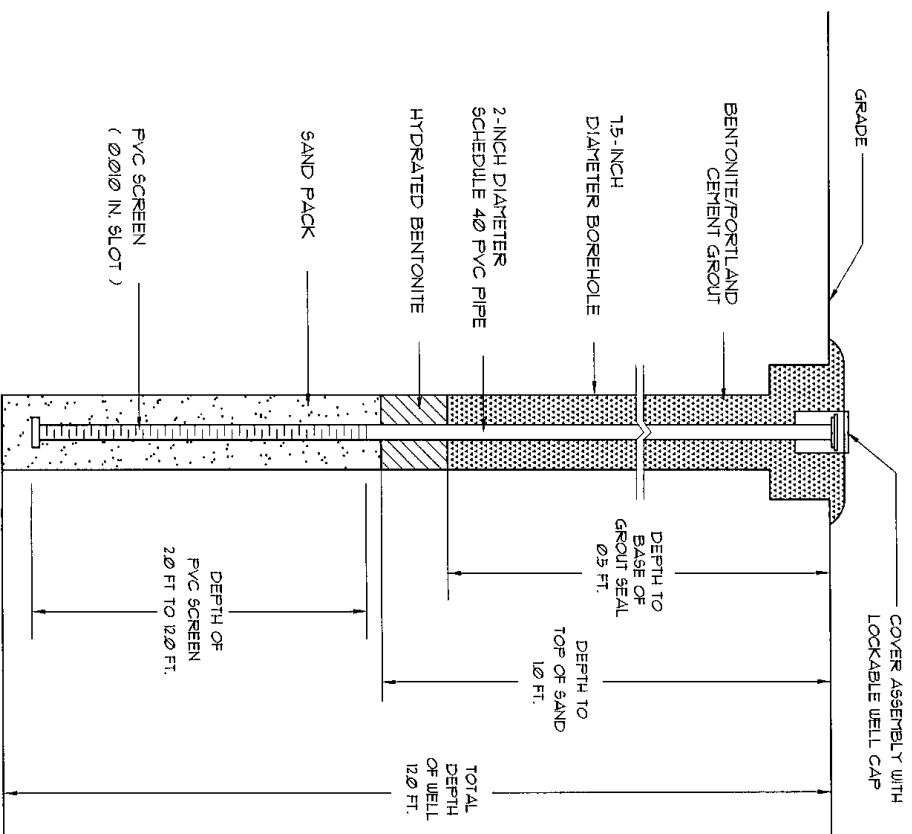
Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4714

Boring Number: MW-4R (04878)
Date Drilled: 4/7/14
Drilled By: Environmental Drilling & Probing Services
Logged By: P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 231 Dordley Road
 Lexington, South Carolina 29073
 (803) 566-2693 Fax: 803-266-2649

MONITORING WELL INSTALLATION RECORD

Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID # 04878
 MECI Project Number 14-4714



Well Number:	MW-4R (04878)
Date Drilled:	4/17/14
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller:	D. Brown S.C. ID. #B 02053
Logged By:	P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 231 Decoy Road
 Lexington, South Carolina, 29073
 (803) 566-1045 fax: 566-1046

Depth (Feet)	Description	PPM	Well Diagram	Penetration Blows Per Foot
0-5	Concrete			
5-12.0	COASTAL PLAIN RESIDUUM: Tan to Brown, Silty Fine to Medium SAND	13.6		NO BLOWCOUNTS RECORDED
12.0-15	Grey, CLAY	0.7		
15-35	Boring terminated at 12.0 Feet Below Ground Surface (BGS). Monitoring Well Installed to 12.0 Feet BGS. Groundwater Measured at 1.25 Feet Below Top of Casing on 4/24/2014.			

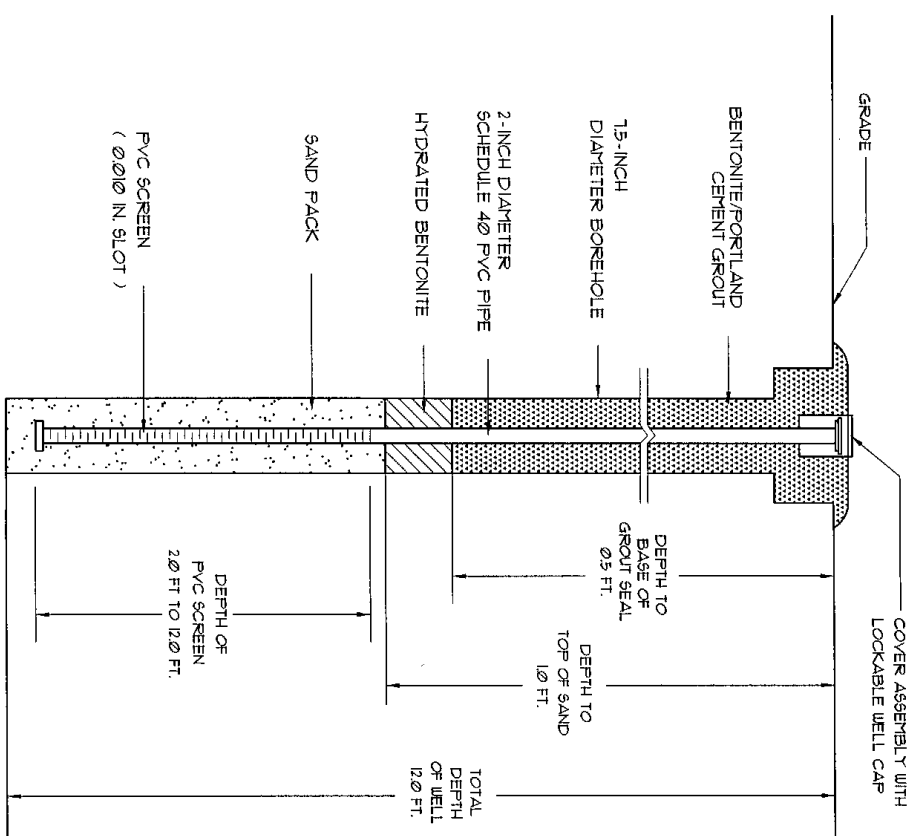
TEST BORING RECORD
 Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4714

Boring Number:	MW-5 (04878)
Date Drilled:	4/17/14
Drilled By:	Environmental Drilling Probing Services
Logged By:	P. Boylan

Prepared By:
Michlands Environmental Consultants, Inc.
 231 Dordley Road
 Lexington, South Carolina 29073
 (803) 566-1245 Fax: 803-1246

MONITORING WELL INSTALLATION RECORD

Nickelpumper #233
 Yemassees, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4114



Well Number:	MW-5 (04878)
Date Drilled:	4/17/14
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller:	D. Brown S.C. ID #: B 02053
Logged By:	P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 231 Dooling Road
 Lexington, South Carolina 29073
 (803) 868-1243 Fax: 803-1046

Depth (Feet)	Description	PPM	Well Diagram	Penetration Blows Per Foot
0	Concrete			
0 - 5	COASTAL PLAIN RESIDUUM: Black to Grey, Silty Medium to Coarse SAND	16.8		NO BLOWCOUNTS RECORDED
5 - 10	Grey, Medium to Coarse Sandy SILT	0.9		
10 - 15	Grey, CLAY	0.8		
15 - 35	Boring terminated at 12.0 Feet Below Ground Surface (BGS). Monitoring Well Installed to 12.0 Feet BGS. Groundwater Measured at 1.89 Feet Below Top of Casing on 4/24/2014.			

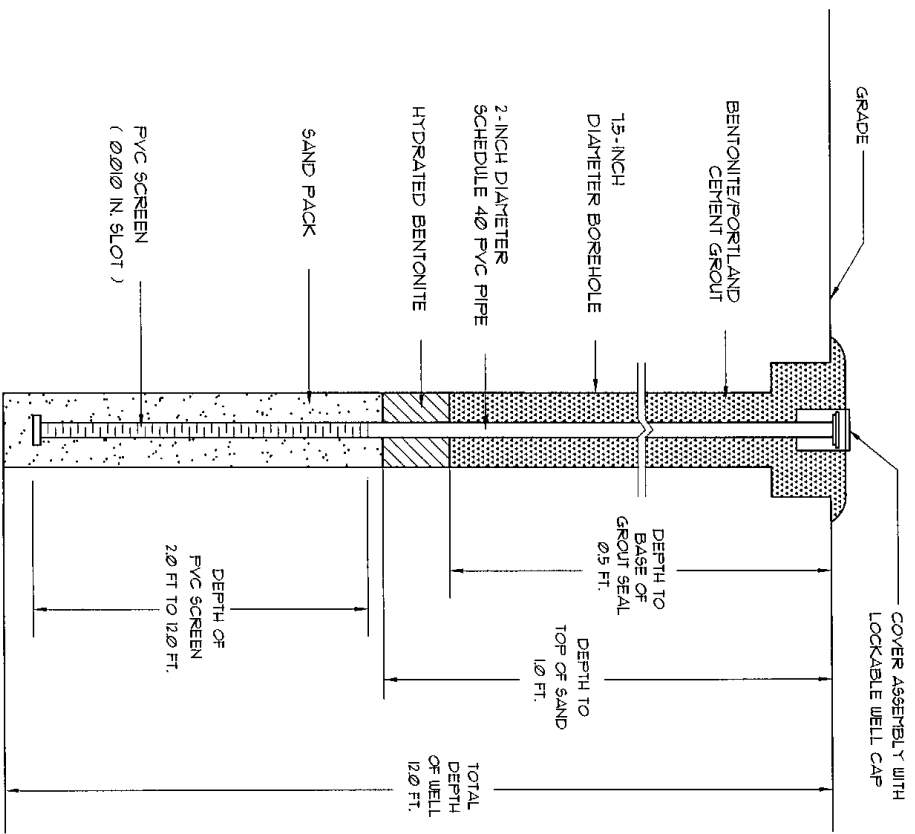
TEST BORING RECORD
 Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4114

Boring Number: MW-6 (04878)
Date Drilled: 4/17/14
Drilled By: Environmental Drilling & Probing Services
Logged By: P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 231 Doodle Road
 Lexington, South Carolina 29073
 (803) 566-1545 Fax: 803-1646

MONITORING WELL INSTALLATION RECORD

Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4714



Well Number:	MW-6 (Ø4878)
Date Drilled:	4/17/14
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller:	D. Brown S.C. I.D. #B Ø1053
Logged By:	P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 231 Doolley Road
 Lexington, South Carolina 29073
 (803) 868-1243 fax: (803) 1046

Depth (Feet)	Description	PID PPM	Well Diagram		Penetration Blows Per Foot															
			0	10	20	40	60	80	100											
0	Topsoil																			
0	COASTAL PLAIN RESIDUUM: Tan, Silty Medium SAND	0.0																		
5	Grey, CLAY	0.0																		
10	Boring terminated at 9.0 Feet Below Ground Surface (BGS). Monitoring Well Installed to 9.0 Feet BGS. Groundwater Measured at 1.20 Feet Below Top of Casing on 4/24/2014.																			
15																				
20																				
25																				
30																				
35																				

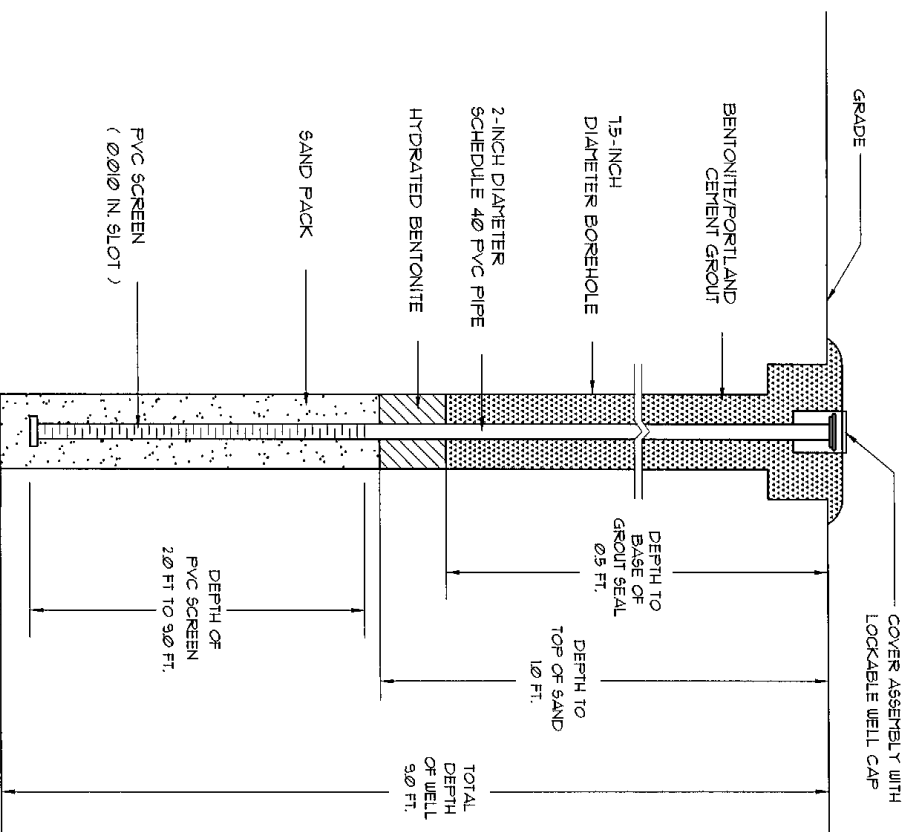
TEST BORING RECORD
 Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4714

Boring Number:	MW-1 (04878)
Date Drilled:	4/16/14
Drilled By:	Environmental Drilling 4 Probing Services
Logged By:	P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 221 Pooles Road
 Lenoir, South Carolina 29073
 (803) 808-2643 Fax: 803-2648

MONITORING WELL INSTALLATION RECORD

Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4714



Well Number:	MW-7 (Ø4878)
Date Drilled:	4/6/14
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller:	D. Brown S.C. ID.# B 02053
Logged By:	P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 231 Doolley Road
 Lexington, South Carolina, 29073
 (803) 808-1243 Fax: 803-4048

Depth (Feet)	Description	PID PPM	Well Diagram	Penetration Blows Per Foot														
				0	10	20	40	60	80	100								
0	Topsail																	
0.1	COASTAL PLAIN RESIDUUM: Tan, Silty Medium SAND	0.1																
5	Grey, CLAY																	
10	Boring terminated at 9.5 Feet Below Ground Surface. (BGS). Monitoring Well Installed to 9.5 Feet BGS. Groundwater Measured at 0.34 Feet Below Top of Casing on 4/24/2014.																	
15																		
20																		
25																		
30																		
35																		

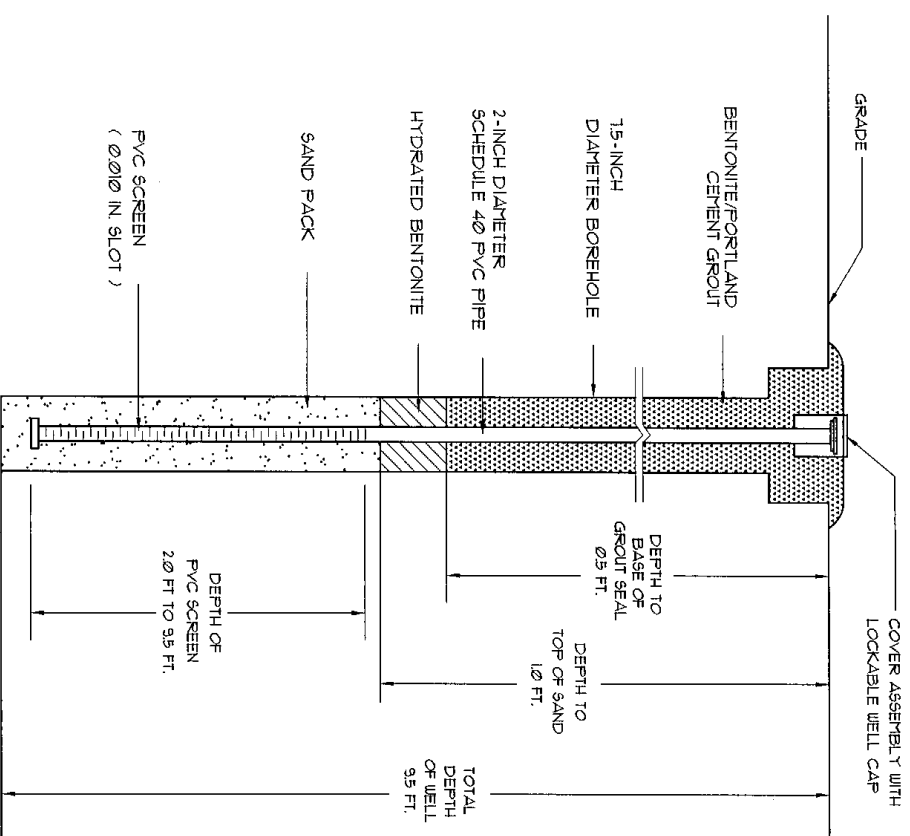
TEST BORING RECORD
 Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4714

Boring Number:	MW-8 (04878)
Date Drilled:	4/16/14
Drilled By:	Environmental Drilling 4 Probing Services
Logged By:	F. Boylan

Prepared By:
Midlands
 Environmental
 Consultants, Inc.
 221 Poplar Road
 Columbia, SC 29203
 (803) 506-3043 Fax: 803-2048

MONITORING WELL INSTALLATION RECORD

Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4714



Well Number:	MW-8 (04878)
Date Drilled:	4/16/14
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller:	D. Brown S.C. ID # B 02053
Logged By:	P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 231 Dorothea Road
 Lexington, South Carolina, 29073
 (803) 566-7643 Fax: (803) 246-2448

Depth (Feet)	Description	PID PPM	Well Diagram		Penetration Blows Per Foot															
			0	10	20	30	40	50	60	70	80	90	100							
45-	Boring Terminated at 48.5 Feet Below Ground Surface (BGS). Monitoring Well Installed to 48.5 Feet BGS. Groundwater Measured at 3.90 Feet Below Top of Casing on 4/24/2014.	0.0																		
50-		0.0																		
55-																				
60-																				
65-																				
70-																				
75-																				

TEST BORING RECORD
 Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4714

Boring Number:	DW-1 (04878)
Date Drilled:	4/17/2014
Drilled By:	Environmental Drilling & Probing Services, LLC.
Logged By:	P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 231 Peachy Road
 Yemassee, South Carolina 29573
 (803) 505-2043 Fax: 803-2046

Depth (feet)	Description	PPM	Well Diagram		Penetration Blows Per Foot															
			0	10	20	30	40	50	60	70	80	100								
0-5	Concrete		[Hatched Area]																	
5-10	COASTAL PLAIN RESIDUUM: Black to Grey, Silty Medium to Coarse SAND		[Hatched Area]																	
10-13.6	Grey, Medium to Coarse Sandy SILT	13.6	[Hatched Area]																	
13.6-10	Grey, CLAY	0.9	[Hatched Area]																	
10-15		0.0	[Hatched Area]																	
15-20		0.0	[Hatched Area]																	
20-25		0.0	[Hatched Area]																	
25-30		0.0	[Hatched Area]																	
30-35		0.0	[Hatched Area]																	
35-40		0.0	[Hatched Area]																	

NOTE: 10-inch boring terminated at 40.0 feet, 6-inch outer casing set at 40.0 feet and 4-inch boring initiated.

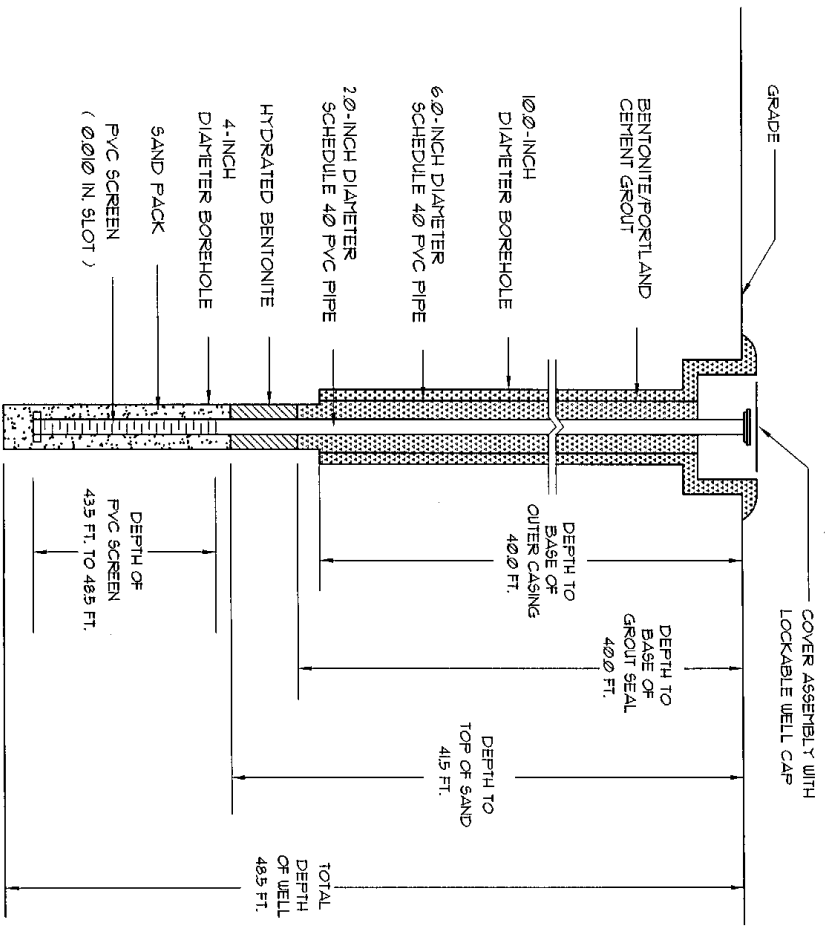
TEST BORING RECORD
 Nickelpumper #233
 Yemassee, South Carolina
 3CDHEC Site ID# 04818
 MECI Project Number 14-4714

Boring Number:	DW-1 (04818)
Date Drilled:	4/17/2014
Drilled By:	Environmental Drilling & Probing Services, LLC
Logged By:	P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 131 Dadeville Road
 Yemassee, South Carolina 29073
 (803) 808-2043 Fax: 803-2048

MONITORING WELL INSTALLATION RECORD

Nickelpumper #233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 14-4714



Well Number:	DW-1 (04878)
Date Drilled:	4/17/2014
Drilled By:	Environmental Drilling & Probing Services
Driller:	D. Brown S.C. I.D. # C 02053
Logged By:	P. Boylan

Prepared By:
Midlands Environmental Consultants, Inc.
 231 Dooling Road
 Lexington, South Carolina 29073
 (803) 800-2043 Fax: 800-2044



Water Well Record
Bureau of Water
 2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:

Name: **SCDHEC** (last) (first)
 Address: **2600 Bull Street**
 City: **Columbia** State: **SC** Zip: **29201-1708**
 Telephone: Work: **(803) 898-4300** Home: _____

2. LOCATION OF WELL: COUNTY: **Jasper**

Name: **Nickelpumper 233**
 Street Address: **3296 Point South Drive** Zip: **29945-8510**
 City: **Yemassee**
 Latitude: _____ Longitude: _____

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: **MW-4R**
04878

4. ABANDONMENT: Yes No
 Give Details Below
 Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Concrete	0.5	0.5
Brown, Silty SAND*	4.0	4.5
Grey, CLAY*	7.5	12.0

7. PERMIT NUMBER: **UMW-25363**

8. USE:
 Residential Public Supply Process
 Irrigation Air Conditioning Emergency
 Test Well Monitor Well Replacement

9. WELL DEPTH (completed) Date Started: **4/17/2014**
12.0 ft. Date Completed: **4/17/2014**

10. CASING: Threaded Welded
 Diam.: **2** Inch Height: Above/Below
 Type: PVC Galvanized Surface: _____ ft.
 Steel Other Weight: _____ lb./ft.
2.0 in. to **2.0** ft. depth Drive Shoe? Yes No

11. SCREEN: Schedule **40** PVC Diam.: **2** Inch
 Type: _____ Slot/Gauge: **0.010** Length: **10.0** Feet
 Set Between: **2.0** ft. and **12.0** ft. NOTE: MULTIPLE SCREENS
 Sieve Analysis Yes (please enclose) No USE SECOND SHEET

12. STATIC WATER LEVEL: **2.41** ft. below land surface after 24 hours
13. PUMPING LEVEL: Below Land Surface: _____ ft. after _____ hrs. Pumping _____ G.P.M.
 Pumping Test: Yes (please enclose) No Yield: _____

14. WATER QUALITY: Chemical Analysis Yes No Bacterial Analysis Yes No
 Please enclose lab results.
15. ARTIFICIAL FILTER (filter pack) Yes No
 Installed from **1.0** ft. to **12.0** ft.
 Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? Yes No
 Neat Cement Bentonite Bentonite/Cement Other
 Depth: From **0.0** ft. to **0.5** ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
 Type _____ Well Disinfected Yes No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Model No.: _____ Not installed
 H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
 TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: **David Brown** CERT. NO.: **02053**
 Address: (Print) _____ Level: **A** **B** **C** **D** (circle one)
17339 Greenhill Road
Charlotte, North Carolina 28278
 Telephone No.: **704-077-7229** Fax No.: **803-548-2233**

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: *David Brown* Date: **5/27/2014**
 Well Driller

If D Level Driller, provide supervising driller's name: _____

5. REMARKS:
MW-4R
 *Indicate Water Bearing Zones
 (Use a 2nd sheet if needed)

6. TYPE: Mud Rotary Lotted Bored
 Dug Air Rotary Driven
 Cable tool Other



Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708, (803) 898-4300

1. WELL OWNER INFORMATION:

Name: SCDHEC (last) (first)
Address: 2600 Bull Street
City: Columbia State: SC Zip: 29201-1708
Telephone: Work: (803) 898-4300 Home:

2. LOCATION OF WELL:

Name: Nickelpumper 233
Street Address: 3296 Point South Drive Zip: 29945-8510
City: Yemassee
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:
04878 MW-5

4. ABANDONMENT: Yes No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Concrete	0.5	0.5
Brown, Silty SAND*	3.5	4.0
Grey, CLAY*	8.0	12.0

7. PERMIT NUMBER: UMW-25363

8. USE: Residential Public Supply Process
 Irrigation Air Conditioning Emergency
 Test Well Monitor Well Replacement

9. WELL DEPTH (completed) Date Started: 4/17/2014
12.0 ft. Date Completed: 4/17/2014

10. CASING: Threaded Welded
Diam.: 2 Inch Height: Above/Below
Type: PVC Galvanized Surface: _____ ft.
 Steel Other Weight: _____ lb./ft.
2.0 in. to 2.0 ft. depth Drive Shoe? Yes No
_____ in. to _____ ft. depth

11. SCREEN: Schedule 40 PVC Diam.: 2 Inch
Type: _____ Length: 10.0 Feet
Slot/Gauge: 0.010 ft. and 12.0 ft. NOTE: MULTIPLE SCREENS
Set Between: 2.0 ft. and _____ ft. USE SECOND SHEET
Sieve Analysis: Yes (please enclose) No

12. STATIC WATER LEVEL 1.25 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface:
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: Yes (please enclose) No
Yield: _____

14. WATER QUALITY
Chemical Analysis Yes No Bacterial Analysis Yes No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) Yes No
Installed from 1.0 ft. to 12.0 ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? Yes No
 Neat Cement Bentonite/Cement Other _____
Depth: From 0.0 ft. to 0.5 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected Yes No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Model No.: _____ Not installed
Mfr. Name: _____ H.P. _____ Vols. _____ Length of drop pipe _____ ft. Capacity _____ gpm
TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: David Brown CERT. NO.: 02053
Address: (Print) Level: A B C D (circle one)
17539 Greenhill Road

Charlotte, North Carolina 28278 Fax No.: 803-548-2233
Telephone No.: 704-807-1529
20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under
my direction and this report is true to the best of my knowledge and belief.

Signed: *David Brown* Date: 5/27/2014
Well Driller

If D Level Driller, provide supervising driller's name:

6. TYPE: Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

MW-5



Water Well Record
Bureau of Water
 2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:

Name: **SCDHEC** (last) (first)
 Address: **2600 Bull Street**
 City: **Columbia** State: **SC** zip: **29201-1708**
 Telephone: **Work: (803) 898-4300** Home:
2. LOCATION OF WELL: COUNTY: **Jasper**
 Name: **Nickelpumper 233**
 Street Address: **3296 Point South Drive** Zip: **29945-8510**
 City: **Yemassee**
 Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:

04878 MW-6

4. ABANDONMENT: Yes No
 Give Details Below

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Concrete	0.5	0.5
Black, Silty SAND*	4.0	4.5
Grey, Sandy SILT*	5.0	9.5
Grey, CLAY*	2.5	12.0

7. PERMIT NUMBER: UMW-25363

8. USE:
 Residential Public Supply Process
 Irrigation Air Conditioning Emergency
 Test Well Monitor Well Replacement

9. WELL DEPTH (completed) Date Started: **4/17/2014**
12.0 ft. Date Completed: **4/17/2014**

10. CASING: Threaded Welded
 Diam: **2** Inch Height: Above/Below
 Type: PVC Galvanized Surface: _____ ft.
 Steel Other Weight: _____ lb./ft.
2.0 in. to **2.0** ft. depth Drive Shoe? Yes No
 in. to _____ ft. depth

11. SCREEN: Type: **Schedule 40 PVC** Diam: **2** Inch
 Slot/Gauge: **0.010** Length: **10.0** Feet
 Set Between: **2.0** ft. and **12.0** ft. NOTE: MULTIPLE SCREENS
 ft. and _____ ft. USE SECOND SHEET
 Sieve Analysis Yes (please enclose) No

12. STATIC WATER LEVEL: **1.89** ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface: _____ ft. after _____ hrs. Pumping _____ G.P.M.
 Pumping Test: Yes (please enclose) No
 Yield: _____

14. WATER QUALITY
 Chemical Analysis Yes No Bacterial Analysis Yes No
 Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) Yes No
 Installed from **1.0** ft. to **12.0** ft.
 Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? Yes No
 Neat Cement Bentonite Bentonite/Cement Other _____
 Depth: From **0.0** ft. to **0.5** ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
 Type _____ Well Disinfected Yes No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Model No.: _____ Not installed
 H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
 TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: **David Brown** CERT. NO.: **02053**
 Address: (Print) _____ Level: **A B C D** (circle one)
17539 Greenhill Road
Charlotte, North Carolina 28278
 Telephone No.: **704/807-1229** Fax No.: **803-548-2233**

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under
 my direction and this report is true to the best of my knowledge and belief.

Signed: *David Brown* Date: **5/27/2014**
 Well Driller

If D Level Driller, provide supervising driller's name:

5. REMARKS:

MW-6

*Indicate Water Bearing Zones
 (Use a 2nd sheet if needed)

6. TYPE: Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other



Water Well Record
Bureau of Water

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:

Name: SCDHEC (last) (first)
Address: 2600 Bull Street
City: Columbia State: SC Zip: 29201-1708
Telephone: Work: (803) 898-4300 Home:
2. LOCATION OF WELL: COUNTY: Jasper

8. USE:
 Residential Public Supply Process
 Irrigation Air Conditioning Emergency
 Test Well Monitor Well Replacement
9. WELL DEPTH (completed) Date Started: 4/16/2014
9.0 ft Date Completed: 4/16/2014

Name: Nickelpumper 233
Street Address: 3296 Point South Drive
City: Yemassee Zip: 29945-8510
Latitude: Longitude:

10. CASING: Threaded Welded
Diam.: 2 Inch Height: Above/below
Type: PVC Galvanized Surface: _____ ft
 Steel Other Weight: _____ lb/ft
2.0 in. to 2.0 ft. depth Drive Shoe? Yes No

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:
04878 MW-7

11. SCREEN:
Type: Schedule 40 PVC Diam.: 2 Inch
Slot/Gauge: 0.010 Length: 7.0 Feet
Set Between: 2.0 ft and 9.0 ft NOTE: MULTIPLE SCREENS
USE SECOND SHEET
Sieve Analysis Yes (please enclose) No

4. ABANDONMENT: Yes No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

12. STATIC WATER LEVEL: 1.20 ft. below land surface after 24 hours
13. PUMPING LEVEL Below Land Surface:
Pumping Test: Yes (please enclose) No
Yield: _____ G.P.M.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Topsoil	0.5	0.5
Tan, Silty SAND*	3.5	4.0
Grey, CLAY*	5.0	9.0

14. WATER QUALITY
Chemical Analysis Yes No Bacterial Analysis Yes No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) Yes No
Installed from 1.0 ft to 9.0 ft
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? Yes No
 Neat Cement Bentonite Bentonite/Cement Other _____
Depth: From 0.0 ft. to 0.5 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfectd Yes No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Model No.: _____ Not installed
Mfr. Name: _____ H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: David Brown
Address: (Print)
17539 Greenhill Road
Charlotte, North Carolina 28278
Telephone No.: 704-501-7529 Fax No.: 803-548-2233

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under
my direction and this report is true to the best of my knowledge and belief.
Signed: *David Brown* Date: 5/27/2014
Well Driller

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under
my direction and this report is true to the best of my knowledge and belief.
Signed: _____ Date: _____

5. REMARKS:
MW-7

6. TYPE: Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other

6. TYPE: Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other

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 Dug Air Rotary Driven
 Cable tool Other

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 Dug Air Rotary Driven
 Cable tool Other

6. TYPE: Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other



Water Well Record
Bureau of Water
 2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:

Name: **SCDHEC** (last) (first)
 Address: **2600 Bull Street**
 City: **Columbia** State: **SC** Zip: **29201-1708**
 Telephone: **Work: (803) 898-4300** Home:

2. LOCATION OF WELL: COUNTY: **Jasper**

Name: **Nickelpumper 233**
 Street Address: **3296 Point South Drive** Zip: **29945-8510**
 City: **Yemassee**
 Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: **MW-8**

4. ABANDONMENT: Yes No

Give Details Below
 Grouted Depth: from _____ ft. to _____ ft.
 Formation Description

Formation Description	Thickness of Stratum	Depth to Bottom of Stratum
Topsoil	0.5	0.5
Tan, Silty SAND*	4.0	4.5
Grey, CLAY*	5.0	9.5

7. PERMIT NUMBER: UMW-25363

8. USE:

- Residential Public Supply Process
- Irrigation Air Conditioning Emergency
- Test Well Monitor Well Replacement

9. WELL DEPTH (completed): Date Started: **4/16/2014** Date Completed: **4/16/2014**

10. CASING: Threaded Welded
 Diam.: **2** Inch Height: Above/Below _____ ft.
 Type: PVC Galvanized Surface: _____ ft.
 Steel Other Weight: _____ lb./ft.
2.0 in. to **2.0** ft. depth Drive Shoe? Yes No
 in. to _____ ft. depth

11. SCREEN: Type: **Schedule 40 PVC** Diam.: **2** Inch
 Slot/Gauge: **0.010** Length: **7.5** Feet
 Set Between: **2.0** ft. and **9.5** ft. NOTE: MULTIPLE SCREENS
 USE SECOND SHEET

12. STATIC WATER LEVEL: **0.54** ft. below land surface after 24 hours

13. PUMPING LEVEL BELOW Land Surface:

Pumping Test: Yes (please enclose) No
 Yield: _____ G.P.M.
 _____ ft. after _____ hrs. Pumping

14. WATER QUALITY

Chemical Analysis Yes No Bacterial Analysis Yes No
 Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) Yes No

Installed from **1.0** ft. to **12.0** ft.
 Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? Yes No

Neat Cement Bentonite Bentonite/Cement Other _____
 Depth: From **0.0** ft. to **0.5** ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction

Type _____ Well Disinfected Yes No Amount: _____

18. PUMP: Date installed: _____ Model No.: _____ Not installed

H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
 TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: **David Brown** CERT. NO.: **02053**

Address: (Print) _____ Level: A B C D (circle one)
17539 Greenhill Road
Charlotte, North Carolina 28278
 Telephone No.: **704-807-7229** Fax No.: **803-548-2233**

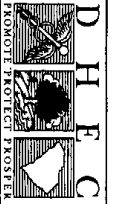
20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: *David Brown* Date: **5/27/2014**
 Well Driller

If D Level Driller, provide supervising driller's name:

5. REMARKS:
 MW-8
 (Use a 2nd sheet if needed)

6. TYPE: Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other



Water Well Record
Bureau of Water
 2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:

Name: **SCDHEC** (last) (first)
 Address: **2600 Bull Street**
 City: **Columbia** State: **SC** Zip: **29201-1708**
 Telephone: **Work: (803) 898-4300** Home:

2. LOCATION OF WELL: COUNTY: **Jasper**

Name: **Nickelpumper 233**
 Street Address: **3296 Point South Drive** Zip: **29945-8510**
 City: **Yemassee**
 Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER: **DW-1**

4. ABANDONMENT: Yes No
 Give Details Below

Grouted Depth: from _____ ft. to _____ ft.

Formation Description	Thickness of Stratum	Depth to Bottom of Stratum
Concrete	0.5	0.5
Black, Silty SAND*	4.0	4.5
Grey, Sandy SILT*	5.0	9.5
Grey, CLAY*	39.0	48.5

7. PERMIT NUMBER: UMW-25363

- 8. USE:**
- Residential Public Supply Process
 - Irrigation Air Conditioning Emergency
 - Test Well Monitor Well Replacement

9. WELL DEPTH (completed) Date Started: **4/16/2014**
 Date Completed: **4/17/2014**

10. CASING: Threaded Welded
 Diam.: _____ ft. Height: Above/Below _____ ft.
 Type: PVC Galvanized Steel Other
 Weight: _____ lb./ft.
 2.0 _____ in. to 48.5 _____ ft. depth
 6.0 _____ in. to 40.0 _____ ft. depth
 Drive Shoe? Yes No

11. SCREEN: Type: **Schedule 40 PVC** Diam.: **2 Inch**
 Slot/Gauge: **0.010** Length: **5.0 Feet**
 Set Between: **43.5** ft. and **48.5** ft. NOTE: MULTIPLE SCREENS
 _____ ft. and _____ ft. USE SECOND SHEET
 Sieve Analysis Yes (please enclose) No

12. STATIC WATER LEVEL: **3.90** ft. below land surface after 24 hours

13. PUMPING LEVEL: Below Land Surface _____ ft. after _____ hrs. Pumping _____ G.P.M.
 Pumping Test: Yes (please enclose) No
 Yield: _____

14. WATER QUALITY Chemical Analysis Yes No Bacterial Analysis Yes No
 Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) Yes No
 Installed from **41.5** ft. to **48.5** ft.
 Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? Yes No
 Neat Cement Bentonite Bentonite/Cement Other _____
 Depth: From **0.0** ft. to **40.0** ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
 Type _____
 Well Disinfected Yes No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Model No.: _____ Not installed
 Mfr. Name: _____
 H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
 TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: **David Brown** CERT. NO.: **02053**
 Address: (Print) _____ Level: **A** **B** **C** **D** (circle one)
17539 Greenhill Road
Charlotte, North Carolina 28278
 Telephone No.: **704-807-2222** Fax No.: **803-548-2233**

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under
 my direction and this report is true to the best of my knowledge and belief.

Signed: *David Brown* Date: **5/27/2014**
 Well Driller

If D Level Driller, provide supervising driller's name:

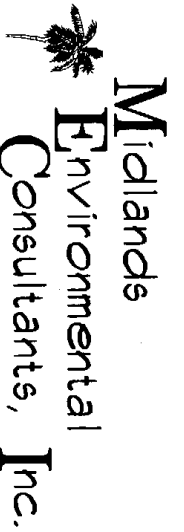
- 6. TYPE:** Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other

*Indicate Water Bearing Zones
 (Use a 2nd sheet if needed)

5. REMARKS:
DW-1

APPENDIX F:
AQUIFER EVALUATION SUMMARY FORMS, DATA, GRAPHS, EQUATIONS
(Not Applicable)

**APPENDIX G:
DISPOSAL MANIFEST**



May 29, 2014

Re: Treatment of Purge Water
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 14-4714.

To Whom it May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/hail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

All purge waters were treated on-site using an up-flow treatment drum loaded with 30 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

50.0 Gallons were treated on April 17, 2014 during the development of the newly installed monitoring wells at the referenced site.

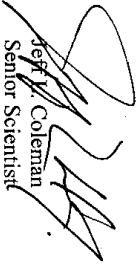
25.0 Gallons were treated on April 24, 2014 during the comprehensive groundwater sampling event conducted at the referenced site.

A total 75.0 gallons was treated during the subject assessment.

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.



Jeff Coleman
Senior Scientist



Richland County LF
 1047 Highway Church Road
 Egin, SC 29045
 Ph: (803) 788-3054

Original
 Ticket# 1304437

Customer Name MIDLANDSENVIRON MIDLANDS ENVI Carrier MIDLANDSENVIRON MIDLANDS ENVIRONMENT Volume

Ticket Date 04/18/2014 Ticket# 3975

Payment Type Credit Account Container

Manual Ticket# Driver

Hauling Ticket# Billing # 00000469

Route State Waste Code Gen EPA ID

Manifest

Destination

PO

Profile V82718 (SOIL FROM UST ASSESSMENT)

Generator 125-MIDLANDSENVIRONMENTAL MIDLANDS ENVIRONMENTAL

Time	Scale	ScaleMaster	Gross
In 04/18/2014 15:39:58	Scales1	Dwayne	15200 lb
Out 04/18/2014 15:54:03	Scales2	Dwayne	9220 lb
			5980 lb
			2.99 Tons

Comments

Product	LD%	Qty	UOM	Rate	Fee	Amount	Origin
1 SOIL-Cont. Soil - 100		2.99	Tons				40-RICHLAN
2 FUEL-Fuel Surcharg 100			%				40-RICHLAN
3 EVF-E-Standard Env 100			%				40-RICHLAN
4 RCR-P-Regulatory C 100			%				40-RICHLAN

Total Fees
 Total Ticket

SIGNATURE


Patrick Blain

Nickel pumpers 233-7587/Fmr Builders = 2592

433WVA



SPECIAL WASTE MANIFEST

WASTE ID NUMBER VA2718	<p>Richland Landfill 1047 Highway Church Road Elgin, SC 29045</p>  <p>Special Waste Phone: 803-744-3345 Fax: 866-904-7194</p>
EXPIRATION DATE December 11, 2016	
Prepared by: <u>Sandra Reeves</u>	
GENERATOR OF WASTE: MIDLANDS ENV. CONSULTANTS, INC. - VARIOUS	
CUSTOMER: MIDLANDS ENV. CONSULTANTS, INC.	ACCOUNT NUMBER: 820-469
LOCATION OF WASTE: CITY: COUNTY:	
PHONE NUMBER: 803-808-2043	CONTACT: LYNN SHANE
FAX NUMBER: 803-808-2048	
GENERATOR'S SIGNATURE	DATE:
TRANSPORTER OF WASTE: <u>Midlands Environmental Consultants</u>	
DATE: <u>4/18/14</u>	TRUCK NUMBER: <u>3475</u>
DRIVER'S SIGNATURE <u>Patricia Spiller</u>	
**** TO BE COMPLETED BY RICHLAND LANDFILL ****	
DISPOSAL SITE: RICHLAND LANDFILL ELGIN, SC	
DESCRIPTION OF WASTE: SOIL FROM UST ASSESSMENT Waste Class: SOIL	
TICKET NUMBER: <u>1304437</u>	TONNAGE: <u>2.99</u>
RECEIVED BY: <u>DCC</u>	

*Nickel Pump 233 = 75% = 2.24 tons
Trn. Bucklers Gulp = 25% = 0.75 tons*

APPENDIX H:
LOCAL ZONING REGULATIONS
(Not Applicable)

APPENDIX I:
FATE AND TRANSPORT MODELING
(Not Applicable)

**APPENDIX J:
ACCESS AGREEMENTS**

UST

FEB 28 2014

RICHARD CARLSON
RIGHT OF ENTRY - ~~DISPERMIN~~ PROGRAM # 04878

IF YOU ARE THE PROPERTY OWNER OR ARE THE AUTHORIZED REPRESENTATIVE FOR THAT PERSON, BUT DID NOT OWN THE FORMER OR EXISTING UNDERGROUND STORAGE TANKS AT THE TIME THE RELEASE WAS REPORTED, PLEASE COMPLETE THIS FORM.

I, Richard Carlson, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility: Verant Pro. Phone # _____

Street Address of Facility: 3296 Point South Dr. Verant Pro.

Town, City, District, Suburb: Yemassee South Carolina

Name of nearest intersecting street, road, highway, alley: TAKMAR# 088-48-00-008

Is this facility within the city limits? (yes or no) I don't know

Is this facility serviced by a public water or sewer utility? (yes or no) DO NOT KNOW, if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) NO, if yes, please provide the name of the former underground storage tank excavation DO NOT KNOW, phone number _____

Is the property currently leased or rented to someone? (yes or no) NO, if yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the monitoring wells, they should be moved before SCDHEC's contractor arrives at the site.

NAME of property owner (Please Print): Richard Carlson

Phone Number (home) _____ (work) (252) 222-3007

Current Mailing Address: 1928 Myrtle St. Los Angeles CA 90031

Signature of Property Owner: [Signature]

Witness: [Signature]

Date: FEB. 22, 2014 Day _____ Month _____ Year _____

UST Division/ SMB

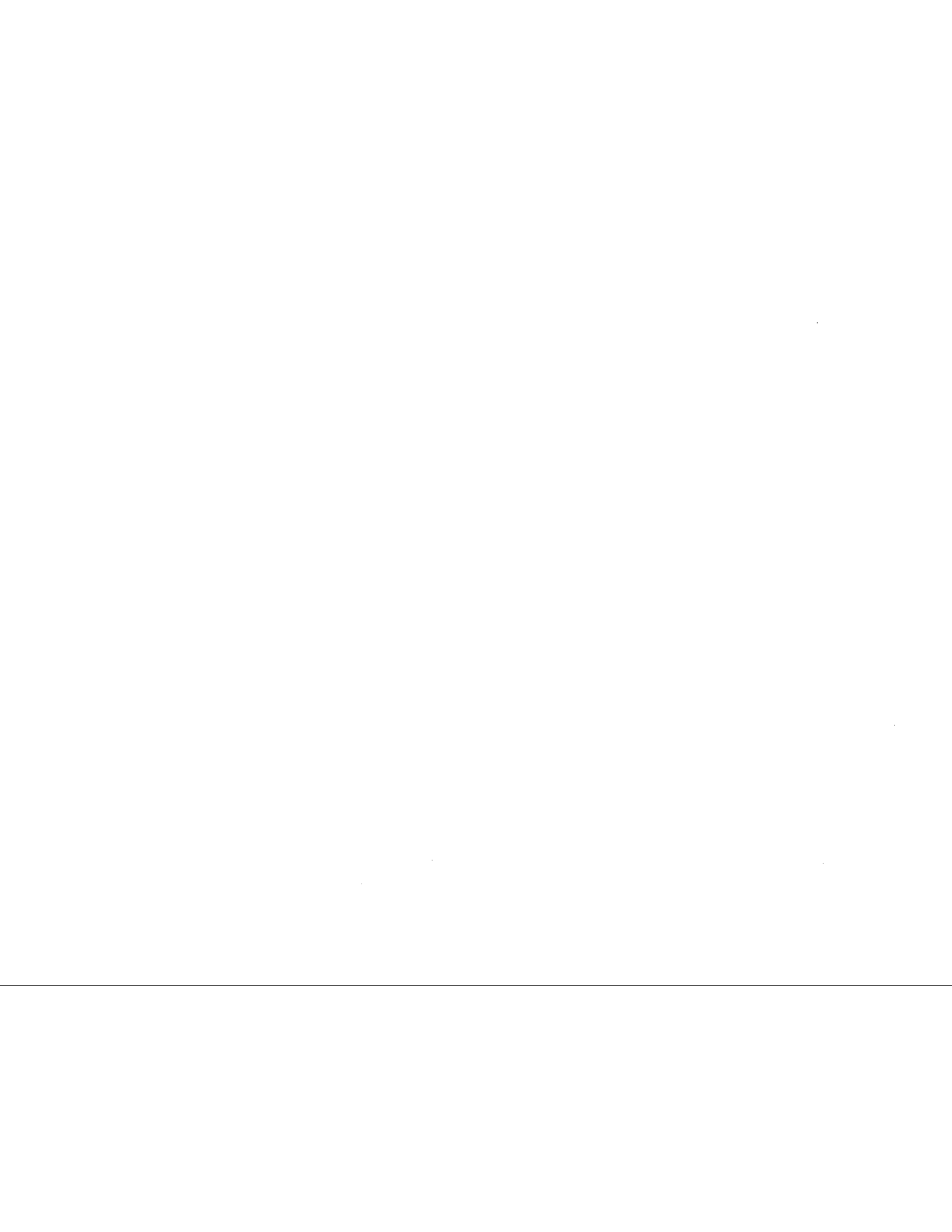


**APPENDIX K:
DATA VERIFICATION CHECKLIST**

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Are Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?	X		
3	Is name, address, & phone number of current property owner provided?	X		
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?	X		
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?	X		
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?	X		
11	Has the site-specific geology and hydrogeology been described?	X		
12	Has the primary soil type been described?	X		
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?	X		
17	Has the method of well development been detailed?	X		
18	Has justification been provided for the locations of the monitoring wells?	X		
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?	X		
20	Has the groundwater sampling methodology been detailed?	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? (Table 2 & Figure 5)	X		
22	Has the purging methodology been detailed?	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? (Appendix B)	X		
24	If free-product is present, has the thickness been provided?			X
25	Does the report include a brief discussion of the assessment done and the results?	X		
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?	X		
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)	X		
34	Has the current and historical laboratory data been provided in tabular format? (Tables 3 & 3A)	X		
35	Have the aquifer characteristics been provided and summarized on the appropriate form? (Appendix F)			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figures 3, 4)	X		
40	Has the site potentiometric map been provided? (Figure 5)	X		
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)	X		
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)	X		
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? (Appendix G)	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)	X		
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided? (Appendix K)	X		











04878

Catherine E. Heigel, Director

Promoting and protecting the health of the public and the environment

BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071

OCT 23 2015



Re: **Site Specific Work Plan Request**
 Groundwater Sampling Contract
 Solicitation # IFB-5400007403, PO#4600445246

Dear Mr. Shane:

In accordance with bid solicitation # IFB-5400007403 and the UST Management Division Quality Assurance Program Plan (QAPP), Revision 2.0 it is requested that you submit a Site Specific Work Plan for each site listed below. The plans must be submitted **within 15 business days** to my attention. The project manager for each site will issue a notice to proceed once the plan has been reviewed and approved.

UST Permit	Site Name	County	# samples and requested analysis*	Project Manager
04783	Kings Texaco	Greenwood	24-BTEXMN, DCA, Oxygenates and EDB	J. Bryant
04878	Nickelpumper 233	Jasper	12-BTEXMN, DCA, Oxygenates and EDB	J. Bryant
05289	Burnettes Service Station	Jasper	34-BTEXMN, DCA, Oxygenates, & EDB	J. Bryant
15438	Abandoned Service Station	Colleton	39-BTEXMN, DCA, Oxygenates & EDB	J. Bryant
12613	Lee Mart	Bamberg	41-BTEXMN, DCA, Oxygenates, Total Lead, PAH, Nitrate, Sulfate & EDB	J. Bryant
15765	River City Land Company	Anderson	11-BTEXMN, DCA, Oxygenates & EDB	R. Miner
19522	King Oil	Anderson	7-BTEXMN, DCA, Oxygenates & EDB	R. Miner
11702	Colonel Creek Landing	Fairfield	7-BTEXMN, DCA, & Oxygenates	R. Miner
15670	Colleton County Maintenance Shop	Colleton	10-BTEXMN, DCA, Oxygenates & EDB	J. Bryant
14094	Little Howies	Bamberg	12-BTEXMN, DCA, Oxygenates & EDB	J. Bryant
18787	Former Blitchington Grocery	Orangeburg	8-BTEXMN, DCA, Oxygenates & EDB	R. Miner
00414	Clinkscales	Anderson	7-BTEXMN, DCA, Oxygenates & EDB	R. Miner

19002	Former McCoy Oil	Fairfield	10-BTEXMN, DCA, Oxygenates & EDB	R. Miner
00467	Stop A Minute 1	Anderson	8-BTEXMN, DCA, Oxygenates & EDB	R. Miner
19328	Phillips Rental Property	Orangeburg	9-BTEXMN, DCA, Oxygenates & EDB	R. Miner
07982	Former Junior Food Mart	Saluda	7-BTEXMN, DCA, Oxygenates	R. Miner
17195	H H Transfer Storage	Orangeburg	5-BTEXMN, DCA, Oxygenates & EDB	R. Miner
09391	Bob's Superette	York	21-BTEXMN, DCA, Oxygenates & EDB	A. Looper
12199	51 Express	Georgetown	10-BTEXMN, DCA, Oxygenates & EDB	A. Looper

*The number of samples do not include trip blanks, field blanks, or field duplicate

Please contact me with the sampling schedule before commencing work at these facilities. In addition, a weekly update for each site is required to be submitted via e-mail to the site's project manager and myself. If you have any questions or need further assistance, please contact me at (803) 898-0606 or bryantjc@dhec.sc.gov.

Sincerely,



John C. Bryant, Hydrogeologist
 Corrective Action Section
 UST Management Division
 Bureau of Land & Waste Management

enc: Site Information Packages
 cc: Technical Files



UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 2920
Telephone: 803-898-2544

MEMORANDUM

TO: Midlands Environmental Consultants, Inc

FROM: John Bryant

RE: Site Specific Work Plan Request

Facility Name: Nickelpumper 233

Permit Number: 04878

County: Jasper

Work To Be Completed: Sample all wells, surface waters and water supply wells (within 1000 foot). All wells are required to be purged.

Total Number of Samples: 12

Analysis Being Requested: BTEXNM, 1,2 DCA, 8-Oxys, Ethanol and EDB

**TABLE 2
 POTENTIOMETRIC DATA
 APRIL 24, 2014 SAMPLING EVENT
 NICKELPUMPER 233
 YEMASSEE, SOUTH CAROLINA
 MECI PROJECT NUMBER 13-4714
 SCDHEC SITE ID NUMBER 04878**

Well Number	Sample Date	Screened Interval	Depth to Water (feet)	Well-head Elevation	Groundwater Elevation
MW-1(04878)	2/28/2012	2.5-12.5	3.19	100.56	97.37
	4/24/2014	---	1.37	100.56	99.19
MW-2(04878)	2/28/2014	2.0-12.0	0.60	100.57	99.97
	4/24/2014	---	1.02	100.57	98.55
MW-3(04878)	2/28/2014	2.0-12.0	2.26	100.06	97.80
	4/24/2014	---	NL	100.06	NL
MW-4(04878)	2/28/2014	2.0-12.0	NL	100.11	NL
MW-4R(04878)	4/24/2014	2.0-12.0	2.41	99.77	97.36
MW-5(04878)	4/24/2014	2.0-12.0	1.25	100.51	99.26
MW-6(04878)	4/24/2014	2.0-12.0	1.89	100.52	98.63
MW-7(04878)	4/24/2014	2.0-9.0	1.20	100.42	99.22
MW-8(04878)	4/24/2014	2.0-9.5	0.54	99.71	99.17
DW-1(04878)	4/24/2014	43.5-48.5	3.90	100.87	96.97
MW-1(15151)	4/24/2014	2.0-12.0	NM	100.04	NM
MW-2(15151)	4/24/2014	2.0-12.0	NM	98.65	NM
MW-3R(15151)	4/24/2014	2.0-12.0	NM	98.30	NM
MW-4(15151)	4/24/2014	2.0-12.0	NM	98.76	NM
MW-5(15151)	4/24/2014	2.0-12.0	NM	98.59	NM
MW-6(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MW-7(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MW-8(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MW-9(15151)	4/24/2014	2.0-12.0	NM	99.50	NM
MW-10(15151)	4/24/2014	2.0-12.0	NM	99.82	NM
MW-11(15151)	4/24/2014	2.0-12.0	NM	99.83	NM
MW-12(15151)	4/24/2014	2.0-12.0	NM	99.93	NM
MW-13(15151)	4/24/2014	2.0-12.0	NM	99.94	NM
MW-14(15151)	4/24/2014	2.0-12.0	NM	99.92	NM
MW-15(15151)	4/24/2014	2.0-12.0	NM	99.88	NM
MW-16(15151)	4/24/2014	2.0-12.0	NM	100.05	NM
MW-17(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MW-18(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MW-19(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MW-20(15151)	4/24/2014	3.0-13.0	NM	98.95	NM
MW-21(15151)	4/24/2014	3.0-13.0	NM	99.07	NM
MW-22(15151)	4/24/2014	3.0-13.0	NM	99.37	NM
DW-2(15151)	4/24/2014	50.0-55.0	NM	99.72	NM
RW-1(15151)	4/24/2014	1.8-11.8	NL	NL	NL
RW-2(15151)	4/24/2014	2.0-12.0	NM	98.42	NM

Notes:

1 Elevations based on assumed site datum.

2 Groundwater depths were measured from the top of the PVC riser pipe.

3 Groundwater levels measured on 4/24/2014.

4 NL = Not Located

5 NM = Not Measured

**TABLE 3
GROUNDWATER COC CONCENTRATION DATA
APRIL 24, 2014 SAMPLING EVENT
NICKELPUMPER 233
YEMASSEE, SOUTH CAROLINA
MECI PROJECT NUMBER 14-4774
SCDHEC ID NUMBER 04878**

Well Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	MTBE (ug/l)	1,2-DCA (ug/l)	EDB (ug/l)
MW-1(04878)	2/28/12	2,500	2,900	720	2,300	8,420	190	1,300	69	<0.020
	4/24/14	4,300	500	1,500	6,200	12,500	530	1,500	<500	<0.020
MW-2(04878)	2/28/12	550	3,300	700	3,300	7,850	250	190	15J	<0.020
	4/24/14	1,400	1,000	2,000	5,700	10,100	620	220J	<250	<0.019
MW-3(04878)	2/28/12	0.39J	<5.0	3.2J	2.8J	6.39J	19	<5.0	<5.0	<0.020
	4/24/14	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-4R(04878)	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	10	9.0	<5.0	<0.020
MW-5(04878)	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.021
MW-6(04878)	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-7(04878)	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.024
MW-8(04878)	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.021
DW-1(04878)	4/24/14	<25	<25	<25	<25	BDL	<25	<25	<25	<0.026
WSW-1(04878)	2/28/12	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/24/14	NS	NS	NS	NS	NS	NS	NS	NS	NS
CK-1(04878)	4/24/14	<1.0	<1.0	<1.0	<1.0	BDL	<1.0	<1.0	<1.0	<0.019
CK-2(04878)	4/24/14	<1.0	<1.0	<1.0	<1.0	BDL	<1.0	<1.0	<1.0	<0.019
MW-1 Dup.(04878)	2/28/12	280	330	83	280	983	22	140	8.1	<0.020
MW-2 Dup.(04878)	4/24/14	1,400	1,000	2,000	5,700	10,100	630	210J	<250	<0.020
Field Blank(04878)	2/28/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
Trip Blank(04878)	2/28/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	NT
	4/24/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	NT

Notes

- BDL = Below Practical Quantitative Limits
- ug/l = micrograms per liter
- MTBE = Methyl-Tertiary-Butyl Ether
- 1,2-DCA = 1,2-Dichloroethane
- EDB = 1,2-Dibromoethane

- NL = Not Located
- NT = Not Tested
- NS = Not Sampled (WSW-1 Inactive)
- "J" Values included in Total BTEX Calculations.
- "B" Values = Detected in Method Blank

- "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL)

**TABLE 3A
GROUNDWATER COC CONCENTRATION DATA (OXYGENATES)
APRIL 24, 2014 SAMPLING EVENT
NICKELPUMPER 233
YEMASSEE, SOUTH CAROLINA
MECI PROJECT NUMBER 14-4714
SCDHEC SITE ID NUMBER 04878**

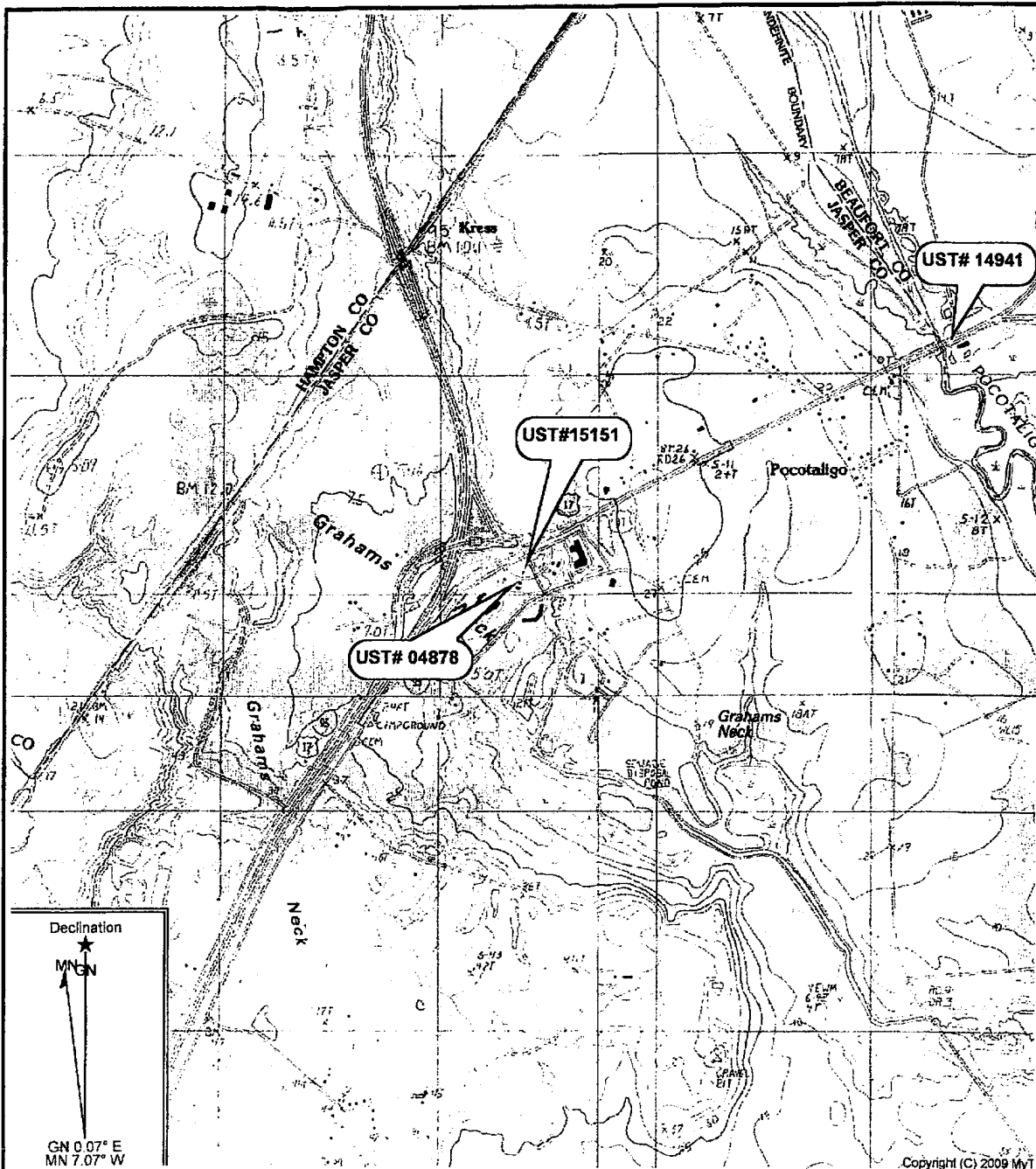
Well Number	Sample Date	TAA (ug/l)	TAME (ug/l)	TBF (ug/l)	DPE (ug/l)	3,3-Dimethyl-1-butanol (ug/l)	Ethanol (ug/l)	ETBE (ug/l)	TBA (ug/l)
MW-1(04878)	02/28/12	7,200	<50	<500	<50	<500	<5,000	<500	11,000
	04/24/14	8,800J	<1,000	<10,000	<1,000	<10,000	<100,000	<10,000	6,300J
MW-2(04878)	02/28/12	280J	<100	<1,000	<100	<1,000	<10,000	<1,000	<1,000
	04/24/14	<5,000	<500	<5,000	<500	<5,000	<50,000	<5,000	<5,000
MW-3(04878)	02/28/12	<100	<10	<100	<10	<100	<1,000	<100	11J
	04/24/14	NL	NL	NL	NL	NL	NL	NL	NL
MW-4R(04878)	04/24/14	750	<10	<100	<10	<100	<1,000	<100	79J
MW-5(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-6(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-7(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-8(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
DW-1(04878)	04/24/14	<500	<50	<500	<50	<500	<5,000	<500	<500
WSW-1(04878)	02/28/12	NS	NS	NS	NS	NS	NS	NS	NS
	04/24/14	NS	NS	NS	NS	NS	NS	NS	NS
CK-1(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
CK-2(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-1 Dup. (04878)	02/28/12	1,200	<10	<100	<10	<100	<1,000	<100	1,200
MW-2 Dup.(04878)	04/24/14	<5,000	<500	<5,000	<500	<5,000	<50,000	<5,000	<5,000
Field Blank(04878)	02/28/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
Trip Blank(04878)	02/28/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100

Notes:

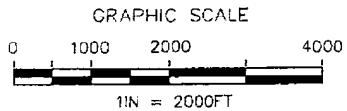
- 1 ug/l = micrograms per liter
- 2 DPE = Diisopropyl Ether
3. ETBE = Ethyl ter-butyl Ether
- 4 TAA = tert-Amyl Alcohol

5. TAME = tert-Amyl Methyl Ether
6. TBA = ter-Butyl Alcohol
7. TBF = tert-Butyl Formate
8. NL = Not Located

9. NS = Not Sampled (WSW-1 inactive)
10. "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL).



Declination
 ★
 MN
 GN
 GN 0.07° E
 MN 7.07° W

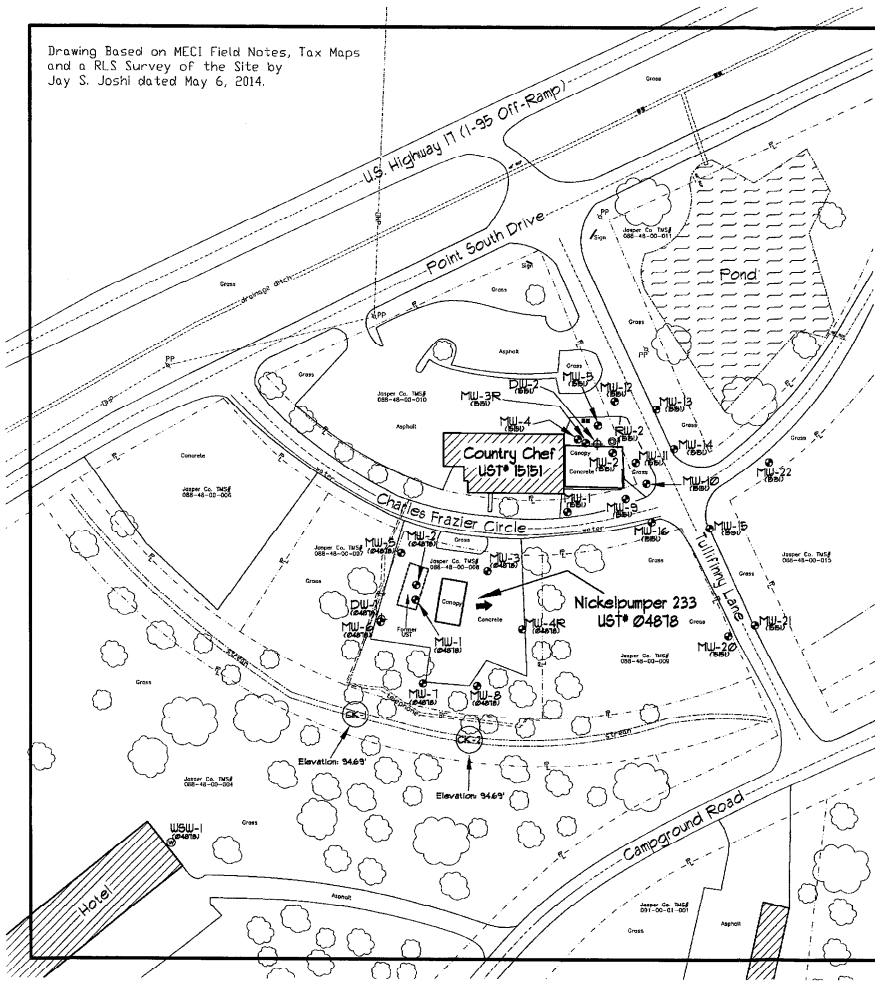


Reference: McPhersonville, South Carolina
 USGS 7.5 Min. Quad
 Contour Interval - 1.50 Meters

Midlands Environmental Consultants, Inc.	Site Location
	Nickelpumper 233 3296 Point South Drive, Yemassee, SC SCDHEC Site ID# 04878
Figure 1	MECI 14-4714

Copyright (C) 2009 MyT

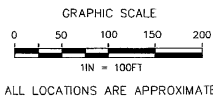
Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Joy S. Joshi dated May 6, 2014.



Explanation:

- ⊙ Location of Water Table Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-Inch Recovery Well
- ⊙ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

- BE/OP--- Buried Electric/Overhead Powerline
- P--- Property Line
- W--- Buried Water Line
- T--- Under Ground Telephone
- D--- Drainage Ditch
- S--- Stream/Pond Edge

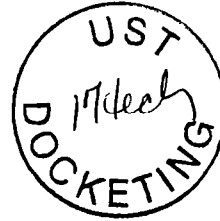


Site Base Map	
Nickelpumper 233 3296 Point South Drive Tennessee, South Carolina SCDHEC Site ID 04878	
Midlands Environmental Consultants, Inc.	JOB NO. 14-0714 DATE May 26, 2014 FIGURE 2

 **Midlands
Environmental
Consultants, Inc.**

November 9, 2015

Mr. John Bryant, Hydrogeologist
Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Subject: Site-Specific Work Plan
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 15-5343
Certified Site Rehabilitation Contractor UCC-0009

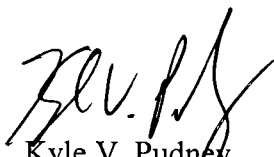
Dear Mr. Bryant,


Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Site-Specific Work Plan for the referenced site.

On November 4, 2015 MECI personnel performed a site visit to the subject site to evaluate site conditions, locate monitoring wells and identify potential problems for future sampling activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.


Kyle V. Pudney
Project Biologist


Jeff L. Coleman
Senior Scientist



**Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division**

To: Mr. John Bryant (SCDHEC Project Manager)
 From: Mr. Jeff Coleman (Contractor Project Manager)
 Contractor: Midlands Environmental Consultants, Inc. UST Contractor Certification Number: 009

Facility Name: Nickelpumper 233 UST Permit #: 04878
 Facility Address: 3296 Point South Drive, Yemassee, SC 29945
 Responsible Party: Richard Carlson Phone: 951-659-0063
 RP Address: 1920 North Main Street, Los Angeles, CA 90031
 Property Owner (if different): SAA
 Property Owner Address: SAA
 Current Use of Property: Abandoned Building

Scope of Work (Please check all that apply)

- IGWA Tier II Groundwater Sampling GAC
 Tier I Monitoring Well Installation Other _____

Analyses (Please check all that apply)

Groundwater/Surface Water:

- BTEXNMDCA (8260B) Lead BOD Methane
 Oxygenates (8260B) 8 RCRA Metals Nitrate Ethanol
 EDB (8011) TPH Sulfate Dissolved Iron
 PAH (8270D) pH Other _____

Soil:

- BTEXN 8 RCRA Metals TPH-DRO (3550B/8015B) Grain Size
 PAH Oil & Grease (9071) TPH-GRO (5030B/8015B) TOC

Air:

- BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected.)

_____ Soil 1 Water Supply Wells _____ Air 1 Field Blank
9 Monitoring Wells 3 Surface Water 1 Duplicate 1 Trip Blank

Field Screening Methodology

Estimate number and total completed depth for each point, and include their proposed locations on the attached map.

of shallow points proposed: _____ Estimated Footage: _____ feet per point
 # of deep points proposed: _____ Estimated Footage: _____ feet per point

Field Screening Methodology: _____

Permanent Monitoring Wells

Estimate number and total completed depth for each well, and include their proposed locations on the attached map.

of shallow wells: _____ Estimated Footage: _____ feet per point
 # of deep wells: _____ Estimated Footage: _____ feet per point
 # of recovery wells: _____ Estimated Footage: _____ feet per point

Monitoring Well development method (consistent with SOP): _____

Comments, if warranted:

UST Permit #: 04878 Facility Name: Nickelpumper 233

Implementation Schedule (Number of calendar days from approval)

Field Work Start-Up: 11/23/2015 Field Work Completion: 12/23/2015
Report Submittal: 01/23/16 # of Copies Provided to Property Owners: _____

Aquifer Characterization

Pump Test: Slug Test: (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal

Soil: _____ Tons Purge Water: 100.0 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

Additional Details For This Scope of Work

For example, list wells to be sampled, wells to be abandoned/repared, well pads/bolts/caps to replace, details of AFVR event, etc.

-During the November 4, 2015 site visit, monitoring wells MW-2 and MW-3 were not located. The area where the wells are located was flooded during the time of the site visit. If any of these wells are located during the sampling event, they will be sampled accordingly.

-All other wells were located and found to be in good condition.

-Creek samples CK-1 and CK-2 will be sampled along with the Pond. Water supply well WSW-1 has been disconnected.

-Per SCDHEC instructions, all wells will be purged prior to sample collection.

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)

Yes Laboratory as indicated in ACQAP? (Yes/No) If no, indicate laboratory information below.

Name of Laboratory: _____

SCDHEC Certification Number: _____

Name of Laboratory Director: _____

N/A Well Driller as indicated in ACQAO? (Yes/No) If no, indicate driller information below.

Name of Well Driller: _____

SCLLR Certification Number: _____

Yes Other variations from ACQAP. Please describe below.

Attachments

1. Attach a copy of the relevant portion of the USGS topographic map showing the site location.
2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following:

North Arrow	Proposed monitoring well locations
Location of property lines	Legend with facility name and address, UST permit number, and bar scale
Location of buildings	Streets or highways (indicate names and numbers)
Previous soil sampling locations	Location of all present and former ASTs and USTs
Previous monitoring well locations	Location of all potential receptors
Proposed soil boring locations	
3. Assessment Component Cost Agreement, SCDHEC Form D-3664



**ASSESSMENT COMPONENT INVOICE
SOUTH CAROLINA**

Department of Health and Environmental Control
Underground Storage Tank Management Division
State Underground Petroleum Environmental Response Bank Account
CONTRACT PO NUMBER 4600328425

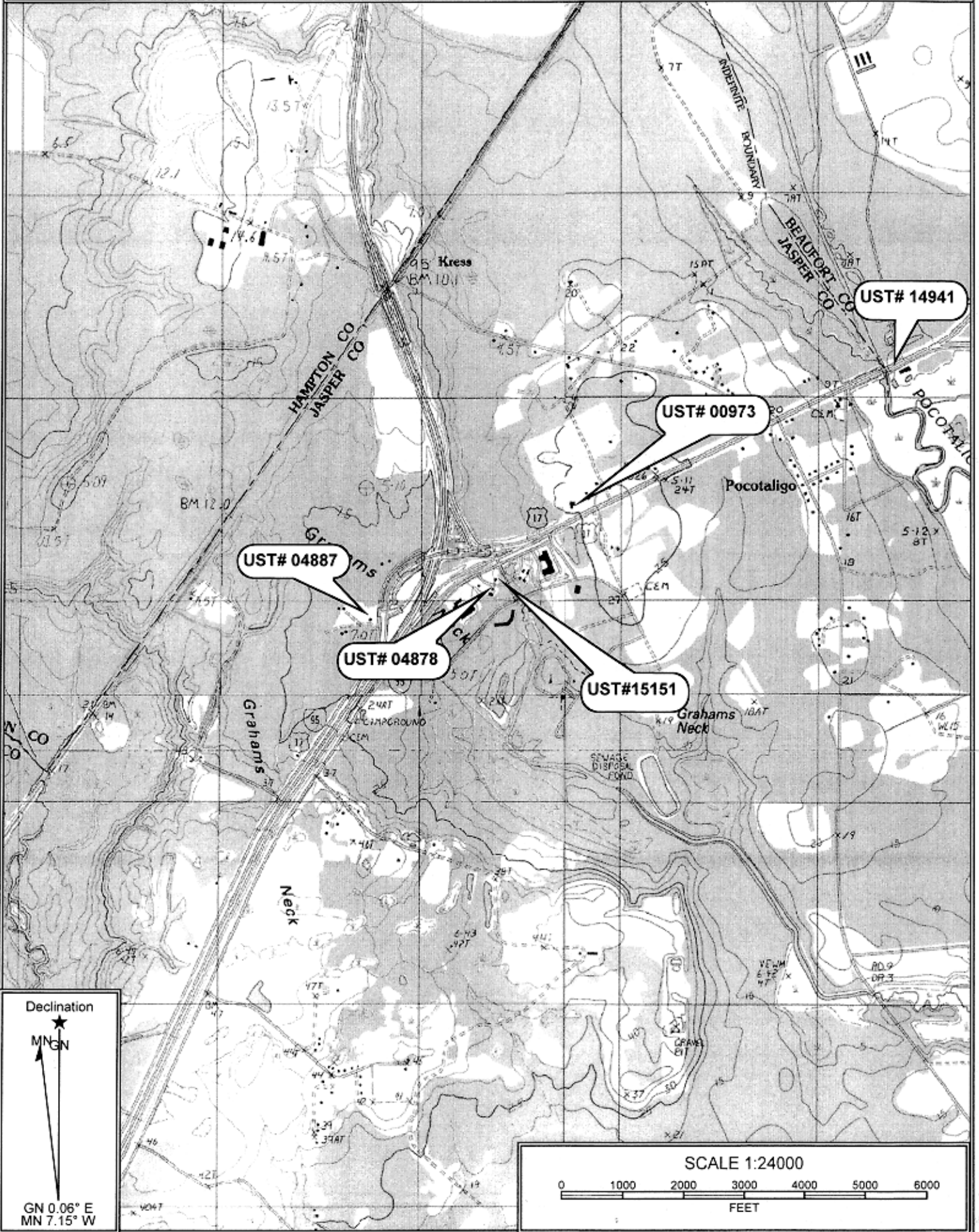
Facility Name: Nickelpumper 233

UST Permit #: 04878

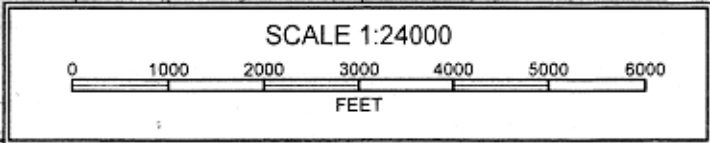
Cost Agreement #:

Proposal

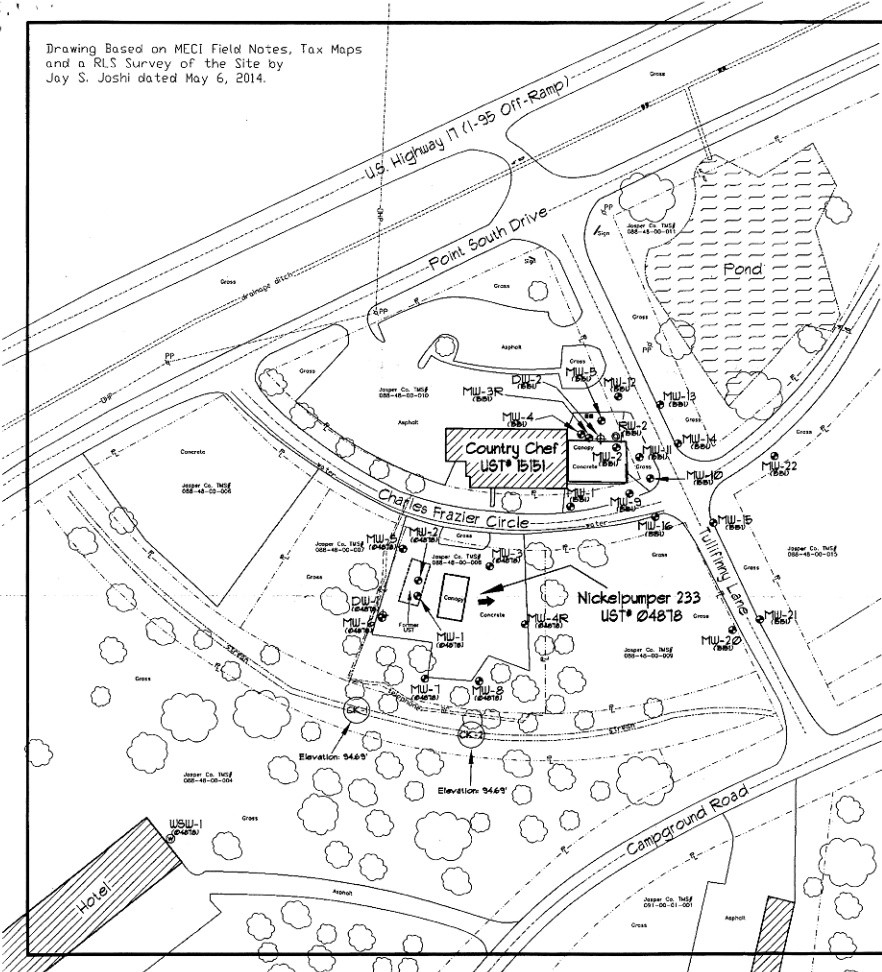
ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. Plan*				
A1. Site Specific Work Plan	1	each	\$0.00	\$0.00
C1. QAPP Appendix B		each	\$0.00	\$0.00
2. A1. Receptor Survey		each	\$0.00	\$0.00
4. Mob/Demob				
B1. Personnel	1	each	\$350.00	\$350.00
10. Groundwater Sample Collection / Gauge Depth to Water or Product (Each)				
A1. Groundwater Purge	9	per well	\$16.00	\$144.00
B1. Air or Vapors		samples	\$0.00	\$0.00
C1. Water Supply	4	samples	\$5.00	\$20.00
D1. Groundwater No Purge		per well	\$8.00	\$0.00
E1. Gauge Well only		per well	\$0.00	\$0.00
F1. Sample Below Product		per well	\$0.00	\$0.00
G1. Pasive Diffusion Bag		each	\$20.00	\$0.00
H1. Field Blank	1	each	\$10.00	\$10.00
17. Disposal* (gallons or tons)				
AA. Disposal/Water	100	gallons	\$1.00	\$100.00
BB. Free Product		gallons	\$0.00	\$0.00
Note: Rate includes costs or rental of suitable container(s)				
23. D. Site Reconnaissance		each	\$0.00	\$0.00
18. Miscellaneous (attach receipts)				
GW Contour Map		each	\$25.00	\$0.00
Isopleth Map		each	\$25.00	\$0.00
High-Strength Well Pad Replacement		each	\$75.00	\$0.00
Trip Blank	1	each	\$10.00	\$10.00
Data Table		each	\$25.00	\$0.00
25. Well Repair				
B1. Repair 2x2 MW Pad		each	\$75.00	\$0.00
C1. Repair 4x4 MW Pad		each	\$75.00	\$0.00
D1. Replace Well Vault		each	\$75.00	\$0.00
E. Replace well cover		each	\$25.00	\$0.00
F1. Replace well cover bolts		each	\$2.60	\$0.00
G. Replace locking well cap & lock		each	\$15.00	\$0.00
K1. Replace Missing Well ID Plate		each	\$10.00	\$0.00
TOTAL				\$634.00



Declination
★
MN GN
GN 0.06° E
MN 7.15° W



Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-inch Recovery Well
- ⊗ Location of Water Supply Well
- ⊗ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet
- BE/OP--- Buried Electric/Overhead Powerline
- P--- Property Line
- W--- Buried Water Lines
- T--- Under Ground Telephone
- Ditch--- Drainage Ditch
- Stream--- Stream/Pond Edge

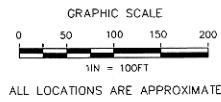
Site Base Map

Nickelpumper 233
3296 Point South Drive
Yemassee, South Carolina
SCDHEC Site ID 0487B

Midlands Environmental Consultants, Inc.

JOB NO. 11-0714
DATE May 29, 2014
FIGURE

2





Catherine E. Heigel, Director

Promoting and protecting the health of the public and the environment

**BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071**

NOV 19 2015



Re: Notice to Proceed-Site Specific Work Plan Approval
Groundwater Sampling Contract
Solicitation # IFB-5400007403, PO#4600445246
Nickelpumper 233, 3296 Point South Drive, Yemassee, SC
UST Permit #04878; CA #51360 (Pace CA #51361)
Jasper County

Dear Mr. Shane:

In accordance with bid solicitation #IFB-5400007403 and the UST Management Division Quality Assurance Program Plan (QAPP), the Site-Specific Work Plan has been reviewed and approved. In accordance with the approved ACQAP, a status report of the project should be provided on a weekly basis via e-mail. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. In addition, a discussion of the problem(s) encountered, including quality assurance problems, the actions taken, and the results must be included in the final report submitted to the UST Management Division.

MECI will perform services at the site on behalf of the site's responsible party (RP); however, payment will be made from the SUPERB Account. The site's RP has no obligation for payment for this scope of work. Please coordinate access to the facility with the property owner. The Agency grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included with the final report. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

Please note, sampling should be conducted within 15 calendar days from the date of this letter. The final report is due within 3 weeks from the date the site is sampled. If the site is not sampled by the specified due date or the report is not received in the specified time period, a late fee may be imposed. The final report should contain the requirements of Section III.2.15 of the bid solicitation. The final report should be submitted to John Bryant, the contract manager.

If you have any site-specific questions, please contact me at (803) 898-0606 or via e-mail at bryantjc@dhec.sc.gov. If you have any contract specific questions, please contact John Bryant at (803) 898-0606 or via e-mail at bryantjc@dhec.sc.gov.

Sincerely,

A handwritten signature in black ink, appearing to be 'JCB', written in a cursive style.

John C. Bryant, Hydrogeologist
Assessment/Corrective Action Section
UST Management Division
Bureau of Land & Waste Management

enc: Approved Cost Agreement (both CAs)

cc: John Bryant, Corrective Action Section, UST Management Division (w/o encs.)
Trey Carter, Pace Analytical Services, 9800 Kinsey Ave, Ste 100, Huntersville, NC, 28078 (w/
approved CA)
Technical Files (w/encs.)

Approved Cost Agreement 51361

Facility 04878 NICKELPUMPER 233

BRYANTJC

PO Number

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
11 ANALYSES					
	GW GROUNDWATER	A2 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	16 0000	19 00	304 00
		F1 EDB BY 8011	15 0000	18 00	270 00
		Total Amount			574 00

Approved Cost Agreement 51360

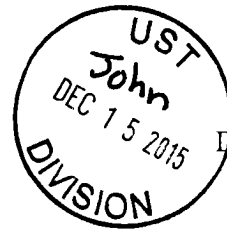
Facility 04878 NICKELPUMPER 233

BRYANTJC

PO Number

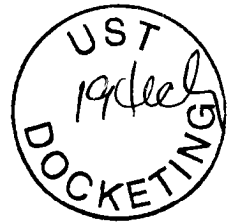
<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
04 MOB/DEMOB		B1 PERSONNEL	1.0000	350 00	350 00
10 SAMPLE COLLECTION		A1 GROUNDWATER (PURGE)	9.0000	16 00	144 00
		C1 WATER SUPPLY	4.0000	5 00	20 00
		H1 FIELD BLANK	1 0000	10 00	10 00
17 DISPOSAL		AA WASTEWATER	100 0000	1 00	100 00
18 MISCELLANEOUS		SITE SPECIFIC WORK PLAN	1 0000	0.00	0 00
		TRIP BLANK	1 0000	10 00	10 00
			Total Amount		634 00

 **Midlands
Environmental
Consultants, Inc.**



December 14, 2015

Mr. John C. Bryant, Hydrogeologist
Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Subject: Report of Groundwater Sampling
Nickelpumper 233
3296 Point South Drive
Yemassee, South Carolina
SCDHEC Site ID Number 04878; CA # 51360
MECI Project Number 15-5343
Certified Site Rehabilitation Contractor UCC-0009

Dear Mr. Bryant,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Report of Groundwater Sampling for the referenced site. This report describes site activities conducted at the site in general accordance with South Carolina Department of Health and Environmental Control's (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP).

PROJECT INFORMATION

The subject site (Nickelpumper 233) is located at 3296 Point South Drive in Yemassee, Jasper County, South Carolina (See Figure 1). The subject site formally maintained one 6,000 gallon gasoline underground storage tank (UST), one 8,000 gallon gasoline UST and one 10,000 gallon gasoline UST. These UST's were reported out of compliance on September 17, 2009. SCDHEC reported and confirmed a release from these UST's in May of 2002. The subject site is currently rated a Class 2BB.

The above information is based on reports and correspondence obtained from MECI field notes and SCDHEC files.

MONITORING WELL SAMPLING AND CHEMICAL ANALYSIS

On December 4, 2015, MECI personnel collected eight (8) monitoring well samples and three (3) surface water samples at the subject site. Monitoring well MW-3 was unable to be located during the initial site visit or during sampling activities. WSW-1 was located and found to not be connected to an electrical supply and samples were unable to be collected. Based on a request by SCDHEC

personnel, all monitoring wells were to be purged prior to sample collection. Eight (8) monitoring wells were purged prior to sample collection

Prior to sampling, MECI personnel utilized an electronic water level indicator for water level measurements and an oil/water interface probe for free phase petroleum product level measurements. Purging was completed by bailing at least five well volumes of water from the well, until pH, conductivity, dissolved oxygen and turbidity stabilized, or all water was evacuated from the well, whichever occurred first. Sampling/purging was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. A new set of nitrile gloves were worn at each monitoring well, and at all time samples were handled. Field measurements of pH, conductivity, dissolved oxygen, water temperature, and turbidity were obtained before well sampling process. MECI utilized YSI Pro20 meter for DO (mg/L) and temperature readings (°C), YSI Pro1030 meter for pH and conductivity (uS) readings and a MicroTPI turbidimeter for turbidity readings (NTU). The attached Field Data Information Sheets presents the results of the field measurements obtained. The wells were sampled in accordance with SCDHEC's most recent revision of the Quality Assurance Program Plan for the Underground Storage Tank Management Division and MECI's most recent revision of Standard Operating Procedures.

Groundwater samples obtained were sent to PACE Analytical Services, Inc. of Huntersville, NC (SCDHEC Laboratory Certification #99006) for analysis.

The following sampling matrix contains well development and requested analyses for each well:


Monitoring Well	Purge	No Purge	Gauge Only	Not Sampled	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	Sulfate (EPA Method 375.2)	Nitrate (EPA Method 335.2)	Methane (RSK Method)	PAH's (EPA Method 8270)	Ferrous Iron (Field Test)
Analyte Sampled														
MW-1	X				X	X	X	X						
MW-2	X				X	X	X	X						
MW-3				X										
MW-4R	X				X	X	X	X						
MW-5	X				X	X	X	X						
MW-6	X				X	X	X	X						
MW-7	X				X	X	X	X						
MW-8	X				X	X	X	X						
DW-1	X				X	X	X	X						
WSW-1														
SW-1 (CK-1)					X	X	X	X						
SW-2 (CK-2)					X	X	X	X						
SW-3					X	X	X	X						
MW-1 Dup.					X	X	X	X						
Field Blank					X	X	X	X						
Trip Blank					X		X	X						

Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dichloroethane
 PAH = polycyclic aromatic hydrocarbons


Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 41.50 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is attached at the end of this report.

Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.



Kyle V. Pudney
Project Biologist



Jeff L. Coleman
Senior Scientist

Attachments:

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?			X
3	Is name, address, & phone number of current property owner provided?			X
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			X
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?			X
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?			X
11	Has the site-specific geology and hydrogeology been described?			X
12	Has the primary soil type been described?			X
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			X
18	Has justification been provided for the locations of the monitoring wells?			X
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?			X
20	Has the groundwater sampling methodology been detailed? See MECI SOP	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	X		
22	Has the purging methodology been detailed? See MECI SOP	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? See attached Field Data Information Sheets	X		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	X		
25	Does the report include a brief discussion of the assessment done and the results?			X
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?			X
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)			X
34	Has the current and historical laboratory data been provided in tabular format?			X
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)			X
40	Has the site potentiometric map been provided? (Figure 5)			X
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			X
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? See attached	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			X
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	X		

Site Activity Summary



UST Permit #: 04878
Facility Name: Nickelpumper 233
County: Jasper
Field Personnel: C. Phillips, C. Hansen

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Initial Dissolved Oxygen (mg/l)	# Gals. Purged	Comments
MW-1	Y	12/4/15	12:30	2.5-12.5	***	1.30	***	0.98	9.50	Strong Odor
MW-2	Y	12/4/15	12:43	2-12	***	1.00	***	2.21	2.25	Odor
MW-3	N	12/4/15	NL	2-12	***	NL	***	NL	NL	Not Located, Area Flooded and Overgrown
MW-4R	Y	12/4/15	11:15	2-12	***	3.45	***	1.22	4.00	Slight Odor
MW-5	Y	12/4/15	13:04	2-12	***	2.56	***	1.69	8.00	Slight Odor
MW-6	Y	12/4/15	11:51	2-12	***	2.65	***	1.24	3.25	No Odor
MW-7	Y	12/4/15	10:32	2-9	***	2.11	***	1.88	1.50	No Odor
MW-8	Y	12/4/15	10:49	2-9.5	***	1.97	***	1.95	1.00	No Odor
DW-1	Y	12/4/15	11:38	43.5-48.5	***	3.91	***	1.20	12.00	No Odor
WSW-1	N	12/4/15	NS	***	***	***	***	***	***	WSW not connected to electrical supply
SW-1	Y	12/4/15	13:20	***	***	***	***	***	***	AKA CK-1 (Collected south of MW-6)
SW-2	Y	12/4/15	13:24	***	***	***	***	***	***	AKA CK-2 (Collected south of MW-8)
SW-3	Y	12/4/15	13:35	***	***	***	***	***	***	Collected from pond adjacent to MW-13 (15151)
MW-1 Dup.	Y	12/4/15	12:33	***	***	***	***	***	***	Duplicate Sample
Field Blank	Y	12/4/15	13:40	***	***	***	***	***	***	Field Blank
									41.50	TOTAL GALLONS PURGED

Site Activity Summary

UST Permit #: 04878
Facility Name: Nickelpumper 233
County: Jasper
Field Personnel: C. Phillips, C. Hansen



Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Initial Dissolved Oxygen (mg/l)	# Gals. Purged	Comments
Trip Blank	Y	12/4/15	13.43	***	***	***	***	***	***	Trip Blank
									0.00	TOTAL GALLONS PURGED

Underground Storage Tank Management Division Field Data Information Sheet – Sampling

Date:	12/4/2015	Site ID #:	04878	Site Name:	Nickepumper 233	Field Personnel:	C. Phillips, C. Hansen
County:	Jasper	Project Manager:	J. Bryant	General Weather Conditions:	Clear	Ambient Air Temp (°F):	60

Quality Assurance

Meter Name	Serial #:	Calibration:							
YSI Pro1030 (pH, Specific Conductivity, Temp.)	15H101448	pH 4.0: Y or N	Y	pH 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Y or N	Y
YSI Pro 20 (Dissolved Oxygen)	12G102878	Y or N	Y						
MicroTPI/TPW (Turbidity)	201301183	0.0 NTU: Y or N	Y	1.0 NTU: Y or N	Y	10.0 NTU: Y or N	Y		

Well Information

Well ID:	MW-1	Well Diameter (ft.): Conversion Factor (C): 1" well = 0.047, 2" well = 0.16, 4" well = 0.652	0.163	Method of Purging/Sample Collection	Bailer
Sample Type: (i.e. MW, IW, RW, WSW)	MW	Screened Interval (ft.):	2.5-12.5	Total Well Depth (TWD) (ft.):	12.5
Depth to Free Product (DFP) (ft.):	ND	Depth to Groundwater (DGW) (ft.):	1.30	Free Product Thickness (ft.):	Not Detected
Length of water column (LWC = TWD - DGW) (ft.):	11.2	1 casing volume (CV = LWC x C) (gals.):	1.83	5 casing volumes (5 x CV) (gals.):	9.13

Purging Data

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Sampling
Volume Purged (gallons)	0.00	1.83	3.65	5.48	7.30	9.13		
Time (military)	12:12	12:15	12:18	12:23	12:26	12:30		
PH (s.u.)	5.34	5.21	5.18	6.40	7.11	6.22		
Specific Conductivity (µS/cm)	93.5	98	92.1	117.5	89.81	100.6		
Water Temperature (°C)	16.8	19.7	18.5	18.5	18.4	18.5		
Dissolved Oxygen (mg/L)	0.98	1.67	2.40	0.91	1.70	2.23		
Turbidity (NTU)	83.14	92.63	168.40	210.5	323.6	324.7		

Sampling Data

Sampled By:	C. Phillips, C. Hansen	Sampling Time:	12:30	Duplicate: Y or N	Y	If yes, Duplicate Time:	12:33	Total Gallons Purged:	9.50
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Notes: Strong Odor

Underground Storage Tank Management Division Field Data Information Sheet – Sampling

Date:	12/4/2015	Site ID #:	04878	Site Name:	Nickelpumper 233	Field Personnel:	C. Phillips, C. Hansen
County:	Jasper	Project Manager:	J. Bryant	General Weather Conditions:	Clear	Ambient Air Temp (°F):	60

Quality Assurance									
Meter Name	Serial #:	Calibration:							
YSI Pro1030 (pH, Specific Conductivity, Temp.)	15H101448	pH 4.0: Y or N	Y	pH 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Y or N	Y
YSI Pro 20 (Dissolved Oxygen)	12G102878	Y or N	Y						
MicroTPI/TPW (Turbidity)	201301183	0.0 NTU: Y or N	Y	1.0 NTU: Y or N	Y	10.0 NTU: Y or N	Y		

Well Information					
Well ID:	MW-2	Well Diameter (ft.): Conversion Factor (C): 1" well = 0.047, 2" well = 0.16, 4" well = 0.652	0.163	Method of Purging/Sample Collection	Baier
Sample Type: (i.e. MW, IW, RW, WSW)	MW	Screened Interval (ft.):	2-12	Total Well Depth (TWD) (ft.):	12
Depth to Free Product (DFP) (ft.):	ND	Depth to Groundwater (DGW) (ft.):	1.00	Free Product Thickness (ft.):	Not Detected
Length of water column (LWC = TWD – DGW) (ft.):	11	1 casing volume (CV = LWC x C) (gals.):	1.79	5 casing volumes (5 x CV) (gals.):	8.97

Purging Data								
	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Sampling
Volume Purged (gallons)	0.00	1.79	3.59	5.38	7.17	8.97		2.25
Time (military)	12:36	12:39						12:43
PH (s.u.)	5.94	6.13						5.81
Specific Conductivity (µS/cm)	319.3	425.5						370.6
Water Temperature (°C)	17.3	17.1						17.2
Dissolved Oxygen (mg/L)	2.21	2.09						1.85
Turbidity (NTU)	90.08	130.1						147.5

Sampling Data									
Sampled By:	C. Phillips, C. Hansen	Sampling Time:	12:43	Duplicate: Y or N	N	If yes, Duplicate Time:	N/A	Total Gallons Purged:	2.25

Notes: Odor, Dry @ 2.25 Gallons

Underground Storage Tank Management Division Field Data Information Sheet – Sampling

Date:	12/4/2015	Site ID #:	04878	Site Name:	Nickelpumper 233	Field Personnel:	C. Phillips, C. Hansen		
County:	Jasper	Project Manager:	J. Bryani	General Weather Conditions:	Clear	Ambient Air Temp (°F):	60		
Quality Assurance									
Meter Name	Serial #:	Calibration:							
YSI Pro1030 (pH, Specific Conductivity, Temp.)	15H101448	pH 4.0: Y or N	Y	pH 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Y or N	Y
YSI Pro 20 (Dissolved Oxygen)	12G102878	Y or N	Y						
MicroTPI/TPW (Turbidity)	201301183	0.0 NTU: Y or N	Y	1.0 NTU: Y or N	Y	10.0 NTU: Y or N	Y		
Well Information									
Well ID:	MW-4R	Well Diameter (ft.): Conversion Factor (C): 1" well = 0.047, 2" well = 0.16, 4" well = 0.652		0.163	Method of Purging/Sample Collection		Bailer		
Sample Type: (i.e. MW, IW, RW, WSW)	MW	Screened Interval (ft.):		2-12	Total Well Depth (TWD) (ft.):		12		
Depth to Free Product (DFP) (ft.):	ND	Depth to Groundwater (DGW) (ft.):		3.45	Free Product Thickness (ft.):		Not Detected		
Length of water column (LWC = TWD - DGW) (ft.):	8.55	1 casing volume (CV = LWC x C) (gals.):		1.39	5 casing volumes (5 x CV) (gals.):		6.97		
Purging Data									
	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Sampling	
Volume Purged (gallons)	0.00	1.39	2.79	4.18	5.57	6.97		4.00	
Time (military)	11:05	11:07	11:10	11:12				11:15	
PH (s.u.)	5.26	5.25	5.30	5.38				5.42	
Specific Conductivity (µS/cm)	109.9	117.5	110.6	126.8				125.3	
Water Temperature (°C)	17.5	19.4	20.4	19.9				19.8	
Dissolved Oxygen (mg/L)	1.22	1.04	1.12	2.45				2.62	
Turbidity (NTU)	90.81	168.1	206.50	210.8				212.3	
Sampling Data									
Sampled By:	C. Phillips, C. Hansen	Sampling Time:	11:15	Duplicate: Y or N	N	If yes, Duplicate Time:	N/A	Total Gallons Purged:	4.00
Notes: Slight Odor, Dry @ 4.00 Gallons									

Underground Storage Tank Management Division Field Data Information Sheet – Sampling

Date:	12/4/2015	Site ID #:	04678	Site Name:	Nickelpumper 233	Field Personnel:	C. Phillips, C. Hansen
County:	Jasper	Project Manager:	J. Bryant	General Weather Conditions:	Clear	Ambient Air Temp (°F):	60

Quality Assurance									
Meter Name	Serial #:	Calibration:							
YSI Pro1030 (pH, Specific Conductivity, Temp.)	15H101448	pH 4.0: Y or N	Y	pH 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Y or N	Y
YSI Pro 20 (Dissolved Oxygen)	12G102878	Y or N	Y						
MicroTPI/TPW (Turbidity)	201301183	0.0 NTU: Y or N	Y	1.0 NTU: Y or N	Y	10.0 NTU: Y or N	Y		

Well Information					
Well ID:	MW-5	Well Diameter (ft.): Conversion Factor (C): 1" well = 0.047, 2" well = 0.16, 4" well = 0.652	0.163	Method of Purging/Sample Collection	Bailer
Sample Type: (i.e. MW, IW, RW, WSW)	MW	Screened Interval (ft.):	2-12	Total Well Depth (TWD) (ft.):	12
Depth to Free Product (DFP) (ft.):	ND	Depth to Groundwater (DGW) (ft.):	2.56	Free Product Thickness (ft.):	Not Detected
Length of water column (LWC = TWD - DGW) (ft.):	9.44	1 casing volume (CV = LWC x C) (gals.):	1.54	5 casing volumes (5 x CV) (gals.):	7.69

Purging Data								
	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Sampling
Volume Purged (gallons)	0.00	1.54	3.08	4.62	6.15	7.69		
Time (military)	12:49	12:53	12:55	12:57	13:01	13:04		
PH (s.u.)	6.11	5.12	4.85	4.90	4.76	4.90		
Specific Conductivity (µS/cm)	57.5	46.7	23.8	48.6	37.0	54.1		
Water Temperature (°C)	19.4	20.4	21.0	21.3	20.6	21.5		
Dissolved Oxygen (mg/L)	1.69	1.60	2.11	3.23	4.07	3.21		
Turbidity (NTU)	84.11	108.70	263.80	260.40	262.30	407.90		

Sampling Data									
Sampled By:	C. Phillips, C. Hansen	Sampling Time:	13:04	Duplicate: Y or N	N	If yes, Duplicate Time:	N/A	Total Gallons Purged:	8.00

Notes: Slight Odor

Underground Storage Tank Management Division Field Data Information Sheet – Sampling

Date:	12/4/2015	Site ID #:	04878	Site Name:	Nickelpumper 233	Field Personnel:	C. Phillips, C. Hansen
County:	Jasper	Project Manager:	J. Bryant	General Weather Conditions:	Clear	Ambient Air Temp (°F):	60

Quality Assurance

Meter Name	Serial #:	Calibration:							
YSI Pro1030 (pH, Specific Conductivity, Temp.)	15H101448	pH 4.0: Y or N	Y	pH 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Y or N	Y
YSI Pro 20 (Dissolved Oxygen)	12G102876	Y or N	Y						
MicroTPI/TPW (Turbidity)	201301183	0.0 NTU: Y or N	Y	1.0 NTU: Y or N	Y	10.0 NTU: Y or N	Y		

Well Information

Well ID:	MW-6	Well Diameter (ft.): Conversion Factor (C): 1" well = 0.047, 2" well = 0.16, 4" well = 0.652	0.163	Method of Purging/Sample Collection	Bailey
Sample Type: (i.e. MW, IW, RW, WSW)	MW	Screened Interval (ft.):	2-12	Total Well Depth (TWD) (ft.):	12
Depth to Free Product (DFP) (ft.):	ND	Depth to Groundwater (DGW) (ft.):	2.65	Free Product Thickness (ft.):	Not Detected
Length of water column (LWC = TWD - DGW) (ft.):	9.35	1 casing volume (CV = LWC x C) (gals.):	1.52	5 casing volumes (5 x CV) (gals.):	7.62

Purging Data

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Sampling
Volume Purged (gallons)	0.00	1.52	3.05	4.57	6.10	7.62		3.25
Time (military)	11:40	11:44	11:47					11:51
PH (s.u.)	7.12	6.18	5.74					6.02
Specific Conductivity (µS/cm)	83.9	61.9	70.5					80.6
Water Temperature (°C)	17.8	18.4	18.8					18.8
Dissolved Oxygen (mg/L)	1.24	1.18	1.37					1.7
Turbidity (NTU)	69.69	235.30	236.70					315.8

Sampling Data

Sampled By:	C. Phillips, C. Hansen	Sampling Time:	11:51	Duplicate: Y or N	N	If yes, Duplicate Time:	N/A	Total Gallons Purged:	3.25
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Notes: No Odor, Dry @ 3.25 Gallons

Underground Storage Tank Management Division Field Data Information Sheet – Sampling

Date:	12/4/2015	Site ID #:	04878	Site Name:	Nickelpumper 233	Field Personnel:	C. Phillips, C. Hansen
County:	Jasper	Project Manager:	J. Bryant	General Weather Conditions:	Clear	Ambient Air Temp (°F):	60

Quality Assurance

Meter Name	Serial #:	Calibration:							
YSI Pro1030 (pH, Specific Conductivity, Temp.)	15H101448	pH 4.0: Y or N	Y	pH 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Y or N	Y
YSI Pro 20 (Dissolved Oxygen)	12G102878	Y or N	Y						
MicroTPI/TPW (Turbidity)	201301183	0.0 NTU: Y or N	Y	1.0 NTU: Y or N	Y	10.0 NTU: Y or N	Y		

Well Information

Well ID:	MW-7	Well Diameter (ft.): Conversion Factor (C): 1" well = 0.047, 2" well = 0.16, 4" well = 0.652	0.163	Method of Purging/Sample Collection	Bailer
Sample Type: (i.e. MW, IW, RW, WSW)	MW	Screened Interval (ft.):	2-9	Total Well Depth (TWD) (ft.):	9
Depth to Free Product (DFP) (ft.):	ND	Depth to Groundwater (DGW) (ft.):	2.11	Free Product Thickness (ft.):	Not Detected
Length of water column (LWC = TWD - DGW) (ft.):	6.89	1 casing volume (CV = LWC x C) (gals.):	1.12	5 casing volumes (5 x CV) (gals.):	5.62

Purging Data

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Sampling
Volume Purged (gallons)	0.00	1.12	2.25	3.37	4.49	5.62		1.50
Time (military)	10:25	10:28						10:32
PH (s.u.)	6.59	5.22						5.68
Specific Conductivity (µS/cm)	110.8	51.3						70.9
Water Temperature (°C)	16.7	15.6						15.5
Dissolved Oxygen (mg/L)	1.88	4.21						4.07
Turbidity (NTU)	111.8	767.60						801.9

Sampling Data

Sampled By:	C. Phillips, C. Hansen	Sampling Time:	10:32	Duplicate: Y or N	N	If yes, Duplicate Time:	N/A	Total Gallons Purged:	1.50
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Notes: No Odor, Dry @ 1.50 Gallons

Underground Storage Tank Management Division Field Data Information Sheet – Sampling

Date:	12/4/2015	Site ID #:	04578	Site Name:	Nickelpumper 233	Field Personnel:	C. Phillips, C. Hansen
County:	Jasper	Project Manager:	J. Bryant	General Weather Conditions:	Clear	Ambient Air Temp (°F):	60

Quality Assurance

Meter Name	Serial #:	Calibration:							
YSI Pro1030 (pH, Specific Conductivity, Temp.)	15H101448	pH 4.0: Y or N	Y	pH 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Y or N	Y
YSI Pro 20 (Dissolved Oxygen)	12G102878	Y or N	Y						
MicroTPI/TPW (Turbidity)	201301183	0.0 NTU: Y or N	Y	1.0 NTU: Y or N	Y	10.0 NTU: Y or N	Y		

Well Information

Well ID:	MW-8	Well Diameter (ft.): Conversion Factor (C): 1" well = 0.047, 2" well = 0.16, 4" well = 0.652	0.163	Method of Purging/Sample Collection	Bailer
Sample Type: (i.e. MW, IW, RW, WSW)	MW	Screened Interval (ft.):	2-9.5	Total Well Depth (TWD) (ft.):	9.5
Depth to Free Product (DFP) (ft.):	ND	Depth to Groundwater (DGW) (ft.):	1.97	Free Product Thickness (ft.):	Not Detected
Length of water column (LWC = TWD - DGW) (ft.):	7.53	1 casing volume (CV = LWC x C) (gals.):	1.23	5 casing volumes (5 x CV) (gals.):	6.14

Purging Data

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Sampling
Volume Purged (gallons)	0.00	1.23	2.45	3.68	4.91	6.14		1.00
Time (military)	10:45							10:49
PH (s.u.)	4.78							5.24
Specific Conductivity (µS/cm)	80.2							115.7
Water Temperature (°C)	16.9							16.7
Dissolved Oxygen (mg/L)	1.95							2.5
Turbidity (NTU)	78.13							487.6

Sampling Data

Sampled By:	C. Phillips, C. Hansen	Sampling Time:	10:49	Duplicate: Y or N	N	If yes, Duplicate Time:	N/A	Total Gallons Purged:	1.00
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Notes: No Odor, Dry @ 1.00 Gallons

Underground Storage Tank Management Division Field Data Information Sheet – Sampling

Date:	12/4/2015	Site ID #:	04878	Site Name:	Nickelpumper 233	Field Personnel:	C. Phillips, C. Hansen
County:	Jasper	Project Manager:	J. Bryant	General Weather Conditions:	Clear	Ambient Air Temp (°F):	60

Quality Assurance

Meter Name	Serial #:	Calibration:							
YSI Pro1030 (pH, Specific Conductivity, Temp.)	15H101448	pH 4.0: Y or N	Y	pH 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Y or N	Y
YSI Pro 20 (Dissolved Oxygen)	12G102878	Y or N	Y						
MicroTPI/TPW (Turbidity)	201301183	0.0 NTU: Y or N	Y	1.0 NTU: Y or N	Y	10.0 NTU: Y or N	Y		

Well Information

Well ID:	DW-1	Well Diameter (ft.): Conversion Factor (C): 1" well = 0.047, 2" well = 0.16, 4" well = 0.652	0.163	Method of Purging/Sample Collection	Baier
Sample Type: (i.e. MW, IW, RW, WSW)	MW	Screened Interval (ft.):	43.5-48.5	Total Well Depth (TWD) (ft.):	48.5
Depth to Free Product (DFP) (ft.):	ND	Depth to Groundwater (DGW) (ft.):	3.91	Free Product Thickness (ft.):	Not Detected
Length of water column (LWC = TWD - DGW) (ft.):	44.59	1 casing volume (CV = LWC x C) (gals.):	7.27	5 casing volumes (5 x CV) (gals.):	36.34

Purging Data

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Sampling
Volume Purged (gallons)	0.00	7.27	14.54	21.80	29.07	36.34		12.00
Time (military)	11:30	11:35						11:38
PH (s.u.)	6.72	6.98						7.06
Specific Conductivity (µS/cm)	551.0	562.0						636.3
Water Temperature (°C)	18.2	18.1						18
Dissolved Oxygen (mg/L)	1.20	1.25						1.76
Turbidity (NTU)	72.34	125.60						378.9

Sampling Data

Sampled By:	C. Phillips, C. Hansen	Sampling Time:	11:38	Duplicate: Y or N	N	If yes, Duplicate Time:	N/A	Total Gallons Purged:	12.00
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Notes: No Odor, Dry @ 12.00 Gallons



December 14, 2015

Re: Treatment of Purge Water
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 15-5343

To Whom It May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

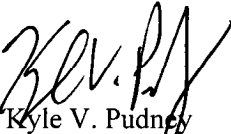
All purge waters were treated on-site using an up-flow treatment drum loaded with 80 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

A total of 41.50 gallons were treated on December 4, 2015 at the referenced site.

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.



Kyle V. Pudney
Project Biologist



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Page: 1 of 2	
Company: SCDHEC - UST		Report To: J. Bryant - UST		Attention:		2000173	
Address: 2600 Bull Street		Copy To:		Company Name:			
Columbia, SC 29201		Purchase Order No.: 4600422513		Address:		REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input checked="" type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
Email To: Bryant JC@dhec.sc.gov		Project Name: Nicklepumper 233		Pace Quote Reference:			
Phone: 803 898 0666 Fax: 803 898 0673		Project Number: UST#04872 CA# 51360		Pace Project Manager: T. Carter		Site Location	
Requested Due Date/TAT:				Pace Profile #:		STATE: SC Jasper	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATERIAL CODE (see valid codes to left)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.	
				COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₈	Methanol					Other
				DATE	TIME	DATE	TIME														
1	MW 1	WT	WT			12/4/10	12:30	6											Strong odor		
2	MW 2	WT	WT				12:43	6											odor		
3	MW 3	WT	WT																Not sampled		
4	MW 4R	WT	WT				11:15												slight odor		
5	MW 5	WT	WT				13:04												slight odor		
6	MW 6	WT	WT				11:51												no odor		
7	MW 7	WT	WT				10:32												no odor		
8	MW 8	WT	WT				10:49												no odor		
9	DW-1	WT	WT				11:38												no odor		
10	SWS 1	DW	DW				13:20												no odor /IDL		
11	SWS 2	DW	DW				13:24												no odor /IDL		
12	SWS 3	DW	DW				13:55												no odor /IDL		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Call 410						

2

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Chris Hansen					
SIGNATURE of SAMPLER: <i>Chris Hansen</i>					
DATE Signed (MM/DD/YY): 12/04/15					

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



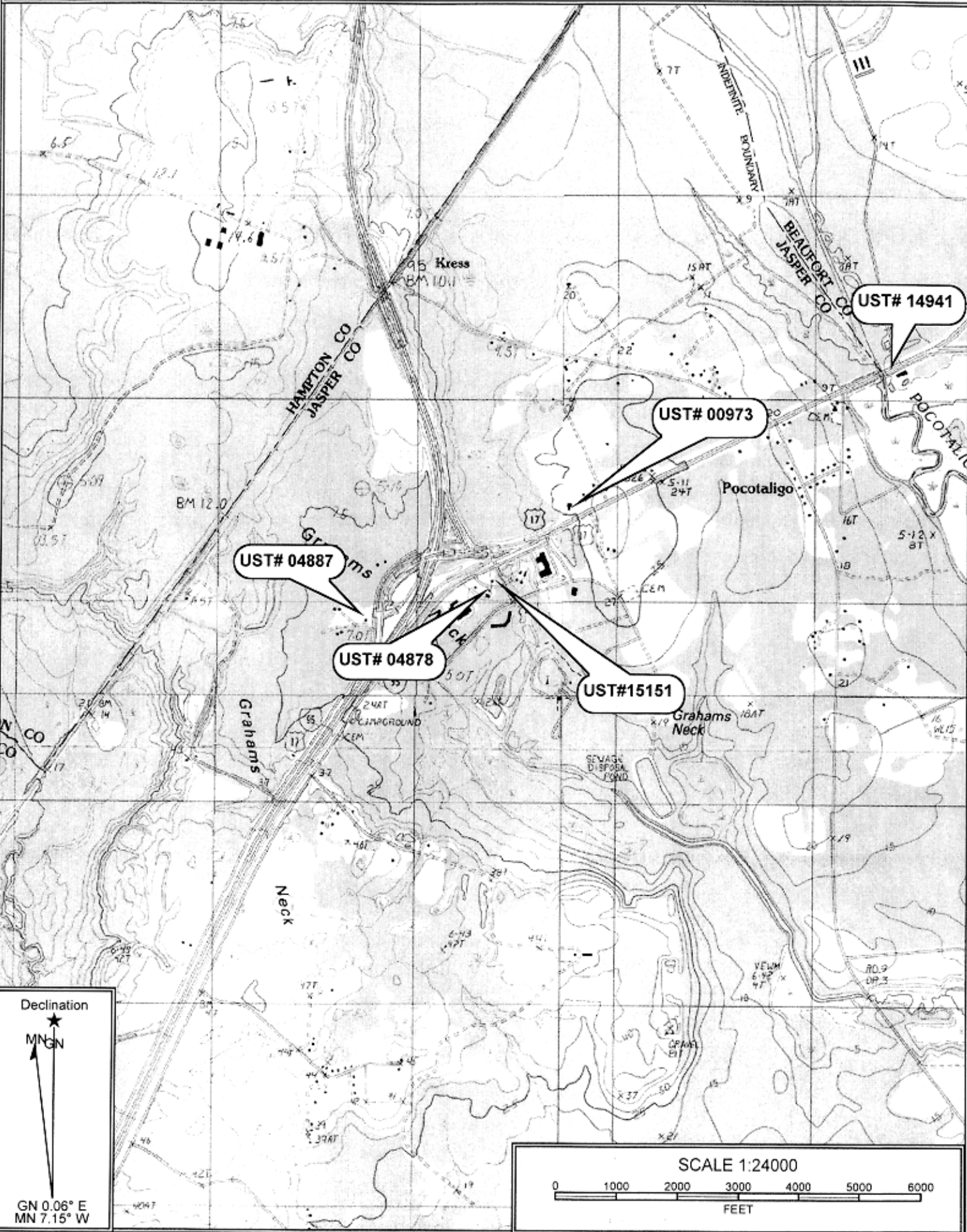
Page: 2 of 2
2000174

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: SCDHEC + UST	Report To: J. Bryant - UST	Attention: [blank]
Address: 2600 Bull Street	Copy To: [blank]	Company Name: [blank]
Columbia, SC 29201	Purchase Order No.: 4600422513	Address: [blank]
Email To: Bryant, Jc@dhec.sc.gov	Project Name: Nickle pumpers 233	Pace Quote Reference: [blank]
Phone: 203 298 0606 Fax: 203 999 0623	Project Number: UST# 04678 Co# 57260	Pace Project Manager: T. Carter
Requested Due Date/TAT: [blank]	Pace Profile #: [blank]	Site Location STATE: SC Jasper

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB		UNPRESERVED			H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other					
			DATE	TIME	DATE	TIME														
1	MW1 Duplicate	WT			12/6/15	12:35	6								X	X	X	X		strong odor
2	Field Blank	WT				13:40	6								X	X	X	X		
3	TOP BLANK	WT				13:43	2								X	X	X	X		
4	WSW 1																			Not sampled
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<i>Chris Hansen</i>						Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE		
PRINT Name of SAMPLER: Chris Hansen	DATE Signed (MM/DD/YY):	
SIGNATURE of SAMPLER: <i>Chris Hansen</i>		

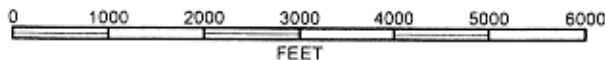


Declination

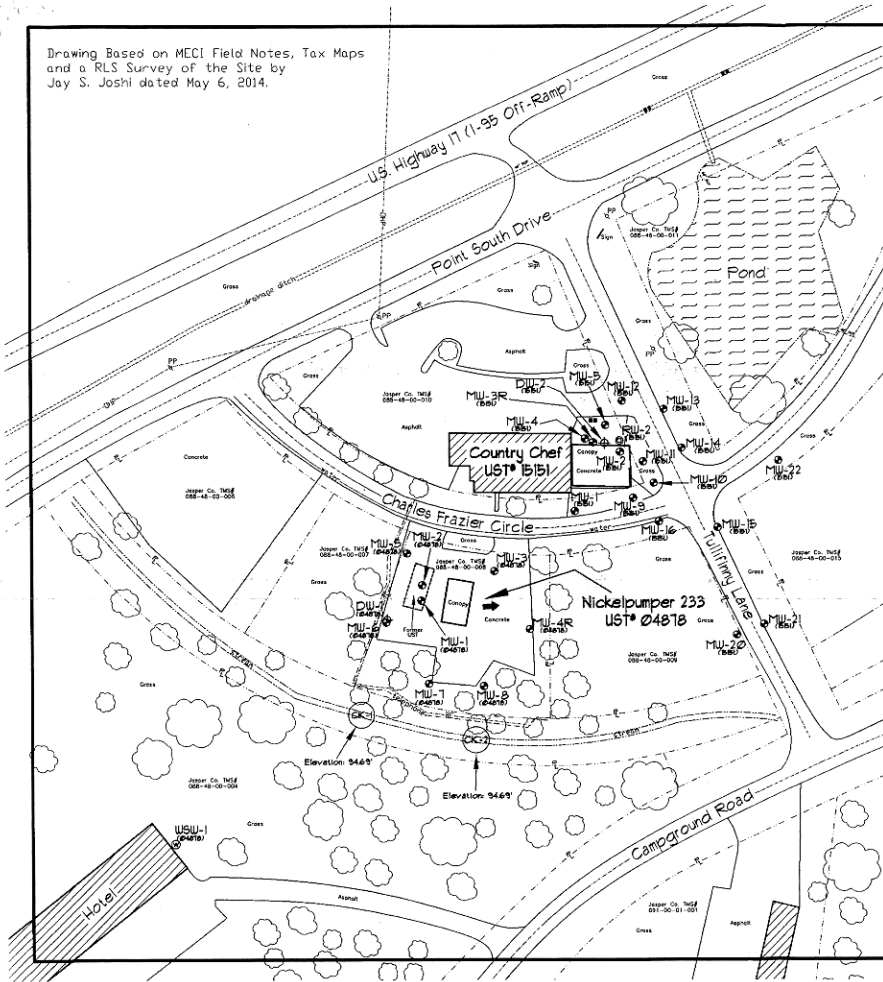


GN 0.06° E
MN 7.15° W

SCALE 1:24000



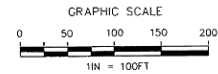
Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-Inch Recovery Well
- ⊖ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

- Buried Electric/Overhead Powerline
- Property Line
- Buried Water Line
- Under Ground Telephone
- Drainage Ditch
- Stream/Pond Edge



ALL LOCATIONS ARE APPROXIMATE

Site Base Map	
Nickelpumper 233 3236 Point South Drive Yemassee, South Carolina SCDHEC Site ID 04818	
 Midlands Environmental Consultants, Inc.	JOB NO. 14-4714 DATE May 29, 2014 FIGURE <div style="font-size: 2em; text-align: center;">2</div>



December 24, 2015



Mr. John Bryant
SCDHEC
UST Program
2600 Bull Street
Columbia, SC 29201

RE: Project: NICKLEPUMPER 233 04878/51360
Pace Project No.: 92278594

Dear Mr. Bryant:

Enclosed are the analytical results for sample(s) received by the laboratory on December 05, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Trey Carter
treycarter@pacelabs.com
Project Manager

Enclosures

cc Ashleigh Thrash, SCHDEC



REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
9800 Kinsey Ave Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: NICKLEPUMPER 233 04878/51360
Pace Project No.: 92278594

Charlotte Certification IDs

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification # 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification # 357
Virginia/VELAP Certification # 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project NICKLEPUMPER 233 04878/51360
Pace Project No.: 92278594

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92278594001	MW 1	Water	12/04/15 12:30	12/05/15 10:00
92278594002	MW 2	Water	12/04/15 12:43	12/05/15 10:00
92278594003	MW 4R	Water	12/04/15 11:15	12/05/15 10:00
92278594004	MW 5	Water	12/04/15 13:04	12/05/15 10:00
92278594005	MW 6	Water	12/04/15 11:51	12/05/15 10:00
92278594006	MW 7	Water	12/04/15 10:32	12/05/15 10:00
92278594007	MW 8	Water	12/04/15 10:49	12/05/15 10:00
92278594008	DW-1	Water	12/04/15 11:38	12/05/15 10:00
92278594009	SWS 1	Water	12/04/15 13:20	12/05/15 10:00
92278594010	SWS 2	Water	12/04/15 13:24	12/05/15 10:00
92278594011	SWS 3	Water	12/04/15 13:55	12/05/15 10:00
92278594012	MW 1 DUPLICATE	Water	12/04/15 12:33	12/05/15 10:00
92278594013	FIELD BLANK	Water	12/04/15 13:40	12/05/15 10:00
92278594014	TRIP BLANK	Water	12/04/15 13:43	12/05/15 10:00
92278594015	DW-1 Solid	Solid	12/04/15 11:38	12/05/15 10:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No.. 92278594

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92278594001	MW 1	EPA 8011	HSK	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92278594002	MW 2	EPA 8011	HSK	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92278594003	MW 4R	EPA 8011	HSK	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92278594004	MW 5	EPA 8011	HSK	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92278594005	MW 6	EPA 8011	HSK	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92278594006	MW 7	EPA 8011	HSK	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92278594007	MW 8	EPA 8011	HSK	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92278594008	DW-1	EPA 8011	HSK	2	PASI-C
92278594009	SWS 1	EPA 8011	HSK	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92278594010	SWS 2	EPA 8011	HSK	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92278594011	SWS 3	EPA 8011	HSK	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92278594012	MW 1 DUPLICATE	EPA 8011	HSK	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92278594013	FIELD BLANK	EPA 8011	HSK	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92278594014	TRIP BLANK	EPA 8260	GAW	20	PASI-C
92278594015	DW-1 Soild	EPA 8260	DLK	20	PASI-C

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project NICKLEPUMPER 233 04878/51360
 Pace Project No.. 92278594

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92278594001	MW 1					
EPA 8260	tert-Amyl Alcohol	6680	ug/L	500	12/13/15 02:11	
EPA 8260	Benzene	3380	ug/L	250	12/14/15 11:27	
EPA 8260	tert-Butyl Alcohol	4140	ug/L	500	12/13/15 02:11	
EPA 8260	1,2-Dichloroethane	12.9J	ug/L	25.0	12/13/15 02:11	
EPA 8260	Ethylbenzene	1280	ug/L	250	12/14/15 11:27	
EPA 8260	Methyl-tert-butyl ether	910	ug/L	25.0	12/13/15 02:11	
EPA 8260	Naphthalene	503	ug/L	25.0	12/13/15 02:11	
EPA 8260	Toluene	6530	ug/L	250	12/14/15 11:27	
EPA 8260	Xylene (Total)	3450	ug/L	500	12/14/15 11:27	
EPA 8260	m&p-Xylene	1960	ug/L	50.0	12/13/15 02:11	
EPA 8260	o-Xylene	1490	ug/L	250	12/14/15 11:27	
92278594002	MW 2					
EPA 8260	Benzene	990	ug/L	50.0	12/13/15 02:27	
EPA 8260	Ethylbenzene	1370	ug/L	50.0	12/13/15 02:27	
EPA 8260	Methyl-tert-butyl ether	97.7	ug/L	50.0	12/13/15 02:27	
EPA 8260	Naphthalene	511	ug/L	50.0	12/13/15 02:27	
EPA 8260	Toluene	42.3J	ug/L	50.0	12/13/15 02:27	
EPA 8260	Xylene (Total)	1140	ug/L	100	12/13/15 02:27	
EPA 8260	m&p-Xylene	1140	ug/L	100	12/13/15 02:27	
EPA 8260	o-Xylene	24.3J	ug/L	50.0	12/13/15 02:27	
92278594003	MW 4R					
EPA 8260	tert-Amyl Alcohol	504	ug/L	100	12/12/15 15:03	
EPA 8260	Methyl-tert-butyl ether	4.9J	ug/L	5.0	12/12/15 15:03	
EPA 8260	Naphthalene	12.2	ug/L	5.0	12/12/15 15:03	
92278594011	SWS 3					
EPA 8260	Toluene	0.59J	ug/L	1.0	12/11/15 16:11	
92278594012	MW 1 DUPLICATE					
EPA 8260	tert-Amyl Alcohol	7600	ug/L	500	12/13/15 02:44	
EPA 8260	Benzene	3200	ug/L	250	12/14/15 11:44	
EPA 8260	tert-Butyl Alcohol	4670	ug/L	500	12/13/15 02:44	
EPA 8260	1,2-Dichloroethane	11.9J	ug/L	25.0	12/13/15 02:44	
EPA 8260	Ethylbenzene	1260	ug/L	250	12/14/15 11:44	
EPA 8260	Methyl-tert-butyl ether	875	ug/L	25.0	12/13/15 02:44	
EPA 8260	Naphthalene	521	ug/L	25.0	12/13/15 02:44	
EPA 8260	Toluene	6510	ug/L	250	12/14/15 11:44	
EPA 8260	Xylene (Total)	3370	ug/L	500	12/14/15 11:44	
EPA 8260	m&p-Xylene	1880	ug/L	50.0	12/13/15 02:44	
EPA 8260	o-Xylene	1490	ug/L	250	12/14/15 11:44	

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ANALYTICAL RESULTS

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No 92278594

Sample: MW 1 Lab ID: 92278594001 Collected 12/04/15 12 30 Received: 12/05/15 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qual
8011 GCS EDB and DBCP									
Analytical Method EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0 020	0 020	1	12/09/15 16 49	12/10/15 07:05	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	101	%	60-140		1	12/09/15 16:49	12/10/15 07 05	301-79-56	
8260 MSV									
Analytical Method EPA 8260									
tert-Amyl Alcohol	6680	ug/L	500	384	5		12/13/15 02:11	75-85-4	
tert-Amylmethyl ether	ND	ug/L	50.0	17 0	5		12/13/15 02:11	994-05-8	
Benzene	3380	ug/L	250	85.0	50		12/14/15 11 27	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	500	160	5		12/13/15 02:11	624-95-3	
tert-Butyl Alcohol	4140	ug/L	500	288	5		12/13/15 02:11	75-65-0	
tert-Butyl Formate	ND	ug/L	250	36 5	5		12/13/15 02:11	762-75-4	
1,2-Dichloroethane	12.9J	ug/L	25 0	9.0	5		12/13/15 02:11	107-06-2	
Diisopropyl ether	ND	ug/L	25.0	8 5	5		12/13/15 02:11	108-20-3	
Ethanol	ND	ug/L	1000	689	5		12/13/15 02:11	64-17-5	
Ethylbenzene	1280	ug/L	250	80.0	50		12/14/15 11 27	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50 0	18 0	5		12/13/15 02:11	637-92-3	
Methyl-tert-butyl ether	910	ug/L	25 0	8 5	5		12/13/15 02:11	1634-04-4	
Naphthalene	503	ug/L	25 0	10 0	5		12/13/15 02:11	91-20-3	
Toluene	6530	ug/L	250	80.0	50		12/14/15 11 27	108-88-3	
Xylene (Total)	3450	ug/L	500	135	50		12/14/15 11 27	1330-20-7	
m&p-Xylene	1960	ug/L	50.0	15 5	5		12/13/15 02 11	179601-23-1	
o-Xylene	1490	ug/L	250	80.0	50		12/14/15 11:27	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	70-130		5		12/13/15 02 11	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-130		5		12/13/15 02:11	17060-07-0	
Toluene-d8 (S)	100	%	70-130		5		12/13/15 02 11	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLEPUMPER 233 04878/51360

Pace Project No 92278594

Sample: MW 2 Lab ID: 92278594002 Collected 12/04/15 12:43 Received: 12/05/15 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP			Analytical Method EPA 8011 Preparation Method: EPA 8011						
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	12/09/15 16 49	12/10/15 07 25	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	75	%	60-140		1	12/09/15 16 49	12/10/15 07 25	301-79-56	
8260 MSV			Analytical Method: EPA 8260						
tert-Amyl Alcohol	ND	ug/L	1000	768	10		12/13/15 02:27	75-85-4	
tert-Amylmethyl ether	ND	ug/L	100	34.0	10		12/13/15 02:27	994-05-8	
Benzene	990	ug/L	50.0	17.0	10		12/13/15 02:27	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	1000	321	10		12/13/15 02:27	624-95-3	
tert-Butyl Alcohol	ND	ug/L	1000	577	10		12/13/15 02:27	75-65-0	
tert-Butyl Formate	ND	ug/L	500	73.0	10		12/13/15 02:27	762-75-4	
1,2-Dichloroethane	ND	ug/L	50.0	18.0	10		12/13/15 02:27	107-06-2	
Diisopropyl ether	ND	ug/L	50.0	17.0	10		12/13/15 02:27	108-20-3	
Ethanol	ND	ug/L	2000	1380	10		12/13/15 02:27	64-17-5	
Ethylbenzene	1370	ug/L	50.0	16.0	10		12/13/15 02:27	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	100	36.0	10		12/13/15 02:27	637-92-3	
Methyl-tert-butyl ether	97.7	ug/L	50.0	17.0	10		12/13/15 02:27	1634-04-4	
Naphthalene	511	ug/L	50.0	20.0	10		12/13/15 02:27	91-20-3	
Toluene	42.3J	ug/L	50.0	16.0	10		12/13/15 02:27	108-88-3	
Xylene (Total)	1140	ug/L	100	27.0	10		12/13/15 02:27	1330-20-7	
m&p-Xylene	1140	ug/L	100	31.0	10		12/13/15 02:27	179601-23-1	
o-Xylene	24.3J	ug/L	50.0	16.0	10		12/13/15 02:27	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		10		12/13/15 02:27	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		10		12/13/15 02:27	17060-07-0	
Toluene-d8 (S)	101	%	70-130		10		12/13/15 02:27	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No.: 92278594

Sample: MW 4R Lab ID: 92278594003 Collected: 12/04/15 11 15 Received: 12/05/15 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0 020	0 020	1	12/09/15 16:49	12/10/15 07:45	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	79	%	60-140		1	12/09/15 16:49	12/10/15 07:45	301-79-56	
8260 MSV Analytical Method: EPA 8260									
tert-Amyl Alcohol	504	ug/L	100	76.8	1		12/12/15 15:03	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		12/12/15 15:03	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		12/12/15 15:03	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		12/12/15 15:03	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		12/12/15 15:03	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		12/12/15 15:03	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		12/12/15 15:03	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		12/12/15 15:03	108-20-3	
Ethanol	ND	ug/L	200	138	1		12/12/15 15:03	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		12/12/15 15:03	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		12/12/15 15:03	637-92-3	
Methyl-tert-butyl ether	4.9J	ug/L	5.0	1.7	1		12/12/15 15:03	1634-04-4	
Naphthalene	12.2	ug/L	5.0	2.0	1		12/12/15 15:03	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		12/12/15 15:03	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		12/12/15 15:03	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		12/12/15 15:03	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		12/12/15 15:03	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		12/12/15 15:03	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		12/12/15 15:03	17060-07-0	
Toluene-d8 (S)	109	%	70-130		1		12/12/15 15:03	2037-26-5	

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ANALYTICAL RESULTS

Project NICKLEPUMPER 233 04878/51360
Pace Project No.: 92278594

Sample: MW 5 Lab ID: 92278594004 Collected: 12/04/15 13 04 Received: 12/05/15 10 00 Matrix Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	12/09/15 16:49	12/10/15 08:06	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	79	%	60-140		1	12/09/15 16:49	12/10/15 08:06	301-79-56	
8260 MSV Analytical Method: EPA 8260									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		12/12/15 15:20	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		12/12/15 15:20	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		12/12/15 15:20	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		12/12/15 15:20	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		12/12/15 15:20	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		12/12/15 15:20	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		12/12/15 15:20	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		12/12/15 15:20	108-20-3	
Ethanol	ND	ug/L	200	138	1		12/12/15 15:20	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		12/12/15 15:20	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		12/12/15 15:20	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		12/12/15 15:20	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		12/12/15 15:20	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		12/12/15 15:20	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		12/12/15 15:20	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		12/12/15 15:20	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		12/12/15 15:20	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		1		12/12/15 15:20	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		12/12/15 15:20	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		12/12/15 15:20	2037-26-5	

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ANALYTICAL RESULTS

Project NICKLEPUMPER 233 04878/51360
 Pace Project No. 92278594

Sample: MW 6									
Lab ID: 92278594005 Collected: 12/04/15 11 51 Received: 12/05/15 10 00 Matrix Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qual
8011 GCS EDB and DBCP									
Analytical Method EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	12/09/15 16:49	12/10/15 08:26	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	83	%	60-140		1	12/09/15 16:49	12/10/15 08:26	301-79-56	
8260 MSV									
Analytical Method EPA 8260									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		12/12/15 15:37	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		12/12/15 15:37	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		12/12/15 15:37	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		12/12/15 15:37	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		12/12/15 15:37	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		12/12/15 15:37	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		12/12/15 15:37	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		12/12/15 15:37	108-20-3	
Ethanol	ND	ug/L	200	138	1		12/12/15 15:37	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		12/12/15 15:37	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		12/12/15 15:37	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		12/12/15 15:37	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		12/12/15 15:37	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		12/12/15 15:37	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		12/12/15 15:37	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		12/12/15 15:37	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		12/12/15 15:37	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		12/12/15 15:37	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		12/12/15 15:37	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		12/12/15 15:37	2037-26-5	

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ANALYTICAL RESULTS

Project NICKLEPUMPER 233 04878/51360
 Pace Project No 92278594

Sample: MW 7 Lab ID: 92278594006 Collected 12/04/15 10.32 Received: 12/05/15 10.00 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No	Qual
			Limit	MDL	DF				
8011 GCS EDB and DBCP		Analytical Method EPA 8011		Preparation Method EPA 8011					
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	12/09/15 16:49	12/10/15 08 46	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	68	%	60-140		1	12/09/15 16:49	12/10/15 08 46	301-79-56	
8260 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		12/12/15 15 54	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		12/12/15 15:54	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		12/12/15 15:54	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		12/12/15 15:54	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		12/12/15 15:54	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		12/12/15 15:54	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		12/12/15 15 54	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		12/12/15 15 54	108-20-3	
Ethanol	ND	ug/L	200	138	1		12/12/15 15 54	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		12/12/15 15:54	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		12/12/15 15 54	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		12/12/15 15 54	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		12/12/15 15 54	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		12/12/15 15.54	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		12/12/15 15:54	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		12/12/15 15 54	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		12/12/15 15 54	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		12/12/15 15:54	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		12/12/15 15:54	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		12/12/15 15 54	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No.: 92278594

Sample: MW 8 Lab ID: 92278594007 Collected: 12/04/15 10 49 Received 12/05/15 10 00 Matrix Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	12/09/15 17:31	12/10/15 00 56	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	88	%	60-140		1	12/09/15 17:31	12/10/15 00:56	301-79-56	
8260 MSV									
Analytical Method EPA 8260									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		12/12/15 16:11	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10 0	3 4	1		12/12/15 16:11	994-05-8	
Benzene	ND	ug/L	5 0	1 7	1		12/12/15 16:11	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		12/12/15 16:11	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57 7	1		12/12/15 16:11	75-65-0	
tert-Butyl Formate	ND	ug/L	50 0	7 3	1		12/12/15 16:11	762-75-4	
1,2-Dichloroethane	ND	ug/L	5 0	1 8	1		12/12/15 16:11	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		12/12/15 16 11	108-20-3	
Ethanol	ND	ug/L	200	138	1		12/12/15 16:11	64-17-5	
Ethylbenzene	ND	ug/L	5 0	1 6	1		12/12/15 16:11	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10 0	3 6	1		12/12/15 16:11	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		12/12/15 16 11	1634-04-4	
Naphthalene	ND	ug/L	5 0	2.0	1		12/12/15 16 11	91-20-3	
Toluene	ND	ug/L	5 0	1 6	1		12/12/15 16:11	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		12/12/15 16 11	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		12/12/15 16 11	179601-23-1	
o-Xylene	ND	ug/L	5 0	1 6	1		12/12/15 16:11	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		12/12/15 16:11	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130		1		12/12/15 16:11	17060-07-0	
Toluene-d8 (S)	107	%	70-130		1		12/12/15 16:11	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No.: 92278594

Sample: DW-1		Lab ID: 92278594008		Collected: 12/04/15 11 38		Received: 12/05/15 10 00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.021	0.021	1	12/09/15 17:31	12/10/15 01:15	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	6	%	60-140		1	12/09/15 17:31	12/10/15 01:15	301-79-56	S2

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ANALYTICAL RESULTS

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No.: 92278594

Sample: SWS 1 Lab ID: 92278594009 Collected 12/04/15 13:20 Received: 12/05/15 10 00 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No	Qual
			Limit	MDL	DF				
8011 GCS EDB and DBCP		Analytical Method EPA 8011 Preparation Method. EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0 020	0 020	1	12/09/15 17:31	12/10/15 01:34	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	96	%	60-140		1	12/09/15 17:31	12/10/15 01.34	301-79-56	
8260 MSV Low Level SC		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		12/11/15 15 38	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		12/11/15 15:38	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		12/11/15 15 38	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50 0	1		12/11/15 15:38	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3 6	1		12/11/15 15:38	75-65-0	
tert-Butyl Formate	ND	ug/L	50 0	1 9	1		12/11/15 15:38	762-75-4	
1,2-Dichloroethane	ND	ug/L	1 0	0 24	1		12/11/15 15 38	107-06-2	
Diisopropyl ether	ND	ug/L	1 0	0 12	1		12/11/15 15:38	108-20-3	
Ethanol	ND	ug/L	200	33.0	1		12/11/15 15 38	64-17-5	
Ethylbenzene	ND	ug/L	1 0	0 30	1		12/11/15 15:38	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10 0	0 070	1		12/11/15 15:38	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1 0	0 21	1		12/11/15 15:38	1634-04-4	
Naphthalene	ND	ug/L	1.0	0 24	1		12/11/15 15:38	91-20-3	
Toluene	ND	ug/L	1.0	0 26	1		12/11/15 15:38	108-88-3	
Xylene (Total)	ND	ug/L	2.0	0.66	1		12/11/15 15:38	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0 66	1		12/11/15 15:38	179601-23-1	
o-Xylene	ND	ug/L	1 0	0 23	1		12/11/15 15:38	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		12/11/15 15:38	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130		1		12/11/15 15:38	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		12/11/15 15 38	2037-26-5	

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ANALYTICAL RESULTS

Project NICKLEPUMPER 233 04878/51360
 Pace Project No. 92278594

Sample: SWS 2 Lab ID: 92278594010 Collected: 12/04/15 13 24 Received 12/05/15 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP			Analytical Method: EPA 8011 Preparation Method: EPA 8011						
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	12/09/15 17:31	12/10/15 01:54	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	105	%	60-140		1	12/09/15 17:31	12/10/15 01:54	301-79-56	
8260 MSV Low Level SC			Analytical Method: EPA 8260						
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		12/11/15 15:54	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		12/11/15 15:54	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		12/11/15 15:54	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		12/11/15 15:54	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		12/11/15 15:54	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		12/11/15 15:54	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		12/11/15 15:54	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		12/11/15 15:54	108-20-3	
Ethanol	ND	ug/L	200	33.0	1		12/11/15 15:54	64-17-5	
Ethylbenzene	ND	ug/L	1.0	0.30	1		12/11/15 15:54	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		12/11/15 15:54	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		12/11/15 15:54	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		12/11/15 15:54	91-20-3	
Toluene	ND	ug/L	1.0	0.26	1		12/11/15 15:54	108-88-3	
Xylene (Total)	ND	ug/L	2.0	0.66	1		12/11/15 15:54	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		12/11/15 15:54	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		12/11/15 15:54	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		12/11/15 15:54	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		12/11/15 15:54	17060-07-0	
Toluene-d8 (S)	109	%	70-130		1		12/11/15 15:54	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No.: 92278594

Sample: SWS 3 Lab ID: 92278594011 Collected: 12/04/15 13.55 Received 12/05/15 10 00 Matrix Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
8011 GCS EDB and DBCP		Analytical Method EPA 8011		Preparation Method EPA 8011					
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	12/09/15 17:32	12/10/15 02:51	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	105	%	60-140		1	12/09/15 17:32	12/10/15 02:51	301-79-56	
8260 MSV Low Level SC		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		12/11/15 16:11	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		12/11/15 16:11	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		12/11/15 16:11	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		12/11/15 16:11	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		12/11/15 16:11	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		12/11/15 16:11	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		12/11/15 16:11	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		12/11/15 16:11	108-20-3	
Ethanol	ND	ug/L	200	33.0	1		12/11/15 16:11	64-17-5	
Ethylbenzene	ND	ug/L	1.0	0.30	1		12/11/15 16:11	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		12/11/15 16:11	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		12/11/15 16:11	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		12/11/15 16:11	91-20-3	
Toluene	0.59J	ug/L	1.0	0.26	1		12/11/15 16:11	108-88-3	
Xylene (Total)	ND	ug/L	2.0	0.66	1		12/11/15 16:11	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		12/11/15 16:11	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		12/11/15 16:11	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		12/11/15 16:11	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		12/11/15 16:11	17060-07-0	
Toluene-d8 (S)	106	%	70-130		1		12/11/15 16:11	2037-26-5	

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ANALYTICAL RESULTS

Project NICKLEPUMPER 233 04878/51360
 Pace Project No 92278594

Sample: MW 1 DUPLICATE Lab ID: 92278594012 Collected: 12/04/15 12:33 Received: 12/05/15 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method EPA 8011		Preparation Method EPA 8011					
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	12/09/15 17:32	12/10/15 03:10	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	163	%	60-140		1	12/09/15 17:32	12/10/15 03:10	301-79-56	S3
8260 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	7600	ug/L	500	384	5		12/13/15 02:44	75-85-4	
tert-Amylmethyl ether	ND	ug/L	50.0	17.0	5		12/13/15 02:44	994-05-8	
Benzene	3200	ug/L	250	85.0	50		12/14/15 11:44	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	500	160	5		12/13/15 02:44	624-95-3	
tert-Butyl Alcohol	4670	ug/L	500	288	5		12/13/15 02:44	75-65-0	
tert-Butyl Formate	ND	ug/L	250	36.5	5		12/13/15 02:44	762-75-4	
1,2-Dichloroethane	11.9J	ug/L	25.0	9.0	5		12/13/15 02:44	107-06-2	
Diisopropyl ether	ND	ug/L	25.0	8.5	5		12/13/15 02:44	108-20-3	
Ethanol	ND	ug/L	1000	689	5		12/13/15 02:44	64-17-5	
Ethylbenzene	1260	ug/L	250	80.0	50		12/14/15 11:44	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50.0	18.0	5		12/13/15 02:44	637-92-3	
Methyl-tert-butyl ether	875	ug/L	25.0	8.5	5		12/13/15 02:44	1634-04-4	
Naphthalene	521	ug/L	25.0	10.0	5		12/13/15 02:44	91-20-3	
Toluene	6510	ug/L	250	80.0	50		12/14/15 11:44	108-88-3	
Xylene (Total)	3370	ug/L	500	135	50		12/14/15 11:44	1330-20-7	
m&p-Xylene	1880	ug/L	50.0	15.5	5		12/13/15 02:44	179601-23-1	
o-Xylene	1490	ug/L	250	80.0	50		12/14/15 11:44	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130		5		12/13/15 02:44	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-130		5		12/13/15 02:44	17060-07-0	
Toluene-d8 (S)	100	%	70-130		5		12/13/15 02:44	2037-26-5	

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ANALYTICAL RESULTS

Project NICKLEPUMPER 233 04878/51360
 Pace Project No 92278594

Sample: FIELD BLANK Lab ID: 92278594013 Collected: 12/04/15 13:40 Received: 12/05/15 10:00 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	12/09/15 17:32	12/10/15 03:29	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	95	%	60-140		1	12/09/15 17:32	12/10/15 03:29	301-79-56	
8260 MSV									
Analytical Method: EPA 8260									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		12/12/15 16:28	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		12/12/15 16:28	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		12/12/15 16:28	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		12/12/15 16:28	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		12/12/15 16:28	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		12/12/15 16:28	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		12/12/15 16:28	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		12/12/15 16:28	108-20-3	
Ethanol	ND	ug/L	200	138	1		12/12/15 16:28	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		12/12/15 16:28	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		12/12/15 16:28	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		12/12/15 16:28	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		12/12/15 16:28	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		12/12/15 16:28	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		12/12/15 16:28	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		12/12/15 16:28	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		12/12/15 16:28	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		12/12/15 16:28	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		12/12/15 16:28	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		12/12/15 16:28	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No.: 92278594

Sample: TRIP BLANK Lab ID: 92278594014 Collected 12/04/15 13:43 Received: 12/05/15 10:00 Matrix Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		12/12/15 16:45	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		12/12/15 16:45	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		12/12/15 16:45	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		12/12/15 16:45	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		12/12/15 16:45	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		12/12/15 16:45	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		12/12/15 16:45	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		12/12/15 16:45	108-20-3	
Ethanol	ND	ug/L	200	138	1		12/12/15 16:45	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		12/12/15 16:45	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		12/12/15 16:45	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		12/12/15 16:45	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		12/12/15 16:45	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		12/12/15 16:45	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		12/12/15 16:45	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		12/12/15 16:45	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		12/12/15 16:45	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		12/12/15 16:45	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		12/12/15 16:45	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		12/12/15 16:45	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No. 92278594

Sample: DW-1 Soild Lab ID: 92278594015 Collected: 12/04/15 11:38 Received 12/05/15 10:00 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qual
8260/5035A SC Volatile Org									
Analytical Method EPA 8260									
tert-Amyl Alcohol	ND	ug/kg	100	21.0	1		12/15/15 17:19	75-85-4	
tert-Amylmethyl ether	ND	ug/kg	10.0	1.1	1		12/15/15 17:19	994-05-8	
Benzene	ND	ug/kg	5.0	1.6	1		12/15/15 17:19	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/kg	100	28.0	1		12/15/15 17:19	624-95-3	
tert-Butyl Alcohol	ND	ug/kg	100	19.0	1		12/15/15 17:19	75-65-0	
tert-Butyl Formate	ND	ug/kg	50.0	1.4	1		12/15/15 17:19	762-75-4	
1,2-Dichloroethane	ND	ug/kg	5.0	2.2	1		12/15/15 17:19	107-06-2	
Diisopropyl ether	ND	ug/kg	5.0	1.7	1		12/15/15 17:19	108-20-3	
Ethanol	ND	ug/kg	200	62.0	1		12/15/15 17:19	64-17-5	
Ethylbenzene	ND	ug/kg	5.0	1.8	1		12/15/15 17:19	100-41-4	
Ethyl-tert-butyl ether	ND	ug/kg	10.0	1.4	1		12/15/15 17:19	637-92-3	
Methyl-tert-butyl ether	ND	ug/kg	5.0	1.5	1		12/15/15 17:19	1634-04-4	
Naphthalene	ND	ug/kg	5.0	1.2	1		12/15/15 17:19	91-20-3	
Toluene	ND	ug/kg	5.0	1.8	1		12/15/15 17:19	108-88-3	
Xylene (Total)	ND	ug/kg	10.0	3.6	1		12/15/15 17:19	1330-20-7	
m&p-Xylene	ND	ug/kg	10.0	3.6	1		12/15/15 17:19	179601-23-1	
o-Xylene	ND	ug/kg	5.0	1.9	1		12/15/15 17:19	95-47-6	
Surrogates									
Toluene-d8 (S)	97	%	70-130		1		12/15/15 17:19	2037-26-5	1g
4-Bromofluorobenzene (S)	95	%	70-130		1		12/15/15 17:19	460-00-4	
1,2-Dichloroethane-d4 (S)	86	%	70-130		1		12/15/15 17:19	17060-07-0	

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QUALITY CONTROL DATA

Project: NICKLEPUMPER 233 04878/51360
Pace Project No: 92278594

QC Batch: MSV/34647 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level SC
Associated Lab Samples: 92278594009, 92278594010, 92278594011

METHOD BLANK: 1626806 Matrix: Water
Associated Lab Samples: 92278594009, 92278594010, 92278594011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	1 0	0.24	12/11/15 12 13	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	50 0	12/11/15 12 13	
Benzene	ug/L	ND	1 0	0 25	12/11/15 12:13	
Diisopropyl ether	ug/L	ND	1 0	0 12	12/11/15 12 13	
Ethanol	ug/L	ND	200	33.0	12/11/15 12:13	
Ethyl-tert-butyl ether	ug/L	ND	10.0	0 070	12/11/15 12 13	
Ethylbenzene	ug/L	ND	1 0	0.30	12/11/15 12:13	
m&p-Xylene	ug/L	ND	2.0	0.66	12/11/15 12:13	
Methyl-tert-butyl ether	ug/L	ND	1 0	0.21	12/11/15 12:13	
Naphthalene	ug/L	ND	1 0	0 24	12/11/15 12:13	
o-Xylene	ug/L	ND	1 0	0.23	12/11/15 12 13	
tert-Amyl Alcohol	ug/L	ND	100	50.0	12/11/15 12:13	
tert-Amylmethyl ether	ug/L	ND	10.0	0 10	12/11/15 12:13	
tert-Butyl Alcohol	ug/L	ND	100	3 6	12/11/15 12:13	
tert-Butyl Formate	ug/L	ND	50.0	1 9	12/11/15 12:13	
Toluene	ug/L	ND	1 0	0.26	12/11/15 12:13	
Xylene (Total)	ug/L	ND	2 0	0.66	12/11/15 12 13	
1,2-Dichloroethane-d4 (S)	%	92	70-130		12/11/15 12:13	
4-Bromofluorobenzene (S)	%	101	70-130		12/11/15 12 13	
Toluene-d8 (S)	%	113	70-130		12/11/15 12:13	

LABORATORY CONTROL SAMPLE: 1626807

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	46 4	93	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1070	107	70-130	
Benzene	ug/L	50	52 8	106	70-130	
Diisopropyl ether	ug/L	50	46 9	94	70-130	
Ethanol	ug/L	2000	1910	95	70-130	
Ethyl-tert-butyl ether	ug/L	100	104	104	70-130	
Ethylbenzene	ug/L	50	50.5	101	70-130	
m&p-Xylene	ug/L	100	101	101	70-130	
Methyl-tert-butyl ether	ug/L	50	50 9	102	70-130	
Naphthalene	ug/L	50	48 1	96	70-130	
o-Xylene	ug/L	50	48.9	98	70-130	
tert-Amyl Alcohol	ug/L	1000	1010	101	70-130	
tert-Amylmethyl ether	ug/L	100	97 4	97	70-130	
tert-Butyl Alcohol	ug/L	500	478	96	70-130	
tert-Butyl Formate	ug/L	400	383	96	70-130	
Toluene	ug/L	50	48.0	96	70-130	

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QUALITY CONTROL DATA

Project NICKLEPUMPER 233 04878/51360
Pace Project No.. 92278594

LABORATORY CONTROL SAMPLE: 1626807

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	150	100	70-130	
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No 92278594

QC Batch	MSV/34665	Analysis Method	EPA 8260
QC Batch Method	EPA 8260	Analysis Description	8260 MSV SC
Associated Lab Samples: 92278594003, 92278594004, 92278594005, 92278594006, 92278594007, 92278594013, 92278594014			

METHOD BLANK: 1627855 Matrix: Water
 Associated Lab Samples 92278594003, 92278594004, 92278594005, 92278594006, 92278594007, 92278594013, 92278594014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	1.8	12/12/15 13:36	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	32.1	12/12/15 13:36	
Benzene	ug/L	ND	5.0	1.7	12/12/15 13:36	
Diisopropyl ether	ug/L	ND	5.0	1.7	12/12/15 13:36	
Ethanol	ug/L	ND	200	138	12/12/15 13:36	
Ethyl-tert-butyl ether	ug/L	ND	10.0	3.6	12/12/15 13:36	
Ethylbenzene	ug/L	ND	5.0	1.6	12/12/15 13:36	
m&p-Xylene	ug/L	ND	10.0	3.1	12/12/15 13:36	
Methyl-tert-butyl ether	ug/L	ND	5.0	1.7	12/12/15 13:36	
Naphthalene	ug/L	ND	5.0	2.0	12/12/15 13:36	
o-Xylene	ug/L	ND	5.0	1.6	12/12/15 13:36	
tert-Amyl Alcohol	ug/L	ND	100	76.8	12/12/15 13:36	
tert-Amylmethyl ether	ug/L	ND	10.0	3.4	12/12/15 13:36	
tert-Butyl Alcohol	ug/L	ND	100	57.7	12/12/15 13:36	
tert-Butyl Formate	ug/L	ND	50.0	7.3	12/12/15 13:36	
Toluene	ug/L	ND	5.0	1.6	12/12/15 13:36	
Xylene (Total)	ug/L	ND	10.0	2.7	12/12/15 13:36	
1,2-Dichloroethane-d4 (S)	%	96	70-130		12/12/15 13:36	
4-Bromofluorobenzene (S)	%	100	70-130		12/12/15 13:36	
Toluene-d8 (S)	%	105	70-130		12/12/15 13:36	

LABORATORY CONTROL SAMPLE: 1627856

Parameter	Units	Spike Conc	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	39.7	79	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1050	105	70-130	
Benzene	ug/L	50	47.7	95	70-130	
Diisopropyl ether	ug/L	50	40.9	82	70-130	
Ethanol	ug/L	2000	1750	88	70-130	
Ethyl-tert-butyl ether	ug/L	100	88.4	88	70-130	
Ethylbenzene	ug/L	50	47.0	94	70-130	
m&p-Xylene	ug/L	100	93.1	93	70-130	
Methyl-tert-butyl ether	ug/L	50	45.1	90	70-130	
Naphthalene	ug/L	50	45.4	91	70-130	
o-Xylene	ug/L	50	45.3	91	70-130	
tert-Amyl Alcohol	ug/L	1000	959	96	70-130	
tert-Amylmethyl ether	ug/L	100	83.8	84	70-130	
tert-Butyl Alcohol	ug/L	500	433	87	70-130	
tert-Butyl Formate	ug/L	400	341	85	70-130	
Toluene	ug/L	50	42.7	85	70-130	

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QUALITY CONTROL DATA

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No.: 92278594

LABORATORY CONTROL SAMPLE: 1627856

Parameter	Units	Spike Conc	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	138	92	70-130	
1,2-Dichloroethane-d4 (S)	%			100	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			95	70-130	

MATRIX SPIKE SAMPLE: 1627858

Parameter	Units	92278921041 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	18.3	91	70-130	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	442	110	70-130	
Benzene	ug/L	ND	20	20.9	104	70-130	
Diisopropyl ether	ug/L	1.8J	20	19.0	86	70-130	
Ethanol	ug/L	ND	800	649	81	70-130	
Ethyl-tert-butyl ether	ug/L	ND	40	36.1	90	70-130	
Ethylbenzene	ug/L	ND	20	20.9	105	70-130	
m&p-Xylene	ug/L	ND	40	43.8	109	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	18.0	90	70-130	
Naphthalene	ug/L	ND	20	18.9	95	70-130	
o-Xylene	ug/L	ND	20	21.3	107	70-130	
tert-Amyl Alcohol	ug/L	ND	400	381	95	70-130	
tert-Amylmethyl ether	ug/L	ND	40	36.5	91	70-130	
tert-Butyl Alcohol	ug/L	ND	200	274	137	70-130	M1
tert-Butyl Formate	ug/L	ND	160	ND	0	70-130	M1
Toluene	ug/L	ND	20	21.0	105	70-130	
1,2-Dichloroethane-d4 (S)	%				101	70-130	
4-Bromofluorobenzene (S)	%				95	70-130	
Toluene-d8 (S)	%				100	70-130	

SAMPLE DUPLICATE: 1627857

Parameter	Units	92278921040 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	24.6	20.6	18	30	
Diisopropyl ether	ug/L	13.5	11.7	15	30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	2.4J	2.4J		30	
m&p-Xylene	ug/L	4.9J	3.1J		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project NICKLEPUMPER 233 04878/51360
Pace Project No.: 92278594

SAMPLE DUPLICATE 1627857

Parameter	Units	92278921040 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	105	95	10		
4-Bromofluorobenzene (S)	%	98	100	2		
Toluene-d8 (S)	%	101	106	5		

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QUALITY CONTROL DATA

Project NICKLEPUMPER 233 04878/51360
 Pace Project No.: 92278594

QC Batch: MSV/34672 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92278594001, 92278594002, 92278594012

METHOD BLANK: 1627918 Matrix: Water
 Associated Lab Samples: 92278594001, 92278594002, 92278594012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	1.8	12/12/15 21:28	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	32.1	12/12/15 21:28	
Benzene	ug/L	ND	5.0	1.7	12/12/15 21:28	
Diisopropyl ether	ug/L	ND	5.0	1.7	12/12/15 21:28	
Ethanol	ug/L	ND	200	138	12/12/15 21:28	
Ethyl-tert-butyl ether	ug/L	ND	10.0	3.6	12/12/15 21:28	
Ethylbenzene	ug/L	ND	5.0	1.6	12/12/15 21:28	
m&p-Xylene	ug/L	ND	10.0	3.1	12/12/15 21:28	
Methyl-tert-butyl ether	ug/L	ND	5.0	1.7	12/12/15 21:28	
Naphthalene	ug/L	ND	5.0	2.0	12/12/15 21:28	
o-Xylene	ug/L	ND	5.0	1.6	12/12/15 21:28	
tert-Amyl Alcohol	ug/L	ND	100	76.8	12/12/15 21:28	
tert-Amylmethyl ether	ug/L	ND	10.0	3.4	12/12/15 21:28	
tert-Butyl Alcohol	ug/L	ND	100	57.7	12/12/15 21:28	
tert-Butyl Formate	ug/L	ND	50.0	7.3	12/12/15 21:28	
Toluene	ug/L	ND	5.0	1.6	12/12/15 21:28	
Xylene (Total)	ug/L	ND	10.0	2.7	12/12/15 21:28	
1,2-Dichloroethane-d4 (S)	%	101	70-130		12/12/15 21:28	
4-Bromofluorobenzene (S)	%	99	70-130		12/12/15 21:28	
Toluene-d8 (S)	%	100	70-130		12/12/15 21:28	

LABORATORY CONTROL SAMPLE: 1627919

Parameter	Units	Spike Conc	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	44.2	88	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1300	130	70-130	
Benzene	ug/L	50	48.4	97	70-130	
Diisopropyl ether	ug/L	50	48.7	97	70-130	
Ethanol	ug/L	2000	2510	126	70-130	
Ethyl-tert-butyl ether	ug/L	100	103	103	70-130	
Ethylbenzene	ug/L	50	49.4	99	70-130	
m&p-Xylene	ug/L	100	102	102	70-130	
Methyl-tert-butyl ether	ug/L	50	48.3	97	70-130	
Naphthalene	ug/L	50	54.5	109	70-130	
o-Xylene	ug/L	50	49.2	98	70-130	
tert-Amyl Alcohol	ug/L	1000	1200	120	70-130	
tert-Amylmethyl ether	ug/L	100	96.0	96	70-130	
tert-Butyl Alcohol	ug/L	500	573	115	70-130	
tert-Butyl Formate	ug/L	400	426	106	70-130	
Toluene	ug/L	50	49.1	98	70-130	

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QUALITY CONTROL DATA

Project NICKLEPUMPER 233 04878/51360
Pace Project No 92278594

LABORATORY CONTROL SAMPLE 1627919

Parameter	Units	Spike Conc	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	152	101	70-130	
1,2-Dichloroethane-d4 (S)	%			100	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE SAMPLE 1627920

Parameter	Units	92278643006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	18.9	94	70-130	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	303	76	70-130	
Benzene	ug/L	ND	20	20.8	104	70-130	
Diisopropyl ether	ug/L	ND	20	21.0	105	70-130	
Ethanol	ug/L	ND	800	501	59	70-130	M1
Ethyl-tert-butyl ether	ug/L	ND	40	43.2	108	70-130	
Ethylbenzene	ug/L	ND	20	21.5	107	70-130	
m&p-Xylene	ug/L	ND	40	43.7	109	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	19.9	100	70-130	
Naphthalene	ug/L	ND	20	19.3	96	70-130	
o-Xylene	ug/L	ND	20	20.7	103	70-130	
tert-Amyl Alcohol	ug/L	ND	400	321	80	70-130	
tert-Amylmethyl ether	ug/L	ND	40	38.8	97	70-130	
tert-Butyl Alcohol	ug/L	ND	200	230	115	70-130	
tert-Butyl Formate	ug/L	ND	160	ND	0	70-130	P5
Toluene	ug/L	ND	20	21.4	107	70-130	
1,2-Dichloroethane-d4 (S)	%				99	70-130	
4-Bromofluorobenzene (S)	%				97	70-130	
Toluene-d8 (S)	%				100	70-130	

SAMPLE DUPLICATE. 1627921

Parameter	Units	92278643007 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No.. 92278594

SAMPLE DUPLICATE: 1627921

Parameter	Units	92278643007 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	104	104	0		
4-Bromofluorobenzene (S)	%	99	98	1		
Toluene-d8 (S)	%	100	101	0		

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QUALITY CONTROL DATA

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No. 92278594

QC Batch: MSV/34714 Analysis Method: EPA 8260
 QC Batch Method EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
 Associated Lab Samples 92278594015

METHOD BLANK. 1629390 Matrix: Solid
 Associated Lab Samples. 92278594015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/kg	ND	5.3	2.4	12/15/15 13:02	
3,3-Dimethyl-1-Butanol	ug/kg	ND	107	29.9	12/15/15 13:02	
Benzene	ug/kg	ND	5.3	1.7	12/15/15 13:02	
Diisopropyl ether	ug/kg	ND	5.3	1.8	12/15/15 13:02	
Ethanol	ug/kg	ND	214	66.2	12/15/15 13:02	
Ethyl-tert-butyl ether	ug/kg	ND	10.7	1.5	12/15/15 13:02	
Ethylbenzene	ug/kg	ND	5.3	1.9	12/15/15 13:02	
m&p-Xylene	ug/kg	ND	10.7	3.8	12/15/15 13:02	
Methyl-tert-butyl ether	ug/kg	ND	5.3	1.6	12/15/15 13:02	
Naphthalene	ug/kg	1.8J	5.3	1.3	12/15/15 13:02	
o-Xylene	ug/kg	ND	5.3	2.0	12/15/15 13:02	
tert-Amyl Alcohol	ug/kg	ND	107	22.4	12/15/15 13:02	
tert-Amylmethyl ether	ug/kg	ND	10.7	1.2	12/15/15 13:02	
tert-Butyl Alcohol	ug/kg	ND	107	20.3	12/15/15 13:02	
tert-Butyl Formate	ug/kg	ND	53.4	1.5	12/15/15 13:02	
Toluene	ug/kg	ND	5.3	1.9	12/15/15 13:02	
Xylene (Total)	ug/kg	ND	10.7	3.8	12/15/15 13:02	
1,2-Dichloroethane-d4 (S)	%	102	70-130		12/15/15 13:02	
4-Bromofluorobenzene (S)	%	96	70-130		12/15/15 13:02	
Toluene-d8 (S)	%	100	70-130		12/15/15 13:02	

LABORATORY CONTROL SAMPLE: 1629391

Parameter	Units	Spike Conc	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/kg	50.7	53.5	105	70-130	
3,3-Dimethyl-1-Butanol	ug/kg	1010	1240	122	70-130	
Benzene	ug/kg	50.7	54.8	108	70-130	
Diisopropyl ether	ug/kg	50.7	52.7	104	70-130	
Ethanol	ug/kg	2030	2050	101	70-130	
Ethyl-tert-butyl ether	ug/kg	101	109	108	70-130	
Ethylbenzene	ug/kg	50.7	52.2	103	70-130	
m&p-Xylene	ug/kg	101	99.4	98	70-130	
Methyl-tert-butyl ether	ug/kg	50.7	55.7	110	70-130	
Naphthalene	ug/kg	50.7	64.5	127	70-130	
o-Xylene	ug/kg	50.7	53.3	105	70-130	
tert-Amyl Alcohol	ug/kg	1010	1300	128	70-130	
tert-Amylmethyl ether	ug/kg	101	110	108	70-130	
tert-Butyl Alcohol	ug/kg	507	633	125	70-130	
tert-Butyl Formate	ug/kg	406	416	103	70-130	
Toluene	ug/kg	50.7	54.5	108	70-130	

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QUALITY CONTROL DATA

Project: NICKLEPUMPER 233 04878/51360
Pace Project No.. 92278594

LABORATORY CONTROL SAMPLE 1629391

Parameter	Units	Spike Conc	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/kg	152	153	100	70-130	
1,2-Dichloroethane-d4 (S)	%			106	70-130	
4-Bromofluorobenzene (S)	%			95	70-130	
Toluene-d8 (S)	%			100	70-130	

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QUALITY CONTROL DATA

Project NICKLEPUMPER 233 04878/51360
 Pace Project No 92278594

QC Batch: OEXT/39572 Analysis Method: EPA 8011
 QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
 Associated Lab Samples: 92278594001, 92278594002, 92278594003, 92278594004, 92278594005, 92278594006

METHOD BLANK: 1623593 Matrix: Water
 Associated Lab Samples: 92278594001, 92278594002, 92278594003, 92278594004, 92278594005, 92278594006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	0.020	12/10/15 00 20	
1-Chloro-2-bromopropane (S)	%	86	60-140		12/10/15 00 20	

LABORATORY CONTROL SAMPLE & LCSD: 1623594

1623595

Parameter	Units	Spike Conc	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.29	0.24	0.24	84	84	60-140	2	20	
1-Chloro-2-bromopropane (S)	%				85	84	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE 1623596

1623597

Parameter	Units	92278558028 Result	MS Spike Conc	MSD Spike Conc	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	28	28	0.25	0.25	90	90	60-140	0	20	
1-Chloro-2-bromopropane (S)	%						90	89	60-140			

SAMPLE DUPLICATE: 1623598

Parameter	Units	92278558029 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	84	78	9		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No.: 92278594

QC Batch: OEXT/39574 Analysis Method: EPA 8011
 QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
 Associated Lab Samples: 92278594007, 92278594008, 92278594009, 92278594010, 92278594011, 92278594012, 92278594013

METHOD BLANK: 1623616 Matrix: Water
 Associated Lab Samples: 92278594007, 92278594008, 92278594009, 92278594010, 92278594011, 92278594012, 92278594013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.021	0.021	12/09/15 23:59	
1-Chloro-2-bromopropane (S)	%	102	60-140		12/09/15 23:59	

LABORATORY CONTROL SAMPLE & LCSD: 1623617 1623618

Parameter	Units	Spike Conc	LCS Result	LCSD Result	% Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	29	0.28	0.29	98	100	60-140	2	20	
1-Chloro-2-bromopropane (S)	%				98	106	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1623619 1623620

Parameter	Units	92278594010 Result	MS Spike Conc	MSD Spike Conc	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	28	28	0.31	0.28	108	98	60-140	10	20	
1-Chloro-2-bromopropane (S)	%						109	99	60-140			

SAMPLE DUPLICATE: 1623621

Parameter	Units	92278594013 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	95	228	83		S3

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: NICKLEPUMPER 233 04878/51360

Pace Project No 92278594

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

MDL - Adjusted Method Detection Limit

PQL - Practical Quantitation Limit

RL - Reporting Limit

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270 The result reported for each analyte is a combined concentration

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

- 1g The sample was weighed and preserved in the laboratory from a soil jar. Sample was not preserved within 48 hours.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- P5 The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes
- S2 Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis)
- S3 Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NICKLEPUMPER 233 04878/51360
 Pace Project No 92278594

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92278594001	MW 1	EPA 8011	OEXT/39572	EPA 8011	GCSV/23494
92278594002	MW 2	EPA 8011	OEXT/39572	EPA 8011	GCSV/23494
92278594003	MW 4R	EPA 8011	OEXT/39572	EPA 8011	GCSV/23494
92278594004	MW 5	EPA 8011	OEXT/39572	EPA 8011	GCSV/23494
92278594005	MW 6	EPA 8011	OEXT/39572	EPA 8011	GCSV/23494
92278594006	MW 7	EPA 8011	OEXT/39572	EPA 8011	GCSV/23494
92278594007	MW 8	EPA 8011	OEXT/39574	EPA 8011	GCSV/23496
92278594008	DW-1	EPA 8011	OEXT/39574	EPA 8011	GCSV/23496
92278594009	SWS 1	EPA 8011	OEXT/39574	EPA 8011	GCSV/23496
92278594010	SWS 2	EPA 8011	OEXT/39574	EPA 8011	GCSV/23496
92278594011	SWS 3	EPA 8011	OEXT/39574	EPA 8011	GCSV/23496
92278594012	MW 1 DUPLICATE	EPA 8011	OEXT/39574	EPA 8011	GCSV/23496
92278594013	FIELD BLANK	EPA 8011	OEXT/39574	EPA 8011	GCSV/23496
92278594009	SWS 1	EPA 8260	MSV/34647		
92278594010	SWS 2	EPA 8260	MSV/34647		
92278594011	SWS 3	EPA 8260	MSV/34647		
92278594001	MW 1	EPA 8260	MSV/34672		
92278594002	MW 2	EPA 8260	MSV/34672		
92278594003	MW 4R	EPA 8260	MSV/34665		
92278594004	MW 5	EPA 8260	MSV/34665		
92278594005	MW 6	EPA 8260	MSV/34665		
92278594006	MW 7	EPA 8260	MSV/34665		
92278594007	MW 8	EPA 8260	MSV/34665		
92278594012	MW 1 DUPLICATE	EPA 8260	MSV/34672		
92278594013	FIELD BLANK	EPA 8260	MSV/34665		
92278594014	TRIP BLANK	EPA 8260	MSV/34665		
92278594015	DW-1 Soild	EPA 8260	MSV/34714		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt (SCUR)

Document Number:
F-CHR-CS-003-rev.16.1

Page 1 of 2*
Issuing Authority:
Pace Huntersville Quality Office

Client Name: SCDHREC

* Page 2 of 2 is for Internal Use Only

Carrier: Fed Ex UP USP Other Commercial Pace Other _____

Body Seal on Cooler/Box Present: yes no Seals intact: yes no

Insulating Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used: IR Gun T1505 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Temperature Correction Factor: No Correction

Refrigerated Cooler Temp.: 3.5 °C

Biological Tissue is Frozen: Yes No N/A

Date and Initials of person examining contents: 12-7-15

Temp should be above freezing to 6°C

Comments:

Number of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Number of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Number of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Collector Name & Signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Actual Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Minimum Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sample Volume:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Proper Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Correct volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. <i>No date or time on 6 samples</i>
Labels includes date/time/ID/Analysis Matrix: <u>W2</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Tests: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.
Dispace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	16.
Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Reference Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

JRF Review:	<u>TC</u>	Date:	<u>12/7/15</u>
SRF Review:	<u>TC</u>	Date:	<u>12/7/15</u>

Place label here

WO#: 92278594



92278594

Notes: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Page: 1 of 2
Company: SCDHEC - UST	Report To: J. Bryant - UST	Attention:	2000173
Address: 2600 Bull Street Columbia, SC 29201	Copy To:	Company Name:	REGULATORY AGENCY
Email To: Bryant JC@dhec.sc.gov	Purchase Order No.: 4600422513	Address:	
Phone: 803 998 0666	Project Name: Nicklepumper 233	Pace Quote Reference:	<input checked="" type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
Requested Due Date/TAT:	Project Number: UST#04978 CA# 51360	Pace Project Manager: T. Carter	Site Location: SC Jasper
		Pace Profile #:	STATE: SC Jasper

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATERIAL CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
					COMPOSITE START	COMPOSITE END/GRAB	DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃			
1	MW 1		WT	G			12/4/15	12:30	6	6										92278594 Pace Project No./ Lab I.D.	
2	MW 2		WT					12:43												Strong odor 001	
3	MW 3																			odor 002	
4	MW 4R		WT					11:15												Not Sampled -	
5	MW 5							11:04												slight odor 003	
6	MW 6							11:51												slight odor 004	
7	MW 7							10:32												no odor 005	
8	MW 8							10:49												no odor 006	
9	DW-1							11:38												no odor 007	
10	SWS 1		DW					13:20												no odor /IDL 009	
11	SWS 2							13:24												no odor /IDL 010	
12	SWS 3							13:55												no odor /IDL 011	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>Chris Hansen</i>	12-5	10:00	<i>Chris Hansen</i>	12-5	10:00	3.5 ✓ w ✓

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Chris Hansen					
SIGNATURE of SAMPLER: <i>Chris Hansen</i>	DATE Signed (MM/DD/YY): 12/04/15				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page 37 of 37

Page: 2 of 2
 2000174

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	
Company: <u>SCDHEC - UST</u>	Report To: <u>J. Bryant - UST</u>	Attention:	
Address: <u>2600 Bull Street Columbia, SC 29201</u>	Copy To:	Company Name:	REGULATORY AGENCY
Email To: <u>Byrant, JC@dhe.sc.gov</u>	Purchase Order No.: <u>4600422573</u>	Address:	<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input checked="" type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____
Phone: <u>803 898 0606</u> Fax: <u>803 898 0623</u>	Project Name: <u>Nicklepumper 233</u>	Pace Quote Reference:	Site Location STATE: <u>SC</u> <u>Jasper</u>
Requested Due Date/TAT:	Project Number: <u>UST# 04878 Co# 51360</u>	Pace Project Manager: <u>T. Carter</u> Pace Profile #:	


ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives									Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)																															
					COMPOSITE START	COMPOSITE END	START	TIME			DATE	TIME	UNPRESERVED	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₈	Methanol			Other	Analysis Test ↓																													
1	MW Duplicate		WT	G					6																																											
2	Field Blank		WT	G					6																																											
3	Trip Blank		WT	G					6																																											
4	WSW 1								2																																											
5																																																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS						
	<u>Chris Hansen</u>	<u>12-5-15</u>	<u>10:00</u>	<u>Chris Hansen</u>	<u>12-5-15</u>	<u>10:00</u>	<u>35</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

ORIGINAL	SAMPLER NAME AND SIGNATURE		
	PRINT Name of SAMPLER: <u>Chris Hansen</u>	Temp in °C	Received on Ice (Y/N)
	SIGNATURE of SAMPLER: <u>Chris Hansen</u>	Cooler Sealed (Y/N)	Cooler (Y/N)
	DATE Signed (MM/DD/YYYY):	Samples Intact (Y/N)	

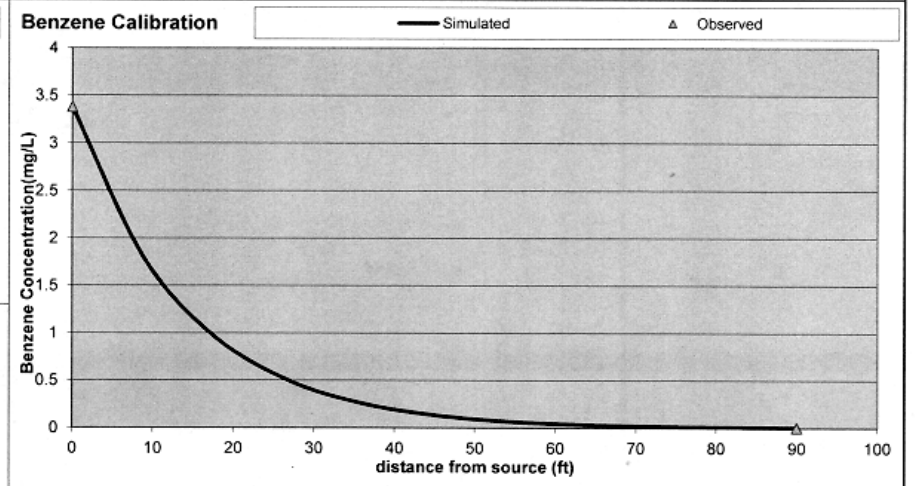
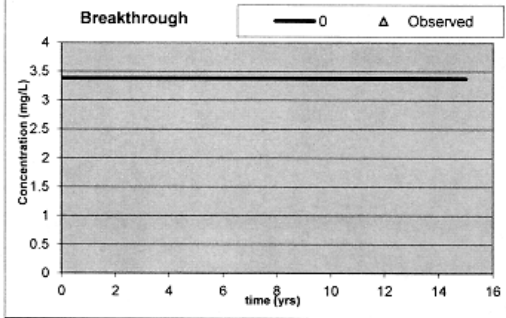
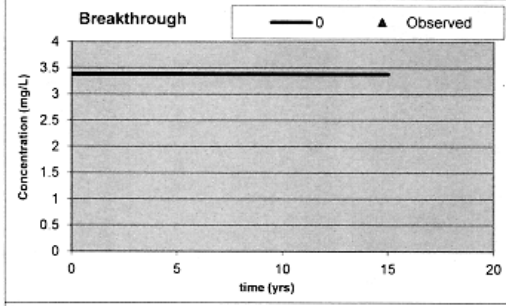
*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days. F-ALL-Q-020rev.07, 15-May-2007

Domenico Model			Transport Parameters			Simulation Time		
UST # 04878 Site Name: Nickelpumpers 233 Modeler: J. Bryant Date: 2/4/2016			x_{max} <input type="text" value="90"/> ft y_{max} <input type="text" value="0"/> ft z <input type="text" value="0"/> ft Source Width <input type="text" value="30"/> ft Source Thickness <input type="text" value="15"/> ft			t_{sim} <input type="text" value="15"/> yrs		
Groundwater Flow Parameters			Plume Length			Aquifer Characteristics		
K <input type="text" value="-"/> ft/yr dh/dx <input type="text" value="-"/> θ <input type="text" value="0.2"/> dec. % v_x <input type="text" value="10"/> ft/yr			α_x <input type="text" value="6.547125"/> ft α_y <input type="text" value="0.654712"/> ft α_z <input type="text" value="1.00E-99"/> ft			ρ_d <input type="text" value="1.7"/> kg/L f_{oc} <input type="text" value="0.0002"/>		
Source Area CoC Data			Retarded Velocity (ft/yr)			Simulation Points for Breakthrough Curves		
CoC	C_{source} (mg/L)	K_{oc} (L/kg)	CoC	R	v_R	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft
Benzene	3.38	81	Benzene	1.138	8.79	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft
Toluene	6.53	133	Toluene	1.226	8.16	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft
Ethylbenzene	1.28	176	Ethylbenzene	1.299	7.70	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft
Xylenes	3.45	639	Xylenes	2.086	4.79	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft
Naphthalene	0.503	1543	Naphthalene	3.623	2.76	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft	<input type="text" value="0"/> ft
MtBE	0.91	11	MtBE	1.019	9.82			
EDB		28	EDB	1.048	9.55			
1,2-DCA		17.5	1,2-DCA	1.030	9.71			



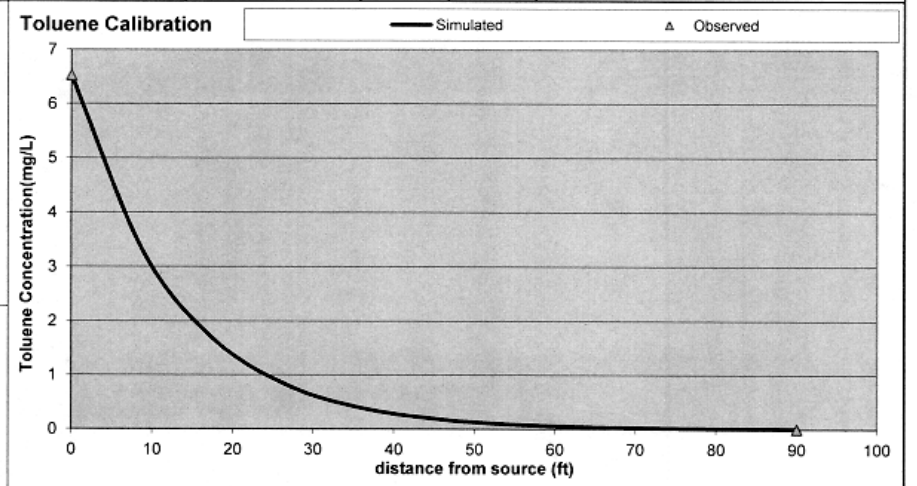
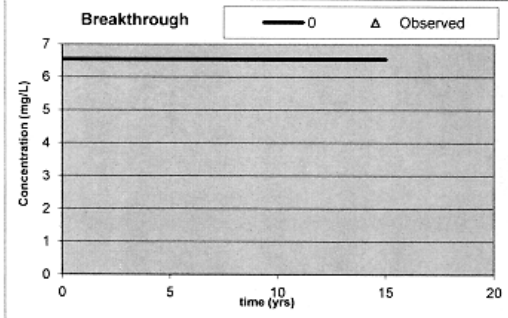
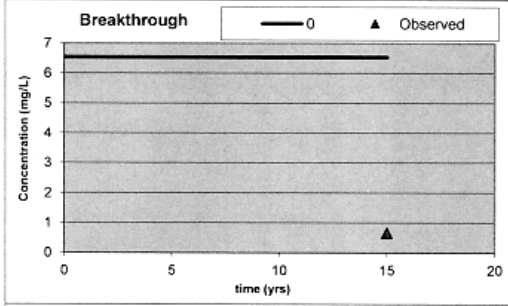
$$C(x, y, z, t) = \left(\frac{C_0}{8}\right) \exp\left[\left(\frac{x}{2\alpha_x}\right)\left(1 - \sqrt{1 + \frac{4\lambda\alpha_x}{v}}\right)\right] \operatorname{erfc}\left[\frac{x - vt\sqrt{1 + \frac{4\lambda\alpha_x}{v}}}{2\sqrt{\alpha_x vt}}\right] \left\{ \operatorname{erf}\left[\frac{y + \frac{Y}{2}}{2\sqrt{\alpha_y x}}\right] - \operatorname{erf}\left[\frac{y - \frac{Y}{2}}{2\sqrt{\alpha_y x}}\right] \right\} \left\{ \operatorname{erf}\left[\frac{z + Z}{2\sqrt{\alpha_z x}}\right] - \operatorname{erf}\left[\frac{z - Z}{2\sqrt{\alpha_z x}}\right] \right\}$$

Benzene Calibration									
Spatial Calibration Data (centerline)			Temporal Calibration Data				Site ID 04878 Site Name Nickelpumpers 233		
x	C _{obs} (mg/L)	C _{sim} (mg/L)	t (yrs)	C _{obs} (mg/L)	C _{sim} (mg/L)	C _{obs} (mg/L)	C _{sim} (mg/L)	Model Calibration Parameters	
0	3.38	3.38	0		3.38		3.38	t _{1/2} 0.76 yrs	λ 0.91184 yr ⁻¹
9		1.786	1.5		3.380		3.380	v _x 10 ft/yr	
18		0.942	3		3.380		3.380	R 1.138	
27		0.493	4.5		3.380		3.380	v _R 8.790 ft/yr	C _{source} 3.38 mg/L
36		0.256	6		3.380		3.380	L _p 90 ft	t _{sim} 15 yrs
45		0.132	7.5		3.380		3.380	α _x 6.547125 ft	
54		0.068	9		3.380		3.380	α _y 0.654712 ft	
63		0.035	10.5		3.380		3.380	α _z 1E-99 ft	
72		0.018	12		3.380		3.380		
81		0.009	13.5		3.380		3.380		
90	0.005	0.005	15		3.380		3.380		



Source	9	18	27	36	45	54	63	72	81	90
0	1.78620648	0.94207696	0.49304972	0.25601096	0.13225931	0.0681456	0.035072	0.018046	0.009288	0.004783
0	1.78620648	0.94207696	0.49304972	0.25601096	0.13225931	0.0681456	0.035072	0.018046	0.009288	0.004783
0	1.78620648	0.94207696	0.49304972	0.25601096	0.13225931	0.0681456	0.035072	0.018046	0.009288	0.004783
0	1.78620648	0.94207696	0.49304972	0.25601096	0.13225931	0.0681456	0.035072	0.018046	0.009288	0.004783
0	1.78620648	0.94207696	0.49304972	0.25601096	0.13225931	0.0681456	0.035072	0.018046	0.009288	0.004783

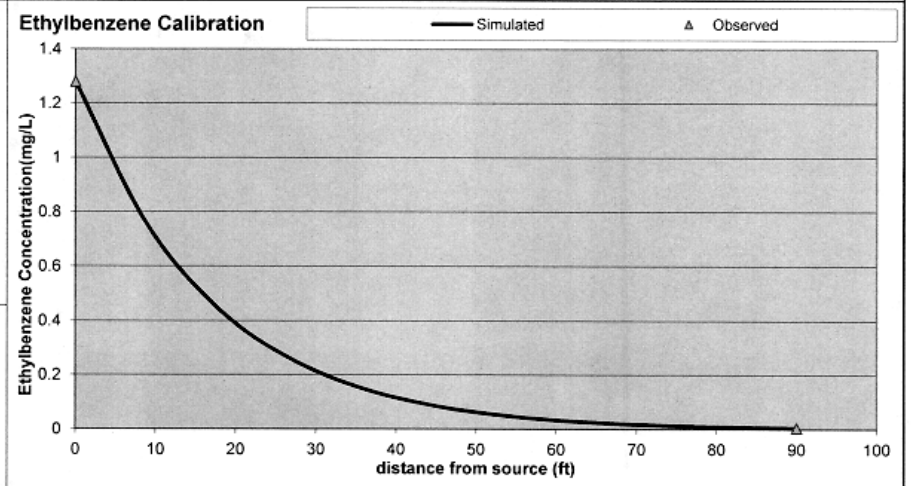
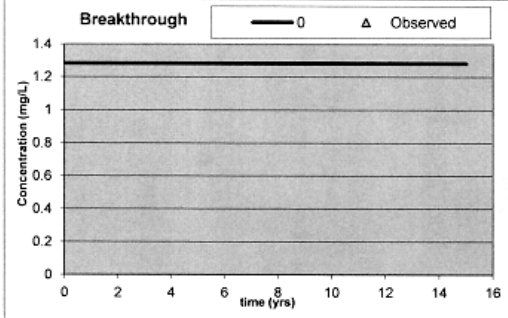
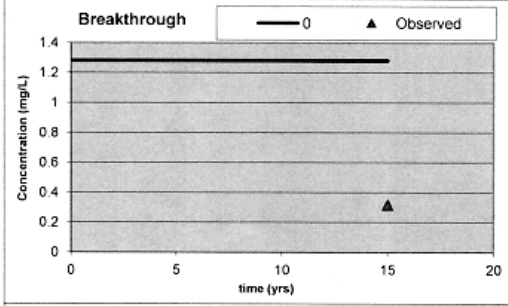
Toluene Calibration									
Spatial Calibration Data (centerline)			Temporal Calibration Data					Site ID 04878 Site Name Nickelpumpers 233	
x	C _{obs} (mg/L)	C _{sim} (mg/L)	t (yrs)	C _{obs} (mg/L)	C _{sim} (mg/L)	C _{obs} (mg/L)	C _{sim} (mg/L)	Model Calibration Parameters	
0	6.53	6.53	0		6.53		6.53	t _{1/2} 0.73 yrs	λ 0.94932 yr ⁻¹
9		3.257	1.5		6.530		6.530	v _s 10 ft/yr	
18		1.621	3		6.530		6.530	R 1.226	
27		0.801	4.5		6.530		6.530	v _R 8.156 ft/yr	C _{source} 6.53 mg/L
36		0.392	6		6.530		6.530	L _p 90 ft	t _{sim} 15 yrs
45		0.191	7.5		6.530		6.530	α _x 6.547125 ft	
54		0.093	9		6.530		6.530	α _y 0.654712 ft	
63		0.045	10.5		6.530		6.530	α _z 1E-99 ft	
72		0.022	12		6.530		6.530		
81		0.011	13.5		6.530		6.530		
90	0.005	0.005	15	0.669	6.530		6.530		



Source	9	18	27	36	45	54	63	72	81	90
0	3.25700585	1.62130103	0.8008633	0.39247918	0.19137038	0.093063	0.045205	0.021953	0.010664	0.005183
0	3.25700585	1.62130103	0.8008633	0.39247918	0.19137038	0.093063	0.045205	0.021953	0.010664	0.005183
0	3.25700585	1.62130103	0.8008633	0.39247918	0.19137038	0.093063	0.045205	0.021953	0.010664	0.005183
0	3.25700585	1.62130103	0.8008633	0.39247918	0.19137038	0.093063	0.045205	0.021953	0.010664	0.005183
0	3.25700585	1.62130103	0.8008633	0.39247918	0.19137038	0.093063	0.045205	0.021953	0.010664	0.005183

Ethylbenzene Calibration								
Spatial Calibration Data (centerline)			Temporal Calibration Data				Site ID 04878 Site Name Nickelpumpers 233	
x	C _{obs} (mg/L)	C _{sim} (mg/L)	t (yrs)	C _{obs} (mg/L)	C _{sim} (mg/L)	C _{obs} (mg/L)	C _{sim} (mg/L)	
0	1.28	1.28	0		1.28		1.28	
9		0.752	1.5		1.280		1.280	
18		0.441	3		1.280		1.280	
27		0.257	4.5		1.280		1.280	
36		0.148	6		1.280		1.280	
45		0.085	7.5		1.280		1.280	
54		0.049	9		1.280		1.280	
63		0.028	10.5		1.280		1.280	
72		0.016	12		1.280		1.280	
81		0.009	13.5		1.280		1.280	
90	0.005	0.005	15	0.318	1.280		1.280	

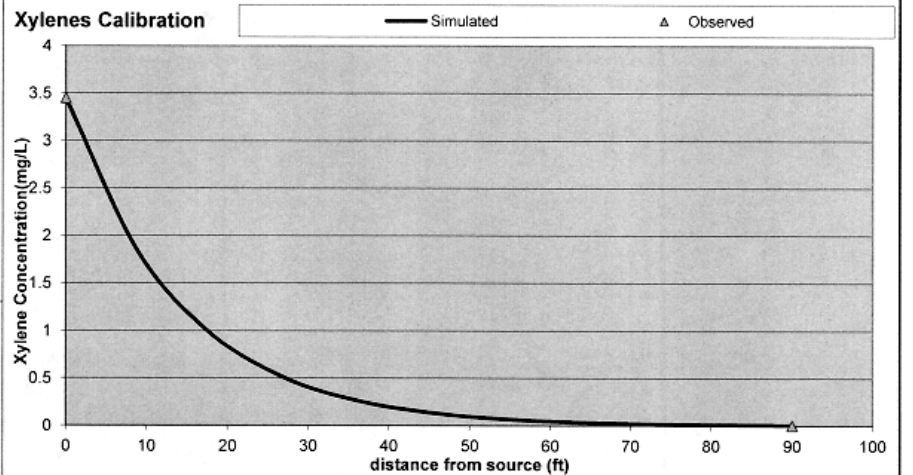
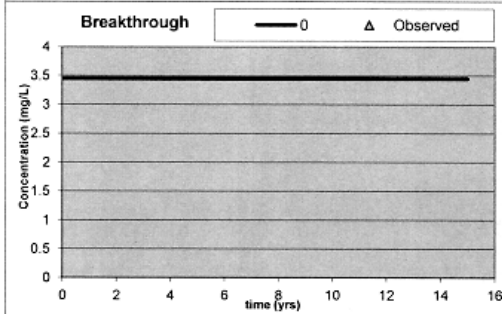
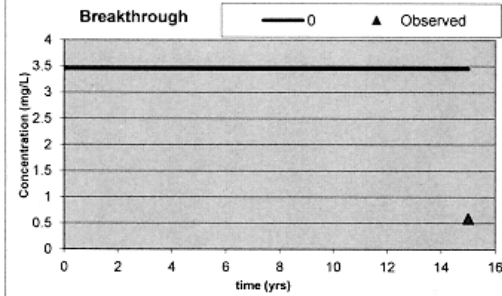
Model Calibration Parameters				
t _{1/2}	1.1	yrs	λ	0.63 yr ⁻¹
v _s	10	ft/yr		
R	1.299			
v _R	7.697	ft/yr	C _{source}	1.28 mg/L
L _p	90	ft	t _{sim}	15 yrs
α _s	6.547125	ft		
α _y	0.654712	ft		
α _z	1E-99	ft		



Source	9	18	27	36	45	54	63	72	81	90
0	0.75242614	0.44142549	0.25698045	0.14842427	0.08529159	0.0488813	0.027981	0.016012	0.009164	0.005245
0	0.75242614	0.44142549	0.25698045	0.14842427	0.08529159	0.0488813	0.027981	0.016012	0.009164	0.005245
0	0.75242614	0.44142549	0.25698045	0.14842427	0.08529159	0.0488813	0.027981	0.016012	0.009164	0.005245
0	0.75242614	0.44142549	0.25698045	0.14842427	0.08529159	0.0488813	0.027981	0.016012	0.009164	0.005245
0	0.75242614	0.44142549	0.25698045	0.14842427	0.08529159	0.0488813	0.027981	0.016012	0.009164	0.005245

Xylenes Calibration

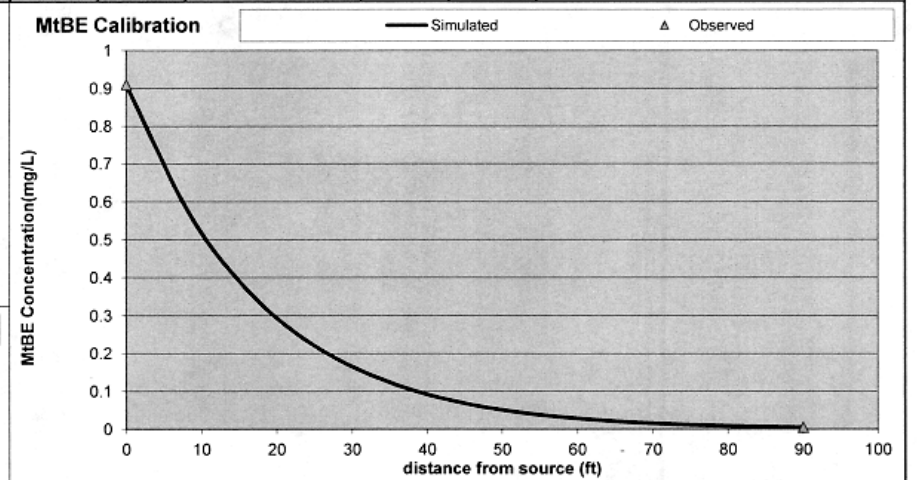
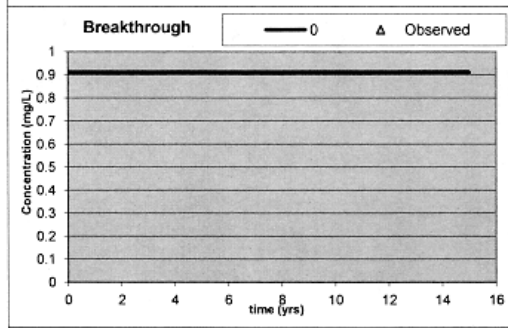
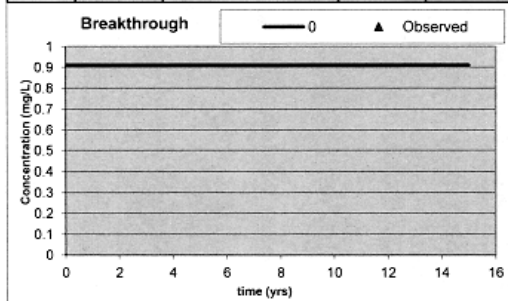
Spatial Calibration Data (centerline)			Temporal Calibration Data				Site ID 04878 Site Name Nickelpumpers 233		
x	C _{obs} (mg/L)	C _{sim} (mg/L)	t (yrs)	C _{obs} (mg/L)	C _{sim} (mg/L)	C _{obs} (mg/L)	C _{sim} (mg/L)	Model Calibration Parameters	
0	3.45	3.45	0		3.45		3.45	t _{1/2} 1.4 yrs	λ 0.495 yr ⁻¹
9		1.827	1.5		3.450		3.450	v _s 10 ft/yr	
18		0.966	3		3.450		3.450	R 2.086	
27		0.507	4.5		3.450		3.450	v _R 4.793 ft/yr	C _{source} 3.45 mg/L
36		0.263	6		3.450		3.450	L _p 90 ft	t _{sim} 15 yrs
45		0.136	7.5		3.450		3.450	α _w 6.547125 ft	
54		0.070	9		3.450		3.450	α _s 0.654712 ft	
63		0.036	10.5		3.450		3.450	α ₂ 1E-99 ft	
72		0.018	12		3.450		3.450		
81		0.009	13.5		3.450		3.450		
90	0.005	0.005	15	0.591	3.450		3.450		



Source	9	18	27	36	45	54	63	72	81	90
0	1.82717083	0.96576349	0.50650418	0.2634989	0.13632422	0.0702665	0.036096	0.018459	0.009372	0.004704
0	1.82717083	0.96576349	0.50650418	0.2634989	0.13632422	0.0702665	0.036096	0.018459	0.009372	0.004704
0	1.82717083	0.96576349	0.50650418	0.2634989	0.13632422	0.0702665	0.036096	0.018459	0.009372	0.004704
0	1.82717083	0.96576349	0.50650418	0.2634989	0.13632422	0.0702665	0.036096	0.018459	0.009372	0.004704
0	1.82717083	0.96576349	0.50650418	0.2634989	0.13632422	0.0702665	0.036096	0.018459	0.009372	0.004704

MtBE Calibration							
Spatial Calibration Data (centerline)			Temporal Calibration Data				Site ID 04878
x	C _{obs} (mg/L)	C _{sim} (mg/L)	t (yrs)	C _{obs} (mg/L)	C _{sim} (mg/L)	C _{obs} (mg/L)	C _{sim} (mg/L)
0	0.91	0.91	0		0.91		0.91
9		0.548	1.5		0.910		0.910
18		0.330	3		0.910		0.910
27		0.197	4.5		0.910		0.910
36		0.117	6		0.910		0.910
45		0.069	7.5		0.910		0.910
54		0.040	9		0.910		0.910
63		0.024	10.5		0.910		0.910
72		0.014	12		0.910		0.910
81		0.008	13.5		0.910		0.910
90	0.005	0.005	15		0.910		0.910

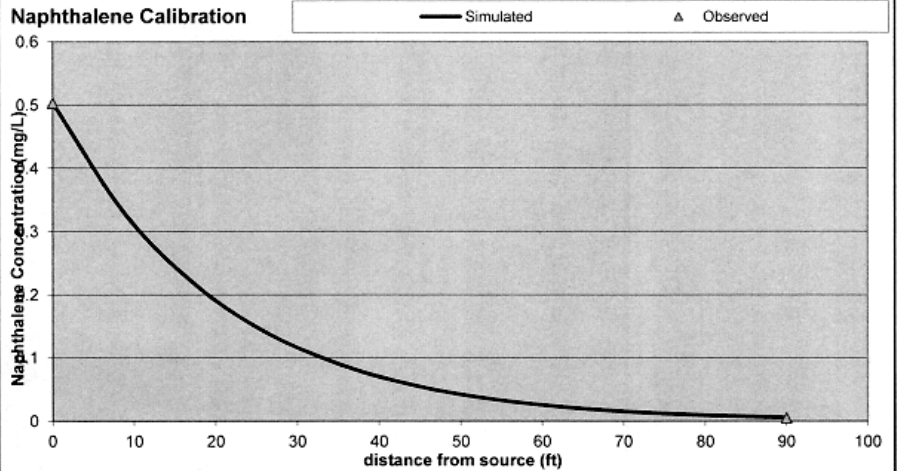
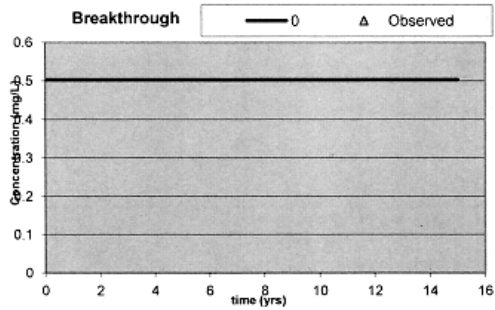
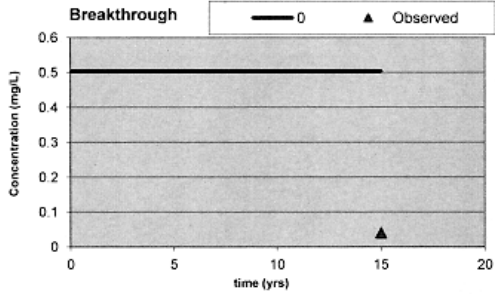
Model Calibration Parameters			
t _{1/2}	0.9 yrs	λ	0.77 yr ⁻¹
v _s	10 ft/yr		
R	1.000		
v _R	10.000 ft/yr	C _{source}	0.91 mg/L
L _p	90 ft	t _{sim}	15 yrs
α _s	6.547125 ft		
α _r	0.654712 ft		
α _z	1E-99 ft		



Source	9	18	27	36	45	54	63	72	81	90
0	0.54839916	0.32983135	0.19685057	0.11655876	0.06866777	0.0403464	0.023679	0.013894	0.008155	0.004789
0	0.54839916	0.32983135	0.19685057	0.11655876	0.06866777	0.0403464	0.023679	0.013894	0.008155	0.004789
0	0.54839916	0.32983135	0.19685057	0.11655876	0.06866777	0.0403464	0.023679	0.013894	0.008155	0.004789
0	0.54839916	0.32983135	0.19685057	0.11655876	0.06866777	0.0403464	0.023679	0.013894	0.008155	0.004789
0	0.54839916	0.32983135	0.19685057	0.11655876	0.06866777	0.0403464	0.023679	0.013894	0.008155	0.004789

Naphthalene Calibration

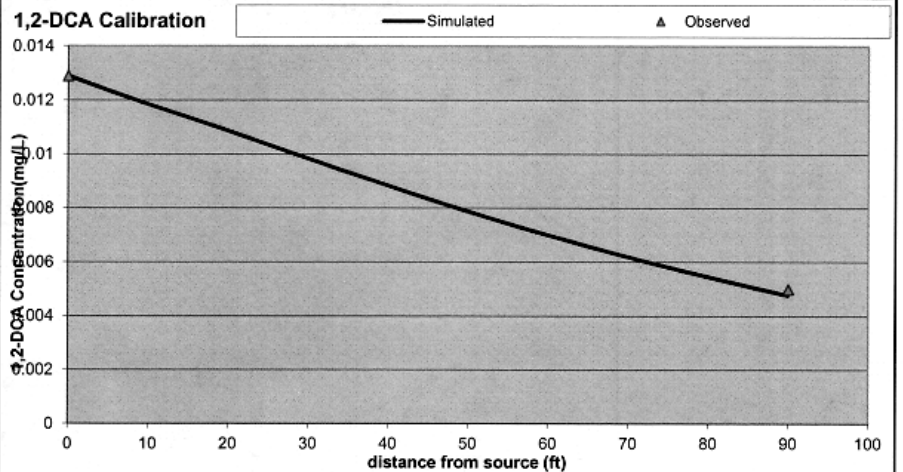
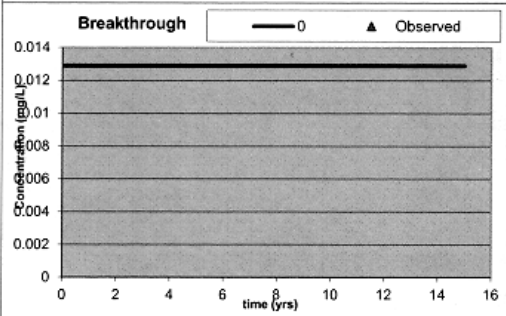
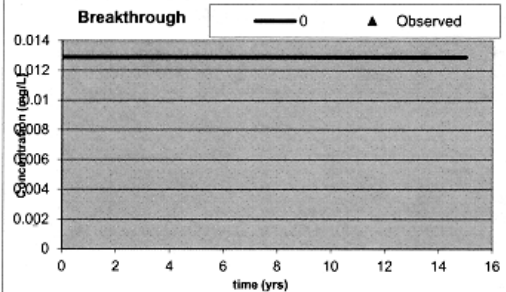
Spatial Calibration Data (centerline)			Temporal Calibration Data					Site ID 04878 Site Name Nickelpumpers 233	
x	C _{obs} (mg/L)	C _{sim} (mg/L)	t (yrs)	C _{obs} (mg/L)	C _{sim} (mg/L)	C _{obs} (mg/L)	C _{sim} (mg/L)	Model Calibration Parameters	
0	0.503	0.503	0		0.503		0.503	t _{1/2} 1.09 yrs	λ 0.63578 yr ⁻¹
9		0.326	1.5		0.503		0.503	v _x 10 ft/yr	
18		0.210	3		0.503		0.503	R 1.000	
27		0.135	4.5		0.503		0.503	v _R 10.000 ft/yr	C _{source} 0.503 mg/L
36		0.086	6		0.503		0.503	L _p 90 ft	t _{sim} 15 yrs
45		0.054	7.5		0.503		0.503	α _x 6.547125 ft	
54		0.034	9		0.503		0.503	α _y 0.654712 ft	
63		0.022	10.5		0.503		0.503	α _z 1E-99 ft	
72		0.014	12		0.503		0.503		
81		0.009	13.5		0.503		0.503		
90	0.005	0.005	15	0.0401	0.503		0.503		



Source	9	18	27	36	45	54	63	72	81	90
0	0.32566009	0.2104267	0.13492322	0.08582935	0.05432308	0.0342907	0.021621	0.013629	0.008594	0.005421
0	0.32566009	0.2104267	0.13492322	0.08582935	0.05432308	0.0342907	0.021621	0.013629	0.008594	0.005421
0	0.32566009	0.2104267	0.13492322	0.08582935	0.05432308	0.0342907	0.021621	0.013629	0.008594	0.005421
0	0.32566009	0.2104267	0.13492322	0.08582935	0.05432308	0.0342907	0.021621	0.013629	0.008594	0.005421
0	0.32566009	0.2104267	0.13492322	0.08582935	0.05432308	0.0342907	0.021621	0.013629	0.008594	0.005421

1,2-DCA Calibration

Spatial Calibration Data (centerline)			Temporal Calibration Data				Site ID 04878	
x	C _{obs} (mg/L)	C _{sim} (mg/L)	t (yrs)	C _{obs} (mg/L)	C _{sim} (mg/L)	C _{obs} (mg/L)	C _{sim} (mg/L)	Site Name Nickelpumpers 233
0	0.0129	0.0129	0		0.0129		0.0129	Model Calibration Parameters t _{1/2} 8 yrs λ 0.08663 yr ⁻¹ v _s 10 ft/yr R 1.030 v _R 9.711 ft/yr C _{source} 0.0129 mg/L L _p 90 ft t _{sim} 15 yrs α _s 6.547125 ft α _v 0.654712 ft α _z 1E-99 ft
9		0.012	1.5		0.013		0.013	
18		0.011	3		0.013		0.013	
27		0.010	4.5		0.013		0.013	
36		0.009	6		0.013		0.013	
45		0.008	7.5		0.013		0.013	
54		0.008	9		0.013		0.013	
63		0.007	10.5		0.013		0.013	
72		0.006	12		0.013		0.013	
81		0.005	13.5		0.013		0.013	
90	0.005	0.005	15		0.013		0.013	



Source	9	18	27	36	45	54	63	72	81	90
0	0.01195212	0.01105166	0.01013793	0.00922222	0.00834025	0.0075128	0.006746	0.006038	0.005381	0.00477
0	0.01195212	0.01105166	0.01013793	0.00922222	0.00834025	0.0075128	0.006746	0.006038	0.005381	0.00477
0	0.01195212	0.01105166	0.01013793	0.00922222	0.00834025	0.0075128	0.006746	0.006038	0.005381	0.00477
0	0.01195212	0.01105166	0.01013793	0.00922222	0.00834025	0.0075128	0.006746	0.006038	0.005381	0.00477
0	0.01195212	0.01105166	0.01013793	0.00922222	0.00834025	0.0075128	0.006746	0.006038	0.005381	0.00477

SSTLs

t yrs

UST Permit # 04878
Site Name: Nickelpumpers 233

SSTLs in mg/L		RBSLs (mg/L):			0.005	1.000	0.700	10.000	0.040	0.025		
MW #	x (ft)	y (ft)	z (ft)	Benzene SSTL	Toluene SSTL	Ethylbenzene SSTL	Xylenes SSTL	MTBE SSTL	Naphthalene SSTL			
MW-1	130	0	0	66.817	30804.078	2009.623	>99999	80.178	17.788			
MW-2	140	0	0	138.990	68329.372	3713.963	>99999	144.138	29.528			
				λ (yr ⁻¹):	0.912	0.949	0.630	0.495	0.770	0.636		
				R:	1.138	1.226	1.299	2.086	1.000	1.000		
				Pure Substance Solubility:	1750	526	169	175	5110	31		
				Effective Solubility:	44.39	26.54	3.7	21.68	173	6.7		

Domenico Model (Oxygenates)

UST # 04878
 Site Name: Nickelpumper 233
 Modeler: J. Bryant
 Date: 2/4/2016

Transport Parameters

x _{max}	90	ft
y _{max}	0	ft
z	0	ft
Source Width	30	ft
Source Thickness	15	ft
Plume Length	90	ft
α _x	6.547125	ft
α _y	0.654712	ft
α _z	1.00E-99	ft

Simulation Time

t_{sim} 15 yrs

Groundwater Flow Parameters

K	-	ft/yr
dh/dx	-	
θ	0.25	dec. %
v _x	10	ft/yr

Aquifer Characteristics

ρ _d	1.7	kg/L
f _{oc}	0.0002	

Retarded Velocity (ft/yr)

Source Area CoC Data

CoC	C _{source} (mg/L)	K _{oc} (L/kg)
tBA	4.14	1
tAA	6.68	1
DIPE		1.5
tAME		1.5
EtBE		1.5
Ethanol		0.5

CoC	R	v _R
tBA	1.001	9.99
tAA	1.001	9.99
DIPE	1.002	9.98
tAME	1.002	9.98
EtBE	1.002	9.98
Ethanol	1.001	9.99

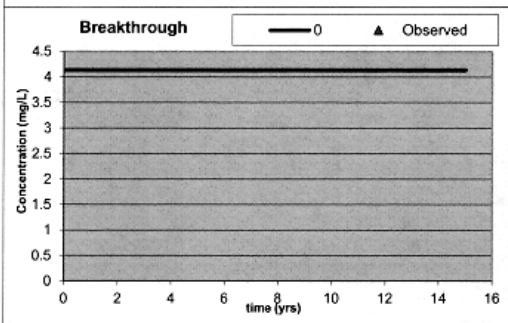
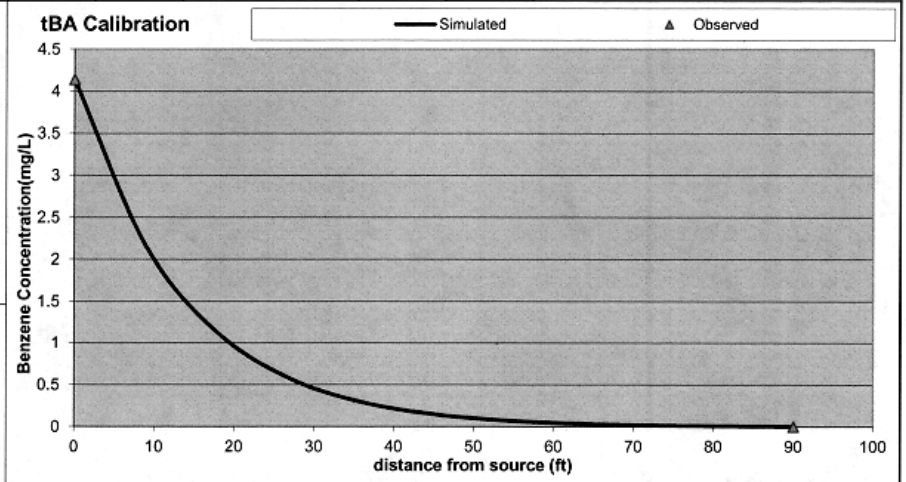
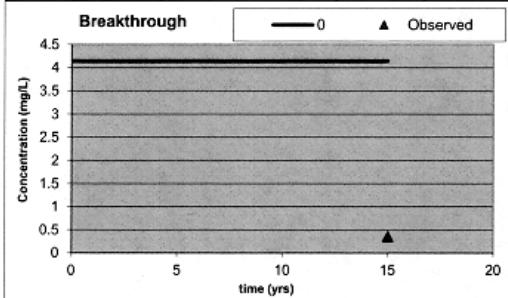
Simulation Points for Breakthrough Curves

x	0	ft
y	0	ft
z	0	ft

x	0	ft
y	0	ft
z	0	ft

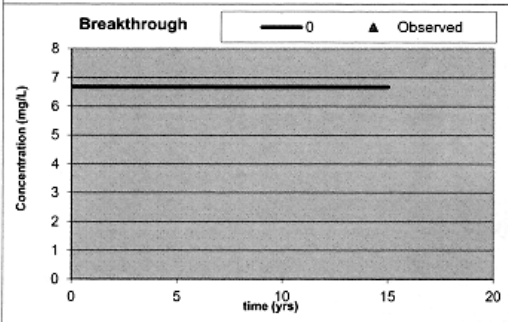
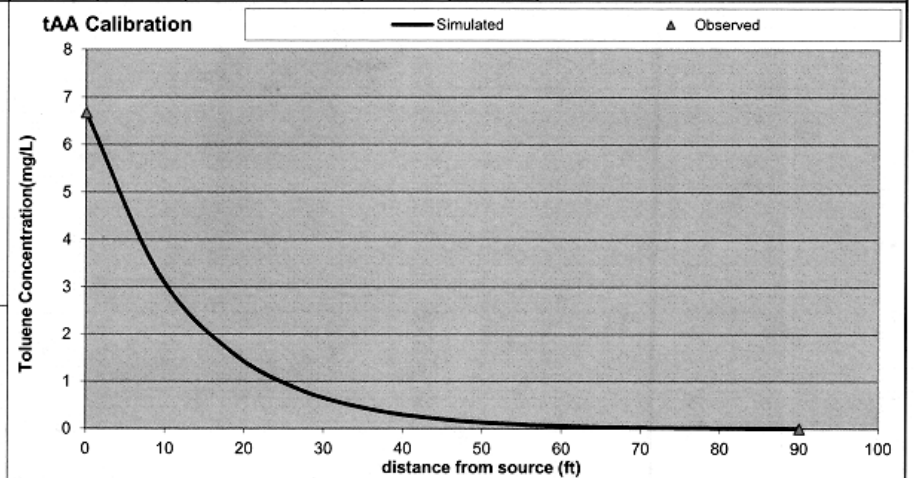
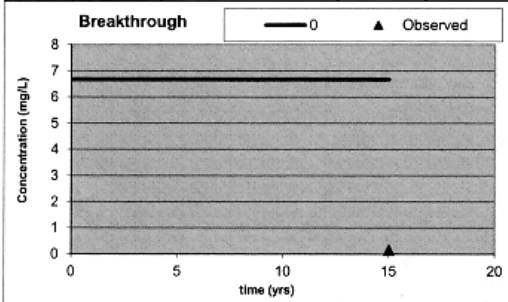
$$C(x,y,z,t) = \left(\frac{C_0}{8}\right) \exp\left[\left(\frac{x}{2\alpha_x}\right)\left(1 - \sqrt{1 + \frac{4\lambda\alpha_x}{v}}\right)\right] \operatorname{erfc}\left[\frac{x - vt\sqrt{1 + \frac{4\lambda\alpha_x}{v}}}{2\sqrt{\alpha_x vt}}\right] \left\{ \operatorname{erf}\left[\frac{y + \frac{Y}{2}}{2\sqrt{\alpha_y x}}\right] - \operatorname{erf}\left[\frac{y - \frac{Y}{2}}{2\sqrt{\alpha_y x}}\right] \right\} \left\{ \operatorname{erf}\left[\frac{z + Z}{2\sqrt{\alpha_z x}}\right] - \operatorname{erf}\left[\frac{z - Z}{2\sqrt{\alpha_z x}}\right] \right\}$$

IBA Calibration								
Spatial Calibration Data (centerline)			Temporal Calibration Data				Site ID 04878	
x	C _{obs} (mg/L)	C _{sim} (mg/L)	t (yrs)	C _{obs} (mg/L)	C _{sim} (mg/L)	C _{obs} (mg/L)	C _{sim} (mg/L)	Site Name Nickelpumper 233
0	4.14	4.14	0		4.14		4.14	Model Calibration Parameters t _{1/2} 0.65 yrs λ 1.06615 yr ⁻¹ v _x 10 ft/yr R 1.001 v _R 9.986 ft/yr C _{source} 4.14 mg/L L _p 90 ft t _{sim} 15 yrs α _x 6.547125 ft α _y 0.654712 ft α _z 1E-99 ft
9		2.157	1.5		4.140		4.140	
18		1.122	3		4.140		4.140	
27		0.579	4.5		4.140		4.140	
36		0.296	6		4.140		4.140	
45		0.151	7.5		4.140		4.140	
54		0.077	9		4.140		4.140	
63		0.039	10.5		4.140		4.140	
72		0.020	12		4.140		4.140	
81		0.010	13.5		4.140		4.140	
90	0.005	0.005	15	0.36	4.140		4.140	



Source	9	18	27	36	45	54	63	72	81	90
0	2.1573695	1.12198873	0.57903133	0.29646891	0.15102755	0.0767322	0.038941	0.019758	0.010028	0.005092
0	2.1573695	1.12198873	0.57903133	0.29646891	0.15102755	0.0767322	0.038941	0.019758	0.010028	0.005092
0	2.1573695	1.12198873	0.57903133	0.29646891	0.15102755	0.0767322	0.038941	0.019758	0.010028	0.005092
0	2.1573695	1.12198873	0.57903133	0.29646891	0.15102755	0.0767322	0.038941	0.019758	0.010028	0.005092
0	2.1573695	1.12198873	0.57903133	0.29646891	0.15102755	0.0767322	0.038941	0.019758	0.010028	0.005092

tAA Calibration																																																		
Spatial Calibration Data (centerline)			Temporal Calibration Data				Site ID 04878																																											
x	C _{obs} (mg/L)	C _{sim} (mg/L)	t (yrs)	C _{obs} (mg/L)	C _{sim} (mg/L)	C _{obs} (mg/L)	C _{sim} (mg/L)	Site Name Nickelpumper 233																																										
0	6.68	6.68	0		6.68		6.68	Model Calibration Parameters <table border="1"> <tr> <td>t_{1/2}</td> <td>0.6</td> <td>yrs</td> <td>λ</td> <td>1.155</td> <td>yr⁻¹</td> </tr> <tr> <td>v_x</td> <td>10</td> <td>ft/yr</td> <td>R</td> <td>1.001</td> <td></td> </tr> <tr> <td>v_R</td> <td>9.986</td> <td>ft/yr</td> <td>C_{source}</td> <td>6.68</td> <td>mg/L</td> </tr> <tr> <td>L_p</td> <td>90</td> <td>ft</td> <td>t_{sim}</td> <td>15</td> <td>yrs</td> </tr> <tr> <td>α_x</td> <td>6.547125</td> <td>ft</td> <td></td> <td></td> <td></td> </tr> <tr> <td>α_y</td> <td>0.654712</td> <td>ft</td> <td></td> <td></td> <td></td> </tr> <tr> <td>α_z</td> <td>1E-99</td> <td>ft</td> <td></td> <td></td> <td></td> </tr> </table>	t _{1/2}	0.6	yrs	λ	1.155	yr ⁻¹	v _x	10	ft/yr	R	1.001		v _R	9.986	ft/yr	C _{source}	6.68	mg/L	L _p	90	ft	t _{sim}	15	yrs	α _x	6.547125	ft				α _y	0.654712	ft				α _z	1E-99	ft			
t _{1/2}	0.6	yrs	λ	1.155	yr ⁻¹																																													
v _x	10	ft/yr	R	1.001																																														
v _R	9.986	ft/yr	C _{source}	6.68	mg/L																																													
L _p	90	ft	t _{sim}	15	yrs																																													
α _x	6.547125	ft																																																
α _y	0.654712	ft																																																
α _z	1E-99	ft																																																
9		3.343	1.5		6.680		6.680																																											
18		1.670	3		6.680		6.680																																											
27		0.827	4.5		6.680		6.680																																											
36		0.407	6		6.680		6.680																																											
45		0.199	7.5		6.680		6.680																																											
54		0.097	9		6.680		6.680																																											
63		0.047	10.5		6.680		6.680																																											
72		0.023	12		6.680		6.680																																											
81		0.011	13.5		6.680		6.680																																											
90	0.005	0.005	15	0.16	6.680		6.680																																											



Source	9	18	27	36	45	54	63	72	81	90
0	3.34285908	1.66955004	0.82742841	0.4068412	0.19903037	0.0971087	0.047327	0.02306	0.011239	0.005481
0	3.34285908	1.66955004	0.82742841	0.4068412	0.19903037	0.0971087	0.047327	0.02306	0.011239	0.005481
0	3.34285908	1.66955004	0.82742841	0.4068412	0.19903037	0.0971087	0.047327	0.02306	0.011239	0.005481
0	3.34285908	1.66955004	0.82742841	0.4068412	0.19903037	0.0971087	0.047327	0.02306	0.011239	0.005481
0	3.34285908	1.66955004	0.82742841	0.4068412	0.19903037	0.0971087	0.047327	0.02306	0.011239	0.005481

SSTLs

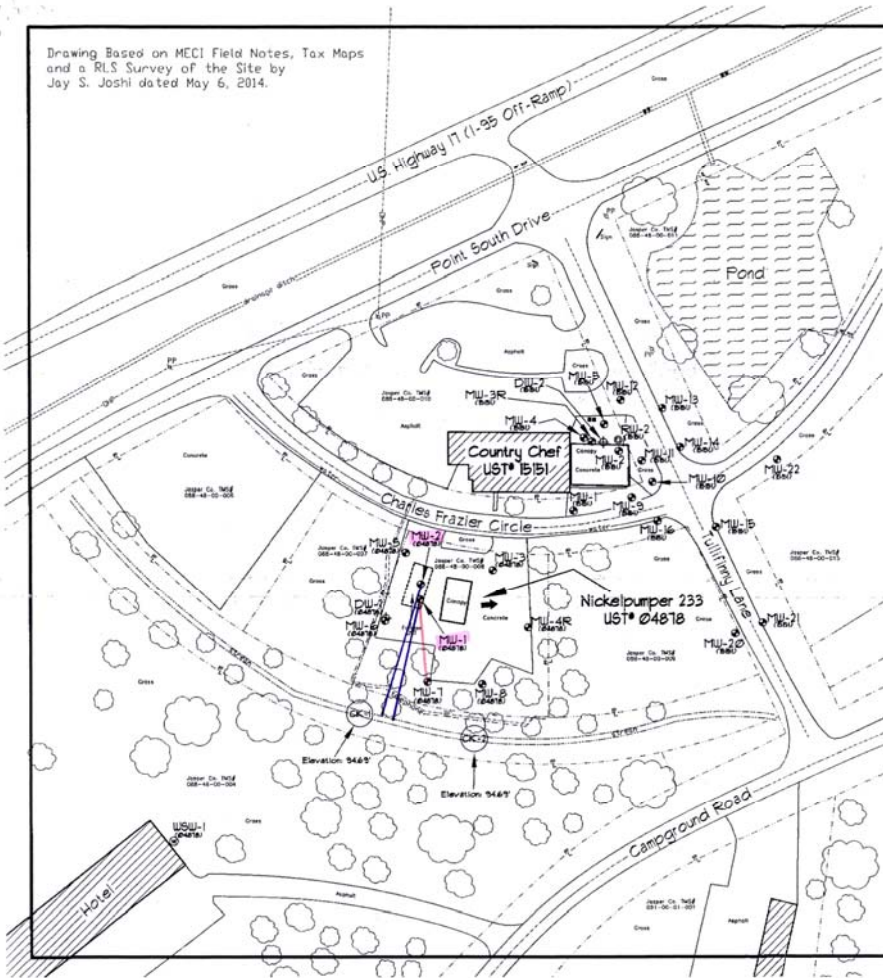
t 1000 yrs

UST Permit # 04878

Site Name: Nickelpumper

SSTLs in mg/L		RBSLs (mg/L):			1.400	0.240				
MW #	x (ft)	y (ft)	z (ft)	tBA SSTL	tAA SSTL					
MW-1	130	0	0	22909.717	7048.126					
MW-2	140	0	0	48404.630	15576.756					
				λ (yr ⁻¹):	1.066	1.155				
				R:	1.001	1.001				

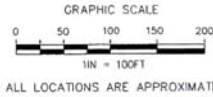
Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- Location of 4-Inch Recovery Well
- Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

- Buried Electric/Overhead Powerline
- Property Line
- Buried Water Line
- Under Ground Telephone
- Drainage Ditch
- Stream/Pond Edge



Site Base Map	
Nickelpumper 233 3236 Point South Drive Yemassee, South Carolina SCDHEC Site ID 04878	
 Midlands Environmental Consultants, Inc.	JOB NO. 14-0714 DATE May 29, 2014 FOUR 2



UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone: 803-898-2544



MEMORANDUM

TO: Midlands Environmental Consultants, Inc

FROM: John Bryant

RE: Site Specific Work Plan Request

Facility Name: Nickelpumper 233

Permit Number: 04878

County: Jasper

Work To Be Completed: Purge and Sample all wells associated with the site. Sample all Surface Waters and Water Supply Wells within 1000 foot of the site.

Total Number of Monitoring Well Samples: 9 Monitoring Wells, 3 Surface Waters

Analysis Being Requested: BTEXNM, 1,2 DCA, 8-Oxys and EDB

Total Number of Water Supply Well Samples: 1

Analysis Being Requested: BTEXNM, 1,2 DCA, 8-Oxys and EDB



AUG 14 2017

BRYAN SHANE, P.G.
MIDLANDS ENVIRONMENTAL CONSULTANTS, INC.
PO BOX 854
LEXINGTON SC 29071

Re: **Site Specific Work Plan Request**
Groundwater Sampling Contract
Solicitation # IFB-5400012906, PO#4600582306

Dear Mr. Shane:

In accordance with bid solicitation # IFB-5400012906 and the UST Management Division Quality Assurance Program Plan (QAPP), Revision 3.1 it is requested that you submit a Site Specific Work Plan for each site attached. The plans must be submitted **within 15 business days** to my attention. The project manager for each site will issue a notice to proceed once the plan has been reviewed and approved.

Please contact me with the sampling schedule before commencing work at these facilities. In addition, a weekly update for each site is required to be submitted via e-mail to the site's project manager and myself. If you have any questions or need further assistance, please contact me at (803) 898-0606 or bryantjc@dhec.sc.gov.

Sincerely,

John C. Bryant, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land & Waste Management

enc: Site Information Packages

cc: Technical Files

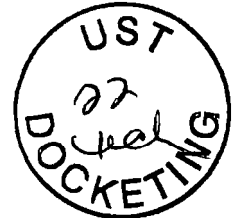
 **Midlands
Environmental
Consultants, Inc.**

August 22, 2017

Mr. John Bryant, Hydrogeologist
Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Subject: Site-Specific Work Plan
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 17-6131
Certified Site Rehabilitation Contractor UCC-0009




Dear Mr. Bryant,

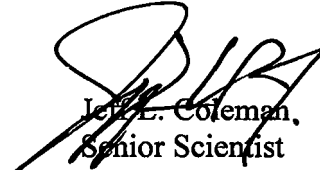
Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Site-Specific Work Plan for the referenced site.

On August 18, 2017, MECI personnel performed a site visit to the subject site to evaluate site conditions, locate monitoring wells and identify potential problems for future sampling activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.


Kyle V. Pudney
Project Biologist


Jeff L. Coleman,
Senior Scientist



**Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division**

To: Mr. John Bryant (SCDHEC Project Manager)
 From: Jeff L. Coleman (Contractor Project Manager)
 Contractor: Midlands Environmental Consultants, Inc. UST Contractor Certification Number: 009

Facility Name: Nickelpumper 233 UST Permit #: 04878
 Facility Address: 3296 Point South Drive, Yemassee, SC 29945
 Responsible Party: Richard Carlson Phone: 951-659-0063
 RP Address: 1920 North Main Street, Los Angeles, CA 90031
 Property Owner (if different): SAA
 Property Owner Address: SAA
 Current Use of Property: Empty Lot

Scope of Work (Please check all that apply)

- IGWA Tier II Groundwater Sampling GAC
 Tier I Monitoring Well Installation Other _____

Analyses (Please check all that apply)

Groundwater/Surface Water:

- BTEXNMDCA (8260B) Lead BOD Methane
 Oxygenates (8260B) 8 RCRA Metals Nitrate Ethanol
 EDB (8011) TPH Sulfate Dissolved Iron
 PAH (8270D) pH Other _____

Drinking Water Supply Wells:

- BTEXNMDCA (524.2) Mercury (200.8 245.1 or 245.2) EDB (504.1)
 Oxygenates & Ethanol (8260B) RCRA Metals (200.8)

Soil:

- BTEXNM Lead RCRA Metals TPH-DRO (3550B/8015B) Grain Size
 PAH Oil & Grease (9071) TPH-GRO (5030B/8015B) TOC

Air:

- BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected.)

_____ Soil 1 Water Supply Wells _____ Air 2 Field Blank
9 Monitoring Wells 3 Surface Water 2 Duplicate 2 Trip Blank

Field Screening Methodology

Estimate number and total completed depth for each point, and include their proposed locations on the attached map.
 # of shallow points proposed: _____ Estimated Footage: _____ feet per point
 # of deep points proposed: _____ Estimated Footage: _____ feet per point
 Field Screening Methodology: _____

Permanent Monitoring Wells

Estimate number and total completed depth for each well, and include their proposed locations on the attached map.
 # of shallow wells: _____ Estimated Footage: _____ feet per point
 # of deep wells: _____ Estimated Footage: _____ feet per point
 # of recovery wells: _____ Estimated Footage: _____ feet per point
 Comments, if warranted:

UST Permit #: 04878 Facility Name: Nickelpumper 233

Implementation Schedule (Number of calendar days from approval)
Field Work Start-Up: 8/22/2017 Field Work Completion: 9/22/2017
Report Submittal: 10/22/2017 # of Copies Provided to Property Owners: 0

Aquifer Characterization
Pump Test: Slug Test: (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal
Soil: _____ Tons Purge Water: 100.0 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

Additional Details For This Scope of Work
For example, list wells to be sampled, wells to be abandoned/repared, well pads/bolts/caps to replace, details of AFVR event, etc.
-During the initial site visit, monitoring wells MW-3, MW-4R, MW-6, MW-7, MW-8, and DW-1 were not located. The site is very overgrown and difficult to navigate. If any of these wells are located during the sampling event, they will be sampled accordingly. MECI will send extra personnel during the sampling event to locate existing wells.
-Monitoring well samples will be analyzed for BTEXNM, 1,2-DCA, 8-OXY's, and EDB.
-The water supply well was not in use during the site visit. MECI will attempt to sample the WSW and the surface water samples.
-Unless otherwise requested by SCDHEC, all monitoring wells will be purged prior to sample collection.

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)
Yes Laboratory as indicated in ACQAP? (Yes/No) If no, indicate laboratory information below.
Name of Laboratory: _____
SCDHEC Certification Number: _____
Name of Laboratory Director: _____
N/A Well Driller as indicated in ACQAP? (Yes/No) If no, indicate driller information below.
Name of Well Driller: _____
SCLLR Certification Number: _____
None Other variations from ACQAP. Please describe below.

Attachments

1. Attach a copy of the relevant portion of the USGS topographic map showing the site location.
2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following:
North Arrow Proposed monitoring well locations
Location of property lines Legend with facility name and address, UST permit number, and bar scale
Location of buildings Streets or highways (indicate names and numbers)
Previous soil sampling locations Location of all present and former ASTs and USTs
Previous monitoring well locations Location of all potential receptors
Proposed soil boring locations
3. Assessment Component Cost Agreement, SCDHEC Form D-3664



**ASSESSMENT COMPONENT COST AGREEMENT
SOUTH CAROLINA**

Department of Health and Environmental Control
Underground Storage Tank Management Division
State Underground Petroleum Environmental Response Bank Account
CONTRACT PO NUMBER 4600559329

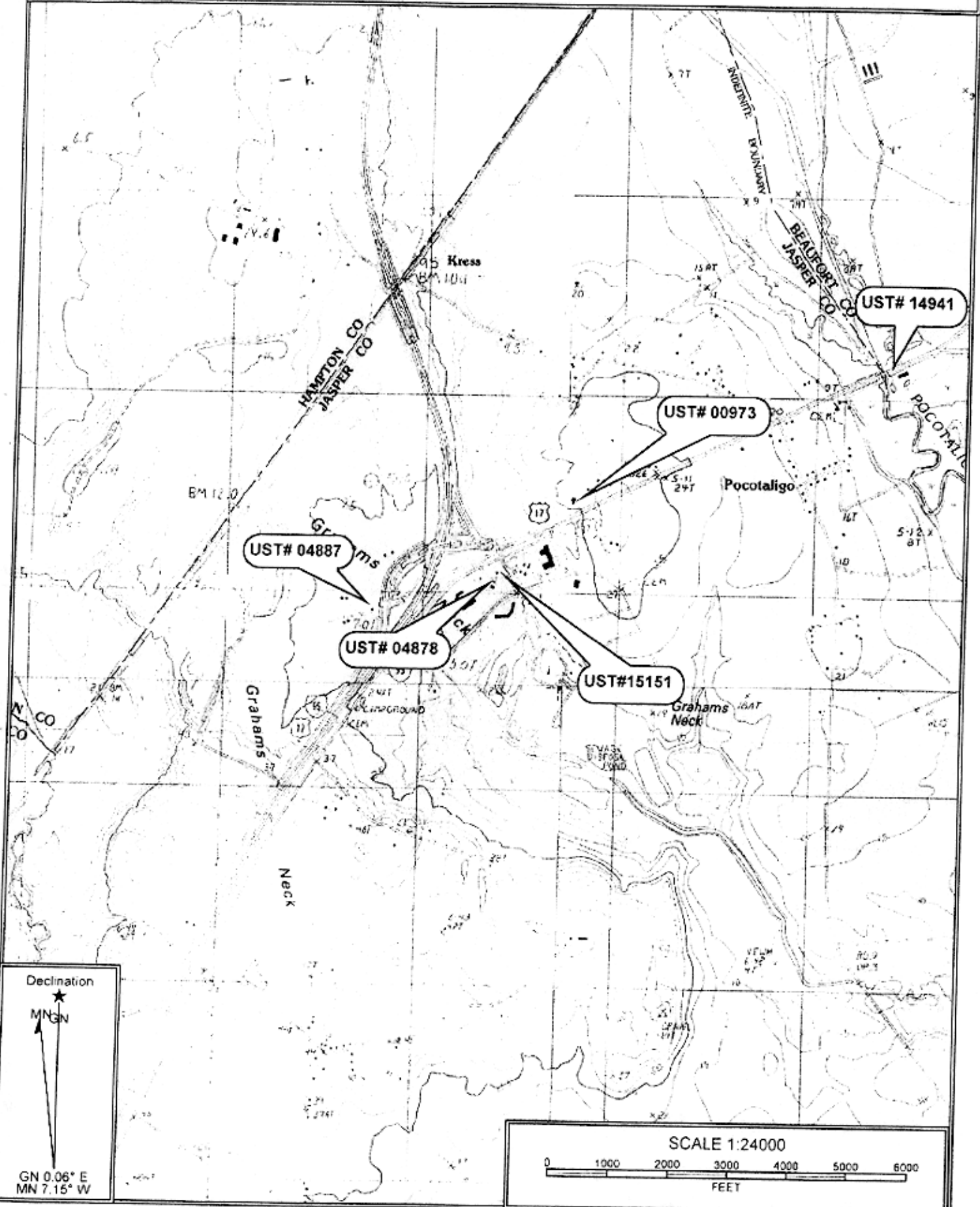
Facility Name: Nickelpumper 233

UST Permit #: 04878

Cost Agreement #: Proposal

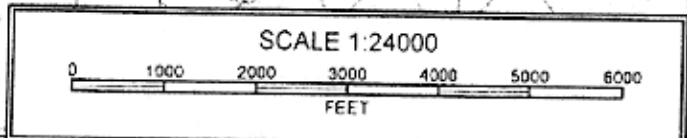
ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. Plan*				
A1. Site Specific Work Plan	1	each	\$1.00	\$1.00
B1. Tax Map		each	\$1.00	\$0.00
C1. QAPP Appendix B		each	\$1.00	\$0.00
2. A1. Receptor Survey		each	\$1.00	\$0.00
4. Mob/Demob				
B1. Personnel	1	each	\$1.00	\$1.00
10. Groundwater Sample Collection / Gauge Depth to Water or Product (Each)				
A1. Groundwater Purge	9	per well	\$36.50	\$328.50
B1. Air or Vapors		samples	\$1.00	\$0.00
C1. Water Supply	1	samples	\$18.00	\$18.00
D1. Groundwater No Purge or Duplicate	3	per well	\$27.50	\$82.50
E1. Gauge Well only		per well	\$1.00	\$0.00
F1. Sample Below Product		per well	\$1.00	\$0.00
G1. Pasive Diffusion Bag		each	\$20.00	\$0.00
H1. Field Blank	2	each	\$1.00	\$2.00
17. Disposal* (gallons or tons)				
AA. Disposal/Water	100	gallons	\$1.00	\$100.00
BB. Free Product		gallons	\$0.05	\$0.00
Note: Rate includes costs or rental of suitable container(s)				
23. D. Site Reconnaissance	1	each	\$1.00	\$1.00
18. Miscellaneous				
GW Contour Map		each	\$25.00	\$0.00
Isopleth Map		each	\$25.00	\$0.00
High-Strength Well Pad Replacement		each	\$75.00	\$0.00
Data Table		each	\$50.00	\$0.00
Low Flow Sampling		per well	\$55.00	\$0.00
25. Well Repair				
B1. Repair 2x2 MW Pad		each	\$50.00	\$0.00
C1. Repair 4x4 MW Pad		each	\$50.00	\$0.00
D1. Replace Well Vault		each	\$50.00	\$0.00
E. Replace well cover		each	\$25.00	\$0.00
F1. Replace well cover bolts		each	\$2.60	\$0.00
G. Replace locking well cap & lock		each	\$15.00	\$0.00
K1. Replace Missing Well ID Plate		each	\$10.00	\$0.00
TOTAL				\$533.00

*The appropriate mobilization cost can be added to complete these tasks, as necessary

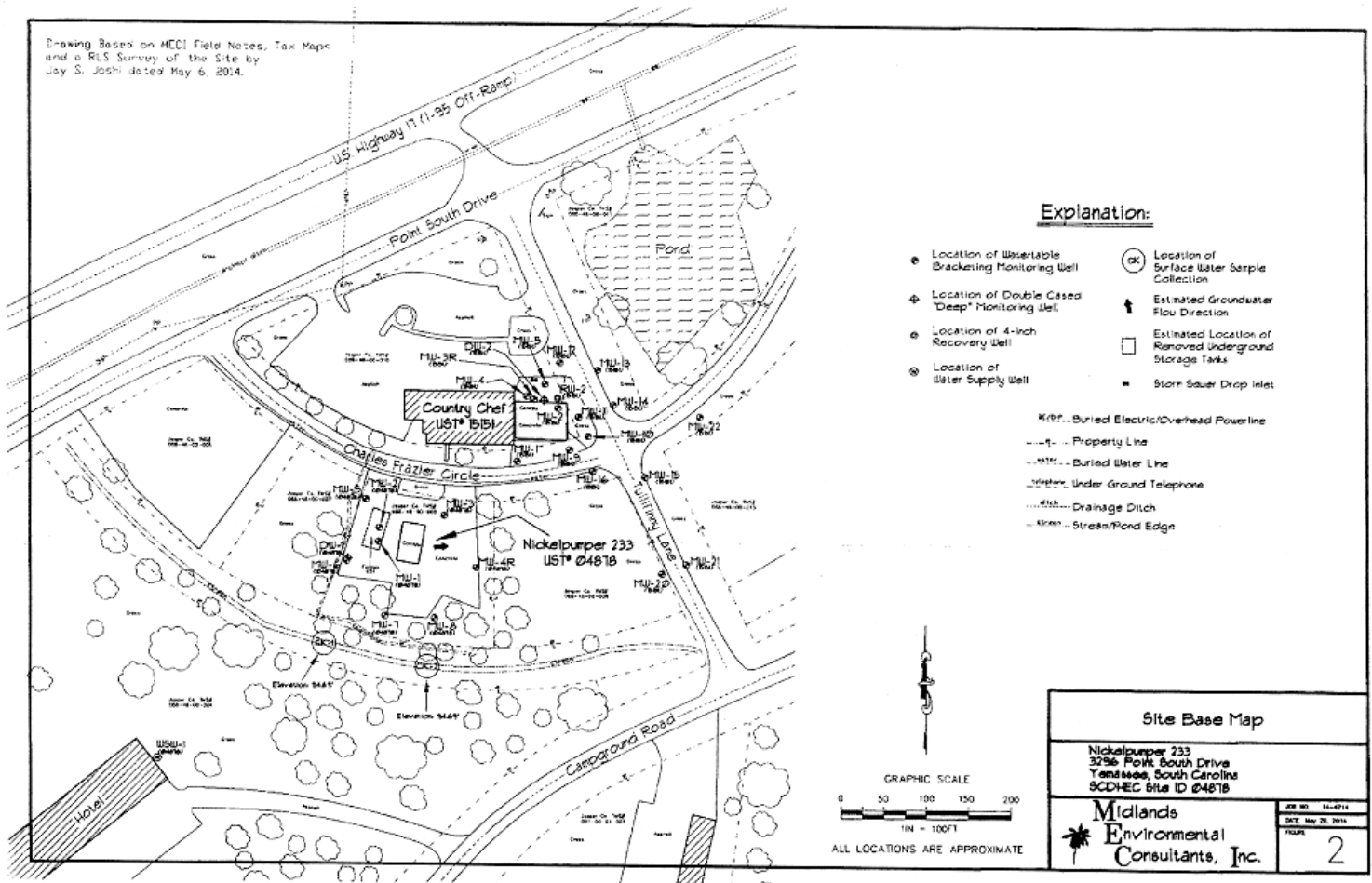


Declination

GN 0.06° E
MN 7.15° W



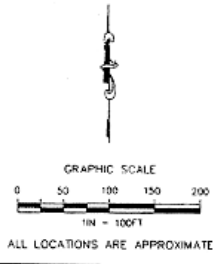
Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Waterable Backfilling Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-inch Recovery Well
- ⊗ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

- Buried Electric/Overhead Powerline
- Property Line
- Buried Water Line
- Under Ground Telephone
- Drainage Ditch
- Stream/Pond Edge



Site Base Map	
Nickelpurper 233 3796 Point South Drive Yemassee, South Carolina SCDHEC Site ID 0487B	
Midlands Environmental Consultants, Inc.	JOB NO. 14-0714 DATE: May 28, 2014 PAGES: 2



AUG 3 1 2017



**MR BRYAN SHANE PG
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071**

Re: Notice to Proceed-Site Specific Work Plan Approval
Groundwater Sampling Contract
Solicitation #IFB-5400007403, PO#4600582306
Nickelpumper 233, 3296 Point South Drive, Yemassee, SC
UST Permit #04878; MECI CA #55469; Pace CA #55470
Jasper County

Dear Mr. Shane:

In accordance with bid solicitation #IFB-5400007403 and the Underground Storage Tank (UST) Management Division Quality Assurance Program Plan (QAPP), the Site-Specific Work Plan has been reviewed and approved. In accordance with the approved QAPP, a status report of the project should be provided on a weekly basis via e-mail. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. In addition, a discussion of the problem(s) encountered, including quality assurance problems, the actions taken, and the results must be included in the final report submitted to the UST Management Division.

MECI will perform services at the site on behalf of the site's responsible party (RP); however, payment will be made from the SUPERB Account. The site's RP has no obligation for payment for this scope of work. Please coordinate access to the facility with the property owner. DHEC grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included with the final report. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

Please note, sampling should be conducted within 15 calendar days from the date of this letter. The final report is due within 3 weeks from the date the site is sampled. If the site is not sampled by the specified due date or the report is not received in the specified time period, a late fee may be imposed. The final report should contain the requirements of Section III.2.15 of the bid solicitation. The final report should be submitted to John Bryant, the contract manager.

Page 2

If you have any site-specific or contract questions, please contact me at (803) 898-0606 or via e-mail at bryantjc@dhec.sc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'JB', is written above the typed name.

John Bryant, Hydrogeologist
Corrective Action & Quality Assurance Section
UST Management Division
Bureau of Land & Waste Management

enc: Approved Cost Agreement (both CAs)

cc: John Bryant, Corrective Action Section, UST Management Division (w/o enc)
Trey Carter, Pace Analytical Services, 9800 Kinsey Ave, Ste 100, Huntersville, NC, 28078 (w/app. CA)
Technical Files (w/enc)

Approved Cost Agreement

55470

Facility: 04878 NICKELPUMPER 233

BRYANTJC

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
11 ANALYSES					
	GW GROUNDWATER	A2 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	15.0000	\$21.000	315.00
		F1 EDB BY 8011	14.0000	\$18.000	252.00
	WATER DRINKING WATER	L BTEXNM+1,2 DCA (524.2)	4.0000	\$36.000	144.00
		M 7-OXYGENATES & ETHANOL (8260B)	4.0000	\$13.000	52.00
		N EDB (504.1)	3.0000	\$18.000	54.00
18 MISCELLANEOUS					
		MULTIPLIER FOR 24 HOUR TURNAROUND	3.0000	\$0.000	0.00
				Total Amount	817.00

Approved Cost Agreement**55469**

Facility: 04878 NICKEL PUMPER 233

BRYANTJC

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
01 PLAN		A1 SITE SPECIFIC WORK PLAN	1.0000	\$1.000	1.00
04 MOB/DEMOB		B1 PERSONNEL	1.0000	\$1.000	1.00
10 SAMPLE COLLECTION		A1 GROUNDWATER (PURGE)	9.0000	\$36.500	328.50
		C1 WATER SUPPLY	1.0000	\$18.000	18.00
		D1 GROUNDWATER NO PURGE/DUPLICATE	3.0000	\$27.500	82.50
		H1 FIELD BLANK	2.0000	\$1.000	2.00
17 DISPOSAL		AA WASTEWATER	200.0000	\$1.000	200.00
23 EFR		D SITE RECONNAISSANCE	1.0000	\$1.000	1.00
Total Amount					634.00



October 23, 2017

Ms. Ashleigh Thrash, Hydrogeologist
 Corrective Action Section
 Underground Storage Tank Program
 Bureau of Land and Waste Management
 South Carolina Department of Health
 and Environmental Control
 2600 Bull Street
 Columbia, South Carolina 29201



Subject: Report of Groundwater Sampling
 Nickelpumper 233
 3296 Point South Drive
 Yemassee, South Carolina
 SCDHEC Site ID Number 04878; CA # 55469
 MECI Project Number 17-6131
 Certified Site Rehabilitation Contractor UCC-0009

Dear Ms. Thrash,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Report of Groundwater Sampling for the referenced site. This report describes site activities conducted at the site in general accordance with South Carolina Department of Health and Environmental Control's (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP).

PROJECT INFORMATION

The subject site (Nickelpumper 233) is located at 3296 Point South Drive in Yemassee, Jasper County, South Carolina. The following table presents Underground Storage Tanks (UST's) which are associated with the subject site:

Tank #	Capacity/Product	In Use/Abandoned	Tank Status
1	6,000 Gal. Gasoline	Temporarily out of Service	Out of Compliance (12/29/14)
2	8,000 Gal. Gasoline	Temporarily out of Service	Out of Compliance (12/29/14)
3	10,000 Gal. Gasoline	Temporarily out of Service	Out of Compliance (12/29/14)

A release of petroleum product was reported to the South Carolina Department of Health and Environmental Control (SCDHEC) in May of 2002. The release was also confirmed in May of 2002 and has been classified a Class 2BB due to water supply wells being located within 1,000' feet of the site.

The above information is based on reports and correspondence obtained from MECI field notes and SCDHEC files.

MONITORING WELL SAMPLING AND CHEMICAL ANALYSIS

On October 16, 2017, MECI personnel collected groundwater samples from eight (8) monitoring wells and three (3) surface water locales at the referenced site. During sampling activities, monitoring well MW-3 was unable to be located and WSW-1 was found to be inactive with no electrical supply. Based on the request by SCDHEC personnel, all monitoring wells were to be purged prior to sample collection. Eight (8) monitoring wells were purged prior to sampling.

Prior to sampling, MECI personnel utilized an electronic water level indicator for water level measurements and an oil/water interface probe for free phase petroleum product level measurements. Purging was completed by bailing at least five well volumes of water from the well, or until all water was evacuated from the well, whichever occurred first. Sampling/purging was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. A new set of nitrile gloves were worn at each monitoring well, and at all time samples were handled. Field measurements of pH, conductivity, dissolved oxygen, water temperature, and turbidity were obtained before well sampling process. MECI utilized a YSI Pro20 meter for DO (mg/L) and temperature readings (°C), a YSI Pro1030 meter for pH and conductivity (uS) readings and a MicroTPI/TPW turbidimeter for turbidity readings (NTU). The attached Field Data Information Sheets presents the results of the field measurements obtained. The wells were sampled in accordance with most recent revision of the SCDHEC's Quality Assurance Program Plan for the Underground Storage Tank Management Division and MECI's most recent revision of Standard Operating Procedures.

Groundwater samples obtained were sent to Pace Analytical Services, Inc. of Huntersville, NC (SCDHEC Laboratory Certification #99006001) for analysis.

The following sampling matrix contains well development and requested analyses for each well:


Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	BTEX, Naphthalene, MTBE (EPA Method 524.2)	EDB (EPA Method 504.1)
Analyte Sampled													
MW-1	X						X	X	X	X			
MW-2	X						X	X	X	X			
MW-3						X							
MW-4R	X						X	X	X	X			
MW-5	X						X	X	X	X			
MW-6	X						X	X	X	X			
MW-7	X						X	X	X	X			
MW-8	X						X	X	X	X			
DW-1	X						X	X	X	X			
SW-1		X					X	X	X	X			
Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes MTBE=Methyl tertiary butyl ether 1,2 DCA = 1,2 Dichloroethane EDB = Ethylene Dibromide													


Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	BTEX, Naphthalene, MTBE (EPA Method 524.2)	EDB (EPA Method 504.1)
	Analyte Sampled												
SW-2		X					X	X	X	X			
SW-3		X					X	X	X	X			
DUP (MW-1)							X	X	X	X			
Field Blank							X	X	X	X			
Trip Blank							X		X	X			
WSW-1					X								
Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes MTBE=Methyl tertiary butyl ether 1,2 DCA = 1,2 Dichloroethane EDB = Ethylene Dibromide													

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 44.25 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is attached at the end of this report.

Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.


 Kyle V. Pudney
 Project Biologist


 Jeff L. Coleman
 Senior Scientist

Attachments:

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?			X
3	Is name, address, & phone number of current property owner provided?			X
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			X
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?			X
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?			X
11	Has the site-specific geology and hydrogeology been described?			X
12	Has the primary soil type been described?			X
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			X
18	Has justification been provided for the locations of the monitoring wells?			X
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?			X
20	Has the groundwater sampling methodology been detailed? See MECI SOP	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	X		
22	Has the purging methodology been detailed? See MECI SOP	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? See attached Field Data Information Sheets	X		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	X		
25	Does the report include a brief discussion of the assessment done and the results?			X
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?			X
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)			X
34	Has the current and historical laboratory data been provided in tabular format?			X
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)			X
40	Has the site potentiometric map been provided? (Figure 5)			X
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			X
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? See attached	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			X
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	X		

Site Activity Summary

UST Permit #: 04878
 Facility Name: Nickelpumper 233
 County: Jasper
 Field Personnel: J. Floyd, J. Coolman



Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	DO (mg/l)	# Gals. Purged	Comments
MW-1	Y	10/16/17	11:09	2.5-12.5	***	4.53	***	2.53	6.50	Odor
MW-2	Y	10/16/17	11:24	2-12	***	3.80	***	3.27	2.00	Odor
MW-3	N	10/16/17	NL	2-12	***	NL	***	NL	0.00	Not Located
MW-4R	Y	10/16/17	10:15	2-12	***	6.49	***	4.02	4.50	No Odor
MW-5	Y	10/16/17	11:32	2-12	***	3.83	***	1.22	6.75	No Odor
MW-6	Y	10/16/17	11:00	2-12	***	4.85	***	0.92	3.00	No Odor
MW-7	Y	10/16/17	10:25	2-9	***	4.98	***	2.12	2.00	No Odor
MW-8	Y	10/16/17	10:07	2-9.5	***	5.56	***	4.97	2.00	No Odor
DW-1	Y	10/16/17	10:49	43.5-48.5	***	2.23	***	5.79	17.50	No Odor
SW-1	Y	10/16/17	10:00	***	***	***	***	***	0.00	AKA CK-1 (Collected south of MW-6)
SW-2	Y	10/16/17	10:05	***	***	***	***	***	0.00	AKA CK-2 (Collectd south of MW-8)
SW-3	Y	10/16/17	11:45	***	***	***	***	***	0.00	Collected from pond adjacent to 15151-MW13
DUP	Y	10/16/17	11:09	***	***	***	***	***	0.00	Duplicate of MW-11
Field Blank	Y	10/16/17	11:40	***	***	***	***	***	0.00	Field Blank
Trip Blank	Y	10/16/17	11:42	***	***	***	***	***	0.00	Trip Blank
									44.25	TOTAL GALLONS PURGED

Site Activity Summary

UST Permit #: 04878
Facility Name: Nickelpumper 233
County: Jasper
Field Personnel: J. Floyd, J. Coolman



Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	DO (mg/l)	# Gals. Purged	Comments
WSW-1	N	10/16/17	NS	***	***	***	***	***	0.00	WSW not connected to electrical supply
									0.00	TOTAL GALLONS PURGED



Monitoring Well Purge And Sampling Data

Field Personnel: JF, JC
 Sampling Date(s): 10/16/17
 Sampling Case#: 2

Job Name: Metal Pump 2-33
 Job Number: 17-6131

Calibration Data for:
 Calibration Successful? Yes (Yes or No (Please Circle))
 pH: Yes / No
 Conductivity: Yes / No
 Dissolved Oxygen: Yes / No
 Turbidity: Yes / No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes	
								product	Initial H ₂ O	final H ₂ O			**calc.	actual		
mw-1	Initial	11:04	4.97	84.5	25.2	2.53	27.52									
	1st	11:05	5.00	82.6	24.7	2.46	30.16									
	2nd	11:06	5.03	80.9	24.5	2.35	40.19									
	3rd	11:07	5.00	79.3	24.1	2.27	50.22									
	4th	11:08	5.05	76.6	23.6	2.20	60.26									
	5th	11:09	5.03	72.4	22.9	2.14	70.29									
	Sampling															
								4.53			2.5-12.5	7.47		1.24	6.50 gallons	odor Drip
mw-2	Initial	11:08	5.24	202.4	22.8	3.27	20.00									
	1st	11:15	5.88	200.6	25.9	3.15	29.18									
	2nd															
	3rd															
	4th															
	5th															
	Sampling	11:24	5.82	200.1	24.7	3.02	30.22									
								3.80			2-12	8.2		1.33	2.0 gallons	odor
mw-3	Initial	11:27	5.45	65.8	27.4	1.22	37.49									
	1st	11:28	5.40	63.2	26.9	1.30	50.33									
	2nd	11:29	5.59	61.7	25.3	1.37	21.69									
	3rd	11:30	5.36	60.9	24.7	1.50	50.37									
	4th	11:31	5.35	60.7	24.1	1.55	91.16									
	5th	11:32	5.35	60.4	23.8	1.62	85.99									
	Sampling															
								3.83			2-12	8.17		1.33	6.75 gallons	no odor
mw-4	Initial	10:10	5.14	84.3	21.3	4.02	20.27									
	1st	10:11	5.15	83.1	20.8	4.00	37.18									
	2nd	10:12	5.17	81.7	20.2	3.91	40.29									
	3rd	10:13	5.18	81.2	20.1	3.86	81.36									
	4th	10:14	5.20	80.9	20.0	3.74	70.22									
	5th	10:15	5.19	80.5	19.9	3.66	96.12									
	Sampling															
								6.49			2-12	5.51		.89	4.5 gallons	no odor

* = (Depth of Well) - (Depth to Water = Water Height)
 One Well Volume = x.047 for 1" wells, x.163 for 2" wells, or x.66 for 4" wells, 1.469 for 6" wells
 ** = One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	Ph/Conductance SN	DO SN	Turbidity
Case #1	15H101448	12G102878	201301183
Case #2	15E101481	14H103098	201301174
Case #3	10K 101895	08B101407	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: JF, JC
 Sampling Date(s): 10/16/17
 Sampling Case#: 2

Job Name: Mural Pump 233
 Job Number: 17-6131

Calibration Data for:
 Calibration Successful? (Yes) Yes or No (Please Circle)
 pH: (Yes) Yes No
 Conductivity: (Yes) Yes No
 Dissolved Oxygen: (Yes) Yes No
 Turbidity: (Yes) Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	Initial H ₂ O	final H ₂ O			**calc.	actual	
mw 3	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
	Sampling														
mw 6	Initial	10:53	5.47	79.1	22.5	A2	50.26								
	1st	10:54	5.42	75.3	22.1	1.02	59.84								
	2nd	10:55	5.46	74.7	21.9	1.14	76.11								
	3rd														
	4th														
	5th														
	Sampling														
mw 7	Initial	10:59	5.39	74.1	21.7	1.22	80.35								
	1st	10:20	5.18	67.7	21.8	2.02	12.18								
	2nd	10:21	5.10	64.4	21.4	2.05	37.12								
	3rd	10:22	5.07	63.8	21.1	1.99	50.33								
	4th														
	5th														
	Sampling	10:25	5.04	62.7	20.8	1.87	85.43								
mw 8	Initial	10:00	5.53	77.4	22.0	4.97	20.39								
	1st	10:01	5.47	75.6	21.7	4.96	37.12								
	2nd	10:02	5.45	74.9	21.1	4.82	80.26								
	3rd	10:03	5.44	74.1	21.0	4.79	68.44								
	4th														
	5th														
	Sampling	10:07	5.44	74.6	20.0	8.53	51.31								

* = (Depth of Well) - (Depth to Water = Water Height)
 One Well Volume ex. 0.47 for 1" wells * x .183 for 2" wells, or * x .66 for 4" wells, 1.469 for 6" wells
 ** = One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.183
4"	0.653
6"	1.469

Sampling Case#	Ph/Canductance SN	DO SN	Turbidity
Case #1	15H101448	12G102878	201301183
Case #2	15E101481	14H103098	201301174
Case #3	10K 101895	08B101407	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: JF, JC
 Sampling Date(s): 10/16/17
 Sampling Case#: 2

Job Name: Metal Pump 233
 Job Number: 17-6131

Calibration Data for:
 Calibration Successful? Yes (Please Circle) No
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height (feet)	Gallons Purged		Notes
								product	initial H ₂ O	final H ₂ O			**calc.	actual	
DW-1	Initial	10:28	6.17	249.0	22.8	5.79	12.97				43.5-48.5	45.77	7.46	Dry @	No odor
	1st	10:35	6.24	250.3	22.5	5.70	36.16								
	2nd	10:42	6.27	252.9	22.9	5.69	35.97								
	3rd														
	4th														
	6th														
	Sampling	10:49	6.29	252.2	21.2	5.52	40.02						32.30	17.5 gallons	
SW-1	Initial														
	1st	10:00													
SW-2	Initial														
	1st	10:05													
SW-3	Initial														
	1st	11:45													
DW-1	Initial														
	1st	11:00 @ 11:00													
FB	Initial														
	1st	11:00													
FB	Initial														
	1st	11:00													
USW	Initial														
	1st	Inoperative													
DW	Initial														
	1st														
FB	Initial														
	1st														
TG	Initial														
	1st														

* = (Depth of Well) - (Depth to Water = Water Height)
 One Well Volume = 0.047 for 1" wells, 0.163 for 2" wells, or 0.66 for 4" wells, 1.469 for 6" wells
 ** = One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	12G102878	201301183
Case #2	15E101481	14H103098	201301174
Case #3	10K 101895	08B101407	201510251



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2

2195526

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____

Site Location: Sc Jasper

Section A Required Client Information: Company: <u>SCHIC-UST</u> Address: <u>2400 PULLASKUT Columbia Sc 29202</u> Email To: <u>kyants@schic.sc.gov</u> Phone: <u>803-878-6606</u> Fax: <u>803-878-6473</u> Requested Due Date/TAT: _____		Section B Required Project Information: Report To: <u>J. Bryant -UST</u> Copy To: _____ Purchase Order No.: <u>U600422513</u> Project Name: <u>Nickel purpwr 233</u> Project Number: <u>UST-04828 CA-SCU20</u>		Section C Invoice Information: Attention: _____ Company Name: _____ Address: _____ Pace Quote Reference: _____ Pace Project Manager: <u>T. Carter</u> Pace Profile #: _____	
---	--	---	--	---	--

ITEM #	Section D Required Client Information		Matrix Codes MATRIX / CODE		COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Requested Analysis Filtered (Y/N)				Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.		
	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	MATERIAL	Matrix Code	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	Analysis Test #					
					DATE	TIME	DATE	TIME											1	2			3	4
1	mu-1	WT	C	G		10/16/12	11:09	6				X					X	X	X	X			adder	
2	mu-2	WT	C	G		10/16/12	11:24	6				X					X	X	X	X			adder	
3	mu-3																						No sample	
4	mu-4	WT	C	G		10/16/12	10:15	6				X					X	X	X	X			No odor	
5	mu-5						11:00																No odor	
6	mu-6						10:35																No odor	
7	mu-7						10:03																No odor	
8	mu-8						10:09																No odor	
9	mu-9						10:00																LCL	
10	Duplicate with mu-1						10:05																LCL	
11	mu-2						10:05										X	X	X	X			LCL	
12	mu-3	WT	C	G		10/16/12	11:05	6				X					X	X	X	X			LCL	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>[Signature]</i>	10/16/12					

SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: <u>Jordan Toland</u> SIGNATURE OF SAMPLER: <i>[Signature]</i>		DATE Signed (MM/DD/YYYY): <u>10/16/12</u>
Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)
		Samples intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Company: <u>SEPTAC-UST</u> Address: <u>2000 Bull Street</u> <u>Columbia SC 29202</u> Email To: <u>Bayan@septac.us</u> Phone: <u>803-249-0106</u> Fax: <u>803-249-0673</u> Requested Due Date/TAT:	Section B Required Project Information: Report To: <u>J. Baynill - UST</u> Copy To: _____ Purchase Order No.: <u>4400422513</u> Project Name: <u>Nickel plumbus 232</u> Project Number: <u>UST-04878 CA-50420</u>	Section C Invoice Information: Attention: _____ Company Name: _____ Address: _____ Pace Quote Reference: _____ Pace Project Manager: <u>T. Carter</u> Pace Profile #: _____
Page: <u>2</u> of <u>2</u>		2195527
REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input checked="" type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____		
Site Location STATE: <u>SC</u> <u>Daspor</u>		

ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / . -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE		COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)								Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.	
		DW	WT	COMPOSITE	COMPOSITE	Unpreserved	H ₂ SO ₄			HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other													
		WW	WT	START	END/GRAB																							
		DATE	TIME	DATE	TIME																							
1	Duplicate	WT	G			11/14/12	11:29	6					X				X											
2	Field Blank	D	D			1	11:40	6				X					X											
3	Trip Blank	WT	G			10/14/12	11:42	6				X					X											
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS					
		<i>[Signature]</i>	10/14/12										

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jordan Floyd

SIGNATURE of SAMPLER: *[Signature]*

DATE Signed (MM/DD/YYYY): 10/14/12

Temp in °C

Refrigerated on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month on any invoices not paid within 30 days.



October 24, 2017

Re: Treatment of Purge Water
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 17-6131

To Whom It May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

All purge waters were treated on-site using an up-flow treatment drum loaded with 80 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.


October 24, 2017

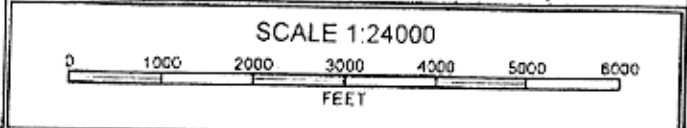
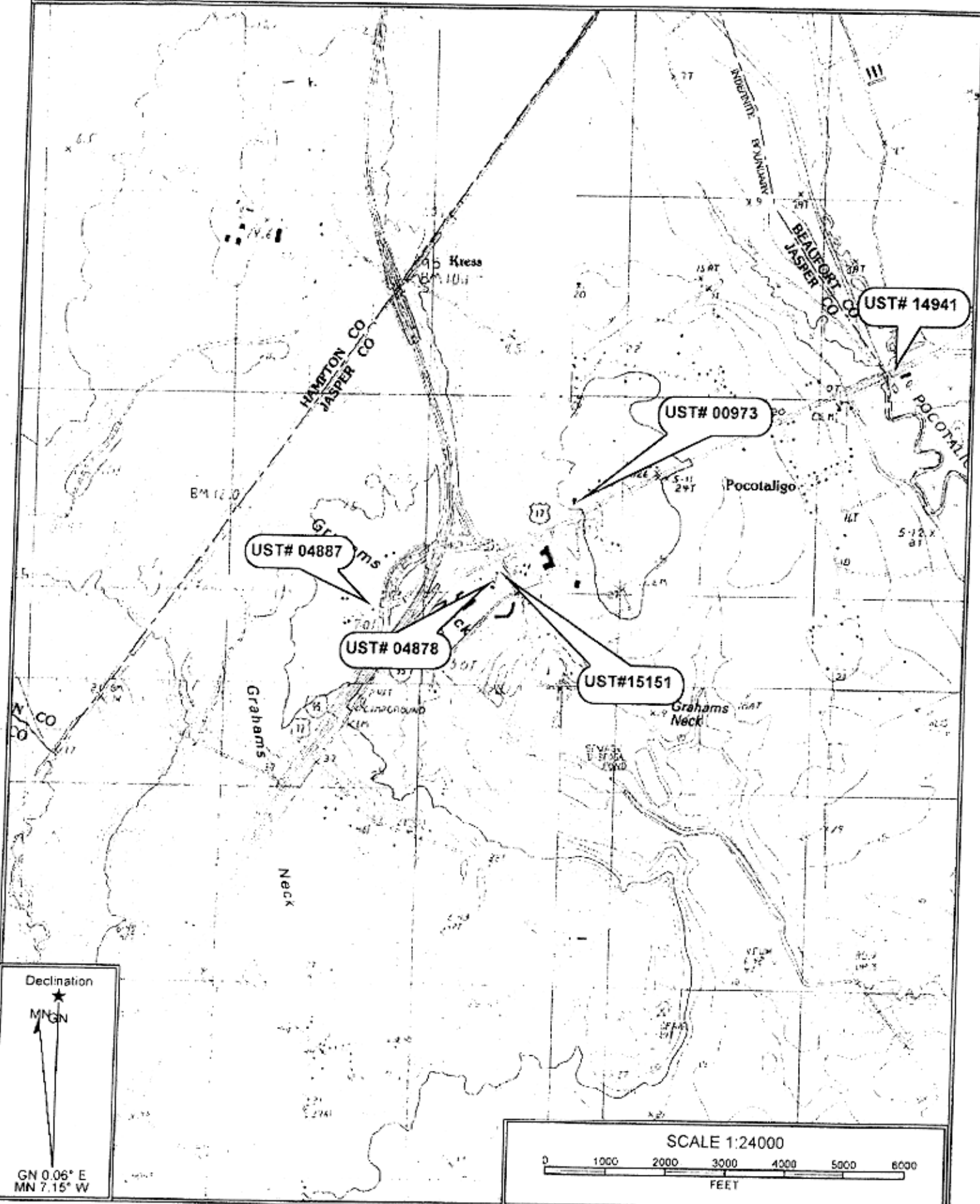
A total of 44.25 gallons were treated on October 16, 2017, at the referenced site.

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

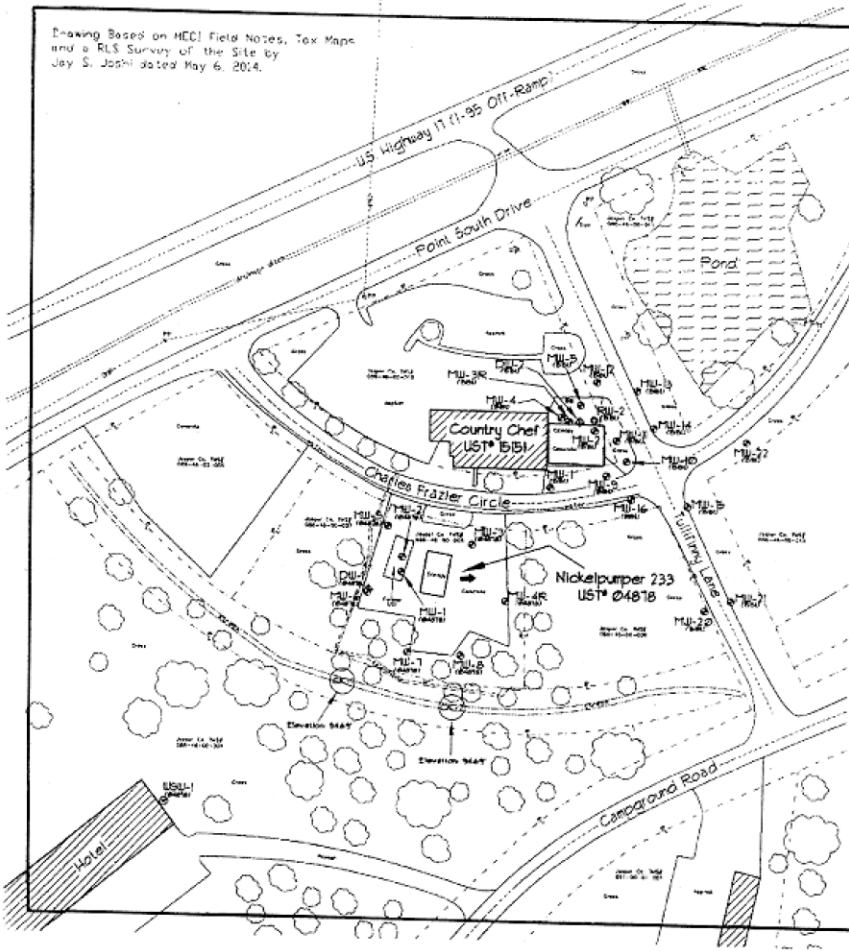
Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.


Kyle V. Pudney
Project Biologist

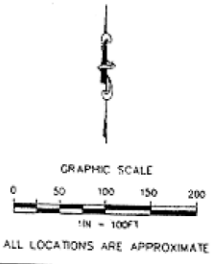


Drawing Based on HECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Waterable Bracketing Monitoring Well
- Location of Double Cased "Deep" Monitoring Well
- Location of 4-Inch Recovery Well
- Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet
- Buried Electric/Overhead Powerline
- - - Property Line
- - - Buried Water Line
- - - Under Ground Telephone
- - - Drainage Ditch
- - - Stream/Pond Edge



Site Base Map	
Nickelpumper 233 3796 Point South Drive Yemassee, South Carolina SCDHEC Site ID 04818	
Midlands Environmental Consultants, Inc.	JOB NO. 14-0014 DATE May 21, 2014 FROM
	2



Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

October 24, 2017

Ashleigh Thrash
SCHDEC
2600 Bull St
Columbia, SC 29201



RE: Project: NICKLE PUMPER 233 04878/55470
Pace Project No.: 92359447

Dear Ashleigh Thrash:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Trey Carter
treycarter@pacelabs.com
(704)875-9092
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
9800 Kinsey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: NICKLE PUMPER 233 04878/55470
Pace Project No.: 92359447

Charlotte Certification IDs

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078
Louisiana/NELAP Certification # LA170028
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

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SAMPLE SUMMARY

Project: NICKLE PUMPER 233 04878/55470
Pace Project No.: 92359447

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92359447001	MW-1	Water	10/16/17 11:09	10/17/17 06:24
92359447002	MW-2	Water	10/16/17 11:24	10/17/17 06:24
92359447003	MW-4R	Water	10/16/17 10:15	10/17/17 06:24
92359447004	MW-5	Water	10/16/17 11:32	10/17/17 06:24
92359447005	MW-6	Water	10/16/17 11:00	10/17/17 06:24
92359447006	MW-7	Water	10/16/17 10:25	10/17/17 06:24
92359447007	MW-8	Water	10/16/17 10:07	10/17/17 06:24
92359447008	DW-1	Water	10/16/17 10:49	10/17/17 06:24
92359447009	DUPLICATE	Water	10/16/17 11:09	10/17/17 06:24
92359447010	FIELD BLANK	Water	10/16/17 11:40	10/17/17 06:24
92359447011	TRIP BLANK	Water	10/16/17 11:42	10/17/17 06:24
92359447012	SW-1	Water	10/16/17 10:00	10/17/17 06:24
92359447013	SW-2	Water	10/16/17 10:05	10/17/17 06:24
92359447014	SW-3	Water	10/16/17 11:45	10/17/17 06:24

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SAMPLE ANALYTE COUNT

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92359447001	MW-1	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
92359447002	MW-2	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
92359447003	MW-4R	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
92359447004	MW-5	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
92359447005	MW-6	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
92359447006	MW-7	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
92359447007	MW-8	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
92359447008	DW-1	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
92359447009	DUPLICATE	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
92359447010	FIELD BLANK	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
92359447011	TRIP BLANK	EPA 8260	SWB	20	PASI-C
92359447012	SW-1	EPA 8011	KPS	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92359447013	SW-2	EPA 8011	KPS	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92359447014	SW-3	EPA 8011	KPS	2	PASI-C
		EPA 8260	GAW	20	PASI-C

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92359447001	MW-1					
EPA 8260	tert-Amyl Alcohol	7690	ug/L	5000	10/19/17 23:03	
EPA 8260	Benzene	4580	ug/L	250	10/19/17 23:03	
EPA 8260	tert-Butyl Alcohol	5460	ug/L	5000	10/19/17 23:03	
EPA 8260	Ethylbenzene	1280	ug/L	250	10/19/17 23:03	
EPA 8260	Methyl-tert-butyl ether	899	ug/L	250	10/19/17 23:03	
EPA 8260	Naphthalene	487	ug/L	250	10/19/17 23:03	
EPA 8260	Toluene	5240	ug/L	250	10/19/17 23:03	
EPA 8260	Xylene (Total)	4380	ug/L	250	10/19/17 23:03	
EPA 8260	m&p-Xylene	3410	ug/L	500	10/19/17 23:03	
EPA 8260	o-Xylene	974	ug/L	250	10/19/17 23:03	
92359447002	MW-2					
EPA 8260	Benzene	133	ug/L	5.0	10/20/17 15:43	
EPA 8260	Ethylbenzene	153	ug/L	5.0	10/20/17 15:43	
EPA 8260	Methyl-tert-butyl ether	4.0J	ug/L	5.0	10/20/17 15:43	
EPA 8260	Naphthalene	84.6	ug/L	5.0	10/20/17 15:43	
EPA 8260	Toluene	7.0	ug/L	5.0	10/20/17 15:43	
EPA 8260	Xylene (Total)	173	ug/L	5.0	10/20/17 15:43	
EPA 8260	m&p-Xylene	165	ug/L	10.0	10/20/17 15:43	
EPA 8260	o-Xylene	7.6	ug/L	5.0	10/20/17 15:43	
92359447003	MW-4R					
EPA 8260	tert-Amyl Alcohol	283	ug/L	100	10/19/17 17:42	
92359447009	DUPLICATE					
EPA 8260	tert-Amyl Alcohol	8560	ug/L	5000	10/19/17 23:38	
EPA 8260	Benzene	6370	ug/L	250	10/19/17 23:38	
EPA 8260	tert-Butyl Alcohol	6080	ug/L	5000	10/19/17 23:38	
EPA 8260	Ethylbenzene	1850	ug/L	250	10/19/17 23:38	
EPA 8260	Methyl-tert-butyl ether	1270	ug/L	250	10/19/17 23:38	
EPA 8260	Naphthalene	712	ug/L	250	10/19/17 23:38	
EPA 8260	Toluene	7390	ug/L	250	10/19/17 23:38	
EPA 8260	Xylene (Total)	6300	ug/L	250	10/19/17 23:38	
EPA 8260	m&p-Xylene	4870	ug/L	500	10/19/17 23:38	
EPA 8260	o-Xylene	1430	ug/L	250	10/19/17 23:38	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Method: EPA 8011

Description: 8011 GCS EDB and DBCP

Client: SCDHEC

Date: October 24, 2017

General Information:

13 samples were analyzed for EPA 8011. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 8011 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NICKLE PUMPER 233 04878/55470
Pace Project No.: 92359447

Method: EPA 8260
Description: 8260 MSV Low Level SC
Client: SCDHEC
Date: October 24, 2017

General Information:

3 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of-custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (Including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 383439

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92359447013

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2125281)
 - tert-Butyl Alcohol
 - tert-Butyl Formate

P5: The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

- MS (Lab ID: 2125281)
 - tert-Butyl Formate

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NICKLE PUMPER 233 04878/55470
Pace Project No.: 92359447

Method: EPA 8260
Description: 8260 MSV
Client: SCDHEC
Date: October 24, 2017

General Information:

11 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (Including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 383179

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCS (Lab ID: 2123734)
- Ethanol

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 383117

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92359268026

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2123811)
- Ethanol
- tert-Butyl Alcohol
- tert-Butyl Formate

P5: The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

- MS (Lab ID: 2123811)
- tert-Butyl Formate

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PROJECT NARRATIVE

Project: NICKLE PUMPER 233 04878/55470
Pace Project No.: 92359447

Method: EPA 8260
Description: 8260 MSV
Client: SCDHEC
Date: October 24, 2017

QC Batch: 383179

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92359224010

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 2123735)
- Ethanol

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2123735)
- Diisopropyl ether

QC Batch: 383305

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92359479020

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2125460)
- Ethanol
- tert-Butyl Formate

P5: The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

- MS (Lab ID: 2125460)
- tert-Butyl Formate

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: MW-1 Lab ID: 92359447001 Collected: 10/18/17 11:09 Received: 10/17/17 06:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	10/19/17 15:44	10/19/17 19:14	106-93-4	
<i>Surrogates</i>									
1-Chloro-2-bromopropane (S)	132	%	60-140		1	10/19/17 15:44	10/19/17 19:14	301-79-56	
8260 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	7690	ug/L	5000	3840	50		10/19/17 23:03	75-85-4	
tert-Amylmethyl ether	ND	ug/L	500	170	50		10/19/17 23:03	994-05-8	
Benzene	4580	ug/L	250	85.0	50		10/19/17 23:03	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	5000	1600	50		10/19/17 23:03	624-95-3	
tert-Butyl Alcohol	5460	ug/L	5000	2880	50		10/19/17 23:03	75-85-0	
tert-Butyl Formate	ND	ug/L	2500	365	50		10/19/17 23:03	762-75-4	
1,2-Dichloroethane	ND	ug/L	250	90.0	50		10/19/17 23:03	107-06-2	
Diisopropyl ether	ND	ug/L	250	85.0	50		10/19/17 23:03	108-20-3	
Ethanol	ND	ug/L	10000	6550	50		10/19/17 23:03	64-17-5	L1
Ethylbenzene	1280	ug/L	250	80.0	50		10/19/17 23:03	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	500	180	50		10/19/17 23:03	637-92-3	
Methyl-tert-butyl ether	899	ug/L	250	85.0	50		10/19/17 23:03	1634-04-4	
Naphthalene	487	ug/L	250	100	50		10/19/17 23:03	91-20-3	
Toluene	5240	ug/L	250	80.0	50		10/19/17 23:03	108-88-3	
Xylene (Total)	4380	ug/L	250	250	50		10/19/17 23:03	1330-20-7	
m&p-Xylene	3410	ug/L	500	155	50		10/19/17 23:03	179601-23-1	
o-Xylene	974	ug/L	250	80.0	50		10/19/17 23:03	95-47-6	
<i>Surrogates</i>									
4-Bromofluorobenzene (S)	95	%	70-130		50		10/19/17 23:03	480-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		50		10/19/17 23:03	17060-07-0	
Toluene-d8 (S)	103	%	70-130		50		10/19/17 23:03	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: MW-2 Lab ID: 92359447002 Collected: 10/16/17 11:24 Received: 10/17/17 06:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	10/19/17 15:44	10/19/17 19:34	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	105	%	60-140		1	10/19/17 15:44	10/19/17 19:34	301-79-56	
8260 MSV									
Analytical Method: EPA 8260									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		10/20/17 15:43	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		10/20/17 15:43	994-05-8	
Benzene	133	ug/L	5.0	1.7	1		10/20/17 15:43	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		10/20/17 15:43	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/20/17 15:43	75-85-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		10/20/17 15:43	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		10/20/17 15:43	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		10/20/17 15:43	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/20/17 15:43	64-17-5	
Ethylbenzene	153	ug/L	5.0	1.6	1		10/20/17 15:43	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		10/20/17 15:43	637-92-3	
Methyl-tert-butyl ether	4.0J	ug/L	5.0	1.7	1		10/20/17 15:43	1634-04-4	
Naphthalene	84.6	ug/L	5.0	2.0	1		10/20/17 15:43	91-20-3	
Toluene	7.0	ug/L	5.0	1.6	1		10/20/17 15:43	108-88-3	
Xylene (Total)	173	ug/L	5.0	5.0	1		10/20/17 15:43	1330-20-7	
m&p-Xylene	165	ug/L	10.0	3.1	1		10/20/17 15:43	179601-23-1	
o-Xylene	7.6	ug/L	5.0	1.6	1		10/20/17 15:43	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		10/20/17 15:43	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130		1		10/20/17 15:43	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		10/20/17 15:43	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: MW-4R Lab ID: 92359447003 Collected: 10/16/17 10:15 Received: 10/17/17 06:24 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011					Preparation Method: EPA 8011				
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	10/19/17 15:45	10/19/17 20:34	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	101	%	60-140		1	10/19/17 15:45	10/19/17 20:34	301-79-56	
8260 MSV									
Analytical Method: EPA 8260									
tert-Amyl Alcohol	283	ug/L	100	76.8	1		10/19/17 17:42	75-85-4	
tert-Amyl methyl ether	ND	ug/L	10.0	3.4	1		10/19/17 17:42	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		10/19/17 17:42	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		10/19/17 17:42	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 17:42	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		10/19/17 17:42	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		10/19/17 17:42	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		10/19/17 17:42	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/19/17 17:42	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		10/19/17 17:42	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		10/19/17 17:42	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		10/19/17 17:42	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		10/19/17 17:42	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		10/19/17 17:42	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		10/19/17 17:42	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		10/19/17 17:42	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		10/19/17 17:42	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130		1		10/19/17 17:42	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		10/19/17 17:42	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		10/19/17 17:42	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: MW-5 Lab ID: 92359447004 Collected: 10/16/17 11:32 Received: 10/17/17 08:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
9011 GCS EDB and DBCP		Analytical Method: EPA 9011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/19/17 20:54	106-93-4	
<i>Surrogates</i>									
1-Chloro-2-bromopropane (S)	78	%	60-140		1	10/19/17 15:45	10/19/17 20:54	301-79-56	
8260 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		10/19/17 16:19	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		10/19/17 16:19	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		10/19/17 16:19	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		10/19/17 16:19	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 16:19	75-85-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		10/19/17 16:19	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		10/19/17 16:19	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		10/19/17 16:19	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/19/17 16:19	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		10/19/17 16:19	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		10/19/17 16:19	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		10/19/17 16:19	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		10/19/17 16:19	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		10/19/17 16:19	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		10/19/17 16:19	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		10/19/17 16:19	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		10/19/17 16:19	95-47-6	
<i>Surrogates</i>									
4-Bromofluorobenzene (S)	101	%	70-130		1		10/19/17 16:19	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		10/19/17 16:19	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		10/19/17 16:19	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: MW-6 Lab ID: 92359447005 Collected: 10/16/17 11:00 Received: 10/17/17 08:24 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	10/19/17 15:45	10/19/17 21:13	106-93-4	
<i>Surrogates</i>									
1-Chloro-2-bromopropane (S)	105	%	60-140		1	10/19/17 15:45	10/19/17 21:13	301-79-56	
8260 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		10/19/17 16:35	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		10/19/17 16:35	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		10/19/17 16:35	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		10/19/17 16:35	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 16:35	75-85-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		10/19/17 16:35	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		10/19/17 16:35	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		10/19/17 16:35	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/19/17 16:35	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		10/19/17 16:35	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		10/19/17 16:35	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		10/19/17 16:35	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		10/19/17 16:35	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		10/19/17 16:35	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		10/19/17 16:35	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		10/19/17 16:35	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		10/19/17 16:35	95-47-6	
<i>Surrogates</i>									
4-Bromofluorobenzene (S)	99	%	70-130		1		10/19/17 16:35	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		10/19/17 16:35	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		10/19/17 16:35	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: MW-7 Lab ID: 92359447006 Collected: 10/16/17 10:25 Received: 10/17/17 06:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/19/17 21:33	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	98	%	60-140		1	10/19/17 15:45	10/19/17 21:33	301-79-56	
8260 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		10/19/17 16:52	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		10/19/17 16:52	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		10/19/17 16:52	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		10/19/17 16:52	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 16:52	75-85-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		10/19/17 16:52	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		10/19/17 16:52	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		10/19/17 16:52	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/19/17 16:52	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		10/19/17 16:52	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		10/19/17 16:52	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		10/19/17 16:52	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		10/19/17 16:52	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		10/19/17 16:52	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		10/19/17 16:52	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		10/19/17 16:52	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		10/19/17 16:52	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		10/19/17 16:52	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		10/19/17 16:52	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		10/19/17 16:52	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: MW-8 Lab ID: 92359447007 Collected: 10/16/17 10:07 Received: 10/17/17 06:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	10/19/17 15:45	10/19/17 21:53	106-93-4	
<i>Surrogates</i>									
1-Chloro-2-bromopropane (S)	97	%	60-140		1	10/19/17 15:45	10/19/17 21:53	301-79-56	
8260 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		10/19/17 17:09	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		10/19/17 17:09	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		10/19/17 17:09	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		10/19/17 17:09	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 17:09	75-85-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		10/19/17 17:09	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		10/19/17 17:09	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		10/19/17 17:09	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/19/17 17:09	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		10/19/17 17:09	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		10/19/17 17:09	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		10/19/17 17:09	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		10/19/17 17:09	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		10/19/17 17:09	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		10/19/17 17:09	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		10/19/17 17:09	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		10/19/17 17:09	95-47-6	
<i>Surrogates</i>									
4-Bromofluorobenzene (S)	95	%	70-130		1		10/19/17 17:09	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		10/19/17 17:09	17060-07-0	
Toluene-d8 (S)	113	%	70-130		1		10/19/17 17:09	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: DW-1 Lab ID: 92359447008 Collected: 10/16/17 10:49 Received: 10/17/17 06:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	10/19/17 15:45	10/19/17 22:32	106-93-4	
<i>Surrogates</i>									
1-Chloro-2-bromopropane (S)	102	%	60-140		1	10/19/17 15:45	10/19/17 22:32	301-79-56	
8260 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		10/19/17 17:25	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		10/19/17 17:25	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		10/19/17 17:25	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		10/19/17 17:25	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 17:25	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		10/19/17 17:25	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		10/19/17 17:25	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		10/19/17 17:25	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/19/17 17:25	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		10/19/17 17:25	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		10/19/17 17:25	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		10/19/17 17:25	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		10/19/17 17:25	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		10/19/17 17:25	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		10/19/17 17:25	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		10/19/17 17:25	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		10/19/17 17:25	95-47-6	
<i>Surrogates</i>									
4-Bromofluorobenzene (S)	102	%	70-130		1		10/19/17 17:25	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		10/19/17 17:25	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		10/19/17 17:25	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: DUPLICATE Lab ID: 92359447009 Collected: 10/16/17 11:09 Received: 10/17/17 06:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/19/17 22:52	106-93-4	
<i>Surrogates</i>									
1-Chloro-2-bromopropane (S)	134	%	60-140		1	10/19/17 15:45	10/19/17 22:52	301-79-56	
8260 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	8560	ug/L	5000	3840	50		10/19/17 23:38	75-85-4	
tert-Amylmethyl ether	ND	ug/L	500	170	50		10/19/17 23:38	994-05-8	
Benzene	6370	ug/L	250	85.0	50		10/19/17 23:38	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	5000	1600	50		10/19/17 23:38	624-95-3	
tert-Butyl Alcohol	6080	ug/L	5000	2880	50		10/19/17 23:38	75-85-0	
tert-Butyl Formate	ND	ug/L	2500	365	50		10/19/17 23:38	762-75-4	
1,2-Dichloroethane	ND	ug/L	250	90.0	50		10/19/17 23:38	107-06-2	
Diisopropyl ether	ND	ug/L	250	85.0	50		10/19/17 23:38	108-20-3	
Ethanol	ND	ug/L	10000	6550	50		10/19/17 23:38	64-17-5	L1
Ethylbenzene	1850	ug/L	250	80.0	50		10/19/17 23:38	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	500	180	50		10/19/17 23:38	637-92-3	
Methyl-tert-butyl ether	1270	ug/L	250	85.0	50		10/19/17 23:38	1634-04-4	
Naphthalene	712	ug/L	250	100	50		10/19/17 23:38	91-20-3	
Toluene	7390	ug/L	250	80.0	50		10/19/17 23:38	106-88-3	
Xylene (Total)	6300	ug/L	250	250	50		10/19/17 23:38	1330-20-7	
m&p-Xylene	4870	ug/L	500	155	50		10/19/17 23:38	179601-23-1	
o-Xylene	1430	ug/L	250	80.0	50		10/19/17 23:38	95-47-6	
<i>Surrogates</i>									
4-Bromofluorobenzene (S)	95	%	70-130		50		10/19/17 23:38	480-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		50		10/19/17 23:38	17060-07-0	
Toluene-d8 (S)	102	%	70-130		50		10/19/17 23:38	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: FIELD BLANK Lab ID: 92359447010 Collected: 10/16/17 11:40 Received: 10/17/17 06:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	10/19/17 15:45	10/19/17 23:12	106-93-4	
<i>Surrogates</i>									
1-Chloro-2-bromopropane (S)	112	%	60-140		1	10/19/17 15:45	10/19/17 23:12	301-79-56	
8260 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		10/19/17 13:16	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		10/19/17 13:16	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		10/19/17 13:16	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		10/19/17 13:16	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 13:16	75-85-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		10/19/17 13:16	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		10/19/17 13:16	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		10/19/17 13:16	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/19/17 13:16	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		10/19/17 13:16	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		10/19/17 13:16	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		10/19/17 13:16	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		10/19/17 13:16	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		10/19/17 13:16	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		10/19/17 13:16	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		10/19/17 13:16	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		10/19/17 13:16	95-47-6	
<i>Surrogates</i>									
4-Bromofluorobenzene (S)	100	%	70-130		1		10/19/17 13:16	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		10/19/17 13:16	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		10/19/17 13:16	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: TRIP BLANK Lab ID: 92359447011 Collected: 10/16/17 11:42 Received: 10/17/17 06:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8280 MSV		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		10/19/17 13:32	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		10/19/17 13:32	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		10/19/17 13:32	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		10/19/17 13:32	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 13:32	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		10/19/17 13:32	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		10/19/17 13:32	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		10/19/17 13:32	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/19/17 13:32	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		10/19/17 13:32	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		10/19/17 13:32	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		10/19/17 13:32	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		10/19/17 13:32	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		10/19/17 13:32	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		10/19/17 13:32	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		10/19/17 13:32	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		10/19/17 13:32	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		10/19/17 13:32	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		1		10/19/17 13:32	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		10/19/17 13:32	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: SW-1 Lab ID: 92359447012 Collected: 10/16/17 10:00 Received: 10/17/17 06:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/19/17 23:51	106-83-4	
Surrogates									
1-Chloro-2-bromopropane (S)	95	%	60-140		1	10/19/17 15:45	10/19/17 23:51	301-79-56	
8260 MSV Low Level SC		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		10/21/17 19:34	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		10/21/17 19:34	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		10/21/17 19:34	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		10/21/17 19:34	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		10/21/17 19:34	75-85-0	
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		10/21/17 19:34	782-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		10/21/17 19:34	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		10/21/17 19:34	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/21/17 19:34	64-17-5	
Ethylbenzene	ND	ug/L	1.0	0.30	1		10/21/17 19:34	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		10/21/17 19:34	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		10/21/17 19:34	1834-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		10/21/17 19:34	91-20-3	
Toluene	ND	ug/L	1.0	0.26	1		10/21/17 19:34	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1.0	1		10/21/17 19:34	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		10/21/17 19:34	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		10/21/17 19:34	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		10/21/17 19:34	460-00-4	
1,2-Dichloroethane-d4 (S)	90	%	70-130		1		10/21/17 19:34	17060-07-0	
Toluene-d8 (S)	108	%	70-130		1		10/21/17 19:34	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: SW-2 Lab ID: 92359447013 Collected: 10/16/17 10:05 Received: 10/17/17 08:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/20/17 00:11	106-93-4	
<i>Surrogates</i>									
1-Chloro-2-bromopropane (S)	76	%	60-140		1	10/19/17 15:45	10/20/17 00:11	301-79-56	
8260 MSV Low Level SC		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		10/21/17 20:08	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		10/21/17 20:08	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		10/21/17 20:08	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		10/21/17 20:08	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		10/21/17 20:08	75-85-0	M1
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		10/21/17 20:08	762-75-4	M1
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		10/21/17 20:08	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		10/21/17 20:08	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/21/17 20:08	64-17-5	
Ethylbenzene	ND	ug/L	1.0	0.30	1		10/21/17 20:08	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		10/21/17 20:08	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		10/21/17 20:08	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		10/21/17 20:08	91-20-3	
Toluene	ND	ug/L	1.0	0.26	1		10/21/17 20:08	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1.0	1		10/21/17 20:08	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		10/21/17 20:08	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		10/21/17 20:08	95-47-6	
<i>Surrogates</i>									
4-Bromofluorobenzene (S)	107	%	70-130		1		10/21/17 20:08	460-00-4	
1,2-Dichloroethane-d4 (S)	79	%	70-130		1		10/21/17 20:08	17060-07-0	
Toluene-d8 (S)	111	%	70-130		1		10/21/17 20:08	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Sample: SW-3 Lab ID: 92359447014 Collected: 10/16/17 11:45 Received: 10/17/17 08:24 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/20/17 00:31	106-93-4	
<i>Surrogates</i>									
1-Chloro-2-bromopropane (S)	107	%	60-140		1	10/19/17 15:45	10/20/17 00:31	301-79-56	
8260 MSV Low Level SC		Analytical Method: EPA 8260							
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		10/21/17 20:25	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		10/21/17 20:25	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		10/21/17 20:25	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		10/21/17 20:25	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		10/21/17 20:25	75-85-0	
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		10/21/17 20:25	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		10/21/17 20:25	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		10/21/17 20:25	108-20-3	
Ethanol	ND	ug/L	200	131	1		10/21/17 20:25	64-17-5	
Ethylbenzene	ND	ug/L	1.0	0.30	1		10/21/17 20:25	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		10/21/17 20:25	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		10/21/17 20:25	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		10/21/17 20:25	91-20-3	
Toluene	ND	ug/L	1.0	0.26	1		10/21/17 20:25	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1.0	1		10/21/17 20:25	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		10/21/17 20:25	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		10/21/17 20:25	95-47-6	
<i>Surrogates</i>									
4-Bromofluorobenzene (S)	107	%	70-130		1		10/21/17 20:25	460-00-4	
1,2-Dichloroethane-d4 (S)	84	%	70-130		1		10/21/17 20:25	17060-07-0	
Toluene-d8 (S)	110	%	70-130		1		10/21/17 20:25	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

QC Batch: 383439 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level SC
 Associated Lab Samples: 92359447012, 92359447013, 92359447014

METHOD BLANK: 2125278 Matrix: Water
 Associated Lab Samples: 92359447012, 92359447013, 92359447014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	1.0	0.24	10/21/17 14:11	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	50.0	10/21/17 14:11	
Benzene	ug/L	ND	1.0	0.25	10/21/17 14:11	
Diisopropyl ether	ug/L	ND	1.0	0.12	10/21/17 14:11	
Ethanol	ug/L	ND	200	131	10/21/17 14:11	
Ethyl-tert-butyl ether	ug/L	ND	10.0	0.070	10/21/17 14:11	
Ethylbenzene	ug/L	ND	1.0	0.30	10/21/17 14:11	
m&p-Xylene	ug/L	ND	2.0	0.66	10/21/17 14:11	
Methyl-tert-butyl ether	ug/L	ND	1.0	0.21	10/21/17 14:11	
Naphthalene	ug/L	ND	1.0	0.24	10/21/17 14:11	
o-Xylene	ug/L	ND	1.0	0.23	10/21/17 14:11	
tert-Amyl Alcohol	ug/L	ND	100	50.0	10/21/17 14:11	
tert-Amylmethyl ether	ug/L	ND	10.0	0.10	10/21/17 14:11	
tert-Butyl Alcohol	ug/L	ND	100	3.6	10/21/17 14:11	
tert-Butyl Formate	ug/L	ND	50.0	1.9	10/21/17 14:11	
Toluene	ug/L	ND	1.0	0.26	10/21/17 14:11	
Xylene (Total)	ug/L	ND	1.0	1.0	10/21/17 14:11	
1,2-Dichloroethane-d4 (S)	%	80	70-130		10/21/17 14:11	
4-Bromofluorobenzene (S)	%	105	70-130		10/21/17 14:11	
Toluene-d8 (S)	%	115	70-130		10/21/17 14:11	

LABORATORY CONTROL SAMPLE: 2125279

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	45.3	91	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1020	102	70-130	
Benzene	ug/L	50	47.5	95	70-130	
Diisopropyl ether	ug/L	50	49.2	98	70-130	
Ethanol	ug/L	2000	2170	108	70-130	
Ethyl-tert-butyl ether	ug/L	100	81.0	81	70-130	
Ethylbenzene	ug/L	50	43.8	88	70-130	
m&p-Xylene	ug/L	100	88.7	89	70-130	
Methyl-tert-butyl ether	ug/L	50	48.1	96	70-130	
Naphthalene	ug/L	50	52.2	104	70-130	
o-Xylene	ug/L	50	44.8	90	70-130	
tert-Amyl Alcohol	ug/L	1000	854	85	70-130	
tert-Amylmethyl ether	ug/L	100	95.8	96	70-130	
tert-Butyl Alcohol	ug/L	500	466	93	70-130	
tert-Butyl Formate	ug/L	400	341	85	70-130	
Toluene	ug/L	50	40.6	81	70-130	

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

LABORATORY CONTROL SAMPLE: 2125279

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	134	89	70-130	
1,2-Dichloroethane-d4 (S)	%			104	70-130	
4-Bromofluorobenzene (S)	%			103	70-130	
Toluene-d8 (S)	%			94	70-130	

MATRIX SPIKE SAMPLE: 2125281

Parameter	Units	92359447013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	19.4	97	70-130	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	371	93	70-130	
Benzene	ug/L	ND	20	19.1	95	70-130	
Diisopropyl ether	ug/L	ND	20	17.0	85	70-130	
Ethanol	ug/L	ND	800	582	73	70-130	
Ethyl-tert-butyl ether	ug/L	ND	40	36.2	90	70-130	
Ethylbenzene	ug/L	ND	20	18.6	93	70-130	
m&p-Xylene	ug/L	ND	40	37.3	93	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	17.4	87	70-130	
Naphthalene	ug/L	ND	20	19.2	96	70-130	
o-Xylene	ug/L	ND	20	18.8	94	70-130	
tert-Amyl Alcohol	ug/L	ND	400	368	92	70-130	
tert-Amylmethyl ether	ug/L	ND	40	34.0	85	70-130	
tert-Butyl Alcohol	ug/L	ND	200	270	135	70-130	M1
tert-Butyl Formate	ug/L	ND	160	ND	0	70-130	M1,P5
Toluene	ug/L	ND	20	18.3	92	70-130	
1,2-Dichloroethane-d4 (S)	%				108	70-130	
4-Bromofluorobenzene (S)	%				103	70-130	
Toluene-d8 (S)	%				98	70-130	

SAMPLE DUPLICATE: 2125280

Parameter	Units	92359447012 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

SAMPLE DUPLICATE: 2125280

Parameter	Units	92359447012 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	90	86	5		
4-Bromofluorobenzene (S)	%	101	99	3		
Toluene-d8 (S)	%	108	110	3		

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

QC Batch: 383117 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92359447003, 92359447004, 92359447005, 92359447006, 92359447007, 92359447008, 92359447010, 92359447011

METHOD BLANK: 2123287 Matrix: Water
 Associated Lab Samples: 92359447003, 92359447004, 92359447005, 92359447006, 92359447007, 92359447008, 92359447010, 92359447011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	1.8	10/19/17 12:26	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	32.1	10/19/17 12:26	
Benzene	ug/L	ND	5.0	1.7	10/19/17 12:26	
Diisopropyl ether	ug/L	ND	5.0	1.7	10/19/17 12:26	
Ethanol	ug/L	ND	200	131	10/19/17 12:26	
Ethyl-tert-butyl ether	ug/L	ND	10.0	3.6	10/19/17 12:26	
Ethylbenzene	ug/L	ND	5.0	1.6	10/19/17 12:26	
m&p-Xylene	ug/L	ND	10.0	3.1	10/19/17 12:26	
Methyl-tert-butyl ether	ug/L	ND	5.0	1.7	10/19/17 12:26	
Naphthalene	ug/L	ND	5.0	2.0	10/19/17 12:26	
o-Xylene	ug/L	ND	5.0	1.6	10/19/17 12:26	
tert-Amyl Alcohol	ug/L	ND	100	76.8	10/19/17 12:26	
tert-Amylmethyl ether	ug/L	ND	10.0	3.4	10/19/17 12:26	
tert-Butyl Alcohol	ug/L	ND	100	57.7	10/19/17 12:26	
tert-Butyl Formate	ug/L	ND	50.0	7.3	10/19/17 12:26	
Toluene	ug/L	ND	5.0	1.6	10/19/17 12:26	
Xylene (Total)	ug/L	ND	5.0	5.0	10/19/17 12:26	
1,2-Dichloroethane-d4 (S)	%	102	70-130		10/19/17 12:26	
4-Bromofluorobenzene (S)	%	101	70-130		10/19/17 12:26	
Toluene-d8 (S)	%	104	70-130		10/19/17 12:26	

LABORATORY CONTROL SAMPLE: 2123288

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	49.3	99	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1040	104	70-130	
Benzene	ug/L	50	50.9	102	70-130	
Diisopropyl ether	ug/L	50	52.2	104	70-130	
Ethanol	ug/L	2000	2460	123	70-130	
Ethyl-tert-butyl ether	ug/L	100	99.2	99	70-130	
Ethylbenzene	ug/L	50	51.3	103	70-130	
m&p-Xylene	ug/L	100	110	110	70-130	
Methyl-tert-butyl ether	ug/L	50	54.1	108	70-130	
Naphthalene	ug/L	50	53.1	106	70-130	
o-Xylene	ug/L	50	54.9	110	70-130	
tert-Amyl Alcohol	ug/L	1000	1000	100	70-130	
tert-Amylmethyl ether	ug/L	100	105	105	70-130	
tert-Butyl Alcohol	ug/L	500	542	108	70-130	

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

LABORATORY CONTROL SAMPLE: 2123288

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
tert-Butyl Formate	ug/L	400	414	103	70-130	
Toluene	ug/L	50	48.0	96	70-130	
Xylene (Total)	ug/L	150	164	110	70-130	
1,2-Dichloroethane-d4 (S)	%			102	70-130	
4-Bromofluorobenzene (S)	%			103	70-130	
Toluene-d8 (S)	%			95	70-130	

MATRIX SPIKE SAMPLE: 2123611

Parameter	Units	92359268026 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	20.5	102	70-130	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	494	124	70-130	
Benzene	ug/L	ND	20	21.9	109	70-130	
Diisopropyl ether	ug/L	ND	20	19.3	96	70-130	
Ethanol	ug/L	ND	800	1300	162	70-130	M1
Ethyl-tert-butyl ether	ug/L	ND	40	36.0	90	70-130	
Ethylbenzene	ug/L	ND	20	22.2	111	70-130	
m&p-Xylene	ug/L	ND	40	45.5	114	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	20.5	103	70-130	
Naphthalene	ug/L	ND	20	22.0	110	70-130	
o-Xylene	ug/L	ND	20	22.2	111	70-130	
tert-Amyl Alcohol	ug/L	ND	400	456	114	70-130	
tert-Amylmethyl ether	ug/L	ND	40	40.0	100	70-130	
tert-Butyl Alcohol	ug/L	ND	200	286	143	70-130	M1
tert-Butyl Formate	ug/L	ND	160	12.3J	8	70-130	M1,P5
Toluene	ug/L	ND	20	20.7	104	70-130	
1,2-Dichloroethane-d4 (S)	%				96	70-130	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				94	70-130	

SAMPLE DUPLICATE: 2123612

Parameter	Units	92359268027 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

SAMPLE DUPLICATE: 2123612

Parameter	Units	92359268027 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	103	96	8		
4-Bromofluorobenzene (S)	%	100	101	1		
Toluene-d8 (S)	%	105	104	1		

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

QC Batch: 383179 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92359447001, 92359447009

METHOD BLANK: 2123733 Matrix: Water
 Associated Lab Samples: 92359447001, 92359447009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	1.8	10/19/17 20:12	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	32.1	10/19/17 20:12	
Benzene	ug/L	ND	5.0	1.7	10/19/17 20:12	
Diisopropyl ether	ug/L	ND	5.0	1.7	10/19/17 20:12	
Ethanol	ug/L	ND	200	131	10/19/17 20:12	
Ethyl-tert-butyl ether	ug/L	ND	10.0	3.6	10/19/17 20:12	
Ethylbenzene	ug/L	ND	5.0	1.6	10/19/17 20:12	
m&p-Xylene	ug/L	ND	10.0	3.1	10/19/17 20:12	
Methyl-tert-butyl ether	ug/L	ND	5.0	1.7	10/19/17 20:12	
Naphthalene	ug/L	ND	5.0	2.0	10/19/17 20:12	
o-Xylene	ug/L	ND	5.0	1.6	10/19/17 20:12	
tert-Amyl Alcohol	ug/L	ND	100	76.8	10/19/17 20:12	
tert-Amylmethyl ether	ug/L	ND	10.0	3.4	10/19/17 20:12	
tert-Butyl Alcohol	ug/L	ND	100	57.7	10/19/17 20:12	
tert-Butyl Formate	ug/L	ND	50.0	7.3	10/19/17 20:12	
Toluene	ug/L	ND	5.0	1.6	10/19/17 20:12	
Xylene (Total)	ug/L	ND	5.0	5.0	10/19/17 20:12	
1,2-Dichloroethane-d4 (S)	%	103	70-130		10/19/17 20:12	
4-Bromofluorobenzene (S)	%	97	70-130		10/19/17 20:12	
Toluene-d8 (S)	%	103	70-130		10/19/17 20:12	

LABORATORY CONTROL SAMPLE: 2123734

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	47.0	94	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1050	105	70-130	
Benzene	ug/L	50	52.2	104	70-130	
Diisopropyl ether	ug/L	50	59.2	118	70-130	
Ethanol	ug/L	2000	3150	158	70-130 L1	
Ethyl-tert-butyl ether	ug/L	100	106	106	70-130	
Ethylbenzene	ug/L	50	52.3	105	70-130	
m&p-Xylene	ug/L	100	105	105	70-130	
Methyl-tert-butyl ether	ug/L	50	51.8	104	70-130	
Naphthalene	ug/L	50	50.5	101	70-130	
o-Xylene	ug/L	50	53.2	106	70-130	
tert-Amyl Alcohol	ug/L	1000	1010	101	70-130	
tert-Amylmethyl ether	ug/L	100	96.1	96	70-130	
tert-Butyl Alcohol	ug/L	500	534	107	70-130	
tert-Butyl Formate	ug/L	400	419	105	70-130	
Toluene	ug/L	50	52.4	105	70-130	

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

LABORATORY CONTROL SAMPLE: 2123734

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	158	105	70-130	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE SAMPLE: 2123735

Parameter	Units	92359224010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	2000	2070	104	70-130	
3,3-Dimethyl-1-Butanol	ug/L	ND	40000	50300	126	70-130	
Benzene	ug/L	1090	2000	3520	121	70-130	
Diisopropyl ether	ug/L	ND	2000	2650	132	70-130	M1
Ethanol	ug/L	ND	80000	194000	243	70-130	M0
Ethyl-tert-butyl ether	ug/L	ND	4000	4690	117	70-130	
Ethylbenzene	ug/L	1840	2000	4280	122	70-130	
m&p-Xylene	ug/L	7760	4000	12500	118	70-130	
Methyl-tert-butyl ether	ug/L	ND	2000	2300	115	70-130	
Naphthalene	ug/L	879	2000	3340	123	70-130	
o-Xylene	ug/L	4150	2000	6640	124	70-130	
tert-Amyl Alcohol	ug/L	ND	40000	48100	120	70-130	
tert-Amylmethyl ether	ug/L	ND	4000	4250	106	70-130	
tert-Butyl Alcohol	ug/L	ND	20000	25700	129	70-130	
tert-Butyl Formate	ug/L	ND	16000	18600	116	70-130	
Toluene	ug/L	16600	2000	19000	119	70-130	
1,2-Dichloroethane-d4 (S)	%				99	70-130	
4-Bromofluorobenzene (S)	%				99	70-130	
Toluene-d8 (S)	%				101	70-130	

SAMPLE DUPLICATE: 2123736

Parameter	Units	92359224011 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	2360	2400	2	30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	2220	2260	1	30	
m&p-Xylene	ug/L	8300	8450	2	30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	885J	901J		30	
o-Xylene	ug/L	4450	4320	3	30	
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/56470
Pace Project No.: 92359447

SAMPLE DUPLICATE: 2123736

Parameter	Units	92359224011 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	21100	21700	3	30	
Xylene (Total)	ug/L	12800	12800	0	30	
1,2-Dichloroethane-d4 (S)	%	105	107	2		
4-Bromofluorobenzene (S)	%	96	95	1		
Toluene-d8 (S)	%	102	102	1		

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

QC Batch: 383305 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92359447002

METHOD BLANK: 2124461 Matrix: Water
 Associated Lab Samples: 92359447002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	1.8	10/20/17 12:07	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	32.1	10/20/17 12:07	
Benzene	ug/L	ND	5.0	1.7	10/20/17 12:07	
Diisopropyl ether	ug/L	ND	5.0	1.7	10/20/17 12:07	
Ethanol	ug/L	ND	200	131	10/20/17 12:07	
Ethyl-tert-butyl ether	ug/L	ND	10.0	3.6	10/20/17 12:07	
Ethylbenzene	ug/L	ND	5.0	1.6	10/20/17 12:07	
m&p-Xylene	ug/L	ND	10.0	3.1	10/20/17 12:07	
Methyl-tert-butyl ether	ug/L	ND	5.0	1.7	10/20/17 12:07	
Naphthalene	ug/L	ND	5.0	2.0	10/20/17 12:07	
o-Xylene	ug/L	ND	5.0	1.6	10/20/17 12:07	
tert-Amyl Alcohol	ug/L	ND	100	76.8	10/20/17 12:07	
tert-Amylmethyl ether	ug/L	ND	10.0	3.4	10/20/17 12:07	
tert-Butyl Alcohol	ug/L	ND	100	57.7	10/20/17 12:07	
tert-Butyl Formate	ug/L	ND	50.0	7.3	10/20/17 12:07	
Toluene	ug/L	ND	5.0	1.6	10/20/17 12:07	
Xylene (Total)	ug/L	ND	5.0	5.0	10/20/17 12:07	
1,2-Dichloroethane-d4 (S)	%	94	70-130		10/20/17 12:07	
4-Bromofluorobenzene (S)	%	99	70-130		10/20/17 12:07	
Toluene-d8 (S)	%	102	70-130		10/20/17 12:07	

LABORATORY CONTROL SAMPLE: 2124462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	49.5	99	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1030	103	70-130	
Benzene	ug/L	50	50.2	100	70-130	
Diisopropyl ether	ug/L	50	51.3	103	70-130	
Ethanol	ug/L	2000	2330	117	70-130	
Ethyl-tert-butyl ether	ug/L	100	97.8	98	70-130	
Ethylbenzene	ug/L	50	55.0	110	70-130	
m&p-Xylene	ug/L	100	117	117	70-130	
Methyl-tert-butyl ether	ug/L	50	52.9	106	70-130	
Naphthalene	ug/L	50	52.7	105	70-130	
o-Xylene	ug/L	50	58.0	116	70-130	
tert-Amyl Alcohol	ug/L	1000	928	93	70-130	
tert-Amylmethyl ether	ug/L	100	99.8	100	70-130	
tert-Butyl Alcohol	ug/L	500	500	100	70-130	
tert-Butyl Formate	ug/L	400	391	98	70-130	
Toluene	ug/L	50	46.3	93	70-130	

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
Pace Project No.: 92359447

LABORATORY CONTROL SAMPLE: 2124462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	175	117	70-130	
1,2-Dichloroethane-d4 (S)	%			100	70-130	
4-Bromofluorobenzene (S)	%			109	70-130	
Toluene-d8 (S)	%			90	70-130	

MATRIX SPIKE SAMPLE: 2125460

Parameter	Units	92359479020 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	22.2	111	70-130	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	441	110	70-130	
Benzene	ug/L	ND	20	24.4	122	70-130	
Diisopropyl ether	ug/L	ND	20	21.7	109	70-130	
Ethanol	ug/L	ND	800	1080	134	70-130	M1
Ethyl-tert-butyl ether	ug/L	ND	40	40.8	102	70-130	
Ethylbenzene	ug/L	ND	20	23.7	119	70-130	
m&p-Xylene	ug/L	ND	40	50.3	126	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	22.8	114	70-130	
Naphthalene	ug/L	ND	20	23.0	115	70-130	
o-Xylene	ug/L	ND	20	24.6	123	70-130	
tert-Amyl Alcohol	ug/L	ND	400	451	113	70-130	
tert-Amylmethyl ether	ug/L	ND	40	45.1	113	70-130	
tert-Butyl Alcohol	ug/L	ND	200	237	118	70-130	
tert-Butyl Formate	ug/L	ND	160	91.7	57	70-130	M1,P5
Toluene	ug/L	ND	20	23.2	116	70-130	
1,2-Dichloroethane-d4 (S)	%				96	70-130	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				96	70-130	

SAMPLE DUPLICATE: 2125461

Parameter	Units	92359479021 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

SAMPLE DUPLICATE: 2125461

Parameter	Units	92359479021 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	95	96	1		
4-Bromofluorobenzene (S)	%	97	100	3		
Toluene-d8 (S)	%	103	100	3		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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QUALITY CONTROL DATA

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

QC Batch: 383079 Analysis Method: EPA 8011
 QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
 Associated Lab Samples: 92359447001, 92359447002, 92359447003, 92359447004, 92359447005, 92359447006, 92359447007, 92359447008, 92359447009, 92359447010, 92359447012, 92359447013, 92359447014

METHOD BLANK: 2122988 Matrix: Water
 Associated Lab Samples: 92359447001, 92359447002, 92359447003, 92359447004, 92359447005, 92359447006, 92359447007, 92359447008, 92359447009, 92359447010, 92359447012, 92359447013, 92359447014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.019	0.019	10/19/17 16:16	
1-Chloro-2-bromopropane (S)	%	133	60-140		10/19/17 16:16	

LABORATORY CONTROL SAMPLE & LCSD: 2122989 2122990

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.24	0.24	0.25	101	101	60-140	1	20	
1-Chloro-2-bromopropane (S)	%				101	103	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2122991 2122992

Parameter	Units	92359447002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	.25	.25	0.27	0.27	110	107	60-140	2	20	
1-Chloro-2-bromopropane (S)	%						104	106	60-140			

SAMPLE DUPLICATE: 2122993

Parameter	Units	92359447007 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	97	112	17		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: NICKLE PUMPER 233 04878/55470
Pace Project No.: 92359447

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.
A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P5 The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.




QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NICKLE PUMPER 233 04878/55470
 Pace Project No.: 92359447

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92359447001	MW-1	EPA 8011	383079	EPA 8011	383187
92359447002	MW-2	EPA 8011	383079	EPA 8011	383187
92359447003	MW-4R	EPA 8011	383079	EPA 8011	383187
92359447004	MW-5	EPA 8011	383079	EPA 8011	383187
92359447005	MW-6	EPA 8011	383079	EPA 8011	383187
92359447006	MW-7	EPA 8011	383079	EPA 8011	383187
92359447007	MW-8	EPA 8011	383079	EPA 8011	383187
92359447008	DW-1	EPA 8011	383079	EPA 8011	383187
92359447009	DUPLICATE	EPA 8011	383079	EPA 8011	383187
92359447010	FIELD BLANK	EPA 8011	383079	EPA 8011	383187
92359447012	SW-1	EPA 8011	383079	EPA 8011	383187
92359447013	SW-2	EPA 8011	383079	EPA 8011	383187
92359447014	SW-3	EPA 8011	383079	EPA 8011	383187
92359447012	SW-1	EPA 8260	383439		
92359447013	SW-2	EPA 8260	383439		
92359447014	SW-3	EPA 8260	383439		
92359447001	MW-1	EPA 8260	383179		
92359447002	MW-2	EPA 8260	383305		
92359447003	MW-4R	EPA 8260	383117		
92359447004	MW-5	EPA 8260	383117		
92359447005	MW-6	EPA 8260	383117		
92359447006	MW-7	EPA 8260	383117		
92359447007	MW-8	EPA 8260	383117		
92359447008	DW-1	EPA 8260	383117		
92359447009	DUPLICATE	EPA 8260	383179		
92359447010	FIELD BLANK	EPA 8260	383117		
92359447011	TRIP BLANK	EPA 8260	383117		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: August 4, 2017 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.04	Issuing Authority: Pace Quality Office

Laboratory receiving samples:

Asheville Eden Greenwood Huntersville Raleigh Mechanicsville

Sample Condition Upon Receipt

Client Name:

SCDHEC

Proj:

WO# : 92359447

Courier:

Commercial Fed Ex Pace UPS USPS Other: Client



Custody Seal Present? Yes No Seals Intact? Yes No

Date/Initials Person Examining Contents: LD 10/17/17

Packing Material: Bubble Wrap Bubble Bags None Other Biological Tissue Frozen? Yes No N/A

Thermometer: IR Gun ID: T1702 Type of Ice: Wet Blue None

Correction Factor: Cooler Temp Corrected (°C): 1.3

Temp should be above freezing to 6°C
 Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

Did samples originate from a foreign source (Internationally, including Hawaii and Puerto Rico)? Yes No

	Comments/Discrepancy:
Chain of Custody Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Short Hold Time Analysis (<72 hr.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.
Rush Turn Around Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Dissolved analysis: Samples Field Filtered? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.
Sample Labels Match COC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9. No date & time on samples COC list 6 trip blanks, received 2
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>	
Headspace in VOA Vials (>5-6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Sample Discrepancy: _____

Lot ID of split containers: _____

Project Manager SCURF Review: TC

Date: 10/19/17

Project Manager SRF Review: TC

Date: 10/19/17

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)



Document Name:
Sample Condition Upon Receipt(SCUR)
Document No.:
F-CAR-CS-033-Rev.04

Document Revised: August 4, 2017
Page 2 of 2

Issuing Authority:

WO# : 92359447

Project



PM: RWC

Due Date: 10/24/17

CLIENT: 92-SCDHEC

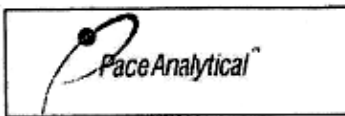
*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

**Bottom half of box is to list number of bottles

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGJU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2SO3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	Cubittainer	VSGU-20 mL Scintillation vials (N/A)	GN		
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #



Document Name:
Sample Condition Upon Receipt(SCUR)
 Document No.:
F-CAR-CS-033-Rev.04

Document Revised: August 4, 2017
 Page 2 of 2
 Issuing Authority:
 Pace Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.
 **Bottom half of box is to list number of bottles

Project: **WO#: 92359447**
 PH: RWC Due Date: 10/24/17
 CLIENT: 92-SCDHEC

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic Zn Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2SO3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-S03S kit (N/A)	V/GK (3 vials per kit)-YPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	Cubitainer	VSGU-20 mL Scintillation vials (N/A)	GN
1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
3	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
4	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
6	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
7	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
8	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
9	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
10	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
11	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2
2195526

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: <u>SLDREC-UST</u>		Report To: <u>J. Beyant -UST</u>		Attention:	
Address: <u>2400 Bull Street</u>		Copy To:		Company Name:	
Columbia SC 29202				Address:	
Email To: <u>bcyants@slde.com</u>		Purchase Order No.: <u>4600422513</u>		Pace Quote Reference:	
Phone: <u>803-898-6606</u> Fax: <u>803-898-0623</u>		Project Name: <u>Nickel pumpin 233</u>		Pace Project Manager: <u>T. Carter</u>	
Requested Due Date/TAT:		Project Number: <u>UST-04878 CA-55470</u>		Pace Profile #:	
				REGULATORY AGENCY	
				<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER	
				<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
				Site Location	
				STATE: <u>SC</u> <u>Jasper</u>	

ITEM #	SAMPLE ID (A-Z, 0-9, -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE	MATERIAL CODE (see valid codes in lab)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
				COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other				
				DATE	TIME	DATE	TIME														
1	mu-1	DW	G	10/16/12	11:09			6				X				X	X	X	X	odor OK	
2	mu-2	WT	G	10/16/12	11:24			6				X				X	X	X	X	odor OK	
3	mu-3																			No sample	
4	mu-4R	WT	G	10/16/12	10:15			6				X				X	X	X	X	No odor OK	
5	mu-5				11:32															No odor OK	
6	mu-6				11:00															No odor OK	
7	mu-7				10:25															No odor OK	
8	mu-8				10:07															No odor OK	
9	mu-1				10:09															No odor OK	
10	Disinfectant SW-1				10:00															LOL OK	
11	SW-2				10:05															LOL OK	
12	SW-3	WT	G	10/16/12	11:05			6				X				X	X	X	X	LOL OK	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>Jordan Floyd</i>	10/16/12		<i>Jordan Floyd</i>	10/17/12	10:24	
	<i>Jordan Floyd</i>	10/17/12	13:29	<i>Jordan Floyd</i>	10/17/12	13:29	Y NY

ORIGINAL

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: <u>Jordan Floyd</u>	DATE Signed (MM/DD/YYYY): <u>10/16/12</u>
SIGNATURE of SAMPLER: <i>Jordan Floyd</i>	

Temp in °C	Received on Ice (Y/N)	Custody Seal/Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoice not paid within 30 days. F-ALL-Q-020rev.07, 15-May-2007



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Company: <u>SCPHC-UST</u> Address: <u>2000 Bull Street</u> <u>Columbia SC 29202</u> Email To: <u>scphc@paceanalytical.com</u> Phone: <u>803-895-0200</u> Fax: <u>803-696-0673</u> Requested Due Date/TAT:		Section B Required Project Information: Report To: <u>J. Boyant - UST</u> Copy To: Purchase Order No.: <u>4600422513</u> Project Name: <u>Nickel plumper 233</u> Project Number: <u>UST-04878 CA-50470</u>		Section C Invoice Information: Attention: Company Name: Address: Pace Quote Reference: Pace Project Manager: <u>T. Carter</u> Pace Profile #:		Page: <u>2</u> of <u>2</u> <u>2195527</u>
REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input checked="" type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER			Site Location STATE: <u>SC</u> <u>Jasper</u>			

ITEM #	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test ↓ V/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	
				COMPOSITE START		COMPOSITE END/GRAB				H ₂ SO ₄	HNO ₃	HCl	NaOH	Ni ₂ S ₂ O ₈	Methanol				Other
				DATE	TIME	DATE	TIME												
1	Duplicate	WT	G			10/14/17	11:09	6											
2	Field Blank	↓	↓				11:00	6											
3	Trip Blank	WT	G			10/14/17	11:42	6											
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

9235
9447

Pace Project No. / Lab I.D.
 Dmp 009
 FB 016
 TB 011

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>[Signature]</i>	10/16/17		<i>[Signature]</i>	10/17/17	16:21	
	<i>[Signature]</i>	10/17-17	13:29	<i>[Signature]</i>	10/17/17	13:29	1.3 Y N Y

ORIGINAL

SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: <u>Jordan Floyd</u> SIGNATURE of SAMPLER: <i>[Signature]</i>		DATE Signed (MM/DD/YY): <u>10/16/17</u>	Temp in °C Received on Ice (Y/N) Custom Sealed Cooler (Y/N) Samples Intact (Y/N)
---	--	---	---

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month on any invoices not paid within 30 days.



04878

BRYAN SHANE, PG
 MIDLANDS ENVIRONMENTAL CONSULTANTS INC
 PO BOX 854
 LEXINGTON SC 29071

JAN 30 2018



Re: Site-Specific Work Plan Directive for Small Scope Contract
 Solicitation # 54000014185; PO# 4600602150

Dear Mr. Shane:

Based on the award of the referenced bid package, enclosed are the information packets to conduct assessments at several facilities. Please submit the Site-specific Quality Assurance Project Plan for an IGWA, Tier I or Assessment Plan, and Assessment Component Cost Agreement as necessary, to my attention **within fifteen (15) days from the date of this correspondence**. Plan implementation shall not commence prior to receipt of written technical and financial approval from the Department. The facilities will be assigned a Cost Agreement (CA) numbers once the QAPP Contractor Addendum has been approved by the project manager. Please reference the CA numbers and Purchase Order # 4600602150 on the appropriate invoices submitted for payment. As specified in the referenced bid, **the completed invoice forms and associated reports (include contract certification number) are expected on or before the designated due date (see below) after the technical and cost approval from the project manager.**

UST Permit #	Facility	County	Project Manager	Work Scope	Due Date*
02000	Save More 038-2	Cherokee	Patterson	Well Redevelopment	60 Days
11890	Stanco Inc	Lexington	Kuhn	Well Installation and Subsequent Survey	60 Days
07435	Pantry Express	Richland	Kuhn	Well Abandonment and Replacement	60 Days
01203	Sporty Joe's	Berkeley	Martin	Soil Borings and Well Installation	60 Days
10554	Tee Off Deli	Horry	Mendenhall	Well Replacement and Subsequent Survey	60 Days

04878	Nickelpumper 233	Jasper	Mendenhall	Well Replacement and Subsequent Survey	60 Days
-------	---------------------	--------	------------	---	---------

*From receipt of Notice to Proceed letter

Midland's Environmental Consultants, Inc. will perform services at the sites on behalf of the site's UST owners; however, payments will be made from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. The site's UST owners have no obligation for payment for this scope of work.

Please note any changes in the established cost agreement amounts (e.g., additional water supply wells sampled, additional well footage, etc.) contact the site's project manager for technical and/or financial approval. Failure to do so prior to submittal of invoice may result in delay of payment.

IGWA, Tier I or Assessment Quality Assurance Project Plan, Implementation and Report submittal shall be performed in accordance with the referenced contract. Per Section 3.4.2., a late fee of \$50.00/day (not to exceed 20% of the cost agreement total) may be levied for each day the report is submitted after the deadline established in the Notice to Proceed letter.

Please provide this office with a schedule of drilling dates and coordinate all work with me before commencing work at the facility. **In accordance with the bid specification, a bi-monthly status report of the project should be provided by the 5th and 20th of each month via e-mail to my attention.** If you have any questions or need further assistance, please contact me at (803) 898-0592.

Sincerely,



Kyle Patterson, Hydrogeologist
Assessment & Unregulated Petroleum Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Information Packets

cc: Ashleigh M. Thrash, UST Management Division (w/o enc)
Kyle Patterson, UST Management Division (w/enc)
Technical File (w/enc)

**UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone: 803-896-6240**

MEMORANDUM

TO: Bryan Shane, Midlands Environmental Consultants, Inc.

FROM: Ed Mendenhall

RE: **Site-Specific Work Plan Notice to Proceed**

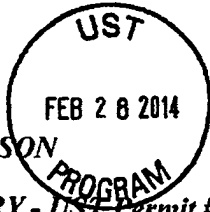
Facility Name: Nickelpumper 233

Permit Number: 04878

County: Jasper

Work To Be Completed: Replace MW-3 and install additional MWs east of MW-1 and south of MW-3 replacement and west of MW-4R. Survey new MWs.

CA# 56052



RICHARD CARLSON

RIGHT OF ENTRY - UST Permit # 04878

THERE WILL BE NO COST TO THE PROPERTY OWNER FOR ANY & ALL WORK PERFORMED ON THE PROPERTY PER LETTER 1/27/14 JAWNBELANT.

If you are the Property Owner or are the authorized representative for that person, but did not own the former or existing underground storage tanks at the time the release was reported, please complete this form.

I, RICHARD CARLSON, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility VACANT PROP. Phone # _____

Street Address of Facility 3296 POINT SOUTH DR. VACANT PROP.

Town, City, District, Suburb YEMASSEE SOUTH CAROLINA

Name of nearest intersecting street, road, highway, alley TAXMAP# 088-48-00-008

Is this facility within the city limits? (yes or no) I DON'T KNOW

Is this facility serviced by a public water or sewer utility? (yes or no) I DON'T KNOW, if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) _____, if yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation DONT KNOW, Phone number _____

Is the property currently leased or rented to someone? (yes or no) NO, if yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the monitoring wells, they should be moved before SCDHEC's contractor arrives at the site.

NAME of property owner (Please Print): RICHARD CARLSON

Phone Number (home) _____ (work) (323) 222-3007

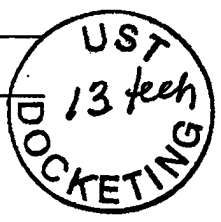
Current Mailing Address 1920 W. MAIN ST. LOS ANGELES CA 90031

Signature of Property Owner: [Signature]

Witness Peter Bartolero

Date: FEB. 22, 2014 Month _____ Year _____
Day _____

UST Division/ SMB



Site Activity Summary

UST Permit #: 04878
 Facility Name: Nickelpumper 233
 County: Jasper
 Field Personnel: J. Floyd, J. Coolman



Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	DO (mg/l)	# Gals. Purged	Comments
MW-1	Y	10/16/17	11:09	2.5-12.5	***	4.53	***	2.53	6.50	Odor
MW-2	Y	10/16/17	11:24	2-12	***	3.80	***	3.27	2.00	Odor
MW-3	N	10/16/17	NL	2-12	***	NL	***	NL	0.00	Not Located
MW-4R	Y	10/16/17	10:15	2-12	***	6.49	***	4.02	4.50	No Odor
MW-5	Y	10/16/17	11:32	2-12	***	3.83	***	1.22	6.75	No Odor
MW-6	Y	10/16/17	11:00	2-12	***	4.85	***	0.92	3.00	No Odor
MW-7	Y	10/16/17	10:25	2-9	***	4.98	***	2.12	2.00	No Odor
MW-8	Y	10/16/17	10:07	2-9.5	***	5.56	***	4.97	2.00	No Odor
DW-1	Y	10/16/17	10:49	43.5-48.5	***	2.23	***	5.79	17.50	No Odor
SW-1	Y	10/16/17	10:00	***	***	***	***	***	0.00	AKA CK-1 (Collected south of MW-6)
SW-2	Y	10/16/17	10:05	***	***	***	***	***	0.00	AKA CK-2 (Collected south of MW-8)
SW-3	Y	10/16/17	11:45	***	***	***	***	***	0.00	Collected from pond adjacent to 15151-MW13
DUP	Y	10/16/17	11:09	***	***	***	***	***	0.00	Duplicate of MW-11
Field Blank	Y	10/16/17	11:40	***	***	***	***	***	0.00	Field Blank
Trip Blank	Y	10/16/17	11:42	***	***	***	***	***	0.00	Trip Blank
									44.25	TOTAL GALLONS PURGED

SUMMARY OF DETECTION

Project: NICKLE PUMPER 233 04878/55470
Pace Project No.: 92359447

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92359447001	MW-1					
EPA 8260	tert-Amyl Alcohol	7690	ug/L	5000	10/19/17 23:03	
EPA 8260	Benzene	4580	ug/L	250	10/19/17 23:03	
EPA 8260	tert-Butyl Alcohol	5460	ug/L	5000	10/19/17 23:03	
EPA 8260	Ethylbenzene	1280↔	ug/L	250	10/19/17 23:03	
EPA 8260	Methyl-tert-butyl ether	899↔	ug/L	250	10/19/17 23:03	
EPA 8260	Naphthalene	487↔	ug/L	250	10/19/17 23:03	
EPA 8260	Toluene	5240↓	ug/L	250	10/19/17 23:03	
EPA 8260	Xylene (Total)	4380↑	ug/L	250	10/19/17 23:03	
EPA 8260	m&p-Xylene	3410	ug/L	500	10/19/17 23:03	
EPA 8260	o-Xylene	974	ug/L	250	10/19/17 23:03	
92359447002	MW-2					
EPA 8260	Benzene	133	ug/L	5.0	10/20/17 15:43	
EPA 8260	Ethylbenzene	153	ug/L	5.0	10/20/17 15:43	
EPA 8260	Methyl-tert-butyl ether	4.0J	ug/L	5.0	10/20/17 15:43	
EPA 8260	Naphthalene	84.6	ug/L	5.0	10/20/17 15:43	
EPA 8260	Toluene	7.0	ug/L	5.0	10/20/17 15:43	
EPA 8260	Xylene (Total)	173	ug/L	5.0	10/20/17 15:43	
EPA 8260	m&p-Xylene	165	ug/L	10.0	10/20/17 15:43	
EPA 8260	o-Xylene	7.6	ug/L	5.0	10/20/17 15:43	
92359447003	MW-4R					
EPA 8260	tert-Amyl Alcohol	283	ug/L	100	10/19/17 17:42	
92359447009	DUPLICATE					
EPA 8260	tert-Amyl Alcohol	8560	ug/L	5000	10/19/17 23:38	
EPA 8260	Benzene	6370	ug/L	250	10/19/17 23:38	
EPA 8260	tert-Butyl Alcohol	6080	ug/L	5000	10/19/17 23:38	
EPA 8260	Ethylbenzene	1850	ug/L	250	10/19/17 23:38	
EPA 8260	Methyl-tert-butyl ether	1270	ug/L	250	10/19/17 23:38	
EPA 8260	Naphthalene	712	ug/L	250	10/19/17 23:38	
EPA 8260	Toluene	7390	ug/L	250	10/19/17 23:38	
EPA 8260	Xylene (Total)	6300	ug/L	250	10/19/17 23:38	
EPA 8260	m&p-Xylene	4870	ug/L	500	10/19/17 23:38	
EPA 8260	o-Xylene	1430	ug/L	250	10/19/17 23:38	

No 1,2-DCh

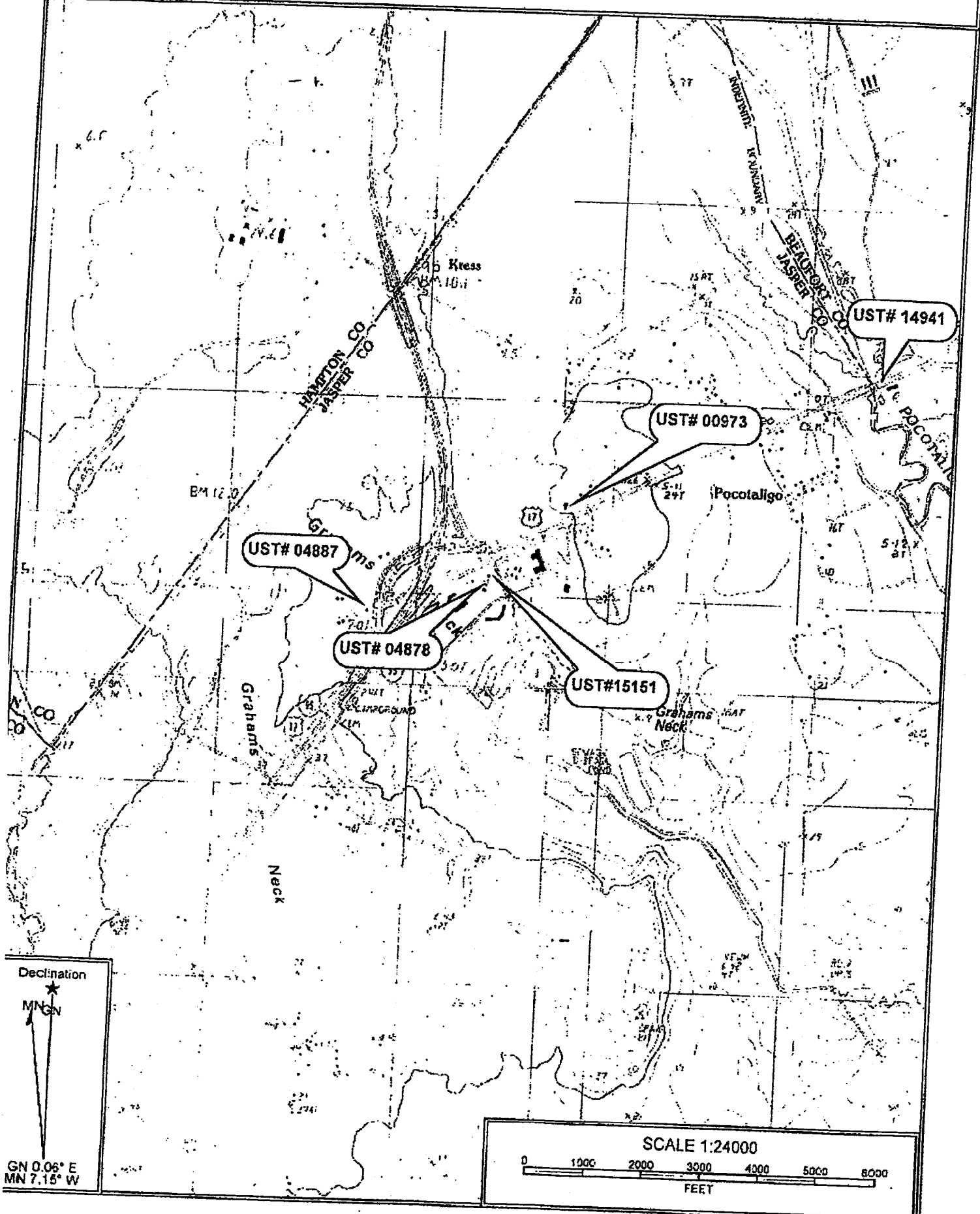
REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

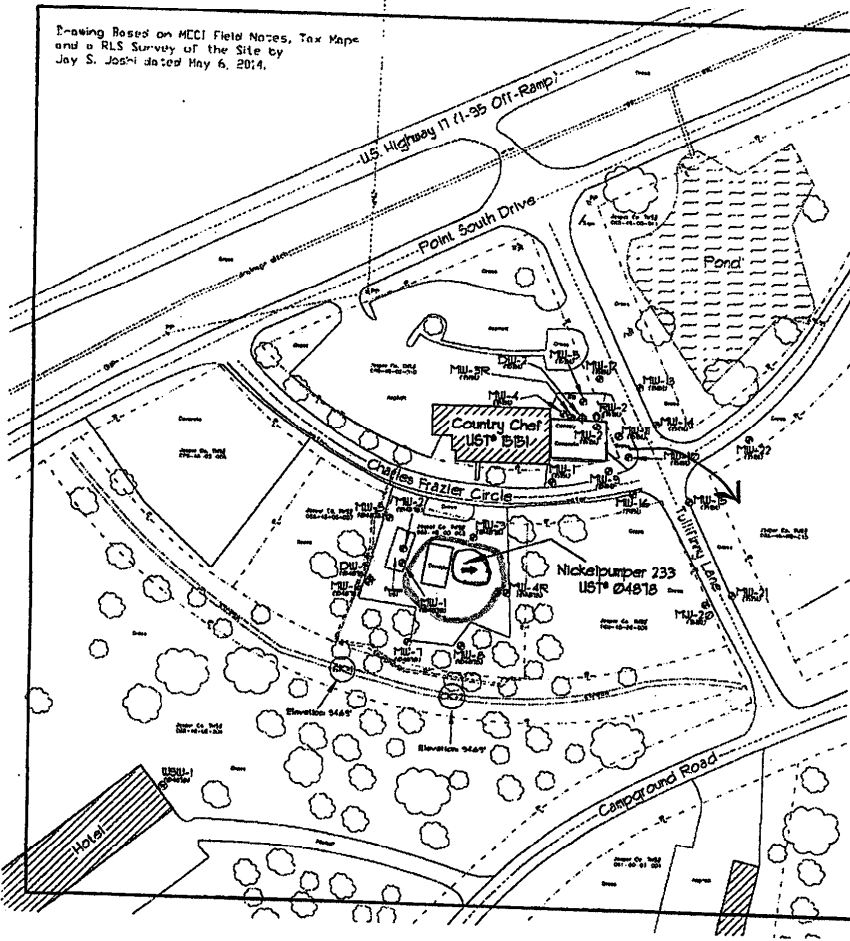
Map Name: MC PHERSONVILLE
Print Date 11/09/15

Scale: 1 inch = 2,000 ft.
Map Center: 032° 37' 46.89" N, 080° 52'.

Horizontal Datum: NAD27



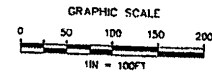
Drawing Based on MECI Field Notes, Tax Maps
and a RLS Survey of the Site by
Jay S. Joshi dated May 6, 2014.



Explanation:

- ⊙ Location of Waterable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊖ Location of 4-inch Recovery Well
- ⊙ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↖ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

- Buried Electric/Overhead Powerline
- Property Line
- Buried Water Line
- Under Ground Telephone
- Drainage Ditch
- Stream/Pond Edge



ALL LOCATIONS ARE APPROXIMATE

Site Base Map	
Nickelpumper 233 3736 Point South Drive Yemassee, South Carolina SCDHEC Site ID 04818	
Midlands Environmental Consultants, Inc.	JOB NO. 14-0714 DATE May 20, 2014 DRAWN <div style="font-size: 2em; font-weight: bold;">2</div>

SCDHEC UST Management Tracking

BOTH billable and unbillable tanks

Site Information for N-04878 Facility: NICKELPUMPER 233

<u>Bus. Address</u>	3296 POINT SOUTH DR YEMASSEE SC 29945	<u>Phone</u>		<u>County</u>	Jasper	<u>District</u>	Beaufort EQC Office
<u>Category</u>	Retail Sales	<u>Last Inspection</u>	07/17/17	<u>Trans. of Ownership</u>	01/23/07		
<u>Tank Owner</u>	CARLSON, RICHARD					<u>Financial Responsibility</u>	
<u>Bus. Address</u>	1920 N MAIN ST LOS ANGELES CA 90031-3217	<u>Phone</u>	951-659-0063	<u>Financial Mechanism</u>		<u>Expiration Date</u>	
<u>Operator</u>					None	28 July 2012	
<u>Bus. Address</u>		<u>Phone</u>					
<u>Land Owner</u>	CARLSON, RICHARD						
<u>Bus. Address</u>	1920 N MAIN ST LOS ANGELES CA 90031-3217	<u>Phone</u>	951-659-0063				
<u>Tanks</u>	3 <u>Billable</u>	3 <u>Aband.</u>	0 <u>Other</u>	0			
	<u>Compliance Operator(s)</u>			<u>ID</u>		<u>Training Date</u>	

Significant? N Memo Date: 03/02/01

Site Memo: 03-02-01--site has not changed since last inspection. There is no store building. Parking lot is concrete. There are two dispenser islands with "old-fashioned" dispensers (glass broken from a couple of them). Liquid levels were same as measured last time. The site is located behind what is currently the "Citgo/Country Chef", which is near the Knights Inn, located off Exit 33, I-95. vkm

Significant? Y Memo Date: 10/02/01

Site Memo: This information came from the Jasper County Tax Assessors Office. The tax map ID # is 088-48-00-008. The site building burned on 3-08-95. Golden Isles Petroleum sold the property to Sunstar on 12-22-95 for \$100,000.00. The paperwork from the assessors office is in the reg file.

Significant? N Memo Date: 09/28/01

Site Memo: The Citgo/Country Chef station in front of this site is #15151.

Significant? Y Memo Date: 05/02/05

Site Memo: water supply well WSW-1 is located 400ft east and is used for irrigation purposes only. water supply well WSW-2 is located 850ft east. two ponds are located 400ft NE and 700ft SE

Significant? N Memo Date: 08/05/09

Site Memo:

<u>Rel. No.</u>	1	<u>Reported</u>	05/16/02	<u>Status</u>	Confirmed - Active	<u>Product</u>	Petroleum	<u>Compl Required</u>	Y
<u>Active Tnks</u>	NFA	<u>Fin. Type</u>	With SUPERB Cos	<u>RBCA / Score</u>	28B 728	<u>Compliance Met</u>	N		

SCDHEC UST Management Tracking

BOTH billable and unbillable tanks

Site Information for N-04878 Facility: NICKELPUMPER 233

this plume is co-mingled with the plume for Site #15151 which is in corrective action. Also, an enforcement action is pending for tank abandonment and closure.

Significant? N **Memo Date:** 02/24/01

Site Memo: PER NANCY L IN LEGAL - GOLDEN ISLES PETROLEUM IS IN BANKRUPTCY AND IS TOO LATE TO MAKE CLAIMS AGAINST THEM. (KM 5/13/94) 3-23-95 TO DISTRICT FOR SITE VISIT TO FIND TANK AND OWNERSHIP STATUS. DMO 7-10-95 PER 4-25-95 VISIT BY JIM FEURFOY SITE IS BURNT DOWN AND TANKS ARE STILL THERE. DMO 9-28-95 THIS SITE IS IN ENFORCEMENT FOR FEES AND TANKS YOU OVER 12 MONTHS. DMO 01-02-97 I visited this site on 12-31-96. The tanks have about one inch to two inches of fluid in them. The dispensers are present. The system was a pressure system with no milds. RSM 12/30/97 I visited this site in response to request from Richard Pittenger from ARM. He believed the site was unregistered. I checked all 3 tanks again. Two still have about 2-3 in. of fluid. The third tank seems to have a bit more fluid present (5-6 inches) now. RSM 1/15/99 All tanks have b/w 1" to 3" of fluid. No strong product odor from any of the tanks. No fill caps on risers. Some dispensers are present, but none are useable. RSM

Significant? N **Memo Date:** 04/22/03

Site Memo: Tier I directive, per Mark Berenbrok, to Robert Pucini of Sunstar, Inc. 7373 Hodgson Memorial Dr., #6, Savannah, GA 31406, and his attorney, Russell Templeton, Esq., 1825 Bull St., Columbia, SC 29202.

Significant? N **Memo Date:** 11/20/02

Site Memo: This facility is located on the South side of I-95 at exit 33 in Point South. It is behind site #15151.

<u>Confirmed</u>	05/28/02	<u>Emer. Resp.</u>	<u>Superb Qualified</u>	<u>Compliance Met Dt</u>	06/27/02
<u>CU Init.</u>	01/09/03	<u>Abate. Met</u>	<u>Superb Determ. Dt</u>	<u>Fin Res Mechanism</u>	
<u>CU Compl.</u>		<u>Transferred</u>	<u>Project Manager</u>	BUTLER KATHYRN H	
<u>CU > MCL</u>		<u>Source</u>	<u>Responsible Party</u>	CARLSON RICHARD	

<u>Tank No.</u>	1	<u>Const.</u>	<u>Class</u>	N	<u>Tank Const. Mat.</u>	SL	<u>Pipe Const. Mat.</u>	SL
		<u>Operate</u>	<u>T Status</u>	TOS	<u>Tank Protect.</u>	CP	<u>Pipe Protect.</u>	CP
		<u>Notify</u>	<u>Capacity</u>	6,000	<u>Tank Cont. Meth.</u>	SW	<u>Pipe Cont. Meth.</u>	SW
		<u>Variance</u>	<u>Product</u>	GN	<u>Overfill Type</u>	BFVV Ver	<u>Piping Type</u>	PR
		<u>Compl.</u>	<u>C Status</u>	OUT	<u>Age @ Notif.</u>	10	<u>Dist. to Well</u>	101
		<u>Spill Det.</u>	<u>Left Gal.</u>	0	<u>Owner @ ABD</u>		<u>Last Use</u>	05/15/02
		<u>Aband.</u>	<u>Method</u>		<u>CAS No.</u>	<u>Chem.</u>		
		<u>Under Dispenser Cont.</u>	N	<u>Drop Tube</u>	N	<u>Tank Leak Det.</u>	<u>Pipe Leak Det.</u>	

SCDHEC UST Management Tracking

BOTH billable and unbillable tanks

Site Information for N-04878 Facility: NICKELPUMPER 233

<u>Tank No.</u>	2	<u>Const.</u>	<u>Class</u>	N	<u>Tank Const. Mat.</u>	SL	<u>Pipe Const. Mat.</u>	SL	
		<u>Operate</u>	<u>T Status</u>	TOS	<u>Tank Protect.</u>		<u>Pipe Protect.</u>	CP	
		<u>Notify</u>	12/11/85	<u>Capacity</u>	8,000	<u>Tank Cont. Meth.</u>	SW	<u>Pipe Cont. Meth.</u>	SW
		<u>Variance</u>		<u>Product</u>	GN	<u>Overfill Type</u>	BFVV	<u>Piping Type</u>	FR
		<u>Compl.</u>	12/29/14	<u>C Status</u>	OUT	<u>Age @ Notif.</u>	10	<u>Dist. to Well</u>	101
		<u>Spill Det.</u>		<u>Left Gal.</u>	0	<u>Owner @ ABD</u>		<u>Last Use</u>	05/15/02
		<u>Aband.</u>		<u>Method</u>		<u>CAS No.</u>		<u>Chem.</u>	
		<u>Under Dispenser Cont.</u>	N	<u>Drop Tube</u>	N	<u>Tank Leak Det.</u>		<u>Pipe Leak Det.</u>	
<u>Tank No.</u>	3	<u>Const.</u>	<u>Class</u>	N	<u>Tank Const. Mat.</u>	SL	<u>Pipe Const. Mat.</u>	SL	
		<u>Operate</u>	<u>T Status</u>	TOS	<u>Tank Protect.</u>		<u>Pipe Protect.</u>	CP	
		<u>Notify</u>	12/11/85	<u>Capacity</u>	10,000	<u>Tank Cont. Meth.</u>	SW	<u>Pipe Cont. Meth.</u>	SW
		<u>Variance</u>		<u>Product</u>	GN	<u>Overfill Type</u>	BFVV	<u>Piping Type</u>	FR
		<u>Compl.</u>	12/29/14	<u>C Status</u>	OUT	<u>Age @ Notif.</u>	10	<u>Dist. to Well</u>	101
		<u>Spill Det.</u>		<u>Left Gal.</u>	0	<u>Owner @ ABD</u>		<u>Last Use</u>	05/15/02
		<u>Aband.</u>		<u>Method</u>		<u>CAS No.</u>		<u>Chem.</u>	
		<u>Under Dispenser Cont.</u>	N	<u>Drop Tube</u>	N	<u>Tank Leak Det.</u>		<u>Pipe Leak Det.</u>	

 **Midlands
Environmental
Consultants, Inc.**



February 6, 2018

Mr. Kyle Patterson, Hydrogeologist
Assessment & Unregulated Petroleum Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Subject: Site-Specific Work Plan
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 18-6308
Certified Site Rehabilitation Contractor UCC-0009

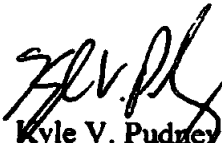
Dear Mr. Patterson,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Site-Specific Work Plan for the referenced site.

On February 5, 2018, MECI personnel performed a site visit to the subject sites to evaluate site conditions, locate monitoring wells and identify potential problems for future sampling activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.


Kyle V. Pudney
Project Biologist


Jeff L. Coleman
Senior Scientist



**Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division**

To: Mr. Ed Mendenhall (SCDHEC Project Manager)
 From: Mr. Jeff Coleman (Contractor Project Manager)
 Contractor: Midlands Environmental Consultants, Inc. UST Contractor Certification Number: 009

Facility Name: Nickelpumper 233 UST Permit #: 04878
 Facility Address: 3296 Point South Drive, Yamasee, SC 29945
 Responsible Party: Richard Carlson Phone: 951-659-0063
 RP Address: 1920 North Main Street, Los Angeles, CA 90031
 Property Owner (if different): SAA
 Property Owner Address: SAA
 Current Use of Property: Vacant Lot

Scope of Work (Please check all that apply)

- IGWA Tier II Groundwater Sampling GAC
 Tier I Monitoring Well Installation Other Subsequent Survey

Analyses (Please check all that apply)

Groundwater/Surface Water:

- | | | | |
|---|--|--------------------------------------|---|
| <input type="checkbox"/> BTEXNMDCA (8260B) | <input type="checkbox"/> Lead | <input type="checkbox"/> BOD | <input type="checkbox"/> Methane |
| <input type="checkbox"/> Oxygenates (8260B) | <input type="checkbox"/> 8 RCRA Metals | <input type="checkbox"/> Nitrate | <input type="checkbox"/> Ethanol |
| <input type="checkbox"/> EDB (8011) | <input type="checkbox"/> TPH | <input type="checkbox"/> Sulfate | <input type="checkbox"/> Dissolved Iron |
| <input type="checkbox"/> PAH (8270D) | <input type="checkbox"/> pH | <input type="checkbox"/> Other _____ | |

Drinking Water Supply Wells:

- | | | |
|---|---|--------------------------------------|
| <input type="checkbox"/> BTEXNMDCA (524.2) | <input type="checkbox"/> Mercury (200.8 245.1 or 245.2) | <input type="checkbox"/> EDB (504.1) |
| <input type="checkbox"/> Oxygenates & Ethanol (8260B) | <input type="checkbox"/> RCRA Metals (200.8) | |

Soil:

- | | | | | |
|---------------------------------|--|--|--|-------------------------------------|
| <input type="checkbox"/> BTEXNM | <input type="checkbox"/> Lead | <input type="checkbox"/> RCRA Metals | <input type="checkbox"/> TPH-DRO (3550B/8015B) | <input type="checkbox"/> Grain Size |
| <input type="checkbox"/> PAH | <input type="checkbox"/> Oil & Grease (9071) | <input type="checkbox"/> TPH-GRO (5030B/8015B) | <input type="checkbox"/> TOC | |

Air:

- BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected.)

_____ Soil _____ Water Supply Wells _____ Air _____ Field Blank
 _____ Monitoring Wells _____ Surface Water _____ Duplicate _____ Trip Blank

Field Screening Methodology

Estimate number and total completed depth for each point, and include their proposed locations on the attached map.

of shallow points proposed: _____ Estimated Footage: _____ feet per point
 # of deep points proposed: _____ Estimated Footage: _____ feet per point

Field Screening Methodology: _____

Permanent Monitoring Wells

Estimate number and total completed depth for each well, and include their proposed locations on the attached map.

of shallow wells: 4 Estimated Footage: 12' feet per point
 # of deep wells: _____ Estimated Footage: _____ feet per point
 # of recovery wells: _____ Estimated Footage: _____ feet per point

Comments, if warranted: _____

UST Permit #: 04878 Facility Name: Nickelpumper 233

Implementation Schedule (Number of calendar days from approval)
Field Work Start-Up: 2/8/2018 Field Work Completion: 3/6/2018
Report Submittal: 4/6/2018 # of Copies Provided to Property Owners: _____

Aquifer Characterization
Pump Test: Slug Test: (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal
Soil: 1.0 Tons Purge Water: 100.0 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

Additional Details For This Scope of Work
For example, list wells to be sampled, wells to be abandoned/repared, well pads/bolts/caps to replace, details of AFVR event, etc.
-Please see attached map for proposal of four (4) additional monitoring wells. One well will replace MW-3 and the other three will be placed surrounding the onsite canopy and former dispenser islands.
-Following installation and development, a subsequent survey will be performed.

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)
YES Laboratory as indicated in ACQAP? (Yes/No) If no, indicate laboratory information below.
Name of Laboratory: _____
SCDHEC Certification Number: _____
Name of Laboratory Director: _____
Yes Well Driller as indicated in ACQAP? (Yes/No) If no, indicate driller information below.
Name of Well Driller: _____
SCLLR Certification Number: _____
N/A Other variations from ACQAP. Please describe below.

Attachments
1. Attach a copy of the relevant portion of the USGS topographic map showing the site location.
2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following:
North Arrow Proposed monitoring well locations
Location of property lines Legend with facility name and address, UST permit number, and bar scale
Location of buildings Streets or highways (indicate names and numbers)
Previous soil sampling locations Location of all present and former ASTs and USTs
Previous monitoring well locations Location of all potential receptors
Proposed soil boring locations
3. Assessment Component Cost Agreement, SCDHEC Form D-3664



Healthy People. Healthy Communities.

ASSESSMENT COMPONENT INVOICE

SOUTH CAROLINA

Department of Health and Environmental Control

Underground Storage Tank Management Division

State Underground Petroleum Environmental Response Bank Account

CONTRACT PO#4608602150

Facility Name: Nickelpumper 233

UST Permit #: 04878

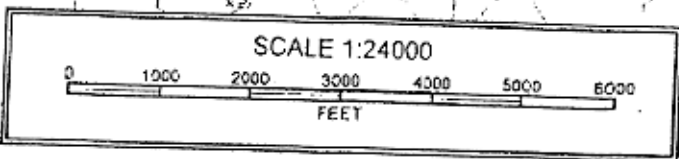
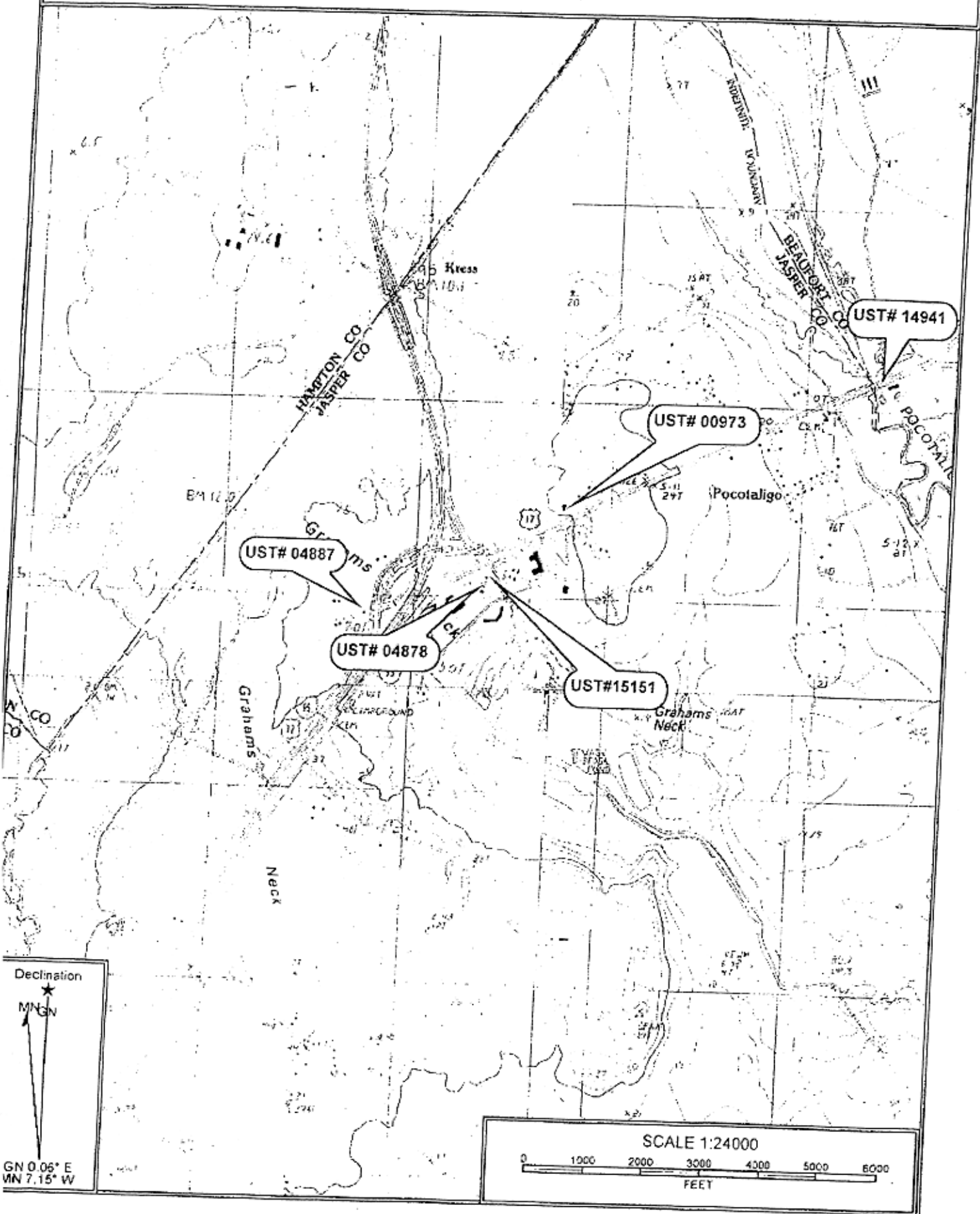
Cost Agreement #: Cost Proposal

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. Plan Preparation				
A1. Site-specific Work Plan	1	each	\$10.00	\$10.00
B1. Tax Map		each	\$50.00	\$0.00
2. A1. Receptor Survey *		each	\$1.00	\$0.00
3. Survey				
A1. Comprehensive Survey		each	\$1,000.00	\$0.00
4. Mob/Demob				
A1. Equipment	1	each	\$1,100.00	\$1,100.00
B1. Personnel	3	each	\$325.00	\$975.00
5. Soil Borings (Not for screening)				
A1. Soil Borings (hand auger)		per foot	\$1.00	\$0.00
6. Soil Borings (Not for Screening)				
AA. Standard		per foot	\$2.00	\$0.00
9. Well Installation (per foot)				
A1. Water Table (hand augered)		per foot	\$1.00	\$0.00
B1. Water Table (drill rig)	48	per foot	\$21.00	\$1,008.00
CC. Telescoping		per foot	\$35.00	\$0.00
DD. Rock Drilling		per foot	\$10.00	\$0.00
HH. Recovery Well (4" diameter)		per foot	\$34.00	\$0.00
K. Re-develop Existing Well		per foot	\$0.50	\$0.00
10. Groundwater Sample Collection / Gauge Depth to Water or Product includes gauge depth to water and product, ph,turbidity, specific conductivity, and dissolved oxygen if sampled is collected				
A1. Groundwater Purge		per well/receptor	\$20.00	\$0.00
E1. Gauge Well only		per well	\$1.00	\$0.00
F1. Sample Below Product		per well	\$1.00	\$0.00
G1. Passive Diffusion Bag		each	\$20.00	\$0.00
I. Groundwater (low flow purge)		per well/receptor	\$35.00	\$0.00
11. Laboratory Analyses-Groundwater				
A2. BTEXNM+Oxyg's+1,2 DCA+Eth(8260B)		per sample	\$36.00	\$0.00
AA1. Lead, Filtered		per sample	\$12.00	\$0.00
D1. PAH's		per sample	\$1.00	\$0.00
E1. Lead		per sample	\$12.00	\$0.00
F1. EDB by EPA 8011		per sample	\$21.00	\$0.00
G1. 8 RCRA Metals		per sample	\$1.00	\$0.00
H1. TPH (9070)		per sample	\$1.00	\$0.00
11. Analyses-Drinking Water				
L. BTEXNM+1,2 DCA (524.2)		per sample	\$50.00	\$0.00
M. 7-OXYGENATES & ETHANOL (8260B)		per sample	\$35.00	\$0.00
N. EDB (504.1)		per sample	\$30.00	\$0.00
O. RCRA METALS (200.8)		per sample	\$20.00	\$0.00

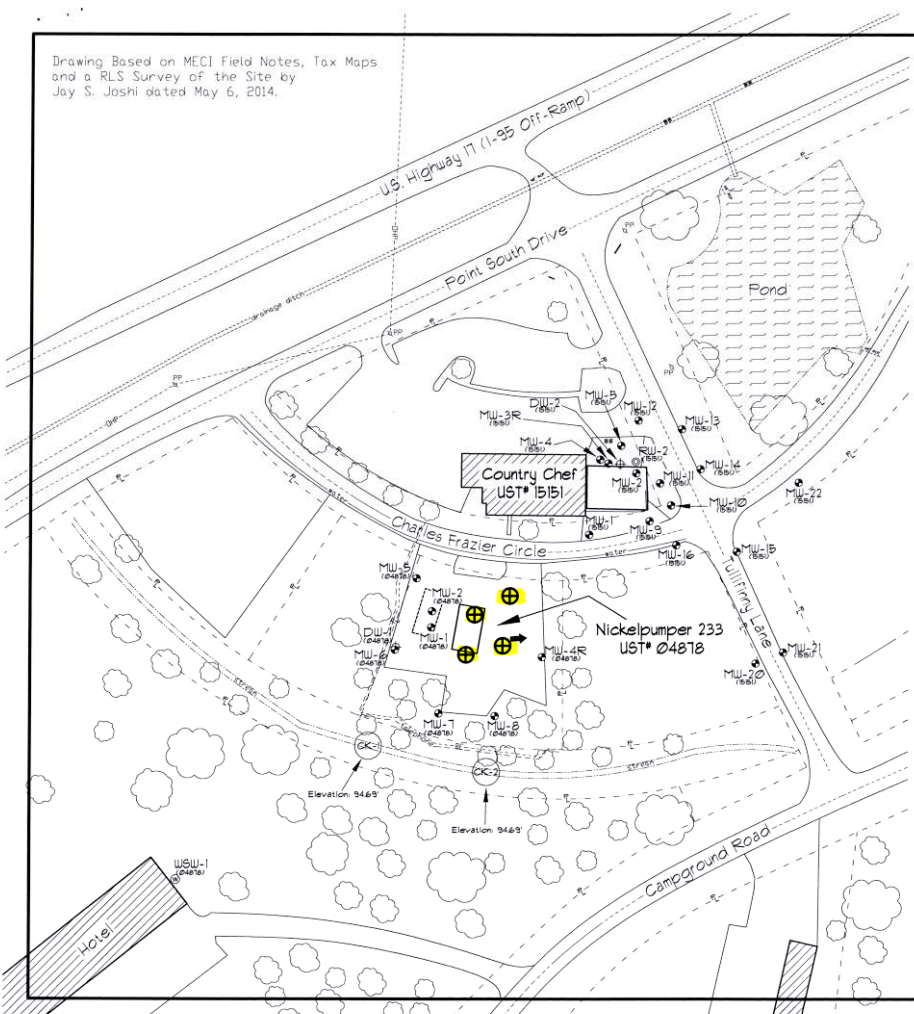


11. Analyses-Soil					
Q1. BTEXNM+Oxyg's+1,2 DCA+Eth(8260B)		per sample	\$22.00		\$0.00
R1. PAH's		per sample	\$1.00		\$0.00
S1. 8 RCRA Metals		per sample	\$1.00		\$0.00
U1. TPH-DRO (3550C/8015C)		per sample	\$1.00		\$0.00
W1. Grain size/hydrometer		per sample	\$125.00		\$0.00
X1. Total Organic Carbon		per sample	\$1.00		\$0.00
12. Aquifer Characterization					
B1. Slug Test		per test	\$50.00		\$0.00
16. A1. Subsequent Survey	1	each	\$400.00		\$400.00
17. Disposal (gallons or tons)*					
AA. Wastewater	100	gallon	\$1.25		\$125.00
BB. Free Product		gallon	\$0.10		\$0.00
C1. Soil Treatment/Disposal	1	ton	\$50.00		\$50.00
D1. Drilling fluids		gallon	\$0.10		\$0.00
18. Miscellaneous					
Soil Analysis Lead		each	\$12.00		\$0.00
High Strength Well Pad Replacement		each	\$60.00		\$0.00
Groundwater No-Purge or Duplicate or Field Blank		per well	\$15.00		\$0.00
Replace well vault & MW pad up to 4x4		each	\$320.00		\$0.00
Water Supply Well/ Surface Water		per well	\$5.00		\$0.00
Abandonment (per foot) Not Part of Screening					
Existing monitoring well 4" diam or smaller		per foot	\$2.00		\$0.00
Existing monitoring well larger than 4" dia		per foot	\$1.00		\$0.00
		each	\$0.00		\$0.00
		each	\$0.00		\$0.00
		each	\$0.00		\$0.00
		each	\$0.00		\$0.00
		each	\$0.00		\$0.00
20. Tier I Assessment (Use DHEC 3665 form)		standard	\$4,369.00		\$0.00
21. IGWA (Use DHEC 3666 form)		standard	\$980.00		\$0.00
25. Well Repair					
A1. Additional Copies of the Report Delivered		each	\$1.00		\$0.00
B1. Repair 2x2 MW pad		each	\$1.00		\$0.00
C1. Repair 4x4 MW pad		each	\$1.00		\$0.00
F1. Replace well cover bolts		each	\$1.00		\$0.00
G. Replace locking well cap & lock		each	\$1.00		\$0.00
H1. Replace/Repair stick-up & MW pad up to 4x4		each	\$1.00		\$0.00
II. Convert Flush-mount to Stick-up*		each	\$1.00		\$0.00
J1. Convert Stick-up to Flush-mount*		each	\$1.00		\$0.00
K1. Replace missing/illegible well ID plate		each	\$1.00		\$0.00
TOTAL					\$3,668.00

BST
 FEB 07 2013
 DIVISION

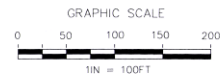


Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-inch Recovery Well
- ⊗ Location of Water Supply Well
- ⊗ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet
- (E/O)P--- Buried Electric/Overhead Powerline
- P--- Property Line
- WTL--- Buried Water Line
- TEL--- Under Ground Telephone
- DCH--- Drainage Ditch
- SE--- Stream/Pond Edge
- ⊕ Proposed Monitoring Well Location



ALL LOCATIONS ARE APPROXIMATE

Site Base Map	
Nickelpumper 233 3296 Point South Drive Yemassee, South Carolina SCDHEC Site ID 04878	
Midlands Environmental Consultants, Inc.	JOB NO. 18-0308 DATE February 6, 2018 FIGURE 2



BRYAN SHANE PG
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071-0854

48 09

Re: Notice to Proceed for Small Scope Approved Site-Specific Work Plan
Solicitation # 5400014185, PO# 4600602150
Nicklepumper #233, 3296 Point South Drive, Yemassee, SC
UST Permit #04878; CA#56052; MWA # UMW-26888
Site-Specific Work Plan received February 7, 2018
Jasper County

Dear Mr. Shane:

In accordance with the bid solicitation # IFB-5400014185 and the UST Management Division Quality Assurance Program Plan (QAPP) Revision 3.1, the Site-Specific Work Plan has been approved. If quality assurance problems occur, you must contact me within 24 hours by phone or e-mail and the final report must document the event(s), including quality assurance problems, and the action(s) taken.

A report meeting the contract specifications of Section 3.10, 3.11, or 3.12; contractor verification checklist; and invoice are due sixty (60) days from the date of this letter. A monitoring well approval is enclosed. The solicitation requires adherence to all applicable South Carolina certification requirements for laboratory analyses, well installation, and report preparation.

MECI will perform services at the site on behalf of the responsible party (RP); however, payment will be made from the SUPERB Account. The RP has no obligation for payment of this scope of work. Please coordinate access to the facility with the property owner. The DHEC grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below Risk Based Screening Levels.

On all correspondence, please reference permit #04878. If you have any site-specific questions, please contact me at (803) 898-7542 or e-mail mendenje@dhec.sc.gov. If you have any contract specific questions, please contact Kyle Patterson at (803) 898-0592 or via e-mail at patterkc@dhec.sc.gov.

Sincerely,



Ed Mendenhall, Hydrogeologist
Assessment & Unregulated Petroleum Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Approved Cost Agreement (CA)
Monitoring Well Approval (MWA)

cc: Kyle Patterson, Assessment Section, UST Management Division (w/CA copy)
Technical File (w/enc)



Monitoring Well Approval Form

Approval is hereby granted to: Midlands Environmental Consultants, Inc.
(on behalf of): Mr. Richard Carlson
Facility: Nicklepumper #233, 3296 Point South Drive,
Yemassee, SC
UST Permit Number: 04878
County: Jasper

This approval is for the installation of 4 permanent monitoring wells. The monitoring wells are to be installed in the approved locations following the South Carolina Well Standards, R.61-71, and the applicable guidance documents.

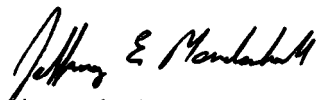
Please note that R.61-71 requires the following:

1. All wells shall be drilled, constructed, and abandoned by a South Carolina certified well driller per R.61-71.D.1.
2. All monitoring wells shall be labeled as required by R.61-71.H.2.c.
3. A Water Well Record Form or other form provided or approved by the DHEC shall be completed and submitted to the DHEC within 30 days after well completion or abandonment unless another schedule has been approved by the DHEC. The form should contain the "as-built" construction details and all other information required by R.61-71.H.1.f
4. All analytical data and water levels obtained from each monitoring well shall be submitted to the DHEC within 30 days of receipt of laboratory results unless another schedule has been approved by the DHEC as required by R.61-71.H.1.d.
5. If any of the information provided to the DHEC changes, notification to Ed Mendenhall (tel: (803) 898-7542 or e-mail: mendenje@dhec.sc.gov) shall be provided a minimum of twenty-four (24) hours prior to well construction as required by R.61-71.H.1.a.
6. All temporary monitoring wells shall be abandoned within 5 days of borehole completion using appropriate methods as required by R.61-71.H.4.c. All other wells shall be properly developed per R.61-71.H.2.d.
7. DHEC approval is required prior to abandonment of all monitoring wells as required by R.61-71.H.1.a.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and R.61-71 of the South Carolina well standards and regulations, dated May 27, 2016. A copy of this approval should be on the site during well installation.

Date of Issuance: February 16, 2018

Approval #: UMW-26888


Ed Mendenhall, Hydrogeologist
Assessment & Unregulated Petroleum Section
UST Management Division
Bureau of Land and Waste Management

Approved Cost Agreement**56052**

Facility: 04878 NICKELPUMPER 233

BUTLERKH

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
01 PLAN		A1 SITE SPECIFIC WORK PLAN	1.0000	\$10.000	10.00
04 MOB/DEMOB		A1 EQUIPMENT	1.0000	\$1,100.000	1,100.00
		B1 PERSONNEL	3.0000	\$325.000	975.00
09 WELL INSTALLATION		B1 WATER TABLE (DRILL RIG)	48.0000	\$21.000	1,008.00
16 SUBSEQUENT SURVEY		A1 SUBSEQUENT SURVEY	1.0000	\$400.000	400.00
17 DISPOSAL		AA WASTEWATER	100.0000	\$1.250	125.00
		C1 SOIL TREATMENT DISPOSAL	1.0000	\$50.000	50.00
18 MISCELLANEOUS		GROUNDWATER NO-PURGE DUPLICATE/FIELD BLAN	5.0000	\$15.000	75.00
			Total Amount		3,743.00

MONITORING WELL INSTALLATION REPORT

Nickelpumper 233
103 Charles Frazier Circle
Yemassee, South Carolina
SCDHEC SITE ID 04878
CA # 56052

Prepared By:



231 Dooley Road, Lexington, SC 29073
(803) 808-2043 fax: 808-2048

April 11, 2018

MECI Project No. 18-6308



April 11, 2018

Mr. Ed Mendenhall, Hydrogeologist
Assessment & Unregulated Petroleum Section
Underground Storage Tank Management Division
Bureau of Land & Waste Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

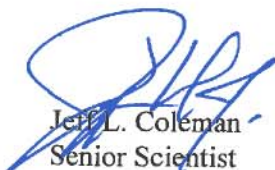
Subject: Monitoring Well Installation Report
Nickelpumper 233
103 Charles Frazier Circle
Yemassee, South Carolina
SCDHEC Site ID# 04878, CA# 56052
MECI Project Number 18-6308
Certified Site Rehabilitation Contractor UCC-0009

Dear Mr. Mendenhall,


Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached the Monitoring Well Installation Report for the referenced site. This report describes assessment activities conducted at the site and results of those activities in general accordance with South Carolina Department of Health and Environmental Control (SCDHEC) guidelines, including adherence to the UST Division Programmatic Quality Assurance Program Plan.

Midlands Environmental appreciates the opportunity to offer our professional environmental services to you on this project. Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.



Jeff L. Coleman
Senior Scientist



Bryan T. Shane, P.G.
Principal Geologist

TABLE OF CONTENTS

1.0 INTRODUCTION	1
1.1 PROJECT INFORMATION	1
2.0 SURROUNDING PROPERTY USAGE	2
3.0 AREA GEOLOGY AND HYDROGEOLOGY	2
3.1 LOCAL SUBSURFACE CONDITIONS.....	3
4.0 FIELD EXPLORATION	3
4.1 MONITORING WELL INSTALLATION	3
4.2 SITE SURVEY	4
5.0 QUALIFICATIONS OF REPORT	4

TABLE OF CONTENTS (cont.)

TABLES: **Table 1 – SOIL ANALYTICAL RESULTS
Table 2 – POTENTIOMETRIC DATA
**Table 3 – GROUNDWATER COC CONCENTRATION DATA
**Table 4 – AQUIFER CHARACTERISTICS
**Table 5 – SITE CONCEPTUAL MODEL (CURRENT LAND USE)
**Table 5A – SITE CONCEPTUAL MODEL (FUTURE LAND USE)

FIGURES: Figure 1 –TOPOGRAPHIC MAP
Figure 2 –SITE BASE MAP
**Figure 3 –SOIL SITE MAP
**Figure 4 –GROUNDWATER COC SITE MAP
Figure 5 –POTENTIOMETRIC DATA SITE MAP
**Figure 6 –GEOLOGIC CROSS SECTIONS (A TO A’)
**Figure 6A –GEOLOGIC CROSS SECTIONS (B TO B’)

**APPENDIX A – SITE SURVEY
**APPENDIX B – SAMPLING LOGS, LABORATORY DATA SHEETS AND CHAIN OF CUSTODY FORMS
**APPENDIX C – TAX MAP DATA
**APPENDIX D – SOIL BORING/TEMPORARY MONITORING WELL LOGS & 1903 FORMS
APPENDIX E – PERMANENT WELL LOGS & 1903 FORMS
**APPENDIX F – AQUIFER EVALUATION SUMMARY FORMS, DATA, GRAPHS, EQUATIONS
APPENDIX G – DISPOSAL MANIFESTS
**APPENDIX H – LOCAL ZONING REGULATIONS
**APPENDIX I – FATE & TRANSPORT MODELING
APPENDIX J – ACCESS AGREEMENTS
APPENDIX K – DATA VERIFICATION CHECKLIST

NOTE: ITEMS LISTED WITH AN ** BESIDE IT WERE NOT NEEDED AS A PART OF THIS SCOPE OF WORK

1.0 INTRODUCTION

A. Owner/Operator Information

Facility Name: Nickelpumper 233 UST Permit #: 04878
Facility Address: 103 Charles Frazier Circle, Yemassee, SC
Name: Richard Carlson
Address: 1920 North Main Street, Los Angeles, CA 90031
Telephone #: (323) 222-3007

B. Property Owner Information

Name: Richard Carlson
Tax Map #: Jasper County Tax Map #: 088-48-00-008
Address: 1920 North Main Street, Los Angeles, CA 90031
Telephone #: (323) 222-3007

C. Contractor Information

Name: Midlands Environmental Consultants, Inc.
Certification #: 9
Address: P. O. Box 854, Lexington, SC 29071
Telephone #: (803) 808-2043

D. SCDHEC Certified Well Driller

Name: Environmental Drilling & Probing Services, LLC.
Driller: Tommy Bolyard
Certification #: B 1846
Address: 17538 Greenhill Road, Charlotte, NC 28278
Telephone #: (704) 607-7529

E. SCDHEC Certified Laboratory

Name: N/A
Certification #: N/A
Address: N/A
Telephone #: N/A

1.1 PROJECT INFORMATION

The subject site (Nickelpumper 233) is located at 103 Charles Frazier Circle in Yemassee, Jasper County, South Carolina (See Figure 1). The subject site formally maintained one 6,000 gallon gasoline underground storage tank (UST), one 8,000 gallon gasoline UST and one 10,000 gallon gasoline UST. These UST's were reported out of compliance on September 17, 2009. A release of petroleum product was reported to and confirmed by the South Carolina Department of Health and Environmental Control (SCDHEC) in May of 2002. The subject site is currently rated a Class 2BB due to water supply wells being located within 1,000' feet of the site.

Previous assessment activities were performed by Geological Resources, Inc. of Charlotte, North Carolina. Geological Resources, Inc. completed a Tier I Assessment in April of 2005. This assessment included the collection of soil samples, installation of three monitoring wells, aquifer slug

test, and groundwater sampling. This assessment concluded that chemicals of concern (COC's) were above Risk-Based Screening Levels (RBSL's) in monitoring wells MW-1, MW-2, MW-3, and MW-4. In May of 2014, MECI completed additional assessment activities at the referenced site which included the installation of six groundwater monitoring wells and groundwater sampling and chemical analyses of water samples.

The above information is based on reports and correspondence obtained from SCDHEC files and MECI field notes.

2.0 SURROUNDING PROPERTY USAGE

The site is located at 103 Charles Frazier Circle in Yemassee, Jasper County, South Carolina. The majority of the property is vacant, with the exception of a free standing canopy located in the center of the parcel. The site is bound to the north by Charles Frazier Circle, beyond which is a property that contains a former gasoline service station (Country Chef Restaurant/UST Permit# 15151). The property to the east is an open field. The property to the south contains an Econolodge and the property to the west is a vacant open lot.

Known potential receptors surrounding the site include two water supply wells, three surface water locales and underground utilities. Underground utilities at the site included buried electric, telephone and water lines (See Figure 2). The following matrix contains owner(s), and tax map identification numbers for the above mentioned potential receptors:

Receptor ID#	Owner	Jasper County Tax Map Number:	Notes:
WSW-1	Sunlight Hotels, Inc.	088-48-00-004	3196 Point South Drive-400' SW
WSW-2	Beaufort Jasper Water & Sewer	088-48-00-020	700' E/Municipal WSW
Stream	Point South Partners, LLC.	088-48-00-005	Along Southern Property Boundary (CK-1 & CK-2)
Pond #1	Point South Partners, LLC.	088-48-00-011	400' N
Pond #2	Point South Partners, LLC	091-00-01-003	600' SE

3.0 AREA GEOLOGY AND HYDROGEOLOGY

The project site is located in the Atlantic Coastal Plain Physiographic Province. The mean elevation of the property as depicted on the local USGS quadrangle (McPhersonville, SC) appears to be approximately 5 meters above sea level. The soils in this province are generally interbedded silts, sands and clays that have been deposited during successive advances and retreats of the ocean over the past several million years. This interbedding can cause perched water and makes hydrogeological interpretation difficult.

In this geologic setting, the uppermost aquifer is the surficial aquifer of sands with lenses and layers of clays and silts. Water occupies the interstices between the formation particles and is in hydrostatic balance with the atmosphere at the water table surface.

Local precipitation is the source of freshwater recharge to the Coastal Plain formations. Groundwater recharge varies considerably over the region and is attributed to the differences in precipitation and to the variability in the infiltration rates.

Coastal Plain formations generally dip toward the Atlantic Ocean. Consequently, regional groundwater movement is to the southeast. On a regional scale, hydraulic gradients are relatively low.

Locally, in the surficial aquifer, groundwater discharges into streams, lakes or springs where the groundwater table intersects lows occupied by these water bodies. The apparent direction (based on hydraulic gradient determined during previous assessment activities) of groundwater flow from the release is to the east, towards drainage features associated with the Pocotaligo River.

3.1 LOCAL SUBSURFACE CONDITIONS

Coastal plain sediments were encountered during drilling activities conducted at the site. The soils encountered in our borings generally consisted fine grained sandy clays near surface, underlain by clayey fine grained sands. Test Boring Records, which depict the materials encountered in each boring, are located in Appendix E.

On April 5, 2018, the stabilized groundwater level was measured in the newly installed monitoring wells. Depth to groundwater ranged from 2.76 to 3.66 feet from the top of casing in the wells measured. The groundwater measurements are summarized in tabular form in Table 2 and on Figure 5. Groundwater levels may fluctuate several feet with seasonal and rainfall variations and with change in the water level of adjacent drainage features. Normally, the highest groundwater levels occur in late winter and spring. The lowest levels occur in late summer and fall.

The above descriptions provide a general summary of the subsurface conditions encountered. The attached Test Boring Records (Appendix E) contain detailed information recorded at each new monitoring well location. The Test Boring Records represent our interpretation of the field logs based on examination of the field samples. The lines designating the interfaces between various strata represent approximate boundaries, and the transition between strata may be gradational.

4.0 FIELD EXPLORATION

Field exploration conducted at the site included:

- construction of four groundwater monitoring wells; and,
- a subsequent survey of subject site.

The monitoring well locations were selected based on SCDHEC instruction, property access, existing site conditions, estimated groundwater flow direction, and drilling accessibility.

4.1 MONITORING WELL INSTALLATION

On March 28, 2018, four single cased, watertable bracketing monitoring wells were installed at the subject site to better define the contaminant plume emanating from the site. Monitoring wells were installed by Environmental Drilling and Probing Services, LLC. of Charlotte, NC (S.C. Driller Certification: Tommy Bolyard # B 01846). The watertable bracketing monitoring wells were installed using an ATV-mounted drilling rig employing 7.5-inch outer diameter hollow stem augers to construct the boreholes.

The following table presents well installation details:

Well Number	Screened Interval (ft)	Total Depth (ft)
04878-MW03R	2.0-12.0	11.65'
04878-MW09	2.0-12.0	11.40'
04878-MW10	2.0-12.0	11.93'
04878-MW11	2.0-12.0	11.96'

The soils encountered during drilling activities generally consisted of fine grained sandy clays. Representative portions of soil samples were screened with a Photo Ionization Detector (PID) and classified by MECI personnel. Test boring records showing soil descriptions and screening result are attached in Appendix E.

Drill cuttings were containerized and transported to Richland Landfill in Elgin, SC on March 30, 2018 by MECI personnel. A total of 0.38 tons was disposed of in this manner. A disposal manifest for these soils is presented in Appendix G.

Following completion of the monitoring wells, the wells were developed by purging until they were determined to be functioning properly and turbidity was reduced. These wells were developed utilizing a Monsoon well pump. The drum of purge water was treated by MECI personnel using a granular activated carbon drum. A total of 66.0 gallons of purge/development water was disposed of in this manner. A disposal manifest for the treated purge water is presented in Appendix G.

4.2 SITE SURVEY

Following the well installation, a subsequent survey was conducted by MECI personnel, utilizing a fiberglass rod, level, and tape to determine the horizontal and vertical position of the newly installed wells. A top of casing (TOC) elevation of 100.57' for 04878-MW02 and a TOC elevation of 100.51' for 11890-MW05 were used as benchmarks for surveying the newly installed monitoring wells. Elevations were based on information given by SCDHEC personnel.

The following table presents site survey results:

Well Number	Top of Casing (TOC) Elevation
04878-MW03R	100.27'
04878-MW09	100.18'
04878-MW10	100.36'
04878-MW11	100.14'

5.0 QUALIFICATIONS OF REPORT

The activities and evaluative approaches used in this assessment are consistent with those normally employed in hydrogeological assessment and waste management projects of this type. Our evaluation of site conditions has been based on our understanding of the site, project information provided to us, and data obtained in our exploration. The general subsurface conditions utilized in our evaluation have been based on interpretation of subsurface data between borings. Contents of this report are intended for the sole use of SCDHEC and MECI under mutually agreed upon terms and conditions. If other parties wish to rely on this report please contact MECI prior to their use of

this information so that a mutual understanding and agreement of the terms and conditions of our services can be established.

-oOo-

TABLES

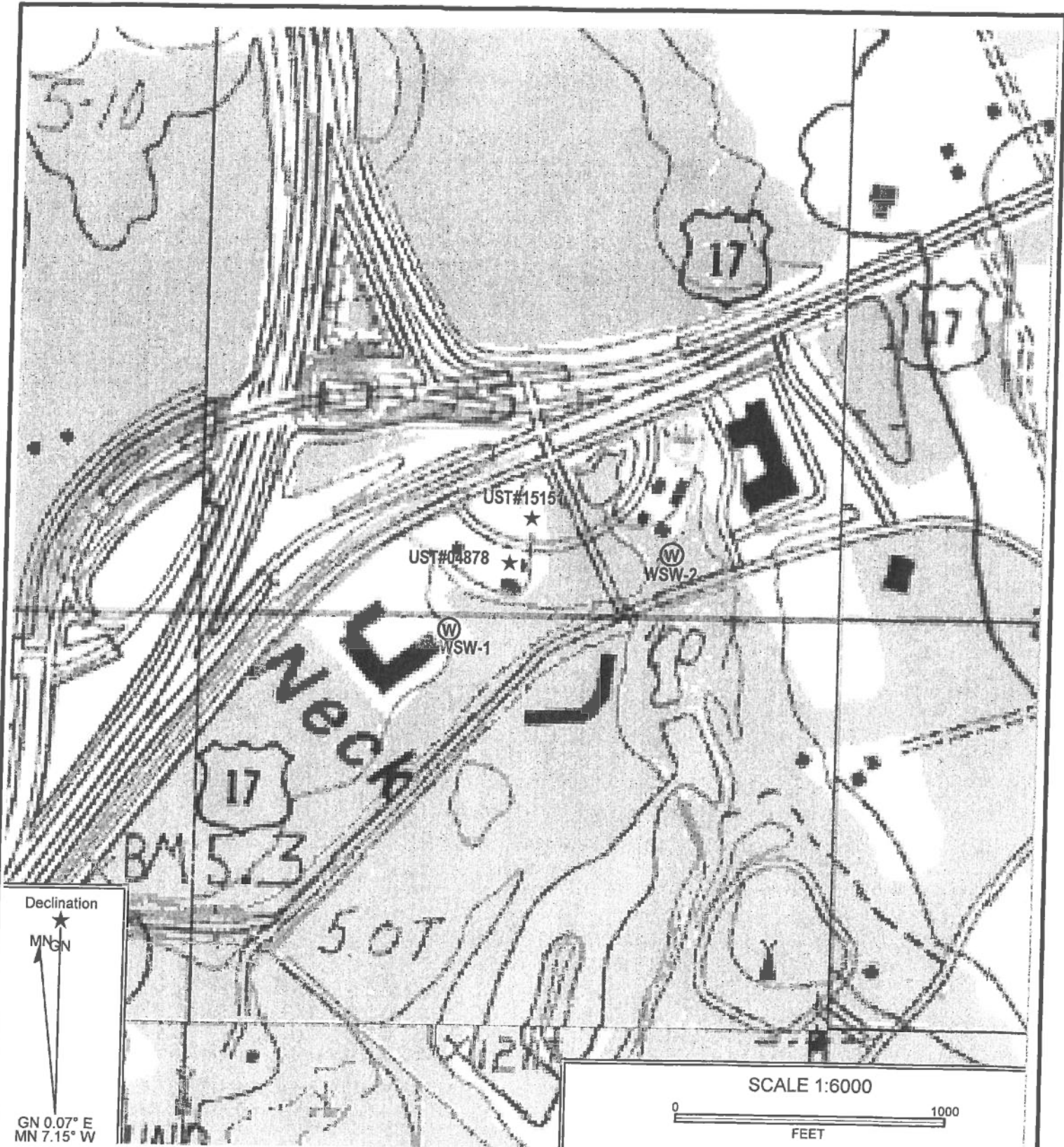
**TABLE 2
POTENTIOMETRIC DATA
NICKELPUMPER 233
APRIL 5, 2018 GAUGING EVENT
YEMASSEE, SOUTH CAROLINA
MECI PROJECT NUMBER 18-6308
SCDHEC SITE ID NUMBER 04878**

Well Number	Gauge Date	Screened Interval	Depth to Water (feet)	Well-head Elevation	Groundwater Elevation
04878-MW01	4/5/2018	2.5-12.5	NM	100.56	NM
04878-MW02	4/5/2018	2.0-12.0	NM	100.57	NM
04878-MW03	4/5/2018	2.0-12.0	NM	NL	NM
04878-MW03R	4/5/2018	2.0-12.0	2.76	100.27	97.51
04878-MW04	4/5/2018	2.0-12.0	NM	100.11	NM
04878-MW4R	4/5/2018	2.0-12.0	NM	99.77	NM
04878-MW05	4/5/2018	2.0-12.0	NM	100.51	NM
04878-MW06	4/5/2018	2.0-12.0	NM	100.52	NM
04878-MW07	4/5/2018	2.0-9.0	NM	100.42	NM
04878-MW08	4/5/2018	2.0-9.5	NM	99.71	NM
04878-MW09	4/5/2018	2.0-12.0	3.18	100.18	97.00
04878-MW10	4/5/2018	2.0-12.0	3.66	100.36	96.70
04878-MW11	4/5/2018	12.0-12.0	2.79	100.14	97.35
04878-DW01	4/5/2018	43.5-48.5	NM	100.87	NM
15151-MW01	4/5/2018	2.0-12.0	NM	100.04	NM
15151-MW02	4/5/2018	2.0-12.0	NM	98.65	NM
15151-MW03R	4/5/2018	2.0-12.0	NM	98.30	NM
15151-MW04	4/5/2018	2.0-12.0	NM	98.76	NM
15151-MW05	4/5/2018	2.0-12.0	NM	98.59	NM
15151-MW06	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW07	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW08	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW09	4/5/2018	2.0-12.0	NM	99.50	NM
15151-MW10	4/5/2018	2.0-12.0	NM	99.82	NM
15151-MW11	4/5/2018	2.0-12.0	NM	99.83	NM
15151-MW12	4/5/2018	2.0-12.0	NM	99.93	NM
15151-MW13	4/5/2018	2.0-12.0	NM	99.94	NM
15151-MW14	4/5/2018	2.0-12.0	NM	99.92	NM
15151-MW15	4/5/2018	2.0-12.0	NM	99.88	NM
15151-MW16	4/5/2018	2.0-12.0	NM	100.05	NM
15151-MW17	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW18	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW19	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW20	4/5/2018	3.0-13.0	NM	98.95	NM
15151-MW21	4/5/2018	3.0-13.0	NM	99.07	NM
15151-MW22	4/5/2018	3.0-13.0	NM	99.37	NM
15151-DW02	4/5/2018	50.0-55.0	NM	99.72	NM
15151-RW01	4/5/2018	1.8-11.8	NM	NL	NM
15151-RW02	4/5/2018	2.0-12.0	NM	98.42	NM

Notes:

- | | |
|--|---|
| <ul style="list-style-type: none"> 1. Elevations based on assumed site datum. 2. Groundwater depths were measured from the top of the PVC riser pipe. 3. Groundwater levels measured on 4/5/2018. | <ul style="list-style-type: none"> 4. NL = Not Located 5. NM = Not Measured |
|--|---|

FIGURES



Declination
 ★
 MNGN
 GN 0.07° E
 MN 7.15° W

SCALE 1:6000
 0 1000
 FEET

Reference: McPhersonville, South Carolina
 USGS 7.5 Min. Quad
 Contour Interval - 1.50 Meters

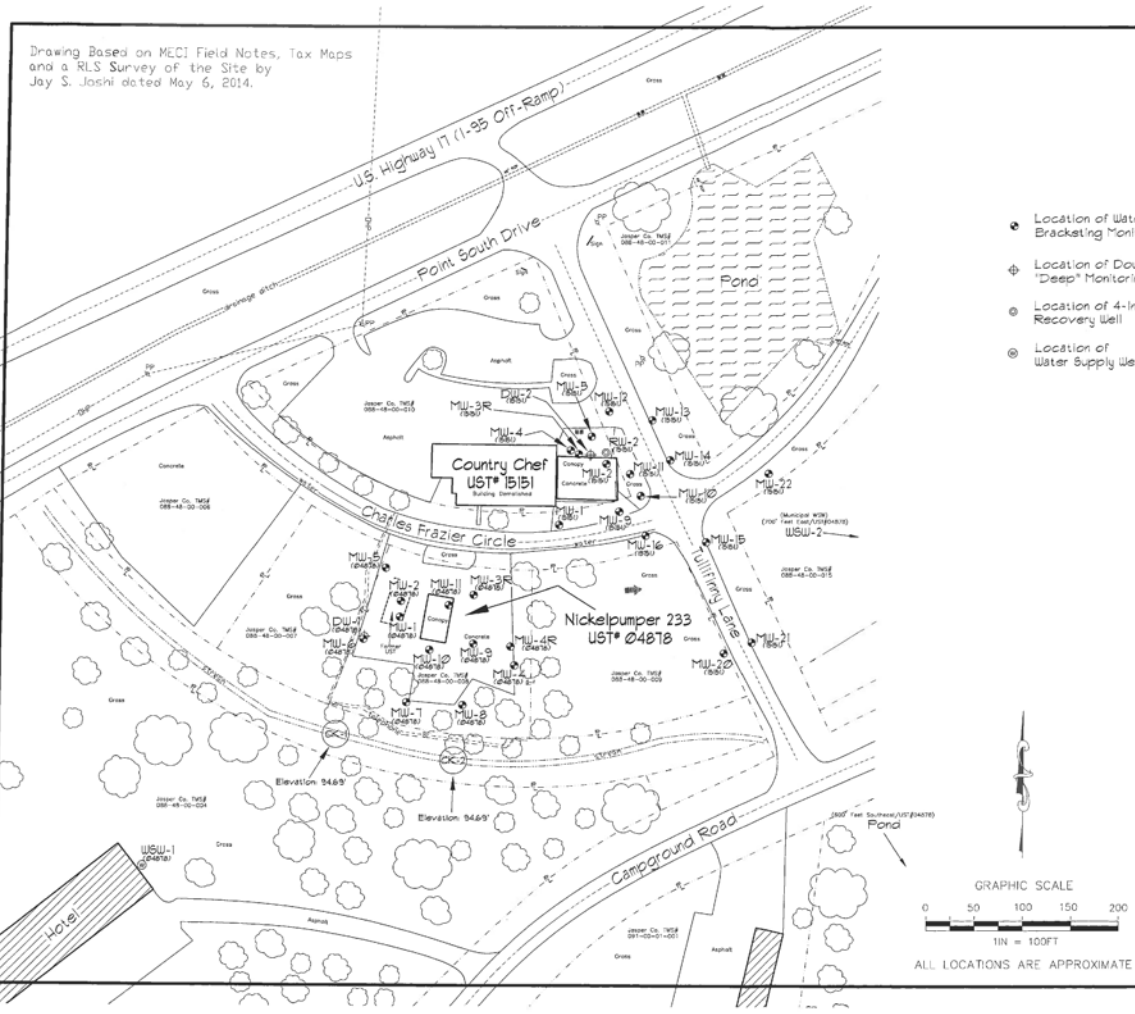
<p>Midlands Environmental Consultants, Inc.</p>	<p>Site Location</p>
<p>Nickelpumper 233 103 Charles Frazier Circle, Yemassee, SC SCDHEC Site ID# 04878</p>	
<p>Figure 1</p>	<p>MECI 18-6308</p>

Drawing Based on MECI Field Notes, Tax Maps
and a RLS Survey of the Site by
Jay S. Joshi dated May 6, 2014.

Explanation:

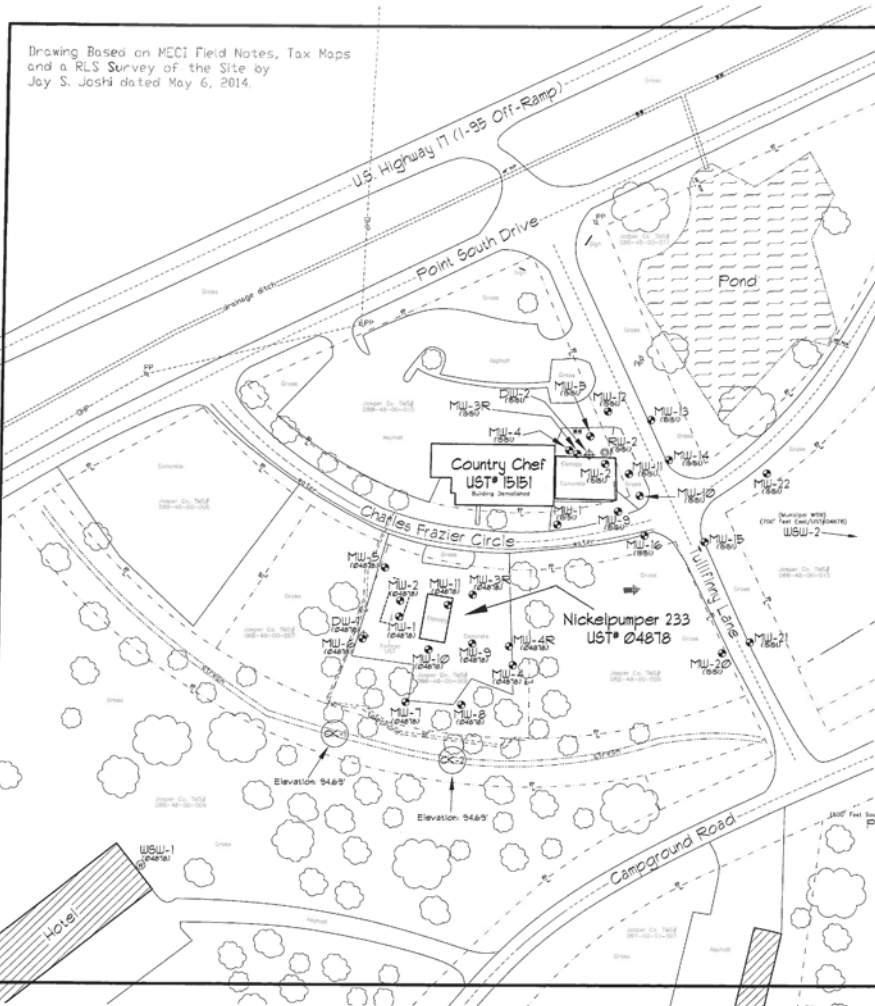
- ⊕ Location of Water Table Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊕ Location of 4-Inch Recovery Well
- ⊕ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

- Buried Electric/Overhead Powerline
- Property Line
- Buried Water Line
- Under Ground Telephone
- Drainage Ditch
- Stream/Pond Edge



Site Base Map	
Nickelpumper 233 103 Charles Frazier Circle Yemassee, South Carolina SCDHEC Site ID 04878	
Midlands Environmental Consultants, Inc.	JOB NO. 18-0328 DATE April 11, 2018 FIGURE 2

Drawing Based on MECI Field Notes, Tax Maps
and a RLS Survey of the Site by
Joy S. Joshi dated May 6, 2014.



Explanation:

- Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-inch Recovery Well
- ⊗ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- ⊙ Storm Sewer Drop Inlet

Potentiometric Data				
Well #	Screened Interval (feet)	Depth to Water (ft.)	Well Head Elevation	Groundwater Elevation
04878-MW01	2.5-12.5	NM	100.56	NM
04878-MW02	2.0-12.0	NM	100.57	NM
04878-MW03	2.0-12.0	NM	NL	NM
04878-MW3R	2.0-12.0	2.76	100.27	97.51
04878-MW04	2.0-12.0	NM	100.11	NM
04878-MW04R	2.0-12.0	NM	99.77	NM
04878-MW05	2.0-12.0	NM	100.51	NM
04878-MW06	2.0-12.0	NM	100.52	NM
04878-MW07	2.0-9.0	NM	100.42	NM
04878-MW08	2.0-9.5	NM	99.71	NM
04878-MW09	2.0-12.0	3.18	100.18	97.00
04878-MW10	2.0-12.0	3.66	100.36	96.70
04878-MW11	2.0-12.0	2.79	100.14	97.35
04878-DW01	43.5-48.5	NM	103.87	NM
15151-MW01	2.0-12.0	NM	100.04	NM
15151-MW02	2.0-12.0	NM	98.65	NM
15151-MW03R	2.0-12.0	NM	98.30	NM
15151-MW04	2.0-12.0	NM	98.76	NM
15151-MW05	2.0-12.0	NM	98.59	NM
15151-MW06	2.0-12.0	NM	NL	NM
15151-MW07	2.0-12.0	NM	NL	NM
15151-MW08	2.0-12.0	NM	NL	NM
15151-MW09	2.0-12.0	NM	99.50	NM
15151-MW10	2.0-12.0	NM	99.82	NM
15151-MW11	2.0-12.0	NM	99.83	NM
15151-MW12	2.0-12.0	NM	99.93	NM
15151-MW13	2.0-12.0	NM	99.94	NM
15151-MW14	2.0-12.0	NM	99.92	NM
15151-MW15	2.0-12.0	NM	99.88	NM
15151-MW16	2.0-12.0	NM	100.05	NM
15151-MW17	2.0-12.0	NM	NL	NM
15151-MW18	2.0-12.0	NM	NL	NM
15151-MW19	2.0-12.0	NM	NL	NM
15151-MW20	3.0-13.0	NM	98.95	NM
15151-MW21	3.0-13.0	NM	99.07	NM
15151-MW22	3.0-13.0	NM	99.37	NM
15151-DW02	50.0-55.0	NM	99.72	NM
15151-RW01	1.8-11.8	NM	NL	NM
15151-RW02	2.0-12.0	NM	98.42	NM

Notes: Depth to groundwater measured on April 5, 2018.
Site Datum Based on Assumed Spot Elevation.
NM = Not Measured
NL = Historically Not Located

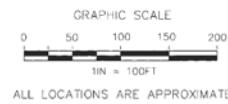
Potentiometric Data Site Map

Nickelpumper 233
103 Charles Frazier Circle
Yemassee, South Carolina
SCDHEC Site ID 04878

Midlands
Environmental
Consultants, Inc.

JOB NO. 18-0308
DATE: April 11, 2018

FIGURE 5



APPENDIX A:

SITE SURVEY
(Not Applicable)

APPENDIX B:

SAMPLING LOGS, LABORATORY DATA SHEETS, & CHAIN-OF-CUSTODY FORMS
(Not Applicable)

APPENDIX C:

TAX MAP

(Not Applicable)

APPENDIX D:
SOIL BORING/FIELD SCREENING LOGS & 1903 FORMS
(Not Applicable)

**APPENDIX E:
WELL COMPLETION LOGS & 1903 FORMS**

Depth (Feet)	Description	PID PPM	Well Diagram	Penetration Blows Per Foot														
				0	5	10	20	40	60	80	100							
0	Concrete																	
0	COASTAL PLAIN SEDIMENT: Grayish Green, Lightly Fine Sandy, CLAY																	
5	Gray, Fine Sandy, CLAY	12.1																
10		0.0																
15	Boring Terminated at 12.0 Feet Below Ground Surface (BGS). Monitoring Well Installed to 12.0 Feet BGS. Groundwater Measured at 2.76 Feet Below Top of Casing on 4/5/2018.	0.0																
20																		
25																		
30																		
35																		

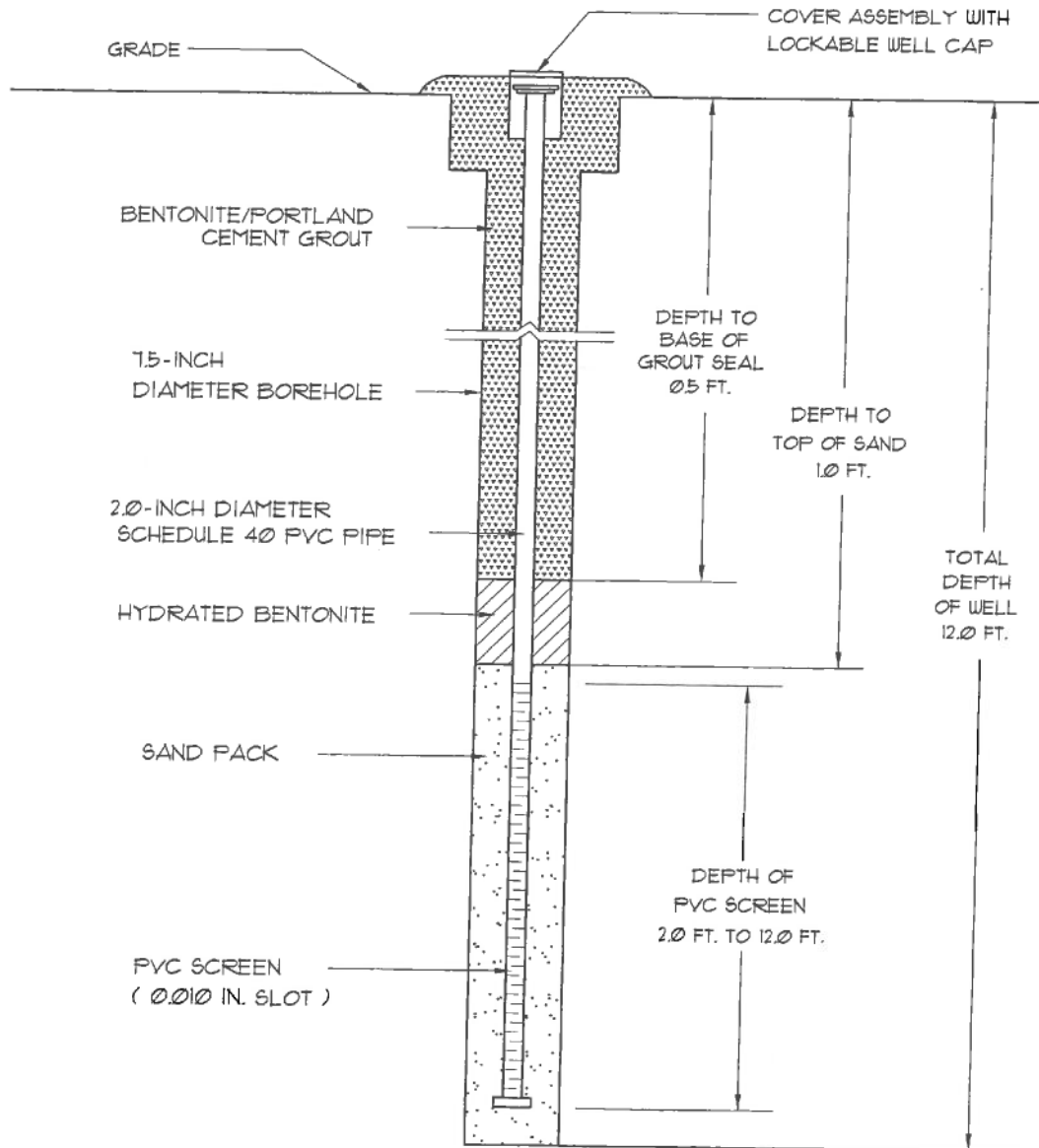
TEST BORING RECORD
 Nickelpumper 233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 18-6308

Boring Number:	04878-MW3R
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Logged By:	T. Elder

Prepared By:
 Midlands
 Environmental
 Consultants, Inc.
 231 Dooley Road
 Lexington, South Carolina 29073
 (803) 808-2043 fax: 808-2048

MONITORING WELL INSTALLATION RECORD

Nickelpumper 233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 18-6308



Well Number:	04878-MW3R
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Driller:	T. Bolyard S.C. I.D.#: B01846
Logged By:	T. Elder

Prepared By:

**Midlands
 Environmental
 Consultants, Inc.**

231 Dooley Road
 Lexington, South Carolina 29073
 (803) 808-2043 fax: 808-2048

Depth (Feet)	Description	PID PPM	Well Diagram	Penetration Blows Per Foot														
				0	5	10	20	40	60	80	100							
0	Concrete																	
0 to 12.0	COASTAL PLAIN SEDIMENT: Gray, Lightly Fine Sandy, CLAY																	
5		0.0																
10		0.0																
12.0	Boring Terminated at 12.0 Feet Below Ground Surface (BGS). Monitoring Well Installed to 12.0 Feet BGS. Groundwater Measured at 3.18 Feet Below Top of Casing on 4/5/2018.	0.0																
15																		
20																		
25																		
30																		
35																		

NO BLOWCOUNTS RECORDED

TEST BORING RECORD
 Nickelpumper 233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 18-6308

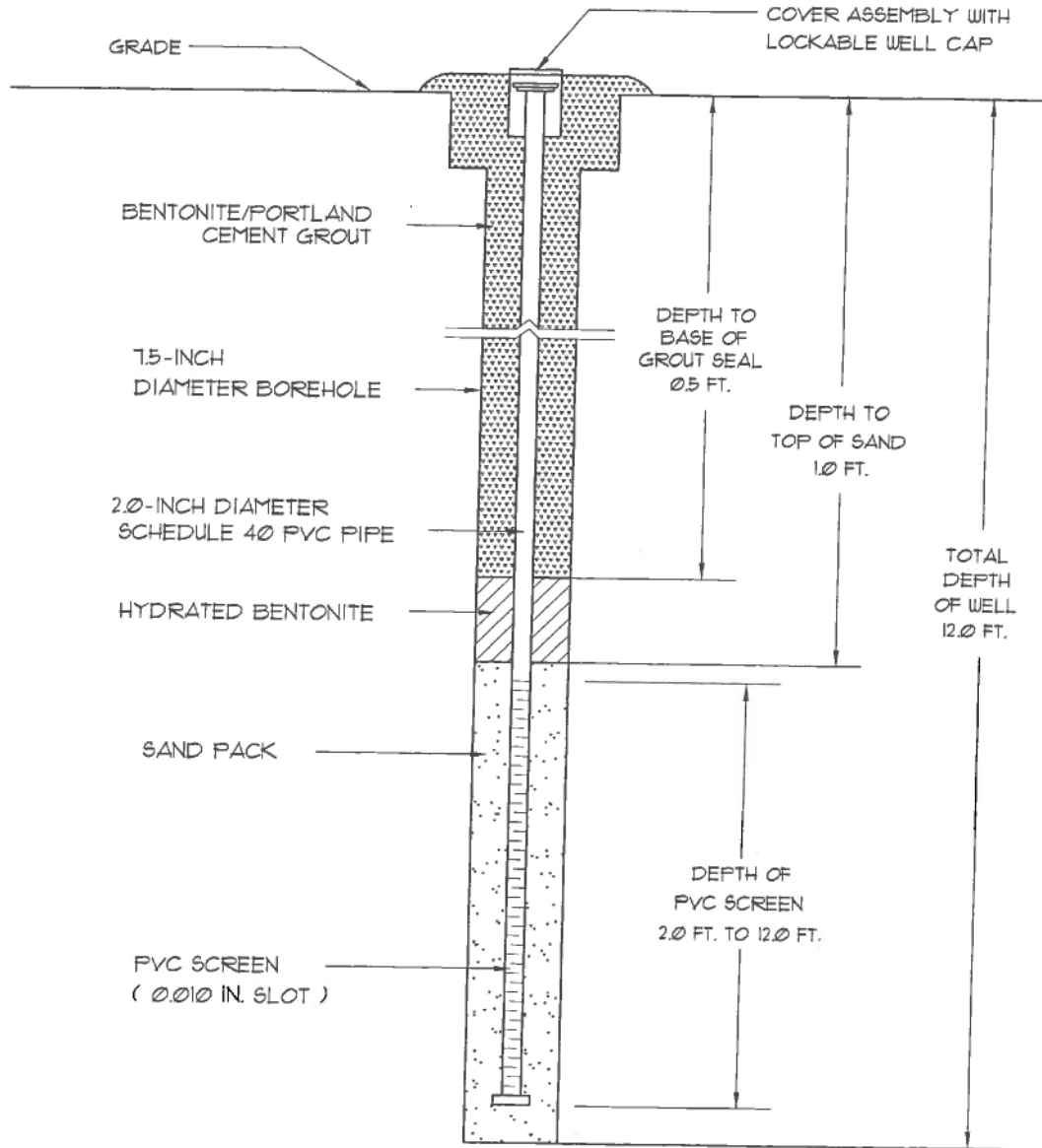
Boring Number:	04878-MW9
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Logged By:	T. Elder

Prepared By:

 Midlands Environmental Consultants, Inc.
 231 Dooley Road
 Lexington, South Carolina 29013
 (803) 808-2043 fax: 808-2048

MONITORING WELL INSTALLATION RECORD

Nickelpumper 233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 18-6308



Well Number:	04878-MW09
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Driller: T. Bolyard	S.C. I.D.#: B01846
Logged By:	T. Elder

Prepared By:

**Midlands
 Environmental
 Consultants, Inc.**

231 Dooley Road
 Lexington, South Carolina 29013
 (803) 808-2043 Fax: 808-2048

Depth (Feet)	Description	PID PPM	Well Diagram 0	Penetration Blows Per Foot						
				5	10	20	40	60	80	100
0.0 - 11.2	Concrete									
11.2 - 12.0	COASTAL PLAIN SEDIMENT: Gray, Fine Sandy, CLAY									
12.0 - 15.0	Boring Terminated at 12.0 Feet Below Ground Surface (BGS). Monitoring Well Installed to 12.0 Feet BGS. Groundwater Measured at 3.66 Feet Below Top of Casing on 4/5/2018.									
15.0 - 35.0										

NO BLOWCOUNTS RECORDED

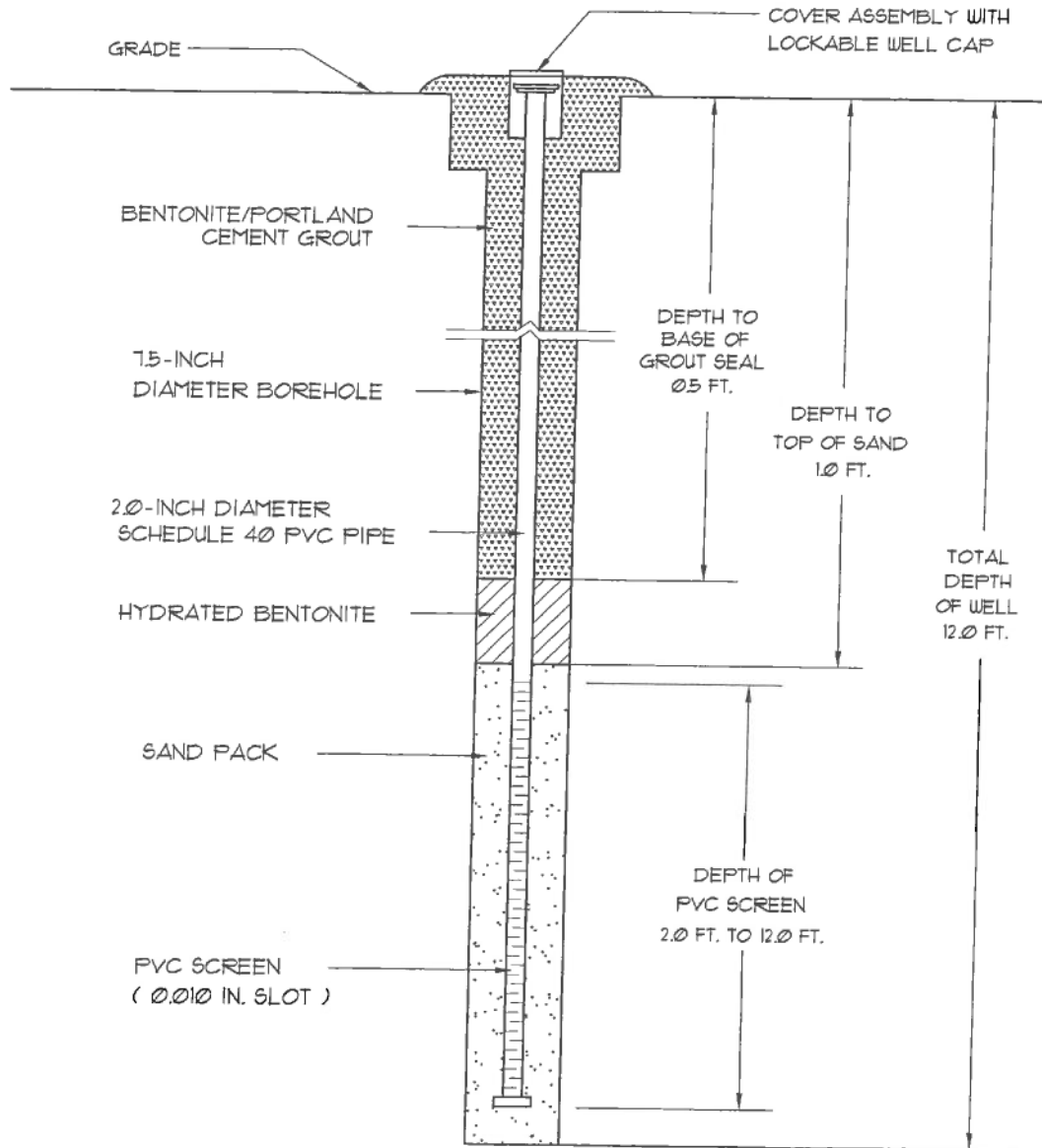
TEST BORING RECORD
 Nickelpumper 233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 18-6308

Boring Number:	04878-MW10
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Logged By:	T. Elder

Prepared By:
 Midlands Environmental Consultants, Inc.
 231 Dooley Road
 Lexington, South Carolina 29073
 (803) 808-2043 fax: 808-2048

MONITORING WELL INSTALLATION RECORD

Nickelpumper 233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 18-6308



Well Number:	04878-MW10
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Driller: T. Bolyard	S.C. I.D.#: B01846
Logged By:	T. Elder

Prepared By:

Midlands
Environmental
Consultants, Inc.

231 Dooley Road
 Lexington, South Carolina 29073
 (803) 808-2043 fax: 808-2048

Depth (Feet)	Description	PID PPM	Well Diagram	Penetration Blows Per Foot														
				0	5	10	20	40	60	80	100							
0	Concrete																	
0	COASTAL PLAIN SEDIMENT: Grayish Green, Lightly Fine Sandy, CLAY																	
5	Gray, Fine Sandy, CLAY	11.2																
10	Gray, Lightly Clayey, Fine SAND	4.0																
12.0	Boring Terminated at 12.0 Feet Below Ground Surface (BGS). Monitoring Well Installed to 12.0 Feet BGS. Groundwater Measured at 2.79 Feet Below Top of Casing on 4/5/2018.	0.0																

NO BLOWCOUNTS RECORDED

TEST BORING RECORD
 Nickelpumper 233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 18-6308

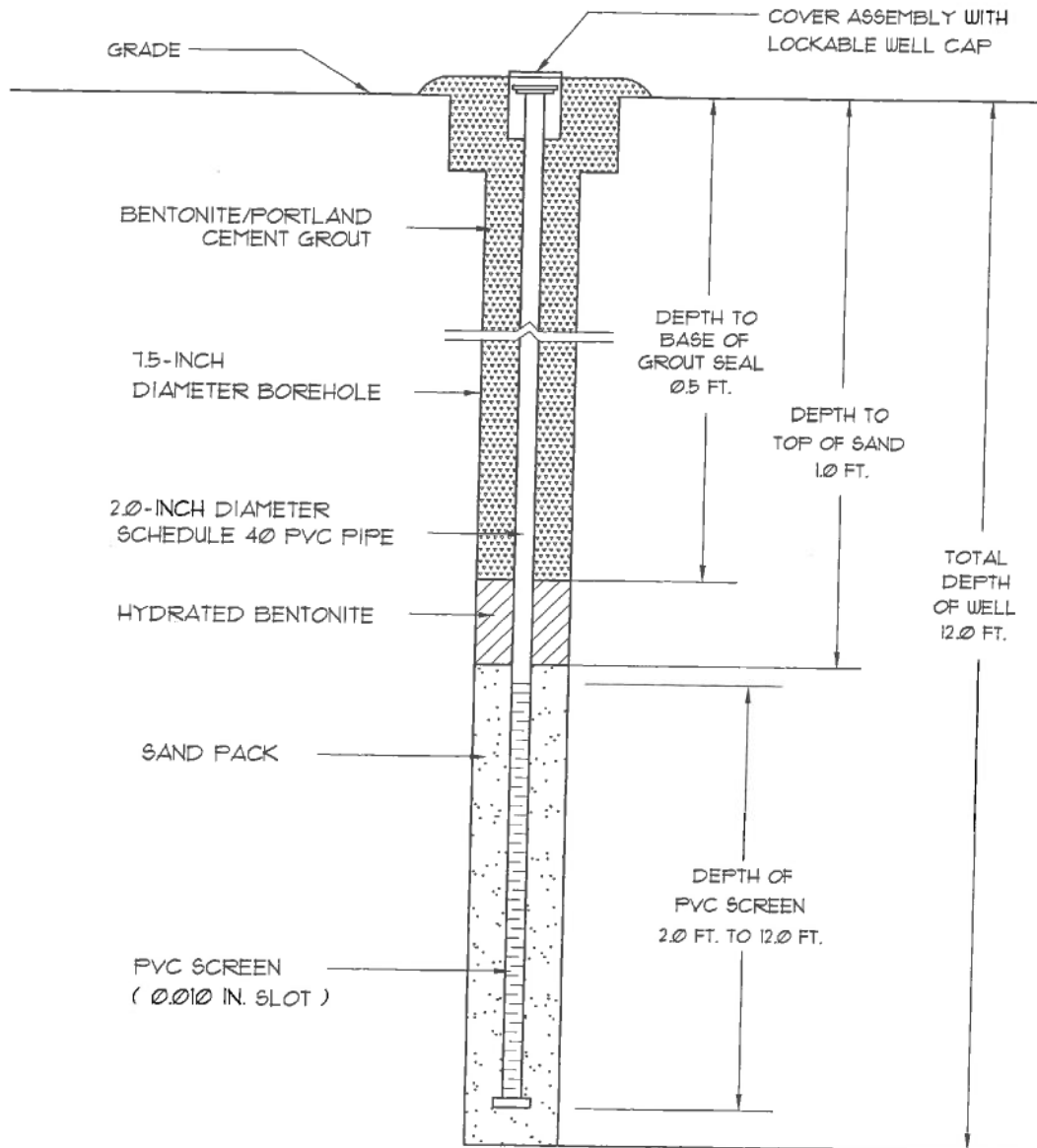
Boring Number:	04878-MW11
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Logged By:	T. Elder

Prepared By:

**Midlands
 Environmental
 Consultants, Inc.**
 231 Dooley Road
 Lexington, South Carolina 29013
 (803) 808-2043 fax: 808-2048

MONITORING WELL INSTALLATION RECORD

Nickelpumper 233
 Yemassee, South Carolina
 SCDHEC Site ID# 04878
 MECI Project Number 18-6308



Well Number:	04878-MW11
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Driller: T. Bolyard	S.C. I.D.#: B01846
Logged By:	T. Elder

Prepared By:

Midlands
Environmental
Consultants, Inc.

231 Dooley Road
 Lexington, South Carolina 29073
 (803) 808-2043 fax: 808-2048



Water Well Record Bureau of Water

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
 Name: SCDHEC (last) (first)
 Address: 2600 Bull Street
 City: Columbia State: SC Zip: 29021-1708
 Telephone: Work: _____ Home: _____

7. PERMIT NUMBER: UMW-26888

2. LOCATION OF WELL: COUNTY: Jasper
 Name: Nickelpumper 233
 Street Address: 103 Charles Frazier Circle
 City: Yemassee Zip: 29945-0000
 Latitude: _____ Longitude: _____

8. USE:
 Residential Public Supply Process
 Irrigation Air Conditioning Emergency
 Test Well Monitor Well Replacement

9. WELL DEPTH (completed) Date Started: 3/28/2018
12.0 ft. Date Completed: 3/28/2018

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:
04878 MW-3R

10. CASING: Threaded Welded
 Diam.: _____
 Type: PVC Galvanized
 Steel Other
2.0 in. to 2.0 ft. depth
 _____ in. to _____ ft. depth

Height: Above /Below _____ ft.
 Surface _____ ft.
 Weight _____ lb./ft.
 Drive Shoe? Yes No

4. ABANDONMENT: Yes No
 Grouted Depth: from _____ ft. to _____ ft.

11. SCREEN:
 Type: Schedule 40 PVC Diam.: 2 Inch
 Slot/Gauge: 0.010 Length: 10.0
 Set Between: 2.0 ft. and 12.0 ft.
 _____ ft. and _____ ft. **NOTE: MULTIPLE SCREENS USE SECOND SHEET**
 Sieve Analysis Yes (please enclose) No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Concrete	0.5	0.5
Grayish Green, Sandy, CLAY	4.5	5.0
Gray, Sandy, CLAY	7.0	12.0

12. STATIC WATER LEVEL 2.76 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
 _____ ft. after _____ hrs. Pumping _____ G.P.M.
 Pumping Test: Yes (please enclose) No
 Yield: _____

14. WATER QUALITY
 Chemical Analysis Yes No Bacterial Analysis Yes No
 Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) Yes No
 Installed from 12.0 ft. to 1.0 ft.
 Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUDED? Yes No
 Neat Cement Bentonite Bentonite/Cement Other _____
 Depth: From 0.5 ft. to 0.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
 Type _____
 Well Disinfected Yes No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed
 Mfr. Name: _____ Model No.: _____
 H.P.: _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
 TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: Tommy Bolyard **CERT. NO.:** 01846
 Address: (Print) _____ Level: A B C D (circle one)
17538 Greenhill Road
Charlotte, NC 28278
 Telephone No.: 704-607-7529 Fax No.: 803-548-2233

5. REMARKS:
MW-3R
*Bentonite seal from 1.0' to 0.5'

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: [Signature] Date: 4/11/2018
 Well Driller
 If D Level Driller, provide supervising driller's name:

6. TYPE: Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other



Well Development Data Verification Form
Underground Storage Tank Management Division

Facility Name: Nickelpumper 233 Site ID#: 04878 Date: 4/5/2018
 Drilling Company: EDPS, LLC Driller: Tommy Bolyard
 Field Personnel: Tommy Bolyard / Todd Elder Driller Certification Number: B 01846
 Weather Conditions: Sunny Temp. (°F): 65

Well Development Method

Surge Block: _____ Submersible Pump: X Air Lifting: _____
 **Bailing can be combined with any of the above methods, but not utilized alone for development

Quality Assurance

<u>pH Meter:</u>	<u>Conductivity Meter:</u>	<u>Temperature Meter:</u>	<u>Turbidity Meter:</u>
Serial no. <u>15E101481</u>	Serial no. <u>15E101481</u>	Serial no. <u>14H103098</u>	Serial No. <u>201301174</u>
pH=4.0 <u>X</u>	Standard <u>X</u>		NTU 0.0 <u>X</u>
pH-7.0 <u>X</u>			NTU 1.0 <u>X</u>
pH-10.0 <u>X</u>			NTU10.0 <u>X</u>

Drilling Method

Hollow Stem Augers: X Solid Flight Augers: _____ Direct Push: _____
 Air Rotary: _____ Mud Rotary: _____ Sonic: _____

Monitoring Well ID#: MW-3R Well Casing Diameter (in): 2 Borehole Diameter (in): 7.5
 Depth to Ground Water (DGW): 2.76 ft. Screen Length (ft): 10 Slot Size (in): 0.010
 Total Well Depth (TWD): 11.40 ft. Screen Interval: 2.0 ft. to 12.0 ft.
 Length of Water Column (TWD-DGW): 8.64 ft. Type of Drilling Fluid Used: N/A
 Total Gallons of Water Removed: 15.00 gals. Drilling Fluids Recovered: N/A

Time:	11:15	11:16	11:17	11:19	11:27	11:32	11:35
pH(s.u)*:	6.71	6.63	6.60	6.49	6.53	6.56	6.58
Specific Conductivity (mmhos/cm):	176.3	179.0	182.0	187.6	192.8	194.7	191.2
Water Temperature (°C)*:	20.6	20.4	20.1	20.2	20.1	20.1	20.2
Turbidity (NTU)*:	101.0	391.1	210.6	81.90	37.06	18.16	9.01
Physical Characteristics (color/odor):	Clear/ Slight Odor	Cloudy/ Slight Odor	Cloudy/ Slight Odor	Clear/ Slight Odor	Clear/ Slight Odor	Clear/ Slight Odor	Clear/ Slight Odor
Depth to Water (ft from TOC):	2.76	8.19	11.01	9.17	7.23	9.46	9.67
Cumulative Gallons Removed:	0.00	1.00	2.00	3.00	7.00	12.00	15.00

*Development is completed once groundwater turbidity is ≤10 NTU and all parameters are ± 10%

Detailed Description of Well Development Process:

The monitoring well was developed using a Mini-Monsoon well pump. The submersible pump was placed inside the water column and operated until all water was evacuated. The well was allowed to recharge before development continued. Development was complete after 15.0 gallons were removed.

Driller Signature:

Date: 4/10/2018



Water Well Record
Bureau of Water

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:

Name: SCDHEC (last) (first)
Address: 2600 Bull Street
City: Columbia State: SC Zip: 29021-1708
Telephone: Work: Home:

2. LOCATION OF WELL:

COUNTY: Jasper

Name: Nickelpumper 233
Street Address: 103 Charles Frazier Circle
City: Yemassee Zip: 29945-0000
Latitude: Longitude:

3. PUBLIC SYSTEM NAME:

PUBLIC SYSTEM NUMBER: 04878 MW-9

4. ABANDONMENT: Yes No

Grouted Depth: from ft. to ft.

Table with 3 columns: Formation Description, Thickness of Stratum, Depth to Bottom of Stratum. Rows include Concrete and Gray, Sandy, CLAY.

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

5. REMARKS:

MW-9
*Bentonite seal from 1.0' to 0.5'

- 6. TYPE: Mud Rotary, Jetted, Bored, Dug, Air Rotary, Driven, Cable tool, Other

7. PERMIT NUMBER: UMW-26888

- 8. USE: Residential, Public Supply, Process, Irrigation, Air Conditioning, Emergency, Test Well, Monitor Well, Replacement

9. WELL DEPTH (completed) Date Started: 3/28/2018
12.0 ft. Date Completed: 3/28/2018

10. CASING: Threaded, Welded
Diam.:
Type: PVC, Galvanized, Steel, Other
2.0 in. to 2.0 ft. depth
Height: Above /Below Surface, Weight, Drive Shoe?

11. SCREEN: Schedule 40 PVC, Diam.: 2 Inch, Slot/Gauge: 0.010, Length: 10.0, Set Between: 2.0 ft. and 12.0 ft., Sieve Analysis

12. STATIC WATER LEVEL 3.18 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface. Pumping Test, Yield

14. WATER QUALITY: Chemical Analysis, Bacterial Analysis

15. ARTIFICIAL FILTER (filter pack) Yes No, Installed from 12.0 ft. to 1.0 ft., Effective size 1.43, Uniformity Coefficient 1.30

16. WELL GROUDED? Yes No, Neat Cement, Bentonite, Bentonite/Cement, Depth: From 0.5 ft. to 0.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: Type, Well Disinfected, Amount

18. PUMP: Date installed, Mfr. Name, Model No., H.P., Volts, Length of drop pipe, Capacity, TYPE: Submersible, Jet, Turbine, Jet (deep), Reciprocating, Centrifugal

19. WELL DRILLER: Tommy Bolyard, CERT. NO.: 01846, Address: 17538 Greenhill Road, Charlotte, NC 28278, Telephone No.: 704-607-7529, Fax No.: 803-548-2233

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: [Signature] Date: 4/11/2018

If D Level Driller, provide supervising driller's name:



Well Development Data Verification Form
Underground Storage Tank Management Division

Facility Name: Nickelpumper 233 Site ID#: 04878 Date: 4/5/2018
 Drilling Company: EDPS, LLC Driller: Tommy Bolyard
 Field Personnel: Tommy Bolyard / Todd Elder Driller Certification Number: B 01846
 Weather Conditions: Sunny Temp. (°F): 65

Well Development Method

Surge Block: _____ Submersible Pump: X Air Lifting: _____

**Bailing can be combined with any of the above methods, but not utilized alone for development

Quality Assurance

<u>pH Meter:</u>	<u>Conductivity Meter:</u>	<u>Temperature Meter:</u>	<u>Turbidity Meter:</u>
Serial no. <u>15E101481</u>	Serial no. <u>15E101481</u>	Serial no. <u>14H103098</u>	Serial No. <u>201301174</u>
pH=4.0 <u>X</u>	Standard <u>X</u>		NTU 0.0 <u>X</u>
pH-7.0 <u>X</u>			NTU 1.0 <u>X</u>
pH-10.0 <u>X</u>			NTU10.0 <u>X</u>

Drilling Method

Hollow Stem Augers: X Solid Flight Augers: _____ Direct Push: _____
 Air Rotary: _____ Mud Rotary: _____ Sonic: _____

Monitoring Well ID#: MW-9 Well Casing Diameter (in): 2 Borehole Diameter (in): 7.5
 Depth to Ground Water (DGW): 3.18 ft. Screen Length (ft): 10 Slot Size (in): 0.010
 Total Well Depth (TWD): 11.93 ft. Screen Interval: 2.0 ft. to 12.0 ft.
 Length of Water Column (TWD-DGW): 8.75 ft. Type of Drilling Fluid Used: N/A
 Total Gallons of Water Removed: 13.00 gals. Drilling Fluids Recovered: N/A

Time:	11:40	11:41	11:43	11:49	11:59	12:08		
pH(s.u)*:	6.11	6.07	6.09	6.10	6.13	6.12		
Specific Conductivity (mmhos/cm):	81.7	80.1	83.2	86.0	87.1	87.9		
Water Temperature (°C)*:	19.3	19.7	19.6	19.6	19.7	19.8		
Turbidity (NTU)*:	59.1	410.8	213.7	91.33	46.00	8.11		
Physical Characteristics (color/odor):	Clear/ No Odor	Cloudy/ No Odor	Cloudy/ No Odor	Clear/ No Odor	Clear/ No Odor	Clear/ No Odor	Clear/ No Odor	
Depth to Water (ft from TOC):	3.18	7.33	11.87	9.59	10.76	N/A		
Cumulative Gallons Removed:	0.00	1.00	2.00	5.00	10.00	13.00		

*Development is completed once groundwater turbidity is ≤10 NTU and all parameters are ± 10%

Detailed Description of Well Development Process:

The monitoring well was developed using a Mini-Monsoon well pump. The submersible pump was placed inside the water column and operated until all water was evacuated. The well was allowed to recharge before development continued. Development was complete after 13.0 gallons were removed.

Driller Signature:

Date: 4/10/2018



Water Well Record Bureau of Water

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
 Name: SCDHEC (last) (first)
 Address: 2600 Bull Street
 City: Columbia State: SC Zip: 29021-1708
 Telephone: Work: Home:

7. PERMIT NUMBER: UMW-26888

8. USE:
 Residential Public Supply Process
 Irrigation Air Conditioning Emergency
 Test Well Monitor Well Replacement

2. LOCATION OF WELL: COUNTY: Jasper
 Name: Nickelpumper 233
 Street Address: 103 Charles Frazier Circle
 City: Yemassee Zip: 29945-0000
 Latitude: Longitude:

9. WELL DEPTH (completed) Date Started: 3/28/2018
 12.0 ft. Date Completed: 3/28/2018

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:
 04878 MW-10

10. CASING: Threaded Welded
 Diam.: _____
 Type: PVC Galvanized
 Steel Other
 2.0 in. to 2.0 ft. depth
 _____ in. to _____ ft. depth
 Height: Above /Below
 Surface _____ ft.
 Weight _____ lb./ft.
 Drive Shoe? Yes No

4. ABANDONMENT: Yes No
 Grouted Depth: from _____ ft. to _____ ft.

11. SCREEN:
 Type: Schedule 40 PVC Diam.: 2 Inch
 Slot/Gauge: 0.010 Length: 10.0
 Set Between: 2.0 ft. and 12.0 ft. NOTE: MULTIPLE SCREENS USE SECOND SHEET
 _____ ft. and _____ ft.
 Sieve Analysis Yes (please enclose) No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Concrete	0.5	0.5
Gray, Sandy, CLAY	11.5	12.0

12. STATIC WATER LEVEL 3.66 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
 _____ ft. after _____ hrs. Pumping _____ G.P.M.
 Pumping Test: Yes (please enclose) No
 Yield: _____

14. WATER QUALITY
 Chemical Analysis Yes No Bacterial Analysis Yes No
 Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) Yes No
 Installed from 12.0 ft. to 1.0 ft.
 Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUTED? Yes No
 Neat Cement Bentonite Bentonite/Cement Other _____
 Depth: From 0.5 ft. to 0.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
 Type _____
 Well Disinfected Yes No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed
 Mfr. Name: _____ Model No.: _____
 H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
 TYPE: Submersible Jet (shallow) Turbine
 Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: Tommy Bolyard CERT. NO.: 01846
 Address: (Print) Level: A B C D (circle one)
 17538 Greenhill Road
 Charlotte, NC 28278
 Telephone No.: 704-607-7529 Fax No.: 803-548-2233

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

5. REMARKS:
 MW-10
 *Bentonite seal from 1.0' to 0.5'

Signed: Date: 4/11/2018

 Well Driller
 If D Level Driller, provide supervising driller's name:

6. TYPE: Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other



Well Development Data Verification Form
Underground Storage Tank Management Division

Facility Name: Nickelpumper 233 Site ID#: 04878 Date: 4/5/2018
 Drilling Company: EDPS, LLC Driller: Tommy Bolyard
 Field Personnel: Tommy Bolyard / Todd Elder Driller Certification Number: B 01846
 Weather Conditions: Sunny Temp. (°F): 65

Well Development Method

Surge Block: _____ Submersible Pump: X Air Lifting: _____
 **Bailing can be combined with any of the above methods, but not utilized alone for development

Quality Assurance

<u>pH Meter:</u>	<u>Conductivity Meter:</u>	<u>Temperature Meter:</u>	<u>Turbidity Meter:</u>
Serial no. <u>15E101481</u>	Serial no. <u>15E101481</u>	Serial no. <u>14H103098</u>	Serial No. <u>201301174</u>
pH=4.0 <u>X</u>	Standard <u>X</u>		NTU 0.0 <u>X</u>
pH=7.0 <u>X</u>			NTU 1.0 <u>X</u>
pH=10.0 <u>X</u>			NTU10.0 <u>X</u>

Drilling Method

Hollow Stem Augers: X Solid Flight Augers: _____ Direct Push: _____
 Air Rotary: _____ Mud Rotary: _____ Sonic: _____

Monitoring Well ID#: MW-10 Well Casing Diameter (in): 2 Borehole Diameter (in): 7.5
 Depth to Ground Water (DGW): 3.66 ft. Screen Length (ft): 10 Slot Size (in): 0.010
 Total Well Depth (TWD): 11.96 ft. Screen Interval: 2.0 ft. to 12.0 ft.
 Length of Water Column (TWD-DGW): 8.30 ft. Type of Drilling Fluid Used: N/A
 Total Gallons of Water Removed: 18.00 gals. Drilling Fluids Recovered: N/A

Time:	12:13	12:14	12:15	12:22	12:28	12:34	12:35
pH(s.u)*:	6.28	6.31	6.34	6.39	6.42	6.43	6.44
Specific Conductivity (mmhos/cm):	98.1	99.3	102.6	107.1	106.2	108.1	108.3
Water Temperature (°C)*:	20.0	20.1	19.9	19.8	20.0	20.0	20.1
Turbidity (NTU)*:	71.1	390.6	310.4	132.00	69.44	20.17	7.62
Physical Characteristics (color/odor):	Cloudy/ Slight Odor	Cloudy/ Slight Odor	Cloudy/ Slight Odor	Clear/ Slight Odor	Clear/ Slight Odor	Clear/ Slight Odor	Clear/ Slight Odor
Depth to Water (ft from TOC):	3.66	7.00	9.37	8.94	10.03	9.11	10.81
Cumulative Gallons Removed:	0.00	1.00	2.00	7.00	12.00	17.00	18.00

*Development is completed once groundwater turbidity is ≤10 NTU and all parameters are ± 10%

Detailed Description of Well Development Process:

The monitoring well was developed using a Mini-Monsoon well pump. The submersible pump was placed inside the water column and operated until all water was evacuated. The well was allowed to recharge before development continued. Development was complete after 18.0 gallons were removed.

Driller Signature:

Date: 4/10/2018



Water Well Record Bureau of Water

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:

Name: SCDHEC (last) (first)
 Address: 2600 Bull Street
 City: Columbia State: SC Zip: 29021-1708
 Telephone: Work: Home:

2. LOCATION OF WELL:

COUNTY: Jasper

Name: Nickelpumper 233
 Street Address: 103 Charles Frazier Circle
 City: Yemassee Zip: 29945-0000
 Latitude: Longitude:

3. PUBLIC SYSTEM NAME:

04878

PUBLIC SYSTEM NUMBER:

MW-11

4. ABANDONMENT:

Yes No

Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Concrete	0.5	0.5
Gray/Green, Sandy CLAY	4.5	5.0
Gray, Sandy CLAY	6.0	11.0
Gray, Clayey SAND	1.0	12.0

*Indicate Water Bearing Zones

(Use a 2nd sheet if needed)

5. REMARKS:

MW-11
 *Bentonite seal from 1.0' to 0.5'

6. TYPE:

- Mud Rotary Jetted Bored
 Dug Air Rotary Driven
 Cable tool Other

7. PERMIT NUMBER:

UMW-26888

8. USE:

- Residential Public Supply Process
 Irrigation Air Conditioning Emergency
 Test Well Monitor Well Replacement

9. WELL DEPTH (completed)

12.0 ft.

Date Started: 3/28/2018

Date Completed: 3/28/2018

10. CASING:

Threaded Welded

Diam.: _____

Type: PVC Galvanized

Steel Other

2.0 in. to 2.0 ft. depth

_____ in. to _____ ft. depth

Height: Above /Below

Surface _____ ft.

Weight _____ lb./ft.

Drive Shoe? Yes No

11. SCREEN:

Type: Schedule 40 PVC Diam.: 2 Inch

Slot/Gauge: 0.010 Length: 10.0

Set Between: 2.0 ft. and 12.0 ft.

_____ ft. and _____ ft.

NOTE: MULTIPLE SCREENS
USE SECOND SHEET

Sieve Analysis Yes (please enclose) No

12. STATIC WATER LEVEL

2.79 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.

_____ ft. after _____ hrs. Pumping _____ G.P.M.

Pumping Test: Yes (please enclose) No

Yield: _____

14. WATER QUALITY

Chemical Analysis Yes No Bacterial Analysis Yes No

Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack)

Yes No

Installed from 12.0 ft. to 1.0 ft.

Effective size 1.43 Uniformity Coefficient 1.30

16. WELL GROUDED?

Yes No

Neat Cement Bentonite Bentonite/Cement Other _____

Depth: From 0.5 ft. to 0.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:

_____ ft. direction

Type _____

Well Disinfected Yes No Type: _____ Amount: _____

18. PUMP:

Date installed: _____ Not installed

Mfr. Name: _____ Model No.: _____

H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm

TYPE: Submersible Jet (shallow) Turbine

Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: Tommy Bolyard

CERT. NO.: 01846

Address: (Print)

Level: A B C D (circle one)

17538 Greenhill Road

Charlotte, NC 28278

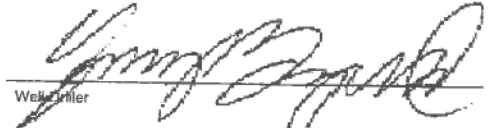
Telephone No.: 704-607-7529

Fax No.: 803-548-2233

20. WATER WELL DRILLER'S CERTIFICATION:

This well was drilled under

my direction and this report is true to the best of my knowledge and belief.

Signed: 
Well Driller

Date: 4/11/2018

If D Level Driller, provide supervising driller's name:



Well Development Data Verification Form
Underground Storage Tank Management Division

Facility Name: Nickelpumper 233 Site ID#: 04878 Date: 4/5/2018
 Drilling Company: EDPS, LLC Driller: Tommy Bolyard
 Field Personnel: Tommy Bolyard / Todd Elder Driller Certification Number: B 01846
 Weather Conditions: Sunny Temp. (°F): 65

Well Development Method

Surge Block: _____ Submersible Pump: X Air Lifting: _____
 **Bailing can be combined with any of the above methods, but not utilized alone for development

Quality Assurance

<u>pH Meter:</u>	<u>Conductivity Meter:</u>	<u>Temperature Meter:</u>	<u>Turbidity Meter:</u>
Serial no. <u>15E101481</u>	Serial no. <u>15E101481</u>	Serial no. <u>14H103098</u>	Serial No. <u>201301174</u>
pH=4.0 <u>X</u>	Standard <u>X</u>		NTU 0.0 <u>X</u>
pH=7.0 <u>X</u>			NTU 1.0 <u>X</u>
pH=10.0 <u>X</u>			NTU10.0 <u>X</u>

Drilling Method

Hollow Stem Augers: X Solid Flight Augers: _____ Direct Push: _____
 Air Rotary: _____ Mud Rotary: _____ Sonic: _____

Monitoring Well ID#: MW-11 Well Casing Diameter (in): 2 Borehole Diameter (in): 7.5
 Depth to Ground Water (DGW): 2.79 ft. Screen Length (ft): 10 Slot Size (in): 0.010
 Total Well Depth (TWD): 11.65 ft. Screen Interval: 2.0 ft. to 12.0 ft.
 Length of Water Column (TWD-DGW): 8.86 ft. Type of Drilling Fluid Used: N/A
 Total Gallons of Water Removed: 20.00 gals. Drilling Fluids Recovered: N/A

Time:	12:41	12:42	12:43	12:47	12:50	12:54	12:58	13:00
pH(s.u)*:	6.37	6.40	6.39	6.36	6.32	6.33	6.31	6.30
Specific Conductivity (mmhos/cm):	119.1	125.3	131.6	134.2	136.0	136.9	137.0	136.2
Water Temperature (°C)*:	20.4	20.6	20.5	20.4	20.4	20.2	20.2	20.0
Turbidity (NTU)*:	94.3	409.4	271.6	190.30	118.30	61.53	19.22	6.55
Physical Characteristics (color/odor):	Cloudy/ Slight Odor	Cloudy/ Slight Odor	Cloudy/ Slight Odor	Clear/ Slight Odor	Clear/ Slight Odor	Clear/ Slight Odor	Clear/ Slight Odor	Clear/ Slight Odor
Depth to Water (ft from TOC):	2.79	5.32	9.47	8.63	10.43	9.77	10.00	8.52
Cumulative Gallons Removed:	0.00	1.00	3.00	6.00	10.00	15.00	18.00	20.00

*Development is completed once groundwater turbidity is ≤10 NTU and all parameters are ± 10%

Detailed Description of Well Development Process:

The monitoring well was developed using a Mini-Monsoon well pump. The submersible pump was placed inside the water column and operated until all water was evacuated. The well was allowed to recharge before development continued. Development was complete after 20.0 gallons were removed.

Driller Signature:

Date: 4/10/2018

APPENDIX F:
AQUIFER EVALUATION SUMMARY FORMS, DATA, GRAPHS, EQUATIONS
(Not Applicable)

**APPENDIX G:
DISPOSAL MANIFEST**



April 11, 2018

Re: Treatment of Purge Water
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 18-6308

To Whom it May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

All purge waters were treated on-site using an up-flow treatment drum loaded with 80 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

April 11, 2018

66.0 Gallons were treated on April 5, 2018 during the development of the newly installed monitoring wells at the referenced site.

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.



Jeff L. Coleman
Senior Scientist



Richland County LF
 1047 Highway Church Road
 Elgin, SC, 29045
 Ph: (803) 788-3054

Original
 Ticket# 1592319

Customer Name	MIDLANDSENVIRON MIDLANDS ENVI	Carrier	MIDLANDSENVIRON MIDLANDS ENVIRONMENT
Ticket Date	03/30/2018	Vehicle#	1
Payment Type	Credit Account	Container	Volume
Manual Ticket#		Driver	
Hauling Ticket#		Check#	
Route		Billing #	0000469
State Waste Code		Gen EPA ID	
Manifest	0		
Destination			
PO			
Profile	VA2718 (SOIL FROM UST ASSESSMENT)		
Generator	126-MIDLANDSENVIRONMENTAL MIDLANDS ENVIRONMENTAL		

	Time	Scale	ScaleMaster	Gross	
In	03/30/2018 11:14:33	Inbound #2	KENNY1	16900 lb	
Out	03/30/2018 11:29:52	Outbound	KENNY1	9300 lb	
				Net	7600 lb
				Tons	3.80

Comments

Product	LD%	Qty	UOM	Rate	Fee	Amount	Origin
1 SOIL-Cont. Soil -	100	3.80	Tons				32-LEXINGT
2 FUEL-Fuel Surcharg	100		%				32-LEXINGT
3 EVF-P-Standard Env	100		%				32-LEXINGT
4 RCR-P-Regulatory C	100		%				32-LEXINGT

Total Fees
 Total Ticket

SIGNATURE



SPECIAL WASTE MANIFEST

WASTE ID NUMBER

VA2718

EXPIRATION DATE

November 17, 2019

Richland Landfill

1047 Highway Church Road

Elgin, SC 29045



Special Waste Phone: 803-744-3345

Fax: 866-904-7194

Prepared by:

Sandra Reeves

GENERATOR OF WASTE:

MIDLANDS ENV. CONSULTANTS, INC. - VARIOUS

CUSTOMER:

MIDLANDS ENV. CONSULTANTS, INC.

ACCOUNT NUMBER:

820-469

LOCATION OF WASTE:

CITY: Lexington

COUNTY:

Lexington

PHONE NUMBER:

803-808-2043

CONTACT:

LYNN SHANE

FAX NUMBER:

803-808-2048

GENERATOR'S SIGNATURE

DATE:

3/30/18

TRANSPORTER OF WASTE:

MECI

DATE:

3/30/18

TRUCK NUMBER:

1

DRIVER'S SIGNATURE

**** TO BE COMPLETED BY RICHLAND LANDFILL*****

DISPOSAL SITE:

RICHLAND LANDFILL ELGIN, SC

Waste Class: SOIL

DESCRIPTION OF WASTE: SOIL FROM UST ASSESSMENT

TICKET NUMBER:

1592819

TONNAGE:

RECEIVED BY:

10% Nickle pumps 233

10% Coastal Mart 7670

80% Starco/Hamon Oil

APPENDIX H:
LOCAL ZONING REGULATIONS
(Not Applicable)

APPENDIX I:
FATE AND TRANSPORT MODELING
(Not Applicable)

**APPENDIX J:
ACCESS AGREEMENTS**



RICHARD CARLSON

THERE WILL BE NO COST TO THE PROPERTY OWNER FOR ANY & ALL WORK PERFORMED'S PER LETTER 1/27/14 JAWBENT.

RIGHT OF ENTRY - UST Permit # 04878 ON THE PROPERTY

If you are the Property Owner or are the authorized representative for that person, but did not own the former or existing underground storage tanks at the time the release was reported, please complete this form.

I, RICHARD CARLSON, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility VACANT PROP. Phone # _____

Street Address of Facility 3290 POINT SOUTH DR. VACANT PROP.

Town, City, District, Suburb YEMASSEE SOUTH CAROLINA

Name of nearest intersecting street, road, highway, alley TAXMAP# 088-48-00-008

Is this facility within the city limits? (yes or no) I DON'T KNOW

Is this facility serviced by a public water or sewer utility? (yes or no) (DON'T KNOW), if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no)? _____, if yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation DONT KNOW, Phone number _____

Is the property currently leased or rented to someone? (yes or no) NO, if yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the monitoring wells, they should be moved before SCDHEC's contractor arrives at the site.

NAME of property owner (Please Print): RICHARD CARLSON

Phone Number (home) _____ (work) (323) 222-3007

Current Mailing Address 1920 W. MAIN ST. LOS ANGELES CA 90031

Signature of Property Owner: [Signature]

Witness Peter Bartolow

Date: FEB. 22, 2014 Month _____ Year _____
Day _____

UST Division/ SMB



**APPENDIX K:
DATA VERIFICATION CHECKLIST**

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Are Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?	X		
3	Is name, address, & phone number of current property owner provided?	X		
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?	X		
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?			X
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?	X		
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?	X		
11	Has the site-specific geology and hydrogeology been described?	X		
12	Has the primary soil type been described?	X		
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?	X		
17	Has the method of well development been detailed?	X		
18	Has justification been provided for the locations of the monitoring wells?	X		
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?	X		
20	Has the groundwater sampling methodology been detailed?			X
21	Have the groundwater sampling dates and groundwater measurements been provided? (Table 2 & Figure 5)	X		
22	Has the purging methodology been detailed?			X
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? (Appendix B)			X
24	If free-product is present, has the thickness been provided?			X
25	Does the report include a brief discussion of the assessment done and the results?	X		
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?			X
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)	X		
34	Has the <u>current</u> and historical laboratory data been provided in tabular format? (Table 3)			X
35	Have the aquifer characteristics been provided and summarized on the appropriate form? (Appendix F)			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figures 3, 4)			X
40	Has the site potentiometric map been provided? (Figure 5)	X		
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)			X
45	Is the laboratory performing the analyses properly certified?			X
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)	X		
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? (Appendix G)	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)	X		
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided? (Appendix K)	X		



04878

MAY 15 2018

**BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071**



Re: **Site Specific Work Plan Requests**
Groundwater Sampling Contract
Solicitation #IFB-5400012906; PO #4600603934

Dear Mr. Shane:

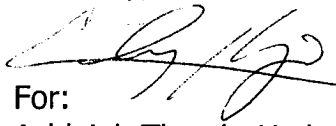
In accordance with bid solicitation # IFB-5400012906 and the UST Management Division Quality Assurance Program Plan (QAPP), Revision 3.1 it is requested that you submit a Site Specific Work Plan (SSWP) for each site attached:

UST Permit #	Site Name	Project Manager
05278	Brown Bag	Kathryn Butler
04878	Nickelpumper 233	Kathryn Butler
12974	Pic & Pay	Kathryn Butler
19466	Garret Hampton Center	Kathryn Butler
08911	Rembert Grocery	Thomas Gladden
16117	Gapway Baptist Church	Steven Martin
02018	Fast & Fresh	Kyle Patterson
17042	Mikes Jiffy Mart	Kathryn Butler
12814	Wailon Quick Stop	Matt Wykel
06243	Marion Shell	Brad Baldwin
11890	Stanco Inc/Harmon Oil Co	Kim Kuhn
14472	Southside Grocery	Thomas Gladden
09118	R & R Grocery	Cody Heinze

The SSWPs must be submitted **within 15 business days** to my attention. The project manager for each site will issue a notice to proceed once the plan has been reviewed and approved.

Please contact me with the sampling schedule before commencing work at these facilities. In addition, a weekly update for each site is required to be submitted via e-mail to the site's project manager and myself. If you have any questions or need further assistance, please contact me at (803) 898-0607 or thrasham@dhec.sc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ashleigh Thrash', written over a horizontal line.

For:

Ashleigh Thrash, Hydrogeologist
Corrective Action & Quality Assurance Section
UST Management Division
Bureau of Land & Waste Management

enc: Site Information Packages

cc: Technical Files



S.C. Department of Health and Environmental Control

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone: 803-898-2544

MEMORANDUM

TO: Midlands Environmental Consultants, Inc

FROM: Kathryn H. Butler

RE: Site Specific Work Plan Request

Facility Name: NICKELPUMPER 233

Permit Number: 04878

County: Jasper

Work To Be Completed: Please submit a SSWP for GWS of all MW's, water supply wells, and surface water associated with the above referenced site. Only wells with screens not bracketing the water table should be purged prior to sample collection.

Total Number of Monitoring Well Samples: 14 Monitoring Wells, 3 Surface Waters

Analysis Being Requested: BTEXNM, 1,2 DCA, 8-Oxys and EDB - 8260b, 8011

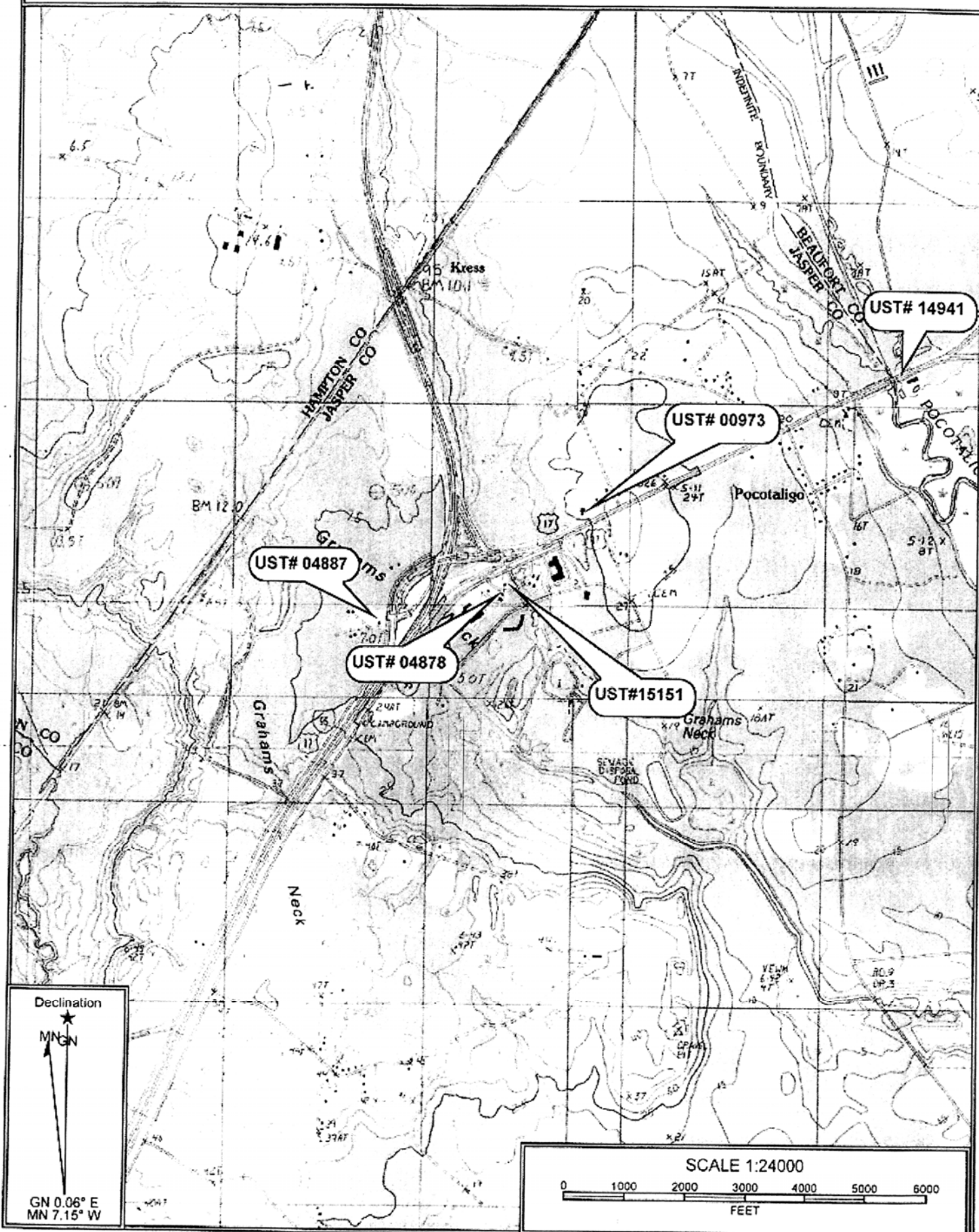
Total Number of Water Supply Well Samples: 2

Analysis Being Requested: BTEXNM, 1,2 DCA, 8-Oxys and EDB - 524.2, 8260b

Map Name: MC PHERSONVILLE
Print Date: 11/09/15

Scale: 1 inch = 2,000 ft.
Map Center: 032° 37' 46.89" N, 080° 52' .

Horizontal Datum: NAD27



**TABLE 2
POTENTIOMETRIC DATA
NICKELPUMPER 233
APRIL 5, 2018 GAUGING EVENT
YEMASSEE, SOUTH CAROLINA
MECI PROJECT NUMBER 18-6308
SCDHEC SITE ID NUMBER 04878**

Well Number	Gauge Date	Screened Interval	Depth to Water (feet)	Well-head Elevation	Groundwater Elevation
04878-MW01	4/5/2018	2.5-12.5	NM	100.56	NM
04878-MW02	4/5/2018	2.0-12.0	NM	100.57	NM
04878-MW03	4/5/2018	2.0-12.0	NM	NL	NM
04878-MW03R	4/5/2018	2.0-12.0	2.76	100.27	97.51
04878-MW04	4/5/2018	2.0-12.0	NM	100.11	NM
04878-MW4R	4/5/2018	2.0-12.0	NM	99.77	NM
04878-MW05	4/5/2018	2.0-12.0	NM	100.51	NM
04878-MW06	4/5/2018	2.0-12.0	NM	100.52	NM
04878-MW07	4/5/2018	2.0-9.0	NM	100.42	NM
04878-MW08	4/5/2018	2.0-9.5	NM	99.71	NM
04878-MW09	4/5/2018	2.0-12.0	3.18	100.18	97.00
04878-MW10	4/5/2018	2.0-12.0	3.66	100.36	96.70
04878-MW11	4/5/2018	2.0-12.0	2.79	100.14	97.35
04878-DW01	4/5/2018	43.5-48.5	NM	100.87	NM
15151-MW01	4/5/2018	2.0-12.0	NM	100.04	NM
15151-MW02	4/5/2018	2.0-12.0	NM	98.65	NM
15151-MW03R	4/5/2018	2.0-12.0	NM	98.30	NM
15151-MW04	4/5/2018	2.0-12.0	NM	98.76	NM
15151-MW05	4/5/2018	2.0-12.0	NM	98.59	NM
15151-MW06	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW07	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW08	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW09	4/5/2018	2.0-12.0	NM	99.50	NM
15151-MW10	4/5/2018	2.0-12.0	NM	99.82	NM
15151-MW11	4/5/2018	2.0-12.0	NM	99.83	NM
15151-MW12	4/5/2018	2.0-12.0	NM	99.93	NM
15151-MW13	4/5/2018	2.0-12.0	NM	99.94	NM
15151-MW14	4/5/2018	2.0-12.0	NM	99.92	NM
15151-MW15	4/5/2018	2.0-12.0	NM	99.88	NM
15151-MW16	4/5/2018	2.0-12.0	NM	100.05	NM
15151-MW17	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW18	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW19	4/5/2018	2.0-12.0	NM	NL	NM
15151-MW20	4/5/2018	3.0-13.0	NM	98.95	NM
15151-MW21	4/5/2018	3.0-13.0	NM	99.07	NM
15151-MW22	4/5/2018	3.0-13.0	NM	99.37	NM
15151-DW02	4/5/2018	50.0-55.0	NM	99.72	NM
15151-RW01	4/5/2018	1.8-11.8	NM	NL	NM
15151-RW02	4/5/2018	2.0-12.0	NM	98.42	NM

Notes:

1. Elevations based on assumed site datum.	4. NL = Not Located
2. Groundwater depths were measured from the top of the PVC riser pipe.	5. NM = Not Measured
3. Groundwater levels measured on 4/5/2018.	

Information for N-04878 Facility: NICKELPUMPER 233

<u>Address</u>	3296 POINT SOUTH DR YEMASSEE SC 29945	<u>Phone</u>		<u>County</u>	Jasper	<u>District</u>	Beaufort EQC Office
<u>Category</u>	Retail Sales	<u>Last Inspection</u>	07/17/17	<u>Trans. of Ownership</u>			01/23/07
<u>Local Owner</u>	CARLSON, RICHARD 1920 N MAIN ST LOS ANGELES CA 90031-3217	<u>Phone</u>	951-659-0063	<u>Financial Responsibility</u>			
<u>Operator</u>				<u>Financial Mechanism</u>		<u>Expiration Date</u>	
<u>Address</u>		<u>Phone</u>		None		28 July 2012	
<u>Local Owner</u>	CARLSON, RICHARD 1920 N MAIN ST LOS ANGELES CA 90031-3217	<u>Phone</u>	951-659-0063				
<u>Units</u>	3	<u>Billable</u>	3	<u>Aband.</u>	0	<u>Other</u>	0
	<u>Compliance Operator(s)</u>			<u>ID</u>		<u>Training Date</u>	

Significant? N Memo Date: 03/02/01
Memo: 03-02-01--site has not changed since last inspection. There is no store building. Parking lot is concrete. There are two dispenser islands with "old-fashioned" dispensers (glass broken from a couple of them). Liquid levels were same as measured last time. The site is located behind what is currently the "Citgo/Country Chef", which is near the Knights Inn, located off Exit 33, I-95. vkm

Significant? Y Memo Date: 10/02/01
Memo: This information came from the Jasper County Tax Assessors Office. The tax map ID # is 088-48-00-008. The site building burned on 3-08-95. Golden Isles Petroleum sold the property to Sunstar on 12-22-95 for \$100,000.00. The paperwork from the assessors office is in the reg file.

Significant? N Memo Date: 09/28/01
Memo: The Citgo/Country Chef station in front of this site is #15151.

Significant? Y Memo Date: 05/02/05
Memo: water supply well WSW-1 is located 400ft east and is used for irrigation purposes only. water supply well WSW-2 is located 850ft east. two ponds are located 400ft NE and 700ft SE

Significant? N Memo Date: 08/05/09
Memo:

<u>No.</u>	1	<u>Reported</u>	05/16/02	<u>Status</u>	Confirmed - Active	<u>Product</u>	Petroleum	<u>Compl Required</u>	Y
<u>Active Trnks</u>	NFA	<u>Fin. Type</u>	With SUPERB Cos	<u>RBCA / Score</u>	2BB	965	<u>Compliance Met</u>	N	

Information for N-04878 Facility: NICKELPUMPER 233

this plume is co-mingled with the plume for Site #15151 which is in corrective action. Also, an enforcement action is pending for tank abandonment and closure.

Significant? N **Memo Date:** 02/24/01

Memo: PER NANCY L IN LEGAL - GOLDEN ISLES PETROLEUM IS IN BANKRUPTCY AND IS TOO LATE TO MAKE CLAIMS AGAINST THEM. (KM 5/13/94) 3-23-95 TC TO DISTRICT FOR SITE VISIT TO FIND TANK AND OWNERSHIP i STATUS. DMO 7-10-95 PER 4-25-95 VISIT BY JIM PEURFOY SITE IS BURNT DOWN AND i TANKS ARE STILL THERE. DMO 9-28-95 THIS SITE IS IN ENFORCEMENT FOR FEES AND TANKS TOU OVER 12 i MONTHS. DMO 01-02-97 I visited this site on 12-31-96. The tanks have about one i to two inches of fluid in them. The dispensers are present. The i system was a pressure system with no mlds. RSM 12/30/97 I visited this site in response to request from Richard i Pittenger from ARM. He believed the site was unregistered. I i checked all 3 tanks again. Two still have about 2-3 in. of fluid. i The third tank seems to have a bit more fluid present (5-6 inches) i now. RSM 1/15/99 All tanks have b/w 1" to 3" of fluid. No strong product i odor from any of the tanks. No fill caps on risers. Some i dispensers are present, but none are useable. RSM

Significant? N **Memo Date:** 04/22/03

Memo: Tier I directive, per Mark Berenbrok, to Robert Pucini of Sunstar, Inc. 7373 Hodgson Memorial Dr., #6, Savannah, GA 31406, and his attorney, Russell Templeton, Esq., 1825 Bull St., Columbia, SC 29202.

Significant? N **Memo Date:** 11/20/02

Memo: This facility is located on the South side of I-95 at exit 33 in Point South. It is behind site #15151.

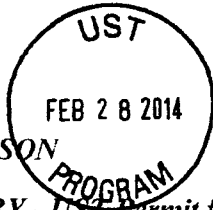
<u>Confirmed</u>	05/28/02	<u>Emer. Resp.</u>		<u>Superb Qualified</u>		<u>Compliance Met Dt</u>	06/27/02
<u>CU Init.</u>	01/09/03	<u>Abate. Met</u>		<u>Superb Determ. Dt</u>		<u>Fin Res Mechanism</u>	
<u>CU Compl.</u>		<u>Transferred</u>		<u>Project Manager</u>	BUTLER KATHYRN H		
<u>CU > MCL</u>		<u>Source</u>	UST	<u>Responsible Party</u>	CARLSON RICHARD		

<u>King</u>	SCRBCA:	2BB - Watersupply wells < 1000 feet down grade				<u>FP Thick:</u>	Unknown	
<u>I. No.</u>	1							
<u>Analytics</u>	<u>Contaminant</u>	<u>ug/L</u>	<u>RBSL</u>	<u>Score</u>	<u>SSTL's</u>	<u>Other Contaminants</u>	<u>ug/L</u>	<u>SSTL's</u>
	Benzene	4580	5	916	66817	1,2 DCA (MW-1(<))	5	20
	Toluene	5240	1000	5	30804078	EDB (ND)	.02	
	Ethylbenzene	1280	700	2	2009623	GW SAMPLED		
	Xylene	4380	10000	0	21680	10/16/17		
	Naphthalene	487	25	19	17788	LEAD (NT)	0	
	MTBE	899	40	22	80178	TAA (MW-1)	7690	
						TBA (MW-1)	5460	
		<u>Total Score:</u>		965				

Receptor Ttype: PRIVATE Ground Water Flow: SE
Distance to Receptor: 400 Seepage Velocity: 3.18
M Depth: 4.53

Information for N-04878 Facility: NICKELPUMPER 233

<u>Ink No.</u>	1	<u>Const.</u>	<u>Class</u>	N	<u>Tank Const. Mat.</u>	SL	<u>Pipe Const. Mat.</u>	SL	
		<u>Operate</u>	<u>T Status</u>	TOS	<u>Tank Protect.</u>	CP	<u>Pipe Protect.</u>	CP	
		<u>Notify</u>	12/11/85	<u>Capacity</u>	6,000	<u>Tank Cont. Meth.</u>	SW	<u>Pipe Cont. Meth.</u>	SW
		<u>Variance</u>		<u>Product</u>	GN	<u>Overfill Type</u>	BFVV	<u>Piping Type</u>	PR
		<u>Compl.</u>	12/29/14	<u>C Status</u>	OUT	<u>Age @ Notif.</u>	10	<u>Dist. to Well</u>	101
		<u>Spill Det.</u>		<u>Left Gal.</u>	0	<u>Owner @ ABD</u>		<u>Last Use</u>	05/15/02
		<u>Aband.</u>		<u>Method</u>		<u>CAS No.</u>	Chem.		
		<u>Under Dispenser Cont.</u>	N	<u>Drop Tube</u>	N	<u>Tank Leak Det.</u>		<u>Pipe Leak Det.</u>	
<u>Ink No.</u>	2	<u>Const.</u>	<u>Class</u>	N	<u>Tank Const. Mat.</u>	SL	<u>Pipe Const. Mat.</u>	SL	
		<u>Operate</u>	<u>T Status</u>	TOS	<u>Tank Protect.</u>	CP	<u>Pipe Protect.</u>	CP	
		<u>Notify</u>	12/11/85	<u>Capacity</u>	8,000	<u>Tank Cont. Meth.</u>	SW	<u>Pipe Cont. Meth.</u>	SW
		<u>Variance</u>		<u>Product</u>	GN	<u>Overfill Type</u>	BFVV	<u>Piping Type</u>	PR
		<u>Compl.</u>	12/29/14	<u>C Status</u>	OUT	<u>Age @ Notif.</u>	10	<u>Dist. to Well</u>	101
		<u>Spill Det.</u>		<u>Left Gal.</u>	0	<u>Owner @ ABD</u>		<u>Last Use</u>	05/15/02
		<u>Aband.</u>		<u>Method</u>		<u>CAS No.</u>	Chem.		
		<u>Under Dispenser Cont.</u>	N	<u>Drop Tube</u>	N	<u>Tank Leak Det.</u>		<u>Pipe Leak Det.</u>	
<u>Ink No.</u>	3	<u>Const.</u>	<u>Class</u>	N	<u>Tank Const. Mat.</u>	SL	<u>Pipe Const. Mat.</u>	SL	
		<u>Operate</u>	<u>T Status</u>	TOS	<u>Tank Protect.</u>	CP	<u>Pipe Protect.</u>	CP	
		<u>Notify</u>	12/11/85	<u>Capacity</u>	10,000	<u>Tank Cont. Meth.</u>	SW	<u>Pipe Cont. Meth.</u>	SW
		<u>Variance</u>		<u>Product</u>	GN	<u>Overfill Type</u>	BFVV	<u>Piping Type</u>	PR
		<u>Compl.</u>	12/29/14	<u>C Status</u>	OUT	<u>Age @ Notif.</u>	10	<u>Dist. to Well</u>	101
		<u>Spill Det.</u>		<u>Left Gal.</u>	0	<u>Owner @ ABD</u>		<u>Last Use</u>	05/15/02
		<u>Aband.</u>		<u>Method</u>		<u>CAS No.</u>	Chem.		
		<u>Under Dispenser Cont.</u>	N	<u>Drop Tube</u>	N	<u>Tank Leak Det.</u>		<u>Pipe Leak Det.</u>	



RICHARD CARLSON

RIGHT OF ENTRY - UST Permit # 04878

THERE WILL BE NO COST TO THE PROPERTY OWNER FOR ANY & ALL WORK PERFORMED ON THE PROPERTY PER LETTER 1/27/14 JAWBBLANT.

If you are the Property Owner or are the authorized representative for that person, but did not own the former or existing underground storage tanks at the time the release was reported, please complete this form.

I, RICHARD CARLSON, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility VACANT PROP. Phone # _____

Street Address of Facility 3296 POINT SOUTH DR. VACANT PROP.

Town, City, District, Suburb YEMASSEE SOUTH CAROLINA

Name of nearest intersecting street, road, highway, alley TAX MAP # 088-48-00-008

Is this facility within the city limits? (yes or no) I DON'T KNOW

Is this facility serviced by a public water or sewer utility? (yes or no) I DON'T KNOW, if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) ?, if yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation DONT KNOW, Phone number _____

Is the property currently leased or rented to someone? (yes or no) NO, if yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the monitoring wells, they should be moved before SCDHEC's contractor arrives at the site.

NAME of property owner (Please Print): RICHARD CARLSON

Phone Number (home) _____ (work) (323) 222-3007

Current Mailing Address 1920 W. MAIN ST. LOS ANGELES CA 90031

Signature of Property Owner: [Signature]

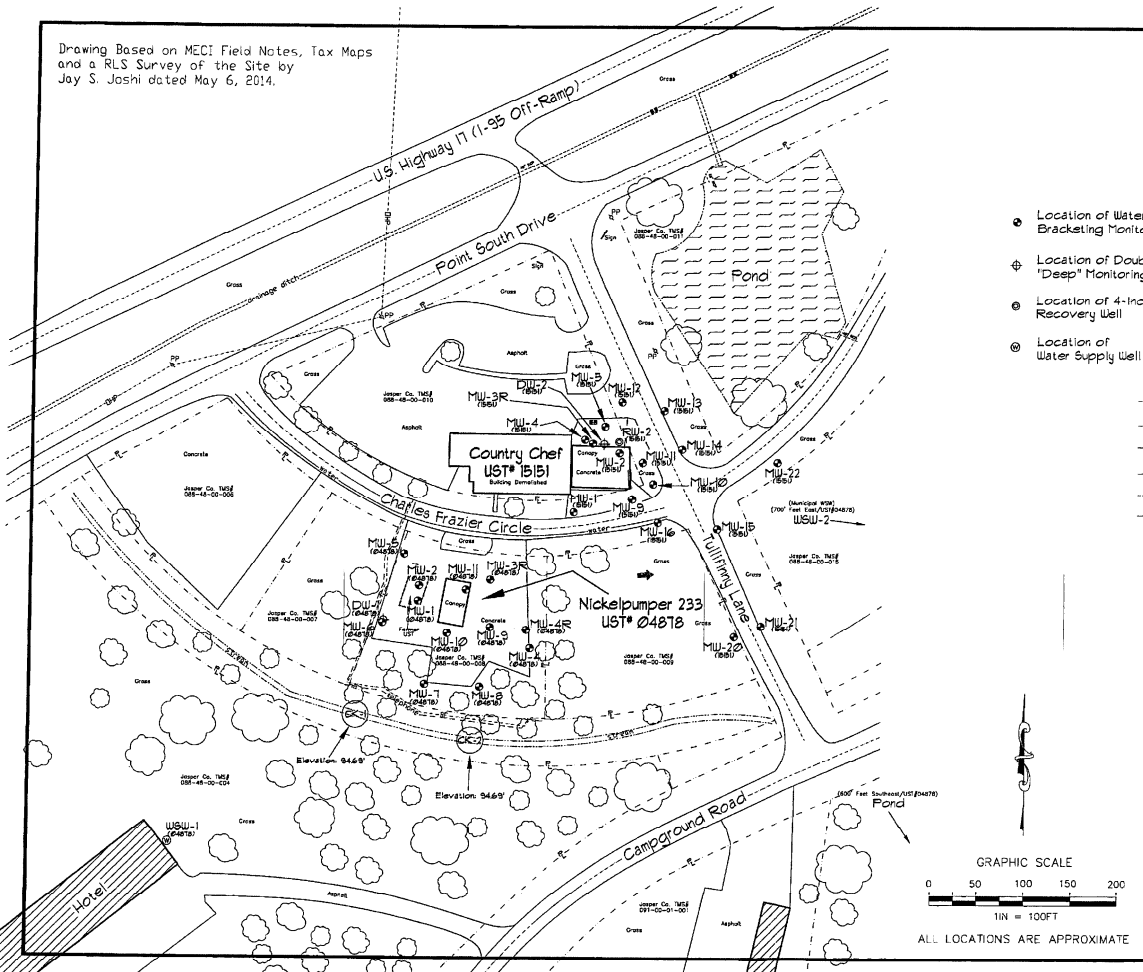
Witness Peter Bartoldeo

Date: FEB. 22, 2014 Month _____ Year _____
Day _____

UST Division/ SMB



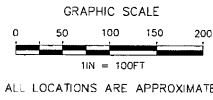
Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-Inch Recovery Well
- ⊗ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

- Buried Electric/Overhead Powerline
- - - Property Line
- - - Buried Water Line
- Under Ground Telephone
- - - Drainage Ditch
- - - Stream/Pond Edge



Site Base Map	
Nickelpumper 233 123 Charles Frazier Circle Yemassee, South Carolina SCDHEC Site ID 04818	
<p>Midlands Environmental Consultants, Inc.</p>	JOB NO. 18-0308
	DATE April 11, 2018
FIGURE 2	

 **Midlands
Environmental
Consultants, Inc.**

May 23, 2018

Ms. Ashleigh Thrash, Hydrogeologist
Corrective Action & Field Support Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: Site-Specific Work Plan
Nickelpumper 233
Gaffney, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 18-6448
Certified Site Rehabilitation Contractor UCC-0009

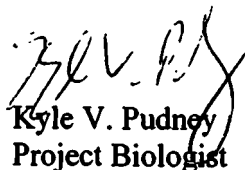


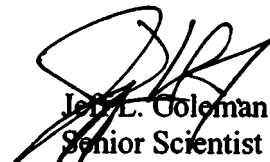
Dear Ms. Thrash,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Site-Specific Work Plan for the referenced site.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.


Kyle V. Pudney
Project Biologist


Jeff L. Coleman
Senior Scientist



Site-Specific Work Plan for Approved ACQAP Underground Storage Tank Management Division

To: Ms. Kathryn H. Butler (SCDHEC Project Manager)
 From: Jeff L. Coleman (Contractor Project Manager)
 Contractor: Midlands Environmental Consultants, Inc. UST Contractor Certification Number: 009

Facility Name: Nickelpumper 233 UST Permit #: 04878
 Facility Address: 3296 Point South Drive, Yemassee, SC 29945
 Responsible Party: Richard Carlson Phone: 951-659-0063
 RP Address: 1920 N Main Street, Los Angeles, CA 90031
 Property Owner (if different): SAA
 Property Owner Address: SAA
 Current Use of Property: Vacant Property

Scope of Work (Please check all that apply)

- IGWA Tier II Groundwater Sampling GAC
 Tier I Monitoring Well Installation Other _____

Analyses (Please check all that apply)**Groundwater/Surface Water:**

- BTEXNMDCA (8260B) Lead BOD Methane
 Oxygenates (8260B) 8 RCRA Metals Nitrate Ethanol
 EDB (8011) TPH Sulfate Dissolved Iron
 PAH (8270D) pH Other _____

Drinking Water Supply Wells:

- BTEXNMDCA (524.2) Mercury (200.8 245.1 or 245.2) EDB (504.1)
 Oxygenates & Ethanol (8260B) RCRA Metals (200.8)

Soil:

- BTEXNM Lead RCRA Metals TPH-DRO (3550B/8015B) Grain Size
 PAH Oil & Grease (9071) TPH-GRO (5030B/8015B) TOC

Air:

- BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected.)

_____ Soil 2 Water Supply Wells _____ Air 2 Field Blank
13 Monitoring Wells 3 Surface Water 2 Duplicate 2 Trip Blank

Field Screening Methodology

Estimate number and total completed depth for each point, and include their proposed locations on the attached map.

of shallow points proposed: _____ Estimated Footage: _____ feet per point
 # of deep points proposed: _____ Estimated Footage: _____ feet per point

Field Screening Methodology: _____

Permanent Monitoring Wells

Estimate number and total completed depth for each well, and include their proposed locations on the attached map.

of shallow wells: _____ Estimated Footage: _____ feet per point
 # of deep wells: _____ Estimated Footage: _____ feet per point
 # of recovery wells: _____ Estimated Footage: _____ feet per point

Comments, if warranted:

UST Permit #: 04878 Facility Name: Nickelpumper 233

Implementation Schedule (Number of calendar days from approval)
Field Work Start-Up: 5/23/2018 Field Work Completion: 6/23/2018
Report Submittal: 7/23/2018 # of Copies Provided to Property Owners: 0

Aquifer Characterization
Pump Test: Slug Test: (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal
Soil: _____ Tons Purge Water: 100.0 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

Additional Details For This Scope of Work
For example, list wells to be sampled, wells to be abandoned/repared, well pads/bolts/caps to replace, details of AFVR event, etc.
-All monitoring wells will be sampled during the sampling event. MECI will also attempt to sample three (3) surface water locales and two (2) water supply wells during the sampling event.
-Only non bracketing wells will be purged prior to sample collection.
-Monitoring well and surface water samples will be analyzed for BTEXNM, 8-OXY, 1,2-DCA (8260B), and EDB (8011)
-Water supply well samples will be analyzed for BTEXNM, 1,2-DCA (524.2), 8-OXY's (8260B), and EDB (504.1).

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)
Yes Laboratory as indicated in ACQAP? (Yes/No) If no, indicate laboratory information below.
Name of Laboratory: _____
SCDHEC Certification Number: _____
Name of Laboratory Director: _____
N/A Well Driller as indicated in ACQAP? (Yes/No) If no, indicate driller information below.
Name of Well Driller: _____
SCLLR Certification Number: _____
None Other variations from ACQAP. Please describe below.

- Attachments**
1. Attach a copy of the relevant portion of the USGS topographic map showing the site location.
 2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following:
North Arrow Proposed monitoring well locations
Location of property lines Legend with facility name and address, UST permit number, and bar scale
Location of buildings Streets or highways (indicate names and numbers)
Previous soil sampling locations Location of all present and former ASTs and USTs
Previous monitoring well locations Location of all potential receptors
Proposed soil boring locations
 3. Assessment Component Cost Agreement, SCDHEC Form D-3664



**ASSESSMENT COMPONENT COST AGREEMENT
SOUTH CAROLINA**

Department of Health and Environmental Control
Underground Storage Tank Management Division
State Underground Petroleum Environmental Response Bank Account
CONTRACT PO NUMBER 4600559329

Facility Name: Nickelpumper 233

UST Permit #: 04878

Cost Agreement #: Proposal

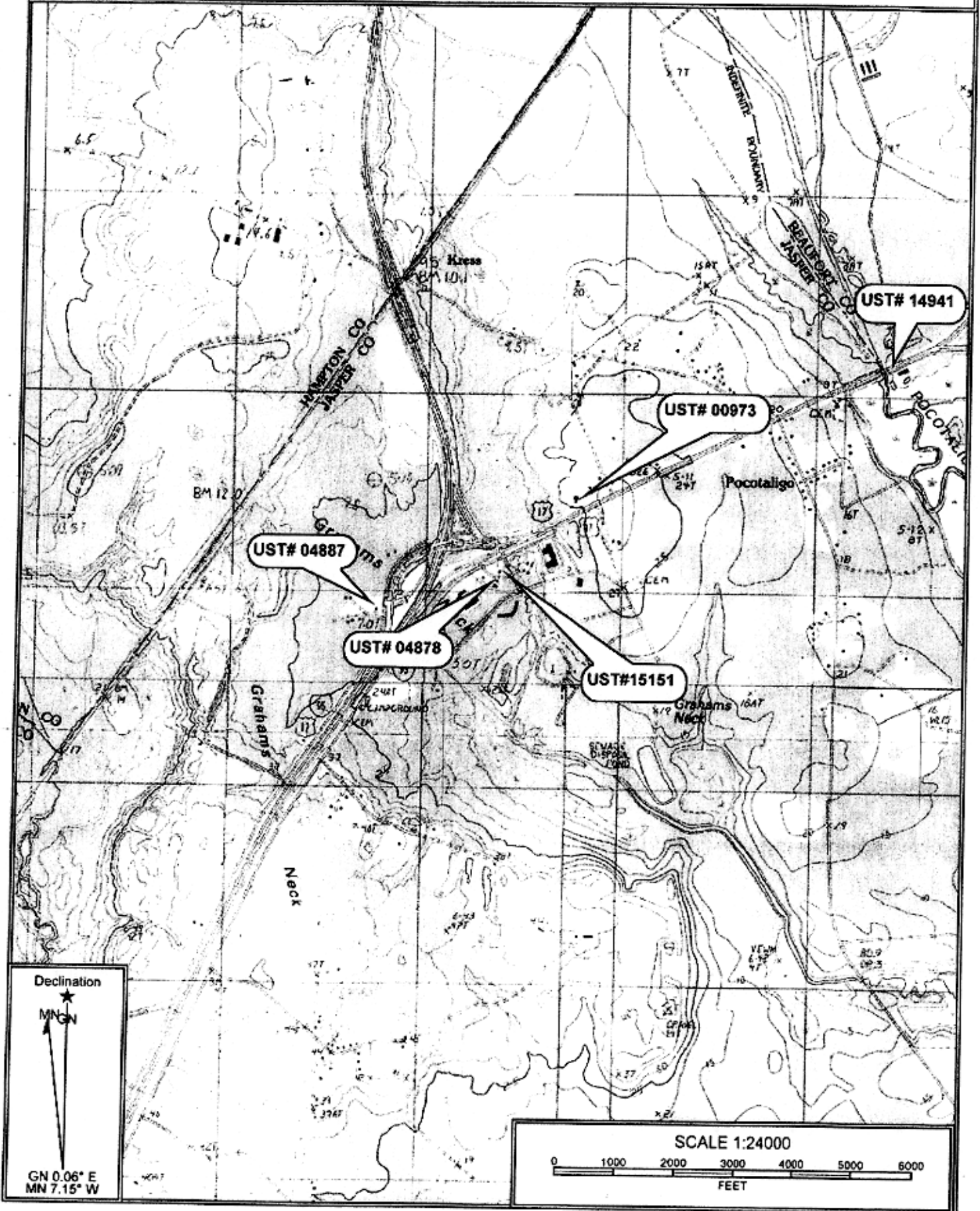
ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. Plan*				
A1. Site Specific Work Plan	1	each	\$1.00	\$1.00
B1. Tax Map		each	\$1.00	\$0.00
C1. QAPP Appendix B		each	\$1.00	\$0.00
2. A1. Receptor Survey		each	\$1.00	\$0.00
4. Mob/Demob				
B1. Personnel	1	each	\$1.00	\$1.00
10. Groundwater Sample Collection / Gauge Depth to Water or Product (Each)				
A1. Groundwater Purge	1	per well	\$36.50	\$36.50
B1. Air or Vapors		samples	\$1.00	\$0.00
C1. Water Supply	2	samples	\$18.00	\$36.00
D1. Groundwater No Purge or Duplicate	15	per well	\$27.50	\$412.50
E1. Gauge Well only		per well	\$1.00	\$0.00
F1. Sample Below Product		per well	\$1.00	\$0.00
G1. Pasive Diffusion Bag		each	\$20.00	\$0.00
H1. Field Blank	1	each	\$1.00	\$1.00
17. Disposal* (gallons or tons)				
AA. Disposal/Water	100	gallons	\$1.00	\$100.00
BB. Free Product		gallons	\$0.05	\$0.00
Note: Rate includes costs or rental of suitable container(s)				
23. D. Site Reconnaissance	1	each	\$1.00	\$1.00
18. Miscellaneous				
GW Contour Map		each	\$25.00	\$0.00
Isopleth Map		each	\$25.00	\$0.00
High-Strength Well Pad Replacement		each	\$75.00	\$0.00
Data Table		each	\$50.00	\$0.00
Low Flow Sampling		per well	\$55.00	\$0.00
25. Well Repair				
B1. Repair 2x2 MW Pad		each	\$50.00	\$0.00
C1. Repair 4x4 MW Pad		each	\$50.00	\$0.00
D1. Replace Well Vault		each	\$50.00	\$0.00
E. Replace well cover		each	\$25.00	\$0.00
F1. Replace well cover bolts		each	\$2.60	\$0.00
G. Replace locking well cap & lock		each	\$15.00	\$0.00
K1. Replace Missing Well ID Plate		each	\$10.00	\$0.00
TOTAL				\$588.00

*The appropriate mobilization cost can be added to complete these tasks, as necessary

Map Name: MC PHERSONVILLE
Print Date: 11/09/15

Scale: 1 inch = 2,000 ft.
Map Center: 032° 37' 46.89" N, 080° 52' .

Horizontal Datum: NAD27



Declination

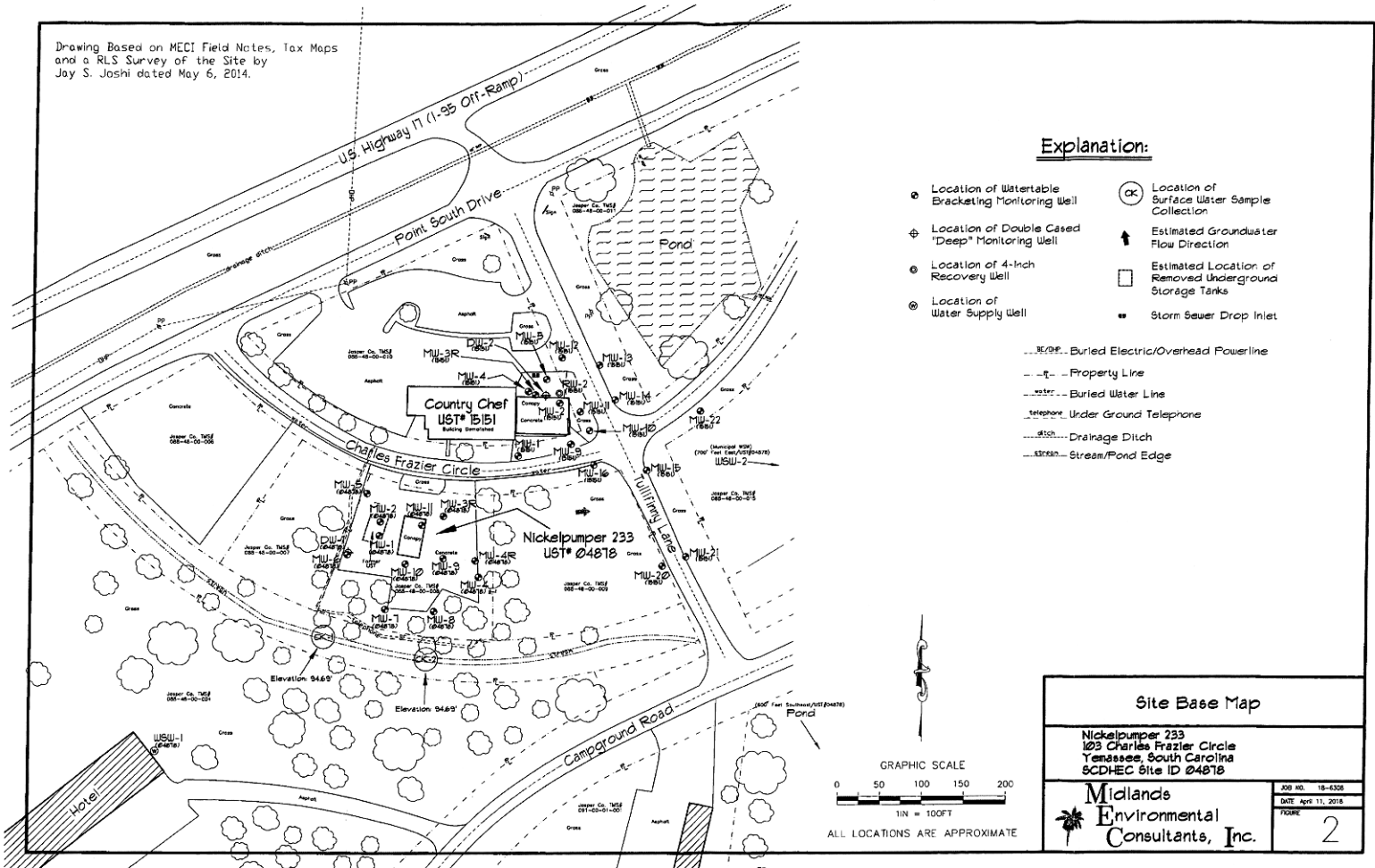


GN 0.06° E
MN 7.15° W

SCALE 1:24000



Drawing Based on MECI Field Notes, Tax Maps
and a RLS Survey of the Site by
Joy S. Joshi dated May 6, 2014.



Explanation:

- Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-Inch Recovery Well
- ⊗ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

- Buried Electric/Overhead Powerline
- Property Line
- Buried Water Line
- Under Ground Telephone
- Drainage Ditch
- Stream/Pond Edge

Site Base Map	
Nickelpumper 233 103 Charles Frazier Circle Tennessee, South Carolina SCDHEC Site ID 04818	
Midlands Environmental Consultants, Inc.	JOB NO. 18-6308 DATE April 11, 2018 FIGURE 2

GRAPHIC SCALE
 0 50 100 150 200
 1IN = 100FT
 ALL LOCATIONS ARE APPROXIMATE



**MR BRYAN SHANE PG
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071**

JUN 15 2018



Re: **Notice to Proceed-Site Specific Work Plan Approval**
Groundwater Sampling Contract
Solicitation #IFB-5400012906, PO#4600624358
Nickelpumper 233, 3269 Point South Drive, Yemassee, SC
UST Permit #04878; MECI CA #57350; Pace CA #57351
Jasper County

Dear Mr. Shane:

In accordance with bid solicitation #IFB-5400012906 and the Underground Storage Tank (UST) Management Division Quality Assurance Program Plan (QAPP), the Site-Specific Work Plan has been reviewed and approved. In accordance with the approved QAPP, a status report of the project should be provided on a weekly basis via e-mail. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. In addition, a discussion of the problem(s) encountered, including quality assurance problems, the actions taken, and the results must be included in the final report submitted to the UST Management Division.

MECI will perform services at the site on behalf of the site's responsible party (RP); however, payment will be made from the SUPERB Account. Please coordinate access to the facility with the property owner. DHEC grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included with the final report. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

Please note, sampling should be conducted within 15 calendar days from the date of this letter. The final report is due within 3 weeks from the date the site is sampled. If the site is not sampled by the specified due date or the report is not received in the specified time period, a late fee may be imposed. The final report should contain the requirements of Section III.2.15 of the bid solicitation. The final report should be submitted to Robert Dunn, the contract manager.

If you have any site-specific questions, please contact me at (803) 898-0606 or via e-mail at butlerkh@dhec.sc.gov. If you have any contract specific questions, please contact Robert Dunn at (803) 898-0671 or via e-mail at dunnra@dhec.sc.gov.

Sincerely,

Kathryn H. Butler, Hydrogeologist
Corrective Action and Field Support Section
UST Management Division
Bureau of Land & Waste Management

enc: Approved Cost Agreement (both CAs)

cc: Trey Carter, Pace Analytical Services, 9800 Kincey Ave, Ste 100, Huntersville, NC, 28078 (w/app. CA)
Technical Files (w/enc)

Approved Cost Agreement

57351

Facility: 04878 NICKELPUMPER 233

BUTLERKH

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
11 ANALYSES					
	GW GROUNDWATER	A2 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	17.0000	\$21.000	357.00
		F1 EDB BY 8011	16.0000	\$18.000	288.00
	WATER DRINKING WATER	L BTEXNM+1,2 DCA (524.2)	4.0000	\$36.000	144.00
		M 7-OXYGENATES & ETHANOL (8260B)	4.0000	\$13.000	52.00
		N EDB (504.1)	3.0000	\$18.000	54.00
		Total Amount			895.00

Approved Cost Agreement**57350**

Facility: 04878 NICKELPUMPER 233

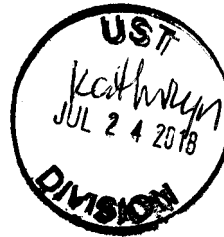
BUTLERKH

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
01 PLAN		A1 SITE SPECIFIC WORK PLAN	1.0000	\$1.000	1.00
04 MOB/DEMOB		B1 PERSONNEL	1.0000	\$1.000	1.00
10 SAMPLE COLLECTION		A1 GROUNDWATER (PURGE)	1.0000	\$36.500	36.50
		C1 WATER SUPPLY	2.0000	\$18.000	36.00
		D1 GROUNDWATER NO PURGE/DUPLICATE	17.0000	\$27.500	467.50
		H1 FIELD BLANK	2.0000	\$1.000	2.00
17 DISPOSAL		AA WASTEWATER	100.0000	\$1.000	100.00
23 EFR		D SITE RECONNAISSANCE	1.0000	\$1.000	1.00
Total Amount					645.00



Midlands Environmental Consultants, Inc.



July 23, 2018

Mr. Robert A. Dunn, Hydrogeologist
 Corrective Action Section
 Underground Storage Management Division
 Bureau of Land and Waste Management
 South Carolina Department of Health
 and Environmental Control
 2600 Bull Street
 Columbia, South Carolina 29201



Subject: Report of Groundwater Sampling
 Nickelpumper 233
 103 Charles Frazier Circle
 Yemassee, South Carolina
 SCDHEC Site ID# 04878, CA # 57350
 MECI Project Number 18-6448
 Certified Site Rehabilitation Contractor UCC-0009

Dear Mr. Dunn,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Report of Groundwater Sampling for the referenced site. This report describes site activities conducted at the site in general accordance with South Carolina Department of Health and Environmental Control's (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP).

PROJECT INFORMATION

The subject site (Nickelpumper 233) is located at 103 Charles Frazier Circle in Yemassee, Jasper County, South Carolina. The site currently a vacant lot with a canopy. The following table presents Underground Storage Tanks (UST's) which are associated with the subject site:

Tank #	Capacity/Product	In Use/Abandoned	Tank Status
1	6,000 Gal. Gasoline	Temporarily Out of Service	In Compliance (5/15/2018)
2	8,000 Gal. Gasoline	Temporarily Out of Service	In Compliance (5/15/2018)
3	10,000 Gal. Gasoline	Temporarily Out of Service	In Compliance (5/15/2018)

A release of petroleum product were reported to and confirmed by the South Carolina Department of Health and Environmental Control (SCDHEC) in May of 2002. The release is currently rated a Class 2BB due to water supply wells being located within 1,000' feet of the site.

The above information is based on reports and correspondence obtained from MECI field notes and SCDHEC files.

MONITORING WELL SAMPLING AND CHEMICAL ANALYSIS

On July 20, 2018 MECI personnel collected samples from ten (10) monitoring wells and four (4) surface water locales at the subject site. During sampling activities, monitoring wells MW-2, MW-3R and MW-4R were found to be inundated with water and were unable to be sampled. Additionally, monitoring well MW-3 and WSW-1 were unable to be located and WSW-2 was found to be located behind a locked fence. Based on the request by SCDHEC personnel, only monitoring wells that were not bracketing the screen were to be purged prior to sample collection. Five (5) monitoring wells were purged prior to sample collection.

MECI personnel utilized an electronic water level indicator for water level measurements and an oil/water interface probe for free phase petroleum product level measurements. Purging was completed by bailing at least five well volumes of water from the well, until pH, conductivity, dissolved oxygen and turbidity stabilized, or all water was evacuated from the well, whichever occurred first. Sampling/purging was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. A new set of nitrile gloves were worn at each monitoring well, and at all time samples were handled. Field measurements of pH, conductivity, dissolved oxygen, and water temperature were obtained before well sampling process. MECI utilized a YSI Pro20 meter for DO (mg/L) and temperature readings (°C), YSI Pro1030 meter for pH and conductivity (uS) readings and a MicroTPI turbidimeter for turbidity readings (NTU). The attached Field Data Information Sheets presents the results of the field measurements obtained. The wells were sampled in accordance with the most recent revision of SCDHEC's Quality Assurance Program Plan for the Underground Storage Tank Management Division and the most recent revision MECI's Standard Operating Procedures.

Groundwater samples obtained were sent to Pace Analytical Services, Inc. of Huntersville, NC (SCDHEC Laboratory Certification #99006001) for analysis.

The following sampling matrix contains well development and requested analyses for each well:

Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	BTEX, Naphthalene, MTBE, 1,2 DCA (EPA Method 524.2)	EDB (EPA Method 504.1)
Analyte Sampled													
MW-1	X						X	X	X	X			
MW-2					X								
MW-3						X							
MW-3R					X								
MW-4		X					X	X	X	X			
MW-4R					X								
MW-5	X						X	X	X	X			
MW-6	X						X	X	X	X			
MW-7		X					X	X	X	X			
MW-8		X					X	X	X	X			
MW-9		X					X	X	X	X			

Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes
 MTBE=Methyl tertiary butyl ether
 1,2 DCA = 1,2 Dichloroethane
 EDB = Ethylene Dibromide

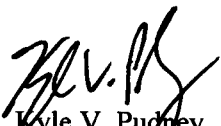
Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	BTEX, Naphthalene, MTBE, 1,2 DCA (EPA Method 524.2)	EDB (EPA Method 504.1)
Analyte Sampled													
MW-10		X					X	X	X	X			
MW-11	X						X	X	X	X			
DW-1	X						X	X	X	X			
CK-1		X					X	X	X	X			
CK-2		X					X	X	X	X			
CK-3		X					X	X	X	X			
CK-4		X					X	X	X	X			
DUP-1(MW-1)							X	X	X	X			
Field Blank							X	X	X	X			
Trip Blank							X		X	X			
WSW-1						X							
WSW-2					X								


Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes
 MTBE=Methyl tertiary butyl ether
 1,2 DCA = 1,2 Dichloroethane
 EDB = Ethylene Dibromide

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 51.50 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is attached at the end of this report.

Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.


 Kyle V. Pudney
 Project Biologist


 Jeff L. Coleman
 Senior Scientist

Attachments:

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?			X
3	Is name, address, & phone number of current property owner provided?			X
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			X
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?			X
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?			X
11	Has the site-specific geology and hydrogeology been described?			X
12	Has the primary soil type been described?			X
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			X
18	Has justification been provided for the locations of the monitoring wells?			X
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?			X
20	Has the groundwater sampling methodology been detailed? See MECI SOP	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	X		
22	Has the purging methodology been detailed? See MECI SOP	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? See attached Field Data Information Sheets	X		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	X		
25	Does the report include a brief discussion of the assessment done and the results?			X
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?			X
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)			X
34	Has the current and historical laboratory data been provided in tabular format?			X
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)			X
40	Has the site potentiometric map been provided? (Figure 5)			X
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			X
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? See attached	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			X
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	X		

Site Activity Summary

UST Permit #: 04878
Facility Name: Nickelpumper 233
County: Jasper
Field Personnel: J. Phillips, C. Phillips


**Midlands
 Environmental
 Consultants, Inc.**
 231 Dooley Road, Lexington, SC 29073
 (803) 808-2043 Fax: 808-2048

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Initial Dissolved Oxygen (mg/l)	# Gals. Purged	Comments
MW-1	Y	7/20/18	11:35	2.5-12.5	***	2.31	***	2.65	8.50	Odor
MW-2	N	7/20/18	NS	2-12	***	NS	***	NS	0.00	Not Sampled, Well Inundated with water
MW-3	N	7/20/18	NL	2-12	***	NL	***	NL	0.00	Not Located
MW-3R	N	7/20/18	NS	2-12	***	NS	***	NS	0.00	Not Sampled, Well Inundated with water
MW-4	Y	7/20/18	11:25	2-12	***	2.79	***	2.61	0.00	No Odor
MW-4R	N	7/20/18	NS	2-12	***	NS	***	NS	0.00	Not Sampled, Well Inundated with water
MW-5	Y	7/20/18	12:40	2-12	***	0.57	***	2.54	9.50	No Odor
MW-6	Y	7/20/18	12:00	2-12	***	1.54	***	2.15	8.50	No Odor
MW-7	Y	7/20/18	11:15	2-9	***	2.39	***	4.32	0.00	No Odor
MW-8	Y	7/20/18	11:20	2-9.5	***	2.48	***	3.13	0.00	No Odor
MW-9	Y	7/20/18	11:40	2-12	***	2.13	***	2.11	0.00	No Odor
MW-10	Y	7/20/18	11:45	2-12	***	2.53	***	2.43	0.00	Slight Odor
MW-11	Y	7/20/18	12:55	2-12	***	0.98	***	2.18	9.00	Slight Odor
DW-1	Y	7/20/18	12:30	43.5-48.5	***	2.40	***	2.97	16.00	No Odor
CK-1	Y	7/20/18	13:00	***	***	***	***	***	***	Collected from creek (See Figure)
									51.50	TOTAL GALLONS PURGED

Site Activity Summary

UST Permit #: 04878
Facility Name: Nickelpumper 233
County: Jasper
Field Personnel: J. Phillips, C. Phillips



Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Initial Dissolved Oxygen (mg/l)	# Gals. Purged	Comments
CK-2	Y	7/20/18	13:05	***	***	***	***	***	***	Collected from Creek (See Figure)
CK-3	Y	7/20/18	13:10	***	***	***	***	***	***	Collected from Pond behind Knights Inn
CK-4	Y	7/20/18	13:15	***	***	***	***	***	***	Collected from Pond east of UST# 15151
DUP-1	Y	7/20/18	11:35	***	***	***	***	***	***	Duplicate sample of MW-1
Field Blank	Y	7/20/18	13:20	***	***	***	***	***	***	Field Blank
Trip Blank	Y	7/20/18	13:22	***	***	***	***	***	***	Trip Blank
WSW-1	N	7/20/18	NS	***	***	***	***	***	***	WSW not located, Possibly removed or located in locked shed
WSW-2	N	7/20/18	NS	***	***	***	***	***	***	Potential Municipal WSW located behind locked fence
									0.00	TOTAL GALLONS PURGED



Monitoring Well Purge And Sampling Data

Field Personnel: J.P. CP
 Sampling Date(s): 7/20/18
 Sampling Case#: 1

Job Name: Nickel/pumper 233
 Job Number: 18-6448

Calibration Data for:
 Calibration Successful? Yes Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes	
								product	Initial H ₂ O	final H ₂ O			**calc.	actual		
MW-1	Initial	11:30	6.87	124.4	22.9	2.65	19.59				2.31	2.5	10.19	1.66	8.50	Odor Dup
	1st	11:31	5.94	120.9	26.7	2.60	20.14									
	2nd	11:32	5.93	116.7	26.5	2.53	20.47									
	3rd	11:33	5.90	113.2	26.4	2.50	20.01									
	4th	11:34	5.89	110.1	26.3	2.49	23.43									
	5th	11:35	5.88	109.5	26.2	2.48	25.75									
	Sampling															
MW-2	Initial										2.0	12.0				
	1st	DNK - Under water														
	2nd	DNK - Under water														
	3rd	DNK - Under water														
	4th	Spoke w. th. Kathryn Butler, she said it was under testable														
	5th	Spoke w. th. Kathryn Butler, she said it was under testable														
MW-3	Initial										2.0	12.0				
	1st	Not located														
	2nd	Not located														
	3rd	Not located														
	4th	Not located														
	5th	Not located														
MW-3R	Initial										2.0	12.0				
	1st	DNK - Under water														
	2nd	DNK - Under water														
	3rd	DNK - Under water														
	4th	SA MW-2														
	5th	SA MW-2														
Sampling																

*= (Depth of Well) - (Depth to Water = Water Height)
 One Well Volume = x.047 for 1" wells * x .163 for 2" wells, or * x .66 for 4" wells, 1.469 for 6" wells
 **= One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	PH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: J.P. CP
 Sampling Date(s): 7/20/18
 Sampling Case#: 1

Job Name: Nickel pumper 233
 Job Number: 18-6448

Calibration Data for:
 Calibration Successful? Yes Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	initial H ₂ O	final H ₂ O			**calc.	actual	
MW-4	Initial	1:25	6.29	78.8	23.5	2.61	28.90								No Purge No Odor
	1st														
	2nd														
	3rd														
	4th														
	5th														
MW-4R	Initial														No Purge No Sample
	1st														
	2nd														
	3rd														
	4th														
	5th														
MW-5	Initial	2:35	6.01	83.7	31.6	2.54	12.14								No Odor
	1st	2:36	5.94	80.3	31.2	2.50	20.32								
	2nd	2:37	5.91	79.9	30.9	2.46	30.73								
	3rd	2:38	5.88	79.1	30.8	2.42	32.05								
	4th	2:39	5.87	72.7	30.7	2.43	61.25								
	5th	2:40	5.85	70.4	30.6	2.41	15.39								
MW-6	Initial	11:50	5.75	150.5	25.7	2.15	19.50								No Odor
	1st	11:52	5.71	124.0	25.5	2.12	25.67								
	2nd	11:54	5.67	120.7	25.4	2.07	21.07								
	3rd	11:56	5.65	118.4	25.3	2.05	21.95								
	4th	11:58	5.64	115.3	25.1	2.02	27.53								
	5th	12:00	5.63	110.6	25.0	2.01	17.62								

*= (Depth of Well) - (Depth to Water = Water Height)
 **= One Well Volume x 5 = Gallons Purged (calculated)
 One Well Volume = x.047 for 1" wells, x .163 for 2" wells, or x .66 for 4" wells, 1.489 for 6" wells

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.489

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: J.P. CP
 Sampling Date(s): 7/20/18
 Sampling Case#: 1

Job Name: Nickel pumper 233
 Job Number: 18-6448

Calibration Data for:
 Calibration Successful: Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(I)	cond(I)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	Initial H ₂ O	final H ₂ O			**calc.	actual	
MW-7	Initial	11:15	8.01	88.6	23.1	4.32	13.54				2.0	—	—	—	No Purge No Odor
	1st									2.39	9.0	—	—	—	
	2nd											—	—	—	
	3rd											—	—	—	
	4th											—	—	—	
	5th											—	—	—	
MW-8	Initial	11:20	6.90	93.0	26.7	3.93	15.62				2.0	—	—	—	No Purge No Odor
	1st									2.48	9.5	—	—	—	
	2nd											—	—	—	
	3rd											—	—	—	
	4th											—	—	—	
	5th											—	—	—	
MW-9	Initial	11:40	5.76	188.6	28.9	2.11	19.37				2.0	—	—	—	No Purge No Odor
	1st									2.13	12.0	—	—	—	
	2nd											—	—	—	
	3rd											—	—	—	
	4th											—	—	—	
	5th											—	—	—	
MW-10	Initial	11:45	5.88	124.3	24.3	2.43	22.35				2.0	—	—	—	No Purge Slight Odor
	1st									2.53	12.0	—	—	—	
	2nd											—	—	—	
	3rd											—	—	—	
	4th											—	—	—	
	5th											—	—	—	

*= (Depth of Well) - (Depth to Water = Water Height)
 **= One Well Volume x 5 = Gallons Purged (calculated)
 One Well Volume = x.047 for 1" wells, x .163 for 2" wells, or * x .66 for 4" wells, 1.489 for 6" wells

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.489

Sampling Case#	PH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: JP, CP
 Sampling Date(s): 7/20/18
 Sampling Case#: 1

Job Name: Nickel/pumper 233
 Job Number: 18-6448

Calibration Data for:
 Calibration Successful: Yes Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	Initial H ₂ O	final H ₂ O			**calc.	actual	
MW-11	Initial	1:45	5.63	55.0	29.2	2.18	21.57								
	1st	2:47	5.27	60.3	29.0	2.15	26.79								
	2nd	2:49	5.36	48.2	28.9	2.12	31.01		0.98		2.0	11.02	1.80	9	Slight Odor
	3rd	2:51	5.52	46.7	28.8	2.07	34.20				12.0				
	4th	2:53	5.50	43.7	28.7	2.06	37.94								
	5th	2:55	5.46	40.5	28.5	2.04	38.23						8.98		
	Sampling														
DW-1	Initial	12:05	5.43	173.4	28.1	2.97	23.02								
	1st	12:12	5.40	166.2	28.0	2.80	29.33								
	2nd	12:20	5.36	165.3	27.8	2.85	34.12		2.40		43.5	46.10	7.51	Dry	No Odor
	3rd														
	4th														
	5th														
	Sampling	12:30	5.31	162.1	27.7	2.84	35.68						37.57	16	
Dup	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
	Sampling														
Blanks	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
	Sampling														

* = (Depth of Well) - (Depth to Water = Water Height)
 ** = One Well Volume x 5 = Gallons Purged (calculated)
 One Well Volume = x.047 for 1" wells, x.163 for 2" wells, or x.66 for 4" wells, 1.469 for 6" wells

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	PVConductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: J.P. CP
 Sampling Date(s): 7/20/18
 Sampling Case#: _____

Job Name: Nickel/pumper 233
 Job Number: 18-6448

Calibration Data for :
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes _____ No _____
 Conductivity: Yes _____ No _____
 Dissolved Oxygen: Yes _____ No _____
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	initial H ₂ O	final H ₂ O			**calc.	actual	
SW's	Initial														
	1st	CK-1 Collected from creek @ 13:00													
	2nd	CK-2 Collected from creek @ 13:05													
	3rd	CK-3 Collected from pond behind Knight's Inn													
	4th	(b) (4) (c) (2)													
	5th	CK-4 Collected from pond in front of site @ 13:15													
Sampling															
	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
	Sampling														
	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
	Sampling														

* = (Depth of Well) - (Depth to Water) = Water Height
 One Well Volume = x.047 for 1" wells * x.163 for 2" wells, or * x.56 for 4" wells, 1.469 for 6" wells
 ** = One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: J.P. CP
 Sampling Date(s): 7/20/18
 Sampling Case#: _____

Job Name: Nickel/pumper 233
 Job Number: 18-6448

Calibration Data for :
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	Initial H ₂ O	final H ₂ O			**calc.	actual	
WSWs	Initial														
	1st														
	2nd	WSW-1	Removed												
	3rd														
	4th	WSW-2	Behind locked gate												
	5th														
Dup	Initial														
	1st														
	2nd	Dup	N/A												
	3rd														
	4th														
	5th														
Blanks	Initial														
	1st														
	2nd	N/A													
	3rd														
	4th														
	5th														
	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														

*= (Depth of Well) - (Depth to Water = Water Height)
 One Well Volume = x.047 for 1" wells * x .163 for 2" wells, or * x .66 for 4" wells, 1.469 for 6" wells
 **= One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	PH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Company: SC DHEC UST Address: 2600 Bulls Head Columbia SC 29701 Email To: thrushan@dhc.sc.gov Phone: 803-898-0600 Fax: 803-898-0673 Requested Due Date/TAT:		Section B Required Project Information: Report To: A Thrash Copy To:		Section C Invoice Information: Attention: Company Name: Address: Pace Quote Reference: Pace Project Manager: T. Carter Pace Profile #:		Page: 1 of 2 2240879	
REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input checked="" type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER				Site Location: SC Jasper			
Purchase Order No.: 4600422513 Project Name: Nickel Dumper 233 Project Number: UST 04878 / PAC FCA5735							

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMPI)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.		
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃					Methanol	Other
					DATE	TIME	DATE	TIME														
1			WG		7/20/18	11:35		6														
2																				Odor		
3																				No Sample		
4																				No Sample		
5			WG		7/20/18	11:25		6												No Sample		
6																				No Odor		
7			WG		7/20/18	12:40		6												No Sample		
8			WG		7/20/18	12:00		6												No Odor		
9																				No Odor		
10																				No Odor		
11																				No Odor		
12			WG		7/20/18	11:45		6												Slight Odor		

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS						
		W. P. Carter	7/20/18	11:00										

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on ice (Y/N)	Coolbox Sealed/Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	C. A. Parker				
SIGNATURE of SAMPLER:	C. A. Parker	DATE Signed (MM/DD/YY):	7/20/18		

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



July 23, 2018

Re: Treatment of Purge Water
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 18-6448

To Whom It May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

All purge waters were treated on-site using an up-flow treatment drum loaded with 80 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

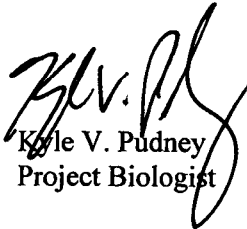
July 23, 2018

A total of 51.50 gallons were treated on July 20, 2018 at the referenced site.

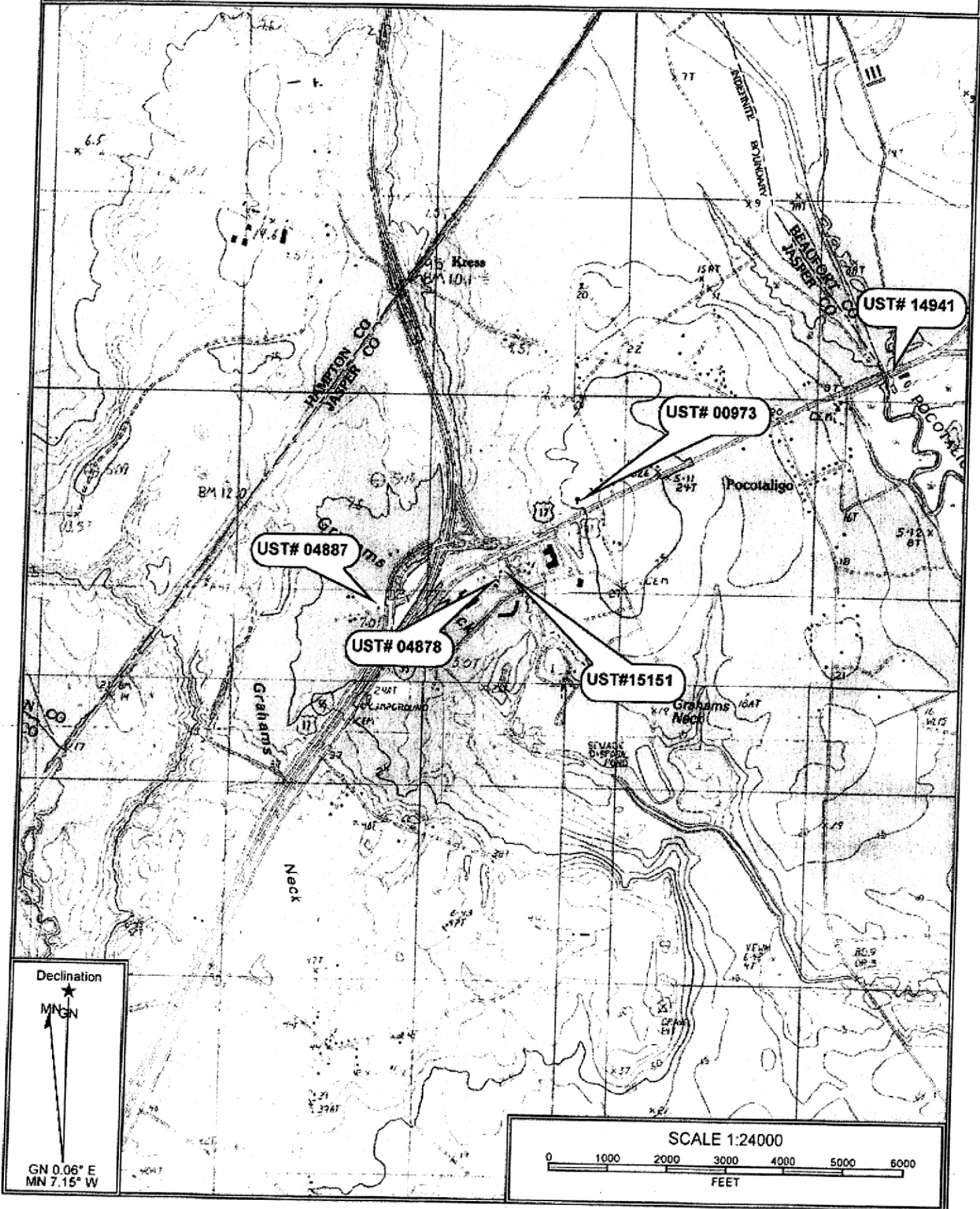
Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.



Kyle V. Pudney
Project Biologist

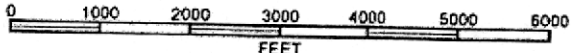


Declination



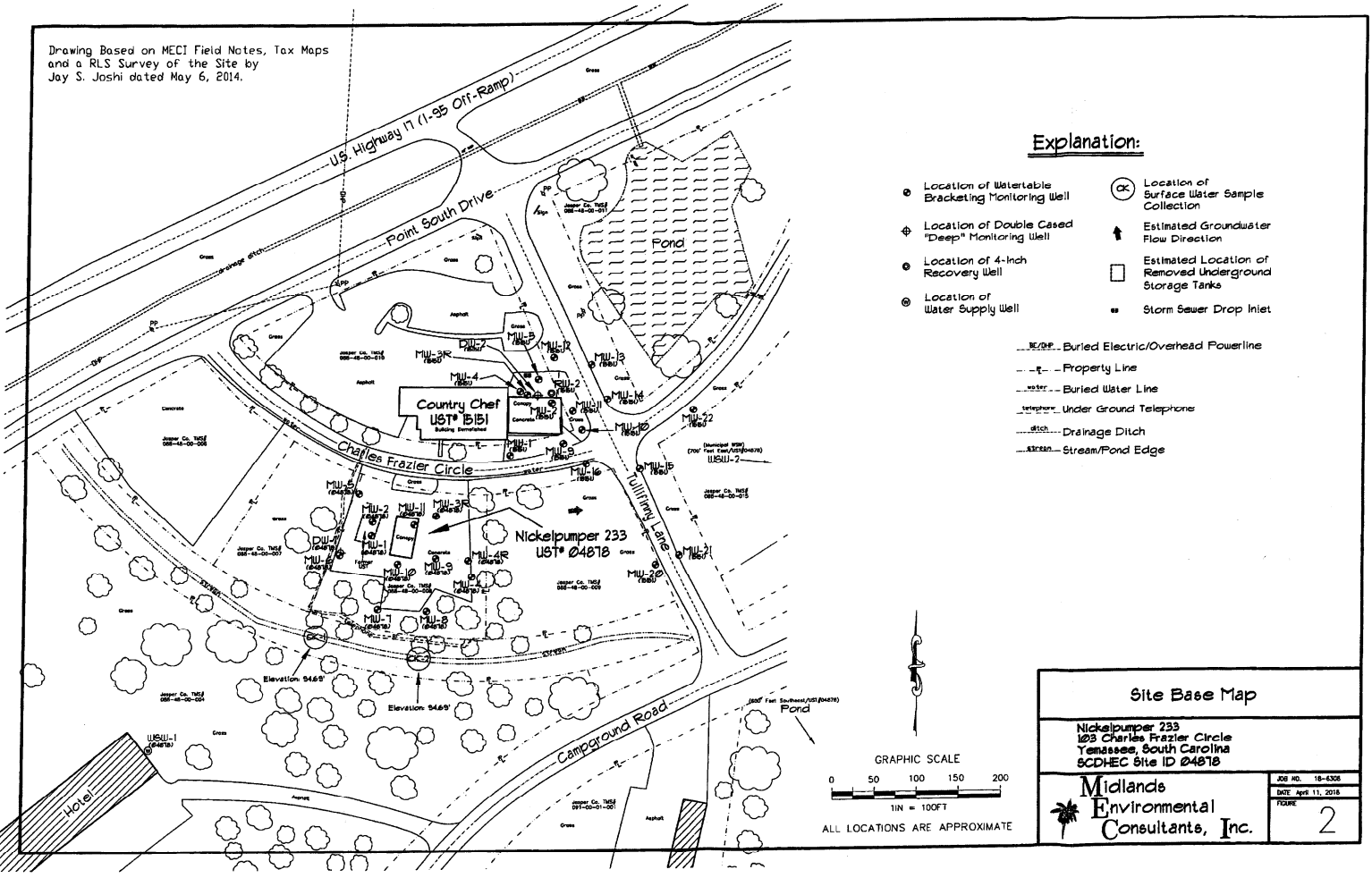
GN 0.06° E
MN 7.15° W

SCALE 1:24000



FEET

Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Water Table Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-Inch Recovery Well
- ⊗ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet
- Buried Electric/Overhead Powerline
- - - Property Line
- Buried Water Line
- Under Ground Telephone
- Drainage Ditch
- Stream/Pond Edge

Site Base Map

Nickelpumper 233
103 Charles Frazier Circle
Yemassee, South Carolina
SCDHEC Site ID 04818

Midlands
Environmental
Consultants, Inc.

JOB NO. 18-032
DATE: April 11, 2018
PAGE 2



Pace Analytical Services, LLC
9800 Kinsey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

July 30, 2018

Robert Dunn
SCHDEC
2600 Bull St
Columbia, SC 29201



RE: Project: NICKELPUMPER 233 04878/57351
Pace Project No.: 92392816

Dear Robert Dunn:

Enclosed are the analytical results for sample(s) received by the laboratory on July 21, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Trey Carter
treycarter@pacelabs.com
(704)875-9092
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



Pace Analytical Services, LLC
9800 Kinsey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: NICKELPUMPER 233 04878/57351
Pace Project No.: 92392816

Charlotte Certification IDs

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078
Louisiana/NELAP Certification # LA170028
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: NICKELPUMPER 233 04878/57351
Pace Project No.: 92392816

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92392816001	MW-1	Water	07/20/18 11:35	07/21/18 08:30
92392816002	MW-4	Water	07/20/18 11:25	07/21/18 08:30
92392816003	MW-5	Water	07/20/18 12:40	07/21/18 08:30
92392816004	MW-6	Water	07/20/18 12:00	07/21/18 08:30
92392816005	MW-7	Water	07/20/18 11:15	07/21/18 08:30
92392816006	MW-8	Water	07/20/18 11:20	07/21/18 08:30
92392816007	MW-9	Water	07/20/18 11:40	07/21/18 08:30
92392816008	MW-10	Water	07/20/18 11:45	07/21/18 08:30
92392816009	MW-11	Water	07/20/18 12:55	07/21/18 08:30
92392816010	DW-1	Water	07/20/18 12:30	07/21/18 08:30
92392816011	CK-1	Water	07/20/18 13:00	07/21/18 08:30
92392816012	CK-2	Water	07/20/18 13:05	07/21/18 08:30
92392816013	CK-3	Water	07/20/18 13:10	07/21/18 08:30
92392816014	CK-4	Water	07/20/18 13:15	07/21/18 08:30
92392816015	DUP 1	Water	07/20/18 11:35	07/21/18 08:30
92392816016	FIELD BLANK	Water	07/20/18 13:20	07/21/18 08:30
92392816017	TRIP BLANK	Water	07/20/18 13:22	07/21/18 08:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92392816001	MW-1	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816002	MW-4	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816003	MW-5	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816004	MW-6	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816005	MW-7	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816006	MW-8	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816007	MW-9	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816008	MW-10	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816009	MW-11	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816010	DW-1	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816011	CK-1	EPA 8011	SEM	2	PASI-C
		EPA 8260B	GAW	20	PASI-C
92392816012	CK-2	EPA 8011	SEM	2	PASI-C
		EPA 8260B	GAW	20	PASI-C
92392816013	CK-3	EPA 8011	SEM	2	PASI-C
		EPA 8260B	GAW	20	PASI-C
92392816014	CK-4	EPA 8011	SEM	2	PASI-C
		EPA 8260B	GAW	20	PASI-C
92392816015	DUP 1	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816016	FIELD BLANK	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
92392816017	TRIP BLANK	EPA 8260B	SAS	20	PASI-C

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SUMMARY OF DETECTION

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92392816001	MW-1					
EPA 8260B	tert-Amyl Alcohol	5400	ug/L	2000	07/27/18 18:21	
EPA 8260B	Benzene	1120	ug/L	100	07/27/18 18:21	M1
EPA 8260B	tert-Butyl Alcohol	2810	ug/L	2000	07/27/18 18:21	
EPA 8260B	Ethylbenzene	639	ug/L	100	07/27/18 18:21	M1
EPA 8260B	Methyl-tert-butyl ether	164	ug/L	100	07/27/18 18:21	
EPA 8260B	Naphthalene	308	ug/L	100	07/27/18 18:21	M1
EPA 8260B	Toluene	2280	ug/L	100	07/27/18 18:21	
EPA 8260B	Xylene (Total)	2540	ug/L	100	07/27/18 18:21	MS
EPA 8260B	m&p-Xylene	1920	ug/L	200	07/27/18 18:21	M1
EPA 8260B	o-Xylene	628	ug/L	100	07/27/18 18:21	M1
92392816003	MW-5					
EPA 8260B	tert-Butyl Alcohol	58.7J	ug/L	100	07/26/18 21:36	
92392816005	MW-7					
EPA 8260B	tert-Butyl Alcohol	57.9J	ug/L	100	07/26/18 22:12	
92392816008	MW-10					
EPA 8260B	Benzene	69.5	ug/L	25.0	07/27/18 18:39	
EPA 8260B	tert-Butyl Alcohol	319J	ug/L	500	07/27/18 18:39	
EPA 8260B	Ethylbenzene	743	ug/L	25.0	07/27/18 18:39	
EPA 8260B	Methyl-tert-butyl ether	20.3J	ug/L	25.0	07/27/18 18:39	
EPA 8260B	Naphthalene	414	ug/L	25.0	07/27/18 18:39	
EPA 8260B	Toluene	58.9	ug/L	25.0	07/27/18 18:39	
EPA 8260B	Xylene (Total)	1670	ug/L	25.0	07/27/18 18:39	
EPA 8260B	m&p-Xylene	1390	ug/L	50.0	07/27/18 18:39	
EPA 8260B	o-Xylene	279	ug/L	25.0	07/27/18 18:39	
92392816009	MW-11					
EPA 8260B	tert-Amyl Alcohol	2020	ug/L	1250	07/27/18 18:57	
EPA 8260B	Benzene	270	ug/L	62.5	07/27/18 18:57	
EPA 8260B	tert-Butyl Alcohol	756J	ug/L	1250	07/27/18 18:57	
EPA 8260B	Ethylbenzene	1130	ug/L	62.5	07/27/18 18:57	
EPA 8260B	Naphthalene	597	ug/L	62.5	07/27/18 18:57	
EPA 8260B	Toluene	212	ug/L	62.5	07/27/18 18:57	
EPA 8260B	Xylene (Total)	6260	ug/L	62.5	07/27/18 18:57	
EPA 8260B	m&p-Xylene	4300	ug/L	125	07/27/18 18:57	
EPA 8260B	o-Xylene	1960	ug/L	62.5	07/27/18 18:57	
92392816015	DUP 1					
EPA 8260B	tert-Amyl Alcohol	5160	ug/L	2000	07/27/18 19:15	
EPA 8260B	Benzene	1330	ug/L	100	07/27/18 19:15	
EPA 8260B	tert-Butyl Alcohol	2710	ug/L	2000	07/27/18 19:15	
EPA 8260B	Ethylbenzene	714	ug/L	100	07/27/18 19:15	
EPA 8260B	Methyl-tert-butyl ether	194	ug/L	100	07/27/18 19:15	
EPA 8260B	Naphthalene	382	ug/L	100	07/27/18 19:15	
EPA 8260B	Toluene	2680	ug/L	100	07/27/18 19:15	
EPA 8260B	Xylene (Total)	3100	ug/L	100	07/27/18 19:15	
EPA 8260B	m&p-Xylene	2310	ug/L	200	07/27/18 19:15	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92392816015	DUP 1					
EPA 8260B	o-Xylene	794	ug/L	100	07/27/18 19:15	
92392816016	FIELD BLANK					
EPA 8260B	tert-Butyl Alcohol	57.7J	ug/L	100	07/26/18 19:50	
EPA 8260B	Ethyl-tert-butyl ether	6.0J	ug/L	10.0	07/26/18 19:50	
92392816017	TRIP BLANK					
EPA 8260B	tert-Butyl Alcohol	58.4J	ug/L	100	07/26/18 20:08	
EPA 8260B	Ethyl-tert-butyl ether	6.0J	ug/L	10.0	07/26/18 20:08	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NICKELPUMPER 233 04878/57351
Pace Project No.: 92392816

Method: EPA 8011
Description: 8011 GCS EDB and DBCP
Client: SCDHEC
Date: July 30, 2018

General Information:

16 samples were analyzed for EPA 8011. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 8011 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 421206

R1: RPD value was outside control limits.

- LCSD (Lab ID: 2332782)
 - 1,2-Dibromoethane (EDB)

QC Batch: 421207

R1: RPD value was outside control limits.

- LCSD (Lab ID: 2332788)
 - 1,2-Dibromoethane (EDB)

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: NICKELPUMPER 233 04878/57351
Pace Project No.: 92392816

Method: EPA 8260B
Description: 8260 MSV Low Level SC
Client: SCDHEC
Date: July 30, 2018

General Information:

4 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 421266

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92392816012

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 2333135)
- tert-Butyl Formate

Additional Comments:

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PROJECT NARRATIVE

Project: NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Method: EPA 8260B
Description: 8260 MSV
Client: SCDHEC
Date: July 30, 2018

General Information:

13 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 421220

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92392781004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 2332859)
 - Ethylbenzene
 - m&p-Xylene
 - o-Xylene

P5: The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

- MS (Lab ID: 2332858)
 - tert-Butyl Formate
- MSD (Lab ID: 2332859)
 - tert-Butyl Formate

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PROJECT NARRATIVE

Project: NICKELPUMPER 233 04878/57351
Pace Project No.: 92392816

Method: EPA 8260B
Description: 8260 MSV
Client: SCDHEC
Date: July 30, 2018

QC Batch: 421543

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92392816001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2334383)
 - Benzene
 - Naphthalene
- MSD (Lab ID: 2334384)
 - Benzene
 - Ethylbenzene
 - m&p-Xylene
 - o-Xylene

P5: The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

- MS (Lab ID: 2334383)
 - tert-Butyl Formate
- MSD (Lab ID: 2334384)
 - tert-Butyl Formate

QC Batch: 421733

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92393080004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2335064)
 - Benzene
 - Ethylbenzene
 - m&p-Xylene
- MSD (Lab ID: 2335065)
 - Benzene
 - Ethylbenzene
 - m&p-Xylene
 - o-Xylene

P5: The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

- MS (Lab ID: 2335064)
 - tert-Butyl Formate
- MSD (Lab ID: 2335065)
 - tert-Butyl Formate

Additional Comments:

Analyte Comments:

QC Batch: 421220

2g: Initial calibration evaluation met acceptance criteria. Compound did not meet additional accuracy assessment for percent error for the following compounds

- LCS (Lab ID: 2332857)
 - 3,3-Dimethyl-1-Butanol
 - tert-Amyl Alcohol

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PROJECT NARRATIVE

Project: NICKELPUMPER 233 04878/57351
Pace Project No.: 92392816

Method: EPA 8260B
Description: 8260 MSV
Client: SCDHEC
Date: July 30, 2018

Analyte Comments:

QC Batch: 421220

2g: Initial calibration evaluation met acceptance criteria. Compound did not meet additional accuracy assessment for percent error for the following compounds

- LCS (Lab ID: 2332857)
- tert-Butyl Alcohol

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MSD (Lab ID: 2332859)
- m&p-Xylene

QC Batch: 421543

2g: Initial calibration evaluation met acceptance criteria. Compound did not meet additional accuracy assessment for percent error for the following compounds

- LCS (Lab ID: 2334382)
- 3,3-Dimethyl-1-Butanol
- tert-Amyl Alcohol
- tert-Butyl Alcohol

QC Batch: 421733

2g: Initial calibration evaluation met acceptance criteria. Compound did not meet additional accuracy assessment for percent error for the following compounds

- LCS (Lab ID: 2335063)
- 3,3-Dimethyl-1-Butanol
- tert-Amyl Alcohol
- tert-Butyl Alcohol

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: MW-1 Lab ID: 92392816001 Collected: 07/20/18 11:35 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 06:19	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	123	%	60-140		1	07/26/18 09:44	07/27/18 06:19	301-79-56	
8260 MSV Analytical Method: EPA 8260B									
tert-Amyl Alcohol	5400	ug/L	2000	1540	20		07/27/18 18:21	75-85-4	
tert-Amylmethyl ether	ND	ug/L	200	68.0	20		07/27/18 18:21	994-05-8	
Benzene	1120	ug/L	100	34.0	20		07/27/18 18:21	71-43-2	M1
3,3-Dimethyl-1-Butanol	ND	ug/L	2000	642	20		07/27/18 18:21	624-95-3	
tert-Butyl Alcohol	2810	ug/L	2000	1150	20		07/27/18 18:21	75-65-0	
tert-Butyl Formate	ND	ug/L	1000	146	20		07/27/18 18:21	762-75-4	P5
1,2-Dichloroethane	ND	ug/L	100	36.0	20		07/27/18 18:21	107-06-2	
Diisopropyl ether	ND	ug/L	100	34.0	20		07/27/18 18:21	108-20-3	
Ethanol	ND	ug/L	4000	2620	20		07/27/18 18:21	64-17-5	
Ethylbenzene	639	ug/L	100	32.0	20		07/27/18 18:21	100-41-4	M1
Ethyl-tert-butyl ether	ND	ug/L	200	72.0	20		07/27/18 18:21	637-92-3	
Methyl-tert-butyl ether	164	ug/L	100	34.0	20		07/27/18 18:21	1634-04-4	
Naphthalene	308	ug/L	100	40.0	20		07/27/18 18:21	91-20-3	M1
Toluene	2280	ug/L	100	32.0	20		07/27/18 18:21	108-88-3	
Xylene (Total)	2540	ug/L	100	100	20		07/27/18 18:21	1330-20-7	MS
m&p-Xylene	1920	ug/L	200	62.0	20		07/27/18 18:21	179601-23-1	M1
o-Xylene	628	ug/L	100	32.0	20		07/27/18 18:21	95-47-6	M1
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		20		07/27/18 18:21	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		20		07/27/18 18:21	17060-07-0	
Toluene-d8 (S)	101	%	70-130		20		07/27/18 18:21	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: MW-4 Lab ID: 92392816002 Collected: 07/20/18 11:25 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 06:37	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	108	%	60-140		1	07/26/18 09:44	07/27/18 06:37	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/28/18 17:28	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/28/18 17:28	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/28/18 17:28	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/28/18 17:28	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/28/18 17:28	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/28/18 17:28	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/28/18 17:28	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/28/18 17:28	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/28/18 17:28	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/28/18 17:28	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/28/18 17:28	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/28/18 17:28	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/28/18 17:28	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/28/18 17:28	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		07/28/18 17:28	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/28/18 17:28	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/28/18 17:28	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		07/28/18 17:28	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		07/28/18 17:28	17060-07-0	
Toluene-d8 (S)	98	%	70-130		1		07/28/18 17:28	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: MW-5 Lab ID: 92392816003 Collected: 07/20/18 12:40 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 06:55	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	111	%	60-140		1	07/26/18 09:44	07/27/18 06:55	301-79-56	
8260 MSV Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 21:36	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/26/18 21:36	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/26/18 21:36	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/26/18 21:36	624-95-3	
tert-Butyl Alcohol	58.7J	ug/L	100	57.7	1		07/26/18 21:36	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/26/18 21:36	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/26/18 21:36	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/26/18 21:36	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 21:36	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/26/18 21:36	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/26/18 21:36	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/26/18 21:36	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/26/18 21:36	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/26/18 21:36	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		07/26/18 21:36	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/26/18 21:36	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/26/18 21:36	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		07/26/18 21:36	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		07/26/18 21:36	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		07/26/18 21:36	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: MW-6 Lab ID: 92392816004 Collected: 07/20/18 12:00 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 13:52	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	116	%	60-140		1	07/26/18 09:44	07/27/18 13:52	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 21:54	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/26/18 21:54	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/26/18 21:54	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/26/18 21:54	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/26/18 21:54	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/26/18 21:54	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/26/18 21:54	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/26/18 21:54	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 21:54	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/26/18 21:54	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/26/18 21:54	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/26/18 21:54	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/26/18 21:54	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/26/18 21:54	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		07/26/18 21:54	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/26/18 21:54	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/26/18 21:54	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		07/26/18 21:54	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		07/26/18 21:54	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		07/26/18 21:54	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: MW-7 Lab ID: 92392816005 Collected: 07/20/18 11:15 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 15:01	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	103	%	60-140		1	07/26/18 09:44	07/27/18 15:01	301-79-56	
8260 MSV Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 22:12	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/26/18 22:12	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/26/18 22:12	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/26/18 22:12	624-95-3	
tert-Butyl Alcohol	57.9J	ug/L	100	57.7	1		07/26/18 22:12	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/26/18 22:12	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/26/18 22:12	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/26/18 22:12	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 22:12	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/26/18 22:12	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/26/18 22:12	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/26/18 22:12	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/26/18 22:12	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/26/18 22:12	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		07/26/18 22:12	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/26/18 22:12	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/26/18 22:12	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		07/26/18 22:12	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		07/26/18 22:12	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		07/26/18 22:12	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: MW-8 Lab ID: 92392816006 Collected: 07/20/18 11:20 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 15:19	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	117	%	60-140		1	07/26/18 09:44	07/27/18 15:19	301-79-56	
8260 MSV									
Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 22:29	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/26/18 22:29	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/26/18 22:29	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/26/18 22:29	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/26/18 22:29	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/26/18 22:29	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/26/18 22:29	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/26/18 22:29	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 22:29	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/26/18 22:29	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/26/18 22:29	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/26/18 22:29	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/26/18 22:29	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/26/18 22:29	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		07/26/18 22:29	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/26/18 22:29	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/26/18 22:29	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		07/26/18 22:29	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		07/26/18 22:29	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		07/26/18 22:29	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: MW-9 Lab ID: 92392816007 Collected: 07/20/18 11:40 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 15:38	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	114	%	60-140		1	07/26/18 09:44	07/27/18 15:38	301-79-56	
8260 MSV									
Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/27/18 16:17	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/27/18 16:17	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/27/18 16:17	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/27/18 16:17	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/27/18 16:17	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/27/18 16:17	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/27/18 16:17	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/27/18 16:17	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/27/18 16:17	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/27/18 16:17	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/27/18 16:17	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/27/18 16:17	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/27/18 16:17	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/27/18 16:17	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		07/27/18 16:17	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/27/18 16:17	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/27/18 16:17	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		07/27/18 16:17	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		07/27/18 16:17	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		07/27/18 16:17	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: MW-10 Lab ID: 92392816008 Collected: 07/20/18 11:45 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 15:57	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	115	%	60-140		1	07/26/18 09:44	07/27/18 15:57	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	500	384	5		07/27/18 18:39	75-85-4	
tert-Amylmethyl ether	ND	ug/L	50.0	17.0	5		07/27/18 18:39	994-05-8	
Benzene	69.5	ug/L	25.0	8.5	5		07/27/18 18:39	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	500	160	5		07/27/18 18:39	624-95-3	
tert-Butyl Alcohol	319J	ug/L	500	288	5		07/27/18 18:39	75-65-0	
tert-Butyl Formate	ND	ug/L	250	36.5	5		07/27/18 18:39	762-75-4	
1,2-Dichloroethane	ND	ug/L	25.0	9.0	5		07/27/18 18:39	107-06-2	
Diisopropyl ether	ND	ug/L	25.0	8.5	5		07/27/18 18:39	108-20-3	
Ethanol	ND	ug/L	1000	655	5		07/27/18 18:39	64-17-5	
Ethylbenzene	743	ug/L	25.0	8.0	5		07/27/18 18:39	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50.0	18.0	5		07/27/18 18:39	637-92-3	
Methyl-tert-butyl ether	20.3J	ug/L	25.0	8.5	5		07/27/18 18:39	1634-04-4	
Naphthalene	414	ug/L	25.0	10.0	5		07/27/18 18:39	91-20-3	
Toluene	58.9	ug/L	25.0	8.0	5		07/27/18 18:39	108-88-3	
Xylene (Total)	1670	ug/L	25.0	25.0	5		07/27/18 18:39	1330-20-7	
m&p-Xylene	1390	ug/L	50.0	15.5	5		07/27/18 18:39	179601-23-1	
o-Xylene	279	ug/L	25.0	8.0	5		07/27/18 18:39	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		5		07/27/18 18:39	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130		5		07/27/18 18:39	17060-07-0	
Toluene-d8 (S)	109	%	70-130		5		07/27/18 18:39	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: MW-11 Lab ID: 92392816009 Collected: 07/20/18 12:55 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 16:16	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	111	%	60-140		1	07/26/18 09:44	07/27/18 16:16	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	2020	ug/L	1250	960	12.5		07/27/18 18:57	75-85-4	
tert-Amylmethyl ether	ND	ug/L	125	42.5	12.5		07/27/18 18:57	994-05-8	
Benzene	270	ug/L	62.5	21.2	12.5		07/27/18 18:57	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	1250	401	12.5		07/27/18 18:57	624-95-3	
tert-Butyl Alcohol	756J	ug/L	1250	721	12.5		07/27/18 18:57	75-65-0	
tert-Butyl Formate	ND	ug/L	625	91.2	12.5		07/27/18 18:57	762-75-4	
1,2-Dichloroethane	ND	ug/L	62.5	22.5	12.5		07/27/18 18:57	107-06-2	
Diisopropyl ether	ND	ug/L	62.5	21.2	12.5		07/27/18 18:57	108-20-3	
Ethanol	ND	ug/L	2500	1640	12.5		07/27/18 18:57	64-17-5	
Ethylbenzene	1130	ug/L	62.5	20.0	12.5		07/27/18 18:57	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	125	45.0	12.5		07/27/18 18:57	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	62.5	21.2	12.5		07/27/18 18:57	1634-04-4	
Naphthalene	597	ug/L	62.5	25.0	12.5		07/27/18 18:57	91-20-3	
Toluene	212	ug/L	62.5	20.0	12.5		07/27/18 18:57	108-88-3	
Xylene (Total)	6260	ug/L	62.5	62.5	12.5		07/27/18 18:57	1330-20-7	
m&p-Xylene	4300	ug/L	125	38.8	12.5		07/27/18 18:57	179601-23-1	
o-Xylene	1960	ug/L	62.5	20.0	12.5		07/27/18 18:57	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		12.5		07/27/18 18:57	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130		12.5		07/27/18 18:57	17060-07-0	
Toluene-d8 (S)	104	%	70-130		12.5		07/27/18 18:57	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: DW-1 Lab ID: 92392816010 Collected: 07/20/18 12:30 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 16:34	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	110	%	60-140		1	07/26/18 09:44	07/27/18 16:34	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 22:47	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/26/18 22:47	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/26/18 22:47	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/26/18 22:47	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/26/18 22:47	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/26/18 22:47	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/26/18 22:47	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/26/18 22:47	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 22:47	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/26/18 22:47	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/26/18 22:47	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/26/18 22:47	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/26/18 22:47	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/26/18 22:47	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		07/26/18 22:47	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/26/18 22:47	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/26/18 22:47	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		07/26/18 22:47	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		07/26/18 22:47	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		07/26/18 22:47	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: CK-1 Lab ID: 92392816011 Collected: 07/20/18 13:00 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 16:54	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	103	%	60-140		1	07/26/18 09:44	07/27/18 16:54	301-79-56	
8260 MSV Low Level SC		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		07/26/18 18:23	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		07/26/18 18:23	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		07/26/18 18:23	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		07/26/18 18:23	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		07/26/18 18:23	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		07/26/18 18:23	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		07/26/18 18:23	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		07/26/18 18:23	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 18:23	64-17-5	
Ethylbenzene	ND	ug/L	1.0	0.30	1		07/26/18 18:23	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		07/26/18 18:23	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		07/26/18 18:23	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		07/26/18 18:23	91-20-3	
Toluene	ND	ug/L	1.0	0.26	1		07/26/18 18:23	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1.0	1		07/26/18 18:23	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		07/26/18 18:23	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		07/26/18 18:23	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		07/26/18 18:23	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	70-130		1		07/26/18 18:23	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		07/26/18 18:23	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: CK-2 Lab ID: 92392816012 Collected: 07/20/18 13:05 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 17:12	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	109	%	60-140		1	07/26/18 09:44	07/27/18 17:12	301-79-56	
8260 MSV Low Level SC		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		07/26/18 18:40	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		07/26/18 18:40	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		07/26/18 18:40	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		07/26/18 18:40	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		07/26/18 18:40	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		07/26/18 18:40	762-75-4	M1
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		07/26/18 18:40	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		07/26/18 18:40	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 18:40	64-17-5	
Ethylbenzene	ND	ug/L	1.0	0.30	1		07/26/18 18:40	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		07/26/18 18:40	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		07/26/18 18:40	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		07/26/18 18:40	91-20-3	
Toluene	ND	ug/L	1.0	0.26	1		07/26/18 18:40	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1.0	1		07/26/18 18:40	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		07/26/18 18:40	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		07/26/18 18:40	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130		1		07/26/18 18:40	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	70-130		1		07/26/18 18:40	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		07/26/18 18:40	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: CK-3 Lab ID: 92392816013 Collected: 07/20/18 13:10 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 17:31	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	108	%	60-140		1	07/26/18 09:44	07/27/18 17:31	301-79-56	
8260 MSV Low Level SC		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		07/26/18 18:57	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		07/26/18 18:57	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		07/26/18 18:57	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		07/26/18 18:57	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		07/26/18 18:57	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		07/26/18 18:57	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		07/26/18 18:57	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		07/26/18 18:57	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 18:57	64-17-5	
Ethylbenzene	ND	ug/L	1.0	0.30	1		07/26/18 18:57	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		07/26/18 18:57	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		07/26/18 18:57	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		07/26/18 18:57	91-20-3	
Toluene	ND	ug/L	1.0	0.26	1		07/26/18 18:57	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1.0	1		07/26/18 18:57	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		07/26/18 18:57	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		07/26/18 18:57	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		07/26/18 18:57	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	70-130		1		07/26/18 18:57	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		07/26/18 18:57	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: CK-4 Lab ID: 92392816014 Collected: 07/20/18 13:15 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 17:51	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	107	%	60-140		1	07/26/18 09:44	07/27/18 17:51	301-79-56	
8260 MSV Low Level SC		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		07/26/18 19:13	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		07/26/18 19:13	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		07/26/18 19:13	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		07/26/18 19:13	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		07/26/18 19:13	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		07/26/18 19:13	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	0.24	1		07/26/18 19:13	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		07/26/18 19:13	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 19:13	64-17-5	
Ethylbenzene	ND	ug/L	1.0	0.30	1		07/26/18 19:13	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		07/26/18 19:13	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		07/26/18 19:13	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		07/26/18 19:13	91-20-3	
Toluene	ND	ug/L	1.0	0.26	1		07/26/18 19:13	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1.0	1		07/26/18 19:13	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		07/26/18 19:13	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		07/26/18 19:13	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		07/26/18 19:13	460-00-4	
1,2-Dichloroethane-d4 (S)	112	%	70-130		1		07/26/18 19:13	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		07/26/18 19:13	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: DUP 1 Lab ID: 92392816015 Collected: 07/20/18 11:35 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 18:09	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	124	%	60-140		1	07/26/18 09:44	07/27/18 18:09	301-79-56	
8260 MSV Analytical Method: EPA 8260B									
tert-Amyl Alcohol	5160	ug/L	2000	1540	20		07/27/18 19:15	75-85-4	
tert-Amylmethyl ether	ND	ug/L	200	68.0	20		07/27/18 19:15	994-05-8	
Benzene	1330	ug/L	100	34.0	20		07/27/18 19:15	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	2000	642	20		07/27/18 19:15	624-95-3	
tert-Butyl Alcohol	2710	ug/L	2000	1150	20		07/27/18 19:15	75-65-0	
tert-Butyl Formate	ND	ug/L	1000	146	20		07/27/18 19:15	762-75-4	
1,2-Dichloroethane	ND	ug/L	100	36.0	20		07/27/18 19:15	107-06-2	
Diisopropyl ether	ND	ug/L	100	34.0	20		07/27/18 19:15	108-20-3	
Ethanol	ND	ug/L	4000	2620	20		07/27/18 19:15	64-17-5	
Ethylbenzene	714	ug/L	100	32.0	20		07/27/18 19:15	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	200	72.0	20		07/27/18 19:15	637-92-3	
Methyl-tert-butyl ether	194	ug/L	100	34.0	20		07/27/18 19:15	1634-04-4	
Naphthalene	382	ug/L	100	40.0	20		07/27/18 19:15	91-20-3	
Toluene	2680	ug/L	100	32.0	20		07/27/18 19:15	108-88-3	
Xylene (Total)	3100	ug/L	100	100	20		07/27/18 19:15	1330-20-7	
m&p-Xylene	2310	ug/L	200	62.0	20		07/27/18 19:15	179601-23-1	
o-Xylene	794	ug/L	100	32.0	20		07/27/18 19:15	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		20		07/27/18 19:15	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		20		07/27/18 19:15	17060-07-0	
Toluene-d8 (S)	100	%	70-130		20		07/27/18 19:15	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: FIELD BLANK Lab ID: 92392816016 Collected: 07/20/18 13:20 Received: 07/21/18 08:30 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 10:58	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	108	%	60-140		1	07/26/18 09:44	07/27/18 10:58	301-79-56	
8260 MSV Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 19:50	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/26/18 19:50	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/26/18 19:50	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/26/18 19:50	624-95-3	
tert-Butyl Alcohol	57.7J	ug/L	100	57.7	1		07/26/18 19:50	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/26/18 19:50	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/26/18 19:50	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/26/18 19:50	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 19:50	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/26/18 19:50	100-41-4	
Ethyl-tert-butyl ether	6.0J	ug/L	10.0	3.6	1		07/26/18 19:50	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/26/18 19:50	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/26/18 19:50	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/26/18 19:50	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		07/26/18 19:50	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/26/18 19:50	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/26/18 19:50	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		1		07/26/18 19:50	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		07/26/18 19:50	17060-07-0	
Toluene-d8 (S)	103	%	70-130		1		07/26/18 19:50	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Sample: TRIP BLANK Lab ID: 92392816017 Collected: 07/20/18 13:22 Received: 07/21/18 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 20:08	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/26/18 20:08	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/26/18 20:08	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/26/18 20:08	624-95-3	
tert-Butyl Alcohol	58.4J	ug/L	100	57.7	1		07/26/18 20:08	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/26/18 20:08	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/26/18 20:08	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/26/18 20:08	108-20-3	
Ethanol	ND	ug/L	200	131	1		07/26/18 20:08	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/26/18 20:08	100-41-4	
Ethyl-tert-butyl ether	6.0J	ug/L	10.0	3.6	1		07/26/18 20:08	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/26/18 20:08	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/26/18 20:08	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/26/18 20:08	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		07/26/18 20:08	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/26/18 20:08	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/26/18 20:08	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		1		07/26/18 20:08	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		07/26/18 20:08	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		07/26/18 20:08	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

QC Batch: 421266 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Low Level SC
 Associated Lab Samples: 92392816011, 92392816012, 92392816013, 92392816014

METHOD BLANK: 2333132 Matrix: Water
 Associated Lab Samples: 92392816011, 92392816012, 92392816013, 92392816014

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	1.0	0.24	07/26/18 10:14	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	50.0	07/26/18 10:14	
Benzene	ug/L	ND	1.0	0.25	07/26/18 10:14	
Diisopropyl ether	ug/L	ND	1.0	0.12	07/26/18 10:14	
Ethanol	ug/L	ND	200	131	07/26/18 10:14	
Ethyl-tert-butyl ether	ug/L	ND	10.0	0.070	07/26/18 10:14	
Ethylbenzene	ug/L	ND	1.0	0.30	07/26/18 10:14	
m&p-Xylene	ug/L	ND	2.0	0.66	07/26/18 10:14	
Methyl-tert-butyl ether	ug/L	ND	1.0	0.21	07/26/18 10:14	
Naphthalene	ug/L	ND	1.0	0.24	07/26/18 10:14	
o-Xylene	ug/L	ND	1.0	0.23	07/26/18 10:14	
tert-Amyl Alcohol	ug/L	ND	100	50.0	07/26/18 10:14	
tert-Amylmethyl ether	ug/L	ND	10.0	0.10	07/26/18 10:14	
tert-Butyl Alcohol	ug/L	ND	100	3.6	07/26/18 10:14	
tert-Butyl Formate	ug/L	ND	50.0	1.9	07/26/18 10:14	
Toluene	ug/L	ND	1.0	0.26	07/26/18 10:14	
Xylene (Total)	ug/L	ND	1.0	1.0	07/26/18 10:14	
1,2-Dichloroethane-d4 (S)	%	108	70-130		07/26/18 10:14	
4-Bromofluorobenzene (S)	%	102	70-130		07/26/18 10:14	
Toluene-d8 (S)	%	107	70-130		07/26/18 10:14	

LABORATORY CONTROL SAMPLE: 2333133

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	57.9	116	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	812	81	70-130	
Benzene	ug/L	50	57.3	115	70-130	
Diisopropyl ether	ug/L	50	63.7	127	70-130	
Ethanol	ug/L	2000	2390	120	70-130	
Ethyl-tert-butyl ether	ug/L	100	125	125	70-130	
Ethylbenzene	ug/L	50	51.7	103	70-130	
m&p-Xylene	ug/L	100	105	105	70-130	
Methyl-tert-butyl ether	ug/L	50	62.3	125	70-130	
Naphthalene	ug/L	50	49.8	100	70-130	
o-Xylene	ug/L	50	53.1	106	70-130	
tert-Amyl Alcohol	ug/L	1000	1120	112	70-130	
tert-Amylmethyl ether	ug/L	100	114	114	70-130	
tert-Butyl Alcohol	ug/L	500	577	115	70-130	
tert-Butyl Formate	ug/L	400	501	125	70-130	
Toluene	ug/L	50	50.0	100	70-130	

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

LABORATORY CONTROL SAMPLE: 2333133

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	158	105	70-130	
1,2-Dichloroethane-d4 (S)	%			104	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2333134 2333135

Parameter	Units	92392816012		2333134		2333135		% Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
1,2-Dichloroethane	ug/L	ND	20	20	21.3	21.8	107	109	70-130	3	30		
3,3-Dimethyl-1-Butanol	ug/L	ND	400	400	453	500	113	125	70-130	10	30		
Benzene	ug/L	ND	20	20	22.8	23.0	114	115	70-130	1	30		
Diisopropyl ether	ug/L	ND	20	20	22.0	22.9	110	114	70-130	4	30		
Ethanol	ug/L	ND	800	800	926	1020	116	127	70-130	10	30		
Ethyl-tert-butyl ether	ug/L	ND	40	40	42.5	43.7	106	109	70-130	3	30		
Ethylbenzene	ug/L	ND	20	20	22.4	23.2	112	116	70-130	3	30		
m&p-Xylene	ug/L	ND	40	40	45.0	45.5	113	114	70-130	1	30		
Methyl-tert-butyl ether	ug/L	ND	20	20	21.8	22.5	109	112	70-130	3	30		
Naphthalene	ug/L	ND	20	20	21.1	21.1	105	105	70-130	0	30		
o-Xylene	ug/L	ND	20	20	22.3	22.5	111	113	70-130	1	30		
tert-Amyl Alcohol	ug/L	ND	400	400	465	512	116	128	70-130	10	30		
tert-Amylmethyl ether	ug/L	ND	40	40	43.7	45.3	109	113	70-130	4	30		
tert-Butyl Alcohol	ug/L	ND	200	200	219	256	110	128	70-130	15	30		
tert-Butyl Formate	ug/L	ND	160	160	120	95.0	75	59	70-130	23	30	M1	
Toluene	ug/L	ND	20	20	22.0	22.6	110	113	70-130	3	30		
Xylene (Total)	ug/L	ND	60	60	67.3	68.0	112	113	70-130	1	30		
1,2-Dichloroethane-d4 (S)	%						101	102	70-130				
4-Bromofluorobenzene (S)	%						100	101	70-130				
Toluene-d8 (S)	%						99	100	70-130				

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

QC Batch: 421220 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92392816003, 92392816004, 92392816005, 92392816006, 92392816010, 92392816016, 92392816017

METHOD BLANK: 2332856 Matrix: Water
 Associated Lab Samples: 92392816003, 92392816004, 92392816005, 92392816006, 92392816010, 92392816016, 92392816017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	1.8	07/26/18 19:32	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	32.1	07/26/18 19:32	
Benzene	ug/L	ND	5.0	1.7	07/26/18 19:32	
Diisopropyl ether	ug/L	ND	5.0	1.7	07/26/18 19:32	
Ethanol	ug/L	ND	200	131	07/26/18 19:32	
Ethyl-tert-butyl ether	ug/L	ND	10.0	3.6	07/26/18 19:32	
Ethylbenzene	ug/L	ND	5.0	1.6	07/26/18 19:32	
m&p-Xylene	ug/L	ND	10.0	3.1	07/26/18 19:32	
Methyl-tert-butyl ether	ug/L	ND	5.0	1.7	07/26/18 19:32	
Naphthalene	ug/L	ND	5.0	2.0	07/26/18 19:32	
o-Xylene	ug/L	ND	5.0	1.6	07/26/18 19:32	
tert-Amyl Alcohol	ug/L	ND	100	76.8	07/26/18 19:32	
tert-Amylmethyl ether	ug/L	ND	10.0	3.4	07/26/18 19:32	
tert-Butyl Alcohol	ug/L	ND	100	57.7	07/26/18 19:32	
tert-Butyl Formate	ug/L	ND	50.0	7.3	07/26/18 19:32	
Toluene	ug/L	ND	5.0	1.6	07/26/18 19:32	
Xylene (Total)	ug/L	ND	5.0	5.0	07/26/18 19:32	
1,2-Dichloroethane-d4 (S)	%	95	70-130		07/26/18 19:32	
4-Bromofluorobenzene (S)	%	100	70-130		07/26/18 19:32	
Toluene-d8 (S)	%	104	70-130		07/26/18 19:32	

LABORATORY CONTROL SAMPLE: 2332857

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	52.7	105	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	981	98	70-130 2g	
Benzene	ug/L	50	55.5	111	70-130	
Diisopropyl ether	ug/L	50	48.2	96	70-130	
Ethanol	ug/L	2000	2160	108	70-130	
Ethyl-tert-butyl ether	ug/L	100	94.3	94	70-130	
Ethylbenzene	ug/L	50	53.3	107	70-130	
m&p-Xylene	ug/L	100	108	108	70-130	
Methyl-tert-butyl ether	ug/L	50	47.4	95	70-130	
Naphthalene	ug/L	50	54.7	109	70-130	
o-Xylene	ug/L	50	54.4	109	70-130	
tert-Amyl Alcohol	ug/L	1000	1000	100	70-130 2g	
tert-Amylmethyl ether	ug/L	100	109	109	70-130	
tert-Butyl Alcohol	ug/L	500	466	93	70-130 2g	
tert-Butyl Formate	ug/L	400	401	100	70-130	
Toluene	ug/L	50	50.8	102	70-130	

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

LABORATORY CONTROL SAMPLE: 2332857

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	163	109	70-130	
1,2-Dichloroethane-d4 (S)	%			104	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			95	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2332858 2332859

Parameter	Units	2332858		2332859		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual	
		92392781004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						MSD Result
1,2-Dichloroethane	ug/L	ND	250	250	302	292	121	117	70-130	3	30
3,3-Dimethyl-1-Butanol	ug/L	ND	5000	5000	5320	5630	106	113	70-130	6	30
Benzene	ug/L	ND	250	250	316	320	127	128	70-130	1	30
Diisopropyl ether	ug/L	ND	250	250	267	265	107	106	70-130	1	30
Ethanol	ug/L	ND	10000	10000	11800	12200	118	122	70-130	3	30
Ethyl-tert-butyl ether	ug/L	ND	500	500	495	498	99	100	70-130	1	30
Ethylbenzene	ug/L	1130	250	250	1420	1470	115	134	70-130	3	30 M1
m&p-Xylene	ug/L	4300	500	500	4840	5010	107	141	70-130	3	30 E,M1
Methyl-tert-butyl ether	ug/L	ND	250	250	259	258	104	103	70-130	0	30
Naphthalene	ug/L	662	250	250	893	949	92	115	70-130	6	30
o-Xylene	ug/L	2120	250	250	2420	2490	120	151	70-130	3	30 M1
tert-Amyl Alcohol	ug/L	ND	5000	5000	5270	5490	105	110	70-130	4	30
tert-Amylmethyl ether	ug/L	ND	500	500	562	572	112	114	70-130	2	30
tert-Butyl Alcohol	ug/L	ND	2500	2500	2930	3000	117	120	70-130	2	30
tert-Butyl Formate	ug/L	ND	2000	2000	811	801	41	40	70-130	1	30 P5
Toluene	ug/L	318	250	250	596	617	111	120	70-130	3	30
Xylene (Total)	ug/L	6420	750	750	7250	7500	111	144	70-130	3	30 ES,MS
1,2-Dichloroethane-d4 (S)	%						104	102	70-130		
4-Bromofluorobenzene (S)	%						99	100	70-130		
Toluene-d8 (S)	%						100	99	70-130		

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

QC Batch: 421543 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92392816001, 92392816007, 92392816008, 92392816009, 92392816015

METHOD BLANK: 2334381 Matrix: Water
 Associated Lab Samples: 92392816001, 92392816007, 92392816008, 92392816009, 92392816015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	1.8	07/27/18 15:06	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	32.1	07/27/18 15:06	
Benzene	ug/L	ND	5.0	1.7	07/27/18 15:06	
Diisopropyl ether	ug/L	ND	5.0	1.7	07/27/18 15:06	
Ethanol	ug/L	ND	200	131	07/27/18 15:06	
Ethyl-tert-butyl ether	ug/L	ND	10.0	3.6	07/27/18 15:06	
Ethylbenzene	ug/L	ND	5.0	1.6	07/27/18 15:06	
m&p-Xylene	ug/L	ND	10.0	3.1	07/27/18 15:06	
Methyl-tert-butyl ether	ug/L	ND	5.0	1.7	07/27/18 15:06	
Naphthalene	ug/L	ND	5.0	2.0	07/27/18 15:06	
o-Xylene	ug/L	ND	5.0	1.6	07/27/18 15:06	
tert-Amyl Alcohol	ug/L	ND	100	76.8	07/27/18 15:06	
tert-Amylmethyl ether	ug/L	ND	10.0	3.4	07/27/18 15:06	
tert-Butyl Alcohol	ug/L	ND	100	57.7	07/27/18 15:06	
tert-Butyl Formate	ug/L	ND	50.0	7.3	07/27/18 15:06	
Toluene	ug/L	ND	5.0	1.6	07/27/18 15:06	
Xylene (Total)	ug/L	ND	5.0	5.0	07/27/18 15:06	
1,2-Dichloroethane-d4 (S)	%	95	70-130		07/27/18 15:06	
4-Bromofluorobenzene (S)	%	101	70-130		07/27/18 15:06	
Toluene-d8 (S)	%	102	70-130		07/27/18 15:06	

LABORATORY CONTROL SAMPLE: 2334382

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	53.4	107	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	948	95	70-130 2g	
Benzene	ug/L	50	57.8	116	70-130	
Diisopropyl ether	ug/L	50	48.7	97	70-130	
Ethanol	ug/L	2000	2210	111	70-130	
Ethyl-tert-butyl ether	ug/L	100	94.5	95	70-130	
Ethylbenzene	ug/L	50	52.7	105	70-130	
m&p-Xylene	ug/L	100	108	108	70-130	
Methyl-tert-butyl ether	ug/L	50	48.2	96	70-130	
Naphthalene	ug/L	50	53.4	107	70-130	
o-Xylene	ug/L	50	55.1	110	70-130	
tert-Amyl Alcohol	ug/L	1000	987	99	70-130 2g	
tert-Amylmethyl ether	ug/L	100	112	112	70-130	
tert-Butyl Alcohol	ug/L	500	417	83	70-130 2g	
tert-Butyl Formate	ug/L	400	405	101	70-130	
Toluene	ug/L	50	52.2	104	70-130	

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

LABORATORY CONTROL SAMPLE: 2334382

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	163	109	70-130	
1,2-Dichloroethane-d4 (S)	%			110	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2334383 2334384

Parameter	Units	2334383		2334384		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Max RPD	Qual	
		92392816001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
1,2-Dichloroethane	ug/L	ND	400	400	464	472	116	118	70-130	2	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	8000	8000	8730	9070	109	113	70-130	4	30	
Benzene	ug/L	1120	400	400	1700	1820	145	174	70-130	7	30	M1
Diisopropyl ether	ug/L	ND	400	400	439	443	110	111	70-130	1	30	
Ethanol	ug/L	ND	16000	16000	19200	19600	120	122	70-130	2	30	
Ethyl-tert-butyl ether	ug/L	ND	800	800	825	831	103	104	70-130	1	30	
Ethylbenzene	ug/L	639	400	400	1120	1180	120	134	70-130	5	30	M1
m&p-Xylene	ug/L	1920	800	800	2870	3040	119	140	70-130	6	30	M1
Methyl-tert-butyl ether	ug/L	164	400	400	547	585	96	105	70-130	7	30	
Naphthalene	ug/L	308	400	400	855	815	137	127	70-130	5	30	M1
o-Xylene	ug/L	628	400	400	1110	1170	120	136	70-130	6	30	M1
tert-Amyl Alcohol	ug/L	5400	8000	8000	12800	13400	93	100	70-130	5	30	
tert-Amylmethyl ether	ug/L	ND	800	800	913	967	114	121	70-130	6	30	
tert-Butyl Alcohol	ug/L	2810	4000	4000	6690	6690	97	97	70-130	0	30	
tert-Butyl Formate	ug/L	ND	3200	3200	2100	2090	65	65	70-130	0	30	P5
Toluene	ug/L	2280	400	400	2600	2800	79	130	70-130	8	30	
Xylene (Total)	ug/L	2540	1200	1200	3980	4210	119	139	70-130	6	30	MS
1,2-Dichloroethane-d4 (S)	%						104	103	70-130			
4-Bromofluorobenzene (S)	%						99	102	70-130			
Toluene-d8 (S)	%						96	99	70-130			

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

QC Batch: 421733 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92392816002

METHOD BLANK: 2335062 Matrix: Water
 Associated Lab Samples: 92392816002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	1.8	07/28/18 16:00	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	32.1	07/28/18 16:00	
Benzene	ug/L	ND	5.0	1.7	07/28/18 16:00	
Diisopropyl ether	ug/L	ND	5.0	1.7	07/28/18 16:00	
Ethanol	ug/L	ND	200	131	07/28/18 16:00	
Ethyl-tert-butyl ether	ug/L	ND	10.0	3.6	07/28/18 16:00	
Ethylbenzene	ug/L	ND	5.0	1.6	07/28/18 16:00	
m&p-Xylene	ug/L	ND	10.0	3.1	07/28/18 16:00	
Methyl-tert-butyl ether	ug/L	ND	5.0	1.7	07/28/18 16:00	
Naphthalene	ug/L	ND	5.0	2.0	07/28/18 16:00	
o-Xylene	ug/L	ND	5.0	1.6	07/28/18 16:00	
tert-Amyl Alcohol	ug/L	ND	100	76.8	07/28/18 16:00	
tert-Amylmethyl ether	ug/L	ND	10.0	3.4	07/28/18 16:00	
tert-Butyl Alcohol	ug/L	ND	100	57.7	07/28/18 16:00	
tert-Butyl Formate	ug/L	ND	50.0	7.3	07/28/18 16:00	
Toluene	ug/L	ND	5.0	1.6	07/28/18 16:00	
Xylene (Total)	ug/L	ND	5.0	5.0	07/28/18 16:00	
1,2-Dichloroethane-d4 (S)	%	95	70-130		07/28/18 16:00	
4-Bromofluorobenzene (S)	%	102	70-130		07/28/18 16:00	
Toluene-d8 (S)	%	101	70-130		07/28/18 16:00	

LABORATORY CONTROL SAMPLE: 2335063

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	53.9	108	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	952	95	70-130 2g	
Benzene	ug/L	50	58.2	116	70-130	
Diisopropyl ether	ug/L	50	48.6	97	70-130	
Ethanol	ug/L	2000	2290	114	70-130	
Ethyl-tert-butyl ether	ug/L	100	94.9	95	70-130	
Ethylbenzene	ug/L	50	52.9	106	70-130	
m&p-Xylene	ug/L	100	108	108	70-130	
Methyl-tert-butyl ether	ug/L	50	47.6	95	70-130	
Naphthalene	ug/L	50	53.2	106	70-130	
o-Xylene	ug/L	50	54.4	109	70-130	
tert-Amyl Alcohol	ug/L	1000	983	98	70-130 2g	
tert-Amylmethyl ether	ug/L	100	110	110	70-130	
tert-Butyl Alcohol	ug/L	500	403	81	70-130 2g	
tert-Butyl Formate	ug/L	400	408	102	70-130	
Toluene	ug/L	50	51.7	103	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

LABORATORY CONTROL SAMPLE: 2335063

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	163	108	70-130	
1,2-Dichloroethane-d4 (S)	%			112	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2335064 2335065

Parameter	Units	MS 92393080004		MSD		MS 2335065		MSD		% Rec Limits	Max	
		Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	% Rec	% Rec	RPD		RPD	Qual
1,2-Dichloroethane	ug/L	ND	400	400	492	463	123	116	70-130	6	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	8000	8000	8690	9150	109	114	70-130	5	30	
Benzene	ug/L	548	400	400	1100	1130	138	145	70-130	3	30	M1
Diisopropyl ether	ug/L	56.7J	400	400	434	434	94	94	70-130	0	30	
Ethanol	ug/L	ND	16000	16000	20100	19900	125	124	70-130	1	30	
Ethyl-tert-butyl ether	ug/L	ND	800	800	827	816	103	102	70-130	1	30	
Ethylbenzene	ug/L	2400	400	400	2940	3000	134	150	70-130	2	30	M1
m&p-Xylene	ug/L	4270	800	800	5360	5380	136	138	70-130	0	30	M1
Methyl-tert-butyl ether	ug/L	ND	400	400	464	458	116	114	70-130	1	30	
Naphthalene	ug/L	1530	400	400	2000	2030	116	125	70-130	2	30	
o-Xylene	ug/L	681	400	400	1200	1210	130	132	70-130	1	30	M1
tert-Amyl Alcohol	ug/L	ND	8000	8000	8870	9240	111	116	70-130	4	30	
tert-Amylmethyl ether	ug/L	ND	800	800	892	918	112	115	70-130	3	30	
tert-Butyl Alcohol	ug/L	ND	4000	4000	4430	4550	111	114	70-130	3	30	
tert-Butyl Formate	ug/L	ND	3200	3200	2190	2160	68	67	70-130	1	30	M5
Toluene	ug/L	71.6J	400	400	544	544	118	118	70-130	0	30	
Xylene (Total)	ug/L	4960	1200	1200	6560	6590	134	136	70-130	0	30	MS
1,2-Dichloroethane-d4 (S)	%						107	104	70-130			
4-Bromofluorobenzene (S)	%						100	101	70-130			
Toluene-d8 (S)	%						98	98	70-130			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

QC Batch: 421206 Analysis Method: EPA 8011
 QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
 Associated Lab Samples: 92392816001, 92392816002, 92392816003, 92392816004, 92392816005, 92392816006, 92392816007, 92392816008, 92392816009, 92392816010, 92392816011, 92392816012, 92392816013, 92392816014, 92392816015

METHOD BLANK: 2332780 Matrix: Water
 Associated Lab Samples: 92392816001, 92392816002, 92392816003, 92392816004, 92392816005, 92392816006, 92392816007, 92392816008, 92392816009, 92392816010, 92392816011, 92392816012, 92392816013, 92392816014, 92392816015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.019	0.019	07/27/18 03:54	
1-Chloro-2-bromopropane (S)	%	129	60-140		07/27/18 03:54	

LABORATORY CONTROL SAMPLE & LCSD: 2332781 2332782

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.24	0.25	0.33	103	133	60-140	27	20	R1
1-Chloro-2-bromopropane (S)	%				109	138	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2332783 2332784

Parameter	Units	92392816003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	.24	.24	0.31	0.32	127	130	60-140	2	20	
1-Chloro-2-bromopropane (S)	%						126	126	60-140			

SAMPLE DUPLICATE: 2332785

Parameter	Units	92392816004 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	116	109	8		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

QC Batch: 421207 Analysis Method: EPA 8011
 QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
 Associated Lab Samples: 92392816016

METHOD BLANK: 2332786 Matrix: Water
 Associated Lab Samples: 92392816016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	0.020	07/27/18 09:59	
1-Chloro-2-bromopropane (S)	%	116	60-140		07/27/18 09:59	

LABORATORY CONTROL SAMPLE & LCSD: 2332787

Parameter	Units	2332788							Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD		
1,2-Dibromoethane (EDB)	ug/L	.25	0.24	0.30	97	125	60-140	22	20 R1	
1-Chloro-2-bromopropane (S)	%				102	135	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2332789 2332790

Parameter	Units	92392816016 Result	2332790							Max RPD	Qual
			MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits		
1,2-Dibromoethane (EDB)	ug/L	ND	.24	.24	0.27	0.27	113	113	60-140	1	20
1-Chloro-2-bromopropane (S)	%						117	117	60-140		

SAMPLE DUPLICATE: 2332791

Parameter	Units	92393099010 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	117	125	6		

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

- 2g Initial calibration evaluation met acceptance criteria. Compound did not meet additional accuracy assessment for percent error for the following compounds
- E Analyte concentration exceeded the calibration range. The reported result is estimated.
- ES The reported result is estimated because one or more of the constituent results are qualified as such.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.
- P5 The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.
- R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NICKELPUMPER 233 04878/57351
 Pace Project No.: 92392816

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92392816001	MW-1	EPA 8011	421206	EPA 8011	421320
92392816002	MW-4	EPA 8011	421206	EPA 8011	421320
92392816003	MW-5	EPA 8011	421206	EPA 8011	421320
92392816004	MW-6	EPA 8011	421206	EPA 8011	421320
92392816005	MW-7	EPA 8011	421206	EPA 8011	421320
92392816006	MW-8	EPA 8011	421206	EPA 8011	421320
92392816007	MW-9	EPA 8011	421206	EPA 8011	421320
92392816008	MW-10	EPA 8011	421206	EPA 8011	421320
92392816009	MW-11	EPA 8011	421206	EPA 8011	421320
92392816010	DW-1	EPA 8011	421206	EPA 8011	421320
92392816011	CK-1	EPA 8011	421206	EPA 8011	421320
92392816012	CK-2	EPA 8011	421206	EPA 8011	421320
92392816013	CK-3	EPA 8011	421206	EPA 8011	421320
92392816014	CK-4	EPA 8011	421206	EPA 8011	421320
92392816015	DUP 1	EPA 8011	421206	EPA 8011	421320
92392816016	FIELD BLANK	EPA 8011	421207	EPA 8011	421322
92392816011	CK-1	EPA 8260B	421266		
92392816012	CK-2	EPA 8260B	421266		
92392816013	CK-3	EPA 8260B	421266		
92392816014	CK-4	EPA 8260B	421266		
92392816001	MW-1	EPA 8260B	421543		
92392816002	MW-4	EPA 8260B	421733		
92392816003	MW-5	EPA 8260B	421220		
92392816004	MW-6	EPA 8260B	421220		
92392816005	MW-7	EPA 8260B	421220		
92392816006	MW-8	EPA 8260B	421220		
92392816007	MW-9	EPA 8260B	421543		
92392816008	MW-10	EPA 8260B	421543		
92392816009	MW-11	EPA 8260B	421543		
92392816010	DW-1	EPA 8260B	421220		
92392816015	DUP 1	EPA 8260B	421543		
92392816016	FIELD BLANK	EPA 8260B	421220		
92392816017	TRIP BLANK	EPA 8260B	421220		

REPORT OF LABORATORY ANALYSIS

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Laboratory receiving samples:

Asheville Eden Greenwood Huntersville Raleigh Mechanicsville

Sample Condition Upon Receipt

Client Name: SCDHEC

Project

WO#: 92392816



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: _____

Custody Seal Present? Yes No Seals Intact? Yes No

Date/Initials Person Examining Contents: BJP 7/27/18

Packing Material: Bubble Wrap Bubble Bags None Other

Biological Tissue Frozen? Yes No N/A

Thermometer: IR Gun ID: 92T040 Type of Ice: Wet Blue None

Cooler Temp (°C): 2.0 Correction Factor: Add/Subtract (°C) +0.4

Temp should be above freezing to 6°C
 Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 2.4

USDA Regulated Soil N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)?

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

	Comments/Discrepancy:
Chain of Custody Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Short Hold Time Analysis (<72 hr.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.
Rush Turn Around-Time Requested? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Dissolved analysis: Samples Field Filtered? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8.
Sample Labels Match COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>	
Headspace in VOA Vials (>5-6mm)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? Yes No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: TC

Date: 7/24/18

Project Manager SRF Review: TC

Date: 7/24/18



*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

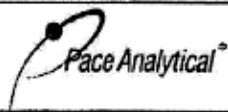
Project **WO# : 92392816**
 PM: RMC Due Date: 07/30/18
 CLIENT: 92-SCDHEC

Pg 1

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2SO3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG8U-100 mL Amber Unpreserved vials (N/A)	V5GU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
3	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
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10	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
11	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.



Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project:

WO# : 92392816

PM: RNC

Due Date: 07/30/18

CLIENT: 92-SCDHEC

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGfU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DGBU-40 mL Amber Unpreserved vials (N/A)	
1															6													
2															6													
3															6													
4															6													
5															6													
6															6													
7															6													
8															6													
9															6													
10															2													
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, Incorrect preservative, out of temp, Incorrect containers.



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2
2240879

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	REGULATORY AGENCY
Company: <u>SCDHEC UST</u>	Report To: <u>A Thrash</u>	Attention:	<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input checked="" type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
Address: <u>2600 Bull Street</u> <u>Columbia SC 29701</u>	Copy To:	Company Name:	
Email To: <u>thrashame@dhec.sc.gov</u>	Purchase Order No.: <u>4600422013</u>	Pace Quote Reference:	Site Location: <u>SC</u> <u>Jasper</u>
Phone: <u>803-292-0607</u> <u>803-896-0673</u>	Project Name: <u>Nickel pumpers L33</u>	Pace Project Manager: <u>T. Carter</u>	STATE: <u>SC</u>
Requested Due Date/TAT:	Project Number: <u>UST 04078 / PACECAST</u>	Pace Profile #:	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test (Y/N)	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.		
			COMPOSITE START		COMPOSITE END/OVER				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₈					Methanol	Other
			DATE	TIME	DATE	TIME														
1	MW-1	WTG			7/20/18	11:35	6										Odor 001			
2	MW-2																No Sample			
3	MW-3																No Sample			
4	MW-3R																No Sample			
5	MW-4	WTG			7/20/18	11:25	6										No Odor 002			
6	MW-4R																No Sample			
7	MW-5	WTG			7/20/18	11:40	6										No Odor 003			
8	MW-6	WTG			7/20/18	11:00	1										No Odor 004			
9	MW-7					11:20	1										No Odor 005			
10	MW-8						1										No Odor 006			
11	MW-9						1										No Odor 007			
12	MW-10	WTG			7/20/18	11:45	6										Slight Odor 008			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
	<u>W. P. Kelly</u>	<u>7/20/18</u>	<u>11:00</u>	<u>T. Carter</u>	<u>7-21-18</u>	<u>8:30</u>	<u>24</u>	<u>Y</u> <u>W</u> <u>Y</u>

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	<u>Colin Phillips</u>				
SIGNATURE of SAMPLER:	<u>W. P. Kelly</u>	DATE Signed (MM/DD/YYYY):	<u>7/20/18</u>		

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Page: <u>2</u> of <u>2</u> 2240877
Company: <u>SC/HEC UST</u>	Report To: <u>A Thrash</u>	Attention:	
Address: <u>2600 Bull Street</u> <u>Columbia SC 29201</u>	Copy To:	Company Name:	
Email To: <u>thrash@paceanalytical.com</u>	Purchase Order No.: <u>4600422513</u>	Address:	REGULATORY AGENCY
Phone: <u>803-860-7803</u> / <u>803-860-0677</u>	Project Name: <u>Nickel Amper 235</u>	Pace Quote Reference:	<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
Requested Due Date/TAT:	Project Number: <u>UST 04875/PAGE CA 8751</u>	Pace Project Manager: <u>T. Carter</u>	<input checked="" type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
		Pace Profile #:	Site Location: <u>SC</u> <u>Jasper</u>
			STATE: <u>SC</u> <u>Jasper</u>

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)				
			DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl				NaOH	Na ₂ S ₂ O ₈	Methanol	Other
1	MW-1					6													
2	DW-1					1													
3	CK-1					1													
4	CK-2					1													
5	CK-3					1													
6	CK-4					1													
7	Dup					1													
8	Field Blank					2													
9	Trip Blank					2													
10																			
11																			
12																			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<u>Calvin Phillips</u>	<u>7/20/18</u>	<u>1700</u>	<u>Sheral Pace</u>	<u>7-21-18</u>	<u>8:30</u>	<u>Y N Y</u>

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Inlet (Y/N)
PRINT Name of SAMPLER:	<u>Calvin Phillips</u>				
SIGNATURE of SAMPLER:	<u>Calvin Phillips</u>	DATE Signed (MM/DD/YY):	<u>7/20/18</u>		

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



04878

FEB 08 2019



MR BRYAN SHANE PG
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071

Re: Site Specific Work Plan Requests
Groundwater Sampling Contract
Solicitation #IFB-5400012906

Dear Mr. Shane:

In accordance with bid solicitation # IFB-5400012906 and the UST Management Division Quality Assurance Program Plan (QAPP) Revision 3.1, submission of Site Specific Work Plans (SSWP) based on each site information package provided is requested.

The SSWP must be submitted within 15 business days to my attention. The project manager for each site will issue a notice to proceed once the plan has been reviewed and approved. Please contact me with the sampling schedule before commencing work at these facilities. A weekly update for each site is required to be submitted via email to the site's project manager and myself. If you have any questions or need further assistance, please contact me by phone (803) 898-0671 or email dunnra@dhec.sc.gov.

Sincerely,

Robert A. Dunn, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land & Waste Management

Enc: Site Information Packages

Cc: Trey Carter, Pace Analytical Services, 9800 Kinsey Ave. STE 100, Huntersville, NC 28078 (w/ Memo)
Technical File (w/o Enc)

04878



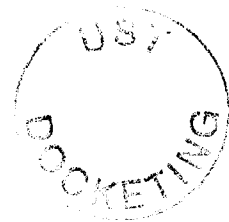
UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone: 803-898-2544

MEMORANDUM

TO: Midlands Environmental Consultants, Inc

FROM: Kathryn H. Butler

RE: Site Specific Work Plan Request



Facility Name: NICKELPUMPER 233

Permit Number: 4878

County: Jasper

Work To Be Completed: Please submit a SSWP for GWS of all MW's, water supply wells, and surface water associated with the above referenced site. Only wells with screens not bracketing the water table should be purged prior to sample collection.

Total Number of Monitoring Well Samples: 14 Monitoring Wells, 4 Surface Waters

Analysis Being Requested: BTEXNM, 1,2 DCA, 8-Oxys and EDB - 8260b, 8011

Total Number of Water Supply Well Samples: 2

Analysis Being Requested: BTEXNM, 1,2 DCA, 8-Oxys and EDB - 524.2, 8260b

 **Midlands
Environmental
Consultants, Inc.**

February 20, 2019

Mr. Robert Dunn, Hydrogeologist
Corrective Action & Field Support Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Subject: Site-Specific Work Plan
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 19-6816
Certified Site Rehabilitation Contractor UCC-0009

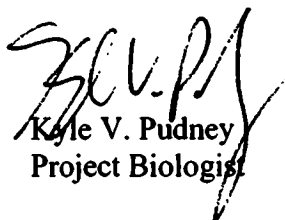
Dear Mr. Dunn,

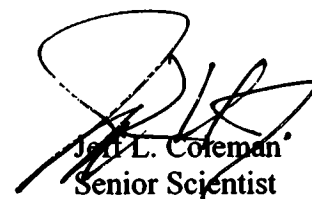
Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Site-Specific Work Plan for the referenced site.

On February 18, 2019, MECI personnel performed a site visit to the subject site to evaluate site conditions, locate monitoring wells and identify potential problems for future sampling activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.


Kyle V. Pudney
Project Biologist


Jeff L. Coleman
Senior Scientist



Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division

To: Ms. Kathryn H. Butler (SCDHEC Project Manager)
From: Jeff L. Coleman (Contractor Project Manager)
Contractor: Midlands Environmental Consultants, Inc. UST Contractor Certification Number: 009

Facility Name: Nickelpumper 233 UST Permit #: 04878
Facility Address: 3296 Point South Drive, Yemassee, SC 29945
Responsible Party: Richard Carlson Phone: 951-659-0063
RP Address: 1920 N Main Street, Los Angeles, CA 90031
Property Owner (if different): SAA
Property Owner Address: SAA
Current Use of Property: Vacant Property

Scope of Work (Please check all that apply)

- IGWA, Tier I, Tier II, Monitoring Well Installation, Groundwater Sampling, Other, GAC

Analyses (Please check all that apply)

- Groundwater/Surface Water: BTEXNMDCA, Oxygenates, EDB, PAH, Lead, 8 RCRA Metals, TPH, pH, BOD, Nitrate, Sulfate, Other, Methane, Ethanol, Dissolved Iron
Drinking Water Supply Wells: BTEXNMDCA, Oxygenates & Ethanol, Mercury, RCRA Metals, EDB
Soil: BTEXNM, PAH, Lead, RCRA Metals, Oil & Grease, TPH-DRO, TPH-GRO, Grain Size, TOC
Air: BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected.)

Soil: 2, Water Supply Wells: 2, Air: 2, Field Blank: 2
Monitoring Wells: 14, Surface Water: 4, Duplicate: 2, Trip Blank: 2

Field Screening Methodology

Estimate number and total completed depth for each point, and include their proposed locations on the attached map.
of shallow points proposed: Estimated Footage: feet per point
of deep points proposed: Estimated Footage: feet per point
Field Screening Methodology:

Permanent Monitoring Wells

Estimate number and total completed depth for each well, and include their proposed locations on the attached map.
of shallow wells: Estimated Footage: feet per point
of deep wells: Estimated Footage: feet per point
of recovery wells: Estimated Footage: feet per point
Comments, if warranted:

UST Permit #: 04878 Facility Name: Nickelpumper 233

Implementation Schedule (Number of calendar days from approval)
Field Work Start-Up: 2/20/2019 Field Work Completion: 3/20/2019
Report Submittal: 4/20/2019 # of Copies Provided to Property Owners: 0

Aquifer Characterization
Pump Test: Slug Test: (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal
Soil: _____ Tons Purge Water: 100.0 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

Additional Details For This Scope of Work
For example, list wells to be sampled, wells to be abandoned/repaired, well pads/bolts/caps to replace, details of AFVR event, etc.
-During the initial site visit, monitoring well MW-3 and MW-4R were unable to be located. Historically, MW-3 has not been located. If either of these wells are located during the sampling event, they will be sampled accordingly.
-Only non bracketing wells will be purged prior to sample collection.
-Monitoring well and surface water samples will be analyzed for BTEXNM, 8-OXY, 1,2-DCA (8260B), and EDB (8011)
-Water supply well samples will be analyzed for BTEXNM, 1,2-DCA (524.2), 8-OXY's (8260B), and EDB (504.1).

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)
Yes Laboratory as indicated in ACQAP? (Yes/No) If no, indicate laboratory information below.
Name of Laboratory: _____
SCDHEC Certification Number: _____
Name of Laboratory Director: _____
N/A Well Driller as indicated in ACQAP? (Yes/No) If no, indicate driller information below.
Name of Well Driller: _____
SCLLR Certification Number: _____
None Other variations from ACQAP. Please describe below.

Attachments
1. Attach a copy of the relevant portion of the USGS topographic map showing the site location.
2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following:
North Arrow Proposed monitoring well locations
Location of property lines Legend with facility name and address, UST permit number, and bar scale
Location of buildings Streets or highways (indicate names and numbers)
Previous soil sampling locations Location of all present and former ASTs and USTs
Previous monitoring well locations Location of all potential receptors
Proposed soil boring locations
3. Assessment Component Cost Agreement, SCDHEC Form D-3664



**ASSESSMENT COMPONENT COST AGREEMENT
SOUTH CAROLINA**

Department of Health and Environmental Control
Underground Storage Tank Management Division
State Underground Petroleum Environmental Response Bank Account
CONTRACT PO NUMBER 4600559329

Facility Name: Nickelpumper 233

UST Permit #: 04878

Cost Agreement #: Proposal

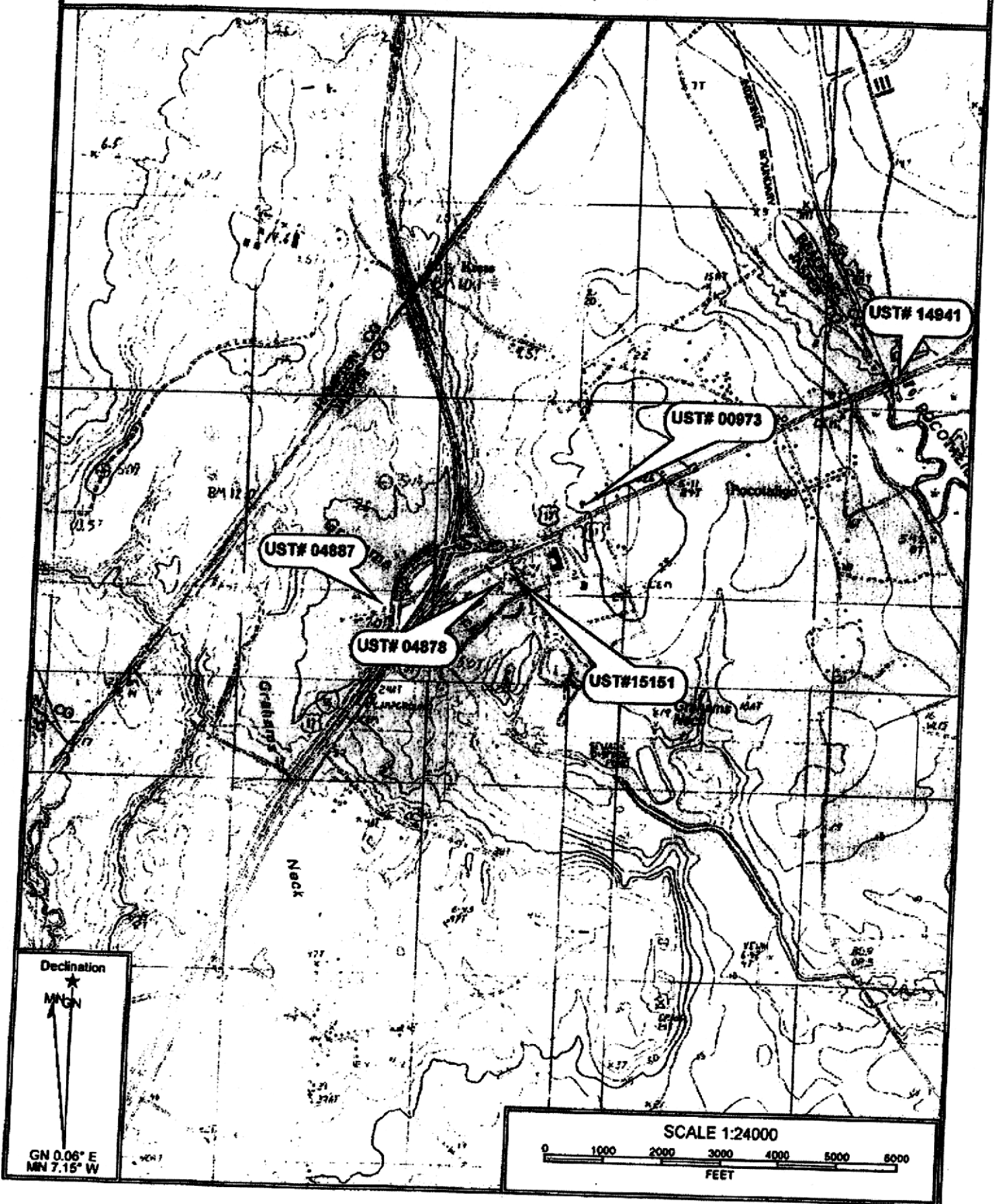
ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. Plan*				
A1. Site Specific Work Plan	1	each	\$1.00	\$1.00
B1. Tax Map		each	\$1.00	\$0.00
C1. QAPP Appendix B		each	\$1.00	\$0.00
2. A1. Receptor Survey		each	\$1.00	\$0.00
4. Mob/Demob				
B1. Personnel	1	each	\$1.00	\$1.00
10. Groundwater Sample Collection / Gauge Depth to Water or Product (Each)				
A1. Groundwater Purge	1	per well	\$36.50	\$36.50
B1. Air or Vapors		samples	\$1.00	\$0.00
C1. Water Supply	2	samples	\$18.00	\$36.00
D1. Groundwater No Purge or Duplicate	17	per well	\$27.50	\$467.50
E1. Gauge Well only		per well	\$1.00	\$0.00
F1. Sample Below Product		per well	\$1.00	\$0.00
G1. Pasive Diffusion Bag		each	\$20.00	\$0.00
H1. Field Blank	1	each	\$1.00	\$1.00
17. Disposal* (gallons or tons)				
AA. Disposal/Water	100	gallons	\$1.00	\$100.00
BB. Free Product		gallons	\$0.05	\$0.00
Note: Rate includes costs or rental of suitable container(s)				
23. D. Site Reconnaissance	1	each	\$1.00	\$1.00
18. Miscellaneous				
GW Contour Map		each	\$25.00	\$0.00
Isopleth Map		each	\$25.00	\$0.00
High-Strength Well Pad Replacement		each	\$75.00	\$0.00
Data Table		each	\$50.00	\$0.00
Low Flow Sampling		per well	\$55.00	\$0.00
25. Well Repair				
B1. Repair 2x2 MW Pad		each	\$50.00	\$0.00
C1. Repair 4x4 MW Pad		each	\$50.00	\$0.00
D1. Replace Well Vault		each	\$50.00	\$0.00
E. Replace well cover		each	\$25.00	\$0.00
F1. Replace well cover bolts		each	\$2.60	\$0.00
G. Replace locking well cap & lock		each	\$15.00	\$0.00
K1. Replace Missing Well ID Plate		each	\$10.00	\$0.00
TOTAL				\$643.00

*The appropriate mobilization cost can be added to complete these tasks, as necessary

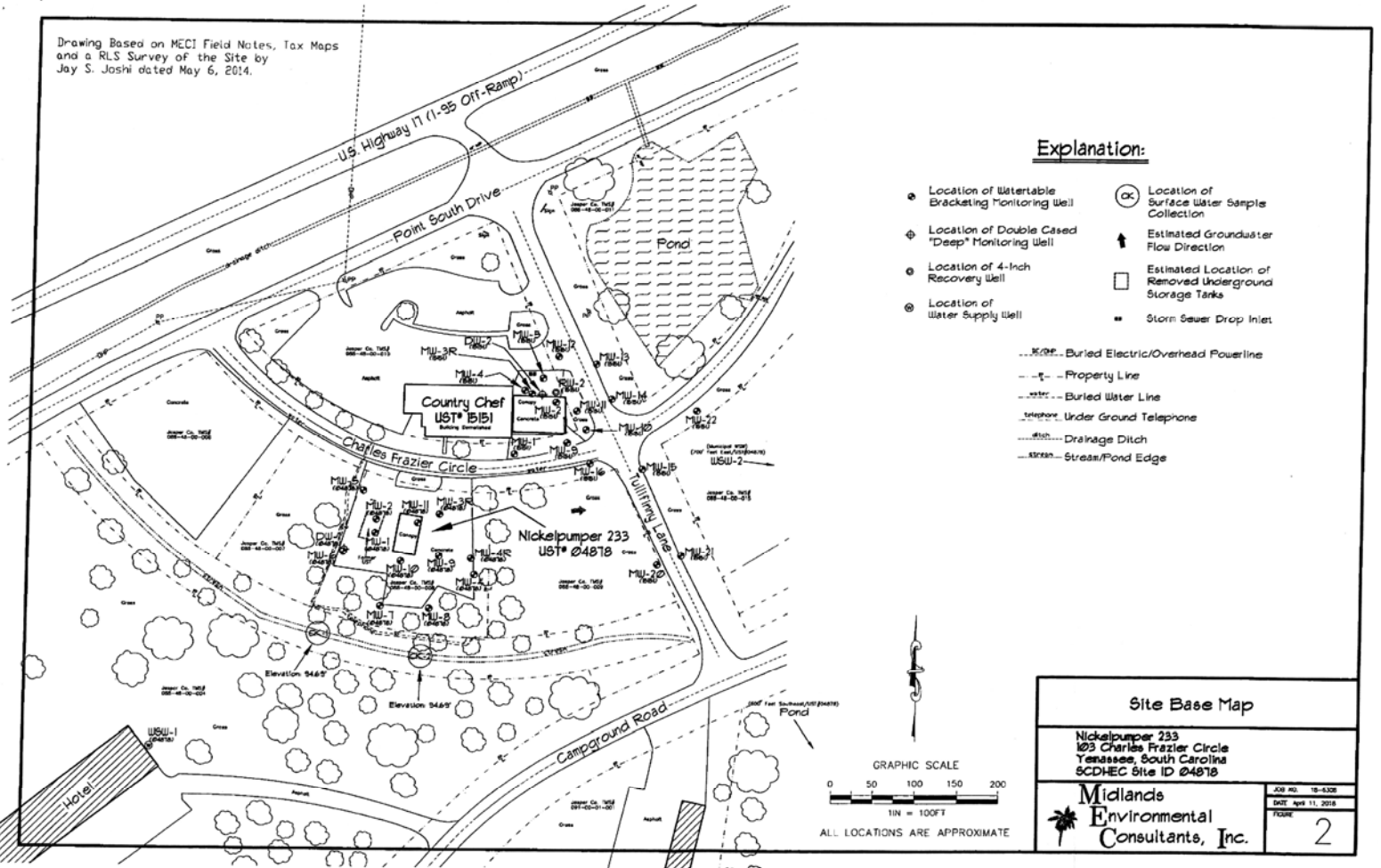
Map Name: MC PHERSONVILLE
Print Date: 11/09/15

Scale: 1 inch = 2,000 ft.
Map Center: 032° 37' 46.89" N, 080° 52'

Horizontal Datum: NAD27



Drawing Based on MECI Field Notes, Tax Maps
and a RLS Survey of the Site by
Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Waterable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-Inch Recovery Well
- ⊙ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

- Buried Electric/Overhead Powerline
- - - Property Line
- Buried Water Line
- Under Ground Telephone
- Drainage Ditch
- Stream/Pond Edge

Site Base Map	
Nickelpumper 233 1073 Charles Frazier Circle Yemassee, South Carolina SCDHEC Site ID 04818	
Midlands Environmental Consultants, Inc.	JOB NO. 10-1320 DATE: April 11, 2014 FIGURE 2

GRAPHIC SCALE
 0 50 100 150 200
 1 IN = 100 FT
 ALL LOCATIONS ARE APPROXIMATE



**MR BRYAN SHANE PG
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071**

MAR 15 2019

Re: Notice to Proceed-Site Specific Work Plan Approval
Groundwater Sampling Contract
Solicitation #IFB-5400012906, PO #4600686184
Nickelpumper 233, 3296 Point South Drive, Yemassee, SC
UST Permit #04878; MECI CA # 58976; Pace CA # 58977
Jasper County

Dear Mr. Shane:

In accordance with bid solicitation #IFB-5400012906 and the Underground Storage Tank (UST) Management Division Quality Assurance Program Plan (QAPP), the Site-Specific Work Plan has been reviewed and approved. In accordance with the approved QAPP, a status report of the project should be provided on a weekly basis via e-mail. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. In addition, a discussion of the problem(s) encountered, including quality assurance problems, the actions taken, and the results must be included in the final report submitted to the UST Management Division.

Services at the site are to be performed on behalf of the site's responsible party (RP); however, payment will be made from the SUPERB Account. Please coordinate access to the facility with the property owner. DHEC grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All Investigation-Derived Waste (IDW) must be properly contained and labeled prior to disposal. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included with the final report. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

Please note, sampling should be conducted within 15 calendar days from the date of this letter. The final report is due within three weeks from the date the site is sampled. If the site is not sampled by the specified due date or the report is not received in the specified time period, a late fee may be imposed. The final report should contain the requirements of Section III.2.15 of the bid solicitation. The final report should be submitted to Robert Dunn, the contract manager.

If you have any site-specific questions, please contact me at (803) 898-0606 or via e-mail at butlerkh@dhec.sc.gov. If you have any contract specific questions, please contact Robert Dunn by phone (803) 898-0671 or email dunnra@dhec.sc.gov.

Sincerely,

Kathryn H. Butler, Hydrogeologist
Corrective Action & Field Support Section
UST Management Division
Bureau of Land & Waste Management

Enc: Approved Cost Agreement (both CAs)

Cc: Angela Baioni, Pace Analytical Services, 9800 Kinsey Ave, Ste 100, Huntersville, NC, 28078 (w/ CA)
Technical File (w/ Enc)

Approved Cost Agreement**58977**

Facility: 04878 NICKELPUMPER 233

BUTLERKH

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
11 ANALYSES					
	GW GROUNDWATER	A2 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	21.0000	\$21.000	441.00
		F1 EDB BY 8011	20.0000	\$18.000	360.00
	WATER DRINKING WATER	L BTEXNM+1,2 DCA (524.2)	5.0000	\$36.000	180.00
		M 7-OXYGENATES & ETHANOL (8260B)	5.0000	\$13.000	65.00
		N EDB (504.1)	4.0000	\$18.000	72.00
		Total Amount			1,118.00

Approved Cost Agreement**58976**

Facility: 04878 NICKELPUMPER 233

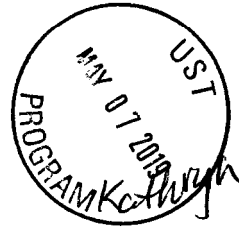
BUTLERKH

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
01 PLAN		A1 SITE SPECIFIC WORK PLAN	1.0000	\$1.000	1.00
04 MOB/DEMOB		B1 PERSONNEL	1.0000	\$1.000	1.00
10 SAMPLE COLLECTION		A1 GROUNDWATER (PURGE)	1.0000	\$36.500	36.50
		C1 WATER SUPPLY	2.0000	\$18.000	36.00
		D1 GROUNDWATER NO PURGE/DUPLICATE	17.0000	\$27.500	467.50
		H1 FIELD BLANK	1.0000	\$1.000	1.00
17 DISPOSAL		AA WASTEWATER	100.0000	\$1.000	100.00
23 EFR		D SITE RECONNAISSANCE	1.0000	\$1.000	1.00
Total Amount					644.00



May 2, 2019



Mr. Robert A. Dunn, Hydrogeologist
 Corrective Action Section
 Underground Storage Management Division
 Bureau of Land and Waste Management
 South Carolina Department of Health
 and Environmental Control
 2600 Bull Street
 Columbia, South Carolina 29201



Subject: Report of Groundwater Sampling
 Nickelpumper 233
 103 Charles Frazier Circle
 Yemassee, South Carolina
 SCDHEC Site ID# 04878, CA # 58976
 MECI Project Number 19-6816
 Certified Site Rehabilitation Contractor UCC-0009

Dear Mr. Dunn,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Report of Groundwater Sampling for the referenced site. This report describes site activities conducted at the site in general accordance with South Carolina Department of Health and Environmental Control's (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP).

PROJECT INFORMATION

The subject site (Nickelpumper 233) is located at 103 Charles Frazier Circle in Yemassee, Jasper County, South Carolina. The site currently a vacant lot with a canopy. The following table presents Underground Storage Tanks (UST's) which are associated with the subject site:

Tank #	Capacity/Product	In Use/Abandoned	Tank Status
1	6,000 Gal. Gasoline	Temporarily Out of Service	In Compliance (5/15/2018)
2	8,000 Gal. Gasoline	Temporarily Out of Service	In Compliance (5/15/2018)
3	10,000 Gal. Gasoline	Temporarily Out of Service	In Compliance (5/15/2018)

A release of petroleum product was reported to and confirmed by the South Carolina Department of Health and Environmental Control (SCDHEC) in May of 2002. The release is currently rated a Class 2BB due to water supply wells being located within 1,000' feet of the site.

The above information is based on reports and correspondence obtained from MECI field notes and SCDHEC files.

MONITORING WELL SAMPLING AND CHEMICAL ANALYSIS

On April 26, 2019 MECI personnel collected samples from twelve (12) monitoring wells and three (3) surface water locales at the subject site. During sampling activities, two (2) monitoring wells, one (1) surface water, and two (2) water supply wells were unable to be sampled (see attached Site Activity Summary Sheets for details). Based on the request by SCDHEC personnel, only monitoring wells that were not bracketing the screen were to be purged prior to sample collection. One (1) monitoring well was purged prior to sample collection.

MECI personnel utilized an electronic water level indicator for water level measurements and an oil/water interface probe for free phase petroleum product level measurements. Purging was completed by bailing at least five well volumes of water from the well, until pH, conductivity, dissolved oxygen and turbidity stabilized, or all water was evacuated from the well, whichever occurred first. Sampling/purging was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. A new set of nitrile gloves were worn at each monitoring well, and at all time samples were handled. Field measurements of pH, conductivity, dissolved oxygen, and water temperature were obtained before well sampling process. MECI utilized a YSI Pro20 meter for DO (mg/L) and temperature readings (°C), YSI Pro1030 meter for pH and conductivity (uS) readings and a MicroTPI turbidimeter for turbidity readings (NTU). The attached Field Data Information Sheets presents the results of the field measurements obtained. The wells were sampled in accordance with the most recent revision of SCDHEC's Quality Assurance Program Plan for the Underground Storage Tank Management Division and the most recent revision MECI's Standard Operating Procedures.

Groundwater samples obtained were sent to Pace Analytical Services, Inc. of Huntersville, NC (SCDHEC Laboratory Certification #99006001) for analysis.

The following sampling matrix contains well development and requested analyses for each well:

Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	BTEX, Naphthalene, MTBE, 1,2 DCA (EPA Method 524.2)	EDB (EPA Method 504.1)
Analyte Sampled													
MW-1		X					X	X	X	X			
MW-2		X					X	X	X	X			
MW-3						X							
MW-3R		X					X	X	X	X			
MW-4		X					X	X	X	X			
MW-4R						X							
MW-5		X					X	X	X	X			
MW-6		X					X	X	X	X			
MW-7		X					X	X	X	X			
MW-8		X					X	X	X	X			
MW-9		X					X	X	X	X			

Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes
 MTBE=Methyl tertiary butyl ether
 1,2 DCA = 1,2 Dichloroethane
 EDB = Ethylene Dibromide

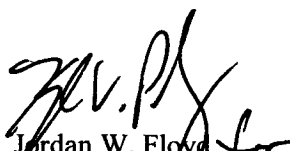
Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	BTEX, Naphthalene, MTBE, 1,2 DCA (EPA Method 524.2)	EDB (EPA Method 504.1)	
							Analyte Sampled							
MW-10		X					X	X	X	X				
MW-11		X					X	X	X	X				
DW-1	X						X	X	X	X				
CK-1		X					X	X	X	X				
CK-2		X					X	X	X	X				
CK-3		X					X	X	X	X				
CK-4					X									
DUP-1(MW-8)							X	X	X	X				
Field Blank							X	X	X	X				
Trip Blank							X		X	X				
WSW-1						X								
WSW-2					X									

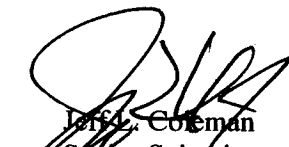
Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes
 MTBE=Methyl tertiary butyl ether
 1,2 DCA = 1,2 Dichloroethane
 EDB = Ethylene Dibromide

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 15.00 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is attached at the end of this report.

Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.


 Jordan W. Floyd
 Staff Hydrogeologist


 Jeff L. Coleman
 Senior Scientist

Attachments:

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?			X
3	Is name, address, & phone number of current property owner provided?			X
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			X
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?			X
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?			X
11	Has the site-specific geology and hydrogeology been described?			X
12	Has the primary soil type been described?			X
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			X
18	Has justification been provided for the locations of the monitoring wells?			X
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?			X
20	Has the groundwater sampling methodology been detailed? See MECI SOP	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	X		
22	Has the purging methodology been detailed? See MECI SOP	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? See attached Field Data Information Sheets	X		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	X		
25	Does the report include a brief discussion of the assessment done and the results?			X
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?			X
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)			X
34	Has the current and historical laboratory data been provided in tabular format?			X
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)			X
40	Has the site potentiometric map been provided? (Figure 5)			X
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			X
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? See attached	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			X
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	X		

Site Activity Summary

UST Permit #: 04878
 Facility Name: Nickelpumper 233
 County: Jasper
 Field Personnel: K. Jacobs; W. Morris


 Midlands Environmental Consultants, Inc.
 231 Doolley Road, Lexington, SC 29073
 (803) 208-2043 fax: 808-2048

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Initial Dissolved Oxygen (mg/l)	# Gals. Purged	Comments
MW-1	Y	4/26/19	14:30	2.5-12.5	***	2.69	***	3.68	***	Odor
MW-2	Y	4/26/19	14:25	2-12	***	2.21	***	2.37	***	Odor
MW-3	N	4/26/19	NL	2-12	***	NL	***	NL	***	Not Located
MW-3R	Y	4/26/19	12:40	2-12	***	3.04	***	4.97	***	Odor
MW-4	Y	4/26/19	12:30	2-12	***	4.66	***	2.56	***	No Odor
MW-4R	N	4/26/19	NL	2-12	***	NL	***	NL	***	Not located; likely under large pile of dirt; have pictures
MW-5	Y	4/26/19	12:55	2-12	***	2.04	***	5.18	***	No Odor
MW-6	Y	4/26/19	14:11	2-12	***	3.73	***	4.11	***	No Odor
MW-7	Y	4/26/19	12:25	2-9	***	3.57	***	4.89	***	No Odor
MW-8	Y	4/26/19	12:20	2-9.5	***	3.45	***	5.42	***	No Odor
MW-9	Y	4/26/19	12:35	2-12	***	3.20	***	1.88	***	No Odor
MW-10	Y	4/26/19	12:50	2-12	***	3.96	***	1.66	***	Slight Odor
MW-11	Y	4/26/19	12:45	2-12	***	3.19	***	3.33	***	Slight Odor
DW-1	Y	4/26/19	14:20	43.5-48.5	***	4.15	***	4.48	15.00	No Odor
CK-1	Y	4/216/19	13:25	***	***	***	***	***	***	Collected from creek (See Figure)
									15.00	TOTAL GALLONS PURGED

Site Activity Summary

UST Permit #: 04878
Facility Name: Nickelpumper 233
County: Jasper
Field Personnel: K. Jacobs; W. Morris


 231 Dooley Road, Lexington, SC 29073
 (803) 208-2043 fax: 208-2048

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Initial Dissolved Oxygen (mg/l)	# Gals. Purged	Comments
CK-2	Y	4/26/19	12:30	***	***	***	***	***	***	Collected from Creek (See Figure)
CK-3	Y	4/26/19	14:35	***	***	***	***	***	***	Collected from Pond behind Knights Inn
CK-4	N	4/26/19	***	***	***	***	***	***	***	Dry
DUP-1	***	4/26/19	11:35	***	***	***	***	***	***	Duplicate sample of MW-8
Field Blank	***	4/26/19	14:40	***	***	***	***	***	***	Field Blank
Trip Blank	***	4/26/19	14:40	***	***	***	***	***	***	Trip Blank
WSW-1	N	4/26/19	NS	***	***	***	***	***	***	WSW not located, Possibly removed or located in locked shed
WSW-2	N	4/26/19	NS	***	***	***	***	***	***	Potential Municipal WSW located behind locked fence
									0.00	TOTAL GALLONS PURGED



Monitoring Well Purge And Sampling Data

Field Personnel: KJ + WM
 Sampling Date(s): 4/26/19
 Sampling Case#: _____

Job Name: Nicklepumper 233
 Job Number: 19-6916

Calibration Data for:
 Calibration Successful: Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height (feet)	Gallons Purged		Notes
								product	initial H ₂ O	final H ₂ O			**calc.	actual	
MW 1	Initial	14:36	6.01	124.1	20.5	3.68	26.39				2.5	-	-	-	
	1st										2.69	-	-	-	
	2nd											-	-	-	
	3rd											-	-	-	
	4th											-	-	-	
	5th											-	-	-	
	Sampling											-	-	-	Odor
MW 2	Initial	14:25	5.66	282.7	21.4	5.10	38.41				2-12	-	-	-	
	1st						23.7				2.21	-	-	-	
	2nd										2.13	-	-	-	
	3rd											-	-	-	
	4th											-	-	-	
	5th											-	-	-	
	Sampling											-	-	-	Odor
MW 3	Initial										2-12	-	-	-	
	1st											-	-	-	
	2nd											-	-	-	
	3rd											-	-	-	
	4th											-	-	-	
	5th											-	-	-	
	Sampling											-	-	-	
MW 3R	Initial	12:40	5.00	84.1	21.1	4.97	18.62				2-12	-	-	-	
	1st										3.64	-	-	-	
	2nd											-	-	-	
	3rd											-	-	-	
	4th											-	-	-	
	5th											-	-	-	
	Sampling											-	-	-	Odor

* = (Depth of Well) - (Depth to Water) = Water Height

One Well Volume = x.047 for 1" wells * x .163 for 2" wells, or * x .66 for 4" wells, 1.469 for 6" wells

** = One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: KJ & KM
 Sampling Date(s): 4/26/19
 Sampling Case#: 1

Job Name: Nickel/pump 238
 Job Number: 19-6816

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height (feet)	Gallons Purged		Notes	
								product	Initial H ₂ O	final H ₂ O			**calc.	actual		
MW 4	Initial	12:30	4.47	567	19.8	2.56	42.84				4.66	2-12	-	-	-	No Odor
	1st															
	2nd															
	3rd															
	4th															
	5th															
	Sampling															
MW 4R	Initial											2-12				
	1st															
	2nd															
	3rd															
	4th															
	5th															
	Sampling															
MW 5	Initial	12:55	4.98	61.0	22.9	5.8	22.07				2.04	2-12	-	-	-	No Odor
	1st															
	2nd															
	3rd															
	4th															
	5th															
	Sampling															
MW 6	Initial	14:11	5.04	93.9	18.8	4.11	22.01				3.73	2-12	-	-	-	No Odor
	1st															
	2nd															
	3rd															
	4th															
	5th															
	Sampling															

DNL pictures taken likely under large dirt pile

*= (Depth of Well) - (Depth to Water = Water Height)
 One Well Volume = x.047 for 1" wells, x .163 for 2" wells, or x .66 for 4" wells, 1.469 for 6" wells
 **= One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SH	DO SH	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: KJ & WM
 Sampling Date(s): 4/25/19
 Sampling Case#: 1

Job Name: Mickelpumper 233
 Job Number: 19-6916

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes	
								product	Initial H ₂ O	final H ₂ O			**calc.	actual		
MW 7	Initial	12:25	6.21	66.4	18.6	4.89	39.41				3.57	2-9	-	-	-	No Odor
	1st															
	2nd															
	3rd															
	4th															
	5th															
	Sampling															
MW 8	Initial	12:20	7.43	95.8	19.4	5.42	20.63				3.45	2-9.5	-	-	-	No Odor
	1st															
	2nd															
	3rd															
	4th															
	5th															
	Sampling															
MW 9	Initial	12:35	4.98	86.8	19.7	1.88	36.60				3.20	2-12	-	-	-	No Odor Dup
	1st															
	2nd															
	3rd															
	4th															
	5th															
	Sampling															
MW 10	Initial	12:50	5.35	138.7	21.0	1.62	12.85				3.96	2-12	-	-	-	Slight Odor
	1st															
	2nd															
	3rd															
	4th															
	5th															
	Sampling															

*= (Depth of Well) - (Depth to Water = Water Height)
 One Well Volume = x.047 for 1" wells * x .163 for 2" wells, or * x .66 for 4" wells, 1.469 for 6" wells
 **= One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: KJ & WM
 Sampling Date(s): 4/26/19
 Sampling Case#: 1

Job Name: Nickel impacts 233
 Job Number: 19-6816

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes	
								product	Initial H ₂ O	final H ₂ O			**calc.	actual		
MW 11	Initial	12:45	5.05	149.2	21.0	3.33	15.27				3.19	2-12	-	-	-	Slight Odor
	1st															
	2nd															
	3rd															
	4th															
	5th															
	Sampling															
DW 1	Initial	13:50	5.92	306.9	19.2	4.48	14.24				4.15	43.5	44.35	7.23	Dry @	No Odor
	1st	13:58	6.24	318.4	19.9	4.39	47.61									
	2nd	14:06	6.29	322.3	20.4	4.35	88.04									
	3rd															
	4th															
	5th															
	Sampling	14:20	6.32	324.9	20.5	4.34	21.36									
CK-1	Initial															
	1st															
	2nd	12:25														
	3rd															
	4th															
	5th															
	Sampling															
CK-2	Initial															
	1st	12:30														
	2nd															
	3rd															
	4th															
	5th															
	Sampling															

*= (Depth of Well) - (Depth to Water = Water Height)
 One Well Volume = x.047 for 1" wells, * x .163 for 2" wells, or * x .66 for 4" wells, 1.489 for 6" wells
 **= One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: KJ & WM
 Sampling Date(s): 4/26/19
 Sampling Case#: 1

Job Name: Nickel/pumper 233
 Job Number: 19-6816

Calibration Data for:
 Calibration Successful? Yes No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(I)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	Initial H ₂ O	final H ₂ O			**calc.	actual	
CK 3	Initial														
	1st	14:35													
	2nd														
	3rd														
	4th														
	5th														
CK 4	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
Dnp 1	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
FB WSW 1	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														

* = (Depth of Well) - (Depth to Water = Water Height)
 One Well Volume = x.047 for 1" wells * x .163 for 2" wells, or * x .66 for 4" wells, 1.469 for 6" wells
 ** = One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	PH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: KJ + WM
 Sampling Date(s): 4/26/19
 Sampling Case#: 1

Job Name: Washed pumpers 233
 Job Number: 19-6815

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	Initial H ₂ O	final H ₂ O			**calc.	actual	
TB	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
	Sampling														
	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
	Sampling														

* = (Depth of Well) - (Depth to Water) = Water Height
 One Well Volume = x.047 for 1" wells * x .163 for 2" wells, or * x .66 for 4" wells, 1.469 for 6" wells
 ** = One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: KJM
 Sampling Date(s): 4-26-19
 Sampling Case#: 1

Job Name: Nickel pump 233
 Job Number: 19-6816

Calibration Data for :
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	Initial H ₂ O	final H ₂ O			**calc.	actual	
WSW-1 WSW-2 DWP	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
	Sampling														
FB TB	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
	Sampling														

* = (Depth of Well) - (Depth to Water) = Water Height
 One Well Volume = $\pi \times r^2 \times h$ for 1" wells, $\pi \times r^2 \times h \times 1.63$ for 2" wells, or $\pi \times r^2 \times h \times .66$ for 4" wells, $\pi \times r^2 \times h \times 1.469$ for 6" wells
 ** = One Well Volume $\times 5$ = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251

Pace Analytical CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTIL Login Number Here

Company: SC DHEC

Address: 7600 Bull St., Columbia, SC 29204

Report To: R. Dunn

Copy To:

Customer Project Name/Number: Nickel Pumper 233

Phone: [] Site/Facility ID #: 1157-04878

Email: [] Email: []

Collected By (print): []

Collected By (signature): []

Sample Disposal: []

Compliance Monitoring? [] Yes [] No

DW PWS ID #: []

DW Location Code: []

Immediately Packed on Ice: [] Yes [] No

Field Filtered (if applicable): [] Yes [] No

Analysis: []

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
MW 1	GW	G	4/16/19	14:30				6
MW 2	GW	G	4/16/19	14:25				6
MW 3R	GW	G	4/16/19	17:00				6
MW 3	GW	G						
MW 4	GW	G	4/16/19	17:30				6
MW 4R	GW	G						
MW 5	GW	G	4/16/19	17:55				6
MW 6	GW	G		14:11				6
MW 7	GW	G		12:28				6
MW 8	GW	G	4/16/19	17:22				6

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact Y N NA

Custody Signatures Present Y N NA

Collector Signature Present Y N NA

Bottles Intact Y N NA

Correct Bottles Y N NA

Sufficient Volume Y N NA

Samples Received on Ice Y N NA

VOL - Headspace Acceptable Y N NA

USDA Regulated Soils Y N NA

Samples in Holding Time Y N NA

Residual Chlorine Present Y N NA

Cl Strips: Y N NA

Sample pH Acceptable Y N NA

pH Strips: Y N NA

Sulfide Present Y N NA

Lead Acetate Strips: Y N NA

LAB USE ONLY: Lab Sample # / Comments:

BTEXNM, I, 2 - DCA, OxyS

EDB SO11

Customer Remarks / Special Conditions / Possible Hazards: Omit - Field Filtered

Type of Ice Used: Wet Blue Dry None

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Packing Material Used:

Lab Tracking #: 2350382

Radchem sample(s) screened (<500 cpm): Y N NA

Samples received via: FEDEX UPS Client Courier Pace Courier

Relinquished by/Company: (Signature) Date/Time: Received by/Company: (Signature) Date/Time:

Temp Blank Received: Y N NA

Therm ID#: []

Cooler 1 Temp Upon Receipt: [] °C

Cooler 1 Therm Corr. Factor: [] °C

Cooler 1 Corrected Temp: [] °C

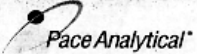
Comments:

Trip Blank Received: Y N NA

HCL MeOH TSP Other

Non Conformance(s): Page: []

YES / NO of: []



CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: DHEC

Address: 2600 Bull St., Columbia SC, 29201

Report To: R. Dunn

Copy To:

Customer Project Name/Number: N-233

Phone: [] Site/Facility ID #: 29-24878

Compliance Monitoring? [] Yes [] No

Collected By (print): W. H. []

Purchase Order #: 469006134

DW PWS ID #:

DW Location Code:

Collected By (signature): []

Turnaround Date Required:

Immediately Packed on Ice: [] Yes [] No

Sample Disposal: [] Dispose as appropriate [] Return [] Archive: [] Hold: []

Rush: [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [] Yes [] No

Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Billing Information:

State: SC **County/City:** [] **Time Zone Collected:** [] PT [] MT [] CT [] ET

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips:	
Sample pH Acceptable	Y N NA
pH Strips:	
Sulfide Present	Y N NA
Lead Acetate Strips:	

Lab USE ONLY:

Lab Sample # / Comments:

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res CI	# of Ctns
			Date	Time	Date	Time		
MW 1	GW	G	4/26/11	12:35				0
MW 10				12:32				
MW 11				12:45				
DW 1				13:50				
CR 1				12:35				
CR 2				12:35				
CR 3	GW	G	4/26/11	14:35				0
CR 4								
Dup R 1	GW	G	4/26/11	17:20				0
FB	GW	G	4/26/11	14:40				0

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Packing Material Used:

Lab Tracking #: 2350383

Radchem sample(s) screened (<500 cpm): Y N NA

Samples received via: FEDEX UPS Client Courier Pace Courier

Relinquished by/Company: (Signature) [Signature]

Date/Time: 4/29/19 8:50

Received by/Company: (Signature) [Signature]

Date/Time: 4/29/19 8:50

Table #:

Acctnum:

Template:

Prelogin:

PM:

PB:

Relinquished by/Company: (Signature)

Date/Time:

Received by/Company: (Signature)

Date/Time:

Lab Sample Temperature Info:

Temp Blank Received: Y N NA

Therm ID#: _____

Cooler 1 Temp Upon Receipt: _____ oC

Cooler 1 Therm Corr. Factor: _____ oC

Cooler 1 Corrected Temp: _____ oC

Comments:

Relinquished by/Company: (Signature)

Date/Time:

Received by/Company: (Signature)

Date/Time:

Trip Blank Received: Y N NA

HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: _____

of: _____



May 2, 2019

Re: Treatment of Purge Water
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 19-6816

To Whom It May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

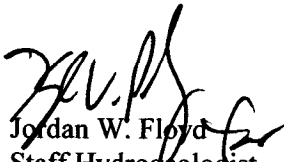
All purge waters were treated on-site using an up-flow treatment drum loaded with 80 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

A total of 15.00 gallons were treated on April 26, 2019 at the referenced site.

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.

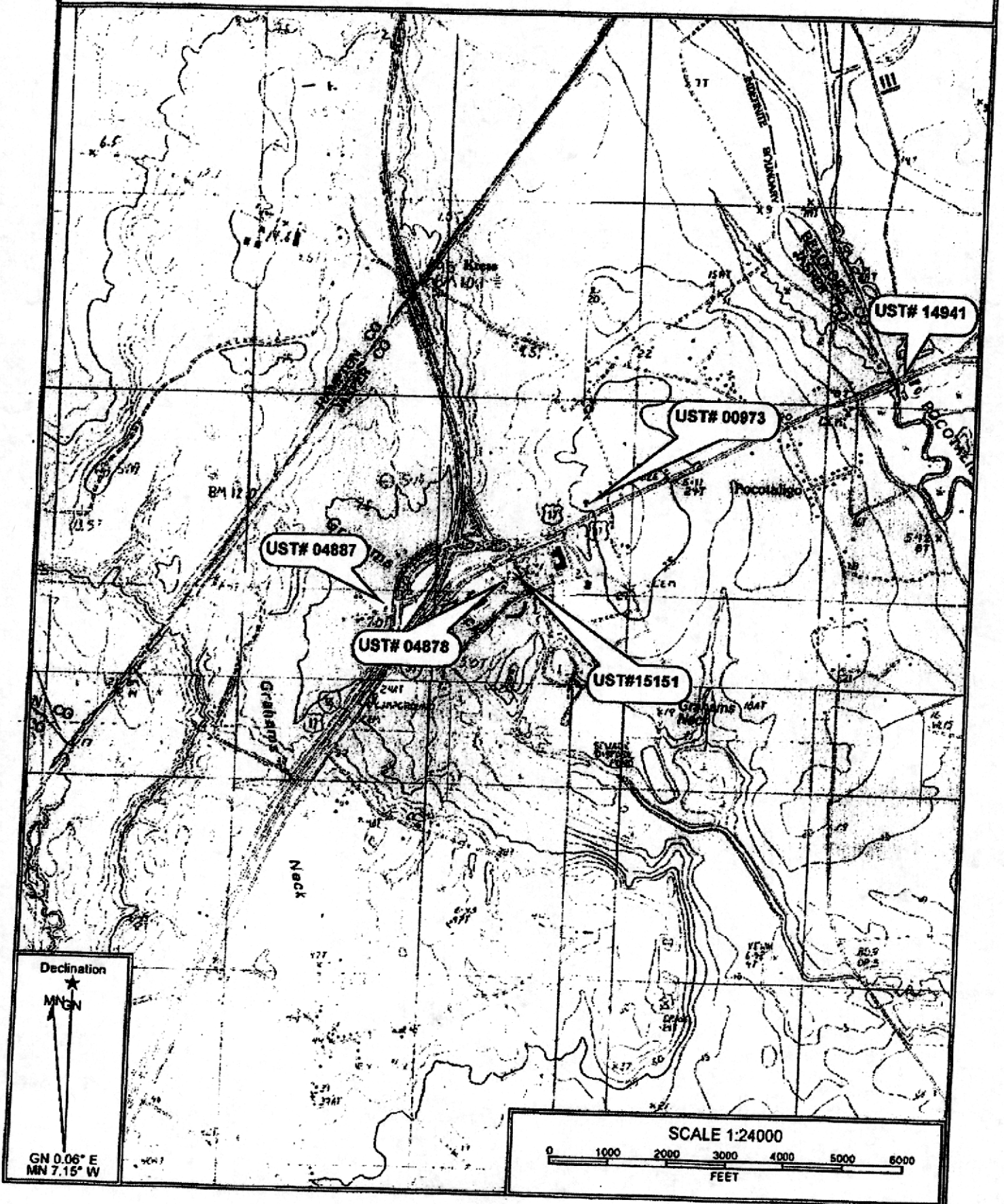


Jordan W. Floyd
Staff Hydrogeologist

Map Name: MC PHERSONVILLE
Print Date: 11/09/15

Scale: 1 inch = 2,000 ft.
Map Center: 032° 37' 46.89" N, 080° 52'

Horizontal Datum: NAD27



Declination

MN GN

GN 0.06° E
MN 7.15° W

SCALE 1:24000

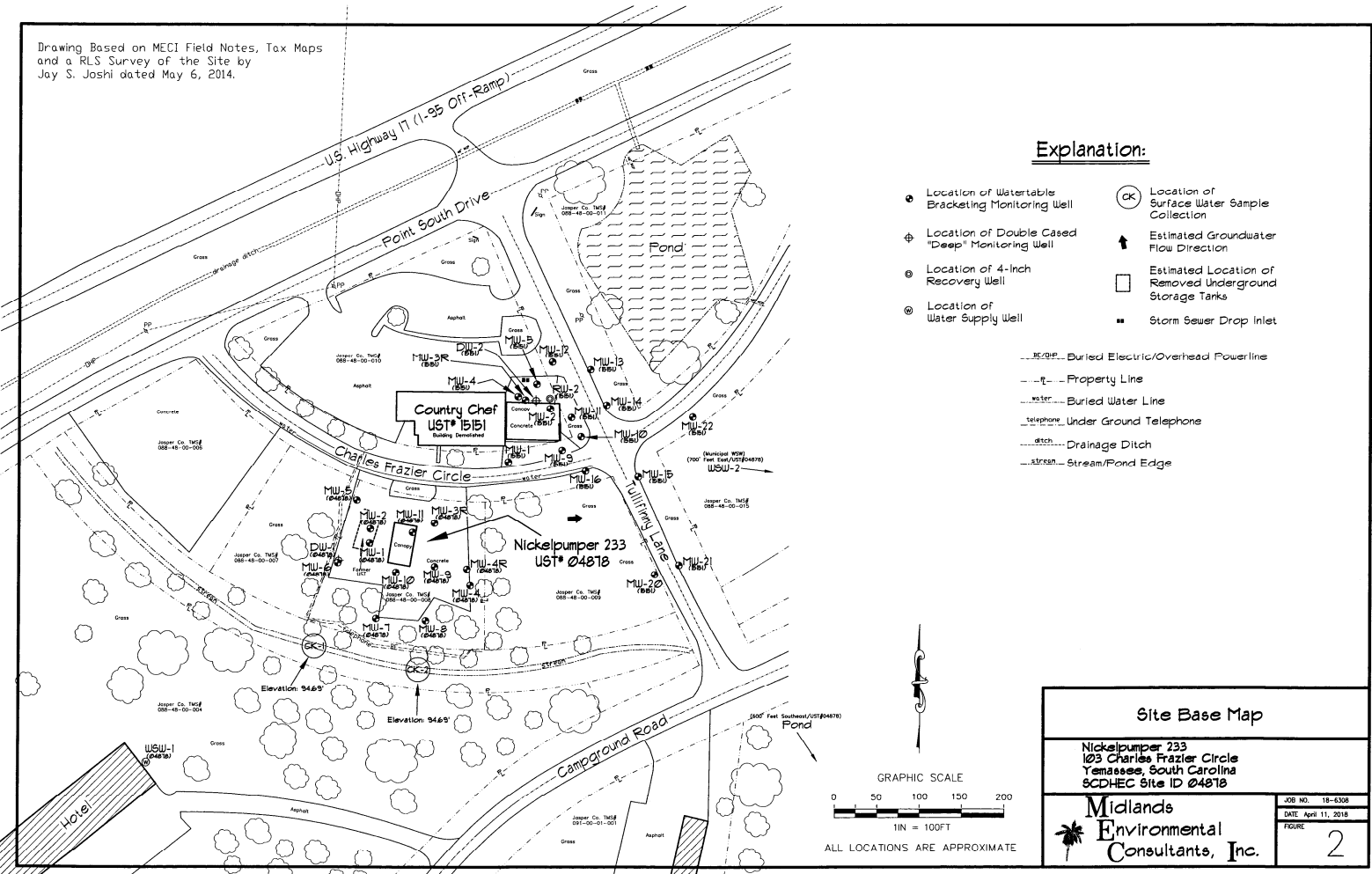
0 1000 2000 3000 4000 5000 6000

FEET

Drawing Based on MECI Field Notes, Tax Maps
and a RLS Survey of the Site by
Joy S. Joshi dated May 6, 2014.

Explanation:

- Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-Inch Recovery Well
- ⊗ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet
- 15k/20k --- Buried Electric/Overhead Powerlines
- P --- Property Line
- W --- Buried Water Line
- TEL --- Under Ground Telephone
- D --- Drainage Ditch
- S --- Stream/Pond Edge





Pace Analytical Services, LLC
9800 Kinsey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

May 07, 2019



Robert Dunn
SCHDEC
2600 Bull St
Columbia, SC 29201

RE: Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

Dear Robert Dunn:

Enclosed are the analytical results for sample(s) received by the laboratory on April 29, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angela M. Baioni

Angela Baioni
angela.baioni@pacelabs.com
(704)875-9092
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

Charlotte Certification IDs

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078
Louisiana/NELAP Certification # LA170028
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92427153001	MW 1	Water	04/26/19 14:30	04/29/19 09:50
92427153002	MW 2	Water	04/26/19 14:25	04/29/19 09:50
92427153003	MW 3R	Water	04/26/19 12:40	04/29/19 09:50
92427153004	MW 4	Water	04/26/19 12:30	04/29/19 09:50
92427153005	MW 5	Water	04/26/19 12:55	04/29/19 09:50
92427153006	MW 6	Water	04/26/19 14:11	04/29/19 09:50
92427153007	MW 7	Water	04/26/19 12:25	04/29/19 09:50
92427153008	MW 8	Water	04/26/19 12:20	04/29/19 09:50
92427153009	MW 9	Water	04/26/19 12:35	04/29/19 09:50
92427153010	MW 10	Water	04/26/19 12:50	04/29/19 09:50
92427153011	MW 11	Water	04/26/19 12:45	04/29/19 09:50
92427153012	DW 1	Water	04/26/19 13:30	04/29/19 09:50
92427153013	CK 1	Water	04/26/19 12:25	04/29/19 09:50
92427153014	CK 2	Water	04/26/19 12:30	04/29/19 09:50
92427153015	CK 3	Water	04/26/19 14:35	04/29/19 09:50
92427153016	DUP 1	Water	04/26/19 12:20	04/29/19 09:50
92427153017	FB	Water	04/26/19 14:40	04/29/19 09:50
92427153018	TB	Water	04/26/19 14:40	04/29/19 09:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92427153001	MW 1	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153002	MW 2	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153003	MW 3R	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	GAW	20	PASI-C
92427153004	MW 4	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153005	MW 5	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153006	MW 6	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153007	MW 7	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153008	MW 8	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153009	MW 9	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153010	MW 10	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153011	MW 11	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153012	DW 1	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153013	CK 1	EPA 8011	PKS	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153014	CK 2	EPA 8011	PKS	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153015	CK 3	EPA 8011	PKS	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153016	DUP 1	EPA 8011	PKS	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153017	FB	EPA 8011	PKS	2	PASI-C
		EPA 8260B	NSCQ	20	PASI-C
92427153018	TB	EPA 8260B	NSCQ	20	PASI-C

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
92427153001	MW 1					
EPA 8260B	Benzene	1970	ug/L	250	05/07/19 05:15	M1,R1
EPA 8260B	Ethylbenzene	1340	ug/L	250	05/07/19 05:15	M1,R1
EPA 8260B	Methyl-tert-butyl ether	256	ug/L	250	05/07/19 05:15	M1
EPA 8260B	Naphthalene	497	ug/L	250	05/07/19 05:15	M1
EPA 8260B	Toluene	6900	ug/L	250	05/07/19 05:15	M1,R1
EPA 8260B	Xylene (Total)	5490	ug/L	250	05/07/19 05:15	MS,RS
EPA 8260B	m&p-Xylene	4050	ug/L	500	05/07/19 05:15	M1,R1
EPA 8260B	o-Xylene	1440	ug/L	250	05/07/19 05:15	M1,R1
92427153002	MW 2					
EPA 8260B	Benzene	93.5	ug/L	10.0	05/07/19 01:53	
EPA 8260B	Ethylbenzene	153	ug/L	10.0	05/07/19 01:53	
EPA 8260B	Naphthalene	66.6	ug/L	10.0	05/07/19 01:53	
EPA 8260B	Toluene	34.6	ug/L	10.0	05/07/19 01:53	
EPA 8260B	Xylene (Total)	518	ug/L	10.0	05/07/19 01:53	
EPA 8260B	m&p-Xylene	455	ug/L	20.0	05/07/19 01:53	
EPA 8260B	o-Xylene	62.2	ug/L	10.0	05/07/19 01:53	
92427153003	MW 3R					
EPA 8260B	Ethylbenzene	558	ug/L	25.0	05/05/19 19:37	
EPA 8260B	Naphthalene	644	ug/L	25.0	05/05/19 19:37	
EPA 8260B	Xylene (Total)	623	ug/L	25.0	05/05/19 19:37	
EPA 8260B	m&p-Xylene	534	ug/L	50.0	05/05/19 19:37	
EPA 8260B	o-Xylene	88.6	ug/L	25.0	05/05/19 19:37	
92427153010	MW 10					
EPA 8260B	Benzene	56.3	ug/L	25.0	05/07/19 02:48	
EPA 8260B	Ethylbenzene	601	ug/L	25.0	05/07/19 02:48	
EPA 8260B	Naphthalene	381	ug/L	25.0	05/07/19 02:48	
EPA 8260B	Toluene	14.8J	ug/L	25.0	05/07/19 02:48	
EPA 8260B	Xylene (Total)	984	ug/L	25.0	05/07/19 02:48	
EPA 8260B	m&p-Xylene	850	ug/L	50.0	05/07/19 02:48	
EPA 8260B	o-Xylene	133	ug/L	25.0	05/07/19 02:48	
92427153011	MW 11					
EPA 8260B	Benzene	190	ug/L	62.5	05/05/19 09:27	
EPA 8260B	Ethylbenzene	1760	ug/L	62.5	05/05/19 09:27	M1
EPA 8260B	Naphthalene	839	ug/L	62.5	05/05/19 09:27	M1
EPA 8260B	Toluene	101	ug/L	62.5	05/05/19 09:27	
EPA 8260B	Xylene (Total)	5330	ug/L	62.5	05/05/19 09:27	MS
EPA 8260B	m&p-Xylene	3880	ug/L	125	05/05/19 09:27	M1
EPA 8260B	o-Xylene	1450	ug/L	62.5	05/05/19 09:27	M1
92427153015	CK 3					
EPA 8260B	Toluene	4.3J	ug/L	5.0	05/05/19 03:00	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

Method: EPA 8011
Description: 8011 GCS EDB and DBCP
Client: SCDHEC
Date: May 07, 2019

General Information:

17 samples were analyzed for EPA 8011. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 8011 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

Method: EPA 8260B
Description: 8260 MSV
Client: SCDHEC
Date: May 07, 2019

General Information:

18 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of-custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 473195

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92427153011

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2566574)
 - Ethylbenzene
 - m&p-Xylene
- MSD (Lab ID: 2566575)
 - Ethylbenzene
 - Naphthalene
 - m&p-Xylene
 - o-Xylene

P5: The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

- MS (Lab ID: 2566574)
 - tert-Butyl Formate

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Method: EPA 8260B

Description: 8260 MSV

Client: SCDHEC

Date: May 07, 2019

QC Batch: 473206

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92427153016

P5: The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

- MS (Lab ID: 2567321)
 - tert-Butyl Formate
- MSD (Lab ID: 2567322)
 - tert-Butyl Formate

QC Batch: 473421

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92427153001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 2568009)
 - Benzene
 - Ethylbenzene
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - m&p-Xylene
 - o-Xylene

R1: RPD value was outside control limits.

- MSD (Lab ID: 2568009)
 - Benzene
 - Ethylbenzene
 - Toluene
 - m&p-Xylene
 - o-Xylene

Additional Comments:

Analyte Comments:

QC Batch: 473421

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MSD (Lab ID: 2568009)
 - Toluene

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

Sample: MW 1 Lab ID: 92427153001 Collected: 04/26/19 14:30 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.011	1	05/03/19 08:27	05/05/19 15:55	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	130	%	60-140		1	05/03/19 08:27	05/05/19 15:55	301-79-56	
8260 MSV									
Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	5000	3280	50		05/07/19 05:15	75-85-4	
tert-Amylmethyl ether	ND	ug/L	500	152	50		05/07/19 05:15	994-05-8	
Benzene	1970	ug/L	250	87.0	50		05/07/19 05:15	71-43-2	M1,R1
3,3-Dimethyl-1-Butanol	ND	ug/L	5000	2700	50		05/07/19 05:15	624-95-3	
tert-Butyl Alcohol	ND	ug/L	5000	4550	50		05/07/19 05:15	75-65-0	
tert-Butyl Formate	ND	ug/L	2500	1200	50		05/07/19 05:15	762-75-4	
1,2-Dichloroethane	ND	ug/L	250	103	50		05/07/19 05:15	107-06-2	
Diisopropyl ether	ND	ug/L	250	174	50		05/07/19 05:15	108-20-3	
Ethanol	ND	ug/L	10000	7200	50		05/07/19 05:15	64-17-5	
Ethylbenzene	1340	ug/L	250	92.0	50		05/07/19 05:15	100-41-4	M1,R1
Ethyl-tert-butyl ether	ND	ug/L	500	423	50		05/07/19 05:15	637-92-3	
Methyl-tert-butyl ether	256	ug/L	250	155	50		05/07/19 05:15	1634-04-4	M1
Naphthalene	497	ug/L	250	104	50		05/07/19 05:15	91-20-3	M1
Toluene	6900	ug/L	250	100	50		05/07/19 05:15	108-88-3	M1,R1
Xylene (Total)	5490	ug/L	250	250	50		05/07/19 05:15	1330-20-7	MS,RS
m&p-Xylene	4050	ug/L	500	206	50		05/07/19 05:15	179601-23-1	M1,R1
o-Xylene	1440	ug/L	250	102	50		05/07/19 05:15	95-47-6	M1,R1
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		50		05/07/19 05:15	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130		50		05/07/19 05:15	17060-07-0	
Toluene-d8 (S)	101	%	70-130		50		05/07/19 05:15	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: MW 2 Lab ID: 92427153002 Collected: 04/26/19 14:25 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 16:14	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	105	%	60-140		1	05/03/19 08:27	05/05/19 16:14	301-79-56	
8260 MSV Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	200	131	2		05/07/19 01:53	75-85-4	
tert-Amylmethyl ether	ND	ug/L	20.0	6.1	2		05/07/19 01:53	994-05-8	
Benzene	93.5	ug/L	10.0	3.5	2		05/07/19 01:53	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	200	108	2		05/07/19 01:53	624-95-3	
tert-Butyl Alcohol	ND	ug/L	200	182	2		05/07/19 01:53	75-65-0	
tert-Butyl Formate	ND	ug/L	100	48.2	2		05/07/19 01:53	762-75-4	
1,2-Dichloroethane	ND	ug/L	10.0	4.1	2		05/07/19 01:53	107-06-2	
Diisopropyl ether	ND	ug/L	10.0	7.0	2		05/07/19 01:53	108-20-3	
Ethanol	ND	ug/L	400	288	2		05/07/19 01:53	64-17-5	
Ethylbenzene	153	ug/L	10.0	3.7	2		05/07/19 01:53	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	20.0	16.9	2		05/07/19 01:53	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	10.0	6.2	2		05/07/19 01:53	1634-04-4	
Naphthalene	66.6	ug/L	10.0	4.2	2		05/07/19 01:53	91-20-3	
Toluene	34.6	ug/L	10.0	4.0	2		05/07/19 01:53	108-88-3	
Xylene (Total)	518	ug/L	10.0	10.0	2		05/07/19 01:53	1330-20-7	
m&p-Xylene	455	ug/L	20.0	8.2	2		05/07/19 01:53	179601-23-1	
o-Xylene	62.2	ug/L	10.0	4.1	2		05/07/19 01:53	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		2		05/07/19 01:53	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130		2		05/07/19 01:53	17060-07-0	
Toluene-d8 (S)	102	%	70-130		2		05/07/19 01:53	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: MW 3R Lab ID: 92427153003 Collected: 04/26/19 12:40 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.011	1	05/03/19 08:27	05/05/19 16:32	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	116	%	60-140		1	05/03/19 08:27	05/05/19 16:32	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	500	328	5		05/05/19 19:37	75-85-4	
tert-Amylmethyl ether	ND	ug/L	50.0	15.2	5		05/05/19 19:37	994-05-8	
Benzene	ND	ug/L	25.0	8.7	5		05/05/19 19:37	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	500	270	5		05/05/19 19:37	624-95-3	
tert-Butyl Alcohol	ND	ug/L	500	455	5		05/05/19 19:37	75-65-0	
tert-Butyl Formate	ND	ug/L	250	120	5		05/05/19 19:37	762-75-4	
1,2-Dichloroethane	ND	ug/L	25.0	10.3	5		05/05/19 19:37	107-06-2	
Diisopropyl ether	ND	ug/L	25.0	17.4	5		05/05/19 19:37	108-20-3	
Ethanol	ND	ug/L	1000	720	5		05/05/19 19:37	64-17-5	
Ethylbenzene	558	ug/L	25.0	9.2	5		05/05/19 19:37	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50.0	42.3	5		05/05/19 19:37	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	25.0	15.5	5		05/05/19 19:37	1634-04-4	
Naphthalene	644	ug/L	25.0	10.4	5		05/05/19 19:37	91-20-3	
Toluene	ND	ug/L	25.0	10.0	5		05/05/19 19:37	108-88-3	
Xylene (Total)	623	ug/L	25.0	25.0	5		05/05/19 19:37	1330-20-7	
m&p-Xylene	534	ug/L	50.0	20.6	5		05/05/19 19:37	179601-23-1	
o-Xylene	88.6	ug/L	25.0	10.2	5		05/05/19 19:37	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	114	%	70-130		5		05/05/19 19:37	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-130		5		05/05/19 19:37	17060-07-0	
Toluene-d8 (S)	76	%	70-130		5		05/05/19 19:37	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: MW 4 Lab ID: 92427153004 Collected: 04/26/19 12:30 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 16:51	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	105	%	60-140		1	05/03/19 08:27	05/05/19 16:51	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 02:23	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 02:23	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 02:23	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 02:23	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 02:23	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 02:23	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 02:23	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 02:23	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 02:23	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 02:23	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 02:23	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 02:23	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 02:23	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 02:23	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 02:23	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 02:23	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 02:23	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	70-130		1		05/05/19 02:23	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		05/05/19 02:23	17060-07-0	
Toluene-d8 (S)	103	%	70-130		1		05/05/19 02:23	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

Sample: MW 5 Lab ID: 92427153005 Collected: 04/26/19 12:55 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP			Analytical Method: EPA 8011 Preparation Method: EPA 8011						
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.011	1	05/03/19 08:27	05/05/19 17:09	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	116	%	60-140		1	05/03/19 08:27	05/05/19 17:09	301-79-56	
8260 MSV			Analytical Method: EPA 8260B						
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 02:42	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 02:42	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 02:42	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 02:42	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 02:42	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 02:42	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 02:42	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 02:42	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 02:42	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 02:42	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 02:42	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 02:42	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 02:42	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 02:42	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 02:42	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 02:42	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 02:42	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	106	%	70-130		1		05/05/19 02:42	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		05/05/19 02:42	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		05/05/19 02:42	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

Sample: MW 6 Lab ID: 92427153006 Collected: 04/26/19 14:11 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.011	1	05/03/19 08:27	05/05/19 17:27	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	112	%	60-140		1	05/03/19 08:27	05/05/19 17:27	301-79-56	
8260 MSV Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 04:14	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 04:14	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 04:14	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 04:14	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 04:14	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 04:14	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 04:14	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 04:14	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 04:14	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 04:14	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 04:14	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 04:14	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 04:14	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 04:14	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 04:14	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 04:14	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 04:14	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		05/05/19 04:14	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		05/05/19 04:14	17060-07-0	
Toluene-d8 (S)	103	%	70-130		1		05/05/19 04:14	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: MW 7 Lab ID: 92427153007 Collected: 04/26/19 12:25 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 17:46	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	104	%	60-140		1	05/03/19 08:27	05/05/19 17:46	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/07/19 01:16	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/07/19 01:16	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/07/19 01:16	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/07/19 01:16	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/07/19 01:16	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/07/19 01:16	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/07/19 01:16	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/07/19 01:16	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/07/19 01:16	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/07/19 01:16	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/07/19 01:16	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/07/19 01:16	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/07/19 01:16	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/07/19 01:16	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/07/19 01:16	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/07/19 01:16	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/07/19 01:16	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		05/07/19 01:16	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130		1		05/07/19 01:16	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		05/07/19 01:16	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: MW 8 Lab ID: 92427153008 Collected: 04/26/19 12:20 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 18:04	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	105	%	60-140		1	05/03/19 08:27	05/05/19 18:04	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 04:32	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 04:32	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 04:32	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 04:32	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 04:32	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 04:32	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 04:32	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 04:32	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 04:32	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 04:32	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 04:32	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 04:32	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 04:32	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 04:32	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 04:32	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 04:32	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 04:32	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	70-130		1		05/05/19 04:32	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		05/05/19 04:32	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		05/05/19 04:32	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: MW 9 **Lab ID: 92427153009** Collected: 04/26/19 12:35 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 18:22	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	102	%	60-140		1	05/03/19 08:27	05/05/19 18:22	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 03:19	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 03:19	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 03:19	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 03:19	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 03:19	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 03:19	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 03:19	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 03:19	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 03:19	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 03:19	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 03:19	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 03:19	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 03:19	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 03:19	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 03:19	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 03:19	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 03:19	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130		1		05/05/19 03:19	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		05/05/19 03:19	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		05/05/19 03:19	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: MW 10 Lab ID: 92427153010 Collected: 04/26/19 12:50 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 18:41	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	107	%	60-140		1	05/03/19 08:27	05/05/19 18:41	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	500	328	5		05/07/19 02:48	75-85-4	
tert-Amylmethyl ether	ND	ug/L	50.0	15.2	5		05/07/19 02:48	994-05-8	
Benzene	56.3	ug/L	25.0	8.7	5		05/07/19 02:48	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	500	270	5		05/07/19 02:48	624-95-3	
tert-Butyl Alcohol	ND	ug/L	500	455	5		05/07/19 02:48	75-65-0	
tert-Butyl Formate	ND	ug/L	250	120	5		05/07/19 02:48	762-75-4	
1,2-Dichloroethane	ND	ug/L	25.0	10.3	5		05/07/19 02:48	107-06-2	
Diisopropyl ether	ND	ug/L	25.0	17.4	5		05/07/19 02:48	108-20-3	
Ethanol	ND	ug/L	1000	720	5		05/07/19 02:48	64-17-5	
Ethylbenzene	601	ug/L	25.0	9.2	5		05/07/19 02:48	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50.0	42.3	5		05/07/19 02:48	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	25.0	15.5	5		05/07/19 02:48	1634-04-4	
Naphthalene	381	ug/L	25.0	10.4	5		05/07/19 02:48	91-20-3	
Toluene	14.8J	ug/L	25.0	10.0	5		05/07/19 02:48	108-88-3	
Xylene (Total)	984	ug/L	25.0	25.0	5		05/07/19 02:48	1330-20-7	
m&p-Xylene	850	ug/L	50.0	20.6	5		05/07/19 02:48	179601-23-1	
o-Xylene	133	ug/L	25.0	10.2	5		05/07/19 02:48	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		5		05/07/19 02:48	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130		5		05/07/19 02:48	17060-07-0	
Toluene-d8 (S)	104	%	70-130		5		05/07/19 02:48	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: MW 11 Lab ID: 92427153011 Collected: 04/26/19 12:45 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP			Analytical Method: EPA 8011 Preparation Method: EPA 8011						
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 18:59	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	112	%	60-140		1	05/03/19 08:27	05/05/19 18:59	301-79-56	
8260 MSV			Analytical Method: EPA 8260B						
tert-Amyl Alcohol	ND	ug/L	1250	820	12.5		05/05/19 09:27	75-85-4	
tert-Amylmethyl ether	ND	ug/L	125	38.0	12.5		05/05/19 09:27	994-05-8	
Benzene	190	ug/L	62.5	21.8	12.5		05/05/19 09:27	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	1250	674	12.5		05/05/19 09:27	624-95-3	
tert-Butyl Alcohol	ND	ug/L	1250	1140	12.5		05/05/19 09:27	75-65-0	
tert-Butyl Formate	ND	ug/L	625	301	12.5		05/05/19 09:27	762-75-4	P5
1,2-Dichloroethane	ND	ug/L	62.5	25.8	12.5		05/05/19 09:27	107-06-2	
Diisopropyl ether	ND	ug/L	62.5	43.6	12.5		05/05/19 09:27	108-20-3	
Ethanol	ND	ug/L	2500	1800	12.5		05/05/19 09:27	64-17-5	
Ethylbenzene	1760	ug/L	62.5	23.0	12.5		05/05/19 09:27	100-41-4	M1
Ethyl-tert-butyl ether	ND	ug/L	125	106	12.5		05/05/19 09:27	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	62.5	38.8	12.5		05/05/19 09:27	1634-04-4	
Naphthalene	839	ug/L	62.5	26.1	12.5		05/05/19 09:27	91-20-3	M1
Toluene	101	ug/L	62.5	25.1	12.5		05/05/19 09:27	108-88-3	
Xylene (Total)	5330	ug/L	62.5	62.5	12.5		05/05/19 09:27	1330-20-7	MS
m&p-Xylene	3880	ug/L	125	51.4	12.5		05/05/19 09:27	179601-23-1	M1
o-Xylene	1450	ug/L	62.5	25.5	12.5		05/05/19 09:27	95-47-6	M1
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		12.5		05/05/19 09:27	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		12.5		05/05/19 09:27	17060-07-0	
Toluene-d8 (S)	105	%	70-130		12.5		05/05/19 09:27	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: DW 1 Lab ID: 92427153012 Collected: 04/26/19 13:30 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 19:18	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	109	%	60-140		1	05/03/19 08:27	05/05/19 19:18	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 03:37	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 03:37	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 03:37	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 03:37	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 03:37	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 03:37	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 03:37	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 03:37	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 03:37	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 03:37	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 03:37	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 03:37	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 03:37	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 03:37	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 03:37	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 03:37	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 03:37	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	70-130		1		05/05/19 03:37	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		1		05/05/19 03:37	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		05/05/19 03:37	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: CK 1 Lab ID: 92427153013 Collected: 04/26/19 12:25 Received: 04/29/19 09:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/06/19 12:34	05/07/19 15:12	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	98	%	60-140		1	05/06/19 12:34	05/07/19 15:12	301-79-56	
8260 MSV Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 02:05	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 02:05	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 02:05	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 02:05	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 02:05	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 02:05	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 02:05	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 02:05	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 02:05	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 02:05	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 02:05	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 02:05	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 02:05	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 02:05	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 02:05	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 02:05	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 02:05	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130		1		05/05/19 02:05	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		05/05/19 02:05	17060-07-0	
Toluene-d8 (S)	103	%	70-130		1		05/05/19 02:05	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: CK 2 Lab ID: 92427153014 Collected: 04/26/19 12:30 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.011	1	05/06/19 12:34	05/07/19 15:32	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	97	%	60-140		1	05/06/19 12:34	05/07/19 15:32	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 03:55	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 03:55	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 03:55	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 03:55	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 03:55	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 03:55	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 03:55	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 03:55	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 03:55	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 03:55	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 03:55	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 03:55	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 03:55	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 03:55	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 03:55	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 03:55	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 03:55	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	70-130		1		05/05/19 03:55	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		05/05/19 03:55	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		05/05/19 03:55	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: CK 3 Lab ID: 92427153015 Collected: 04/26/19 14:35 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/06/19 12:34	05/07/19 15:52	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	97	%	60-140		1	05/06/19 12:34	05/07/19 15:52	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 03:00	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 03:00	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 03:00	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 03:00	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 03:00	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 03:00	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 03:00	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 03:00	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 03:00	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 03:00	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 03:00	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 03:00	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 03:00	91-20-3	
Toluene	4.3J	ug/L	5.0	2.0	1		05/05/19 03:00	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 03:00	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 03:00	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 03:00	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	70-130		1		05/05/19 03:00	480-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		05/05/19 03:00	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		05/05/19 03:00	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: DUP 1 Lab ID: 92427153016 Collected: 04/26/19 12:20 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.011	1	05/06/19 12:34	05/06/19 19:55	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	96	%	60-140		1	05/06/19 12:34	05/06/19 19:55	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 04:51	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 04:51	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 04:51	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 04:51	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 04:51	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 04:51	762-75-4	P5
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 04:51	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 04:51	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 04:51	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 04:51	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 04:51	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 04:51	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 04:51	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 04:51	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 04:51	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 04:51	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 04:51	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130		1		05/05/19 04:51	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		05/05/19 04:51	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		05/05/19 04:51	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: FB Lab ID: 92427153017 Collected: 04/26/19 14:40 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.011	1	05/06/19 12:34	05/06/19 20:15	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	99	%	60-140		1	05/06/19 12:34	05/06/19 20:15	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 00:33	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 00:33	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 00:33	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 00:33	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 00:33	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 00:33	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 00:33	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 00:33	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 00:33	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 00:33	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 00:33	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 00:33	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 00:33	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 00:33	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 00:33	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 00:33	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 00:33	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130		1		05/05/19 00:33	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		05/05/19 00:33	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		05/05/19 00:33	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Sample: TB Lab ID: 92427153018 Collected: 04/26/19 14:40 Received: 04/29/19 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 00:51	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		05/05/19 00:51	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		05/05/19 00:51	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		05/05/19 00:51	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 00:51	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 00:51	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		05/05/19 00:51	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		05/05/19 00:51	108-20-3	
Ethanol	ND	ug/L	200	144	1		05/05/19 00:51	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		05/05/19 00:51	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		05/05/19 00:51	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		05/05/19 00:51	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		05/05/19 00:51	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		05/05/19 00:51	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 00:51	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 00:51	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 00:51	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	70-130		1		05/05/19 00:51	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		05/05/19 00:51	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		05/05/19 00:51	2037-26-5	

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

QC Batch: 473112 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV SC
Associated Lab Samples: 92427153003

METHOD BLANK: 2566122 Matrix: Water
Associated Lab Samples: 92427153003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	2.1	05/05/19 11:09	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	53.9	05/05/19 11:09	
Benzene	ug/L	ND	5.0	1.7	05/05/19 11:09	
Diisopropyl ether	ug/L	ND	5.0	3.5	05/05/19 11:09	
Ethanol	ug/L	ND	200	144	05/05/19 11:09	
Ethyl-tert-butyl ether	ug/L	ND	10.0	8.5	05/05/19 11:09	
Ethylbenzene	ug/L	ND	5.0	1.8	05/05/19 11:09	
m&p-Xylene	ug/L	ND	10.0	4.1	05/05/19 11:09	
Methyl-tert-butyl ether	ug/L	ND	5.0	3.1	05/05/19 11:09	
Naphthalene	ug/L	ND	5.0	2.1	05/05/19 11:09	
o-Xylene	ug/L	ND	5.0	2.0	05/05/19 11:09	
tert-Amyl Alcohol	ug/L	ND	100	65.6	05/05/19 11:09	
tert-Amylmethyl ether	ug/L	ND	10.0	3.0	05/05/19 11:09	
tert-Butyl Alcohol	ug/L	ND	100	91.0	05/05/19 11:09	
tert-Butyl Formate	ug/L	ND	50.0	24.1	05/05/19 11:09	
Toluene	ug/L	ND	5.0	2.0	05/05/19 11:09	
Xylene (Total)	ug/L	ND	5.0	5.0	05/05/19 11:09	
1,2-Dichloroethane-d4 (S)	%	120	70-130		05/05/19 11:09	
4-Bromofluorobenzene (S)	%	101	70-130		05/05/19 11:09	
Toluene-d8 (S)	%	102	70-130		05/05/19 11:09	

LABORATORY CONTROL SAMPLE: 2566123

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	50.3	101	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1010	101	70-130	
Benzene	ug/L	50	39.7	79	70-130	
Diisopropyl ether	ug/L	50	57.0	114	70-130	
Ethanol	ug/L	2000	2060	103	70-130	
Ethyl-tert-butyl ether	ug/L	100	99.5	99	70-130	
Ethylbenzene	ug/L	50	50.0	100	70-130	
m&p-Xylene	ug/L	100	103	103	70-130	
Methyl-tert-butyl ether	ug/L	50	55.3	111	70-130	
Naphthalene	ug/L	50	59.1	118	70-130	
o-Xylene	ug/L	50	48.5	97	70-130	
tert-Amyl Alcohol	ug/L	1000	895	89	70-130	
tert-Amylmethyl ether	ug/L	100	88.9	89	70-130	
tert-Butyl Alcohol	ug/L	500	535	107	70-130	
tert-Butyl Formate	ug/L	400	386	97	70-130	
Toluene	ug/L	50	46.5	93	70-130	

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

LABORATORY CONTROL SAMPLE: 2566123

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	151	101	70-130	
1,2-Dichloroethane-d4 (S)	%			109	70-130	
4-Bromofluorobenzene (S)	%			108	70-130	
Toluene-d8 (S)	%			97	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2567391 2567392

Parameter	Units	2567391		2567392		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
1,2-Dichloroethane	ug/L	ND	100	98.7	97.4	99	97	70-130	1	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	2000	2050	1890	103	95	70-130	8	30	
Benzene	ug/L	ND	100	115	115	107	108	70-130	0	30	
Diisopropyl ether	ug/L	ND	100	108	104	108	104	70-130	3	30	
Ethanol	ug/L	ND	4000	4090	3850	102	96	70-130	6	30	
Ethyl-tert-butyl ether	ug/L	ND	200	200	195	100	98	70-130	2	30	
Ethylbenzene	ug/L	558	100	670	660	112	101	70-130	2	30	
m&p-Xylene	ug/L	534	200	738	727	102	96	70-130	2	30	
Methyl-tert-butyl ether	ug/L	ND	100	110	107	110	107	70-130	3	30	
Naphthalene	ug/L	644	100	754	732	110	88	70-130	3	30	
o-Xylene	ug/L	88.6	100	202	200	114	112	70-130	1	30	
tert-Amyl Alcohol	ug/L	ND	2000	2130	1990	106	100	70-130	7	30	
tert-Amylmethyl ether	ug/L	ND	200	220	216	110	108	70-130	2	30	
tert-Butyl Alcohol	ug/L	ND	1000	1010	946	101	95	70-130	6	30	
tert-Butyl Formate	ug/L	ND	800	781	728	98	91	70-130	7	30	
Toluene	ug/L	ND	100	109	110	107	108	70-130	1	30	
Xylene (Total)	ug/L	623	300	940	927	106	101	70-130	1	30	
1,2-Dichloroethane-d4 (S)	%					100	101	70-130			
4-Bromofluorobenzene (S)	%					98	97	70-130			
Toluene-d8 (S)	%					100	102	70-130			

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

QC Batch: 473195 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92427153011

METHOD BLANK: 2566572 Matrix: Water
 Associated Lab Samples: 92427153011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	2.1	05/04/19 23:38	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	53.9	05/04/19 23:38	
Benzene	ug/L	ND	5.0	1.7	05/04/19 23:38	
Diisopropyl ether	ug/L	ND	5.0	3.5	05/04/19 23:38	
Ethanol	ug/L	ND	200	144	05/04/19 23:38	
Ethyl-tert-butyl ether	ug/L	ND	10.0	8.5	05/04/19 23:38	
Ethylbenzene	ug/L	ND	5.0	1.8	05/04/19 23:38	
m&p-Xylene	ug/L	ND	10.0	4.1	05/04/19 23:38	
Methyl-tert-butyl ether	ug/L	ND	5.0	3.1	05/04/19 23:38	
Naphthalene	ug/L	ND	5.0	2.1	05/04/19 23:38	
o-Xylene	ug/L	ND	5.0	2.0	05/04/19 23:38	
tert-Amyl Alcohol	ug/L	ND	100	65.6	05/04/19 23:38	
tert-Amylmethyl ether	ug/L	ND	10.0	3.0	05/04/19 23:38	
tert-Butyl Alcohol	ug/L	ND	100	91.0	05/04/19 23:38	
tert-Butyl Formate	ug/L	ND	50.0	24.1	05/04/19 23:38	
Toluene	ug/L	ND	5.0	2.0	05/04/19 23:38	
Xylene (Total)	ug/L	ND	5.0	5.0	05/04/19 23:38	
1,2-Dichloroethane-d4 (S)	%	96	70-130		05/04/19 23:38	
4-Bromofluorobenzene (S)	%	103	70-130		05/04/19 23:38	
Toluene-d8 (S)	%	101	70-130		05/04/19 23:38	

LABORATORY CONTROL SAMPLE: 2566573

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	50.3	101	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1100	110	70-130	
Benzene	ug/L	50	52.4	105	70-130	
Diisopropyl ether	ug/L	50	55.9	112	70-130	
Ethanol	ug/L	2000	2000	100	70-130	
Ethyl-tert-butyl ether	ug/L	100	107	107	70-130	
Ethylbenzene	ug/L	50	50.7	101	70-130	
m&p-Xylene	ug/L	100	101	101	70-130	
Methyl-tert-butyl ether	ug/L	50	58.4	117	70-130	
Naphthalene	ug/L	50	52.2	104	70-130	
o-Xylene	ug/L	50	49.7	99	70-130	
tert-Amyl Alcohol	ug/L	1000	1110	111	70-130	
tert-Amylmethyl ether	ug/L	100	110	110	70-130	
tert-Butyl Alcohol	ug/L	500	531	106	70-130	
tert-Butyl Formate	ug/L	400	457	114	70-130	
Toluene	ug/L	50	49.7	99	70-130	

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

LABORATORY CONTROL SAMPLE: 2566573

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	151	101	70-130	
1,2-Dichloroethane-d4 (S)	%			103	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2566574 2566575

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92427153011 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,2-Dichloroethane	ug/L	ND	250	250	257	247	103	99	70-130	4	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	5000	5000	5620	4930	112	99	70-130	13	30	
Benzene	ug/L	190	250	250	471	423	112	93	70-130	11	30	
Diisopropyl ether	ug/L	ND	250	250	271	265	108	106	70-130	2	30	
Ethanol	ug/L	ND	10000	10000	11100	9350	111	93	70-130	17	30	
Ethyl-tert-butyl ether	ug/L	ND	500	500	506	497	101	99	70-130	2	30	
Ethylbenzene	ug/L	1760	250	250	1930	1660	69	-42	70-130	15	30	M1
m&p-Xylene	ug/L	3880	500	500	4040	3510	32	-74	70-130	14	30	M1
Methyl-tert-butyl ether	ug/L	ND	250	250	283	278	110	109	70-130	2	30	
Naphthalene	ug/L	839	250	250	1080	1000	98	65	70-130	8	30	M1
o-Xylene	ug/L	1450	250	250	1670	1320	89	-50	70-130	23	30	M1
tert-Amyl Alcohol	ug/L	ND	5000	5000	6330	5910	127	118	70-130	7	30	
tert-Amylmethyl ether	ug/L	ND	500	500	551	539	110	108	70-130	2	30	
tert-Butyl Alcohol	ug/L	ND	2500	2500	3210	2660	128	106	70-130	19	30	
tert-Butyl Formate	ug/L	ND	2000	2000	ND	1990	7	100	70-130		30	P5
Toluene	ug/L	101	250	250	366	312	106	84	70-130	16	30	
Xylene (Total)	ug/L	5330	750	750	5710	4830	51	-66	70-130	17	30	MS
1,2-Dichloroethane-d4 (S)	%						107	102	70-130			
4-Bromofluorobenzene (S)	%						97	98	70-130			
Toluene-d8 (S)	%						101	101	70-130			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

QC Batch: 473206 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92427153004, 92427153005, 92427153006, 92427153008, 92427153009, 92427153012, 92427153013, 92427153014, 92427153015, 92427153016, 92427153017, 92427153018

METHOD BLANK: 2566662 Matrix: Water
 Associated Lab Samples: 92427153004, 92427153005, 92427153006, 92427153008, 92427153009, 92427153012, 92427153013, 92427153014, 92427153015, 92427153016, 92427153017, 92427153018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	2.1	05/04/19 23:20	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	53.9	05/04/19 23:20	
Benzene	ug/L	ND	5.0	1.7	05/04/19 23:20	
Diisopropyl ether	ug/L	ND	5.0	3.5	05/04/19 23:20	
Ethanol	ug/L	ND	200	144	05/04/19 23:20	
Ethyl-tert-butyl ether	ug/L	ND	10.0	8.5	05/04/19 23:20	
Ethylbenzene	ug/L	ND	5.0	1.8	05/04/19 23:20	
m&p-Xylene	ug/L	ND	10.0	4.1	05/04/19 23:20	
Methyl-tert-butyl ether	ug/L	ND	5.0	3.1	05/04/19 23:20	
Naphthalene	ug/L	ND	5.0	2.1	05/04/19 23:20	
o-Xylene	ug/L	ND	5.0	2.0	05/04/19 23:20	
tert-Amyl Alcohol	ug/L	ND	100	65.6	05/04/19 23:20	
tert-Amylmethyl ether	ug/L	ND	10.0	3.0	05/04/19 23:20	
tert-Butyl Alcohol	ug/L	ND	100	91.0	05/04/19 23:20	
tert-Butyl Formate	ug/L	ND	50.0	24.1	05/04/19 23:20	
Toluene	ug/L	ND	5.0	2.0	05/04/19 23:20	
Xylene (Total)	ug/L	ND	5.0	5.0	05/04/19 23:20	
1,2-Dichloroethane-d4 (S)	%	98	70-130		05/04/19 23:20	
4-Bromofluorobenzene (S)	%	106	70-130		05/04/19 23:20	
Toluene-d8 (S)	%	105	70-130		05/04/19 23:20	

LABORATORY CONTROL SAMPLE: 2566663

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	50.2	100	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1100	110	70-130	
Benzene	ug/L	50	51.1	102	70-130	
Diisopropyl ether	ug/L	50	55.6	111	70-130	
Ethanol	ug/L	2000	1960	98	70-130	
Ethyl-tert-butyl ether	ug/L	100	107	107	70-130	
Ethylbenzene	ug/L	50	49.9	100	70-130	
m&p-Xylene	ug/L	100	99.7	100	70-130	
Methyl-tert-butyl ether	ug/L	50	58.4	117	70-130	
Naphthalene	ug/L	50	51.9	104	70-130	
o-Xylene	ug/L	50	49.3	99	70-130	
tert-Amyl Alcohol	ug/L	1000	1100	110	70-130	
tert-Amylmethyl ether	ug/L	100	111	111	70-130	
tert-Butyl Alcohol	ug/L	500	540	108	70-130	

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

LABORATORY CONTROL SAMPLE: 2566663

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
tert-Butyl Formate	ug/L	400	458	115	70-130	
Toluene	ug/L	50	48.7	97	70-130	
Xylene (Total)	ug/L	150	149	99	70-130	
1,2-Dichloroethane-d4 (S)	%			99	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2567321 2567322

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92427153016 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,2-Dichloroethane	ug/L	ND	20	20	19.5	19.7	98	99	70-130	1	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	400	386	374	96	94	70-130	3	30	
Benzene	ug/L	ND	20	20	21.7	21.3	109	107	70-130	2	30	
Diisopropyl ether	ug/L	ND	20	20	20.8	20.6	104	103	70-130	1	30	
Ethanol	ug/L	ND	800	800	798	788	100	98	70-130	1	30	
Ethyl-tert-butyl ether	ug/L	ND	40	40	39.2	38.5	98	96	70-130	2	30	
Ethylbenzene	ug/L	ND	20	20	21.7	21.7	109	108	70-130	0	30	
m&p-Xylene	ug/L	ND	40	40	44.0	45.0	110	113	70-130	2	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	21.3	20.6	107	103	70-130	4	30	
Naphthalene	ug/L	ND	20	20	20.8	19.8	104	99	70-130	5	30	
o-Xylene	ug/L	ND	20	20	21.0	21.2	105	106	70-130	1	30	
tert-Amyl Alcohol	ug/L	ND	400	400	413	369	103	92	70-130	11	30	
tert-Amylmethyl ether	ug/L	ND	40	40	42.3	40.9	106	102	70-130	3	30	
tert-Butyl Alcohol	ug/L	ND	200	200	211	203	105	101	70-130	4	30	
tert-Butyl Formate	ug/L	ND	160	160	86.3	77.7	54	49	70-130	10	30	P5
Toluene	ug/L	ND	20	20	21.4	20.9	107	104	70-130	3	30	
Xylene (Total)	ug/L	ND	60	60	65.0	66.2	108	110	70-130	2	30	
1,2-Dichloroethane-d4 (S)	%						97	103	70-130			
4-Bromofluorobenzene (S)	%						98	101	70-130			
Toluene-d8 (S)	%						99	99	70-130			

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

QC Batch: 473421 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92427153001, 92427153002, 92427153007, 92427153010

METHOD BLANK: 2567585 Matrix: Water
 Associated Lab Samples: 92427153001, 92427153002, 92427153007, 92427153010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	2.1	05/06/19 21:54	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	53.9	05/06/19 21:54	
Benzene	ug/L	ND	5.0	1.7	05/06/19 21:54	
Diisopropyl ether	ug/L	ND	5.0	3.5	05/06/19 21:54	
Ethanol	ug/L	ND	200	144	05/06/19 21:54	
Ethyl-tert-butyl ether	ug/L	ND	10.0	8.5	05/06/19 21:54	
Ethylbenzene	ug/L	ND	5.0	1.8	05/06/19 21:54	
m&p-Xylene	ug/L	ND	10.0	4.1	05/06/19 21:54	
Methyl-tert-butyl ether	ug/L	ND	5.0	3.1	05/06/19 21:54	
Naphthalene	ug/L	ND	5.0	2.1	05/06/19 21:54	
o-Xylene	ug/L	ND	5.0	2.0	05/06/19 21:54	
tert-Amyl Alcohol	ug/L	ND	100	65.6	05/06/19 21:54	
tert-Amylmethyl ether	ug/L	ND	10.0	3.0	05/06/19 21:54	
tert-Butyl Alcohol	ug/L	ND	100	91.0	05/06/19 21:54	
tert-Butyl Formate	ug/L	ND	50.0	24.1	05/06/19 21:54	
Toluene	ug/L	ND	5.0	2.0	05/06/19 21:54	
Xylene (Total)	ug/L	ND	5.0	5.0	05/06/19 21:54	
1,2-Dichloroethane-d4 (S)	%	94	70-130		05/06/19 21:54	
4-Bromofluorobenzene (S)	%	102	70-130		05/06/19 21:54	
Toluene-d8 (S)	%	103	70-130		05/06/19 21:54	

LABORATORY CONTROL SAMPLE: 2567586

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	47.0	94	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1040	104	70-130	
Benzene	ug/L	50	50.2	100	70-130	
Diisopropyl ether	ug/L	50	52.5	105	70-130	
Ethanol	ug/L	2000	1970	99	70-130	
Ethyl-tert-butyl ether	ug/L	100	100	100	70-130	
Ethylbenzene	ug/L	50	49.9	100	70-130	
m&p-Xylene	ug/L	100	101	101	70-130	
Methyl-tert-butyl ether	ug/L	50	54.6	109	70-130	
Naphthalene	ug/L	50	52.4	105	70-130	
o-Xylene	ug/L	50	49.2	98	70-130	
tert-Amyl Alcohol	ug/L	1000	1100	110	70-130	
tert-Amylmethyl ether	ug/L	100	107	107	70-130	
tert-Butyl Alcohol	ug/L	500	505	101	70-130	
tert-Butyl Formate	ug/L	400	433	108	70-130	
Toluene	ug/L	50	49.2	98	70-130	

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

LABORATORY CONTROL SAMPLE: 2567586

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	150	100	70-130	
1,2-Dichloroethane-d4 (S)	%			97	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2568008 2568009

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max		Qual	
		92427153001 Result	Spike Conc.	Spike Conc.	MS Result				MSD Result	RPD		RPD
1,2-Dichloroethane	ug/L	ND	1000	1000	972	996	97	100	70-130	2	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	20000	20000	19800	20300	99	102	70-130	3	30	
Benzene	ug/L	1970	1000	1000	3130	4470	116	250	70-130	35	30	M1,R1
Diisopropyl ether	ug/L	ND	1000	1000	1050	1090	105	109	70-130	3	30	
Ethanol	ug/L	ND	40000	40000	39600	40500	99	101	70-130	2	30	
Ethyl-tert-butyl ether	ug/L	ND	2000	2000	1970	2020	99	101	70-130	2	30	
Ethylbenzene	ug/L	1340	1000	1000	2290	3180	95	184	70-130	33	30	M1,R1
m&p-Xylene	ug/L	4050	2000	2000	5830	8210	89	208	70-130	34	30	M1,R1
Methyl-tert-butyl ether	ug/L	256	1000	1000	1410	1650	116	139	70-130	16	30	M1
Naphthalene	ug/L	497	1000	1000	1520	1910	102	141	70-130	23	30	M1
o-Xylene	ug/L	1440	1000	1000	2370	3360	93	192	70-130	35	30	M1,R1
tert-Amyl Alcohol	ug/L	ND	20000	20000	22000	22900	110	115	70-130	4	30	
tert-Amylmethyl ether	ug/L	ND	2000	2000	2140	2160	107	108	70-130	1	30	
tert-Butyl Alcohol	ug/L	ND	10000	10000	11200	11400	112	114	70-130	2	30	
tert-Butyl Formate	ug/L	ND	8000	8000	7230	6370	90	80	70-130	13	30	
Toluene	ug/L	6900	1000	1000	7650	11400	75	452	70-130	40	30	E,M1,R1
Xylene (Total)	ug/L	5490	3000	3000	8200	11600	90	203	70-130	34	30	MS,RS
1,2-Dichloroethane-d4 (S)	%						100	98	70-130			
4-Bromofluorobenzene (S)	%						95	98	70-130			
Toluene-d8 (S)	%						100	98	70-130			

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

QC Batch: 473057 Analysis Method: EPA 8011
QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
Associated Lab Samples: 92427153001, 92427153002, 92427153003, 92427153004, 92427153005, 92427153006, 92427153007, 92427153008, 92427153009, 92427153010, 92427153011, 92427153012

METHOD BLANK: 2565816 Matrix: Water
Associated Lab Samples: 92427153001, 92427153002, 92427153003, 92427153004, 92427153005, 92427153006, 92427153007, 92427153008, 92427153009, 92427153010, 92427153011, 92427153012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	0.011	05/05/19 11:37	
1-Chloro-2-bromopropane (S)	%	104	60-140		05/05/19 11:37	

LABORATORY CONTROL SAMPLE & LCSD: 2565817 2565818

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	0.25	0.26	0.25	105	103	60-140	2	20	
1-Chloro-2-bromopropane (S)	%				106	104	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2565820 2565821

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92427147013 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,2-Dibromoethane (EDB)	ug/L	ND	0.24	0.24	0.26	0.26	108	109	60-140	2	20	
1-Chloro-2-bromopropane (S)	%						109	109	60-140			

SAMPLE DUPLICATE: 2565819

Parameter	Units	92427147012 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	104	107			

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

QC Batch: 473425 Analysis Method: EPA 8011
 QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
 Associated Lab Samples: 92427153013, 92427153014, 92427153015

METHOD BLANK: 2567622 Matrix: Water
 Associated Lab Samples: 92427153013, 92427153014, 92427153015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	0.011	05/07/19 09:05	
1-Chloro-2-bromopropane (S)	%	102	60-140		05/07/19 09:05	

LABORATORY CONTROL SAMPLE & LCSD: 2567623 2567624

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	0.25	0.25	0.28	100	113	60-140	12	20	
1-Chloro-2-bromopropane (S)	%				98	113	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2567626 2567627

Parameter	Units	92427147004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	0.25	0.25	0.25	0.26	102	106	60-140	4	20	
1-Chloro-2-bromopropane (S)	%						97	98	60-140			

SAMPLE DUPLICATE: 2567625

Parameter	Units	92427147003 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	104	99			

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

QC Batch: 473426 Analysis Method: EPA 8011
 QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
 Associated Lab Samples: 92427153016, 92427153017

METHOD BLANK: 2567635 Matrix: Water
 Associated Lab Samples: 92427153016, 92427153017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	0.011	05/06/19 18:55	
1-Chloro-2-bromopropane (S)	%	98	60-140		05/06/19 18:55	

LABORATORY CONTROL SAMPLE & LCSD: 2567636

2567637

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	0.25	0.24	0.25	97	99	60-140	1	20	
1-Chloro-2-bromopropane (S)	%				94	95	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2567639

2567640

Parameter	Units	92427503002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	0.048	0.24	0.24	0.28	0.30	97	101	60-140	4	20	
1-Chloro-2-bromopropane (S)	%						103	103	60-140			

SAMPLE DUPLICATE: 2567638

Parameter	Units	92427503001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	96	95			

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QUALIFIERS

Project: Nickel Pumper 233 04878/58977
Pace Project No.: 92427153

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.
A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.
M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
MS Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.
P5 The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.
R1 RPD value was outside control limits.
RS The RPD value in one of the constituent analytes was outside the control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Nickel Pumper 233 04878/58977
 Pace Project No.: 92427153

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92427153001	MW 1	EPA 8011	473057	EPA 8011	473214
92427153002	MW 2	EPA 8011	473057	EPA 8011	473214
92427153003	MW 3R	EPA 8011	473057	EPA 8011	473214
92427153004	MW 4	EPA 8011	473057	EPA 8011	473214
92427153005	MW 5	EPA 8011	473057	EPA 8011	473214
92427153006	MW 6	EPA 8011	473057	EPA 8011	473214
92427153007	MW 7	EPA 8011	473057	EPA 8011	473214
92427153008	MW 8	EPA 8011	473057	EPA 8011	473214
92427153009	MW 9	EPA 8011	473057	EPA 8011	473214
92427153010	MW 10	EPA 8011	473057	EPA 8011	473214
92427153011	MW 11	EPA 8011	473057	EPA 8011	473214
92427153012	DW 1	EPA 8011	473057	EPA 8011	473214
92427153013	CK 1	EPA 8011	473425	EPA 8011	473503
92427153014	CK 2	EPA 8011	473425	EPA 8011	473503
92427153015	CK 3	EPA 8011	473425	EPA 8011	473503
92427153016	DUP 1	EPA 8011	473426	EPA 8011	473505
92427153017	FB	EPA 8011	473426	EPA 8011	473505
92427153001	MW 1	EPA 8260B	473421		
92427153002	MW 2	EPA 8260B	473421		
92427153003	MW 3R	EPA 8260B	473112		
92427153004	MW 4	EPA 8260B	473206		
92427153005	MW 5	EPA 8260B	473206		
92427153006	MW 6	EPA 8260B	473206		
92427153007	MW 7	EPA 8260B	473421		
92427153008	MW 8	EPA 8260B	473206		
92427153009	MW 9	EPA 8260B	473206		
92427153010	MW 10	EPA 8260B	473421		
92427153011	MW 11	EPA 8260B	473195		
92427153012	DW 1	EPA 8260B	473206		
92427153013	CK 1	EPA 8260B	473206		
92427153014	CK 2	EPA 8260B	473206		
92427153015	CK 3	EPA 8260B	473206		
92427153016	DUP 1	EPA 8260B	473206		
92427153017	FB	EPA 8260B	473206		
92427153018	TB	EPA 8260B	473206		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY - Affix W-#

W0#: 92427153

Company: **SC DHEC**
 Address: **2600 Bull St., Columbia, SC 29208**
 Report To: **R. Davis**
 Copy To: **dunnad@dhec.sc.gov**
 Customer Project Name/Number: **Nickel Pumper 233**
 State: **SC** County/City: **Jasper** Time Zone Collected: **[] PT [] MT [] CT [] ET**
 Site Collection Info/Address: **3256 Paint B. Dr.**
 Compliance Monitoring? **[] Yes [] No**
 DW PWS ID #: **4600680184**
 DW Location Code:
 Immediately Packed on Ice: **[] Yes [] No**
 Field Filtered (if applicable): **[] Yes [] No**
 Analysis:

Container Preservative: **317**
 ** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
MW 1	GW	G	4/26/19	14:30			6	
MW 2	GW	G	4/26/19	19:25			6	
MW 3R	GW	G	4/26/19	12:40			6	
MW 3	GW	G		12:40				
MW 4	GW	G	4/26/19	12:30			6	
MW 4B	GW	G						
MW 5	GW	G	4/26/19	12:55			6	
MW 6	GW	G		14:11			6	
MW 7	GW	G		12:25			6	
MW 8	GW	G	4/26/19	12:20			6	

Analyses: **BTEXNM, 1, 2 - DCA, D, X, Y, Z**
EDB 8011

Lab Profile/Line: **Lab Sample Receipt Checklist:**

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOL - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
CI Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA

LAB USE ONLY:
Lab Sample # / Comments: **92427153**

Customer Remarks / Special Conditions / Possible Hazards: **Omit - Field Filtered**

Type of Ice Used: **(Wet)** Blue Dry None
 Packing Material Used: **Bubble Bags**
 Radchem sample(s) screened (<500 cpm): **Y NA**

Relinquished by/Company: (Signature) **[Signature]** Date/Time: **4/29/19 9:50**
 Relinquished by/Company: (Signature) **[Signature]** Date/Time: **4/29/19 9:50**
 Relinquished by/Company: (Signature) **[Signature]** Date/Time: **4/29/19 1444**

SHORT HOLDS PRESENT (<72 hours): **Y (N) N/A**
 Lab Tracking #: **2350382**
 Samples received via: **FEDEX UPS Client Courier Pace Courier**

Lab Sample Temperature Info:
 Temp Blank Received: **Y (N) NA**
 Therm ID#: **927048**
 Cooler 1 Temp Upon Receipt: **27** °C
 Cooler 1 Therm Corr. Factor: **0** °C
 Cooler 1 Corrected Temp: **57** °C

Table #: **MTJL LAB USE ONLY**
 Acctnum:
 Template:
 Prelogin:
 PM:
 PB:

Blank Received: **(V) N NA**
HC MeOH TSP Other

Non Conformance(s): **YES / NO** Page: **of**

Pace Analytical
CHAIN-OF-CUSTODY Analytical Request Document
 Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY - Affix Work
WO#: 92427153
PM: AMB Due Date: 05/06/19
ALL SHAL
CLIENT: 92-SCHEC

Company: **DHEC** Billing Information:
 Address: **2600 Bull St., Columbia, SC, 29201**
 Report To: **R. Dunn** Email To: **dunnra@dhec.sc.gov**
 Copy To: **3256 Point S. Pl.** Site Collection Info/Address:
 Customer Project Name/Number: **Nickel pump 233** State: **SC** County/City: **Jasper** Time Zone Collected: **[] PT [] MT [] CT [] ET**
 Phone: Site/Facility ID #: **CA-58477** Compliance Monitoring? **[] Yes [] No**
 Email: **WST-04878** DW PWS ID #: **4600686184** DW Location Code:
 Collected By (print): **WIN Mess** Purchase Order #: **4600686184** Quote #:
 Collected By (signature): **[Signature]** Turnaround Date Required: **Immediately Packed on Ice:**
[] Yes [] No
 Sample Disposal: **[] Dispose as appropriate [] Return** Rush: **[] Same Day [] Next Day** Field Filtered (if applicable): **[] Yes [] No**
[] Archive: **[] 2 Day [] 3 Day [] 4 Day [] 5 Day** Analysis:
[] Hold: (Expedite Charges Apply)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses	Lab Profile/Line
33	Lab Sample Receipt Checklist: Custody Seals Present/Intact Y N NA Custody Signatures Present Y N NA Collector Signatures Present Y N NA Bottles Intact Y N NA Correct Bottles Y N NA Sufficient Volume Y N NA Samples Received on Ice Y N NA VOA - Headspace Acceptable Y N NA USDA Regulated Soils Y N NA Samples in Holding Time Y N NA Residual Chlorine Present Y N NA CI Strips: Sample pH Acceptable Y N NA pH Strips: Sulfide Present Y N NA Lead Acetate Strips: Y N NA
LAB USE ONLY: Lab Sample # / Comments: 92427153	

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected for Composite Start		Composite End		Res CI	# of Ctns
			Date	Time	Date	Time		
MW 9	GW	G	4/26/19	12:35			6	
MW 10				12:50			1	
MW 11				12:45			1	
DW 1				13:50			1	
CR 1				12:25			1	
CR 2				12:30			1	
CR 3	GW	G	4/26/19	14:35			6	
CR 4								
Dwp 1	GW	G	4/26/19	12:20			6	
FB	GW	G	4/26/19	14:40			6	

Customer Remarks / Special Conditions / Possible Hazards: **Bubble Bags**
 Type of Ice Used: **Wet** Blue Dry None
 Packing Material Used: **Bubble Bags**
 Radchem sample(s) screened (<500 cpm): **Y N NA**

Relinquished by/Company: (Signature) **[Signature]** Date/Time: **4/29/19 8:50**
 Relinquished by/Company: (Signature) **[Signature]** Date/Time: **4/29/19 9:50**
 Relinquished by/Company: (Signature) **[Signature]** Date/Time: **4-29-19 1444**

SHORT HOLDS PRESENT (<72 hours): **Y N N/A**
 Lab Tracking #: **2350383**
 Samples received via: **FEDEX UPS Client Courier Pace Courier**
 Lab Sample Temperature Info:
 Temp Blank Received: **Y N NA**
 Therm ID#: **927098**
 Cooler 1 Temp Upon Receipt: **51** oC
 Cooler 1 Therm Corr. Factor: **0** oC
 Cooler 1 Corrected Temp: **51** oC
 Comments:
 Trip Blank Received: **Y N NA**
(HC) MeOH TSP Other
 Non Conformance(s): **YES / NO** Page: **of**

Nicklepumper 233





04878

NOV 01 2019

MR BRYAN SHANE PG
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071



Re: Site Specific Work Plan Requests
Groundwater Sampling Contract
Solicitation #IFB-5400012906

Dear Mr. Shane:

In accordance with bid solicitation # IFB-5400012906 and the UST Management Division Quality Assurance Program Plan (QAPP) Revision 3.1, submission of Site Specific Work Plans (SSWP) based on each site information package provided is requested.

The SSWP must be submitted within 15 calendar days to my attention. The project manager for each site will issue a notice to proceed once the plan has been reviewed and approved. Please contact me with the sampling schedule before commencing work at these facilities. A weekly update for each site is required to be submitted via email to the site's project manager and myself. If you have any questions or need further assistance, please contact me by phone (803) 898-0671 or email dunnra@dhec.sc.gov.

Sincerely,

Robert A. Dunn, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land & Waste Management

Enc: Site Information Packages

Cc: Angela Baioni, Pace Analytical Services, 9800 Kincey Ave. STE 100, Huntersville, NC 28078 (w/ Enc)
Technical File (w/o Enc)



UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone: 803-898-2544

MEMORANDUM

TO: Midlands Environmental Consultants, Inc

FROM: Read Miner

RE: Site Specific Work Plan Request

Facility Name: Nickelpumper 233

Permit Number: 04878

MECI CA#: 60605

PACE CA #: 60604

County: Jasper

Work To Be Completed: Submit SSWP for comprehensive sampling, monitoring wells and creek

Total Number of Monitoring Well Samples: _____ 18 _____

Analysis Being Requested: A2. BTEXNM+Oxyg's+1,2 DCA+Eth(8260B); F1. EDB by EPA 8011

Total Number of Water Supply Well Samples: _____ _____

Analysis Being Requested: L. BTEXNM+1,2 DCA (524.2); M. 7-OXYGENATES & ETHANOL (8260B); N. EDB (504.1)



**Midlands
Environmental
Consultants, Inc.**

November 12, 2019

Mr. Robert A. Dunn, Hydrogeologist
Corrective Action & Field Support Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Subject: Site-Specific Work Plan
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 19-7141
Certified Site Rehabilitation Contractor UCC-0009



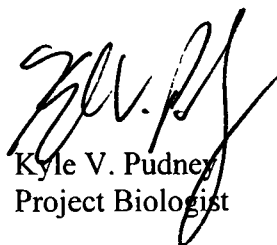
Dear Mr. Dunn,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Site-Specific Work Plan for the referenced site.

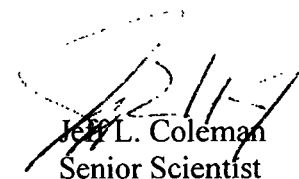
On November 11, 2019, MECI personnel performed a site visit to the subject site to evaluate site conditions, locate monitoring wells and identify potential problems for future sampling activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.



Kyle V. Pudney
Project Biologist



Jeff L. Coleman
Senior Scientist



Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division

To: Mr. Read S. Miner (SCDHEC Project Manager)
From: Jeff L. Coleman (Contractor Project Manager)
Contractor: Midlands Environmental Consultants, Inc. UST Contractor Certification Number: 009

Facility Name: Nickelpumper 233 UST Permit #: 04878
Facility Address: 3296 Point South Drive, Yemassee, SC 29945
Responsible Party: Richard Carlson Phone: 951-659-0063
RP Address: 1920 N Main Street, Los Angeles, CA 90031
Property Owner (if different): SAA
Property Owner Address: SAA
Current Use of Property: Vacant Property

Scope of Work (Please check all that apply)

- IGWA, Tier I, Tier II, Monitoring Well Installation, Groundwater Sampling, GAC, Other

Analyses (Please check all that apply)

Groundwater/Surface Water:

- BTEXNMDCA (8260B), Oxygenates (8260B), EDB (8011), PAH (8270D), Lead, 8 RCRA Metals, TPH, pH, BOD, Nitrate, Sulfate, Other, Methane, Ethanol, Dissolved Iron

Drinking Water Supply Wells:

- BTEXNMDCA (524.2), Oxygenates & Ethanol (8260B), Mecury (200.8 245.1 or 245.2), RCRA Metals (200.8), EDB (504.1)

Soil:

- BTEXNM, PAH, Lead, RCRA Metals, Oil & Grease (9071), TPH-DRO (3550B/8015B), TPH-GRO (5030B/8015B), Grain Size, TOC

Air:

- BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected.)

Soil: 14, Monitoring Wells: 4, Water Supply Wells: 4, Surface Water: 4, Air: 1, Duplicate: 1, Field Blank: 1, Trip Blank: 1

Field Screening Methodology

Estimate number and total completed depth for each point, and include their proposed locations on the attached map.

of shallow points proposed: Estimated Footage: feet per point
of deep points proposed: Estimated Footage: feet per point
Field Screening Methodology:

Permanent Monitoring Wells

Estimate number and total completed depth for each well, and include their proposed locations on the attached map.

of shallow wells: Estimated Footage: feet per point
of deep wells: Estimated Footage: feet per point
of recovery wells: Estimated Footage: feet per point

Comments, if warranted:

UST Permit #: 04878 Facility Name: Nickelpumper 233

Implementation Schedule (Number of calendar days from approval)

Field Work Start-Up: 11/12/2019 Field Work Completion: 12/12/2019
Report Submittal: 1/12/2020 # of Copies Provided to Property Owners: 0

Aquifer Characterization

Pump Test: Slug Test: (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal

Soil: _____ Tons Purge Water: 50.0 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

Additional Details For This Scope of Work

For example, list wells to be sampled, wells to be abandoned/repared, well pads/bolts/caps to replace, details of AFVR event, etc.

-During the initial site visit, monitoring well MW-3, MW-4R MW-6, MW-10 and DW-1 were unable to be located. Historically, MW-3 has not been located. it appears that MW-6, MW-10 and MW-11 have been covered under piles of dirt and debris. MECI will make every effort possible to uncover and locate these wells during sampling activities.

-Monitoring well and surface water samples will be analyzed for BTEXNM, 8-OXY, 1,2-DCA (8260B), and EDB (8011)

-Only monitoring wells which do not bracket the water table will be purged prior to sample collection.

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)

Yes Laboratory as indicated in ACQAP? (Yes/No) If no, indicate laboratory information below.

Name of Laboratory: _____
SCDHEC Certification Number: _____
Name of Laboratory Director: _____

N/A Well Driller as indicated in ACQAP? (Yes/No) If no, indicate driller information below.

Name of Well Driller: _____
SCLLR Certification Number: _____

None Other variations from ACQAP. Please describe below.

Attachments

1. Attach a copy of the relevant portion of the USGS topographic map showing the site location.
2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following.
North Arrow Proposed monitoring well locations
Location of property lines Legend with facility name and address, UST permit number, and bar scale
Location of buildings Streets or highways (indicate names and numbers)
Previous soil sampling locations Location of all present and former ASTs and USTs
Previous monitoring well locations Location of all potential receptors
Proposed soil boring locations
3. Assessment Component Cost Agreement, SCDHEC Form D-3664



**ASSESSMENT COMPONENT COST AGREEMENT
SOUTH CAROLINA**

Department of Health and Environmental Control
Underground Storage Tank Management Division
State Underground Petroleum Environmental Response Bank Account
CONTRACT PO NUMBER 4600559329

Facility Name: Nickelpumper 233

UST Permit #: 04878

Cost Agreement #: Proposal

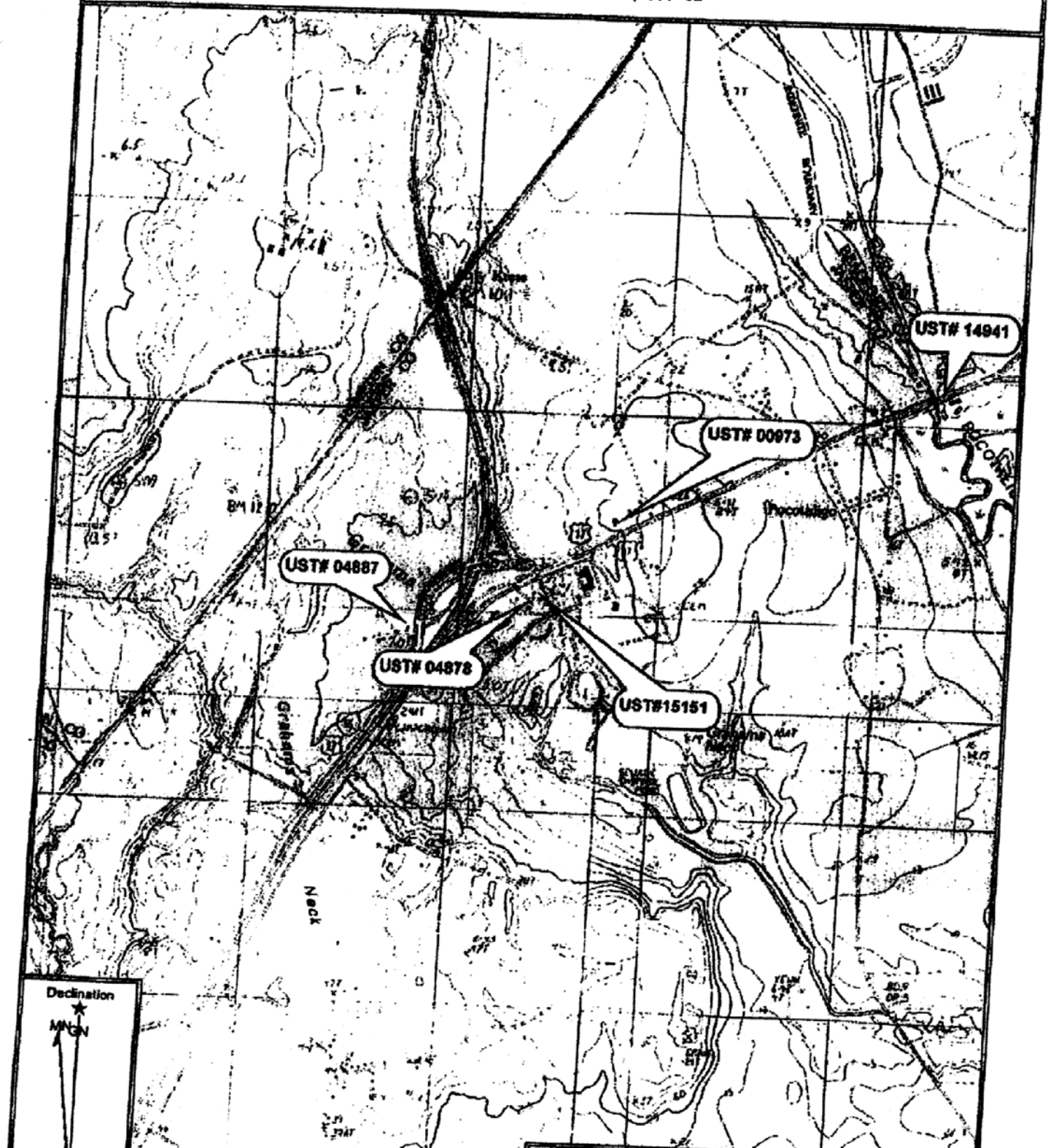
ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. Plan*				
A1. Site Specific Work Plan	1	each	\$1.00	\$1.00
B1. Tax Map		each	\$1.00	\$0.00
C1. QAPP Appendix B		each	\$1.00	\$0.00
2. A1. Receptor Survey		each	\$1.00	\$0.00
4. Mob/Demob				
B1. Personnel	1	each	\$1.00	\$1.00
10. Groundwater Sample Collection / Gauge Depth to Water or Product (Each)				
A1. Groundwater Purge	1	per well	\$36.50	\$36.50
B1. Air or Vapors		samples	\$1.00	\$0.00
C1. Water Supply		samples	\$18.00	\$0.00
D1. Groundwater No Purge or Duplicate	17	per well	\$27.50	\$467.50
E1. Gauge Well only		per well	\$1.00	\$0.00
F1. Sample Below Product		per well	\$1.00	\$0.00
G1. Pasive Diffusion Bag		each	\$20.00	\$0.00
H1. Field Blank	1	each	\$1.00	\$1.00
17. Disposal* (gallons or tons)				
AA. Disposal/Water	50	gallons	\$1.00	\$50.00
BB. Free Product		gallons	\$0.05	\$0.00
Note: Rate includes costs or rental of suitable container(s)				
23. D. Site Reconnaissance	1	each	\$1.00	\$1.00
18. Miscellaneous				
GW Contour Map		each	\$25.00	\$0.00
Isopleth Map		each	\$25.00	\$0.00
High-Strength Well Pad Replacement		each	\$75.00	\$0.00
Data Table		each	\$50.00	\$0.00
Low Flow Sampling		per well	\$55.00	\$0.00
25. Well Repair				
B1. Repair 2x2 MW Pad		each	\$50.00	\$0.00
C1. Repair 4x4 MW Pad		each	\$50.00	\$0.00
D1. Replace Well Vault		each	\$50.00	\$0.00
E. Replace well cover		each	\$25.00	\$0.00
F1. Replace well cover bolts		each	\$2.60	\$0.00
G. Replace locking well cap & lock		each	\$15.00	\$0.00
K1. Replace Missing Well ID Plate		each	\$10.00	\$0.00
TOTAL				\$557.00

*The appropriate mobilization cost can be added to complete these tasks, as necessary

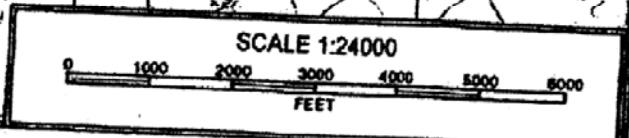
Map Name: MC PHERSONVILLE
Print Date: 11/09/15

Scale: 1 inch = 2,000 ft.
Map Center: 032° 37' 46.89" N, 060° 52' .

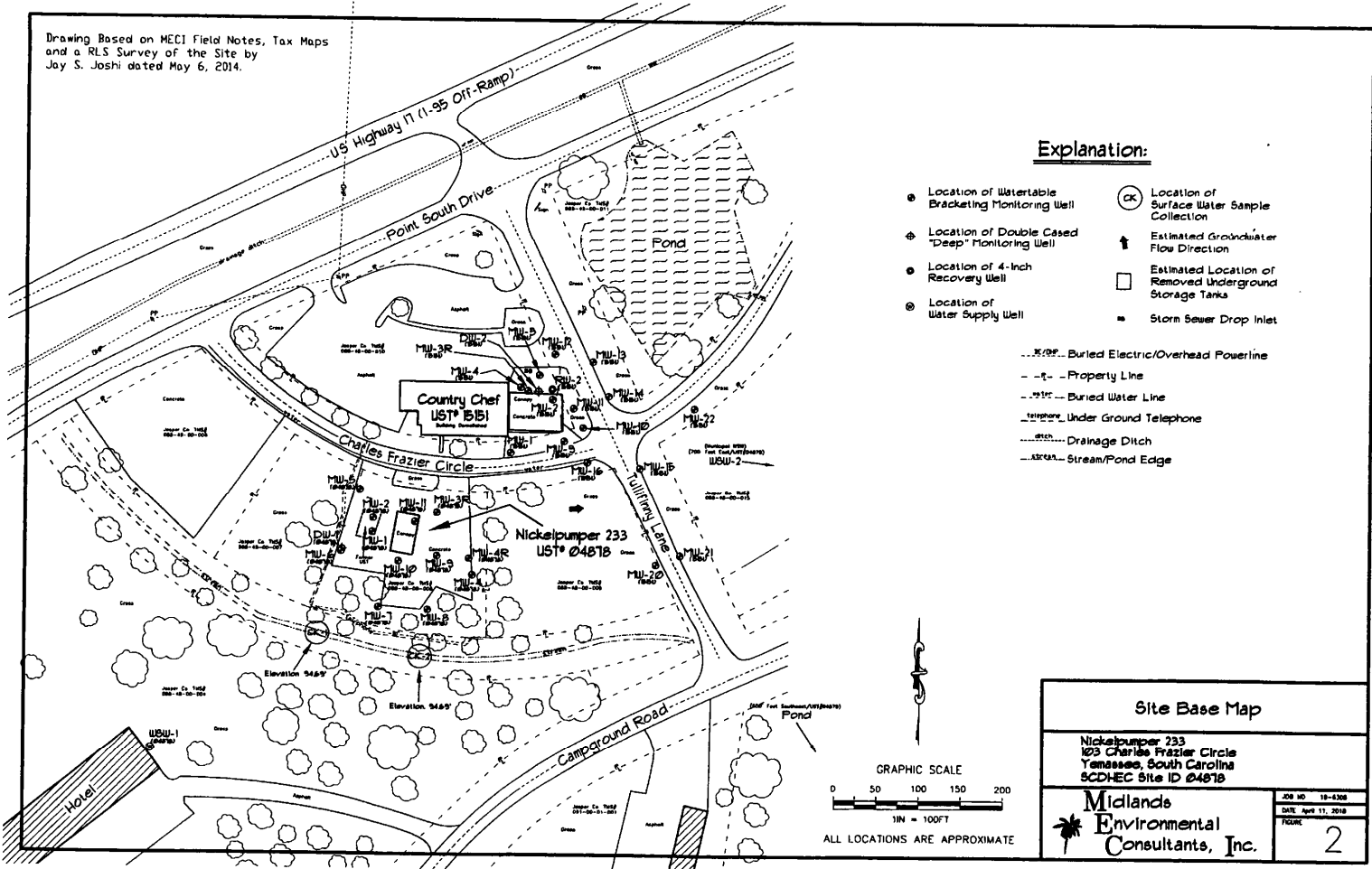
Horizontal Datum: NAD27



Declination
MGN
GN 0.06° E
MN 7.15° W

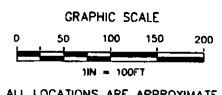


Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- Location of 4-Inch Recovery Well
- ⊙ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet
- Burred Electric/Overhead Powerline
- - - Property Line
- - - Buried Water Line
- - - Under Ground Telephone
- - - Drainage Ditch
- - - Stream/Pond Edge



ALL LOCATIONS ARE APPROXIMATE

Site Base Map	
Nicksipumper 233 103 Charles Frazier Circle Yemassee, South Carolina SCDHEC Site ID 0481B	
Midlands Environmental Consultants, Inc.	JOB NO 10-4308 DATE April 11, 2018 FIGURE <div style="font-size: 2em; font-weight: bold; text-align: center;">2</div>



MR BRYAN SHANE PG
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071

DEC 23 2019

Re: Notice to Proceed-Site Specific Work Plan Approval
Groundwater Sampling Contract
Solicitation #IFB-5400012906, PO #4600738874
Nickelpumper 233, 3296 Point South Dr., Yemasee, SC
UST Permit #04878; MECI CA #60605; Pace CA #60604
Jasper County

Dear Mr. Shane:

In accordance with bid solicitation #IFB-5400012906 and the Underground Storage Tank (UST) Management Division Quality Assurance Program Plan (QAPP), the Site-Specific Work Plan has been reviewed and approved. In accordance with the approved QAPP, a status report of the project should be provided on a weekly basis via e-mail. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail.

Services at the site are to be performed on behalf of the site's responsible party (RP); however, payment will be made from the SUPERB Account. Please coordinate access to the facility with the property owner. **Sampling should be conducted within 15 calendar days from the date of this letter. The final report is due within three weeks from the date the site is sampled. If the site is not sampled by the specified due date or the report is not received in the specified time period, a late fee may be imposed.** The final report should comply with the UST QAPP and any additional requirements of the bid solicitation § III. The final report is to be submitted to Robert Dunn, the contract manager.

If you have any site-specific questions, please contact me at (803) 898-0606 or via e-mail at griffiza@dhec.sc.gov. If you have any contract specific questions, please contact Robert Dunn by phone (803) 898-0671 or email dunnra@dhec.sc.gov.

Sincerely,

Zachary Griffith, Hydrogeologist
Corrective Action & Field Support Section
UST Management Division
Bureau of Land & Waste Management

Enc: Approved Cost Agreement (both CAs)

Cc: Angela Baioni, Pace Analytical Services, 9800 Kinsey Ave, STE 100, Huntersville, NC, 28078 (w/ CA)
Technical File (w/ Enc)

Approved Cost Agreement**60605**

Facility: 04878 NICKELPUMPER 233

GRIFFIZA

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
01 PLAN		A1 SITE SPECIFIC WORK PLAN	1.0000	\$1.000	1.00
04 MOB/DEMOB		B1 PERSONNEL	1.0000	\$1.000	1.00
10 SAMPLE COLLECTION		A1 GROUNDWATER (PURGE)	1.0000	\$36.500	36.50
		D1 GROUNDWATER NO PURGE/DUPLICATE	17.0000	\$27.500	467.50
		H1 FIELD BLANK	1.0000	\$1.000	1.00
17 DISPOSAL		AA WASTEWATER	50.0000	\$1.000	50.00
23 EFR		D SITE RECONNAISSANCE	1.0000	\$1.000	1.00
Total Amount					558.00

Approved Cost Agreement**60604**

Facility: 04878 NICKELPUMPER 233

GRIFFIZA

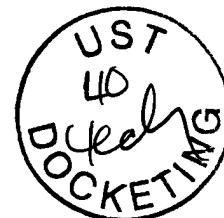
PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
11 ANALYSES					
	GW GROUNDWATER	A2 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	21.0000	\$21.000	441.00
		F1 EDB BY 8011	20.0000	\$18.000	360.00
		Total Amount			801.00



January 20, 2020

Mr. Robert A. Dunn, Hydrogeologist
Corrective Action Section
Underground Storage Management Division
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Subject: Report of Groundwater Sampling
Nickelpumper 233
103 Charles Frazier Circle
Yemassee, South Carolina
UST Permit# 04878, CA # 60605
MECI Project Number 19-7141
Certified Site Rehabilitation Contractor UCC-0009

Dear Mr. Dunn,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Report of Groundwater Sampling for the referenced site. This report describes site activities conducted at the site in general accordance with South Carolina Department of Health and Environmental Control's (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP).

PROJECT INFORMATION

The subject site (Nickelpumper 233) is located at 103 Charles Frazier Circle in Yemassee, Jasper County, South Carolina. The site currently a vacant lot with a canopy. The following table presents Underground Storage Tanks (UST's) which are associated with the subject site:

Tank #	Capacity/Product	In Use/Abandoned	Tank Status
1	6,000 Gal Gasoline	Temporarily Out of Service	In Compliance (5/15/2018)
2	8,000 Gal. Gasoline	Temporarily Out of Service	In Compliance (5/15/2018)
3	10,000 Gal. Gasoline	Temporarily Out of Service	In Compliance (5/15/2018)

A release of petroleum product was reported to and confirmed by the South Carolina Department of Health and Environmental Control (SCDHEC) in May of 2002. The release is currently rated a Class 2BB due to water supply wells being located within 1,000' feet of the site.

The above information is based on reports and correspondence obtained from MECI field notes and SCDHEC files.

MONITORING WELL SAMPLING AND CHEMICAL ANALYSIS

On January 10, 2020, MECI personnel collected samples from thirteen (13) monitoring wells and four (4) surface water locales at the subject site. During sampling activities, monitoring well MW-3 was unable to be located and water supply wells were not sampled per SCDHEC request (see attached Site Activity Summary Sheets for details). Based on the request by SCDHEC personnel, only monitoring wells that were not bracketing the screen were to be purged prior to sample collection. Seven (7) monitoring wells were purged prior to sample collection.

MECI personnel utilized an electronic water level indicator for water level measurements and an oil/water interface probe for free phase petroleum product level measurements. Where applicable, purging was completed by bailing at least five well volumes of water from the well, until pH, conductivity, dissolved oxygen and turbidity stabilized, or all water was evacuated from the well, whichever occurred first. Sampling/purging was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. A new set of nitrile gloves were worn at each monitoring well, and at all time samples were handled. Field measurements of pH, conductivity, dissolved oxygen, and water temperature were obtained before well sampling process. MECI utilized a YSI Pro20 meter for DO (mg/L) and temperature readings (°C), YSI Pro1030 meter for pH and conductivity (uS) readings and a MicroTPI turbidimeter for turbidity readings (NTU). The attached Field Data Information Sheets presents the results of the field measurements obtained. The wells were sampled in accordance with the most recent revision of SCDHEC's Quality Assurance Program Plan for the Underground Storage Tank Management Division and the most recent revision MECI's Standard Operating Procedures.

Groundwater samples obtained were sent to Pace Analytical Services, Inc. of Huntersville, NC (SCDHEC Laboratory Certification #99006001) for analysis.

The following sampling matrix contains well development and requested analyses for each well:

Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	BTEX, Naphthalene, MTBE, 1,2 DCA (EPA Method 524.2)	EDB (EPA Method 504.1)
Analyte Sampled													
MW-1	X						X	X	X	X			
MW-2	X						X	X	X	X			
MW-3						X							
MW-3R	X						X	X	X	X			
MW-4		X					X	X	X	X			
MW-4R		X					X	X	X	X			
MW-5	X						X	X	X	X			
MW-6		X					X	X	X	X			
MW-7		X					X	X	X	X			
MW-8		X					X	X	X	X			
MW-9	X						X	X	X	X			


Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes
 MTBE=Methyl tertiary butyl ether
 1,2 DCA = 1,2 Dichloroethane
 EDB = Ethylene Dibromide

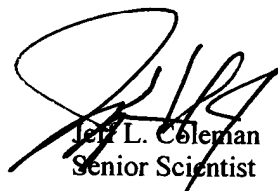
Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	BTEX, Naphthalene, MTBE, 1,2 DCA (EPA Method 524.2)	EDB (EPA Method 504.1)
Analyte Sampled													
MW-10		X					X	X	X	X			
MW-11	X						X	X	X	X			
DW-1	X						X	X	X	X			
CK-1		X					X	X	X	X			
CK-2		X					X	X	X	X			
CK-3		X					X	X	X	X			
CK-4		X					X	X	X	X			
DUP-1(MW-10)							X	X	X	X			
Field Blank							X	X	X	X			
Trip Blank							X		X	X			
WSW-1						X							
WSW-2					X								
Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes MTBE=Methyl tertiary butyl ether 1,2 DCA = 1,2 Dichloroethane EDB = Ethylene Dibromide													

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 27.00 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is attached at the end of this report.

Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.


 To: Kyle V. Pudney
 Project Biologist


 Jeff L. Coleman
 Senior Scientist

Attachments:

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?			X
3	Is name, address, & phone number of current property owner provided?			X
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			X
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?			X
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?			X
11	Has the site-specific geology and hydrogeology been described?			X
12	Has the primary soil type been described?			X
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			X
18	Has justification been provided for the locations of the monitoring wells?			X
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?			X
20	Has the groundwater sampling methodology been detailed? See MECI SOP	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	X		
22	Has the purging methodology been detailed? See MECI SOP	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? See attached Field Data Information Sheets	X		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	X		
25	Does the report include a brief discussion of the assessment done and the results?			X
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?			X
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)			X
34	Has the current and historical laboratory data been provided in tabular format?			X
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)			X
40	Has the site potentiometric map been provided? (Figure 5)			X
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			X
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? See attached	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			X
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	X		

Site Activity Summary

UST Permit #: 04878
Facility Name: Nickelpumper 233
County: Jasper
Field Personnel: R. Grosslight, B. Powers


 Midlands Environmental Consultants, Inc.
 231 Dooley Road, Lexington, SC 29073
 (803) 808-2043 Fax: 808-2048

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Initial Dissolved Oxygen (mg/l)	# Gals. Purged	Comments
MW-1	Y	1/10/20	12:16	2.5-12.5	***	1.91	***	1.86	2.00	Odor
MW-2	Y	1/10/20	12:33	2-12	***	1.60	***	1.85	2.00	Odor
MW-3	N	1/10/20	NL	2-12	***	NL	***	NL	0.00	Not Located
MW-3R	Y	1/10/20	13:26	2-12	***	1.21	***	2.14	2.00	No Odor
MW-4	Y	1/10/20	12:00	2-12	***	3.05	***	1.97	0.00	No Odor
MW-4R	Y	1/10/20	12:12	2-12	***	2.64	***	2.06	0.00	No Odor
MW-5	Y	1/10/20	12:50	2-12	***	1.64	***	2.82	2.00	No Odor
MW-6	Y	1/10/20	11:39	2-12	***	2.43	***	2.29	0.00	No Odor
MW-7	Y	1/10/20	11:46	2-9	***	2.20	***	1.96	0.00	No Odor
MW-8	Y	1/10/20	11:53	2-9.5	***	2.18	***	2.32	0.00	No Odor
MW-9	Y	1/10/20	11:50	2-12	***	1.17	***	3.54	2.00	No Odor
MW-10	Y	1/10/20	12:00	2-12	***	2.36	***	2.81	0.00	Odor
MW-11	Y	1/10/20	13:09	2-12	***	1.65	***	2.23	2.00	No Odor
DW-1	Y	1/10/20	11:32	43.5-48.5	***	4.60	***	4.75	15.00	No Odor
CK-1	Y	1/10/20	13:35	***	***	***	***	***	***	Collected from creek (See Figure)
									27.00	TOTAL GALLONS PURGED

Site Activity Summary

UST Permit #: 04878
Facility Name: Nickelpumper 233
County: Jasper
Field Personnel: R. Grosslight, B. Powers


 Midlands Environmental Consultants, Inc.
 231 Doolley Road, Lexington, SC 29073
 (803) 808-2043 Fax: 808-2048

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Initial Dissolved Oxygen (mg/l)	# Gals. Purged	Comments
CK-2	Y	1/10/20	13:40	***	***	***	***	***	***	Collected from Creek (See Figure)
CK-3	Y	1/10/20	13:35	***	***	***	***	***	***	Collected from Pond behind Knights Inn
CK-4	Y	1/10/20	13:45	***	***	***	***	***	***	Collected from Pond (See Figure)
DUP	Y	1/10/20	12:00	***	***	***	***	***	***	Duplicate sample of MW-10
Field Blank	Y	1/10/20	13:50	***	***	***	***	***	***	Field Blank
Trip Blank	Y	1/10/20	8:00	***	***	***	***	***	***	Laboratory Prepared Trip Blank
WSW-1	N	1/10/20	NS	***	***	***	***	***	***	WSW not located (Not Requested)
WSW-2	N	1/10/20	NS	***	***	***	***	***	***	Potential Municipal WSW located behind locked fence (Not Requested)
									0.00	TOTAL GALLONS PURGED

Environmental Consultants, Inc.
 Field Personnel: R.G. BP

Sampling Date(s): 1/10/2020
 Sampling Case#: 2

Monitoring Well Purge And Sampling Data

Job Name: Nichteuper 233
 Job Number: 19-7141

27 gals

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(l)	cond(l)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height (feet)	Gallons Purged		Notes	
								product	Initial H ₂ O	Anal H ₂ O			**calc.	actual		
mw-1	Initial	12:07	7.32	82.4												
	1st	12:09	7.38	85.6	17.1	1.86	22.74									
	2nd				12.7	1.67	51.32									
	3rd															
	4th															
	5th															
mw-2	Sampling	12:16	7.44	87.1	18.3	1.62	27.84		1.91		2.5	10.59	1.73		2	odor
	Initial	12:23	7.46	103.6	16.7	1.85	25.43				2		8.63			
	1st	12:25	7.51	107.3	17.4	1.61	51.31									
	2nd															
	3rd															
	4th															
mw-3	Sampling	12:33	7.54	104.1	17.6	1.54	28.16		1.60		2	10.4	1.70		2	odor
	Initial										12		8.48			
	1st															
	2nd															
	3rd															
	4th															
mw-3R	Sampling	13:16	7.44	122.1	17.0	2.14	23.94				2					
	Initial	13:18	7.49	125.2	17.8	2.08	43.81				12					
	1st															
	2nd															
	3rd															
	4th															
mw-3R	Sampling	13:26	7.52	127.2	17.9	2.04	26.13		1.21		2	10.79	1.76		2	No odor
	Initial										12		8.79			

DNR / possibly Destroyed

Depth of Well - (Depth to Water + Water Height)
 Well Volume = x.047 for 1" wells * x.163 for 2" wells, or * x.66 for 4" wells, 1.489 for 6" wells

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.489

**= One Well Volume x 5 = Gallons Purged (calculated)

Sampling Case	AN Conductance EN	DO SW	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251

Environmental Consultants, Inc.

Field Personnel: R.G.B.P.

Sampling Date(s): 1/10/2020

Sampling Case#: 2

Monitoring Well Purge And Sampling Data

Job Name: Niche pump (23)
 Job Number: 19-7141

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):		Well Depth (feet)	Water Height (feet)	Gallons Purged		Notes
								product	Initial H ₂ O			Final H ₂ O	**calc.	
Mn-4	Initial	11:00	7.33	90.4	17.9	1.97	22.17			2				
	1st													
	2nd													
	3rd													
	4th													
	5th													
Mn-4R	Initial	12:11	7.26	95.6	18.1	2.06	20.34		3.06	12				No odor
	1st													
	2nd													
	3rd													
	4th													
	5th													
Mn-5	Initial	12:40	7.36	55.0	17.5	2.82	17.98		2.64	12				No odor
	1st	12:42	7.40	58.3	18.2	2.71	42.16							
	2nd													
	3rd													
	4th													
	5th													
Mn-6	Initial	12:50	7.42	60.0	18.5	2.65	24.91		1.64	12	9.5	1.56		No odor
	1st	11:39	7.74	82.8	18.0	2.79	22.51					7.80	2	
	2nd													
	3rd													
	4th													
	5th													
Mn-6	Initial								2.43	12				No odor
	1st													
	2nd													
	3rd													
	4th													
	5th													

Depth of Well - (Depth to Water - Water Height)
 Well Volume = x.047 for 1" wells * x.183 for 2" wells, or * x.66 for 4" wells, 1.469 for 6" wells

Casing	Gallons
1"	0.047
2"	0.183
4"	0.653
6"	1.469

**= One Well Volume x 5 = Gallons Purged (calculated)

Sample Case	PorConductance SW	DO SW	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251

Environmental Consultants, Inc.
Field Personnel: RG, BP

Monitoring Well Purge And Sampling Data

Sampling Date(s): 1/10/2020
Sampling Case#: 2

Job Name: Nicklepump 233
Job Number: 19-7141

Calibration Data for:
 Calibration Successful? Yes (Please Circle) Yes or No
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height (feet)	Gallons Purged		Notes
								Product	Initial H ₂ O	Final H ₂ O			**calc.	actual	
MW-7	Initial	11:46	7.64	84.3	17.7	1.96	23.41				2				
	1st														
	2nd														
	3rd														
	4th														
	5th														
MW-8	Initial	11:53	7.45	82.0	17.5	2.32	24.63		2.20		9		-	-	No odor
	1st														
	2nd														
	3rd														
	4th														
	5th														
MW-9	Initial	11:40	7.52	90.9	16.0	3.54	20.39		2.18		9.5		-	-	No odor
	1st	11:42	7.54	94.7	17.7	3.42	48.91								
	2nd														
	3rd														
	4th														
	5th														
MW-10	Initial	11:50	7.55	96.1	18.0	3.36	28.31		1.17		2	10.83	1.77		No odor
	1st	12:00	7.50	92.3	17.3	2.81	22.69				12		8.83	2	
	2nd														
	3rd														
	4th														
	5th														
MW-11	Initial								2.36		2				odor Dup
	1st										12				
	2nd														
	3rd														
	4th														
	5th														

Depth of Well - (Depth to Water = Water Height)
Well Volume = x.047 for 1" wells, x .163 for 2" wells, or x .66 for 4" wells, 1.469 for 6" wells

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

**= One Well Volume x 5 = Gallons Purged (calculated)

Sampling Case#	HydConductance SM	DO SM	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103468	201310251

Environmental Consultants, Inc.
Field Personnel: R.G. BP

Sampling Date(s): 1/10/2020
Sampling Case#: 2

Monitoring Well Purge And Sampling Data

Job Name: Niche pump 23
Job Number: 19-7141

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle) No
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Yes No
 Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height (feet)	Gallons Purged		Notes
								product	Initial H ₂ O	Final H ₂ O			**calc.	actual	
Mw-11	Initial	12:57	7.14	85.9	17.7	2.23	19.31				2				
	1st	12:59	7.24	87.1	18.3	2.16	19.13								
	2nd														
	3rd														
	4th														
	5th														
Dw-1	Initial	13:09	7.26	89.0	18.4	2.09	24.01		1.65		12	10.35	1.69	2	No odor
	1st	11:10	7.41	132.8	19.8	4.75	22.71						8.44		
	2nd	11:17	7.58	149.0	19.8	3.67	47.81								
	3rd	11:24	7.64	154.9	20.1	3.46	36.19								
	4th														
	5th														
CK-1	Initial	11:22	7.66	159.1	20.3	3.39	26.02		4.60		43.5	4.39	7.16	15	No odor
	1st	13:35									48.5				
CK-2	2nd	13:40											35.79		
CK-3	3rd														
CK-4	4th														
DUP	5th	13:35													
FB	Sampling														
7B	Initial	13:45													
	1st	17:00													
	2nd														
	3rd														
	4th	13:50													
	5th														
	Sampling	8:00													

Depth of Well - (Depth to Water = Water Height)
Well Volume = x.047 for 1" wells, x.183 for 2" wells, or x.66 for 4" wells, 1.469 for 6" wells

**= One Well Volume x 5 = Gallons Purged (calculated)

Casing	Gallons
1"	0.047
2"	0.183
4"	0.663
6"	1.469

Sampling Case#	Pre-Conductance SV	DO SV	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251

Pace Analytical*

CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

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ALL SHADED AREAS are for LAB USE ONLY

Company: Pace Billing Information: _____

Address: New Bullet Columbia SC 29201

Report To: F. Dunn Email To: f.dunn@pace.sc.gov

Copy To: _____ Site Collection Info/Address: 21.16 54th Street

Customer Project Name/Number: Nickle pump 233 State: SC County/City: Dorchester / York Time Zone Collected: ET

Phone: _____ Site/Facility ID #: 04878 / 4600738874 Compliance Monitoring? Yes No

Collected By (print): Peter Lowery Purchase Order #: _____ DW PWS ID #: _____
Quote #: _____ DW Location Code: _____

Collected By (signature): _____ Turnaround Date Required: _____ Immediately Packed on Ice: Yes No

Sample Disposal: _____ Rush: Same Day Next Day 2 Day 3 Day 4 Day 5 Day
 Dispose as appropriate Return Archive: _____ Hold _____ (Expedite Charges Apply) Field Filtered (if applicable): Yes No
Analysis: _____

Container Preservative Type ** _____ Lab Project Manager: _____

** Preservative Types. (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Analyses	Lab Profile/Line:
			Date	Time	Date	Time				
MW1	GW	6	11/14/20	7:10				6		Lab Sample Receipt Checklist: Custody Seals Present/Intact Y N NA Custody Signatures Present Y N NA Collector Signature Present Y N NA Bottles Intact Y N NA Correct Bottles Y N NA Sufficient Volume Y N NA Samples Received on Ice Y N NA VOA - Headspace Acceptable Y N NA USDA Regulated Soils Y N NA Residual in Holding Time Y N NA Residual Chlorine Present Y N NA Cl Strips: _____ Sample pH Acceptable Y N NA pH Strips: _____ Sulfide Present Y N NA Lead Acetate Strips: _____
MW2	GW	6	11/17/20	7:33				6	X	odor
MW3										odor
MW4	GW	6	11/16/20	8:26				6	X	No odor
MW5				7:00						
MW6				7:50						
MW7				1:29						
MW8				1:53						

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Remarks / Special Conditions / Possible Hazards: _____

Type of Ice Used: Wet Blue Dry None SHORT HOLDS PRESENT (<72 hours): Y N N/A

Packing Material Used: _____ Lab Tracking #: **2415751**

Radchem sample(s) screened (<500 cpm): Y N NA Samples received via: FEDEX UPS Client Courier Pace Courier

Relinquished by/Company: (Signature) [Signature] Date/Time: 11/10/20 16:40 Received by/Company: (Signature) [Signature] Date/Time: 11/10 16:45

Relinquished by/Company: (Signature) _____ Date/Time: _____ Received by/Company: (Signature) _____ Date/Time: _____

Relinquished by/Company: (Signature) _____ Date/Time: _____ Received by/Company: (Signature) _____ Date/Time: _____

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____ oC
Cooler 1 Therm Corr. Factor: _____ oC
Cooler 1 Corrected Temp: _____ oC
Comments: _____

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO Page: _____ of: _____

Pace Analytical*
CHAIN-OF-CUSTODY Analytical Request Document
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LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

Company: *ee thec* Billing Information:

Address: *600 Full of Columbia St, TIC1*

Report To: *R. Puma* Email To: *keenan@dice.sc.gov*

Copy To: *Site Collection Info/Address: 3270 K. J. P. R.*

Customer Project Name/Number: *Nike pumps 233* State: *SC* County/City: *Georgetown* Time Zone Collected: *PT*

Phone: *803 781 4000* Site/Facility ID #: *04878/460736874* Compliance Monitoring? Yes No

Collected By (print): *W. D. W. S.* Purchase Order #: *1000000000* DW PWS ID #: *1000000000*

Collected By (signature): *[Signature]* Turnaround Date Required: *1/10/16* Immediately Packed on Ice: Yes No

Sample Disposal: Dispose as appropriate Return Archive Hold: *1/10/16* Rush: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply) Field Filtered (if applicable): Yes No Analysis: *1/10/16*

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res CI	# of Ctns	Analyses	Lab Profile/Line:
			Date	Time	Date	Time				
<i>MW 7</i>	<i>GW</i>	<i>6</i>	<i>1/10/16</i>	<i>1:50</i>				<i>6</i>	<i>EDS 8, 80</i>	Lab Sample Receipt Checklist: Custody Seals Present/Intact <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Custody Signatures Present <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Collector Signature Present <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Bottles Intact <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Correct Bottles <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Sufficient Volume <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Samples Received on Ice <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA VOR - Headspace Acceptable <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA USDA Regulated Soils <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Samples in Holding Time <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Residual Chlorine Present <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Cl Strips: <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Sample pH Acceptable <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA pH Strips: <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Sulfide Present <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Lead Acetate Strips: <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA LAB USE ONLY: Lab Sample #/ Comments:
<i>MW 10</i>				<i>3:00</i>						<i>odor</i>
<i>MW 11</i>				<i>3:07</i>						<i>odor</i>
<i>MW 1</i>				<i>3:32</i>						<i>odor</i>
<i>MW 2</i>				<i>3:35</i>						<i>odor</i>
<i>MW 3</i>				<i>3:40</i>						<i>odor</i>
<i>MW 4</i>				<i>3:45</i>						<i>odor</i>
<i>MW 5</i>				<i>3:50</i>						<i>odor</i>

Customer Remarks / Special Conditions / Possible Hazards: *None* Type of Ice Used: Wet Blue Dry None

Packing Material Used: *None* Lab Tracking #: **2415752**

Radchem sample(s) screened (<500 cpm): Y N NA

Relinquished by/Company: (Signature) *[Signature]* Date/Time: *1/10/16 16:40* Received by/Company: (Signature) *[Signature]* Date/Time: *1/10/16 16:45*

Relinquished by/Company: (Signature) *[Signature]* Date/Time: *1/10/16 16:40* Received by/Company: (Signature) *[Signature]* Date/Time: *1/10/16 16:45*

Relinquished by/Company: (Signature) *[Signature]* Date/Time: *1/10/16 16:40* Received by/Company: (Signature) *[Signature]* Date/Time: *1/10/16 16:45*

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: *1000000000*
Cooler 1 Temp Upon Receipt: *10* °C
Cooler 1 Therm Corr. Factor: *0* °C
Cooler 1 Corrected Temp: *10* °C
Comments:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES NO Page: *1* of: *1*



CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: Sc Thec
 Address: 600 Bull at Columbia SC 29201
 Report To: R Tuan
 Copy To:
 Customer Project Name/Number: Nickle pumps 253
 State: SC County/City: Wayne/Hopewell Time Zone Collected: ET
 Phone: _____ Site/Facility ID #: 04878 / 460738874 Compliance Monitoring? Yes No
 Email: _____
 Collected By (print): Ben Jones Purchase Order #: _____ DW PWS ID #: _____
 Quote #: _____ DW Location Code: _____
 Collected By (signature): [Signature] Turnaround Date Required: _____ Immediately Packed on Ice: Yes No
 Sample Disposal: Same Day Next Day
 Archive: _____ 2 Day 3 Day 4 Day 5 Day
 Hold: _____ (Expedite Charges Apply) Field Filtered (if applicable): Yes No
 Analysis: _____

Container Preservative Type **
 Lab Project Manager:
 ** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses	Lab Profile/Line:
	Lab Sample Receipt Checklist:
	Custody Seals Present/Intact Y N NA
	Custody Signatures Present Y N NA
	Collector Signatures Present Y N NA
	Bottles Intact Y N NA
	Correct Bottles Y N NA
	Sufficient Volume Y N NA
	Samples Received on Ice Y N NA
	VOA - Headspace Acceptable Y N NA
	USDA Regulated Soils Y N NA
	Samples in Holding Time Y N NA
	Residual Chlorine Present Y N NA
	Cl Strips:
	Sample pH Acceptable Y N NA
	pH Strips:
	Sulfide Present Y N NA
	Lead Acetate Strips:
	LAB USE ONLY:
	Lab Sample # / Comments:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
<u>TD</u>	<u>GW</u>	<u>6</u>	<u>10:06</u>	<u>10:50</u>				

Customer Remarks / Special Conditions / Possible Hazards:
 Type of Ice Used: Wet Blue Dry None
 Packing Material Used:
 Radchem sample(s) screened (<500 cpm): Y N NA

Relinquished by/Company (Signature): [Signature] Date/Time: 11/10/10 6:40
 Relinquished by/Company (Signature): _____ Date/Time: _____
 Relinquished by/Company (Signature): _____ Date/Time: _____

SHORT HOLDS PRESENT (<72 hours): Y N N/A
 Lab Tracking #: **2415919**
 Samples received via: FEDEX UPS Client Courier Pace Courier
 MTJL LAB USE ONLY
 Table #:
 Acctnum:
 Template:
 Prelogin:
 PM:
 PB:

Lab Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#: _____
 Cooler 1 Temp Upon Receipt: _____ °C
 Cooler 1 Therm Factor: _____
 Cooler 1 Coolest Temp: _____ °C
 Comments:

Trip Blank Received: Y N NA
 HCL MeOH TSP Other
 Non Conformance(s): _____ Page: _____
 YES / NO of: _____



January 20, 2020

Re: Treatment of Purge Water
Nickelpumper 233
Yemassee, South Carolina
SCDHEC Site ID Number 04878
MECI Project Number 19-7141

To Whom It May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

All purge waters were treated on-site using an up-flow treatment drum loaded with 80 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

January 20, 2020

A total of 27.00 gallons were treated on January 10, 2020 at the referenced site.

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.

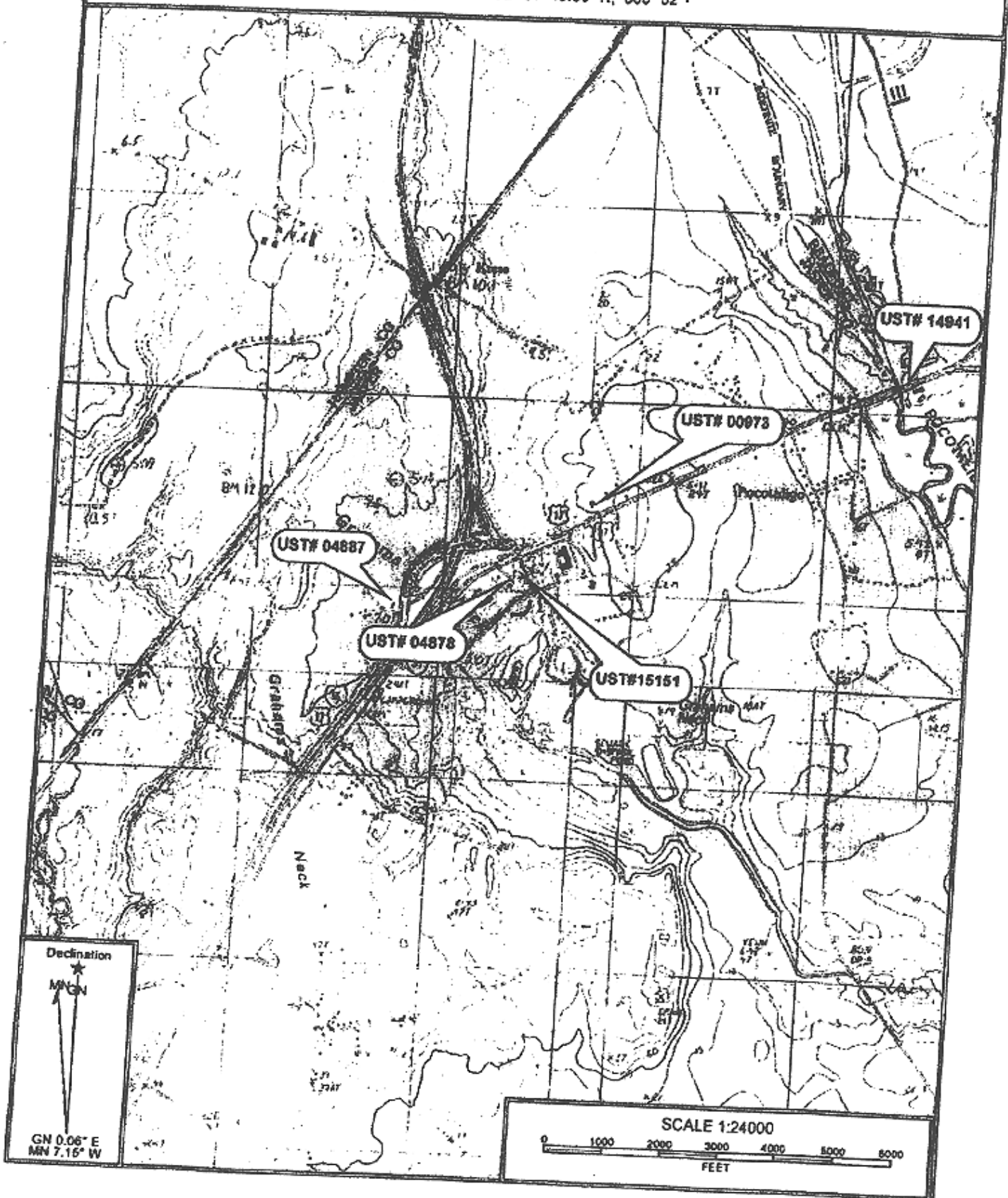


Kyle V. Pudney
Project Biologist

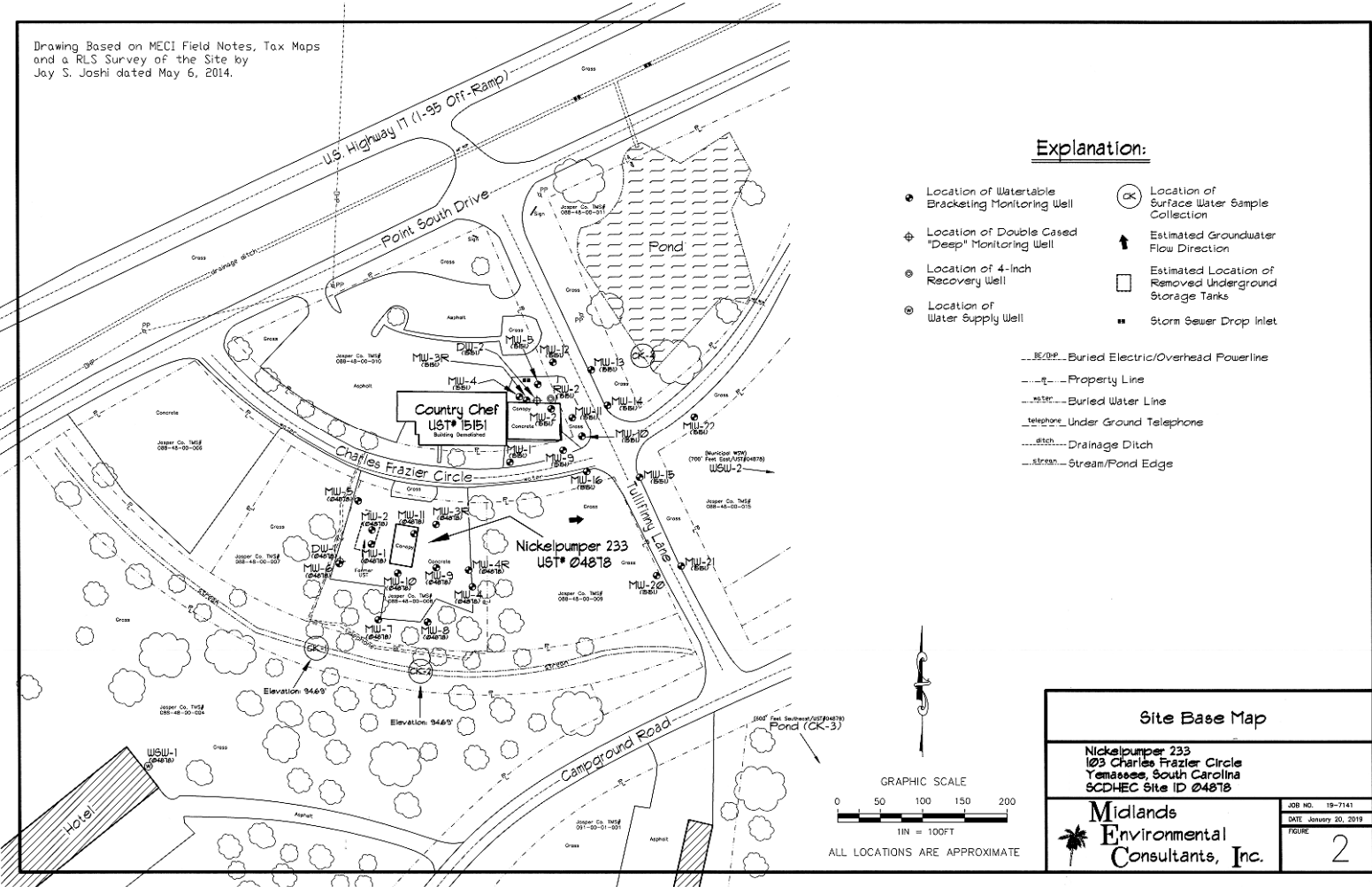
Map Name: MC PHERSONVILLE
Print Date: 11/09/15

Scale: 1 inch = 2,000 ft.
Map Center: 032° 37' 46.89" N, 080° 52' .

Horizontal Datum: NAD27



Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.



Explanation:

- Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-Inch Recovery Well
- ⊙ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet
- JE/OP--- Buried Electric/Overhead Powerline
- P--- Property Line
- WSR--- Buried Water Line
- TEL--- Under Ground Telephone
- ditch--- Drainage Ditch
- Stream--- Stream/Pond Edge

Site Base Map	
Nickelpumper 233 103 Charles Frazier Circle Yemassee, South Carolina SCDHEC Site ID 04878	
Midlands Environmental Consultants, Inc.	JOB NO. 19-2741 DATE January 20, 2019 FIGURE 2

GRAPHIC SCALE
 0 50 100 150 200
 1IN = 100FT
 ALL LOCATIONS ARE APPROXIMATE



Pace Analytical Services, LLC
9800 Kinsey Ave Suite 100
Huntersville, NC 28078
(704)875-9092

January 17, 2020

Robert Dunn
SCDHEC
2600 Bull St
Columbia, SC 29201

RE: Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

Dear Robert Dunn:

Enclosed are the analytical results for sample(s) received by the laboratory on January 10, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angela M. Baioni

Angela Baioni
angela.baioni@pacelabs.com
(704)875-9092
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
9800 Kinsey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

Pace Analytical Services Charlotte

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078
Louisiana/NELAP Certification # LA170028
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92460409001	MW 1	Water	01/10/20 12:16	01/10/20 16:45
92460409002	MW 2	Water	01/10/20 12:33	01/10/20 16:45
92460409003	MW 3R	Water	01/10/20 13:26	01/10/20 16:45
92460409004	MW 4	Water	01/10/20 12:00	01/10/20 16:45
92460409005	MW 4R	Water	01/10/20 12:11	01/10/20 16:45
92460409006	MW 5	Water	01/10/20 12:50	01/10/20 16:45
92460409007	MW 6	Water	01/10/20 11:39	01/10/20 16:45
92460409008	MW 7	Water	01/10/20 11:46	01/10/20 16:45
92460409009	MW 8	Water	01/10/20 11:53	01/10/20 16:45
92460409010	MW 9	Water	01/10/20 11:50	01/10/20 16:45
92460409011	MW 10	Water	01/10/20 12:00	01/10/20 16:45
92460409012	MW 11	Water	01/10/20 13:09	01/10/20 16:45
92460409013	DW 1	Water	01/10/20 11:32	01/10/20 16:45
92460409014	CK 1	Water	01/10/20 13:35	01/10/20 16:45
92460409015	CK 2	Water	01/10/20 13:40	01/10/20 16:45
92460409016	CK 3	Water	01/10/20 13:35	01/10/20 16:45
92460409017	CK 4	Water	01/10/20 13:45	01/10/20 16:45
92460409018	DUP	Water	01/10/20 12:00	01/10/20 16:45
92460409019	FB	Water	01/10/20 13:50	01/10/20 16:45
92460409020	TB	Water	01/10/20 08:00	01/10/20 16:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92460409001	MW 1	EPA 8011	BAJ	2	PASI-C
92460409002	MW 2	EPA 8011	BAJ	2	PASI-C
92460409003	MW 3R	EPA 8011	BAJ	2	PASI-C
92460409004	MW 4	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	CL	20	PASI-C
92460409005	MW 4R	EPA 8011	BAJ	2	PASI-C
92460409006	MW 5	EPA 8011	BAJ	2	PASI-C
92460409007	MW 6	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	CL	20	PASI-C
92460409008	MW 7	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	CL	20	PASI-C
92460409009	MW 8	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	CL	20	PASI-C
92460409010	MW 9	EPA 8011	BAJ	2	PASI-C
92460409011	MW 10	EPA 8011	BAJ	2	PASI-C
92460409012	MW 11	EPA 8011	BAJ	2	PASI-C
92460409013	DW 1	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	CL	20	PASI-C
92460409014	CK 1	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	CL	20	PASI-C
92460409015	CK 2	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	CL	20	PASI-C
92460409016	CK 3	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	CL	20	PASI-C
92460409017	CK 4	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	CL	20	PASI-C
92460409018	DUP	EPA 8011	BAJ	2	PASI-C
92460409019	FB	EPA 8011	BAJ	2	PASI-C
		EPA 8260B	CL	20	PASI-C
92460409020	TB	EPA 8260B	CL	20	PASI-C

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92460409001	MW 1					
EPA 8260D	tert-Amyl Alcohol	3860J	ug/L	4000	01/16/20 09:05	
EPA 8260D	Benzene	2550	ug/L	200	01/16/20 09:05	
EPA 8260D	Ethylbenzene	1170	ug/L	200	01/16/20 09:05	
EPA 8260D	Methyl-tert-butyl ether	285	ug/L	200	01/16/20 09:05	
EPA 8260D	Naphthalene	518	ug/L	200	01/16/20 09:05	
EPA 8260D	Toluene	3970	ug/L	200	01/16/20 09:05	
EPA 8260D	Xylene (Total)	4350	ug/L	200	01/16/20 09:05	
EPA 8260D	m&p-Xylene	3350	ug/L	400	01/16/20 09:05	
EPA 8260D	o-Xylene	1010	ug/L	200	01/16/20 09:05	
92460409002	MW 2					
EPA 8260D	Benzene	61.3	ug/L	5.0	01/15/20 20:38	
EPA 8260D	Ethylbenzene	44.8	ug/L	5.0	01/15/20 20:38	
EPA 8260D	Naphthalene	67.2	ug/L	5.0	01/15/20 20:38	
EPA 8260D	Toluene	42.7	ug/L	5.0	01/15/20 20:38	
EPA 8260D	Xylene (Total)	233	ug/L	5.0	01/15/20 20:38	
EPA 8260D	m&p-Xylene	208	ug/L	10.0	01/15/20 20:38	
EPA 8260D	o-Xylene	25.5	ug/L	5.0	01/15/20 20:38	
92460409005	MW 4R					
EPA 8260D	Naphthalene	2.7J	ug/L	5.0	01/15/20 17:56	
92460409011	MW 10					
EPA 8260D	Benzene	36.8	ug/L	20.0	01/16/20 05:43	
EPA 8260D	Ethylbenzene	392	ug/L	20.0	01/16/20 05:43	
EPA 8260D	Naphthalene	337	ug/L	20.0	01/16/20 05:43	
EPA 8260D	Toluene	18.5J	ug/L	20.0	01/16/20 05:43	
EPA 8260D	Xylene (Total)	853	ug/L	20.0	01/16/20 05:43	
EPA 8260D	m&p-Xylene	714	ug/L	40.0	01/16/20 05:43	
EPA 8260D	o-Xylene	139	ug/L	20.0	01/16/20 05:43	
92460409012	MW 11					
EPA 8260D	Benzene	107	ug/L	50.0	01/16/20 08:10	
EPA 8260D	Ethylbenzene	1230	ug/L	50.0	01/16/20 08:10	
EPA 8260D	Naphthalene	857	ug/L	50.0	01/16/20 08:10	
EPA 8260D	Xylene (Total)	3750	ug/L	50.0	01/16/20 08:10	
EPA 8260D	m&p-Xylene	3020	ug/L	100	01/16/20 08:10	
EPA 8260D	o-Xylene	728	ug/L	50.0	01/16/20 08:10	
92460409017	CK 4					
EPA 8260B	Toluene	5.5	ug/L	5.0	01/15/20 03:37	
92460409018	DUP					
EPA 8260D	Benzene	36.8	ug/L	20.0	01/16/20 06:20	
EPA 8260D	Ethylbenzene	390	ug/L	20.0	01/16/20 06:20	
EPA 8260D	Naphthalene	321	ug/L	20.0	01/16/20 06:20	
EPA 8260D	Toluene	18.8J	ug/L	20.0	01/16/20 06:20	
EPA 8260D	Xylene (Total)	852	ug/L	20.0	01/16/20 06:20	
EPA 8260D	m&p-Xylene	712	ug/L	40.0	01/16/20 06:20	
EPA 8260D	o-Xylene	140	ug/L	20.0	01/16/20 06:20	

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PROJECT NARRATIVE

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

Method: EPA 8011
Description: 8011 GCS EDB and DBCP
Client: SCDHEC
Date: January 17, 2020

General Information:

19 samples were analyzed for EPA 8011. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 8011 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

Method: EPA 8260B
Description: 8260 MSV
Client: SCDHEC
Date: January 17, 2020

General Information:

11 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 519307

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCS (Lab ID: 2779474)
- tert-Butyl Formate

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 519296

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92460357002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 2779429)
 - tert-Butyl Alcohol
- MSD (Lab ID: 2779430)
 - Diisopropyl ether
 - Methyl-tert-butyl ether
 - tert-Butyl Alcohol

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PROJECT NARRATIVE

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

Method: EPA 8260B
Description: 8260 MSV
Client: SCDHEC
Date: January 17, 2020

QC Batch: 519296

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92460357002

P5: The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

- MSD (Lab ID: 2779430)
- tert-Butyl Formate

QC Batch: 519307

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92460402008

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 2779475)
- tert-Butyl Formate
- MSD (Lab ID: 2779476)
- tert-Butyl Formate

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: MW 1 Lab ID: 92460409001 Collected: 01/10/20 12:16 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 02:49	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	112	%	60-140		1	01/15/20 07:56	01/16/20 02:49	301-79-56	
		Analytical Method: EPA 8260D							
tert-Amyl Alcohol	3860J	ug/L	4000	2620	40		01/16/20 09:05	75-85-4	
tert-Amylmethyl ether	ND	ug/L	400	122	40		01/16/20 09:05	994-05-8	
Benzene	2550	ug/L	200	69.6	40		01/16/20 09:05	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	4000	2160	40		01/16/20 09:05	624-95-3	
tert-Butyl Alcohol	ND	ug/L	4000	3640	40		01/16/20 09:05	75-85-0	
tert-Butyl Formate	ND	ug/L	2000	964	40		01/16/20 09:05	762-75-4	
1,2-Dichloroethane	ND	ug/L	200	82.4	40		01/16/20 09:05	107-06-2	
Diisopropyl ether	ND	ug/L	200	140	40		01/16/20 09:05	108-20-3	
Ethanol	ND	ug/L	8000	5760	40		01/16/20 09:05	64-17-5	
Ethylbenzene	1170	ug/L	200	73.6	40		01/16/20 09:05	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	400	338	40		01/16/20 09:05	637-92-3	
Methyl-tert-butyl ether	285	ug/L	200	124	40		01/16/20 09:05	1634-04-4	
Naphthalene	518	ug/L	200	83.6	40		01/16/20 09:05	91-20-3	
Toluene	3970	ug/L	200	80.4	40		01/16/20 09:05	108-88-3	
Xylene (Total)	4350	ug/L	200	200	40		01/16/20 09:05	1330-20-7	
m&p-Xylene	3350	ug/L	400	164	40		01/16/20 09:05	179601-23-1	
o-Xylene	1010	ug/L	200	81.6	40		01/16/20 09:05	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		40		01/16/20 09:05	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130		40		01/16/20 09:05	17060-07-0	
Toluene-d8 (S)	98	%	70-130		40		01/16/20 09:05	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: MW 2 Lab ID: 92460409002 Collected: 01/10/20 12:33 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 03:49	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	90	%	60-140		1	01/15/20 07:56	01/16/20 03:49	301-79-56	
Analytical Method: EPA 8260D									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 20:38	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 20:38	994-05-8	
Benzene	61.3	ug/L	5.0	1.7	1		01/15/20 20:38	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 20:38	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 20:38	75-65-0	v2
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 20:38	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 20:38	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 20:38	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 20:38	64-17-5	
Ethylbenzene	44.8	ug/L	5.0	1.8	1		01/15/20 20:38	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 20:38	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 20:38	1634-04-4	
Naphthalene	67.2	ug/L	5.0	2.1	1		01/15/20 20:38	91-20-3	
Toluene	42.7	ug/L	5.0	2.0	1		01/15/20 20:38	108-88-3	
Xylene (Total)	233	ug/L	5.0	5.0	1		01/15/20 20:38	1330-20-7	
m&p-Xylene	208	ug/L	10.0	4.1	1		01/15/20 20:38	179601-23-1	
o-Xylene	25.5	ug/L	5.0	2.0	1		01/15/20 20:38	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		01/15/20 20:38	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		01/15/20 20:38	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		01/15/20 20:38	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: MW 3R Lab ID: 92460409003 Collected: 01/10/20 13:26 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 04:01	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	100	%	60-140		1	01/15/20 07:56	01/16/20 04:01	301-79-56	
Analytical Method: EPA 8260D									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 18:14	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 18:14	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 18:14	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 18:14	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 18:14	75-65-0	v2
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 18:14	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 18:14	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 18:14	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 18:14	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 18:14	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 18:14	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 18:14	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 18:14	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 18:14	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 18:14	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 18:14	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 18:14	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		01/15/20 18:14	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130		1		01/15/20 18:14	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		01/15/20 18:14	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: MW 4 Lab ID: 92460409004 Collected: 01/10/20 12:00 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 04:25	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	96	%	60-140		1	01/15/20 07:56	01/16/20 04:25	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/14/20 22:13	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/14/20 22:13	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/14/20 22:13	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/14/20 22:13	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/14/20 22:13	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/14/20 22:13	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/14/20 22:13	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/14/20 22:13	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/14/20 22:13	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/14/20 22:13	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/14/20 22:13	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/14/20 22:13	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/14/20 22:13	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/14/20 22:13	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/14/20 22:13	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/14/20 22:13	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/14/20 22:13	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	70-130		1		01/14/20 22:13	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		01/14/20 22:13	17060-07-0	
Toluene-d8 (S)	113	%	70-130		1		01/14/20 22:13	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: MW 4R Lab ID: 92460409005 Collected: 01/10/20 12:11 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 05:01	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	92	%	60-140		1	01/15/20 07:56	01/16/20 05:01	301-79-56	
Analytical Method: EPA 8260D									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 17:56	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 17:56	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 17:56	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 17:56	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 17:56	75-65-0	v2
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 17:56	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 17:56	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 17:56	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 17:56	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 17:56	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 17:56	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 17:56	1634-04-4	
Naphthalene	2.7J	ug/L	5.0	2.1	1		01/15/20 17:56	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 17:56	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 17:56	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 17:56	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 17:56	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		1		01/15/20 17:56	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130		1		01/15/20 17:56	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		01/15/20 17:56	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: MW 5									
Lab ID: 92460409006 Collected: 01/10/20 12:50 Received: 01/10/20 16:45 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 05:13	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	89	%	60-140		1	01/15/20 07:56	01/16/20 05:13	301-79-56	
Analytical Method: EPA 8260D									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 17:38	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 17:38	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 17:38	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 17:38	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 17:38	75-65-0	v2
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 17:38	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 17:38	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 17:38	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 17:38	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 17:38	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 17:38	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 17:38	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 17:38	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 17:38	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 17:38	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 17:38	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 17:38	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		01/15/20 17:38	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		01/15/20 17:38	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		01/15/20 17:38	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: MW 6 Lab ID: 92460409007 Collected: 01/10/20 11:39 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.011	1	01/15/20 07:56	01/16/20 05:24	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	86	%	60-140		1	01/15/20 07:56	01/16/20 05:24	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 02:27	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 02:27	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 02:27	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 02:27	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 02:27	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 02:27	762-75-4	L1
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 02:27	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 02:27	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 02:27	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 02:27	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 02:27	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 02:27	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 02:27	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 02:27	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 02:27	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 02:27	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 02:27	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	107	%	70-130		1		01/15/20 02:27	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-130		1		01/15/20 02:27	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		01/15/20 02:27	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: MW 7 Lab ID: 92460409008 Collected: 01/10/20 11:46 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 05:36	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	91	%	60-140		1	01/15/20 07:56	01/16/20 05:36	301-79-56	
8260 MSV									
Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 02:45	75-85-4	
tert-Amyl methyl ether	ND	ug/L	10.0	3.0	1		01/15/20 02:45	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 02:45	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 02:45	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 02:45	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 02:45	762-75-4	L1
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 02:45	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 02:45	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 02:45	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 02:45	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 02:45	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 02:45	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 02:45	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 02:45	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 02:45	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 02:45	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 02:45	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	108	%	70-130		1		01/15/20 02:45	480-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		01/15/20 02:45	17060-07-0	
Toluene-d8 (S)	107	%	70-130		1		01/15/20 02:45	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: MW 8 Lab ID: 92460409009 Collected: 01/10/20 11:53 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 05:48	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	91	%	60-140		1	01/15/20 07:56	01/16/20 05:48	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 03:02	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 03:02	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 03:02	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 03:02	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 03:02	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 03:02	762-75-4	L1
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 03:02	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 03:02	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 03:02	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 03:02	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 03:02	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 03:02	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 03:02	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 03:02	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 03:02	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 03:02	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 03:02	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	106	%	70-130		1		01/15/20 03:02	480-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		01/15/20 03:02	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		01/15/20 03:02	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: MW 9 Lab ID: 92460409010 Collected: 01/10/20 11:50 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 06:00	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	89	%	60-140		1	01/15/20 07:56	01/16/20 06:00	301-79-56	
Analytical Method: EPA 8260D									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 17:20	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 17:20	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 17:20	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 17:20	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 17:20	75-65-0	v2
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 17:20	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 17:20	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 17:20	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 17:20	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 17:20	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 17:20	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 17:20	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 17:20	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 17:20	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 17:20	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 17:20	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 17:20	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		01/15/20 17:20	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130		1		01/15/20 17:20	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		01/15/20 17:20	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

Sample: MW 10 Lab ID: 92460409011 Collected: 01/10/20 12:00 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP			Analytical Method: EPA 8011 Preparation Method: EPA 8011						
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 06:12	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	96	%	60-140		1	01/15/20 07:56	01/16/20 06:12	301-79-56	
			Analytical Method: EPA 8260D						
tert-Amyl Alcohol	ND	ug/L	400	262	4		01/16/20 05:43	75-85-4	
tert-Amylmethyl ether	ND	ug/L	40.0	12.2	4		01/16/20 05:43	994-05-8	
Benzene	36.8	ug/L	20.0	7.0	4		01/16/20 05:43	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	400	216	4		01/16/20 05:43	624-95-3	
tert-Butyl Alcohol	ND	ug/L	400	364	4		01/16/20 05:43	75-65-0	
tert-Butyl Formate	ND	ug/L	200	96.4	4		01/16/20 05:43	762-75-4	
1,2-Dichloroethane	ND	ug/L	20.0	8.2	4		01/16/20 05:43	107-06-2	
Diisopropyl ether	ND	ug/L	20.0	14.0	4		01/16/20 05:43	108-20-3	
Ethanol	ND	ug/L	800	576	4		01/16/20 05:43	64-17-5	
Ethylbenzene	392	ug/L	20.0	7.4	4		01/16/20 05:43	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	40.0	33.8	4		01/16/20 05:43	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	20.0	12.4	4		01/16/20 05:43	1634-04-4	
Naphthalene	337	ug/L	20.0	8.4	4		01/16/20 05:43	91-20-3	
Toluene	18.5J	ug/L	20.0	8.0	4		01/16/20 05:43	108-88-3	
Xylene (Total)	853	ug/L	20.0	20.0	4		01/16/20 05:43	1330-20-7	
m&p-Xylene	714	ug/L	40.0	16.4	4		01/16/20 05:43	179601-23-1	
o-Xylene	139	ug/L	20.0	8.2	4		01/16/20 05:43	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		4		01/16/20 05:43	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130		4		01/16/20 05:43	17060-07-0	
Toluene-d8 (S)	102	%	70-130		4		01/16/20 05:43	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

Sample: MW 11 Lab ID: 92460409012 Collected: 01/10/20 13:09 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 06:24	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	93	%	60-140		1	01/15/20 07:56	01/16/20 06:24	301-79-56	
Analytical Method: EPA 8260D									
tert-Amyl Alcohol	ND	ug/L	1000	656	10		01/16/20 08:10	75-85-4	
tert-Amylmethyl ether	ND	ug/L	100	30.4	10		01/16/20 08:10	994-05-8	
Benzene	107	ug/L	50.0	17.4	10		01/16/20 08:10	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	1000	539	10		01/16/20 08:10	624-95-3	
tert-Butyl Alcohol	ND	ug/L	1000	910	10		01/16/20 08:10	75-65-0	
tert-Butyl Formate	ND	ug/L	500	241	10		01/16/20 08:10	762-75-4	
1,2-Dichloroethane	ND	ug/L	50.0	20.6	10		01/16/20 08:10	107-06-2	
Diisopropyl ether	ND	ug/L	50.0	34.9	10		01/16/20 08:10	108-20-3	
Ethanol	ND	ug/L	2000	1440	10		01/16/20 08:10	64-17-5	
Ethylbenzene	1230	ug/L	50.0	18.4	10		01/16/20 08:10	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	100	84.6	10		01/16/20 08:10	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	50.0	31.0	10		01/16/20 08:10	1634-04-4	
Naphthalene	857	ug/L	50.0	20.9	10		01/16/20 08:10	91-20-3	
Toluene	ND	ug/L	50.0	20.1	10		01/16/20 08:10	108-88-3	
Xylene (Total)	3750	ug/L	50.0	50.0	10		01/16/20 08:10	1330-20-7	
m&p-Xylene	3020	ug/L	100	41.1	10		01/16/20 08:10	179601-23-1	
o-Xylene	728	ug/L	50.0	20.4	10		01/16/20 08:10	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130		10		01/16/20 08:10	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130		10		01/16/20 08:10	17060-07-0	
Toluene-d8 (S)	100	%	70-130		10		01/16/20 08:10	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: DW 1 Lab ID: 92460409013 Collected: 01/10/20 11:32 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 06:36	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	89	%	60-140		1	01/15/20 07:56	01/16/20 06:36	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 03:19	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 03:19	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 03:19	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 03:19	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 03:19	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 03:19	762-75-4	L1
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 03:19	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 03:19	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 03:19	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 03:19	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 03:19	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 03:19	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 03:19	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 03:19	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 03:19	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 03:19	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 03:19	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	107	%	70-130		1		01/15/20 03:19	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-130		1		01/15/20 03:19	17060-07-0	
Toluene-d8 (S)	106	%	70-130		1		01/15/20 03:19	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: CK 1 Lab ID: 92460409014 Collected: 01/10/20 13:35 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 06:48	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	88	%	60-140		1	01/15/20 07:56	01/16/20 06:48	301-79-56	
8260 MSV									
Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/14/20 22:31	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/14/20 22:31	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/14/20 22:31	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/14/20 22:31	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/14/20 22:31	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/14/20 22:31	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/14/20 22:31	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/14/20 22:31	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/14/20 22:31	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/14/20 22:31	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/14/20 22:31	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/14/20 22:31	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/14/20 22:31	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/14/20 22:31	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/14/20 22:31	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/14/20 22:31	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/14/20 22:31	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		01/14/20 22:31	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		01/14/20 22:31	17060-07-0	
Toluene-d8 (S)	110	%	70-130		1		01/14/20 22:31	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: CK 2 Lab ID: 92460409015 Collected: 01/10/20 13:40 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.021	0.012	1	01/15/20 07:56	01/16/20 07:00	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	90	%	60-140		1	01/15/20 07:56	01/16/20 07:00	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/14/20 22:49	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/14/20 22:49	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/14/20 22:49	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/14/20 22:49	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/14/20 22:49	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/14/20 22:49	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/14/20 22:49	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/14/20 22:49	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/14/20 22:49	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/14/20 22:49	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/14/20 22:49	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/14/20 22:49	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/14/20 22:49	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/14/20 22:49	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/14/20 22:49	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/14/20 22:49	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/14/20 22:49	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		01/14/20 22:49	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		01/14/20 22:49	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		01/14/20 22:49	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: CK 3 Lab ID: 92460409016 Collected: 01/10/20 13:35 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 07:12	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	91	%	60-140		1	01/15/20 07:56	01/16/20 07:12	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/14/20 23:08	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/14/20 23:08	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/14/20 23:08	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/14/20 23:08	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/14/20 23:08	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/14/20 23:08	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/14/20 23:08	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/14/20 23:08	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/14/20 23:08	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/14/20 23:08	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/14/20 23:08	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/14/20 23:08	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/14/20 23:08	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/14/20 23:08	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/14/20 23:08	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/14/20 23:08	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/14/20 23:08	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		01/14/20 23:08	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		01/14/20 23:08	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		01/14/20 23:08	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: CK 4 Lab ID: 92460409017 Collected: 01/10/20 13:45 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.021	0.012	1	01/15/20 07:56	01/16/20 07:24	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	75	%	60-140		1	01/15/20 07:56	01/16/20 07:24	301-79-56	
8260 MSV Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 03:37	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 03:37	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 03:37	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 03:37	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 03:37	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 03:37	762-75-4	L1
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 03:37	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 03:37	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 03:37	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 03:37	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 03:37	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 03:37	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 03:37	91-20-3	
Toluene	5.5	ug/L	5.0	2.0	1		01/15/20 03:37	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 03:37	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 03:37	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 03:37	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	108	%	70-130		1		01/15/20 03:37	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		01/15/20 03:37	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		01/15/20 03:37	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: DUP Lab ID: 92460409018 Collected: 01/10/20 12:00 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 07:36	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	93	%	60-140		1	01/15/20 07:56	01/16/20 07:36	301-79-56	
Analytical Method: EPA 8260D									
tert-Amyl Alcohol	ND	ug/L	400	262	4		01/16/20 06:20	75-85-4	
tert-Amylmethyl ether	ND	ug/L	40.0	12.2	4		01/16/20 06:20	994-05-8	
Benzene	36.8	ug/L	20.0	7.0	4		01/16/20 06:20	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	400	216	4		01/16/20 06:20	624-95-3	
tert-Butyl Alcohol	ND	ug/L	400	364	4		01/16/20 06:20	75-65-0	
tert-Butyl Formate	ND	ug/L	200	96.4	4		01/16/20 06:20	762-75-4	
1,2-Dichloroethane	ND	ug/L	20.0	8.2	4		01/16/20 06:20	107-06-2	
Diisopropyl ether	ND	ug/L	20.0	14.0	4		01/16/20 06:20	108-20-3	
Ethanol	ND	ug/L	800	576	4		01/16/20 06:20	64-17-5	
Ethylbenzene	390	ug/L	20.0	7.4	4		01/16/20 06:20	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	40.0	33.8	4		01/16/20 06:20	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	20.0	12.4	4		01/16/20 06:20	1634-04-4	
Naphthalene	321	ug/L	20.0	8.4	4		01/16/20 06:20	91-20-3	
Toluene	18.8J	ug/L	20.0	8.0	4		01/16/20 06:20	108-88-3	
Xylene (Total)	852	ug/L	20.0	20.0	4		01/16/20 06:20	1330-20-7	
m&p-Xylene	712	ug/L	40.0	16.4	4		01/16/20 06:20	179601-23-1	
o-Xylene	140	ug/L	20.0	8.2	4		01/16/20 06:20	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		4		01/16/20 06:20	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130		4		01/16/20 06:20	17060-07-0	
Toluene-d8 (S)	104	%	70-130		4		01/16/20 06:20	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: FB Lab ID: 92460409019 Collected: 01/10/20 13:50 Received: 01/10/20 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011							
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 07:48	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	89	%	60-140		1	01/15/20 07:56	01/16/20 07:48	301-79-56	
8260 MSV		Analytical Method: EPA 8260B							
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 07:40	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 07:40	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 07:40	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 07:40	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 07:40	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 07:40	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 07:40	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 07:40	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 07:40	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 07:40	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 07:40	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 07:40	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 07:40	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 07:40	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 07:40	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 07:40	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 07:40	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		01/15/20 07:40	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		01/15/20 07:40	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		01/15/20 07:40	2037-26-5	

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ANALYTICAL RESULTS

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Sample: TB									
Lab ID: 92460409020 Collected: 01/10/20 08:00 Received: 01/10/20 16:45 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260B									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 07:58	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 07:58	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 07:58	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 07:58	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 07:58	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 07:58	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		01/15/20 07:58	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		01/15/20 07:58	108-20-3	
Ethanol	ND	ug/L	200	144	1		01/15/20 07:58	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		01/15/20 07:58	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		01/15/20 07:58	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		01/15/20 07:58	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 07:58	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 07:58	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 07:58	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 07:58	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 07:58	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		01/15/20 07:58	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		01/15/20 07:58	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		01/15/20 07:58	2037-26-5	

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

QC Batch: 519550 Analysis Method: EPA 8260D
 QC Batch Method: EPA 8260D Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92460409002, 92460409003, 92460409005, 92460409006, 92460409010

METHOD BLANK: 2780558 Matrix: Water
 Associated Lab Samples: 92460409002, 92460409003, 92460409005, 92460409006, 92460409010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	2.1	01/15/20 14:39	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	53.9	01/15/20 14:39	
Benzene	ug/L	ND	5.0	1.7	01/15/20 14:39	
Diisopropyl ether	ug/L	ND	5.0	3.5	01/15/20 14:39	
Ethanol	ug/L	ND	200	144	01/15/20 14:39	
Ethyl-tert-butyl ether	ug/L	ND	10.0	8.5	01/15/20 14:39	
Ethylbenzene	ug/L	ND	5.0	1.8	01/15/20 14:39	
m&p-Xylene	ug/L	ND	10.0	4.1	01/15/20 14:39	
Methyl-tert-butyl ether	ug/L	ND	5.0	3.1	01/15/20 14:39	
Naphthalene	ug/L	ND	5.0	2.1	01/15/20 14:39	
o-Xylene	ug/L	ND	5.0	2.0	01/15/20 14:39	
tert-Amyl Alcohol	ug/L	ND	100	65.6	01/15/20 14:39	
tert-Amylmethyl ether	ug/L	ND	10.0	3.0	01/15/20 14:39	
tert-Butyl Alcohol	ug/L	ND	100	91.0	01/15/20 14:39	v2
tert-Butyl Formate	ug/L	ND	50.0	24.1	01/15/20 14:39	
Toluene	ug/L	ND	5.0	2.0	01/15/20 14:39	
Xylene (Total)	ug/L	ND	5.0	5.0	01/15/20 14:39	
1,2-Dichloroethane-d4 (S)	%	88	70-130		01/15/20 14:39	
4-Bromofluorobenzene (S)	%	100	70-130		01/15/20 14:39	
Toluene-d9 (S)	%	101	70-130		01/15/20 14:39	

LABORATORY CONTROL SAMPLE: 2780559

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	45.9	92	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1050	105	70-130	
Benzene	ug/L	50	50.8	102	70-130	
Diisopropyl ether	ug/L	50	47.4	95	70-130	
Ethanol	ug/L	2000	2150	108	70-130	
Ethyl-tert-butyl ether	ug/L	100	91.8	92	70-130	
Ethylbenzene	ug/L	50	49.8	100	70-130	
m&p-Xylene	ug/L	100	101	101	70-130	
Methyl-tert-butyl ether	ug/L	50	47.8	96	70-130	
Naphthalene	ug/L	50	58.0	116	70-130	
o-Xylene	ug/L	50	49.8	100	70-130	
tert-Amyl Alcohol	ug/L	1000	1020	102	70-130	
tert-Amylmethyl ether	ug/L	100	101	101	70-130	
tert-Butyl Alcohol	ug/L	500	392	78	70-130 v3	
tert-Butyl Formate	ug/L	400	410	102	70-130	
Toluene	ug/L	50	48.3	97	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

LABORATORY CONTROL SAMPLE: 2780559

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	150	100	70-130	
1,2-Dichloroethane-d4 (S)	%			92	70-130	
4-Bromofluorobenzene (S)	%			103	70-130	
Toluene-d8 (S)	%			97	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2780560 2780561

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		92460374003 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
1,2-Dichloroethane	ug/L	ND	100	100	100	101	96	97	70-137	1	30		
3,3-Dimethyl-1-Butanol	ug/L	ND	2000	2000	2040	2140	102	107	39-157	5	30		
Benzene	ug/L	585	100	100	697	715	111	130	70-151	3	30		
Diisopropyl ether	ug/L	ND	100	100	112	114	112	114	63-144	2	30		
Ethanol	ug/L	ND	4000	4000	3950	4170	99	104	39-176	6	30		
Ethyl-tert-butyl ether	ug/L	ND	200	200	201	202	100	101	66-137	1	30		
Ethylbenzene	ug/L	76.5	100	100	174	179	97	103	66-153	3	30		
m&p-Xylene	ug/L	511	200	200	689	711	89	100	69-152	3	30		
Methyl-tert-butyl ether	ug/L	ND	100	100	104	106	104	106	54-156	1	30		
Naphthalene	ug/L	154	100	100	212	225	58	71	61-148	6	30	M1	
o-Xylene	ug/L	482	100	100	578	600	95	117	70-148	4	30		
tert-Amyl Alcohol	ug/L	ND	2000	2000	1970	2110	99	105	54-153	7	30		
tert-Amylmethyl ether	ug/L	ND	200	200	205	212	102	106	69-139	4	30		
tert-Butyl Alcohol	ug/L	ND	1000	1000	1330	1240	133	124	43-188	7	30		
tert-Butyl Formate	ug/L	ND	200	200	ND	ND	0	0	10-170	30	30	PK, P5	
Toluene	ug/L	788	100	100	891	929	103	141	59-148	4	30		
Xylene (Total)	ug/L	994	300	300	1270	1310	91	106	63-158	3	30		
1,2-Dichloroethane-d4 (S)	%						96	95	70-130				
4-Bromofluorobenzene (S)	%						97	98	70-130				
Toluene-d8 (S)	%						99	100	70-130				

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

QC Batch: 519556 Analysis Method: EPA 8260D
QC Batch Method: EPA 8260D Analysis Description: 8260 MSV SC
Associated Lab Samples: 92460409001, 92460409011, 92460409012, 92460409018

METHOD BLANK: 2780587 Matrix: Water
Associated Lab Samples: 92460409001, 92460409011, 92460409012, 92460409018

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	2.1	01/16/20 03:54	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	53.9	01/16/20 03:54	
Benzene	ug/L	ND	5.0	1.7	01/16/20 03:54	
Diisopropyl ether	ug/L	ND	5.0	3.5	01/16/20 03:54	
Ethanol	ug/L	ND	200	144	01/16/20 03:54	
Ethyl-tert-butyl ether	ug/L	ND	10.0	8.5	01/16/20 03:54	
Ethylbenzene	ug/L	ND	5.0	1.8	01/16/20 03:54	
m&p-Xylene	ug/L	ND	10.0	4.1	01/16/20 03:54	
Methyl-tert-butyl ether	ug/L	ND	5.0	3.1	01/16/20 03:54	
Naphthalene	ug/L	ND	5.0	2.1	01/16/20 03:54	
o-Xylene	ug/L	ND	5.0	2.0	01/16/20 03:54	
tert-Amyl Alcohol	ug/L	ND	100	65.6	01/16/20 03:54	
tert-Amylmethyl ether	ug/L	ND	10.0	3.0	01/16/20 03:54	
tert-Butyl Alcohol	ug/L	ND	100	91.0	01/16/20 03:54	
tert-Butyl Formate	ug/L	ND	50.0	24.1	01/16/20 03:54	
Toluene	ug/L	ND	5.0	2.0	01/16/20 03:54	
Xylene (Total)	ug/L	ND	5.0	5.0	01/16/20 03:54	
1,2-Dichloroethane-d4 (S)	%	96	70-130		01/16/20 03:54	
4-Bromofluorobenzene (S)	%	100	70-130		01/16/20 03:54	
Toluene-d8 (S)	%	100	70-130		01/16/20 03:54	

LABORATORY CONTROL SAMPLE: 2780588

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	45.9	92	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	967	97	70-130	
Benzene	ug/L	50	49.0	98	70-130	
Diisopropyl ether	ug/L	50	52.0	104	70-130	
Ethanol	ug/L	2000	1910	96	70-130	
Ethyl-tert-butyl ether	ug/L	100	94.5	94	70-130	
Ethylbenzene	ug/L	50	48.7	97	70-130	
m&p-Xylene	ug/L	100	97.1	97	70-130	
Methyl-tert-butyl ether	ug/L	50	49.4	99	70-130	
Naphthalene	ug/L	50	48.1	96	70-130	
o-Xylene	ug/L	50	48.8	98	70-130	
tert-Amyl Alcohol	ug/L	1000	923	92	70-130	
tert-Amylmethyl ether	ug/L	100	97.9	98	70-130	
tert-Butyl Alcohol	ug/L	500	450	90	70-130	
tert-Butyl Formate	ug/L	400	434	109	70-130	
Toluene	ug/L	50	47.0	94	70-130	

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

LABORATORY CONTROL SAMPLE: 2780588

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	146	97	70-130	
1,2-Dichloroethane-d4 (S)	%			100	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2780589 2780590

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		92460360002 Result	Spike Conc.	Spike Conc.	Result						
1,2-Dichloroethane	ug/L	ND	4000	4000	3930	4110	98	103	70-137	5	30
3,3-Dimethyl-1-Butanol	ug/L	ND	80000	80000	82600	81800	103	102	39-157	1	30
Benzene	ug/L	651J	4000	4000	5070	5210	111	114	70-151	3	30
Diisopropyl ether	ug/L	ND	4000	4000	4500	4560	111	113	63-144	1	30
Ethanol	ug/L	ND	160000	160000	165000	163000	103	102	39-176	1	30
Ethyl-tert-butyl ether	ug/L	ND	8000	8000	8050	8360	101	104	66-137	4	30
Ethylbenzene	ug/L	4510	4000	4000	8660	8820	104	108	66-153	2	30
m&p-Xylene	ug/L	18200	8000	8000	26200	26400	100	103	69-152	1	30
Methyl-tert-butyl ether	ug/L	2270	4000	4000	6810	6970	113	117	54-156	2	30
Naphthalene	ug/L	697J	4000	4000	4800	5160	103	112	61-148	7	30
o-Xylene	ug/L	8910	4000	4000	13000	13200	101	108	70-148	2	30
tert-Amyl Alcohol	ug/L	ND	80000	80000	83200	81400	104	102	54-153	2	30
tert-Amylmethyl ether	ug/L	ND	8000	8000	9140	9480	114	119	69-139	4	30
tert-Butyl Alcohol	ug/L	ND	40000	40000	45000	47300	112	118	43-188	5	30
tert-Butyl Formate	ug/L	ND	32000	32000	24000	32900	75	103	10-170	31	30 M1
Toluene	ug/L	28400	4000	4000	30600	30500	55	53	59-148	0	30 M1
Xylene (Total)	ug/L	27100	12000	12000	39200	39700	101	105	63-158	1	30
1,2-Dichloroethane-d4 (S)	%						95	95	70-130		
4-Bromofluorobenzene (S)	%						97	98	70-130		
Toluene-d8 (S)	%						100	100	70-130		

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

QC Batch: 519296 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV SC
Associated Lab Samples: 92460409019, 92460409020

METHOD BLANK: 2779427 Matrix: Water
Associated Lab Samples: 92460409019, 92460409020

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	2.1	01/15/20 02:47	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	53.9	01/15/20 02:47	
Benzene	ug/L	ND	5.0	1.7	01/15/20 02:47	
Diisopropyl ether	ug/L	ND	5.0	3.5	01/15/20 02:47	
Ethanol	ug/L	ND	200	144	01/15/20 02:47	
Ethyl-tert-butyl ether	ug/L	ND	10.0	8.5	01/15/20 02:47	
Ethylbenzene	ug/L	ND	5.0	1.8	01/15/20 02:47	
m&p-Xylene	ug/L	ND	10.0	4.1	01/15/20 02:47	
Methyl-tert-butyl ether	ug/L	ND	5.0	3.1	01/15/20 02:47	
Naphthalene	ug/L	ND	5.0	2.1	01/15/20 02:47	
o-Xylene	ug/L	ND	5.0	2.0	01/15/20 02:47	
tert-Amyl Alcohol	ug/L	ND	100	65.6	01/15/20 02:47	
tert-Amylmethyl ether	ug/L	ND	10.0	3.0	01/15/20 02:47	
tert-Butyl Alcohol	ug/L	ND	100	91.0	01/15/20 02:47	
tert-Butyl Formate	ug/L	ND	50.0	24.1	01/15/20 02:47	
Toluene	ug/L	ND	5.0	2.0	01/15/20 02:47	
Xylene (Total)	ug/L	ND	5.0	5.0	01/15/20 02:47	
1,2-Dichloroethane-d4 (S)	%	95	70-130		01/15/20 02:47	
4-Bromofluorobenzene (S)	%	101	70-130		01/15/20 02:47	
Toluene-d8 (S)	%	104	70-130		01/15/20 02:47	

LABORATORY CONTROL SAMPLE: 2779428

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	54.9	110	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1200	120	70-130	
Benzene	ug/L	50	59.2	118	70-130	
Diisopropyl ether	ug/L	50	61.3	123	70-130	
Ethanol	ug/L	2000	2260	113	70-130	
Ethyl-tert-butyl ether	ug/L	100	113	113	70-130	
Ethylbenzene	ug/L	50	57.5	115	70-130	
m&p-Xylene	ug/L	100	114	114	70-130	
Methyl-tert-butyl ether	ug/L	50	59.5	119	70-130	
Naphthalene	ug/L	50	59.9	120	70-130	
o-Xylene	ug/L	50	57.2	114	70-130	
tert-Amyl Alcohol	ug/L	1000	1160	116	70-130	
tert-Amylmethyl ether	ug/L	100	121	121	70-130	
tert-Butyl Alcohol	ug/L	500	561	112	70-130	
tert-Butyl Formate	ug/L	400	515	129	70-130	
Toluene	ug/L	50	58.2	116	70-130	

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

LABORATORY CONTROL SAMPLE: 2779428

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	171	114	70-130	
1,2-Dichloroethane-d4 (S)	%			100	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2779429 2779430

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92460357002 Result	Spike Conc.	Spike Conc.	Result							
1,2-Dichloroethane	ug/L	ND	20	20	24.2	25.9	121	130	70-130	7	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	400	376	406	94	101	70-130	8	30	
Benzene	ug/L	ND	20	20	23.7	25.0	119	125	70-130	5	30	
Diisopropyl ether	ug/L	ND	20	20	24.4	26.9	122	135	70-130	10	30	M1
Ethanol	ug/L	ND	800	800	951	1040	119	130	70-130	9	30	
Ethyl-tert-butyl ether	ug/L	ND	40	40	45.7	48.8	114	122	70-130	7	30	
Ethylbenzene	ug/L	ND	20	20	19.3	20.5	96	102	70-130	6	30	
m&p-Xylene	ug/L	ND	40	40	37.8	40.5	94	101	70-130	7	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	24.5	26.2	122	131	70-130	7	30	M1
Naphthalene	ug/L	ND	20	20	17.8	19.8	89	99	70-130	11	30	
o-Xylene	ug/L	ND	20	20	19.2	20.3	96	101	70-130	6	30	
tert-Amyl Alcohol	ug/L	ND	400	400	427	462	107	116	70-130	8	30	
tert-Amylmethyl ether	ug/L	ND	40	40	44.5	47.2	111	118	70-130	6	30	
tert-Butyl Alcohol	ug/L	ND	200	200	263	294	131	147	70-130	11	30	M1
tert-Butyl Formate	ug/L	ND	160	160	115	100	72	63	70-130	14	30	P5
Toluene	ug/L	ND	20	20	22.2	23.8	111	119	70-130	7	30	
Xylene (Total)	ug/L	ND	60	60	56.9	60.7	95	101	70-130	6	30	
1,2-Dichloroethane-d4 (S)	%						102	101	70-130			
4-Bromofluorobenzene (S)	%						105	104	70-130			
Toluene-d8 (S)	%						103	102	70-130			

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

QC Batch: 519304 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV SC
 Associated Lab Samples: 92460409004, 92460409014, 92460409015, 92460409016

METHOD BLANK: 2779459 Matrix: Water
 Associated Lab Samples: 92460409004, 92460409014, 92460409015, 92460409016

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	2.1	01/14/20 16:07	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	53.9	01/14/20 16:07	
Benzene	ug/L	ND	5.0	1.7	01/14/20 16:07	
Diisopropyl ether	ug/L	ND	5.0	3.5	01/14/20 16:07	
Ethanol	ug/L	ND	200	144	01/14/20 16:07	
Ethyl-tert-butyl ether	ug/L	ND	10.0	8.5	01/14/20 16:07	
Ethylbenzene	ug/L	ND	5.0	1.8	01/14/20 16:07	
m&p-Xylene	ug/L	ND	10.0	4.1	01/14/20 16:07	
Methyl-tert-butyl ether	ug/L	ND	5.0	3.1	01/14/20 16:07	
Naphthalene	ug/L	ND	5.0	2.1	01/14/20 16:07	
o-Xylene	ug/L	ND	5.0	2.0	01/14/20 16:07	
tert-Amyl Alcohol	ug/L	ND	100	65.6	01/14/20 16:07	
tert-Amylmethyl ether	ug/L	ND	10.0	3.0	01/14/20 16:07	
tert-Butyl Alcohol	ug/L	ND	100	91.0	01/14/20 16:07	
tert-Butyl Formate	ug/L	ND	50.0	24.1	01/14/20 16:07	
Toluene	ug/L	ND	5.0	2.0	01/14/20 16:07	
Xylene (Total)	ug/L	ND	5.0	5.0	01/14/20 16:07	
1,2-Dichloroethane-d4 (S)	%	96	70-130		01/14/20 16:07	
4-Bromofluorobenzene (S)	%	102	70-130		01/14/20 16:07	
Toluene-d8 (S)	%	101	70-130		01/14/20 16:07	

LABORATORY CONTROL SAMPLE 2779460

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	48.9	98	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1040	104	70-130	
Benzene	ug/L	50	51.6	103	70-130	
Diisopropyl ether	ug/L	50	53.6	107	70-130	
Ethanol	ug/L	2000	2000	100	70-130	
Ethyl-tert-butyl ether	ug/L	100	98.9	99	70-130	
Ethylbenzene	ug/L	50	51.0	102	70-130	
m&p-Xylene	ug/L	100	104	104	70-130	
Methyl-tert-butyl ether	ug/L	50	52.6	105	70-130	
Naphthalene	ug/L	50	52.1	104	70-130	
o-Xylene	ug/L	50	51.3	103	70-130	
tert-Amyl Alcohol	ug/L	1000	997	100	70-130	
tert-Amylmethyl ether	ug/L	100	103	103	70-130	
tert-Butyl Alcohol	ug/L	500	486	97	70-130	
tert-Butyl Formate	ug/L	400	424	106	70-130	
Toluene	ug/L	50	49.6	99	70-130	

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

LABORATORY CONTROL SAMPLE: 2779460

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	155	103	70-130	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2779461 2779462

Parameter	Units	2779461		2779462		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		92460409004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
1,2-Dichloroethane	ug/L	ND	20	20	16.6	18.5	83	92	70-130	11	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	400	426	437	106	109	70-130	3	30	
Benzene	ug/L	ND	20	20	18.7	21.6	93	108	70-130	14	30	
Diisopropyl ether	ug/L	ND	20	20	17.4	19.5	87	97	70-130	11	30	
Ethanol	ug/L	ND	800	800	817	906	102	113	70-130	10	30	
Ethyl-tert-butyl ether	ug/L	ND	40	40	33.1	36.9	83	92	70-130	11	30	
Ethylbenzene	ug/L	ND	20	20	19.2	20.9	96	105	70-130	9	30	
m&p-Xylene	ug/L	ND	40	40	38.4	42.4	96	106	70-130	10	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	17.3	19.5	87	98	70-130	12	30	
Naphthalene	ug/L	ND	20	20	23.4	22.0	114	106	70-130	6	30	
o-Xylene	ug/L	ND	20	20	18.3	20.2	91	101	70-130	10	30	
tert-Amyl Alcohol	ug/L	ND	400	400	417	444	104	111	70-130	6	30	
tert-Amylmethyl ether	ug/L	ND	40	40	36.7	42.0	92	105	70-130	14	30	
tert-Butyl Alcohol	ug/L	ND	200	200	167	184	84	92	70-130	9	30	
tert-Butyl Formate	ug/L	ND	160	160	134	133	84	83	70-130	1	30	
Toluene	ug/L	ND	20	20	19.1	21.6	90	102	70-130	12	30	
Xylene (Total)	ug/L	ND	60	60	56.7	62.6	94	104	70-130	10	30	
1,2-Dichloroethane-d4 (S)	%						98	97	70-130			
4-Bromofluorobenzene (S)	%						101	99	70-130			
Toluene-d8 (S)	%						97	99	70-130			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

QC Batch: 519307 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV SC
Associated Lab Samples: 92460409007, 92460409008, 92460409009, 92460409013, 92460409017

METHOD BLANK: 2779473 Matrix: Water
Associated Lab Samples: 92460409007, 92460409008, 92460409009, 92460409013, 92460409017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	2.1	01/14/20 23:17	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	53.9	01/14/20 23:17	
Benzene	ug/L	ND	5.0	1.7	01/14/20 23:17	
Diisopropyl ether	ug/L	ND	5.0	3.5	01/14/20 23:17	
Ethanol	ug/L	ND	200	144	01/14/20 23:17	
Ethyl-tert-butyl ether	ug/L	ND	10.0	8.5	01/14/20 23:17	
Ethylbenzene	ug/L	ND	5.0	1.8	01/14/20 23:17	
m&p-Xylene	ug/L	ND	10.0	4.1	01/14/20 23:17	
Methyl-tert-butyl ether	ug/L	ND	5.0	3.1	01/14/20 23:17	
Naphthalene	ug/L	ND	5.0	2.1	01/14/20 23:17	
o-Xylene	ug/L	ND	5.0	2.0	01/14/20 23:17	
tert-Amyl Alcohol	ug/L	ND	100	65.6	01/14/20 23:17	
tert-Amylmethyl ether	ug/L	ND	10.0	3.0	01/14/20 23:17	
tert-Butyl Alcohol	ug/L	ND	100	91.0	01/14/20 23:17	
tert-Butyl Formate	ug/L	ND	50.0	24.1	01/14/20 23:17	
Toluene	ug/L	ND	5.0	2.0	01/14/20 23:17	
Xylene (Total)	ug/L	ND	5.0	5.0	01/14/20 23:17	
1,2-Dichloroethane-d4 (S)	%	103	70-130		01/14/20 23:17	
4-Bromofluorobenzene (S)	%	106	70-130		01/14/20 23:17	
Toluene-d8 (S)	%	104	70-130		01/14/20 23:17	

LABORATORY CONTROL SAMPLE: 2779474

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	60.0	120	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1060	106	70-130	
Benzene	ug/L	50	57.3	115	70-130	
Diisopropyl ether	ug/L	50	65.2	130	70-130	
Ethanol	ug/L	2000	2450	122	70-130	
Ethyl-tert-butyl ether	ug/L	100	121	121	70-130	
Ethylbenzene	ug/L	50	49.3	99	70-130	
m&p-Xylene	ug/L	100	97.2	97	70-130	
Methyl-tert-butyl ether	ug/L	50	63.9	128	70-130	
Naphthalene	ug/L	50	52.4	105	70-130	
o-Xylene	ug/L	50	49.0	98	70-130	
tert-Amyl Alcohol	ug/L	1000	1130	113	70-130	
tert-Amylmethyl ether	ug/L	100	117	117	70-130	
tert-Butyl Alcohol	ug/L	500	570	114	70-130	
tert-Butyl Formate	ug/L	400	545	136	70-130 L1	
Toluene	ug/L	50	55.1	110	70-130	

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

LABORATORY CONTROL SAMPLE: 2779474

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	146	97	70-130	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2779475 2779476

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		92460402008 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
1,2-Dichloroethane	ug/L	ND	20	20	17.2	17.3	86	87	87	70-130	1	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	400	404	397	101	99	99	70-130	2	30	
Benzene	ug/L	ND	20	20	19.4	19.7	97	99	99	70-130	2	30	
Diisopropyl ether	ug/L	ND	20	20	17.4	17.7	87	88	88	70-130	1	30	
Ethanol	ug/L	ND	800	800	772	797	97	100	100	70-130	3	30	
Ethyl-tert-butyl ether	ug/L	ND	40	40	33.7	33.9	84	85	85	70-130	1	30	
Ethylbenzene	ug/L	ND	20	20	18.7	19.7	94	99	99	70-130	5	30	
m&p-Xylene	ug/L	ND	40	40	37.6	39.4	94	99	99	70-130	5	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	17.6	17.7	88	88	88	70-130	0	30	
Naphthalene	ug/L	ND	20	20	19.8	19.6	99	98	98	70-130	1	30	
o-Xylene	ug/L	ND	20	20	18.5	19.2	92	96	96	70-130	4	30	
tert-Amyl Alcohol	ug/L	ND	400	400	404	379	101	95	95	70-130	6	30	
tert-Amylmethyl ether	ug/L	ND	40	40	37.0	37.4	93	94	94	70-130	1	30	
tert-Butyl Alcohol	ug/L	ND	200	200	187	185	93	92	92	70-130	1	30	
tert-Butyl Formate	ug/L	ND	160	160	52.4	49.0	33	30	30	70-130		30	MO
Toluene	ug/L	ND	20	20	19.0	19.2	95	96	96	70-130	1	30	
Xylene (Total)	ug/L	ND	60	60	56.1	58.7	93	98	98	70-130	4	30	
1,2-Dichloroethane-d4 (S)	%						98	95	95	70-130			
4-Bromofluorobenzene (S)	%						101	102	102	70-130			
Toluene-d8 (S)	%						99	99	99	70-130			

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

QC Batch: 519419 Analysis Method: EPA 8011
 QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
 Associated Lab Samples: 92460409001

METHOD BLANK: 2779854 Matrix: Water
 Associated Lab Samples: 92460409001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	0.011	01/15/20 21:50	
1-Chloro-2-bromopropane (S)	%	127	60-140		01/15/20 21:50	

LABORATORY CONTROL SAMPLE & LCSD: 2779855 2779856

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	0.25	0.25	0.23	100	92	60-140	8	20	
1-Chloro-2-bromopropane (S)	%				100	95	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2779858 2779859

Parameter	Units	92460402018 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	0.26	0.26	0.24	0.25	92	94	60-140	3	20	
1-Chloro-2-bromopropane (S)	%						95	96	60-140			

SAMPLE DUPLICATE: 2779857

Parameter	Units	92460402017 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	96	104			

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QUALITY CONTROL DATA

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

QC Batch:	519420	Analysis Method:	EPA 8011
QC Batch Method:	EPA 8011	Analysis Description:	GCS 8011 EDB DBCP
Associated Lab Samples:	92460409002, 92460409003, 92460409004, 92460409005, 92460409006, 92460409007, 92460409008, 92460409009, 92460409010, 92460409011, 92460409012, 92460409013, 92460409014, 92460409015, 92460409016, 92460409017, 92460409018, 92460409019		

METHOD BLANK: 2779860 Matrix: Water
 Associated Lab Samples: 92460409002, 92460409003, 92460409004, 92460409005, 92460409006, 92460409007, 92460409008, 92460409009, 92460409010, 92460409011, 92460409012, 92460409013, 92460409014, 92460409015, 92460409016, 92460409017, 92460409018, 92460409019

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	0.011	01/16/20 03:13	
1-Chloro-2-bromopropane (S)	%	88	60-140		01/16/20 03:13	

Parameter	Units	2779861		2779862		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCS Result	LCS % Rec						
1,2-Dibromoethane (EDB)	ug/L	0.25	0.23	0.22	91	91	60-140	1	20		
1-Chloro-2-bromopropane (S)	%				91	92	60-140				

Parameter	Units	2779864		2779865		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
1,2-Dibromoethane (EDB)	ug/L	ND	0.26	0.26	0.26	97	98	60-140	1	20	
1-Chloro-2-bromopropane (S)	%					97	98	60-140			

Parameter	Units	92460409003		RPD	Max RPD	Qualifiers
		Result	Dup Result			
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	100	97			

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QUALIFIERS

Project: Nickel Pumper 233 04878/60604
Pace Project No.: 92460409

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.
A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

IK The recalculated concentration of the calibration standard(s) did not meet method acceptance criteria; this result should be considered an estimated value.
L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P5 The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.
R1 RPD value was outside control limits.
v2 The continuing calibration verification was below the method acceptance limit. The analyte was not detected in the associated samples and the sensitivity of the instrument was verified with a reporting limit check standard.
v3 The continuing calibration verification was below the method acceptance limit. Any detection for the analyte in the associated samples may have low bias.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Nickel Pumper 233 04878/60604
 Pace Project No.: 92460409

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92460409001	MW 1	EPA 8011	519419	EPA 8011	519573
92460409002	MW 2	EPA 8011	519420	EPA 8011	519574
92460409003	MW 3R	EPA 8011	519420	EPA 8011	519574
92460409004	MW 4	EPA 8011	519420	EPA 8011	519574
92460409005	MW 4R	EPA 8011	519420	EPA 8011	519574
92460409006	MW 5	EPA 8011	519420	EPA 8011	519574
92460409007	MW 6	EPA 8011	519420	EPA 8011	519574
92460409008	MW 7	EPA 8011	519420	EPA 8011	519574
92460409009	MW 8	EPA 8011	519420	EPA 8011	519574
92460409010	MW 9	EPA 8011	519420	EPA 8011	519574
92460409011	MW 10	EPA 8011	519420	EPA 8011	519574
92460409012	MW 11	EPA 8011	519420	EPA 8011	519574
92460409013	DW 1	EPA 8011	519420	EPA 8011	519574
92460409014	CK 1	EPA 8011	519420	EPA 8011	519574
92460409015	CK 2	EPA 8011	519420	EPA 8011	519574
92460409016	CK 3	EPA 8011	519420	EPA 8011	519574
92460409017	CK 4	EPA 8011	519420	EPA 8011	519574
92460409018	DUP	EPA 8011	519420	EPA 8011	519574
92460409019	FB	EPA 8011	519420	EPA 8011	519574
92460409004	MW 4	EPA 8260B	519304		
92460409007	MW 6	EPA 8260B	519307		
92460409008	MW 7	EPA 8260B	519307		
92460409009	MW 8	EPA 8260B	519307		
92460409013	DW 1	EPA 8260B	519307		
92460409014	CK 1	EPA 8260B	519304		
92460409015	CK 2	EPA 8260B	519304		
92460409016	CK 3	EPA 8260B	519304		
92460409017	CK 4	EPA 8260B	519307		
92460409019	FB	EPA 8260B	519296		
92460409020	TB	EPA 8260B	519296		

REPORT OF LABORATORY ANALYSIS

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Pace Analytical

CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY - /

WO#: 92460409



ALI 92460409

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: sc Prec Billing Information:

Address: 3600 Bullst Columbia SC 29201

Report To: R Dunn Email To: dunn@sc.prec.com

Copy To: 3276 South Point Site Collection Info/Address:

Customer Project Name/Number: Nickle paper 233 State: SC County/City: York Time Zone Collected: ET

Phone: _____ Site/Facility ID #: 04876/460036874 Compliance Monitoring? Yes No

Email: _____ Purchase Order #: _____ DW PWS ID #: _____

Collected By (print): Ben Powers Quote #: _____ DW Location Code: _____

Collected By (signature): [Signature] Turnaround Date Required: _____ Immediately Packed on Ice: Yes No

Sample Disposal: Dispose as appropriate Return Archive Hold

Rush: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): Yes No

Analysis: _____

Container Prese

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses	Lab Profile/Line:	
	Lab Sample Receipt Checklist:	
<u>URGENT CHGS (2 PEA PER BOTTLES)</u> <u>ED3 by 8am</u>	Custody Seals Present/Intact	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	Custody Signatures Present	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	Collector Signatures Present	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	Bottles Intact	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	Correct Bottles	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	Sufficient Volume	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	Samples Received on Ice	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	VOA - Headspace Acceptable	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	USDA Regulated Soils	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	Samples in Holding Time	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	Residual Chlorine Present	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	CI Strips:	
	Sample pH Acceptable	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
	pH Strips:	
	Sulfide Present	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Lead Acetate Strips:		

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res CI	# of Ctns
			Date	Time	Date	Time		
Mw1	GW	G	01/19/20	12:16			6	X
Mw2	GW	G	01/20/20	12:33			6	X
Mw3R	GW	G	01/20/20	13:26			6	X
Mw4				12:00				
Mw4R				12:16				
Mw5				12:50				
Mw6				11:39				
Mw7				11:46				
Mw8				11:53				

Customer Remarks / Special Conditions / Possible Hazards: _____

Type of Ice Used: Wet Blue Dry None

Packing Material Used: B: Bag

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2415751

Samples received via: Pace Courier

Relinquished by/Company: (Signature) [Signature] Date/Time: 11/10/20 16:40 Received by/Company: (Signature) [Signature] Date/Time: 1/10 16:45

Relinquished by/Company: (Signature) [Signature] Date/Time: 1/10 19:32 Received by/Company: (Signature) [Signature] Date/Time: 1-10-20 19:32

Relinquished by/Company: (Signature) _____ Date/Time: _____ Received by/Company: (Signature) _____ Date/Time: _____

Table #: _____ Acctnum: _____ Template: _____ Prelogin: _____ PM: _____ PB: _____

Lab Sample Temperature Info:

Temp Blank Received: Y N NA

Therm ID#: 927058

Cooler 1 Temp Upon Receipt: 2.9 °C

Cooler 1 Therm Corr. Factor: 0 °C

Cooler 1 Corrected Temp: 2.9 °C

Comments: _____

Trip Blank Received: Y N NA

(HCl) MeOH TSP Other

Non Conformance(s): _____ Page: _____ of: _____

YES / NO

Pace Analytical

CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY - Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

ALL SHADED AREAS are for LAB USE ONLY

Company: SC Paces Billing Information:

Address: 2600 Bull st Columbia SC 29201

Report To: R. Dunn Email To: keenan@pace-analytical.com

Copy To: 2516 Point South Site Collection Info/Address:

Customer Project Name/Number: Nickel pumps 233 State: SC County/City: Wagner/Hamilton Time Zone Collected: ET

Phone: _____ Site/Facility ID #: 04878/4600736874 Compliance Monitoring? Yes No

Email: _____ Purchase Order #: _____ DW PWS ID #: _____

Collected By (print): Ben Powers Quote #: _____ DW Location Code: _____

Collected By (signature): _____ Turnaround Date Required: _____ Immediately Packed on Ice: Yes No

Sample Disposal: _____ Rush: Same Day Next Day Field Filtered (if applicable): Yes No

Dispose as appropriate Return Archive: _____ 2 Day 3 Day 4 Day 5 Day Analysis: _____

Hold: _____ (Expedite Charges Apply)

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) m-methanol, (7) sodium bisulfate, (8) sodium rhosulfate, (9) hexane, (A) ascorbic acid, (I) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signatures Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VDA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA

K EDB By Box

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
MW 9	GW	6	11:50				6	
MW 10			12:00					
MW 11			13:07					
DW 1			11:32					
CK 1			13:35					
CK 2			13:40					
CK 3			13:35					
CK 4			13:45					
PW			12:00					
PB			13:50					

LAB USE ONLY: Lab Sample # / Comments:

92400409

No odor 010

odor 011

No odor 012

No odor 013

014

015

016

odor 017

018

019

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used: B-Bags

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2415752

Samples received via: FEDEX UPS Client Courier Pace Courier

Temp Blank Received: Y N NA

Therm ID#: 927058

Cooler 1 Temp Upon Receipt: 39 oC

Cooler 1 Therm Corr. Factor: 0 oC

Cooler 1 Corrected Temp: 39 oC

Comments:

Temp Blank Received: HCL MeOH TSP Other

Non Conformance(s): YES / NO Page: 1 of: 1

Relinquished by/Company: (Signature) Ben Powers Date/Time: 11/10/20 16:40 Received by/Company: (Signature) Gregory PACE Date/Time: 1/10 1645

Relinquished by/Company: (Signature) Gregory PACE Date/Time: 1/10 1932 Received by/Company: (Signature) Madara Z Pace Date/Time: 1-10-20 19:32

Relinquished by/Company: (Signature) _____ Date/Time: _____ Received by/Company: (Signature) _____ Date/Time: _____

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: **SC Dhec** Billing Information:

Address: **1200 Bull St Columbia SC 29201**

Report To: **R Duan** Email To: **hannah@dhc.sc.gov**

Copy To: **3296 Bent South** Site Collection Info/Address:

Customer Project Name/Number: **Nickle Pipes 233** State: **SC** County/City: **Charleston** Time Zone Collected: **ET**

Phone: **803 746 1234** Site/Facility ID #: **04876 / 400738874** Compliance Monitoring? Yes No

Collected By (print): **Ben Powers** Purchase Order #: **12345** DW PWS ID #: **12345**

Collected By (signature): *[Signature]* Turnaround Date Required: **1/10/20** DW Location Code: **1234**

Sample Disposal: Dispose as appropriate Return Archive Hold

Rush: Same Day Next Day 2 Day 3 Day 4 Day 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): Yes No

Analysis: **1234567890**

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-In Number Here

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type ** **3** Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses	Lab Profile/Lines
1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890 1234567890	Lab Sample Receipt Checklist: Custody Seals Present/Intact <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Custody Signatures Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Collector Signatures Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Bottles Intact <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Correct Bottles <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Sufficient Volume <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Samples Received on Ice <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA VOA - Headspace Acceptable <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA USDA Regulated Soils <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Samples in Holding Time <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Residual Chlorine Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Cl Strips: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Sample pH Acceptable <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA pH Strips: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Sulfide Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA Lead Acetate Strips: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
TB	GW	6	1-10-20	8:00				2

Customer Remarks / Special Conditions / Possible Hazards: **Wet** Type of Ice Used: **Wet** None Dry None

Packing Material Used: **B-Bags** SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: **2415919** Samples received via: **FEDEX** **UPS** **Client** **Courier** **Pace Courier**

Radchem sample(s) screened (<500 cpm): Y N NA

Temp Blank Received: Y N NA

Therm ID#: **927058**

Cooler 1 Temp Upon Receipt: **3.9** °C

Cooler 1 Therm Corr. Factor: **0**

Cooler 1 Corrected Temp: **3.9** °C

Comments:

Blank Received: Y N NA

(HCl) MeOH TSP Other

Non Conformance(s): YES / NO Page: of:

PAGE 43 OF 47

Relinquished by/Company: (Signature) *[Signature]* Date/Time: **1/10/20 16:40**

Relinquished by/Company: (Signature) *[Signature]* Date/Time: **1/10 19:32**

Relinquished by/Company: (Signature) *[Signature]* Date/Time:

Received by/Company: (Signature) *[Signature]* Date/Time: **1/10 16:45**

Received by/Company: (Signature) *[Signature]* Date/Time: **1-10-20 19:32**

Received by/Company: (Signature) *[Signature]* Date/Time:

Table #: **MTJL LAB USE ONLY**

Acctnum:

Template:

Prelogin:

PM:

PB:



*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Colform, TOC, Oil and Grease, DRO/BD15 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project # **WO# : 92460409**

PH: AMB

Due Date: 01/17/20

CLIENT: 82-SCDHEC

PG#1

Item #	Description	1	2	3	4	5	6	7	8	9	10	11	12
BP4U-125 mL Plastic Unpreserved (N/A) (C-)													
BP3U-250 mL Plastic Unpreserved (N/A)													
BP2U-500 mL Plastic Unpreserved (N/A)													
BP1U-1 liter Plastic Unpreserved (N/A)													
BP4S-125 mL Plastic H2SO4 (pH < 2) (C-)													
BP3H-250 mL plastic HNO3 (pH < 2)													
BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)													
BP4C-125 mL Plastic NaOH (pH > 12) (C-)													
WG7U-Wide-mouthed Glass jar Unpreserved													
AG1U-1 liter Amber Unpreserved (N/A) (C-)													
AG2H-1 liter Amber HCl (pH < 2)													
AG3U-250 mL Amber Unpreserved (N/A) (C-)													
AG1S-1 liter Amber H2SO4 (pH < 2)													
AG3S-250 mL Amber H2SO4 (pH < 2)													
AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)													
GBEH-40 mL VOA HCl (N/A)							6						
VG9T-40 mL VOA Na2S2O3 (N/A)													
VG9U-40 mL VOA Unp (N/A)													
DG9P-40 mL VOA H3PO4 (N/A)													
VOAK (6 vials per kit)-5035 kit (N/A)							6						
V/GK (3 vials per kit)-VPH/Gas kit (N/A)							6						
SPST-125 mL Sterile Plastic (N/A - lab)							6						
SPZT-250 mL Sterile Plastic (N/A - lab)							6						
BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)													
AGOU-100 mL Amber Unpreserved vials (N/A)													
VG6U-20 mL Scintillation vials (N/A)													
DG9U-40 mL Amber Unpreserved vials (N/A)													

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers).



*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Project #

WO#: 92460409

Due Date: 01/17/20

PM: AMB

CLIENT: 92-SCDHEC

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

PG#2

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (C-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (C-)	BP3M-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (C-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (C-)	AG3H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(C-)	CG3H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-SO3S kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGOU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Sterilization vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1																G												
2																G												
3																G												
4																G												
5																G												
6																G												
7																G												
8																G												
9																G												
10																G												
11																2												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of field, incorrect preservative, out of temp, incorrect containers.



64878

JUL 28 2022

MR BRYAN SHANE PG
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071

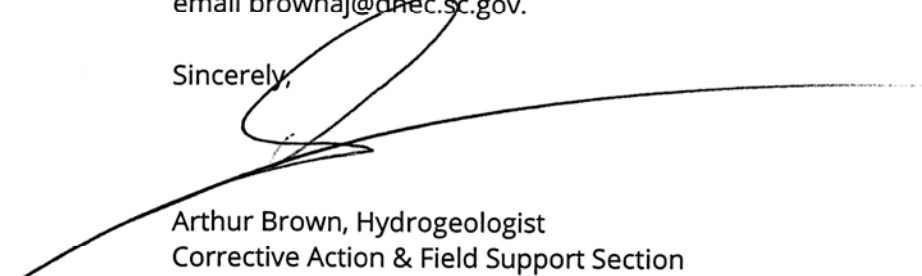
Re: Site Specific Work Plan Request
Groundwater Sampling Contract
Solicitation #IFB-5400021335

Dear Mr. Shane:

In accordance with bid solicitation # IFB-5400021335, submission of a Site-Specific Work Plan (SSWP) based on each site information package provided is requested.

The SSWP must be submitted within 20 calendar days of the date of this correspondence. The project manager for each site will issue a notice to proceed once the plan has been reviewed and approved. A weekly update for each site should be emailed to the site's project manager and myself. If you have any questions or need further assistance, please contact me by phone (803) 898-0500 or email brownaj@dhec.sc.gov.

Sincerely,



Arthur Brown, Hydrogeologist
Corrective Action & Field Support Section
UST Management Division
Bureau of Land & Waste Management

Enc: Site Information Package Summary (SIPS)
Site Information Packages

Cc: Taylor Cannon, Pace Analytical Services, 9800 Kinsey Ave. STE 100, Huntersville, NC 28078 (w/ SIPS)
Technical File (w/o Enc)



UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone: 803-898-2544

MEMORANDUM

TO: Statelead Groundwater Sampling Contractor

FROM: Arthur Brown

RE: Site Specific Work Plan Request

Facility Name: Nickelpumper 233

Contractor CA# 64203

Permit Number: 4878

PACE CA #: 65830

County: Jasper

RBCA CLASS: 1D

List Monitoring Wells to be Sampled Purging Method Purge All

Shallow MW-1, MW-2, MW-3, MW-4R, MW-5, MW-6, MW-7, MW-8

Intermediate

Deep DW-1

Surface Water Points to be Sampled (MUST BE ON MAP PROVIDED)

SW-1, SW-2, SW-3

WSW Points to be Sampled (MUST BE ON MAP PROVIDED CONTACT INFO w TAX MAP INFO)

WSW-1

Sample Below Product

Additional Potentiometric Maps Requested - See Below (Note: Shallow & Deep Included)

Isopleth Maps requested instead of CoC Map (Only for CoCs >RBSL or SSTL)

Other:

Total Groundwater Sample Points: 13

Analysis Being Requested: K. BTEXNM+Oxyg's+1,2 DCA+Eth(8260B), K7. EDB by EPA 8011

Total Water Supply Well Points: 1

Analysis Being Requested: K14. BTEXNM+1,2 DCA (524.2), K15. 7-OXYGENATES & ETHANOL (8260B), K16. EDB (504.1)

7/28/2022



**Midlands
Environmental
Consultants, Inc.**

Arthur

August 8, 2022

RECEIVED

AUG 08 2022

UST DIVISION



Mr. Arthur Brown, Hydrogeologist
Corrective Action & Field Support Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: Site-Specific Work Plan
Nickelpumper 233
Yemassee, South Carolina
Jasper County
UST Permit# 04878
MECI Project Number 22-7929
Certified Site Rehabilitation Contractor UCC-0009

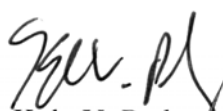
Dear Mr. Brown,


Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Site-Specific Work Plan for the referenced site.

On August 4, 2022, MECI personnel performed a site visit to the subject site to evaluate current site conditions, locate previously installed monitoring wells and identify potential problems for sampling events.

If you have any question or comments, please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.


Kyle V. Pudney
Senior Biologist


Jeff L. Coleman
Senior Scientist



**Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division**

To: Mr. Arthur Brown (SCDHEC Project Manager)
 From: Jeff L. Coleman (Contractor Project Manager)
 Contractor: Midlands Environmental Consultants, Inc. UST Contractor Certification Number: 009

Facility Name: Nickelpumper 233 UST Permit #: 04878
 Facility Address: 103 Charles Frazier Circle, Yemassee, SC 29945
 Responsible Party: Clifton Ricardo Smith Phone: 843-258-0669
 RP Address: 76 Bell Haven Way Ridgeland, SC 29936
 Property Owner (if different): SAA
 Property Owner Address: SAA
 Current Use of Property: Vacant Property

Scope of Work (Please check all that apply)

IGWA Tier II Groundwater Sampling GAC
 Tier I Monitoring Well Installation Other _____

Analyses (Please check all that apply)

Groundwater/Surface Water:

BTEXNMDCA (8260D) Lead BOD Methane
 Oxygenates (8260D) 8 RCRA Metals Nitrate Ethanol
 EDB (8011) TPH Sulfate Dissolved Iron
 PAH (8270E) pH Other _____

Drinking Water Supply Wells:

BTEXNMDCA (524.2) Mercury (200.8 245.1 or 245.2) EDB (504.1)
 Oxygenates & Ethanol (8260D) RCRA Metals (200.8)

Soil:

BTEXNM Lead RCRA Metals TPH-DRO (3550B/8015B) Grain Size
 PAH Oil & Grease (9071) TPH-GRO (5030B/8015B) TOC

Air:

BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected.)

_____ Soil 1 Water Supply Wells _____ Air 2 Field Blank
9 Monitoring Wells 3 Surface Water 2 Duplicate 2 Trip Blank

Field Screening Methodology

Estimate number and total completed depth for each point, and include their proposed locations on the attached map.

of shallow points proposed: _____ Estimated Footage: _____ feet per point
 # of deep points proposed: _____ Estimated Footage: _____ feet per point
 Field Screening Methodology: _____

Permanent Monitoring Wells

Estimate number and total completed depth for each well, and include their proposed locations on the attached map.

of shallow wells: _____ Estimated Footage: _____ feet per point
 # of deep wells: _____ Estimated Footage: _____ feet per point
 # of recovery wells: _____ Estimated Footage: _____ feet per point
 Comments, if warranted:

UST Permit #: 04878 Facility Name: Nickelpumper 233

Implementation Schedule (Number of calendar days from approval)
Field Work Start-Up: 8/8/2022 Field Work Completion: 9/8/2022
Report Submittal: 10/8/2022 # of Copies Provided to Property Owners: _____

Aquifer Characterization
Pump Test: Slug Test: (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal
Soil: _____ Tons Purge Water: 200.0 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

Additional Details For This Scope of Work
For example, list wells to be sampled, wells to be abandoned/repared, well pads/bolts/caps to replace, details of AFVR event, etc.
-During the initial site visit, monitoring well MW-4R was unable to be located. It appears that the site has been used for illegal dumping of trash and household goods. Monitoring well MW-4 was able to be located. If MW-4R is located during the sampling event, it will be sampled accordingly. All other wells were located during the site visit. Five bolts are needed to properly secure MW-2, MW-5, and MW-8. All wells will be purged prior to sample collection.
-MECI will also attempt to sample three surface water locations and one water supply well during sampling activities. Water supply well WSW-1 has been removed, however, MECI will attempt to sample the WSW with a bailer.
-Groundwater samples will be analyzed for BTEXNM, DCA, Oxys, and EDB by appropriate methods.
-MECI also request pre-approval to replace up to 10 bolts, replace up to 3 caps and "gauge only" of up to 2 wells.

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)
____ Laboratory as indicated in ACQAP? (Yes/No) If no, indicate laboratory information below.
Name of Laboratory: _____
SCDHEC Certification Number: _____
Name of Laboratory Director: _____

____ Well Driller as indicated in ACQAP? (Yes/No) If no, indicate driller information below.
Name of Well Driller: _____
SCLLR Certification Number: _____

____ Other variations from ACQAP. Please describe below.

Attachments

1. Attach a copy of the relevant portion of the USGS topographic map showing the site location.
2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following:
North Arrow Proposed monitoring well locations
Location of property lines Legend with facility name and address, UST permit number, and bar scale
Location of buildings Streets or highways (indicate names and numbers)
Previous soil sampling locations Location of all present and former ASTs and USTs
Previous monitoring well locations Location of all potential receptors
Proposed soil boring locations
3. Assessment Component Cost Agreement, SCDHEC Form D-3664



**ASSESSMENT COMPONENT COST AGREEMENT
SOUTH CAROLINA**

Department of Health and Environmental Control
Underground Storage Tank Management Division
State Underground Petroleum Environmental Response Bank Account
CONTRACT PO # 4600830568

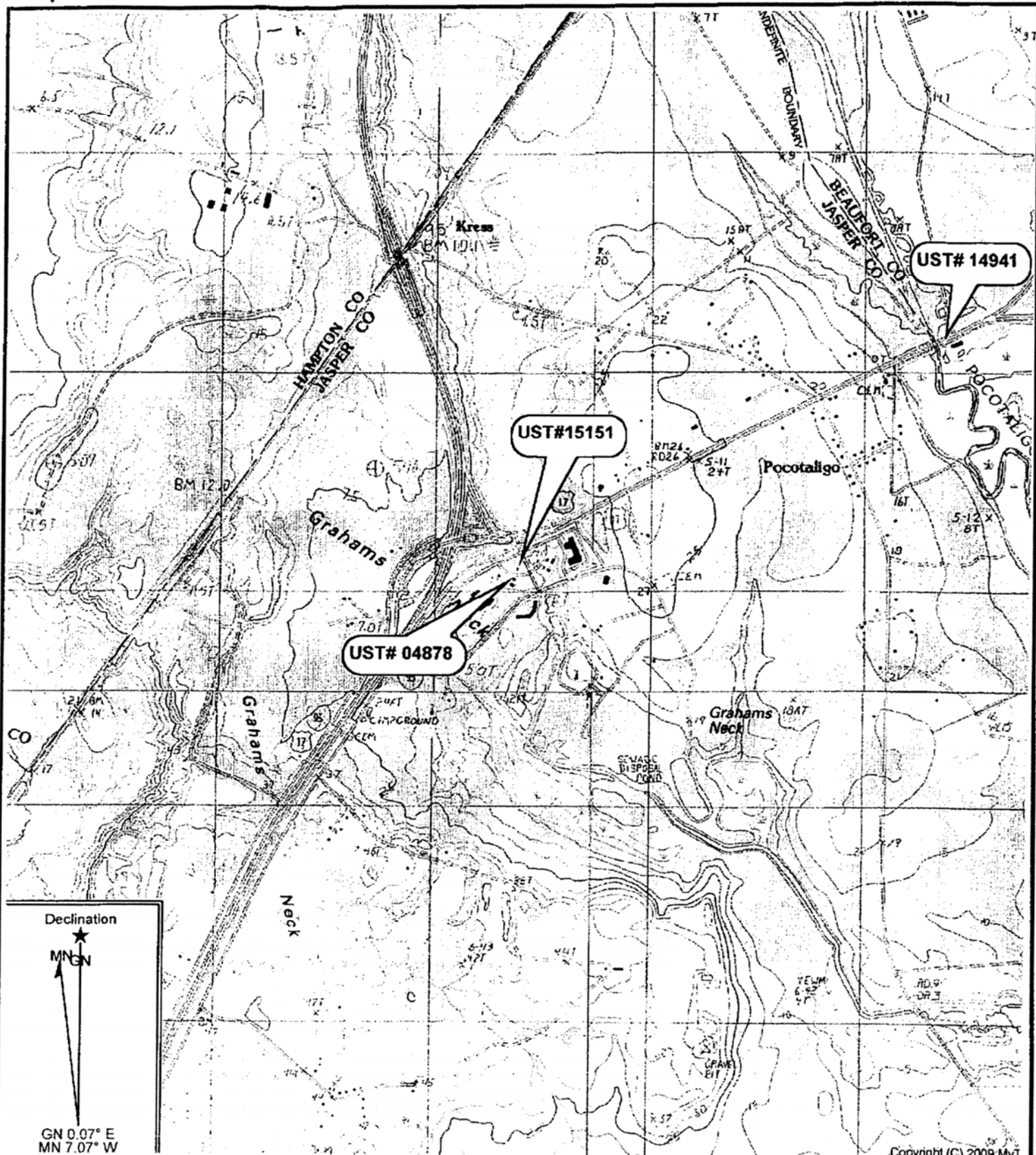
Facility Name: Nickelpumper 233

UST Permit #: 04878

Cost Agreement #: _____

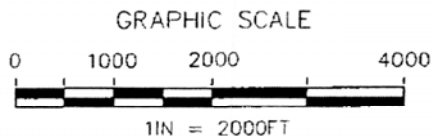
Proposal _____

ITEM	QUANTITY	UNIT	UNIT PRICE		TOTAL
A. Plan Preparation					
1. Site Specific Work Plan	1	each	\$425.00		\$425.00
2. Tax Map		each	\$50.00		\$0.00
B. Receptor Survey					
		each	\$50.00		\$0.00
D. Mob/Demob					
2. Personnel	1	each	\$610.00		\$610.00
J. Groundwater Sample Collection / Gauge Depth to Water or Product (Each)					
1. Groundwater Purge	9	per well	\$10.00		\$90.00
2. Air or Vapors		per sample	\$1.00		\$0.00
3. Water Supply Sample	1	per sample	\$40.00		\$40.00
4. Groundwater No Purge/Surface Water	3	per sample	\$8.00		\$24.00
R-1. HydraSleeve		per sample	\$23.00		\$0.00
5. Gauge Well only	2	per data point	\$1.00		\$2.00
6. Sample Below Product		per well	\$1.80		\$0.00
7. Passive Diffusion Bag		per well	\$25.00		\$0.00
9. Groundwater (low flow purge)		per well	\$25.00		\$0.00
10. Equipment Blank		per day	\$10.00		\$0.00
Q. Disposal (gallons or tons)					
1. Wastewater	200	per gallon	\$0.33		\$66.00
2. Free Product		per gallon	\$0.05		\$0.00
R. Miscellaneous					
2. Additional Potentiometric Map		each above required two	\$10.00		\$0.00
3. Isopleth Map		each above required one	\$50.00		\$0.00
4. Data Table		per data set	\$100.00		\$0.00
5. Redraw/Digitize Site Map		each	\$150.00		\$0.00
6. Replace Well Lid		each	\$10.00		\$0.00
Y. Well Repair					
1. Additional Copies of Report Delivered		per copy	\$10.00		\$0.00
5. Replace well cover bolts	10	each	\$6.00		\$60.00
6. Replace locking well cap & lock	3	each	\$10.00		\$30.00
10. Replace missing/illegible well ID plate		each	\$10.00		\$0.00
Subtotal					\$1,347.00
S. Report Preparation/Project Coordination			Percent of Subtotal	0%	
TOTAL					\$1,347.00



Declination

 GN 0.07° E
 MN 7.07° W



Reference: McPhersonville, South Carolina
 USGS 7.5 Min. Quad
 Contour Interval - 1.50 Meters

<p>Midlands Environmental Consultants, Inc.</p>	<p>Site Location</p>
<p>Nickelpumper 233 3296 Point South Drive, Yemassee, SC SCDHEC Site ID* 04878</p>	
<p>Figure 1</p>	<p>MECI 14-4714</p>

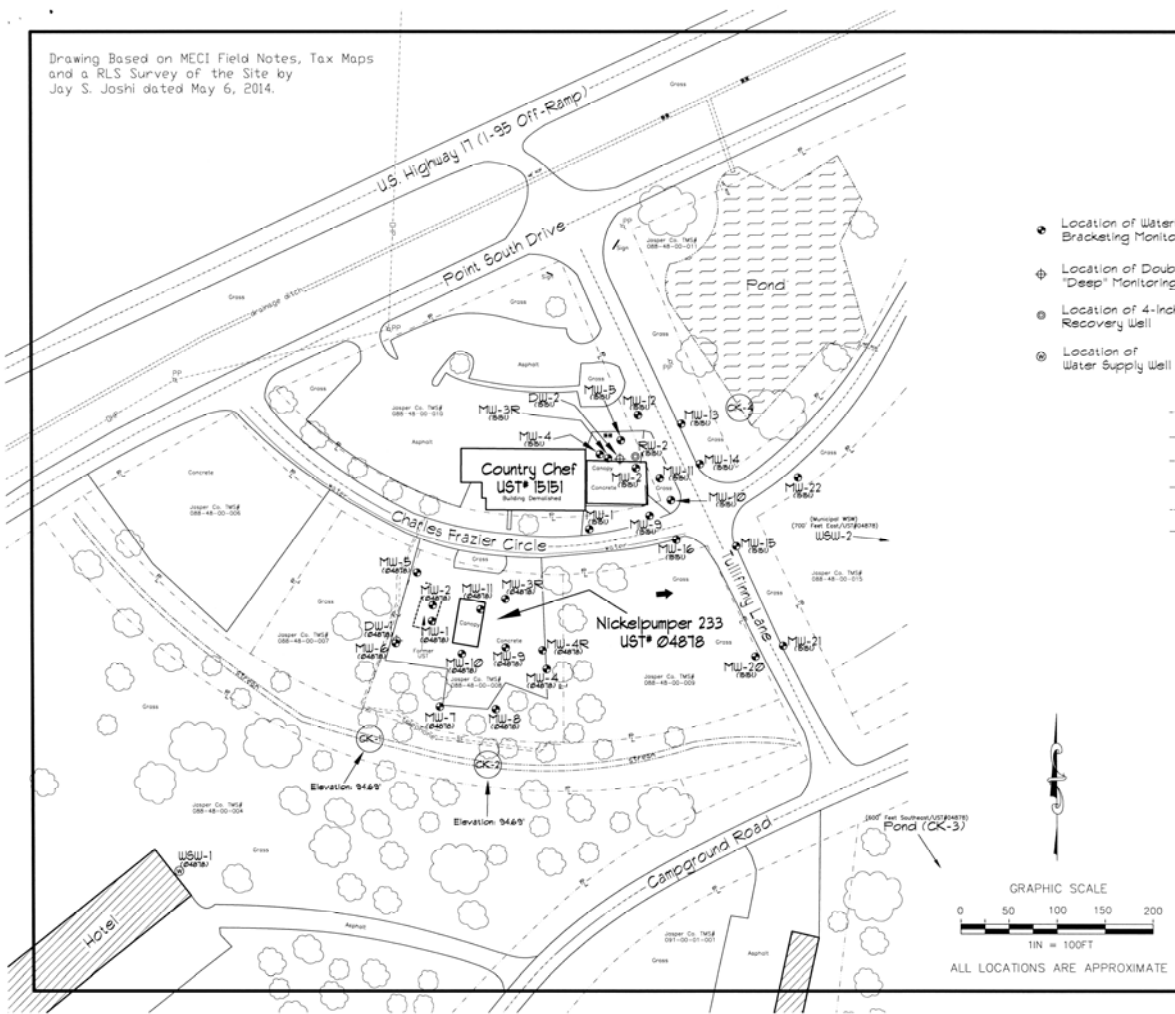
Copyright (C) 2009 MyT

Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.

Explanation:

- ⊕ Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊕ Location of 4-Inch Recovery Well
- ⊕ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Storm Sewer Drop Inlet

- Buried Electric/Overhead Powerline
- Property Line
- Buried Water Line
- Under Ground Telephone
- Drainage Ditch
- Stream/Pond Edge



Site Base Map	
Nickelpumper 233 103 Charles Frazier Circle Yemassee, South Carolina SCDHEC Site ID 04818	
 Midlands Environmental Consultants, Inc.	JOB NO. 19-7141 DATE January 25, 2019 FIGURE 2



SEP 23 2022



MR BRYAN SHANE PG
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071

Re: Notice to Proceed Site-Specific Work Plan (SSWP) Approval
Groundwater Sampling Contract
Solicitation #IFB-5400021335, PO # 4600907252
Nickelpumper 233, 3296 Point South Drive, Yemassee, SC
UST Permit #04878; MECI CA #64203; Pace CA #65830
Jasper County

Dear Mr. Shane:

In accordance with bid solicitation #IFB-5400021335, the SSWP has been reviewed and approved. A status report of the project should be provided on a weekly basis. If any quality assurance problems arise, you must contact me within 24 hours by phone or email.

Please coordinate access to the facility with the property owner. **Sampling should be conducted within 30 calendar days from the date of this letter. If the final report is not submitted within 60 days of the date of this correspondence, a late fee may be imposed.** The final report is to be submitted to the contract manager.

If you have any site-specific and/or contract specific questions, please contact Arthur Brown by email brownaj@dhec.sc.gov or phone (803) 898-0500.

Sincerely,



Arthur Brown, Hydrogeologist
Corrective Action & Field Support Section
UST Management Division
Bureau of Land & Waste Management

Enc: Approved Cost Agreement (both CAs)

Cc: Mr. Taylor Cannon, Pace Analytical Services, 9800 Kinsey Ave, STE 100, Huntersville, NC, 28078 (w/ CA)
Technical File (w/ Enc)

Approved Cost Agreement**64203**

Facility: 04878 NICKELPUMPER 233

BROWNAJ

PO Number: 907252-24

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
A	PLAN PREPARATION				
		1 SITE SPECIFIC WORK PLAN	1.0000	\$425.000	425.00
D	MOB/DEMOB				
		2 PERSONNEL	1.0000	\$610.000	610.00
J	SAMPLE COLLECTION				
		1 GROUND WATER PURGE	9.0000	\$10.000	90.00
		3 WATER SUPPLY SAMPLE/ DUPLICATE	1.0000	\$40.000	40.00
		4 GROUNDWATER NO-PURGE/DUPL/GRAB	3.0000	\$8.000	24.00
		5 GAUGE WELL ONLY	2.0000	\$1.000	2.00
Q	DISPOSAL				
		1 WASTEWATER	200.0000	\$0.330	66.00
Y	WELL REPAIR				
		5 REPLACE WELL COVER BOLTS	10.0000	\$6.000	60.00
		6 REPLACE LOCKING WELL CAP & LOC	3.0000	\$10.000	30.00
			Total Amount		1,347.00

Approved Cost Agreement**65830**

Facility: 04878 NICKELPUMPER 233

BROWNAJ

PO Number: 907254-33

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
K ANALYSES					
	DW DRINKING WATER	14 BTEXNM+1,2 DCA (524.2) WSW	4.0000	\$44.350	177.40
		15 OXYGENATES & ETHANOL 8260B WSW	4.0000	\$21.120	84.48
		16 EDB (504.1) WSW	3.0000	\$23.230	69.69
	GW GROUNDWATER	1 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	15.0000	\$27.450	411.75
		7 EDB BY EPA 8011	14.0000	\$23.230	325.22
			Total Amount		1,068.54

MONITORING REPORT

Nickelpumper 233
103 Charles Frazier Circle
Yemassee, South Carolina
Jasper County
UST# 04878; CA# 64203
Solicitation# IFB-5400021335; PO# 4600830568

Prepared By:

 Midlands
Environmental
Consultants, Inc.
231 Dooley Road, Lexington, SC 29073
(803) 808-2043 fax: 808-2048

November 1, 2022

MECI Project No. 22-7929



November 1, 2022

Mr. Arthur Brown, Hydrogeologist
Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201


Subject: Report of Groundwater Sampling
Nickelpumper 233
103 Charles Frazier Circle
Yemassee, South Carolina
Jasper County
UST# 04878; CA# 64203
MECI Project Number 22-7929
Certified Site Rehabilitation Contractor UCC-0009

Dear Mr. Brown,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Report of Groundwater Sampling for the referenced site. This report describes site activities conducted at the site in general accordance with South Carolina Department of Health and Environmental Control's (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP).

Midlands Environmental appreciates the opportunity to offer our professional environmental services to you on this project. Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.



Jeff L. Coleman
Senior Scientist

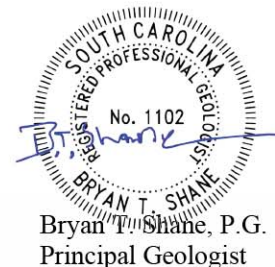


TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 RECEPTOR SURVEY & SITE DATA 1

3.0 SAMPLING AND CHEMICAL ANALYSES..... 2

4.0 RESULTS AND DISCUSSION 3

5.0 QUALIFICATIONS OF REPORT 4

TABLE OF CONTENTS (cont.)

TABLES: Table 1 – GROUNDWATER COC DATA
 Table 1A – GROUNDWATER COC DATA (WATER SUPPLY WELLS)
 Table 2 – SITE ACTIVITY SUMMARY

FIGURES: Figure 1 – TOPOGRAPHIC MAP
 Figure 2 – SITE BASE MAP
 Figure 3 – GROUNDWATER COC SITE MAP
 Figure 3A – GROUNDWATER COC SITE MAP (WATER SUPPLY WELLS)
 Figure 4 – POTENTIOMETRIC DATA SITE MAP

APPENDIX A – SAMPLING LOGS, LABORATORY DATA SHEETS AND CHAIN OF CUSTODY FORMS
APPENDIX B – TAX MAP DATA
APPENDIX C – DISPOSAL MANIFEST
APPENDIX D – ACCESS AGREEMENTS
APPENDIX E – DATA VERIFICATION CHECKLIST
APPENDIX F – PHOTOS

1.0 INTRODUCTION

i. Facility Information

Name: Nickelpumper 233
 Address: 103 Charles Frazier Circle, Yemassee, SC 29445
 Telephone #: N/A

ii. Owner/Operator Information

Name: Clifton Ricardo Smith
 Address: 76 Bell Haven Way, Ridgeland, SC 29936
 Telephone #: (843) 258-0669

iii. Property Owner Information

Name: Clifton Ricardo Smith
 Tax Map #: Jasper County Tax Map# 088-48-00-008
 Address: 76 Bell Haven Way, Ridgeland, SC 29936
 Telephone #: (843) 258-0669

iv. Contractor Information

Name: Midlands Environmental Consultants, Inc.
 Certification #: 9
 Address: P.O. Box 854, Lexington, SC 29071
 Telephone #: (803) 808-2043

v. Facility History

vi.

Release Date:	5/16/2002		
Estimated Quantity of Release:	N/A		
Other Releases at Facility:	N/A		
Release Ranking:	1D		
Current Site Usage:	Vacant Lot		
Tank #	Capacity/Product	In Use/Abandoned	Tank Status
1	6,000 Gal. Gasoline	Temp. Out of Service	In Compliance (11/3/2021)
2	8,000 Gal. Gasoline	Temp. Out of Service	In Compliance (11/3/2021)
3	10,000 Gal. Gasoline	Temp. Out of Service	In Compliance (11/3/2021)

2.0 RECEPTOR SURVEY & SITE DATA

i. Known Potential Receptors

Receptor ID#	Notes
CK-1	Collected from Creek (32.629508, -80.879025)
CK-2	Collected from Creek (32.629473, -80.878641)
CK-3	Collected from Pond behind Knights Inn (32.629041, -80.877184)
CK-4	Collected from Retention Pond (32.630650, -80.877536)
WSW-1	3196 Point South Drive, WSW Inactive/Sampled with Bailer (32.62912, -80.87961)
WSW-2	Potential Municipal WSW located behind locked fence (Not Requested to be sampled)

ii. Receptor Survey Results

A receptor survey was not requested as part of the approved cost agreement.

iii. **Site/Adjacent Land Usage** (Residential, Commercial, Agricultural, Industrial, etc.)

Site	Commercial
North	Commercial
South	Commercial
East	Commercial
West	Commercial
Permit #'s of UST Sites within 1,000' feet of site	04845, 15151, 11731

3.0 SAMPLING AND CHEMICAL ANALYSES

On October 18, 2022, MECI personnel collected groundwater samples from twelve (12) monitoring wells, four (4) surface water locations and one (1) water supply well at the subject site. One (1) monitoring well (MW-4R) was gauged and determined to be obstructed and dry. During sampling activities, monitoring well MW-3 was unable to be located. In addition, WSW-2 were unable to be sampled (See Table 2 for specifics). Based on the request by SCDHEC, all monitoring wells to be purged prior to sample collection. Twelve (12) monitoring wells were purged prior to sample collection.

MECI personnel utilized an electronic water level indicator for water level measurements and an oil/water interface probe for free phase petroleum product level measurements. Where applicable, purging was completed by bailing at least five well volumes of water from the well, until pH, conductivity, dissolved oxygen and turbidity stabilized, or all water was evacuated from the well, whichever occurred first. Sampling/purging was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. A new set of nitrile gloves were worn at each monitoring well, and at all time samples were handled. Field measurements of pH, conductivity, dissolved oxygen, and water temperature were obtained before well sampling process. MECI utilized a YSI Pro20 meter for DO (mg/L) and temperature readings (°C), YSI Pro1030 meter for pH and conductivity (uS) readings and a MicroTPI turbidimeter for turbidity readings (NTU). The attached Field Data Information Sheets presents the results of the field measurements obtained. The wells were sampled in accordance with the most recent revision of SCDHEC’s Quality Assurance Program Plan for the Underground Storage Tank Management Division and the most recent revision MECI’s Standard Operating Procedures.

Groundwater samples obtained were sent to Pace Analytical Services, Inc. of Huntersville, NC (SCDHEC Laboratory Certification #99006001) for analysis.

The following sampling matrix contains well development and requested analyses for each well:

Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalene, MTBE, 1,2 DCA (EPA Method 8260D)	8 Oxygenates (EPA Method 8260D)	EDB (EPA Method 8011)	PAHs (EPA Method 8270E)	Total Lead (EPA Method 6010)	BTEX, Naphthalene, MTBE, 1,2 DCA (EPA Method 524.2)	EDB (EPA Method 504.1)
	Analyte Sampled												
MW-1	X						X	X	X				
MW-2	X						X	X	X				
MW-3						X							
MW-3R	X						X	X	X				
MW-4	X						X	X	X				
Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes MTBE=Methyl tertiary butyl ether 1,2 DCA = 1,2 Dichloroethane EDB = Ethylene Dibromide													

Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalene, MTBE, 1,2 DCA (EPA Method 8260D)	8 Oxygenates (EPA Method 8260D)	EDB (EPA Method 8011)	PAHs (EPA Method 8270E)	Total Lead (EPA Method 6010)	BTEX, Naphthalene, MTBE, 1,2 DCA (EPA Method 524.2)	EDB (EPA Method 504.1)
Analyte Sampled													
MW-4R			X										
MW-5	X						X	X	X				
MW-6	X						X	X	X				
MW-7	X						X	X	X				
MW-8	X						X	X	X				
MW-9	X						X	X	X				
MW-10	X						X	X	X				
MW-11	X						X	X	X				
DW-1	X						X	X	X				
CK-1		X					X	X	X				
CK-2		X					X	X	X				
CK-3		X					X	X	X				
CK-4		X					X	X	X				
DUP.							X	X	X				
Field Blank							X	X	X				
Trip Blank							X	X					
WSW-1								X				X	X
WSW-2					X								
DUP.								X				X	X
Field Blank								X				X	X
Trip Blank								X				X	

Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes
MTBE=Methyl tertiary butyl ether
1,2 DCA = 1,2 Dichloroethane
EDB = Ethylene Dibromide

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 56.00 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is attached in Appendix C and the required Post-GAC laboratory results in presented in Appendix B.

4.0 RESULTS AND DISCUSSION

- The apparent groundwater flow from the release is to the east/southeast toward drainage features which led to the Pocaligo Rover.
- Free phase petroleum product was not detected in any of the monitoring wells during sampling activities. The analytical results indicate petroleum impact to the surficial aquifer with the highest dissolved concentrations being detected in the area of MW-1. Of the seventeen sampling locations analyzed, three monitoring wells (MW-1, MW-10 and MW-11) detected petroleum constituents above Risk-Based Screening Levels (RBSL's).
- Petroleum constituents detected above the established RBSL include:

<i>Compound</i>	<i>RBSL (ug/l)</i>	<i>Wells Above RBSL</i>
Product	0.01'	N/A
Benzene	5	MW-1
Toluene	1,000	N/A
Ethylbenzene	700	MW-11
Total Xylenes	10,000	N/A
Naphthalene	25	MW-1, MW-10 & MW-11
MTBE	40	MW-1
1,2 DCA	5	N/A
EDB	0.05	N/A
TAA	240	MW-1
TAME	128	N/A
ETBA	NE	RBSL Not Established
TBA	1,400	MW-1
TBF	NE	RBSL Not Established
DIPE	150	N/A
Ethanol	10,000	N/A
ETBE	47	N/A

- In order to assess precision, field duplicate samples were collected and analyzed along with the reviewed batch samples. The duplicated samples were analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the Relative Percent Differences (RPD) between each pair of samples. The RPD control limit for the groundwater samples is 20%. Duplicate samples were collected from the parent samples of MW-1 and WSW-1. The precision for the target analytes were met for these sample pairs and the analytical results detected the same compounds at similar concentrations. Furthermore, field blanks and trip blanks were collected and submitted during the groundwater sampling activities. No detectable concentrations of the requested method constituents were reported in either of the field or trip blanks.

5.0 QUALIFICATIONS OF REPORT

The activities and evaluative approaches used in this assessment are consistent with those normally employed in hydrogeological assessment and waste management projects of this type. Our evaluation of site conditions has been based on our understanding of the site, project information provided to us, and data obtained in our exploration. Contents of this report are intended for the sole use of MECI and SCDHEC under mutually agreed upon terms and conditions. If other parties wish to rely on this report, please contact MECI prior to their use of this information so that a mutual understanding and agreement of the terms and conditions of our services can be established.

-oOo-

TABLES

Table # 1
 Summary of Analytical Results - Water Samples
 NICKELPUMPER 233
 Facility ID# 04878

Analytical Method		EPA 8011	EPA 8260D																
Sample ID	Constituent of Concern	1,2-Dibromoethane (EDB)	1,2-Dichloroethane	3,3-Dimethyl-1-Butanol	Benzene	Diisopropyl ether	Ethanol	Ethyl-tert-butyl ether	Ethylbenzene	Methyl-tert-butyl ether	Naphthalene	Toluene	Xylene (Total)	m&p-Xylene	o-Xylene	tert-Amyl Alcohol	tert-Amylmethyl ether	tert-Butyl Alcohol	tert-Butyl Formate
		Date Collected (mm/dd/yy)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
CK-1	10/18/2022	<0.020	<1.0	<100	<1.0	<1.0	<200	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<10.0	<100	<50.0
CK-2	10/18/2022	<0.020	<1.0	<100	<1.0	<1.0	<200	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<10.0	<100	<50.0
CK-3	10/18/2022	<0.020	<1.0	<100	<1.0	<1.0	<200	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<10.0	<100	<50.0
CK-4	10/18/2022	<0.020	<1.0	<100	<1.0	<1.0	<200	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<10.0	<100	<50.0
DUP	10/18/2022	<0.020	<50.0	<1000	1080	<50.0	<2000	<100	463	85.3	227	625	1380	1170	211	3340	<100	1840	<500
DW-1	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<200	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0
FB	10/18/2022	<0.019	<5.0	<100	<5.0	<5.0	<200	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0
MW-1	10/18/2022	<0.020	<50.0	<1000	1080	<50.0	<2000	<100	473	80.7	224	638	1410	1190	215	3250	<100	1660	<500
MW-10	10/18/2022	<0.020	<20.0	<400	<20.0	<20.0	<800	<40.0	336	<20.0	236	<20.0	658	565	93.6	<400	<40.0	<400	<200
MW-11	10/18/2022	<0.020	<50.0	<1000	<50.0	<50.0	<2000	<100	1400	<50.0	916	<50.0	3890	3530	369	<1000	<100	<1000	<500
MW-2	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<200	<10.0	7.0	<5.0	13.2	5.3	56.3	50.0	6.3	<100	<10.0	<100	<50.0
MW-3R	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<200	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0
MW-4	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<200	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0
MW-5	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<200	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0
MW-6	10/18/2022	<0.019	<5.0	<100	<5.0	<5.0	<200	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0
MW-7	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<200	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0
MW-8	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<200	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0
MW-9	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<200	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0
TB	10/18/2022	N/A	<5.0	<100	<5.0	<5.0	<200	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0
South Carolina RBSL for Groundwater		0.05	5	N/A	5	150	10000	47	700	40	25	1000	10000	N/A	N/A	240	128	1400	N/A
South Carolina Action Levels for Groundwater		N/A	N/A	N/A	N/A	150	10000	47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	240	128	1400	N/A

NOTES:
 ND = Not Detected
 ft. BGS = feet below ground surface
 mg/L = milligrams per liter
 ug/L = micrograms per liter
Bold data above the RBSL (Risk Based Screening Level)

Table # 1A
 Summary of Analytical Results - Water Samples
 NICKELPUMPER 233
 Facility ID# 04878

Analytical Method		EPA 504.1	EPA 524.2									EPA 8260D							
Sample ID	Constituent of Concern	1,2-Dibromoethane (EDB)	1,2-Dichloroethane	Benzene	Ethylbenzene	Methyl-tert-butyl ether	Naphthalene	Toluene	Xylene (Total)	m&p-Xylene	o-Xylene	3,3-Dimethyl-1-Butanol	Diisopropyl ether	Ethanol	Ethyl-tert-butyl ether	tert-Amyl Alcohol	tert-Amylmethyl ether	tert-Butyl Alcohol	tert-Butyl Formate
		Date Collected (mm/dd/yy)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
WSW-1	10/18/2022	<0.021	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<100	<1.0	<200	<10.0	<100	<10.0	<100	<50.0
WSW-DUP	10/18/2022	<0.020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<100	<1.0	<200	<10.0	<100	<10.0	<100	<50.0
WSW-FB	10/18/2022	<0.019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<100	<1.0	<200	<10.0	<100	<10.0	<100	<50.0
WSW-TB	10/18/2022	N/A	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<100	<1.0	<200	<10.0	<100	<10.0	<100	<50.0
South Carolina RBSL for Groundwater		0.05	5	5	700	40	25	1000	10000	N/A	N/A	N/A	150	10000	47	240	128	1400	N/A
South Carolina Action Levels for Groundwater		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	150	10000	47	240	128	1400	N/A

NOTES:
 ND = Not Detected
 ft. BGS = feet below ground surface
 mg/L = milligrams per liter
 ug/L = micrograms per liter
Bold data above the RBSL (Risk Based Screening Level)

Table 2
Site Activity Summary



UST Permit #: 04878
 Facility Name: Nickelpumper 233
 County: Jasper
 Field Personnel: J. Canavan, S. Sprott, H. Sloan

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	TOC Elevation	Groundwater Elevation	Initial Dissolved Oxygen (mg/L)	# Gals. Purged	Comments
MW-1	Y	10/18/22	14:19	2.5-12.5	***	3.78	***	100.56	96.78	1.30	4.50	Odor, Replaced Well Cap
MW-2	Y	10/18/22	14:59	2-12	***	2.53	***	100.57	98.04	2.02	5.00	Odor, Added 2 Bolts and Replaced Well Cap
MW-3	N	10/18/22	NL	2-12	***	NL	***	NL	NL	NL	0.00	NL = Not Located
MW-3R	Y	10/18/22	13:30	2-12	***	2.74	***	100.27	97.53	2.77	4.50	No Odor
MW-4	Y	10/18/22	14:28	2-12	***	6.25	***	100.11	93.86	2.71	3.00	No Odor, Replaced Well Cap
MW-4R	N	10/18/22	NS	2-12	***	NS	***	99.77	NS	NS	0.00	NS = Not Sampled, Well obstructed @ 2.80' BTOC, Added 2 Bolts
MW-5	Y	10/18/22	13:22	2-12	***	2.85	***	100.51	97.66	3.19	5.00	No Odor, Added 1 Bolt
MW-6	Y	10/18/22	13:19	2-12	***	4.02	***	100.52	96.50	3.07	4.00	No Odor
MW-7	Y	10/18/22	13:41	2-9	***	4.65	***	100.42	95.77	1.99	2.50	No Odor, Added 2 Bolts
MW-8	Y	10/18/22	14:06	2-9.5	***	5.85	***	99.71	93.86	1.35	2.00	No Odor, Added 2 Bolts
MW-9	Y	10/18/22	14:37	2-12	***	3.84	***	100.18	96.34	2.71	4.00	No Odor
MW-10	Y	10/18/22	14:18	2-12	***	4.49	***	100.36	95.87	2.27	4.00	Odor
MW-11	Y	10/18/22	13:53	2-12	***	3.00	***	100.14	97.14	2.57	4.50	Slight Odor
DW-1	Y	10/18/22	13:08	43.5-48.5	***	9.34	***	100.87	91.53	4.72	13.00	No Odor
CK-1	Y	10/18/22	10:16	***	***	***	***	***	***	***	***	Collected from Creek (32.629508, -80.879025)
											56.00	TOTAL GALLONS PURGED

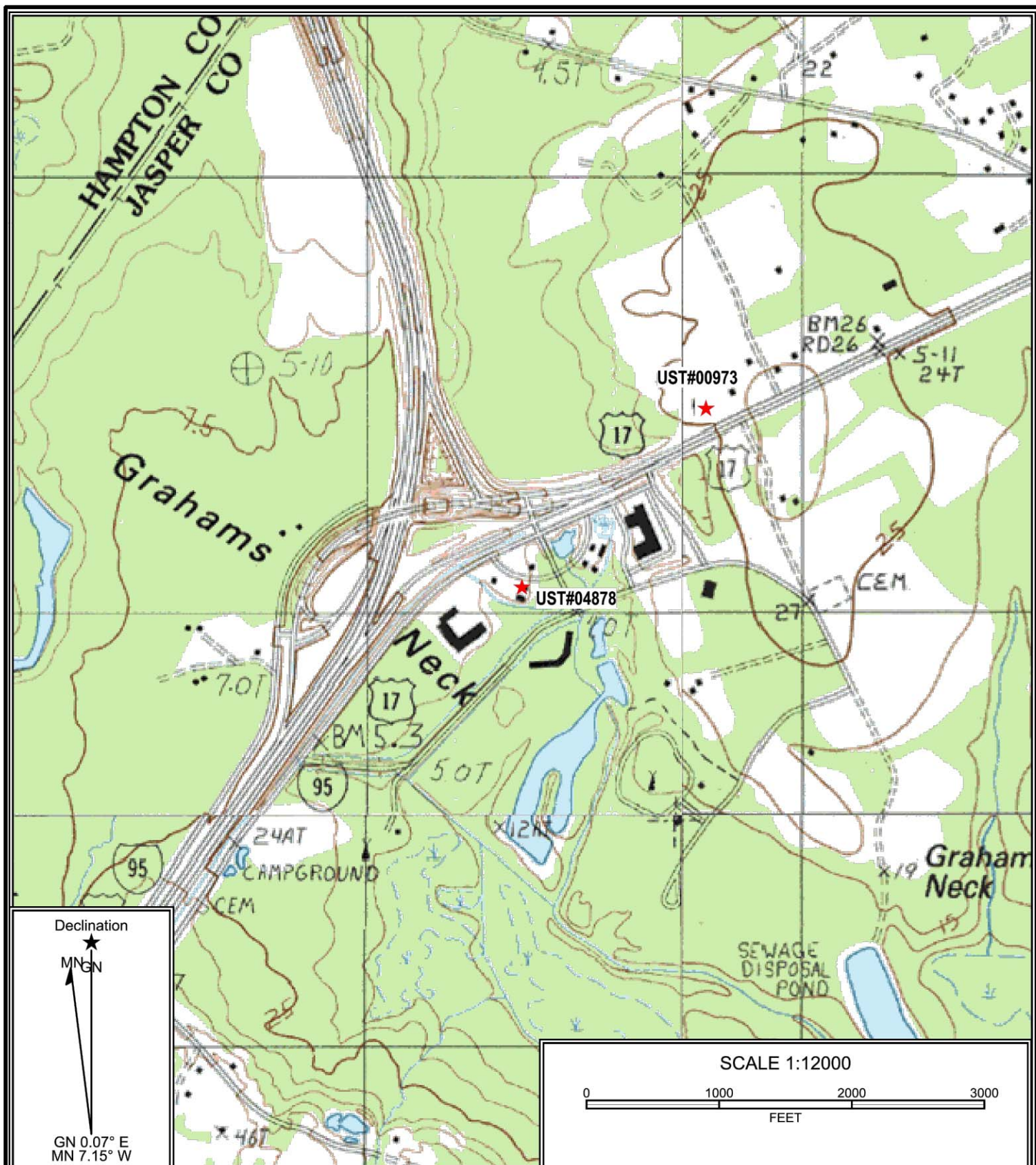
Table 2
Site Activity Summary



UST Permit #: 04878
 Facility Name: Nickelpumper 233
 County: Jasper
 Field Personnel: J. Canavan, S. Sprott, H. Sloan

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	TOC Elevation	Groundwater Elevation	Initial Dissolved Oxygen (mg/L)	# Gals. Purged	Comments
CK-2	Y	10/18/22	10:21	***	***	***	***	***	***	***	***	Collected from Creek (32.629473, -80.878641)
CK-3	Y	10/18/22	13:04	***	***	***	***	***	***	***	***	Collected from Pond behind Knights Inn (32.629041, -80.877184)
CK-4	Y	10/18/22	14:06	***	***	***	***	***	***	***	***	Collected from Retention Pond (32.630650, -80.877536)
DUP	Y	10/18/22	14:19	***	***	***	***	***	***	***	***	Duplicate sample of MW-1
Field Blank	Y	10/18/22	14:41	***	***	***	***	***	***	***	***	Field Blank
Trip Blank	Y	10/18/22	8:00	***	***	***	***	***	***	***	***	Trip Blank
WSW-1	Y	10/18/22	13:22	***	***	***	***	***	***	***	***	3196 Point South Drive, WSW Inactive/Sampled with Bailer (32.62912, -80.87961)
WSW-2	N	10/18/22	NS	***	***	***	***	***	***	***	***	Potential Municipal WSW located behind locked fence (Not Requested to be sampled)
DUP.	Y	10/18/22	13:22	***	***	***	***	***	***	***	***	Duplicate of WSW-1
Field Blank	Y	10/18/22	13:31	***	***	***	***	***	***	***	***	Field Blank
Trip Blank	Y	10/18/22	8:00	***	***	***	***	***	***	***	***	Trip Blank
											0.00	TOTAL GALLONS PURGED

FIGURES



Reference: McPhersonville, South Carolina
 USGS 7.5 Min. Quad
 Contour Interval - 1.50 Meters

Midlands Environmental Consultants, Inc.

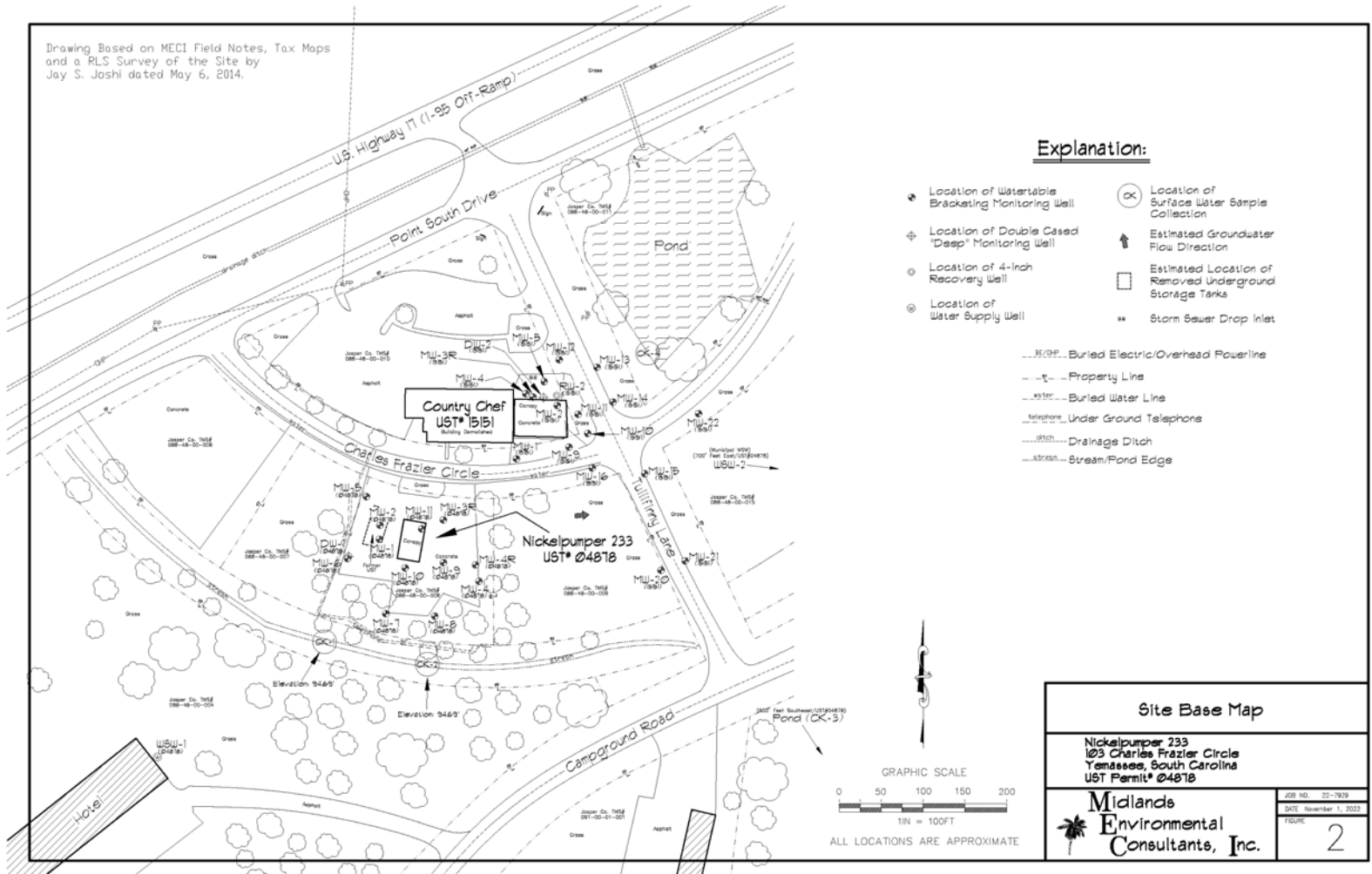
Site Location

Nickelpumper 233
 103 Charles Frazier Circle, Yemassee, SC
 UST Permit# 04878

Figure 1

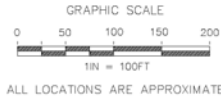
MECI 22-7929

Drawing Based on MECI Field Notes, Tax Maps
and a RLS Survey of the Site by
Jay S. Joshi dated May 6, 2014.



Explanation:

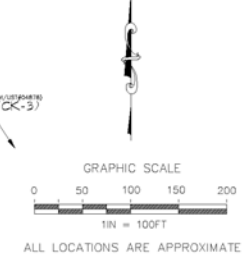
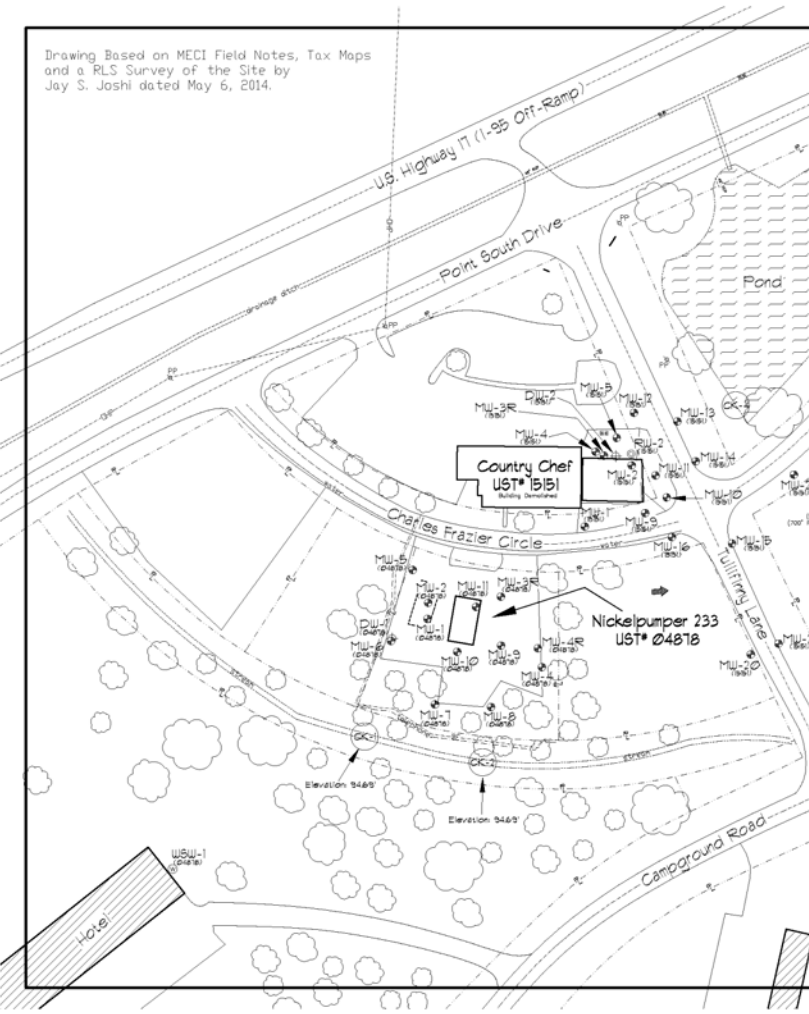
- ⊕ Location of Watertable Bracketing Monitoring Well
- ⊕ Location of Double Cased "Deep" Monitoring Well
- ⊙ Location of 4-Inch Recovery Well
- ⊙ Location of Water Supply Well
- ⊙ Location of Surface Water Sample Collection
- ↑ Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- ** Storm Sewer Drop Inlet
- B/E/O/P--- Buried Electric/Overhead Powerline
- P--- Property Line
- W--- Buried Water Line
- T--- Under Ground Telephone
- D--- Drainage Ditch
- S/P--- Stream/Pond Edge



Site Base Map	
Nickspumper 233 103 Charles Frazier Circle Yemassee, South Carolina UST Permit# 04818	
Midlands Environmental Consultants, Inc.	JOB NO. 22-7829 DATE November 1, 2022 FIGURE 2

Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.

Sample ID	Analytical Method	EPA 8011	EPA8210D																		
			Constituent of Concern	1,2-Dibromochloroethane (DBB)	1,2-Dichloroethane	1,3-Dimethyl-4-Benzoate	Benzene	Diisopropyl ether	Ethanol	Ethyl-tert-butyl ether	Ethylbenzene	Methyl-tert-butyl ether	Naphthalene	Toluene	Xylene (Total)	m,p-Xylene	o-Xylene	tert-Butyl Alcohol	tert-Butyl Methyl ether	tert-Butyl Alcohol	tert-Butyl Formate
Date Collected (mm/dd/yyyy)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
CK-1	10/18/2022	<0.020	<1.0	<100	<1.0	<1.0	<200	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<10.0	<100	<50.0	
CK-2	10/18/2022	<0.020	<1.0	<100	<1.0	<1.0	<200	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<10.0	<100	<50.0	
CK-3	10/18/2022	<0.020	<1.0	<100	<1.0	<1.0	<200	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<10.0	<100	<50.0	
CK-4	10/18/2022	<0.020	<1.0	<100	<1.0	<1.0	<200	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<10.0	<100	<50.0	
DUP	10/18/2022	<0.020	<50.0	<1000	1000	<50.0	<1000	<100	463	85.3	227	425	1340	1170	211	3140	<100	1840	<50.0		
DW-1	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<100	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0	
FB	10/18/2022	<0.019	<5.0	<100	<5.0	<5.0	<100	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0	
MW-1	10/18/2022	<0.020	<50.0	<1000	1000	<50.0	<1000	<100	471	80.7	224	438	1410	1190	215	3250	<100	1640	<50.0		
MW-10	10/18/2022	<0.020	<50.0	<1000	<50.0	<100	<800	<80.0	336	<10.0	236	<20.0	658	565	91.6	<80.0	<80.0	<80.0	<100		
MW-11	10/18/2022	<0.020	<50.0	<1000	<50.0	<100	<800	<100	1400	<50.0	916	<50.0	3890	3530	369	<1000	<100	<1000	<50.0		
MW-2	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<100	<10.0	7.0	<5.0	13.2	5.3	56.3	50.0	6.3	<100	<10.0	<100	<50.0		
MW-3R	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<100	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0	
MW-4	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<100	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0	
MW-5	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<100	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0	
MW-6	10/18/2022	<0.019	<5.0	<100	<5.0	<5.0	<100	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0	
MW-7	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<100	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0	
MW-8	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<100	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0	
MW-9	10/18/2022	<0.020	<5.0	<100	<5.0	<5.0	<100	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0	
TR	10/18/2022	N/A	<5.0	<100	<5.0	<5.0	<100	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<100	<10.0	<100	<50.0	
South Carolina RBSL for Groundwater	0.05	5	N/A	5	150	10000	47	700	40	25	1000	10000	N/A	N/A	240	128	1400	N/A			
South Carolina Action Levels for Groundwater	N/A	N/A	N/A	N/A	150	10000	47	700	40	25	1000	10000	N/A	N/A	240	128	1400	N/A			



Groundwater CoC Site Map

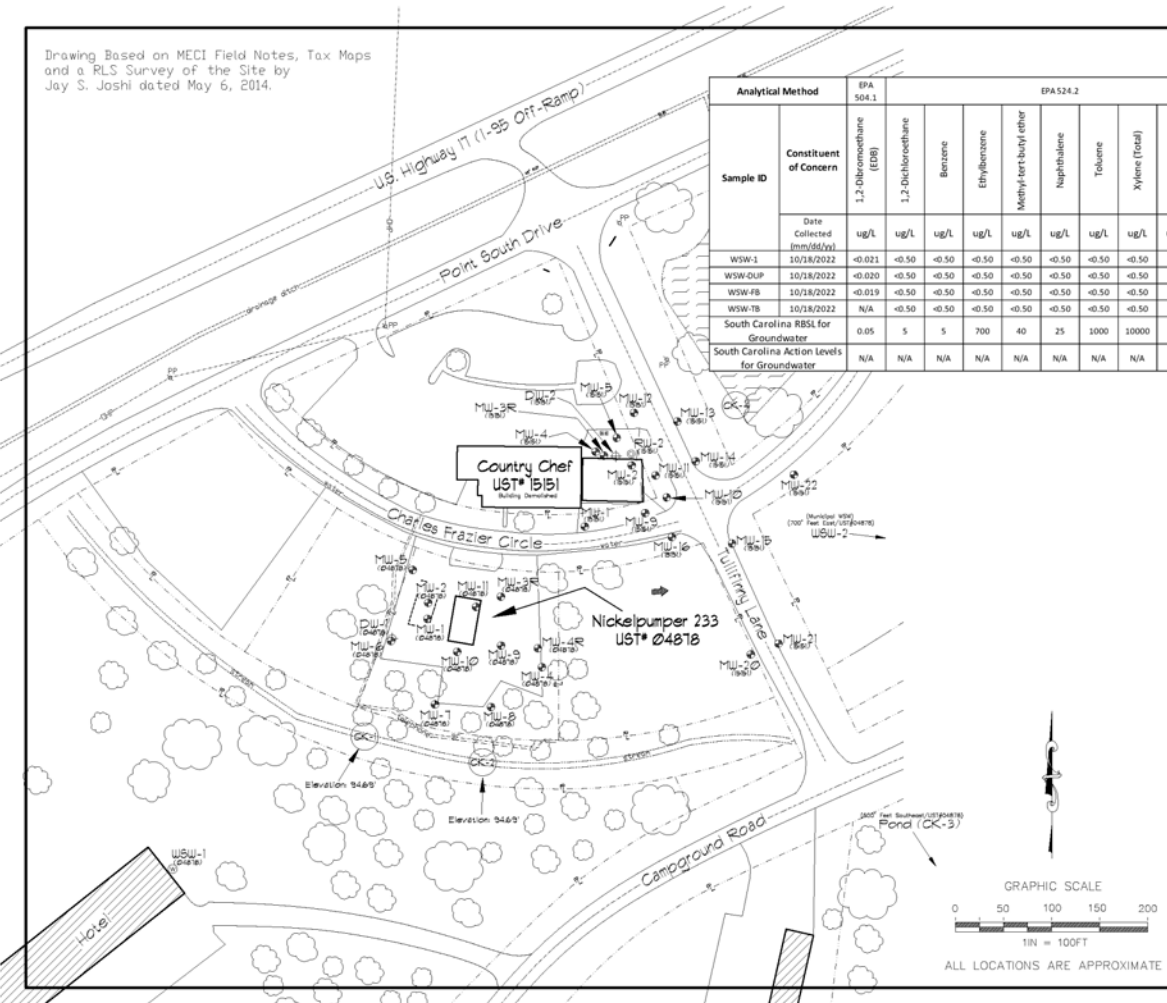
Nickspumper 233
103 Charles Frazier Circle
Yemassee, South Carolina
UST Permit # 04818

Midlands
Environmental
Consultants, Inc.

JOB NO. 22-7929
DATE November 1, 2022
FIGURE
3

Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated May 6, 2014.

Analytical Method	EPA 504.1	EPA 524.2										EPA 8260D							
		1,2-Dibromethane (EDB)	1,2-Dichloroethane	Benzene	Ethylbenzene	Methyl-tert-butyl ether	Naphthalene	Toluene	Xylene (Total)	m&p-Xylene	o-Xylene	3,3-Dimethyl-1-Butanol	Diisopropyl ether	Ethanol	Ethyl-tert-butyl ether	tert-Amyl Alcohol	tert-Butyl Alcohol	tert-Butyl Formate	
Sample ID	Date Collected (mm/dd/yy)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
WSW-1	10/18/2022	<0.021	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<100	<1.0	<200	<10.0	<100	<10.0	<100	<50.0
WSW-DUP	10/18/2022	<0.020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<100	<1.0	<200	<10.0	<100	<10.0	<100	<50.0
WSW-FB	10/18/2022	<0.019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<100	<1.0	<200	<10.0	<100	<10.0	<100	<50.0
WSW-TB	10/18/2022	N/A	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<100	<1.0	<200	<10.0	<100	<10.0	<100	<50.0
South Carolina RBSL for Groundwater		0.05	5	5	700	40	25	1000	10000	N/A	N/A	N/A	150	10000	47	240	128	1400	N/A
South Carolina Action Levels for Groundwater		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	150	10000	47	240	128	1400	N/A



Groundwater CoC Site Map
(Water Supply Wells)

Nickspumper 233
103 Charles Frazier Circle
Yemassee, South Carolina
UST Permit # 04818

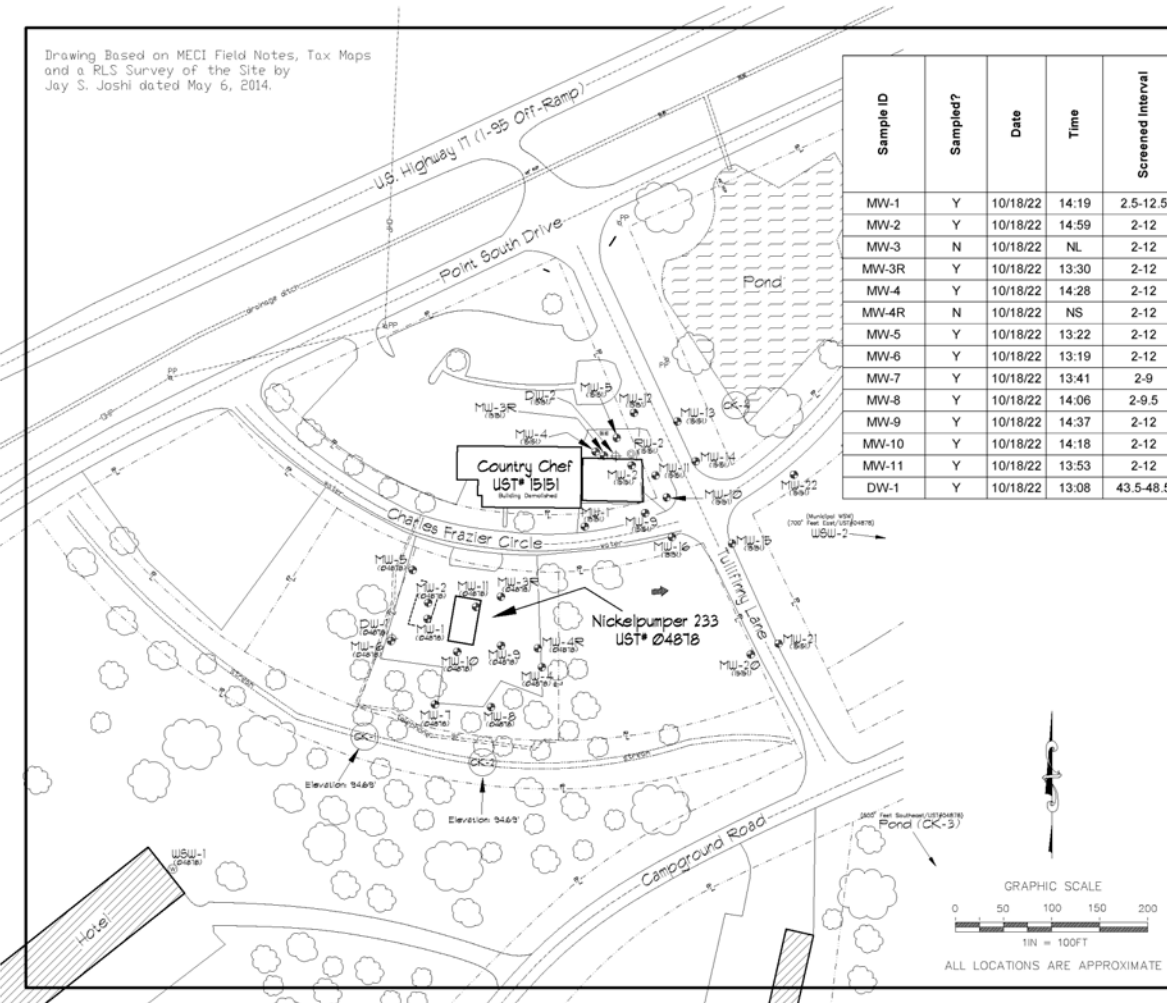
Midlands Environmental Consultants, Inc.

JOB NO. 22-7929
DATE: November 1, 2022
FIGURE: **3A**

GRAPHIC SCALE
0 50 100 150 200
1IN = 100FT
ALL LOCATIONS ARE APPROXIMATE

Drawing Based on MECI Field Notes, Tax Maps
and a RLS Survey of the Site by
Jay S. Joshi dated May 6, 2014.

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	TOC Elevation	Groundwater Elevation
MW-1	Y	10/18/22	14:19	2.5-12.5	***	3.78	***	100.56	96.78
MW-2	Y	10/18/22	14:59	2-12	***	2.53	***	100.57	98.04
MW-3	N	10/18/22	NL	2-12	***	NL	***	NL	NL
MW-3R	Y	10/18/22	13:30	2-12	***	2.74	***	100.27	97.53
MW-4	Y	10/18/22	14:28	2-12	***	6.25	***	100.11	93.86
MW-4R	N	10/18/22	NS	2-12	***	NS	***	99.77	NS
MW-5	Y	10/18/22	13:22	2-12	***	2.85	***	100.51	97.66
MW-6	Y	10/18/22	13:19	2-12	***	4.02	***	100.52	96.50
MW-7	Y	10/18/22	13:41	2-9	***	4.65	***	100.42	95.77
MW-8	Y	10/18/22	14:06	2-9.5	***	5.85	***	99.71	93.86
MW-9	Y	10/18/22	14:37	2-12	***	3.84	***	100.18	96.34
MW-10	Y	10/18/22	14:18	2-12	***	4.49	***	100.36	95.87
MW-11	Y	10/18/22	13:53	2-12	***	3.00	***	100.14	97.14
DW-1	Y	10/18/22	13:08	43.5-48.5	***	9.34	***	100.87	91.53



Potentiometric Data Site Map

Nickspumper 233
103 Charles Frazier Circle
Yemassee, South Carolina
UST Permit# 04818

Midlands Environmental Consultants, Inc.

JOB NO. 22-7019
DATE November 1, 2022
FIGURE 4

ALL LOCATIONS ARE APPROXIMATE

APPENDIX A:

SAMPLING LOGS, LABORATORY DATA SHEETS, & CHAIN-OF-CUSTODY FORMS



Monitoring Well Purge And Sampling Data

Field Personnel: JC, SS, HJ
 Sampling Date(s): 10/19/22
 Sampling Case#: #2

Job Name: Nicklepumper 233
 Job Number: 22-7929

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes	
								product	Initial H ₂ O	final H ₂ O			**calc.	actual		
mw-1 Dupl	Initial	11:53	6.37	98.3	21.3	1.30	16.70									
	1st	11:55	6.41	97.1	21.5	1.38	23.40									
	2nd	11:57	6.30	94.2	21.7	1.41	24.75									
	3rd	12:03	6.43	98.3	21.5	1.50	38.51	3.78	6.03		2.5	8.72	1.42	Dry @	odor	
	4th															
	5th															
	Sampling	14:19	6.50	99.6	21.7	1.43	17.58						7.10	4.5	replaced well cap Dupl	
mw-2	Initial	12:09	6.43	161.5	23.2	2.72	18.27									
	1st	12:11	6.51	162.4	23.4	2.15	20.13									
	2nd	12:13	6.53	170.3	23.5	2.09	25.41									
	3rd	12:15	6.55	172.4	23.7	2.17	37.09	2.53	6.05		2	9.47	1.59	Dry @	odor	
	4th															
	5th															
	Sampling	14:59	6.48	175.1	23.4	2.03	18.21						7.71	5	added 2 back replaced cap	
mw-3	Initial															
	1st															
	2nd															
	3rd															
	4th															
	5th															
	Sampling														not located replaced by 3r	
mw-3R	Initial	10:39	6.28	193.2	22.6	2.77	15.09									
	1st	10:42	6.31	199.9	22.8	2.45	21.02									
	2nd	10:43	6.25	196.8	22.5	2.31	26.72									
	3rd	10:45	6.37	193.1	22.7	2.36	25.02									
	4th															
	5th															
	Sampling	13:30	6.40	199.3	23.1	2.15	30.15	2.74	4.63		2	9.26	1.50	Dry @	no odor	

* = (Depth of Well) - (Depth to Water) = Water Height
 ** = One Well Volume x 5 = Gallons Purged (calculated)
 One Well Volume = x.047 for 1" wells, x.163 for 2" wells, or x.66 for 4" wells, 1.469 for 6" wells

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: JC, SS, HJ
 Sampling Date(s): 10/19/22
 Sampling Case#: #2

Job Name: Nickelcopper 233
 Job Number: 22-7929

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	initial H ₂ O	final H ₂ O			**calc.	actual	
mw-4	Initial	11:41	6.51	80.6	20.2	2.71	15.14								
	1st	11:43	6.48	81.4	20.4	2.60	21.20								
	2nd	11:45	6.53	81.3	20.3	2.63	27.53	6.25	7.11	2	5.75	.93	Dry	no	
	3rd	11:47	6.59	82.6	20.1	2.65	34.01								
	4th														
	5th														
Sampling	14:28	6.40	81.5	20.3	2.45	30.18						4.68	3	replaced bellcap	
mw-4R	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
Sampling															obstructed @ 2.20 added 2 bbls
mw-5	Initial	10:27	6.95	63.8	24.9	3.19	15.41								
	1st	10:29	6.70	67.1	24.5	3.15	25.46								
	2nd	10:32	6.73	67.3	24.5	3.02	34.15	2.85	4.93	2	9.15	1.49	Dry	no	
	3rd	10:35	6.61	66.1	24.4	3.05	30.21								
	4th														
	5th														
Sampling	13:22	6.63	69.4	24.3	3.17	15.05						7.45	5	odor added 1 bbl	
mw-6	Initial	0:24	7.22	118.6	20.4	3.07	15.49								
	1st	10:27	7.25	119.3	20.3	3.16	20.04								
	2nd	10:29	7.27	117.9	20.5	3.45	23.47	4.02	6.00	2	7.98	1.30	Dry @	no	
	3rd	10:31	7.29	118.3	20.4	3.62	26.19								
	4th														
	5th														
Sampling	13:19	7.15	117.4	21.3	3.20	20.15						6.50	4	odor	

* = (Depth of Well) - (Depth to Water) = Water Height
 ** = One Well Volume x 5 = Gallons Purged (calculated)
 One Well Volume = x .047 for 1" wells, x .163 for 2" wells, or * x .66 for 4" wells, 1.469 for 6" wells

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: JL, SS, HJ
 Sampling Date(s): 10/19/22
 Sampling Case#: #2

Job Name: Nickel pump 233
 Job Number: 22-7929

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes	
								product	initial H ₂ O	final H ₂ O			**calc.	actual		
mw-7	Initial	11:02	6.52	70.2	20.2	1.99	15.71				2	4.35	2.70	Dry @	no odor added 2 bolts	
	1st	11:09	6.35	71.4	20.3	1.48	20.35				2					
	2nd	11:06	6.33	71.6	20.4	1.42	29.76				2					
	3rd	11:09	6.37	71.8	20.9	1.39	39.53				2					
	4th										2					
	5th										2					
	Sampling	13:41	6.40	70.2	20.3	1.50	20.20	4.65	6.17		9		3.59	2.5		
mw-8	Initial	12:11	6.09	122.2	20.9	1.35	16.71				2	3.65	1.59	Dry @	no odor added 2 bolts	
	1st	12:13	6.03	124.1	21.2	1.90	20.03				2					
	2nd	12:16	6.11	125.3	21.4	1.38	26.71				2					
	3rd	12:18	6.08	123.4	21.2	1.35	35.09				2					
	4th										2					
	5th										2					
	Sampling	14:06	6.13	147.4	21.3	1.38	21.08	5.85	6.28		9.5		2.97	2		
mw-9	Initial	12:17	6.22	130.4	23.1	2.71	20.15				2	8.16	1.33	Dry @	no odor	
	1st	12:19	6.15	131.7	23.6	2.64	21.13				2					
	2nd	12:21	6.28	129.2	23.1	2.78	23.75				2					
	3rd	12:23	6.41	137.5	22.8	2.05	27.15				2					
	4th										2					
	5th										2					
	Sampling	14:37	6.38	134.1	21.7	2.12	20.09	3.84	5.53		12		6.65	4		
mw-10	Initial	11:19	6.66	114.3	20.7	2.27	19.71				2	7.51	1.22	Dry @	odor	
	1st	11:21	6.63	112.5	21.9	2.91	20.63				2					
	2nd	11:23	6.67	119.2	21.2	2.93	21.08				2					
	3rd	11:24	6.61	113.6	21.2	2.21	25.45				2					
	4th										2					
	5th										2					
	Sampling	14:18	6.50	114.7	21.5	2.25	20.15	4.49	7.18		12		6.12	4		

* = (Depth of Well) - (Depth to Water) = Water Height
 ** = One Well Volume x 5 = Gallons Purged (calculated)
 One Well Volume = x.047 for 1" wells * x .163 for 2" wells, or * x .66 for 4" wells, 1.469 for 6" wells

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: JL, SS, HJ
 Sampling Date(s): 10/19/22
 Sampling Case#: #2

Job Name: Nicklepumper 233
 Job Number: 22-7929

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes	
								product	initial H ₂ O	final H ₂ O			**calc.	actual		
MW-11	Initial	10:48	6.26	110.7	23.2	2.57	15.90									
	1st	10:51	6.21	102.3	23.9	2.17	19.35									
	2nd	10:53	6.29	119.8	23.1	2.13	24.72	3.00	7.01		9.00	1.46	0	slight odor		
	3rd	10:56	6.23	113.1	22.8	2.44	34.16									
	4th															
	5th															
	Sampling	13:53	6.27	112.9	22.7	2.73	14.92					4.90	4.5			
DW-1	Initial	10:01	6.05	126.2	19.3	4.72	15.49									
	1st	10:09	6.92	86.2	19.3	4.32	12.16									
	2nd	10:15	6.87	124.3	19.4	4.16	21.05	9.31	15.03		39.16	6.38	13	no odor		
	3rd															
	4th															
	5th															
	Sampling	13:02	6.84	122.3	19.5	4.20	17.53					31.91				
CK-1	Initial															
	1st	10:16	sampled from creek													
	2nd															
	3rd															
CK-2	Initial															
	1st	10:21	sampled from creek													
	2nd															
	3rd															
	4th															
	5th															
	Sampling															
CK-3	Initial															
	1st	13:04	sampled from pond													
	2nd															
	3rd															
CK-4	Initial															
	1st	14:06	sampled from retention pond													
	2nd															
	3rd															
	4th															
	5th															
	Sampling															

* = (Depth of Well) - (Depth to Water) = Water Height
 ** = One Well Volume x 5 = Gallons Purged (calculated)
 One Well Volume = x.047 for 1" wells * x.163 for 2" wells, or * x.66 for 4" wells, 1.469 for 6" wells

Casing	Gallons
1"	0.047
2"	0.163
4"	0.653
6"	1.469

Sampling Case#	pH/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251



Monitoring Well Purge And Sampling Data

Field Personnel: JL, SS, HJ
 Sampling Date(s): 10/19/22
 Sampling Case#: #2

Job Name: Nicklepumper 233
 Job Number: 22-7929

Calibration Data for:
 Calibration Successful? Yes or No (Please Circle)
 pH: Yes No
 Conductivity: Yes No
 Dissolved Oxygen: Yes No
 Turbidity: Conductivity Calibrated Every 3 Months by QA Manager

Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)	Depth to (feet):			Well Depth (feet)	Water Height *(feet)	Gallons Purged		Notes
								product	initial H ₂ O	final H ₂ O			**calc.	actual	
DUP	Initial														
	1st	14:19													
	2nd														
	3rd														
	4th	14:46													
	5th														
FB	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
TB	Initial	8:00													
	1st														
	2nd														
	3rd	14:38													
	4th														
	5th														
GAC	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
WSW-1	Initial														
	1st	13:22	(sampled from PVC with 1" beaker) (3262912, -8027961) (3196 Point South Dr)												
	2nd														
	3rd	13:31													
	4th														
	5th														
WSW FB	Initial														
	1st														
	2nd														
	3rd														
	4th														
	5th														
WSW TB	Initial														
	1st	0800													
	2nd														
	3rd														
	4th														
	5th														
WSW Dup	Initial														
	1st	WSW-1-15:22													
	2nd														
	3rd														
	4th														
	5th														

* = (Depth of Well) - (Depth to Water) = Water Height
 ** = One Well Volume x 5 = Gallons Purged (calculated)
 One Well Volume = x.047 for 1" wells, x.163 for 2" wells, or * x.66 for 4" wells, 1.469 for 6" wells

Casing	Gallons
1"	0.047
2"	0.163
4"	0.663
6"	1.469

Sampling Case#	Ph/Conductance SN	DO SN	Turbidity
Case #1	15H101448	17E101302	201301183
Case #2	15E101481	14H103098	201301174
Case #3	17E100512	17E103488	201510251

October 27, 2022

Arthur Brown
SCDHEC
2600 Bull Street
Columbia, SC 29201

RE: Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Dear Arthur Brown:

Enclosed are the analytical results for sample(s) received by the laboratory on October 19, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Charlotte

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Taylor M Cannon
taylor.cannon@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Jeff Coleman, Midlands Environmental Consultants, Inc.
Robert Dunn, SCDHEC
Kyle Pudney, Midlands Environmental Consultants, Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Pace Analytical Services Charlotte

South Carolina Laboratory ID: 99006
9800 Kinsey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Laboratory ID: 99006

South Carolina Certification #: 99006001
South Carolina Drinking Water Cert. #: 99006003
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Louisiana DoH Drinking Water #: LA029
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92632106001	MW-1	EPA 8011	HH	2	PASI-C
		EPA 8260D	SAS	20	PASI-C
92632106002	MW-2	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106003	MW-3R	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106004	MW-4	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106005	MW-5	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106006	MW-6	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106007	MW-7	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106008	MW-8	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106009	MW-9	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106010	MW-10	EPA 8011	HH	2	PASI-C
		EPA 8260D	JJK	20	PASI-C
92632106011	MW-11	EPA 8011	HH	2	PASI-C
		EPA 8260D	JJK	20	PASI-C
92632106012	DW-1	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106013	CK-1	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106014	CK-2	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106015	CK-3	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106016	CK-4	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106017	DUP	EPA 8011	HH	2	PASI-C
		EPA 8260D	SAS	20	PASI-C
92632106018	FB	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C
92632106019	TB	EPA 8260D	CL	20	PASI-C

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
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PASI-C = Pace Analytical Services - Charlotte

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92632106001	MW-1					
EPA 8260D	tert-Amyl Alcohol	3250	ug/L	1000	10/26/22 09:36	
EPA 8260D	Benzene	1080	ug/L	50.0	10/26/22 09:36	
EPA 8260D	tert-Butyl Alcohol	1660	ug/L	1000	10/26/22 09:36	
EPA 8260D	Ethylbenzene	473	ug/L	50.0	10/26/22 09:36	
EPA 8260D	Methyl-tert-butyl ether	80.7	ug/L	50.0	10/26/22 09:36	
EPA 8260D	Naphthalene	224	ug/L	50.0	10/26/22 09:36	
EPA 8260D	Toluene	638	ug/L	50.0	10/26/22 09:36	
EPA 8260D	Xylene (Total)	1410	ug/L	50.0	10/26/22 09:36	
EPA 8260D	m&p-Xylene	1190	ug/L	100	10/26/22 09:36	
EPA 8260D	o-Xylene	215	ug/L	50.0	10/26/22 09:36	
92632106002	MW-2					
EPA 8260D	Ethylbenzene	7.0	ug/L	5.0	10/21/22 10:09	
EPA 8260D	Naphthalene	13.2	ug/L	5.0	10/21/22 10:09	
EPA 8260D	Toluene	5.3	ug/L	5.0	10/21/22 10:09	
EPA 8260D	Xylene (Total)	56.3	ug/L	5.0	10/21/22 10:09	
EPA 8260D	m&p-Xylene	50.0	ug/L	10.0	10/21/22 10:09	
EPA 8260D	o-Xylene	6.3	ug/L	5.0	10/21/22 10:09	
92632106010	MW-10					
EPA 8260D	Ethylbenzene	336	ug/L	20.0	10/20/22 18:06	
EPA 8260D	Naphthalene	236	ug/L	20.0	10/20/22 18:06	
EPA 8260D	Xylene (Total)	658	ug/L	20.0	10/20/22 18:06	
EPA 8260D	m&p-Xylene	565	ug/L	40.0	10/20/22 18:06	
EPA 8260D	o-Xylene	93.6	ug/L	20.0	10/20/22 18:06	
92632106011	MW-11					
EPA 8260D	Ethylbenzene	1400	ug/L	50.0	10/20/22 18:25	
EPA 8260D	Naphthalene	916	ug/L	50.0	10/20/22 18:25	
EPA 8260D	Xylene (Total)	3890	ug/L	50.0	10/20/22 18:25	
EPA 8260D	m&p-Xylene	3530	ug/L	100	10/20/22 18:25	
EPA 8260D	o-Xylene	369	ug/L	50.0	10/20/22 18:25	
92632106017	DUP					
EPA 8260D	tert-Amyl Alcohol	3340	ug/L	1000	10/26/22 10:10	
EPA 8260D	Benzene	1080	ug/L	50.0	10/26/22 10:10	
EPA 8260D	tert-Butyl Alcohol	1840	ug/L	1000	10/26/22 10:10	
EPA 8260D	Ethylbenzene	463	ug/L	50.0	10/26/22 10:10	
EPA 8260D	Methyl-tert-butyl ether	85.3	ug/L	50.0	10/26/22 10:10	
EPA 8260D	Naphthalene	227	ug/L	50.0	10/26/22 10:10	
EPA 8260D	Toluene	625	ug/L	50.0	10/26/22 10:10	
EPA 8260D	Xylene (Total)	1380	ug/L	50.0	10/26/22 10:10	
EPA 8260D	m&p-Xylene	1170	ug/L	100	10/26/22 10:10	
EPA 8260D	o-Xylene	211	ug/L	50.0	10/26/22 10:10	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Method: EPA 8011

Description: 8011 GCS EDB and DBCP

Client: SCDHEC

Date: October 27, 2022

General Information:

18 samples were analyzed for EPA 8011 by Pace Analytical Services Charlotte. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 8011 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 731875

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92632104010

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3810089)
 - 1,2-Dibromoethane (EDB)
- MSD (Lab ID: 3810090)
 - 1,2-Dibromoethane (EDB)

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Method: EPA 8260D

Description: 8260 MSV Low Level SC

Client: SCDHEC

Date: October 27, 2022

General Information:

4 samples were analyzed for EPA 8260D by Pace Analytical Services Charlotte. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 731772

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92632106015

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3809704)
 - Ethanol
 - tert-Amyl Alcohol

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Method: EPA 8260D
Description: 8260 MSV
Client: SCDHEC
Date: October 27, 2022

General Information:

15 samples were analyzed for EPA 8260D by Pace Analytical Services Charlotte. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 731723

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- MW-10 (Lab ID: 92632106010)
- 4-Bromofluorobenzene (S)

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: MW-1	Lab ID: 92632106001	Collected: 10/18/22 14:19	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 21:59	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	114	%	60-140	1	10/21/22 11:27	10/21/22 21:59	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	3250	ug/L	1000	10		10/26/22 09:36	75-85-4	
tert-Amylmethyl ether	ND	ug/L	100	10		10/26/22 09:36	994-05-8	
Benzene	1080	ug/L	50.0	10		10/26/22 09:36	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	1000	10		10/26/22 09:36	624-95-3	
tert-Butyl Alcohol	1660	ug/L	1000	10		10/26/22 09:36	75-65-0	
tert-Butyl Formate	ND	ug/L	500	10		10/26/22 09:36	762-75-4	
1,2-Dichloroethane	ND	ug/L	50.0	10		10/26/22 09:36	107-06-2	
Diisopropyl ether	ND	ug/L	50.0	10		10/26/22 09:36	108-20-3	
Ethanol	ND	ug/L	2000	10		10/26/22 09:36	64-17-5	
Ethylbenzene	473	ug/L	50.0	10		10/26/22 09:36	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	100	10		10/26/22 09:36	637-92-3	
Methyl-tert-butyl ether	80.7	ug/L	50.0	10		10/26/22 09:36	1634-04-4	
Naphthalene	224	ug/L	50.0	10		10/26/22 09:36	91-20-3	
Toluene	638	ug/L	50.0	10		10/26/22 09:36	108-88-3	
Xylene (Total)	1410	ug/L	50.0	10		10/26/22 09:36	1330-20-7	
m&p-Xylene	1190	ug/L	100	10		10/26/22 09:36	179601-23-1	
o-Xylene	215	ug/L	50.0	10		10/26/22 09:36	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	99	%	70-130	10		10/26/22 09:36	460-00-4	
1,2-Dichloroethane-d4 (S)	92	%	70-130	10		10/26/22 09:36	17060-07-0	
Toluene-d8 (S)	101	%	70-130	10		10/26/22 09:36	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: MW-2	Lab ID: 92632106002	Collected: 10/18/22 14:59	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 22:09	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	103	%	60-140	1	10/21/22 11:27	10/21/22 22:09	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 10:09	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 10:09	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 10:09	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 10:09	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 10:09	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 10:09	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 10:09	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 10:09	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 10:09	64-17-5	
Ethylbenzene	7.0	ug/L	5.0	1		10/21/22 10:09	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 10:09	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 10:09	1634-04-4	
Naphthalene	13.2	ug/L	5.0	1		10/21/22 10:09	91-20-3	
Toluene	5.3	ug/L	5.0	1		10/21/22 10:09	108-88-3	
Xylene (Total)	56.3	ug/L	5.0	1		10/21/22 10:09	1330-20-7	
m&p-Xylene	50.0	ug/L	10.0	1		10/21/22 10:09	179601-23-1	
o-Xylene	6.3	ug/L	5.0	1		10/21/22 10:09	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	96	%	70-130	1		10/21/22 10:09	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		10/21/22 10:09	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		10/21/22 10:09	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Sample: MW-3R	Lab ID: 92632106003	Collected: 10/18/22 13:30	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 22:20	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	98	%	60-140	1	10/21/22 11:27	10/21/22 22:20	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 05:33	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 05:33	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 05:33	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 05:33	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 05:33	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 05:33	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 05:33	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 05:33	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 05:33	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 05:33	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 05:33	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 05:33	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 05:33	91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 05:33	108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 05:33	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 05:33	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 05:33	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	97	%	70-130	1		10/21/22 05:33	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130	1		10/21/22 05:33	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/21/22 05:33	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: MW-4	Lab ID: 92632106004	Collected: 10/18/22 14:28	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 22:31	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	99	%	60-140	1	10/21/22 11:27	10/21/22 22:31	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 05:52	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 05:52	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 05:52	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 05:52	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 05:52	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 05:52	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 05:52	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 05:52	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 05:52	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 05:52	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 05:52	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 05:52	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 05:52	91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 05:52	108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 05:52	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 05:52	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 05:52	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	97	%	70-130	1		10/21/22 05:52	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130	1		10/21/22 05:52	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/21/22 05:52	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: MW-5	Lab ID: 92632106005	Collected: 10/18/22 13:22	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 22:41	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	104	%	60-140	1	10/21/22 11:27	10/21/22 22:41	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 06:10	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 06:10	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 06:10	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 06:10	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 06:10	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 06:10	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 06:10	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 06:10	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 06:10	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 06:10	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 06:10	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 06:10	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 06:10	91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 06:10	108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 06:10	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 06:10	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 06:10	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	98	%	70-130	1		10/21/22 06:10	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130	1		10/21/22 06:10	17060-07-0	
Toluene-d8 (S)	102	%	70-130	1		10/21/22 06:10	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: MW-6	Lab ID: 92632106006	Collected: 10/18/22 13:19	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	1	10/21/22 11:27	10/21/22 22:52	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	104	%	60-140	1	10/21/22 11:27	10/21/22 22:52	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 06:28	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 06:28	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 06:28	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 06:28	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 06:28	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 06:28	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 06:28	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 06:28	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 06:28	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 06:28	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 06:28	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 06:28	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 06:28	91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 06:28	108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 06:28	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 06:28	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 06:28	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	93	%	70-130	1		10/21/22 06:28	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		10/21/22 06:28	17060-07-0	
Toluene-d8 (S)	104	%	70-130	1		10/21/22 06:28	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: MW-7	Lab ID: 92632106007	Collected: 10/18/22 13:41	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 23:03	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	101	%	60-140	1	10/21/22 11:27	10/21/22 23:03	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 06:47	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 06:47	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 06:47	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 06:47	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 06:47	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 06:47	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 06:47	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 06:47	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 06:47	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 06:47	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 06:47	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 06:47	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 06:47	91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 06:47	108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 06:47	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 06:47	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 06:47	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	98	%	70-130	1		10/21/22 06:47	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130	1		10/21/22 06:47	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/21/22 06:47	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: MW-8	Lab ID: 92632106008	Collected: 10/18/22 14:06	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 23:13	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	101	%	60-140	1	10/21/22 11:27	10/21/22 23:13	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 07:05	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 07:05	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 07:05	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 07:05	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 07:05	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 07:05	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 07:05	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 07:05	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 07:05	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 07:05	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 07:05	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 07:05	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 07:05	91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 07:05	108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 07:05	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 07:05	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 07:05	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	95	%	70-130	1		10/21/22 07:05	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130	1		10/21/22 07:05	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/21/22 07:05	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: MW-9	Lab ID: 92632106009	Collected: 10/18/22 14:37	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 23:24	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	102	%	60-140	1	10/21/22 11:27	10/21/22 23:24	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 07:23	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 07:23	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 07:23	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 07:23	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 07:23	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 07:23	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 07:23	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 07:23	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 07:23	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 07:23	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 07:23	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 07:23	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 07:23	91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 07:23	108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 07:23	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 07:23	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 07:23	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	95	%	70-130	1		10/21/22 07:23	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130	1		10/21/22 07:23	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/21/22 07:23	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: MW-10	Lab ID: 92632106010	Collected: 10/18/22 14:18	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 23:35	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	102	%	60-140	1	10/21/22 11:27	10/21/22 23:35	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	400	4		10/20/22 18:06	75-85-4	
tert-Amylmethyl ether	ND	ug/L	40.0	4		10/20/22 18:06	994-05-8	
Benzene	ND	ug/L	20.0	4		10/20/22 18:06	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	400	4		10/20/22 18:06	624-95-3	
tert-Butyl Alcohol	ND	ug/L	400	4		10/20/22 18:06	75-65-0	
tert-Butyl Formate	ND	ug/L	200	4		10/20/22 18:06	762-75-4	
1,2-Dichloroethane	ND	ug/L	20.0	4		10/20/22 18:06	107-06-2	
Diisopropyl ether	ND	ug/L	20.0	4		10/20/22 18:06	108-20-3	
Ethanol	ND	ug/L	800	4		10/20/22 18:06	64-17-5	
Ethylbenzene	336	ug/L	20.0	4		10/20/22 18:06	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	40.0	4		10/20/22 18:06	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	20.0	4		10/20/22 18:06	1634-04-4	
Naphthalene	236	ug/L	20.0	4		10/20/22 18:06	91-20-3	
Toluene	ND	ug/L	20.0	4		10/20/22 18:06	108-88-3	
Xylene (Total)	658	ug/L	20.0	4		10/20/22 18:06	1330-20-7	
m&p-Xylene	565	ug/L	40.0	4		10/20/22 18:06	179601-23-1	
o-Xylene	93.6	ug/L	20.0	4		10/20/22 18:06	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	99	%	70-130	4		10/20/22 18:06	460-00-4	D3
1,2-Dichloroethane-d4 (S)	103	%	70-130	4		10/20/22 18:06	17060-07-0	
Toluene-d8 (S)	102	%	70-130	4		10/20/22 18:06	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: MW-11	Lab ID: 92632106011	Collected: 10/18/22 13:53	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 23:46	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	104	%	60-140	1	10/21/22 11:27	10/21/22 23:46	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	1000	10		10/20/22 18:25	75-85-4	
tert-Amylmethyl ether	ND	ug/L	100	10		10/20/22 18:25	994-05-8	
Benzene	ND	ug/L	50.0	10		10/20/22 18:25	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	1000	10		10/20/22 18:25	624-95-3	
tert-Butyl Alcohol	ND	ug/L	1000	10		10/20/22 18:25	75-65-0	
tert-Butyl Formate	ND	ug/L	500	10		10/20/22 18:25	762-75-4	
1,2-Dichloroethane	ND	ug/L	50.0	10		10/20/22 18:25	107-06-2	
Diisopropyl ether	ND	ug/L	50.0	10		10/20/22 18:25	108-20-3	
Ethanol	ND	ug/L	2000	10		10/20/22 18:25	64-17-5	
Ethylbenzene	1400	ug/L	50.0	10		10/20/22 18:25	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	100	10		10/20/22 18:25	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	50.0	10		10/20/22 18:25	1634-04-4	
Naphthalene	916	ug/L	50.0	10		10/20/22 18:25	91-20-3	
Toluene	ND	ug/L	50.0	10		10/20/22 18:25	108-88-3	
Xylene (Total)	3890	ug/L	50.0	10		10/20/22 18:25	1330-20-7	
m&p-Xylene	3530	ug/L	100	10		10/20/22 18:25	179601-23-1	
o-Xylene	369	ug/L	50.0	10		10/20/22 18:25	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	98	%	70-130	10		10/20/22 18:25	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130	10		10/20/22 18:25	17060-07-0	
Toluene-d8 (S)	101	%	70-130	10		10/20/22 18:25	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: DW-1	Lab ID: 92632106012	Collected: 10/18/22 13:08	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 15:46	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	88	%	60-140	1	10/21/22 11:27	10/21/22 15:46	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 07:42	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 07:42	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 07:42	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 07:42	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 07:42	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 07:42	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 07:42	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 07:42	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 07:42	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 07:42	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 07:42	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 07:42	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 07:42	91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 07:42	108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 07:42	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 07:42	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 07:42	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	96	%	70-130	1		10/21/22 07:42	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130	1		10/21/22 07:42	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/21/22 07:42	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: CK-1	Lab ID: 92632106013	Collected: 10/18/22 10:16	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 15:57	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	84	%	60-140	1	10/21/22 11:27	10/21/22 15:57	301-79-56	
8260 MSV Low Level SC								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 04:19	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 04:19	994-05-8	
Benzene	ND	ug/L	1.0	1		10/21/22 04:19	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 04:19	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 04:19	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 04:19	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	1		10/21/22 04:19	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/21/22 04:19	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 04:19	64-17-5	
Ethylbenzene	ND	ug/L	1.0	1		10/21/22 04:19	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 04:19	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/21/22 04:19	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		10/21/22 04:19	91-20-3	
Toluene	ND	ug/L	1.0	1		10/21/22 04:19	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1		10/21/22 04:19	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		10/21/22 04:19	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/21/22 04:19	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	96	%	70-130	1		10/21/22 04:19	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130	1		10/21/22 04:19	17060-07-0	
Toluene-d8 (S)	103	%	70-130	1		10/21/22 04:19	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: CK-2	Lab ID: 92632106014	Collected: 10/18/22 10:21	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP		Analytical Method: EPA 8011 Preparation Method: EPA 8011 Pace Analytical Services - Charlotte						
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 16:07	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	87	%	60-140	1	10/21/22 11:27	10/21/22 16:07	301-79-56	
8260 MSV Low Level SC		Analytical Method: EPA 8260D Pace Analytical Services - Charlotte						
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 04:37	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 04:37	994-05-8	
Benzene	ND	ug/L	1.0	1		10/21/22 04:37	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 04:37	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 04:37	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 04:37	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	1		10/21/22 04:37	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/21/22 04:37	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 04:37	64-17-5	
Ethylbenzene	ND	ug/L	1.0	1		10/21/22 04:37	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 04:37	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/21/22 04:37	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		10/21/22 04:37	91-20-3	
Toluene	ND	ug/L	1.0	1		10/21/22 04:37	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1		10/21/22 04:37	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		10/21/22 04:37	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/21/22 04:37	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	96	%	70-130	1		10/21/22 04:37	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-130	1		10/21/22 04:37	17060-07-0	
Toluene-d8 (S)	103	%	70-130	1		10/21/22 04:37	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: CK-3	Lab ID: 92632106015	Collected: 10/18/22 13:04	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 16:18	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	81	%	60-140	1	10/21/22 11:27	10/21/22 16:18	301-79-56	
8260 MSV Low Level SC								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 04:55	75-85-4	M1
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 04:55	994-05-8	
Benzene	ND	ug/L	1.0	1		10/21/22 04:55	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 04:55	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 04:55	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 04:55	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	1		10/21/22 04:55	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/21/22 04:55	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 04:55	64-17-5	M1
Ethylbenzene	ND	ug/L	1.0	1		10/21/22 04:55	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 04:55	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/21/22 04:55	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		10/21/22 04:55	91-20-3	
Toluene	ND	ug/L	1.0	1		10/21/22 04:55	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1		10/21/22 04:55	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		10/21/22 04:55	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/21/22 04:55	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	96	%	70-130	1		10/21/22 04:55	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130	1		10/21/22 04:55	17060-07-0	
Toluene-d8 (S)	103	%	70-130	1		10/21/22 04:55	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: CK-4	Lab ID: 92632106016	Collected: 10/18/22 14:06	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 16:29	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	87	%	60-140	1	10/21/22 11:27	10/21/22 16:29	301-79-56	
8260 MSV Low Level SC								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 05:13	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 05:13	994-05-8	
Benzene	ND	ug/L	1.0	1		10/21/22 05:13	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 05:13	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 05:13	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 05:13	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	1		10/21/22 05:13	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	1		10/21/22 05:13	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 05:13	64-17-5	
Ethylbenzene	ND	ug/L	1.0	1		10/21/22 05:13	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 05:13	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/21/22 05:13	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		10/21/22 05:13	91-20-3	
Toluene	ND	ug/L	1.0	1		10/21/22 05:13	108-88-3	
Xylene (Total)	ND	ug/L	1.0	1		10/21/22 05:13	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		10/21/22 05:13	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		10/21/22 05:13	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	96	%	70-130	1		10/21/22 05:13	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-130	1		10/21/22 05:13	17060-07-0	
Toluene-d8 (S)	102	%	70-130	1		10/21/22 05:13	2037-26-5	

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: DUP	Lab ID: 92632106017	Collected: 10/18/22 00:00	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 16:40	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	95	%	60-140	1	10/21/22 11:27	10/21/22 16:40	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	3340	ug/L	1000	10		10/26/22 10:10	75-85-4	
tert-Amylmethyl ether	ND	ug/L	100	10		10/26/22 10:10	994-05-8	
Benzene	1080	ug/L	50.0	10		10/26/22 10:10	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	1000	10		10/26/22 10:10	624-95-3	
tert-Butyl Alcohol	1840	ug/L	1000	10		10/26/22 10:10	75-65-0	
tert-Butyl Formate	ND	ug/L	500	10		10/26/22 10:10	762-75-4	
1,2-Dichloroethane	ND	ug/L	50.0	10		10/26/22 10:10	107-06-2	
Diisopropyl ether	ND	ug/L	50.0	10		10/26/22 10:10	108-20-3	
Ethanol	ND	ug/L	2000	10		10/26/22 10:10	64-17-5	
Ethylbenzene	463	ug/L	50.0	10		10/26/22 10:10	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	100	10		10/26/22 10:10	637-92-3	
Methyl-tert-butyl ether	85.3	ug/L	50.0	10		10/26/22 10:10	1634-04-4	
Naphthalene	227	ug/L	50.0	10		10/26/22 10:10	91-20-3	
Toluene	625	ug/L	50.0	10		10/26/22 10:10	108-88-3	
Xylene (Total)	1380	ug/L	50.0	10		10/26/22 10:10	1330-20-7	
m&p-Xylene	1170	ug/L	100	10		10/26/22 10:10	179601-23-1	
o-Xylene	211	ug/L	50.0	10		10/26/22 10:10	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	98	%	70-130	10		10/26/22 10:10	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130	10		10/26/22 10:10	17060-07-0	
Toluene-d8 (S)	101	%	70-130	10		10/26/22 10:10	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: FB	Lab ID: 92632106018	Collected: 10/18/22 14:41	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP								
Analytical Method: EPA 8011 Preparation Method: EPA 8011								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	1	10/21/22 11:27	10/21/22 16:50	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	90	%	60-140	1	10/21/22 11:27	10/21/22 16:50	301-79-56	
8260 MSV								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 03:25	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 03:25	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 03:25	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 03:25	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 03:25	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 03:25	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 03:25	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 03:25	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 03:25	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 03:25	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 03:25	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 03:25	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 03:25	91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 03:25	108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 03:25	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 03:25	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 03:25	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	101	%	70-130	1		10/21/22 03:25	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-130	1		10/21/22 03:25	17060-07-0	
Toluene-d8 (S)	104	%	70-130	1		10/21/22 03:25	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Sample: TB	Lab ID: 92632106019	Collected: 10/18/22 08:00	Received: 10/19/22 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260D Pace Analytical Services - Charlotte						
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 03:43	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 03:43	994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 03:43	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 03:43	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 03:43	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 03:43	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 03:43	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 03:43	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 03:43	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 03:43	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 03:43	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 03:43	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 03:43	91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 03:43	108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 03:43	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 03:43	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 03:43	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	99	%	70-130	1		10/21/22 03:43	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-130	1		10/21/22 03:43	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/21/22 03:43	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

QC Batch: 731772 Analysis Method: EPA 8260D
QC Batch Method: EPA 8260D Analysis Description: 8260 MSV Low Level SC
Laboratory: Pace Analytical Services - Charlotte

Associated Lab Samples: 92632106013, 92632106014, 92632106015, 92632106016

METHOD BLANK: 3809701 Matrix: Water
Associated Lab Samples: 92632106013, 92632106014, 92632106015, 92632106016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	1.0	10/21/22 02:49	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	10/21/22 02:49	
Benzene	ug/L	ND	1.0	10/21/22 02:49	
Diisopropyl ether	ug/L	ND	1.0	10/21/22 02:49	
Ethanol	ug/L	ND	200	10/21/22 02:49	
Ethyl-tert-butyl ether	ug/L	ND	10.0	10/21/22 02:49	
Ethylbenzene	ug/L	ND	1.0	10/21/22 02:49	
m&p-Xylene	ug/L	ND	2.0	10/21/22 02:49	
Methyl-tert-butyl ether	ug/L	ND	1.0	10/21/22 02:49	
Naphthalene	ug/L	ND	1.0	10/21/22 02:49	
o-Xylene	ug/L	ND	1.0	10/21/22 02:49	
tert-Amyl Alcohol	ug/L	ND	100	10/21/22 02:49	
tert-Amylmethyl ether	ug/L	ND	10.0	10/21/22 02:49	
tert-Butyl Alcohol	ug/L	ND	100	10/21/22 02:49	
tert-Butyl Formate	ug/L	ND	50.0	10/21/22 02:49	
Toluene	ug/L	ND	1.0	10/21/22 02:49	
Xylene (Total)	ug/L	ND	1.0	10/21/22 02:49	
1,2-Dichloroethane-d4 (S)	%	101	70-130	10/21/22 02:49	
4-Bromofluorobenzene (S)	%	97	70-130	10/21/22 02:49	
Toluene-d8 (S)	%	103	70-130	10/21/22 02:49	

LABORATORY CONTROL SAMPLE: 3809702

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	52.9	106	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1070	107	70-130	
Benzene	ug/L	50	49.5	99	70-130	
Diisopropyl ether	ug/L	50	53.6	107	70-130	
Ethanol	ug/L	2000	2040	102	70-130	
Ethyl-tert-butyl ether	ug/L	100	103	103	70-130	
Ethylbenzene	ug/L	50	52.4	105	70-130	
m&p-Xylene	ug/L	100	109	109	70-130	
Methyl-tert-butyl ether	ug/L	50	54.5	109	70-130	
Naphthalene	ug/L	50	57.4	115	70-130	
o-Xylene	ug/L	50	53.0	106	70-130	
tert-Amyl Alcohol	ug/L	1000	1050	105	70-130	
tert-Amylmethyl ether	ug/L	100	105	105	70-130	
tert-Butyl Alcohol	ug/L	500	510	102	70-130	
tert-Butyl Formate	ug/L	400	390	98	70-130	

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

LABORATORY CONTROL SAMPLE: 3809702

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Toluene	ug/L	50	51.0	102	70-130	
Xylene (Total)	ug/L	150	162	108	70-130	
1,2-Dichloroethane-d4 (S)	%			111	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3809703 3809704

Parameter	92632106015		MS		MSD		MS		MSD		% Rec Limits	RPD	Qual
	Units	Result	Spike Conc.	MS Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
1,2-Dichloroethane	ug/L	ND	20	20	22.1	23.1	110	115	70-137	4			
3,3-Dimethyl-1-Butanol	ug/L	ND	400	400	419	461	105	115	39-157	10			
Benzene	ug/L	ND	20	20	21.0	22.1	105	111	70-151	5			
Diisopropyl ether	ug/L	ND	20	20	21.0	22.3	105	112	63-144	6			
Ethanol	ug/L	ND	800	800	927	ND	116	0	39-176	M1			
Ethyl-tert-butyl ether	ug/L	ND	40	40	39.5	42.1	99	105	66-137	6			
Ethylbenzene	ug/L	ND	20	20	22.8	24.1	114	120	66-153	5			
m&p-Xylene	ug/L	ND	40	40	46.6	48.9	116	122	69-152	5			
Methyl-tert-butyl ether	ug/L	ND	20	20	20.4	21.7	102	109	54-156	6			
Naphthalene	ug/L	ND	20	20	23.2	25.4	116	127	61-148	9			
o-Xylene	ug/L	ND	20	20	22.3	23.4	111	117	70-148	5			
tert-Amyl Alcohol	ug/L	ND	400	400	404	ND	101	0	54-153	M1			
tert-Amylmethyl ether	ug/L	ND	40	40	40.8	44.1	102	110	69-139	8			
tert-Butyl Alcohol	ug/L	ND	200	200	202	243	101	122	43-188	18			
tert-Butyl Formate	ug/L	ND	160	160	142	126	89	79	10-170	12			
Toluene	ug/L	ND	20	20	21.9	22.6	109	113	59-148	3			
Xylene (Total)	ug/L	ND	60	60	68.9	72.4	115	121	63-158	5			
1,2-Dichloroethane-d4 (S)	%						105	105	70-130				
4-Bromofluorobenzene (S)	%						100	100	70-130				
Toluene-d8 (S)	%						99	99	70-130				

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

QC Batch: 731720 Analysis Method: EPA 8260D
QC Batch Method: EPA 8260D Analysis Description: 8260 MSV SC
Laboratory: Pace Analytical Services - Charlotte
Associated Lab Samples: 92632106007, 92632106008, 92632106009, 92632106012, 92632106018, 92632106019

METHOD BLANK: 3809311 Matrix: Water
Associated Lab Samples: 92632106007, 92632106008, 92632106009, 92632106012, 92632106018, 92632106019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	10/21/22 02:30	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	10/21/22 02:30	
Benzene	ug/L	ND	5.0	10/21/22 02:30	
Diisopropyl ether	ug/L	ND	5.0	10/21/22 02:30	
Ethanol	ug/L	ND	200	10/21/22 02:30	
Ethyl-tert-butyl ether	ug/L	ND	10.0	10/21/22 02:30	
Ethylbenzene	ug/L	ND	5.0	10/21/22 02:30	
m&p-Xylene	ug/L	ND	10.0	10/21/22 02:30	
Methyl-tert-butyl ether	ug/L	ND	5.0	10/21/22 02:30	
Naphthalene	ug/L	ND	5.0	10/21/22 02:30	
o-Xylene	ug/L	ND	5.0	10/21/22 02:30	
tert-Amyl Alcohol	ug/L	ND	100	10/21/22 02:30	
tert-Amylmethyl ether	ug/L	ND	10.0	10/21/22 02:30	
tert-Butyl Alcohol	ug/L	ND	100	10/21/22 02:30	
tert-Butyl Formate	ug/L	ND	50.0	10/21/22 02:30	
Toluene	ug/L	ND	5.0	10/21/22 02:30	
Xylene (Total)	ug/L	ND	5.0	10/21/22 02:30	
1,2-Dichloroethane-d4 (S)	%	105	70-130	10/21/22 02:30	
4-Bromofluorobenzene (S)	%	98	70-130	10/21/22 02:30	
Toluene-d8 (S)	%	101	70-130	10/21/22 02:30	

LABORATORY CONTROL SAMPLE: 3809312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	46.8	94	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1070	107	70-130	
Benzene	ug/L	50	44.6	89	70-130	
Diisopropyl ether	ug/L	50	52.8	106	70-130	
Ethanol	ug/L	2000	1690	85	70-130	
Ethyl-tert-butyl ether	ug/L	100	98.9	99	70-130	
Ethylbenzene	ug/L	50	48.2	96	70-130	
m&p-Xylene	ug/L	100	98.5	98	70-130	
Methyl-tert-butyl ether	ug/L	50	53.4	107	70-130	
Naphthalene	ug/L	50	56.9	114	70-130	
o-Xylene	ug/L	50	48.9	98	70-130	
tert-Amyl Alcohol	ug/L	1000	1030	103	70-130	
tert-Amylmethyl ether	ug/L	100	102	102	70-130	
tert-Butyl Alcohol	ug/L	500	516	103	70-130	
tert-Butyl Formate	ug/L	400	438	109	70-130	

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

LABORATORY CONTROL SAMPLE: 3809312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Toluene	ug/L	50	46.4	93	70-130	
Xylene (Total)	ug/L	150	147	98	70-130	
1,2-Dichloroethane-d4 (S)	%			102	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE SAMPLE: 3809314

Parameter	Units	92632104005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	22.9	115	70-137	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	468	117	39-157	
Benzene	ug/L	ND	20	22.6	113	70-151	
Diisopropyl ether	ug/L	ND	20	23.9	119	63-144	
Ethanol	ug/L	ND	800	1060	133	39-176	
Ethyl-tert-butyl ether	ug/L	ND	40	44.5	111	66-137	
Ethylbenzene	ug/L	ND	20	23.4	117	66-153	
m&p-Xylene	ug/L	ND	40	47.3	118	69-152	
Methyl-tert-butyl ether	ug/L	ND	20	22.6	113	54-156	
Naphthalene	ug/L	ND	20	21.7	109	61-148	
o-Xylene	ug/L	ND	20	22.4	112	70-148	
tert-Amyl Alcohol	ug/L	ND	400	457	114	54-153	
tert-Amylmethyl ether	ug/L	ND	40	44.9	112	69-139	
tert-Butyl Alcohol	ug/L	ND	200	291	145	43-188	
tert-Butyl Formate	ug/L	ND	160	74.9	47	10-170	
Toluene	ug/L	ND	20	22.7	114	59-148	
Xylene (Total)	ug/L	ND	60	69.7	116	63-158	
1,2-Dichloroethane-d4 (S)	%				100	70-130	
4-Bromofluorobenzene (S)	%				101	70-130	
Toluene-d8 (S)	%				100	70-130	

SAMPLE DUPLICATE: 3809313

Parameter	Units	92632106007 Result	Dup Result	RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		
Benzene	ug/L	ND	ND		
Diisopropyl ether	ug/L	ND	ND		
Ethanol	ug/L	ND	ND		
Ethyl-tert-butyl ether	ug/L	ND	ND		
Ethylbenzene	ug/L	ND	ND		
m&p-Xylene	ug/L	ND	ND		
Methyl-tert-butyl ether	ug/L	ND	ND		
Naphthalene	ug/L	ND	ND		
o-Xylene	ug/L	ND	ND		

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

SAMPLE DUPLICATE: 3809313

Parameter	Units	92632106007 Result	Dup Result	RPD	Qualifiers
tert-Amyl Alcohol	ug/L	ND	ND		
tert-Amylmethyl ether	ug/L	ND	ND		
tert-Butyl Alcohol	ug/L	ND	ND		
tert-Butyl Formate	ug/L	ND	ND		
Toluene	ug/L	ND	ND		
Xylene (Total)	ug/L	ND	ND		
1,2-Dichloroethane-d4 (S)	%	100	105		
4-Bromofluorobenzene (S)	%	98	99		
Toluene-d8 (S)	%	101	101		

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

QC Batch: 731722 Analysis Method: EPA 8260D
QC Batch Method: EPA 8260D Analysis Description: 8260 MSV SC
Laboratory: Pace Analytical Services - Charlotte

Associated Lab Samples: 92632106002, 92632106003, 92632106004, 92632106005, 92632106006

METHOD BLANK: 3809320 Matrix: Water
Associated Lab Samples: 92632106002, 92632106003, 92632106004, 92632106005, 92632106006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	10/21/22 02:11	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	10/21/22 02:11	
Benzene	ug/L	ND	5.0	10/21/22 02:11	
Diisopropyl ether	ug/L	ND	5.0	10/21/22 02:11	
Ethanol	ug/L	ND	200	10/21/22 02:11	
Ethyl-tert-butyl ether	ug/L	ND	10.0	10/21/22 02:11	
Ethylbenzene	ug/L	ND	5.0	10/21/22 02:11	
m&p-Xylene	ug/L	ND	10.0	10/21/22 02:11	
Methyl-tert-butyl ether	ug/L	ND	5.0	10/21/22 02:11	
Naphthalene	ug/L	ND	5.0	10/21/22 02:11	
o-Xylene	ug/L	ND	5.0	10/21/22 02:11	
tert-Amyl Alcohol	ug/L	ND	100	10/21/22 02:11	
tert-Amylmethyl ether	ug/L	ND	10.0	10/21/22 02:11	
tert-Butyl Alcohol	ug/L	ND	100	10/21/22 02:11	
tert-Butyl Formate	ug/L	ND	50.0	10/21/22 02:11	
Toluene	ug/L	ND	5.0	10/21/22 02:11	
Xylene (Total)	ug/L	ND	5.0	10/21/22 02:11	
1,2-Dichloroethane-d4 (S)	%	103	70-130	10/21/22 02:11	
4-Bromofluorobenzene (S)	%	102	70-130	10/21/22 02:11	
Toluene-d8 (S)	%	103	70-130	10/21/22 02:11	

LABORATORY CONTROL SAMPLE: 3809321

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	47.3	95	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1090	109	70-130	
Benzene	ug/L	50	44.9	90	70-130	
Diisopropyl ether	ug/L	50	53.6	107	70-130	
Ethanol	ug/L	2000	1700	85	70-130	
Ethyl-tert-butyl ether	ug/L	100	100	100	70-130	
Ethylbenzene	ug/L	50	49.0	98	70-130	
m&p-Xylene	ug/L	100	99.5	100	70-130	
Methyl-tert-butyl ether	ug/L	50	50.9	102	70-130	
Naphthalene	ug/L	50	56.9	114	70-130	
o-Xylene	ug/L	50	48.8	98	70-130	
tert-Amyl Alcohol	ug/L	1000	1050	105	70-130	
tert-Amylmethyl ether	ug/L	100	104	104	70-130	
tert-Butyl Alcohol	ug/L	500	524	105	70-130	
tert-Butyl Formate	ug/L	400	445	111	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

LABORATORY CONTROL SAMPLE: 3809321

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Toluene	ug/L	50	46.9	94	70-130	
Xylene (Total)	ug/L	150	148	99	70-130	
1,2-Dichloroethane-d4 (S)	%			104	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3809322 3809323

Parameter	92632124002		MS		MSD		MS		MSD		% Rec Limits	RPD	Qual
	Units	Result	Spike Conc.	MS Spike Conc.	MS Result	MSD Result	% Rec	MSD % Rec					
1,2-Dichloroethane	ug/L	ND	20	20	19.9	19.6	100	98	70-137	2			
3,3-Dimethyl-1-Butanol	ug/L	ND	400	400	346	366	86	92	39-157	6			
Benzene	ug/L	ND	20	20	19.3	19.9	96	99	70-151	3			
Diisopropyl ether	ug/L	ND	20	20	17.1	18.1	86	91	63-144	6			
Ethanol	ug/L	ND	800	800	636	628	79	78	39-176	1			
Ethyl-tert-butyl ether	ug/L	ND	40	40	35.2	36.1	88	90	66-137	2			
Ethylbenzene	ug/L	ND	20	20	20.2	20.8	99	102	66-153	3			
m&p-Xylene	ug/L	ND	40	40	40.0	41.6	96	100	69-152	4			
Methyl-tert-butyl ether	ug/L	ND	20	20	18.9	19.6	94	98	54-156	4			
Naphthalene	ug/L	ND	20	20	21.9	19.7	104	94	61-148	10			
o-Xylene	ug/L	ND	20	20	20.3	20.8	98	101	70-148	2			
tert-Amyl Alcohol	ug/L	ND	400	400	342	359	85	90	54-153	5			
tert-Amylmethyl ether	ug/L	ND	40	40	40.0	40.9	100	102	69-139	2			
tert-Butyl Alcohol	ug/L	ND	200	200	219	226	109	113	43-188	3			
tert-Butyl Formate	ug/L	ND	160	160	ND	ND	1	0	10-170				
Toluene	ug/L	ND	20	20	20.0	20.6	88	91	59-148	3			
Xylene (Total)	ug/L	ND	60	60	60.3	62.3	100	104	63-158	3			
1,2-Dichloroethane-d4 (S)	%						94	97	70-130				
4-Bromofluorobenzene (S)	%						98	98	70-130				
Toluene-d8 (S)	%						98	98	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

QC Batch: 731723	Analysis Method: EPA 8260D
QC Batch Method: EPA 8260D	Analysis Description: 8260 MSV SC
	Laboratory: Pace Analytical Services - Charlotte

Associated Lab Samples: 92632106010, 92632106011

METHOD BLANK: 3809326 Matrix: Water

Associated Lab Samples: 92632106010, 92632106011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	10/20/22 12:29	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	10/20/22 12:29	
Benzene	ug/L	ND	5.0	10/20/22 12:29	
Diisopropyl ether	ug/L	ND	5.0	10/20/22 12:29	
Ethanol	ug/L	ND	200	10/20/22 12:29	
Ethyl-tert-butyl ether	ug/L	ND	10.0	10/20/22 12:29	
Ethylbenzene	ug/L	ND	5.0	10/20/22 12:29	
m&p-Xylene	ug/L	ND	10.0	10/20/22 12:29	
Methyl-tert-butyl ether	ug/L	ND	5.0	10/20/22 12:29	
Naphthalene	ug/L	ND	5.0	10/20/22 12:29	
o-Xylene	ug/L	ND	5.0	10/20/22 12:29	
tert-Amyl Alcohol	ug/L	ND	100	10/20/22 12:29	
tert-Amylmethyl ether	ug/L	ND	10.0	10/20/22 12:29	
tert-Butyl Alcohol	ug/L	ND	100	10/20/22 12:29	
tert-Butyl Formate	ug/L	ND	50.0	10/20/22 12:29	
Toluene	ug/L	ND	5.0	10/20/22 12:29	
Xylene (Total)	ug/L	ND	5.0	10/20/22 12:29	
1,2-Dichloroethane-d4 (S)	%	105	70-130	10/20/22 12:29	
4-Bromofluorobenzene (S)	%	101	70-130	10/20/22 12:29	
Toluene-d8 (S)	%	100	70-130	10/20/22 12:29	

LABORATORY CONTROL SAMPLE: 3809327

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	52.7	105	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1200	120	70-130	
Benzene	ug/L	50	51.2	102	70-130	
Diisopropyl ether	ug/L	50	56.3	113	70-130	
Ethanol	ug/L	2000	2500	125	70-130	
Ethyl-tert-butyl ether	ug/L	100	107	107	70-130	
Ethylbenzene	ug/L	50	52.8	106	70-130	
m&p-Xylene	ug/L	100	107	107	70-130	
Methyl-tert-butyl ether	ug/L	50	54.8	110	70-130	
Naphthalene	ug/L	50	55.9	112	70-130	
o-Xylene	ug/L	50	51.8	104	70-130	
tert-Amyl Alcohol	ug/L	1000	1200	120	70-130	
tert-Amylmethyl ether	ug/L	100	108	108	70-130	
tert-Butyl Alcohol	ug/L	500	606	121	70-130	
tert-Butyl Formate	ug/L	400	440	110	70-130	

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

LABORATORY CONTROL SAMPLE: 3809327

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Toluene	ug/L	50	52.6	105	70-130	
Xylene (Total)	ug/L	150	159	106	70-130	
1,2-Dichloroethane-d4 (S)	%			99	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3809328 3809329

Parameter	92631403026		MS		MSD		MS		MSD		% Rec Limits	RPD	Qual
	Units	Result	Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec				
1,2-Dichloroethane	ug/L	ND	250	250	293	289	117	116	70-137	1			
3,3-Dimethyl-1-Butanol	ug/L	ND	5000	5000	6050	5950	121	119	39-157	2			
Benzene	ug/L	127	250	250	426	416	120	116	70-151	3			
Diisopropyl ether	ug/L	ND	250	250	308	301	121	118	63-144	2			
Ethanol	ug/L	ND	10000	10000	12800	12500	128	125	39-176	2			
Ethyl-tert-butyl ether	ug/L	ND	500	500	572	553	114	111	66-137	3			
Ethylbenzene	ug/L	478	250	250	784	770	123	117	66-153	2			
m&p-Xylene	ug/L	1820	500	500	2420	2380	119	111	69-152	2			
Methyl-tert-butyl ether	ug/L	45.0J	250	250	346	340	120	118	54-156	2			
Naphthalene	ug/L	299	250	250	588	613	116	126	61-148	4			
o-Xylene	ug/L	1480	250	250	1760	1730	109	100	70-148	1			
tert-Amyl Alcohol	ug/L	940J	5000	5000	7130	7180	124	125	54-153	1			
tert-Amylmethyl ether	ug/L	ND	500	500	583	567	117	113	69-139	3			
tert-Butyl Alcohol	ug/L	ND	2500	2500	3200	3210	125	125	43-188	0			
tert-Butyl Formate	ug/L	ND	2000	2000	2050	1990	102	99	10-170	3			
Toluene	ug/L	1460	250	250	1750	1720	115	102	59-148	2			
Xylene (Total)	ug/L	3310	750	750	4180	4110	116	107	63-158	2			
1,2-Dichloroethane-d4 (S)	%						105	104	70-130				
4-Bromofluorobenzene (S)	%						100	99	70-130				
Toluene-d8 (S)	%						100	101	70-130				

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

QC Batch: 732722	Analysis Method: EPA 8260D
QC Batch Method: EPA 8260D	Analysis Description: 8260 MSV SC
	Laboratory: Pace Analytical Services - Charlotte

Associated Lab Samples: 92632106001, 92632106017

METHOD BLANK: 3813913 Matrix: Water

Associated Lab Samples: 92632106001, 92632106017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	10/26/22 02:41	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	10/26/22 02:41	
Benzene	ug/L	ND	5.0	10/26/22 02:41	
Diisopropyl ether	ug/L	ND	5.0	10/26/22 02:41	
Ethanol	ug/L	ND	200	10/26/22 02:41	
Ethyl-tert-butyl ether	ug/L	ND	10.0	10/26/22 02:41	
Ethylbenzene	ug/L	ND	5.0	10/26/22 02:41	
m&p-Xylene	ug/L	ND	10.0	10/26/22 02:41	
Methyl-tert-butyl ether	ug/L	ND	5.0	10/26/22 02:41	
Naphthalene	ug/L	ND	5.0	10/26/22 02:41	
o-Xylene	ug/L	ND	5.0	10/26/22 02:41	
tert-Amyl Alcohol	ug/L	ND	100	10/26/22 02:41	
tert-Amylmethyl ether	ug/L	ND	10.0	10/26/22 02:41	
tert-Butyl Alcohol	ug/L	ND	100	10/26/22 02:41	
tert-Butyl Formate	ug/L	ND	50.0	10/26/22 02:41	
Toluene	ug/L	ND	5.0	10/26/22 02:41	
Xylene (Total)	ug/L	ND	5.0	10/26/22 02:41	
1,2-Dichloroethane-d4 (S)	%	96	70-130	10/26/22 02:41	
4-Bromofluorobenzene (S)	%	101	70-130	10/26/22 02:41	
Toluene-d8 (S)	%	103	70-130	10/26/22 02:41	

LABORATORY CONTROL SAMPLE: 3813914

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	45.1	90	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1000	100	70-130	
Benzene	ug/L	50	44.9	90	70-130	
Diisopropyl ether	ug/L	50	48.6	97	70-130	
Ethanol	ug/L	2000	1880	94	70-130	
Ethyl-tert-butyl ether	ug/L	100	93.1	93	70-130	
Ethylbenzene	ug/L	50	47.1	94	70-130	
m&p-Xylene	ug/L	100	95.6	96	70-130	
Methyl-tert-butyl ether	ug/L	50	49.5	99	70-130	
Naphthalene	ug/L	50	52.2	104	70-130	
o-Xylene	ug/L	50	48.5	97	70-130	
tert-Amyl Alcohol	ug/L	1000	983	98	70-130	
tert-Amylmethyl ether	ug/L	100	97.5	98	70-130	
tert-Butyl Alcohol	ug/L	500	436	87	70-130	
tert-Butyl Formate	ug/L	400	392	98	70-130	

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

LABORATORY CONTROL SAMPLE: 3813914

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Toluene	ug/L	50	44.3	89	70-130	
Xylene (Total)	ug/L	150	144	96	70-130	
1,2-Dichloroethane-d4 (S)	%			93	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3813915 3813916

Parameter	92632104002		MS		MSD		MS		MSD		% Rec Limits	RPD	Qual
	Units	Result	Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec				
1,2-Dichloroethane	ug/L	ND	8000	8000	8250	8420	103	105	70-137	2			
3,3-Dimethyl-1-Butanol	ug/L	ND	160000	160000	172000	165000	108	103	39-157	5			
Benzene	ug/L	ND	8000	8000	9090	9010	108	107	70-151	1			
Diisopropyl ether	ug/L	ND	8000	8000	8260	8370	103	105	63-144	1			
Ethanol	ug/L	ND	320000	320000	323000	329000	101	103	39-176	2			
Ethyl-tert-butyl ether	ug/L	ND	16000	16000	15700	16100	98	101	66-137	3			
Ethylbenzene	ug/L	4350	8000	8000	13300	13400	112	113	66-153	1			
m&p-Xylene	ug/L	16400	16000	16000	34200	34800	112	115	69-152	2			
Methyl-tert-butyl ether	ug/L	ND	8000	8000	8390	8500	105	106	54-156	1			
Naphthalene	ug/L	ND	8000	8000	9610	10100	108	115	61-148	5			
o-Xylene	ug/L	8840	8000	8000	17500	18000	108	115	70-148	3			
tert-Amyl Alcohol	ug/L	ND	160000	160000	164000	165000	103	103	54-153	1			
tert-Amylmethyl ether	ug/L	ND	16000	16000	16900	17200	105	107	69-139	2			
tert-Butyl Alcohol	ug/L	ND	80000	80000	69700	72500	87	91	43-188	4			
tert-Butyl Formate	ug/L	ND	64000	64000	66000	66600	103	104	10-170	1			
Toluene	ug/L	48500	8000	8000	55000	58100	82	120	59-148	5			
Xylene (Total)	ug/L	25200	24000	24000	51700	52800	111	115	63-158	2			
1,2-Dichloroethane-d4 (S)	%						89	91	70-130				
4-Bromofluorobenzene (S)	%						102	98	70-130				
Toluene-d8 (S)	%						98	97	70-130				

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

QC Batch:	731875	Analysis Method:	EPA 8011
QC Batch Method:	EPA 8011	Analysis Description:	GCS 8011 EDB DBCP
		Laboratory:	Pace Analytical Services - Charlotte

Associated Lab Samples: 92632106001, 92632106002, 92632106003, 92632106004, 92632106005, 92632106006, 92632106007, 92632106008, 92632106009, 92632106010, 92632106011

METHOD BLANK: 3810085 Matrix: Water
Associated Lab Samples: 92632106001, 92632106002, 92632106003, 92632106004, 92632106005, 92632106006, 92632106007, 92632106008, 92632106009, 92632106010, 92632106011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	10/21/22 19:19	
1-Chloro-2-bromopropane (S)	%	112	60-140	10/21/22 19:19	

LABORATORY CONTROL SAMPLE & LCSD: 3810086 3810087

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	0.25	0.23	0.22	94	91	60-140	4	20	
1-Chloro-2-bromopropane (S)	%				109	108	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3810089 3810090

Parameter	Units	92632104010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	0.25	0.25	0.72	0.79	296	322	60-140	8	M1
1-Chloro-2-bromopropane (S)	%						112	114	60-140		

SAMPLE DUPLICATE: 3810088

Parameter	Units	92632104009 Result	Dup Result	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		
1-Chloro-2-bromopropane (S)	%	108	107		

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QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

QC Batch: 731877 Analysis Method: EPA 8011
QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
Laboratory: Pace Analytical Services - Charlotte
Associated Lab Samples: 92632106012, 92632106013, 92632106014, 92632106015, 92632106016, 92632106017, 92632106018

METHOD BLANK: 3810093 Matrix: Water
Associated Lab Samples: 92632106012, 92632106013, 92632106014, 92632106015, 92632106016, 92632106017, 92632106018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	10/21/22 15:14	
1-Chloro-2-bromopropane (S)	%	107	60-140	10/21/22 15:14	

LABORATORY CONTROL SAMPLE & LCSD: 3810094 3810095

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	0.25	0.24	0.23	98	94	60-140	4	20	
1-Chloro-2-bromopropane (S)	%				101	97	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3810097 3810098

Parameter	Units	92630941010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	0.25	0.25	0.24	0.22	95	89	60-140	7	
1-Chloro-2-bromopropane (S)	%						87	82	60-140		

SAMPLE DUPLICATE: 3810096

Parameter	Units	92630941001 Result	Dup Result	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		
1-Chloro-2-bromopropane (S)	%	94	99		

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QUALIFIERS

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NICKEL PUMPER 233 04878
Pace Project No.: 92632106

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92632106001	MW-1	EPA 8011	731875	EPA 8011	731959
92632106002	MW-2	EPA 8011	731875	EPA 8011	731959
92632106003	MW-3R	EPA 8011	731875	EPA 8011	731959
92632106004	MW-4	EPA 8011	731875	EPA 8011	731959
92632106005	MW-5	EPA 8011	731875	EPA 8011	731959
92632106006	MW-6	EPA 8011	731875	EPA 8011	731959
92632106007	MW-7	EPA 8011	731875	EPA 8011	731959
92632106008	MW-8	EPA 8011	731875	EPA 8011	731959
92632106009	MW-9	EPA 8011	731875	EPA 8011	731959
92632106010	MW-10	EPA 8011	731875	EPA 8011	731959
92632106011	MW-11	EPA 8011	731875	EPA 8011	731959
92632106012	DW-1	EPA 8011	731877	EPA 8011	731961
92632106013	CK-1	EPA 8011	731877	EPA 8011	731961
92632106014	CK-2	EPA 8011	731877	EPA 8011	731961
92632106015	CK-3	EPA 8011	731877	EPA 8011	731961
92632106016	CK-4	EPA 8011	731877	EPA 8011	731961
92632106017	DUP	EPA 8011	731877	EPA 8011	731961
92632106018	FB	EPA 8011	731877	EPA 8011	731961
92632106013	CK-1	EPA 8260D	731772		
92632106014	CK-2	EPA 8260D	731772		
92632106015	CK-3	EPA 8260D	731772		
92632106016	CK-4	EPA 8260D	731772		
92632106001	MW-1	EPA 8260D	732722		
92632106002	MW-2	EPA 8260D	731722		
92632106003	MW-3R	EPA 8260D	731722		
92632106004	MW-4	EPA 8260D	731722		
92632106005	MW-5	EPA 8260D	731722		
92632106006	MW-6	EPA 8260D	731722		
92632106007	MW-7	EPA 8260D	731720		
92632106008	MW-8	EPA 8260D	731720		
92632106009	MW-9	EPA 8260D	731720		
92632106010	MW-10	EPA 8260D	731723		
92632106011	MW-11	EPA 8260D	731723		
92632106012	DW-1	EPA 8260D	731720		
92632106017	DUP	EPA 8260D	732722		
92632106018	FB	EPA 8260D	731720		
92632106019	TB	EPA 8260D	731720		

REPORT OF LABORATORY ANALYSIS

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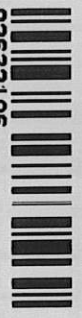
CHAIN-OF-CUSTODY Analytical Request Document

LAB USE ONLY: ALL

MO#: 92632106

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

ALL: 92632106



Company: SCDHEC Billing Information: _____

Address: 2600 Bull St. Email To: dunn@cdhecs.gov

Report To: R. Dunn Site Collection Info/Address: _____

Customer Project Name/Number: Nickel pumper 233 State: SC County/City: Jasper Time Zone Collected: PT MT CT ET

Phone: _____ Site/Facility ID #: 04978 Compliance Monitoring? Yes No

Collected By (print): Shawn Spcott Purchase Order #: _____ DW PWS ID #: _____

Collected By (signature): _____ Quote #: _____ DW Location Code: _____

Sample Disposal: _____ Turnaround Date Required: _____

Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
Mw-1	GW	G	10/18/22	14:19				6
Mw-2				14:59				1
Mw-3R				13:30				1
Mw-4				14:28				6
Mw-5				13:32				6
Mw-6				13:19				1
Mw-7				13:41				1
Mw-8				14:06				1
Mw-9				14:37				6

Customer Remarks / Special Conditions / Possible Hazards: _____

Type of Ice Used: Yes Blue Dry None

Packing Material Used: 6w hole

Raddchem sample(s) screened (<500 cpm): Y N (NA)

Relinquished by/Company: (Signature) _____ Date/Time: _____

Container Preservative Type: 3 3

Lab Project Manager: _____

Lab Sample Receipt Checklist:

- Custody Seals Present/Intact Y N NA
- Custody Signatures Present Y N NA
- Collector Signatures Present Y N NA
- Bottles Intact Y N NA
- Correct Bottles Y N NA
- Sufficient Volume Y N NA
- Samples Received on Ice Y N NA
- VOA - Headspace Acceptable Y N NA
- USDA Regulated Solids Y N NA
- Samples in Holding Time Y N NA
- Residual Chlorine Present Y N NA
- CI Strips: Y N NA
- Sample pH Acceptable Y N NA
- pH Strips: Y N NA
- Sulfide Present Y N NA
- Lead Acetate Strips: Y N NA

Lab Tracking #:	Lab Profile/Line:	Lab Sample Temperature Info:
2621452	BTEXNM, 1,2-DCA, OYS 82600 EDB 8011	Temp Blank Received: Y <input checked="" type="checkbox"/> NA
		Therm ID# _____
		Cooler 1 Term Upon Receipt: <u>1.3</u> OC
		Cooler 1 Term Corr. Factor: <u>0.1</u> OC
		Cooler 1 Corrected Temp: <u>1.2</u> OC
		Comments: _____

SHORT HOLDS PRESENT (<72 hours): Y N (NA)

Samples received via: FEDEX UPS Client Courier Pace Courier

Table #: _____ MTL LAB USE ONLY

Actnum: _____ Template: _____ Prelogin: _____ PM: _____ PB: _____

Relinquished by/Company: (Signature) _____ Date/Time: _____

Received by/Company: (Signature) _____ Date/Time: _____

Non Conformance(s): YES / NO Page: 1 of 1

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: **SCDHHC** Billing Information: _____

Address: **800 Bull St** Email To: **dunnra@hcc.sc.gov**

Report To: **R. Dunn** Site Collection Info/Address: _____

Copy To: _____ State: **SC** County/City: **Jasper** Time Zone Collected: **ET**

Customer Project Name/Number: **233** Site/Facility ID #: **04878**

Phone: _____ Compliance Monitoring? Yes No

Collected By (print): **Shawn Scott** Purchase Order #: _____ DW PWS ID #: _____

Collected By (signature): _____ Quote #: _____ DW Location Code: _____

Turnaround Date Required: _____ Immediately Packed on Ice: Yes No

Sample Disposal: Dispose as appropriate Return Same Day Next Day Field Filtered (if applicable): Yes No

Archive: _____ Hold: _____ Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Cns
			Date	Time	Date	Time		
MW-10	GW	G	10/18/22	14:18				6
MW-11				13:53				
DW-1				13:08				
CK-1				10:16				
CK-2				10:21				
CK-3				13:04				
CK-4				14:06				
DVP								
FB				14:41				6
TB				8:00				3

Customer Remarks / Special Conditions / Possible Hazards: _____

Type of Ice Used: **Wet** Blue Dry None **NA**

Packing Material Used: **Bubble**

Radchem sample(s) screened (<500 cpm): Y N **NA**

Relinquished by/Company: (Signature) _____ Date/Time: **10/19/22**

Relinquished by/Company: (Signature) _____ Date/Time: **10/19/22**

LAB USE ONLY-

MO#: 92632106

PM: TMC Due Date: 10/26/22

CLIENT: 92-SCDHHC

AL

Container Preservative Type **

Lab Project Manager:

Analyses	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____																				

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact Y N **NA**

Custody Signatures Present Y N **NA**

Collector Signatures Present Y N **NA**

Bottles Intact Y N **NA**

Correct Bottles Y N **NA**

Sufficient Volume Y N **NA**

Samples Received on Ice Y N **NA**

VOA - Headspace Acceptable Y N **NA**

USDA Regulated Solids Y N **NA**

Samples in Holding Time Y N **NA**

Residual Chlorine Present Y N **NA**

Cl Strips: Y N **NA**

Sample pH Acceptable Y N **NA**

pH Strips: Y N **NA**

Sulfide Present Y N **NA**

Lead Acetate Strips: Y N **NA**

LAB USE ONLY: Lab Sample # / Comments: **92632106**

Lab Tracking #:	SHORT HOLDS PRESENT (<72 hours):	Y	N	NA	Lab Profile/Line:	Lab Sample Receipt Checklist:
2621453					Odor	D10
					Slight odor	D11
					No odor	D12
					LPL	D13
						D14
						D15
						D16
						D17
						D18
						D19

Samples received via: FEDEX UPS Client Courier **Pace Courier**

MTL LAB USE ONLY

Lab Tracking #: **2621453**

Temp Blank Received: Y N **NA**

Therm ID#: _____

Cooler 1 Temp Upon Receipt: **1.3** °C

Cooler 1 Therm Corr. Factor: **-0.1** °C

Cooler 1 (corrected Temp): **1.2** °C

Comments: _____

Non Conformance(s): YES / NO YES NO

Page: **2** of **2**

WO#: 92632106

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Project #

PM: TMC

Due Date: 10/26/22

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

CLIENT: 92-SCDHEC

**Bottom half of box is to list number of bottles

***Check all unpreserved Nitrates for chlorine

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic 2N Acetate & NaOH (>9)	BP4B-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	DG94-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unpreserved (N/A)	DG9V-40 mL VOA H3PO4 (N/A)	DG9S-40 mL VOA H2SO4 (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3R-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved (N/A) (Cl-)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/	/
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10	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/	/
11	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/	/
12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/	/

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Project #

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottles

***Check all unpreserved Nitrates for chlorine

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4B-125 mL Plastic NaOH (pH > 12) (Cl-)	WG7U-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	DG94-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unpreserved (N/A)	DG9V-40 mL VOA H3PO4 (N/A)	DG9S-40 mL VOA H2SO4 (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3R-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved (N/A) (Cl-)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)	
1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
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11	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/
12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	6	/	/	/	/	/	/	/	/	/	/	/	/

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

October 26, 2022

Arthur Brown
SCDHEC
2600 Bull Street
Columbia, SC 29201

RE: Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

Dear Arthur Brown:

Enclosed are the analytical results for sample(s) received by the laboratory on October 19, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Charlotte

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Taylor M Cannon
taylor.cannon@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Jeff Coleman, Midlands Environmental Consultants, Inc.
Robert Dunn, SCDHEC
Kyle Pudney, Midlands Environmental Consultants, Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Pace Analytical Services Charlotte

South Carolina Laboratory ID: 99006

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078

North Carolina Drinking Water Certification #: 37706

North Carolina Field Services Certification #: 5342

North Carolina Wastewater Certification #: 12

South Carolina Laboratory ID: 99006

South Carolina Certification #: 99006001

South Carolina Drinking Water Cert. #: 99006003

Florida/NELAP Certification #: E87627

Kentucky UST Certification #: 84

Louisiana DoH Drinking Water #: LA029

Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92632102001	WSW-1	EPA 504.1	HH	2	PASI-C
		EPA 524.2	LMB	11	PASI-C
		EPA 8260D	JJK	11	PASI-C
92632102002	WSW-DUP	EPA 504.1	HH	2	PASI-C
		EPA 524.2	LMB	11	PASI-C
		EPA 8260D	JJK	11	PASI-C
92632102003	WSW-FB	EPA 504.1	HH	2	PASI-C
		EPA 524.2	LMB	11	PASI-C
		EPA 8260D	CL	11	PASI-C
92632102004	WSW-TB	EPA 524.2	LMB	11	PASI-C
		EPA 8260D	CL	11	PASI-C

PASI-C = Pace Analytical Services - Charlotte

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Method: EPA 504.1

Description: 504 GCS EDB and DBCP

Client: SCDHEC

Date: October 26, 2022

General Information:

3 samples were analyzed for EPA 504.1 by Pace Analytical Services Charlotte. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 504.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

Method: EPA 524.2
Description: 524.2 MSV SC List
Client: SCDHEC
Date: October 26, 2022

General Information:

4 samples were analyzed for EPA 524.2 by Pace Analytical Services Charlotte. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Method: EPA 8260D

Description: 8260 MSV Low Level SC

Client: SCDHEC

Date: October 26, 2022

General Information:

4 samples were analyzed for EPA 8260D by Pace Analytical Services Charlotte. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 731772

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92632106015

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 3809704)
 - Ethanol
 - tert-Amyl Alcohol

QC Batch: 732055

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92632065013

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 3810830)
 - tert-Butyl Formate

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

Method: EPA 8260D
Description: 8260 MSV Low Level SC
Client: SCDHEC
Date: October 26, 2022

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

Sample: WSW-1	Lab ID: 92632102001	Collected: 10/18/22 13:22	Received: 10/19/22 08:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP								
Analytical Method: EPA 504.1 Preparation Method: EPA 504.1								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.021	1	10/24/22 11:22	10/24/22 20:06	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	113	%	70-130	1	10/24/22 11:22	10/24/22 20:06	301-79-56	
524.2 MSV SC List								
Analytical Method: EPA 524.2								
Pace Analytical Services - Charlotte								
Benzene	ND	ug/L	0.50	1		10/20/22 23:25	71-43-2	
1,2-Dichloroethane	ND	ug/L	0.50	1		10/20/22 23:25	107-06-2	
Ethylbenzene	ND	ug/L	0.50	1		10/20/22 23:25	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		10/20/22 23:25	1634-04-4	
Naphthalene	ND	ug/L	0.50	1		10/20/22 23:25	91-20-3	
Toluene	ND	ug/L	0.50	1		10/20/22 23:25	108-88-3	
Xylene (Total)	ND	ug/L	0.50	1		10/20/22 23:25	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	1		10/20/22 23:25	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		10/20/22 23:25	95-47-6	
Surrogates								
1,2-Dichlorobenzene-d4 (S)	92	%	70-130	1		10/20/22 23:25	2199-69-1	
4-Bromofluorobenzene (S)	92	%	70-130	1		10/20/22 23:25	460-00-4	
8260 MSV Low Level SC								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 17:17	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 17:17	994-05-8	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 17:17	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 17:17	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 17:17	762-75-4	
Diisopropyl ether	ND	ug/L	1.0	1		10/21/22 17:17	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 17:17	64-17-5	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 17:17	637-92-3	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		10/21/22 17:17	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130	1		10/21/22 17:17	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		10/21/22 17:17	2037-26-5	

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ANALYTICAL RESULTS

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

Sample: WSW-DUP	Lab ID: 92632102002	Collected: 10/18/22 00:00	Received: 10/19/22 08:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP								
Analytical Method: EPA 504.1 Preparation Method: EPA 504.1								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	1	10/24/22 11:22	10/24/22 20:27	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	97	%	70-130	1	10/24/22 11:22	10/24/22 20:27	301-79-56	
524.2 MSV SC List								
Analytical Method: EPA 524.2								
Pace Analytical Services - Charlotte								
Benzene	ND	ug/L	0.50	1		10/20/22 23:52	71-43-2	
1,2-Dichloroethane	ND	ug/L	0.50	1		10/20/22 23:52	107-06-2	
Ethylbenzene	ND	ug/L	0.50	1		10/20/22 23:52	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		10/20/22 23:52	1634-04-4	
Naphthalene	ND	ug/L	0.50	1		10/20/22 23:52	91-20-3	
Toluene	ND	ug/L	0.50	1		10/20/22 23:52	108-88-3	
Xylene (Total)	ND	ug/L	0.50	1		10/20/22 23:52	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	1		10/20/22 23:52	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		10/20/22 23:52	95-47-6	
Surrogates								
1,2-Dichlorobenzene-d4 (S)	96	%	70-130	1		10/20/22 23:52	2199-69-1	
4-Bromofluorobenzene (S)	97	%	70-130	1		10/20/22 23:52	460-00-4	
8260 MSV Low Level SC								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 17:36	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 17:36	994-05-8	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 17:36	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 17:36	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 17:36	762-75-4	
Diisopropyl ether	ND	ug/L	1.0	1		10/21/22 17:36	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 17:36	64-17-5	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 17:36	637-92-3	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	1		10/21/22 17:36	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130	1		10/21/22 17:36	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		10/21/22 17:36	2037-26-5	

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ANALYTICAL RESULTS

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

Sample: WSW-FB	Lab ID: 92632102003	Collected: 10/18/22 13:31	Received: 10/19/22 08:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP								
Analytical Method: EPA 504.1 Preparation Method: EPA 504.1								
Pace Analytical Services - Charlotte								
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	1	10/24/22 11:22	10/24/22 20:59	106-93-4	
Surrogates								
1-Chloro-2-bromopropane (S)	91	%	70-130	1	10/24/22 11:22	10/24/22 20:59	301-79-56	
524.2 MSV SC List								
Analytical Method: EPA 524.2								
Pace Analytical Services - Charlotte								
Benzene	ND	ug/L	0.50	1		10/20/22 22:33	71-43-2	
1,2-Dichloroethane	ND	ug/L	0.50	1		10/20/22 22:33	107-06-2	
Ethylbenzene	ND	ug/L	0.50	1		10/20/22 22:33	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		10/20/22 22:33	1634-04-4	
Naphthalene	ND	ug/L	0.50	1		10/20/22 22:33	91-20-3	
Toluene	ND	ug/L	0.50	1		10/20/22 22:33	108-88-3	
Xylene (Total)	ND	ug/L	0.50	1		10/20/22 22:33	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	1		10/20/22 22:33	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		10/20/22 22:33	95-47-6	
Surrogates								
1,2-Dichlorobenzene-d4 (S)	90	%	70-130	1		10/20/22 22:33	2199-69-1	
4-Bromofluorobenzene (S)	92	%	70-130	1		10/20/22 22:33	460-00-4	
8260 MSV Low Level SC								
Analytical Method: EPA 8260D								
Pace Analytical Services - Charlotte								
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 03:07	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 03:07	994-05-8	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 03:07	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 03:07	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 03:07	762-75-4	
Diisopropyl ether	ND	ug/L	1.0	1		10/21/22 03:07	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 03:07	64-17-5	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 03:07	637-92-3	
Surrogates								
4-Bromofluorobenzene (S)	96	%	70-130	1		10/21/22 03:07	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130	1		10/21/22 03:07	17060-07-0	
Toluene-d8 (S)	102	%	70-130	1		10/21/22 03:07	2037-26-5	

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ANALYTICAL RESULTS

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

Sample: WSW-TB	Lab ID: 92632102004	Collected: 10/18/22 08:00	Received: 10/19/22 08:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
524.2 MSV SC List		Analytical Method: EPA 524.2 Pace Analytical Services - Charlotte						
Benzene	ND	ug/L	0.50	1		10/20/22 22:59	71-43-2	
1,2-Dichloroethane	ND	ug/L	0.50	1		10/20/22 22:59	107-06-2	
Ethylbenzene	ND	ug/L	0.50	1		10/20/22 22:59	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		10/20/22 22:59	1634-04-4	
Naphthalene	ND	ug/L	0.50	1		10/20/22 22:59	91-20-3	
Toluene	ND	ug/L	0.50	1		10/20/22 22:59	108-88-3	
Xylene (Total)	ND	ug/L	0.50	1		10/20/22 22:59	1330-20-7	
m&p-Xylene	ND	ug/L	1.0	1		10/20/22 22:59	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		10/20/22 22:59	95-47-6	
Surrogates								
1,2-Dichlorobenzene-d4 (S)	88	%	70-130	1		10/20/22 22:59	2199-69-1	
4-Bromofluorobenzene (S)	92	%	70-130	1		10/20/22 22:59	460-00-4	
8260 MSV Low Level SC		Analytical Method: EPA 8260D Pace Analytical Services - Charlotte						
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 03:25	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 03:25	994-05-8	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 03:25	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 03:25	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 03:25	762-75-4	
Diisopropyl ether	ND	ug/L	1.0	1		10/21/22 03:25	108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 03:25	64-17-5	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 03:25	637-92-3	
Surrogates								
4-Bromofluorobenzene (S)	96	%	70-130	1		10/21/22 03:25	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130	1		10/21/22 03:25	17060-07-0	
Toluene-d8 (S)	102	%	70-130	1		10/21/22 03:25	2037-26-5	

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QUALITY CONTROL DATA

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

QC Batch: 731838 Analysis Method: EPA 524.2
QC Batch Method: EPA 524.2 Analysis Description: 524.2 MSV
Laboratory: Pace Analytical Services - Charlotte

Associated Lab Samples: 92632102001, 92632102002, 92632102003, 92632102004

METHOD BLANK: 3810012 Matrix: Water
Associated Lab Samples: 92632102001, 92632102002, 92632102003, 92632102004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	0.50	10/20/22 22:07	
Benzene	ug/L	ND	0.50	10/20/22 22:07	
Ethylbenzene	ug/L	ND	0.50	10/20/22 22:07	
m&p-Xylene	ug/L	ND	1.0	10/20/22 22:07	
Methyl-tert-butyl ether	ug/L	ND	0.50	10/20/22 22:07	
Naphthalene	ug/L	ND	0.50	10/20/22 22:07	
o-Xylene	ug/L	ND	0.50	10/20/22 22:07	
Toluene	ug/L	ND	0.50	10/20/22 22:07	
Xylene (Total)	ug/L	ND	0.50	10/20/22 22:07	
1,2-Dichlorobenzene-d4 (S)	%	90	70-130	10/20/22 22:07	
4-Bromofluorobenzene (S)	%	92	70-130	10/20/22 22:07	

LABORATORY CONTROL SAMPLE: 3810013

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	20	18.7	94	70-130	
Benzene	ug/L	20	18.0	90	70-130	
Ethylbenzene	ug/L	20	19.5	98	70-130	
m&p-Xylene	ug/L	40	39.0	97	70-130	
Methyl-tert-butyl ether	ug/L	20	19.0	95	70-130	
Naphthalene	ug/L	20	19.3	96	70-130	
o-Xylene	ug/L	20	19.5	97	70-130	
Toluene	ug/L	20	19.3	96	70-130	
Xylene (Total)	ug/L	60	58.4	97		
1,2-Dichlorobenzene-d4 (S)	%			96	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	

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QUALITY CONTROL DATA

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

QC Batch: 731772	Analysis Method: EPA 8260D
QC Batch Method: EPA 8260D	Analysis Description: 8260 MSV Low Level SC
	Laboratory: Pace Analytical Services - Charlotte

Associated Lab Samples: 92632102003, 92632102004

METHOD BLANK: 3809701 Matrix: Water

Associated Lab Samples: 92632102003, 92632102004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
3,3-Dimethyl-1-Butanol	ug/L	ND	100	10/21/22 02:49	
Diisopropyl ether	ug/L	ND	1.0	10/21/22 02:49	
Ethanol	ug/L	ND	200	10/21/22 02:49	
Ethyl-tert-butyl ether	ug/L	ND	10.0	10/21/22 02:49	
tert-Amyl Alcohol	ug/L	ND	100	10/21/22 02:49	
tert-Amylmethyl ether	ug/L	ND	10.0	10/21/22 02:49	
tert-Butyl Alcohol	ug/L	ND	100	10/21/22 02:49	
tert-Butyl Formate	ug/L	ND	50.0	10/21/22 02:49	
1,2-Dichloroethane-d4 (S)	%	101	70-130	10/21/22 02:49	
4-Bromofluorobenzene (S)	%	97	70-130	10/21/22 02:49	
Toluene-d8 (S)	%	103	70-130	10/21/22 02:49	

LABORATORY CONTROL SAMPLE: 3809702

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
3,3-Dimethyl-1-Butanol	ug/L	1000	1070	107	70-130	
Diisopropyl ether	ug/L	50	53.6	107	70-130	
Ethanol	ug/L	2000	2040	102	70-130	
Ethyl-tert-butyl ether	ug/L	100	103	103	70-130	
tert-Amyl Alcohol	ug/L	1000	1050	105	70-130	
tert-Amylmethyl ether	ug/L	100	105	105	70-130	
tert-Butyl Alcohol	ug/L	500	510	102	70-130	
tert-Butyl Formate	ug/L	400	390	98	70-130	
1,2-Dichloroethane-d4 (S)	%			111	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3809703 3809704

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
		92632106015	Spike Conc.	Spike Conc.	Result							
3,3-Dimethyl-1-Butanol	ug/L	ND	400	400	419	461	105	115	39-157	10		
Diisopropyl ether	ug/L	ND	20	20	21.0	22.3	105	112	63-144	6		
Ethanol	ug/L	ND	800	800	927	ND	116	0	39-176		M1	
Ethyl-tert-butyl ether	ug/L	ND	40	40	39.5	42.1	99	105	66-137	6		
tert-Amyl Alcohol	ug/L	ND	400	400	404	ND	101	0	54-153		M1	
tert-Amylmethyl ether	ug/L	ND	40	40	40.8	44.1	102	110	69-139	8		

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QUALITY CONTROL DATA

Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Parameter	92632106015		MS		MSD		MS		MSD		% Rec Limits	RPD	Qual
	Units	Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
tert-Butyl Alcohol	ug/L	ND	200	200	202	243	101	122	43-188	18			
tert-Butyl Formate	ug/L	ND	160	160	142	126	89	79	10-170	12			
1,2-Dichloroethane-d4 (S)	%						105	105	70-130				
4-Bromofluorobenzene (S)	%						100	100	70-130				
Toluene-d8 (S)	%						99	99	70-130				

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QUALITY CONTROL DATA

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

QC Batch: 732055 Analysis Method: EPA 8260D
QC Batch Method: EPA 8260D Analysis Description: 8260 MSV Low Level SC
Laboratory: Pace Analytical Services - Charlotte

Associated Lab Samples: 92632102001, 92632102002

METHOD BLANK: 3810827 Matrix: Water

Associated Lab Samples: 92632102001, 92632102002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
3,3-Dimethyl-1-Butanol	ug/L	ND	100	10/21/22 12:55	
Diisopropyl ether	ug/L	ND	1.0	10/21/22 12:55	
Ethanol	ug/L	ND	200	10/21/22 12:55	
Ethyl-tert-butyl ether	ug/L	ND	10.0	10/21/22 12:55	
tert-Amyl Alcohol	ug/L	ND	100	10/21/22 12:55	
tert-Amylmethyl ether	ug/L	ND	10.0	10/21/22 12:55	
tert-Butyl Alcohol	ug/L	ND	100	10/21/22 12:55	
tert-Butyl Formate	ug/L	ND	50.0	10/21/22 12:55	
1,2-Dichloroethane-d4 (S)	%	105	70-130	10/21/22 12:55	
4-Bromofluorobenzene (S)	%	100	70-130	10/21/22 12:55	
Toluene-d8 (S)	%	100	70-130	10/21/22 12:55	

LABORATORY CONTROL SAMPLE: 3810828

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
3,3-Dimethyl-1-Butanol	ug/L	1000	1210	121	70-130	
Diisopropyl ether	ug/L	50	56.4	113	70-130	
Ethanol	ug/L	2000	2500	125	70-130	
Ethyl-tert-butyl ether	ug/L	100	106	106	70-130	
tert-Amyl Alcohol	ug/L	1000	1200	120	70-130	
tert-Amylmethyl ether	ug/L	100	107	107	70-130	
tert-Butyl Alcohol	ug/L	500	616	123	70-130	
tert-Butyl Formate	ug/L	400	440	110	70-130	
1,2-Dichloroethane-d4 (S)	%			99	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE SAMPLE: 3810830

Parameter	Units	92632065013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
3,3-Dimethyl-1-Butanol	ug/L	ND	400	409	102	39-157	
Diisopropyl ether	ug/L	0.54J	20	23.6	115	63-144	
Ethanol	ug/L	ND	800	964	120	39-176	
Ethyl-tert-butyl ether	ug/L	ND	40	43.1	108	66-137	
tert-Amyl Alcohol	ug/L	233	400	725	123	54-153	
tert-Amylmethyl ether	ug/L	ND	40	42.4	106	69-139	
tert-Butyl Alcohol	ug/L	ND	200	340	164	43-188	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

MATRIX SPIKE SAMPLE: 3810830		92632065013	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
tert-Butyl Formate	ug/L	ND	160	ND	2	10-170	M1
1,2-Dichloroethane-d4 (S)	%				109	70-130	
4-Bromofluorobenzene (S)	%				103	70-130	
Toluene-d8 (S)	%				99	70-130	

SAMPLE DUPLICATE: 3810829

SAMPLE DUPLICATE: 3810829		92632104014	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		
Diisopropyl ether	ug/L	ND	ND		
Ethanol	ug/L	ND	ND		
Ethyl-tert-butyl ether	ug/L	ND	ND		
tert-Amyl Alcohol	ug/L	ND	ND		
tert-Amylmethyl ether	ug/L	ND	ND		
tert-Butyl Alcohol	ug/L	ND	ND		
tert-Butyl Formate	ug/L	ND	ND		
1,2-Dichloroethane-d4 (S)	%	107	110		
4-Bromofluorobenzene (S)	%	101	102		
Toluene-d8 (S)	%	101	100		

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QUALITY CONTROL DATA

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

QC Batch: 732287 Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 Analysis Description: GCS 504 EDB DBCP
Laboratory: Pace Analytical Services - Charlotte
Associated Lab Samples: 92632102001, 92632102002, 92632102003

METHOD BLANK: 3811648 Matrix: Water
Associated Lab Samples: 92632102001, 92632102002, 92632102003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	10/24/22 19:34	
1-Chloro-2-bromopropane (S)	%	109	70-130	10/24/22 19:34	

LABORATORY CONTROL SAMPLE & LCSD: 3811649 3811650

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	0.25	0.23	0.24	94	97	70-130	2	20	
1-Chloro-2-bromopropane (S)	%				111	112	70-130			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3811652 3811653

Parameter	Units	92632102002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	0.25	0.25	0.22	0.22	88	86	65-135	2	
1-Chloro-2-bromopropane (S)	%						105	104	70-130		

SAMPLE DUPLICATE: 3811651

Parameter	Units	92632102001 Result	Dup Result	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		
1-Chloro-2-bromopropane (S)	%	113	111		

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 04878 NICKELPUMPER 233
Pace Project No.: 92632102

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92632102001	WSW-1	EPA 504.1	732287	EPA 504.1	732386
92632102002	WSW-DUP	EPA 504.1	732287	EPA 504.1	732386
92632102003	WSW-FB	EPA 504.1	732287	EPA 504.1	732386
92632102001	WSW-1	EPA 524.2	731838		
92632102002	WSW-DUP	EPA 524.2	731838		
92632102003	WSW-FB	EPA 524.2	731838		
92632102004	WSW-TB	EPA 524.2	731838		
92632102001	WSW-1	EPA 8260D	732055		
92632102002	WSW-DUP	EPA 8260D	732055		
92632102003	WSW-FB	EPA 8260D	731772		
92632102004	WSW-TB	EPA 8260D	731772		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LA
W0# : 92632102

 92632102

Lab Number or
LY

Company: SCDHEC
 Billing Information:
 Address: 2600 Bu11 St
 Report To: R. Dunn
 Email To: dunn@cdhec.sc.gov
 Copy To: _____
 Site Collection Info/Address: _____

Customer Project Name/Number: 233
 State: County/City: _____ Time Zone Collected: PT MT CT ET
 Phone: _____
 Email: _____
 Site/Facility ID #: 04878
 Compliance Monitoring? Yes No

Collected By (print): _____
 Purchased Order #: _____
 Quote #: _____
 Turnaround Date Required: _____
 Collected By (signature): _____

Sample Disposal:
 Dispose as appropriate Return
 Archive: _____
 Hold: _____
 Rush: Same Day Next Day 2 Day 3 Day 4 Day 5 Day
 (Expedite Charges Apply)
 Field Filtered (if applicable): Yes No
 Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Cns
			Date	Time	Date	Time		
WSW-1	DW	G	10/18/22	13:22				9
WSW-DVD								9
WSW-FR				13:31				9
WSW-TB				8:00				6

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None
 Packing Material Used: Bubble bag
 Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N NA
 Lab Tracking #: 2621480
 Samples received via: FEDEX UPS Client
 Date/Time: _____
 Courier: Face Courier
 MTIL LAB USE ONLY

Lab Sample Temperature Info:
 Temp Blank Received: NA
 Term ID#: 427050
 Cooler 1 Temp Upon Receipt: 0.3C
 Cooler 1 Therm Corr. Factor: -0.6C
 Cooler 1 Corrected Temp: 0.70C
 Comments: _____

Relinquished by/Company: (Signature) _____
 Date/Time: 10/19/22 8:00
 Received by/Company: (Signature) _____
 Date/Time: 10/19/22 12:15
 Relinquished by/Company: (Signature) _____
 Date/Time: _____
 Received by/Company: (Signature) _____
 Date/Time: _____

Table #: _____
 Accrnum: _____
 Template: _____
 Preligin: _____
 PM: _____
 PB: _____

Lab Profile/Line: _____
 Lab Sample Receipt Checklist:
 Custody seals Present/Intact: Y N NA
 Custody Signatures Present: Y N NA
 Collector Signatures Present: Y N NA
 Bottles Intact: Y N NA
 Correct Bottles: Y N NA
 Sufficient Volume: Y N NA
 Samples Received on Ice: Y N NA
 VOA - Headspace Acceptable: Y N NA
 USDA Regulated Solids: Y N NA
 Samples in Holding Time: Y N NA
 Residual Chlorine Present: Y N NA
 Cl Strips: Y N NA
 Sample pH Acceptable: Y N NA
 pH Strips: Y N NA
 Sulfide Present: Y N NA
 Lead Acetate Strips: Y N NA
 Lab USE ONLY:
 Lab Sample # / Comments: 92632102
 Trip Blank Received: Y N NA
 HCl MeOH TSP Other: _____
 Non Conformance(s): _____
 Page: _____ of: _____

WO#: 92632102

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Project

PM: TMC

Due Date: 10/26/22

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

CLIENT: 92-SCDHEC

**Bottom half of box is to list number of bottles

***Check all unpreserved Nitrates for chlorine

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4B-125 mL Plastic NaOH (pH > 12) (Cl-)	WGJU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	DG9A-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2SO3 (N/A)	VG9U-40 mL VOA Unpreserved (N/A)	DG9V-40 mL VOA H3PO4 (N/A)	DG9S-40 mL VOA H2SO4 (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3R-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved (N/A) (Cl-)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)		
1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	63	/	/	/	/	/	/	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	63	/	/	/	/	/	/	/	/	/	/	/	/	
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9	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
10	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
11	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
12	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

October 24, 2022

Mr. Bryan Shane, P.G.
Midlands Environmental
PO Box 854
Lexington, SC 29071

RE: Project: NICKELPUMPER 233 04878
Pace Project No.: 92632136

Dear Mr. Shane, P.G.:

Enclosed are the analytical results for sample(s) received by the laboratory on October 20, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Charlotte

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Taylor M Cannon
taylor.cannon@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Mr. Jeff Coleman, Midlands Environmental
Mr. Kyle Pudney, Midlands Environmental



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

Pace Analytical Services Charlotte

South Carolina Laboratory ID: 99006

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078

North Carolina Drinking Water Certification #: 37706

North Carolina Field Services Certification #: 5342

North Carolina Wastewater Certification #: 12

South Carolina Laboratory ID: 99006

South Carolina Certification #: 99006001

South Carolina Drinking Water Cert. #: 99006003

Florida/NELAP Certification #: E87627

Kentucky UST Certification #: 84

Louisiana DoH Drinking Water #: LA029

Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: NICKELPUMPER 233 04878
Pace Project No.: 92632136

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92632136001	GAC	Water	10/18/22 14:38	10/20/22 08:00

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SAMPLE ANALYTE COUNT

Project: NICKELPUMPER 233 04878
Pace Project No.: 92632136

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92632136001	GAC	EPA 8011	HH	2	PASI-C
		EPA 8260D	CL	20	PASI-C

PASI-C = Pace Analytical Services - Charlotte

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NICKELPUMPER 233 04878
Pace Project No.: 92632136

Sample: GAC Lab ID: 92632136001 Collected: 10/18/22 14:38 Received: 10/20/22 08:00 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
Pace Analytical Services - Charlotte									
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.0074	1	10/21/22 11:27	10/21/22 23:26	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	77	%	60-140		1	10/21/22 11:27	10/21/22 23:26	301-79-56	
8260 MSV									
Analytical Method: EPA 8260D									
Pace Analytical Services - Charlotte									
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		10/21/22 04:56	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		10/21/22 04:56	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		10/21/22 04:56	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	53.9	1		10/21/22 04:56	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	91.0	1		10/21/22 04:56	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	24.1	1		10/21/22 04:56	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	2.1	1		10/21/22 04:56	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	3.5	1		10/21/22 04:56	108-20-3	
Ethanol	ND	ug/L	200	144	1		10/21/22 04:56	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1.8	1		10/21/22 04:56	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	8.5	1		10/21/22 04:56	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	3.1	1		10/21/22 04:56	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		10/21/22 04:56	91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		10/21/22 04:56	108-88-3	
Xylene (Total)	ND	ug/L	5.0	5.0	1		10/21/22 04:56	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		10/21/22 04:56	179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		10/21/22 04:56	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		10/21/22 04:56	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		1		10/21/22 04:56	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		10/21/22 04:56	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878
Pace Project No.: 92632136

QC Batch: 731720	Analysis Method: EPA 8260D
QC Batch Method: EPA 8260D	Analysis Description: 8260 MSV SC
	Laboratory: Pace Analytical Services - Charlotte

Associated Lab Samples: 92632136001

METHOD BLANK: 3809311 Matrix: Water
Associated Lab Samples: 92632136001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	2.1	10/21/22 02:30	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	53.9	10/21/22 02:30	
Benzene	ug/L	ND	5.0	1.7	10/21/22 02:30	
Diisopropyl ether	ug/L	ND	5.0	3.5	10/21/22 02:30	
Ethanol	ug/L	ND	200	144	10/21/22 02:30	
Ethyl-tert-butyl ether	ug/L	ND	10.0	8.5	10/21/22 02:30	
Ethylbenzene	ug/L	ND	5.0	1.8	10/21/22 02:30	
m&p-Xylene	ug/L	ND	10.0	4.1	10/21/22 02:30	
Methyl-tert-butyl ether	ug/L	ND	5.0	3.1	10/21/22 02:30	
Naphthalene	ug/L	ND	5.0	2.1	10/21/22 02:30	
o-Xylene	ug/L	ND	5.0	2.0	10/21/22 02:30	
tert-Amyl Alcohol	ug/L	ND	100	65.6	10/21/22 02:30	
tert-Amylmethyl ether	ug/L	ND	10.0	3.0	10/21/22 02:30	
tert-Butyl Alcohol	ug/L	ND	100	91.0	10/21/22 02:30	
tert-Butyl Formate	ug/L	ND	50.0	24.1	10/21/22 02:30	
Toluene	ug/L	ND	5.0	2.0	10/21/22 02:30	
Xylene (Total)	ug/L	ND	5.0	5.0	10/21/22 02:30	
1,2-Dichloroethane-d4 (S)	%	105	70-130		10/21/22 02:30	
4-Bromofluorobenzene (S)	%	98	70-130		10/21/22 02:30	
Toluene-d8 (S)	%	101	70-130		10/21/22 02:30	

LABORATORY CONTROL SAMPLE: 3809312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	46.8	94	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1070	107	70-130	
Benzene	ug/L	50	44.6	89	70-130	
Diisopropyl ether	ug/L	50	52.8	106	70-130	
Ethanol	ug/L	2000	1690	85	70-130	
Ethyl-tert-butyl ether	ug/L	100	98.9	99	70-130	
Ethylbenzene	ug/L	50	48.2	96	70-130	
m&p-Xylene	ug/L	100	98.5	98	70-130	
Methyl-tert-butyl ether	ug/L	50	53.4	107	70-130	
Naphthalene	ug/L	50	56.9	114	70-130	
o-Xylene	ug/L	50	48.9	98	70-130	
tert-Amyl Alcohol	ug/L	1000	1030	103	70-130	
tert-Amylmethyl ether	ug/L	100	102	102	70-130	
tert-Butyl Alcohol	ug/L	500	516	103	70-130	
tert-Butyl Formate	ug/L	400	438	109	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878
Pace Project No.: 92632136

LABORATORY CONTROL SAMPLE: 3809312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Toluene	ug/L	50	46.4	93	70-130	
Xylene (Total)	ug/L	150	147	98	70-130	
1,2-Dichloroethane-d4 (S)	%			102	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE SAMPLE: 3809314

Parameter	Units	92632104005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	22.9	115	70-137	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	468	117	39-157	
Benzene	ug/L	ND	20	22.6	113	70-151	
Diisopropyl ether	ug/L	ND	20	23.9	119	63-144	
Ethanol	ug/L	ND	800	1060	133	39-176	
Ethyl-tert-butyl ether	ug/L	ND	40	44.5	111	66-137	
Ethylbenzene	ug/L	ND	20	23.4	117	66-153	
m&p-Xylene	ug/L	ND	40	47.3	118	69-152	
Methyl-tert-butyl ether	ug/L	ND	20	22.6	113	54-156	
Naphthalene	ug/L	ND	20	21.7	109	61-148	
o-Xylene	ug/L	ND	20	22.4	112	70-148	
tert-Amyl Alcohol	ug/L	ND	400	457	114	54-153	
tert-Amylmethyl ether	ug/L	ND	40	44.9	112	69-139	
tert-Butyl Alcohol	ug/L	ND	200	291	145	43-188	
tert-Butyl Formate	ug/L	ND	160	74.9	47	10-170	
Toluene	ug/L	ND	20	22.7	114	59-148	
Xylene (Total)	ug/L	ND	60	69.7	116	63-158	
1,2-Dichloroethane-d4 (S)	%				100	70-130	
4-Bromofluorobenzene (S)	%				101	70-130	
Toluene-d8 (S)	%				100	70-130	

SAMPLE DUPLICATE: 3809313

Parameter	Units	92632106007 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

SAMPLE DUPLICATE: 3809313

Parameter	Units	92632106007 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	100	105			
4-Bromofluorobenzene (S)	%	98	99			
Toluene-d8 (S)	%	101	101			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NICKELPUMPER 233 04878
Pace Project No.: 92632136

QC Batch: 731880 Analysis Method: EPA 8011
QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
Laboratory: Pace Analytical Services - Charlotte

Associated Lab Samples: 92632136001

METHOD BLANK: 3810103 Matrix: Water
Associated Lab Samples: 92632136001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	0.0074	10/21/22 20:03	
1-Chloro-2-bromopropane (S)	%	88	60-140		10/21/22 20:03	

LABORATORY CONTROL SAMPLE & LCSD: 3810104 3810105

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	0.25	0.21	0.22	85	88	60-140	4	20	
1-Chloro-2-bromopropane (S)	%				88	90	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3810107 3810108

Parameter	Units	92630941017 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	0.25	0.25	0.21	0.32	85	129	60-140	41	20	R1
1-Chloro-2-bromopropane (S)	%						81	115	60-140			

SAMPLE DUPLICATE: 3810106

Parameter	Units	92630941016 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	90	89			

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QUALIFIERS

Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

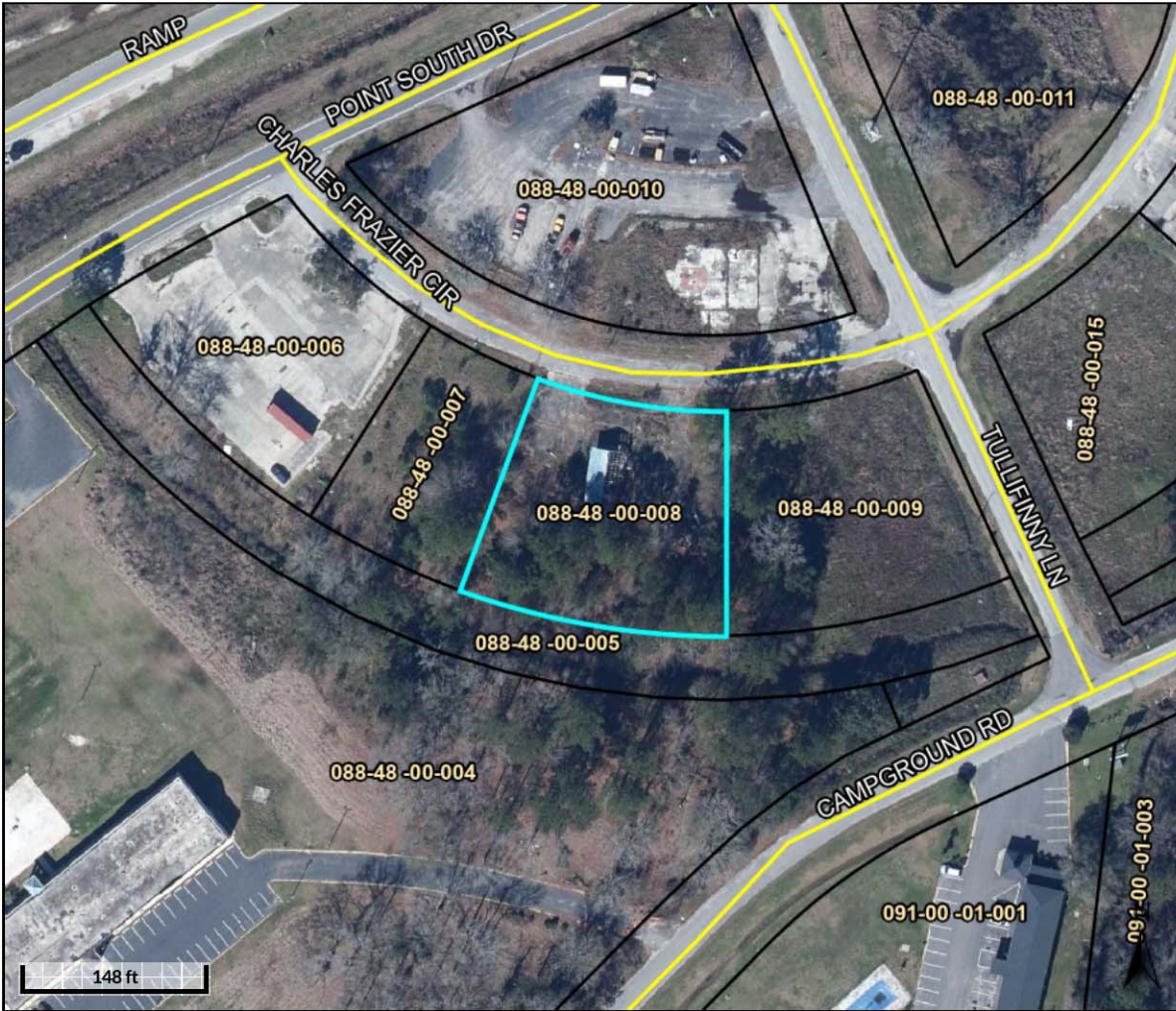
Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92632136001	GAC	EPA 8011	731880	EPA 8011	731962
92632136001	GAC	EPA 8260D	731720		

REPORT OF LABORATORY ANALYSIS

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APPENDIX B:

TAX MAP



Overview



Legend

-  Parcels
-  Roads

Parcel ID	088-48-00-008	Alternate ID	088-48-00-008	Owner Address	SMITH CLIFTON RICARDO 76 BELL HAVEN WAY RIDGELAND SC 29936	Last 2 Sales			
Sec/Twp/Rng	n/a	Class	Rural commercial (vacant land)			Date	Price	Reason	Qual
Property Address		Acreage	0.72			8/27/2021	\$12000	n/a	Q
District	05					n/a	0	n/a	n/a
Brief Tax Description	OFF FRONTAGE RD								

(Note: Not to be used on legal documents)

Date created: 11/1/2022
Last Data Uploaded: 11/1/2022 3:27:47 AM

APPENDIX C:
DISPOSAL MANIFEST



November 1, 2022

Re: Treatment of Purge Water
Nickelpumper 233
Yemassee, South Carolina
UST Permit# 04878
MECI Project Number 22-7929

To Whom It May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

All purge waters were treated on-site using an up-flow treatment drum loaded with 80 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

A total of 56.00 gallons were treated on October 18, 2022, at the referenced site.

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

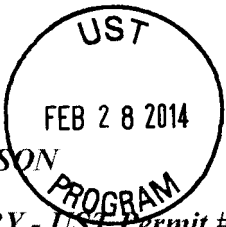
Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.



Jeff L. Coleman
Senior Scientist

**APPENDIX D:
ACCESS AGREEMENTS**



RICHARD CARLSON

THERE WILL BE NO COST TO THE PROPERTY OWNER FOR ANY & ALL WORK PERFORMED ON THE PROPERTY PER LETTER 1/27/14 JAMM BELMONT.

RIGHT OF ENTRY - UST Permit # 04878

If you are the Property Owner or are the authorized representative for that person, but did not own the former or existing underground storage tanks at the time the release was reported, please complete this form.

I, RICHARD CARLSON, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility VACANT PROP. Phone # _____

Street Address of Facility 3296 POINT SOUTH DR. VACANT PROP.

Town, City, District, Suburb YEMASSEE SOUTH CAROLINA

Name of nearest intersecting street, road, highway, alley TAX MAP # 088-48-00-008

Is this facility within the city limits? (yes or no) I DON'T KNOW

Is this facility serviced by a public water or sewer utility? (yes or no) I DON'T KNOW, if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) _____, if yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation DONT KNOW, Phone number _____

Is the property currently leased or rented to someone? (yes or no) NO, if yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the monitoring wells, they should be moved before SCDHEC's contractor arrives at the site.

NAME of property owner (Please Print): RICHARD CARLSON

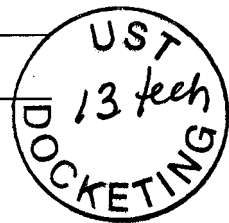
Phone Number (home) _____ (work) (323) 222-3007

Current Mailing Address 1920 W. MAIN ST. LOS ANGELES CA 90031

Signature of Property Owner: Richard Carlson

Witness Peter Bartoldus

Date: FEB. 22, 2014 Month _____ Year _____ Day _____



**APPENDIX E:
DATA VERIFICATION CHECKLIST**

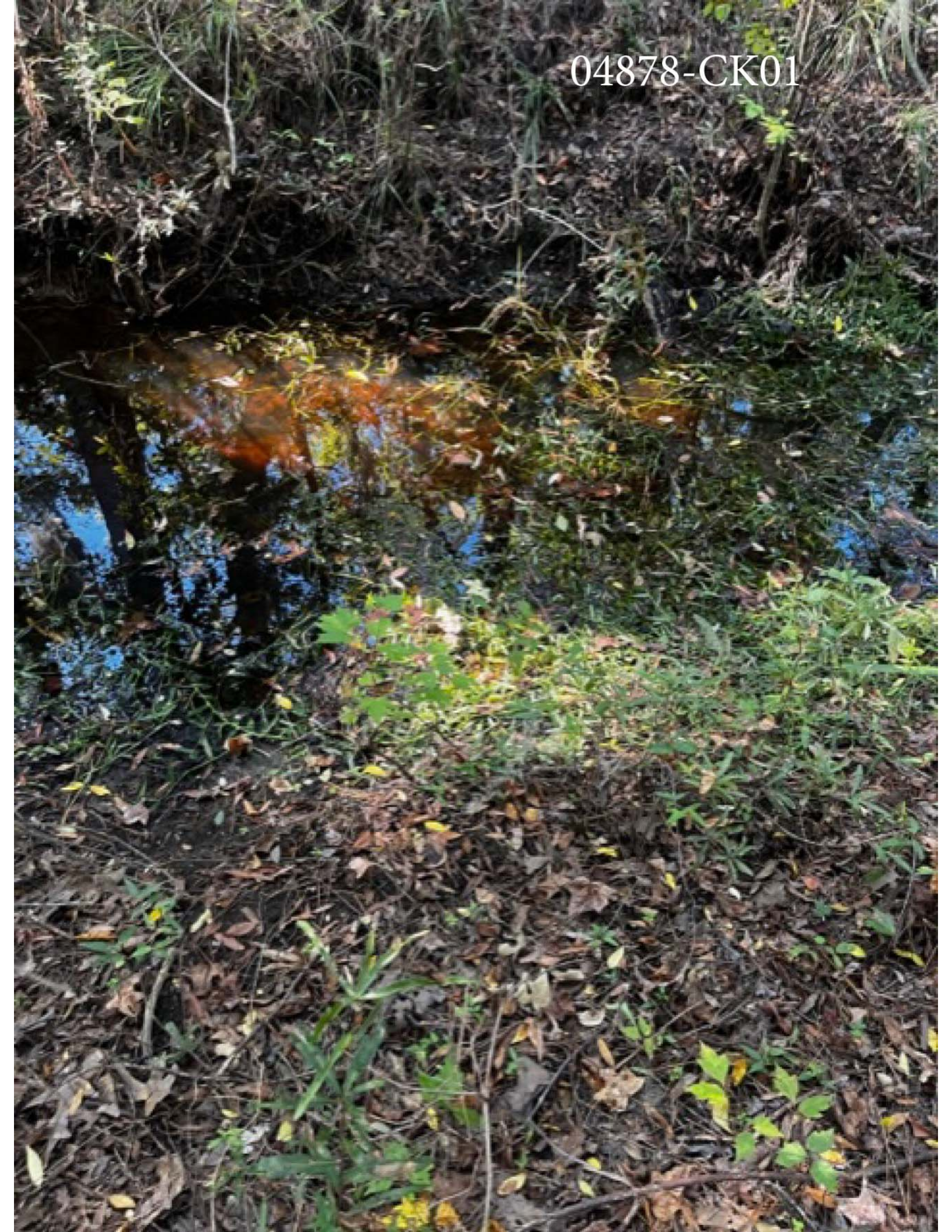
Contractor Checklist

Item#	Item	Yes	No	N/A
1	Are Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?	X		
3	Is name, address, & phone number of current property owner provided?	X		
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			X
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?			X
8	Has the regional geology and hydrogeology been described?			X
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?	X		
11	Has the site-specific geology and hydrogeology been described?			X
12	Has the primary soil type been described?			X
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			X
18	Has justification been provided for the locations of the monitoring wells?			X
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?			X
20	Has the groundwater sampling methodology been detailed?	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? (Table 2 & Figure 3)	X		
22	Has the purging methodology been detailed?	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? (Appendix A)	X		
24	If free-product is present, has the thickness been provided?			X
25	Does the report include a brief discussion of the assessment done and the results?	X		
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?			X
32	Has the soil analytical data for the site been provided in tabular format?			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)	X		
34	Has the current and historical laboratory data been provided in tabular format? (Table 1)			X
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figures 3)	X		
40	Has the site potentiometric map been provided? (Figure 4)	X		
41	Have the geologic cross-sections been provided?			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements?			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix A)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix B)			X
47	Have the soil boring/field screening logs been provided?			X
48	Have the well completion logs and SCDHEC Form 1903 been provided?			X
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided?			X
50	Have the disposal manifests been provided? (Appendix C)			X
51	Has a copy of the local zoning regulations been provided?			X
52	Has all fate and transport modeling been provided?			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix D)			X
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided? (Appendix E)	X		

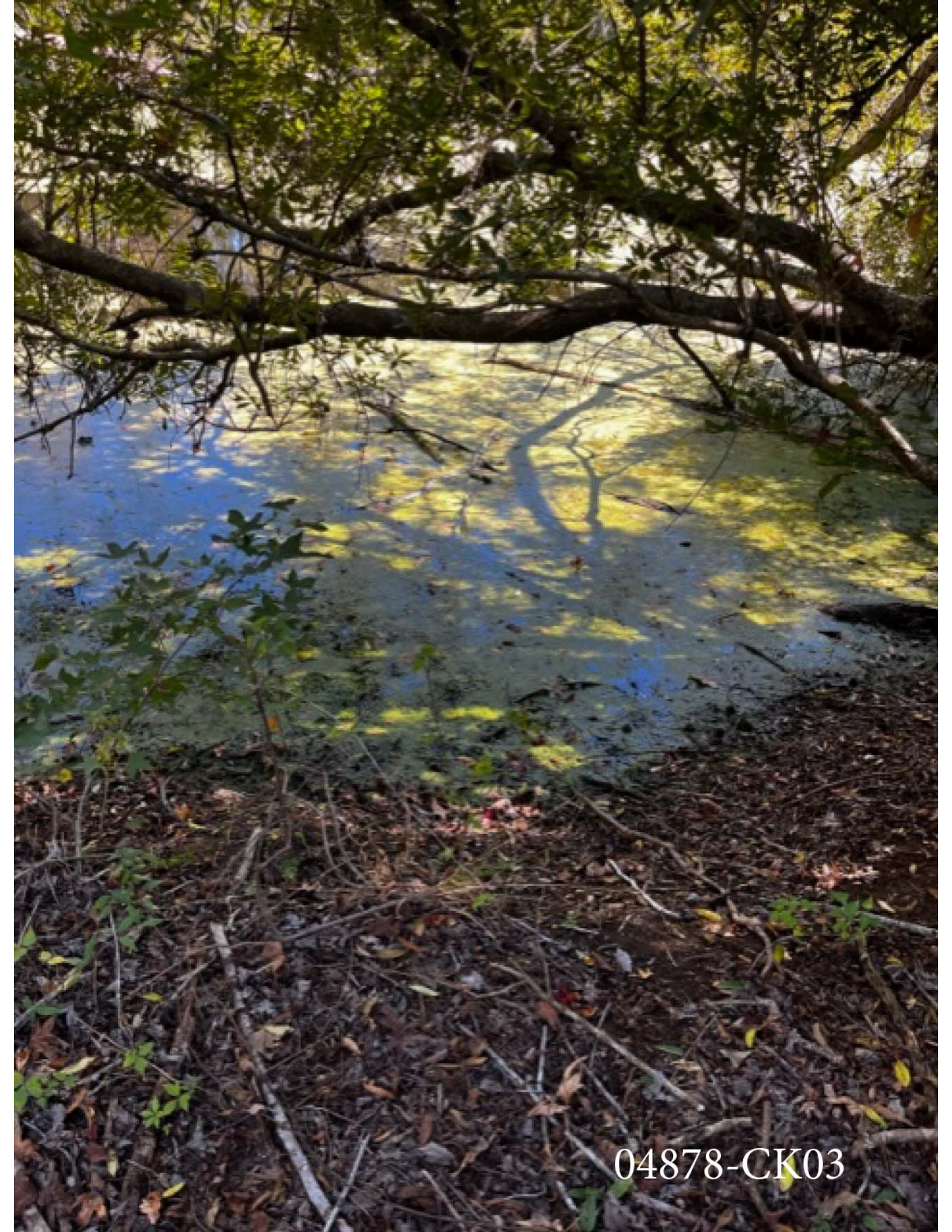
APPENDIX F:
PHOTOS

04878-CK01



04878-CK02





04878-CK03



04878-CK04



04878-VISW01



CLIFTON RICARDO SMITH
1544 RED DAM RD
HARDEEVILLE SC 29927

APR 27 2023

Re: **Site Specific Work Plan Request for Groundwater Sampling**
Nickelpumper 233, 3296 Point South Drive, Yemassee, SC
UST Permit #04878
Release reported May 16, 2002
Monitoring Report received November 4, 2022
Jasper County

Dear Mr. Smith:

The Underground Storage Tank Management Division (UST Division) of the South Carolina Department of Health and Environmental Control (DHEC) has reviewed the referenced report submitted by your contractor. The report documents petroleum chemicals in the soil and groundwater above Risk-Based Screening Levels (RBSLs).

To determine what risk the referenced release may pose to human health and the environment, and in accordance with Section 280.65 of the South Carolina Underground Storage Tank Control Regulations, implementation of groundwater sampling is necessary. This work must be conducted in accordance with the most recent revision of the UST Quality Assurance Program Plan (QAPP), your contractor's Annual Contractor Quality Assurance Plan (ACQAP), and in compliance with all applicable regulations. A copy of the UST QAPP is available at scdhec.gov/environment/land-waste/underground-storage-tanks/release-assessment-clean/quality-assurance.

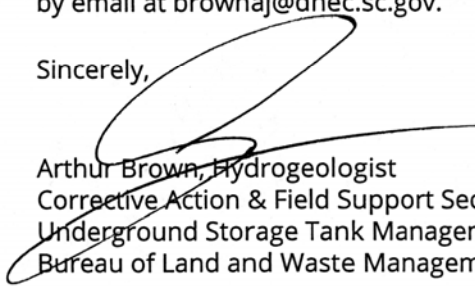
Groundwater samples should be collected from all monitoring wells associated with the above referenced release, and water supply wells, and surface waters within a 1,000 foot radius of the site and analyzed for BTEX, Naphthalene, MTBE, 1,2-DCA, and the 8 oxygenates. All wells should be purged prior to sampling.

Your contractor must complete the Site Specific Work Plan and submit it within 30 days from the date of this letter. Every component may not be necessary to complete the above scope of work. **Please note that approval from DHEC must be issued before work begins.**

Please note that in accordance with R.61-92, Subpart H, Section 280.114, you are required to notify the UST Division by certified mail within ten (10) days of commencing a voluntary or involuntary proceeding in bankruptcy.

On all correspondence concerning this site, please reference the UST Permit number above. Should you have any questions, please contact me by phone at (803) 898-0500, by fax at (803) 898-0673, or by email at brownaj@dhec.sc.gov.

Sincerely,



Arthur Brown, Hydrogeologist
Corrective Action & Field Support Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Contractor Selection Form
Certified Contractors List
Technical file (w/o enc)



Owner/Operator Contractor Selection Form Underground Storage Tank (UST) Management Division

1. CONTRACTOR OF CHOICE

As the current or former UST Owner/Operator and the designated party responsible for the confirmed release reported on the date and permit number provided.

Release Report Date:

Permit Number:

I would like to use the contractor listed below to conduct all site rehabilitation work for the referenced release reported above:

Name of Contractor:

Address:

City:

State:

Zip:

Telephone Number:

Certification Number:

NOTE: Site rehabilitation activities must be performed by a S.C. Certified Site Rehabilitation Contractor per Section 44-2-120(A) of the SUPERB Act and Section IV(A) of the S.C. DHEC SUPERB Site Rehabilitation and Fund Access Regulation R.61-98.

2. FINANCIAL OR FAMILIAL RELATIONSHIP

Does a financial or familial relationship, as defined below, exist between you and the contractor/person that you listed above?

Yes

No

O/O Initial:

FINANCIAL RELATIONSHIP: A connection or association through a material interest of sources of income which exceed five percent of annual gross income from a business entity.

FAMILIAL RELATIONSHIP: A connection or association by family or relatives, in which a family member or relative has a material interest. Family or relatives include: father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, son-in-law, daughter-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, grandchild, great-grandchild, step-grandparent, step-great-grandparent, step-grandchild, step-great-grandchild or fiancée.

3. PAYMENT

A. The first \$25,000.00 in eligible site rehabilitation costs for releases reported subsequent to July 1, 1993 will be applied against the applicable SUPERB deductible per Section 44-2-40(D) of the SUPERB Act, upon submittal of the canceled check (front and back) or a notarized statement from the contractor verifying payment.

B. For eligible costs exceeding the \$25,000.00 deductible, you can pay the contractor and, upon the submittal of the canceled check (front and back) or a notarized statement from the contractor verifying payment, be compensated from the SUPERB Account, or have payment issued directly from the SUPERB Account to the contractor. (Check one.)

For eligible costs exceeding the deductible, I request that payment be made to me after I have paid the contractor.

O/O Initial:

- OR -

For eligible costs exceeding the deductible, I request that payment be made directly to the contractor.

O/O Initial:

C. If the release qualifies under amnesty (reported prior to July 1, 1993) per Section 44-2-40(B) of the SUPERB Act, you can pay the contractor and be compensated from the SUPERB Account, or have payment issued directly from the SUPERB Account to the contractor. (Check one.)

For eligible costs, I request that payment be made to me after I have paid the contractor.

O/O Initial:

- OR -

For eligible costs, I request that payment be made directly to the contractor.

O/O Initial:

NOTE: As required by the SUPERB Act, all costs must receive prior financial approval from DHEC regardless of payment option.

4. UST OWNER/OPERATOR OR PARTY RESPONSIBLE FOR ABOVE REFERENCED RELEASE

Signature:

Date Signed:

Printed Name:

Telephone Number: ()

Affiliation (if applicable):

Email Address:



AUG 30 2023

CLIFTON RICARDO SMITH
1544 RED DAM RD
HARDEEVILLE SC 29927



Re: **Site Specific Work Plan Request for Groundwater Sampling**
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Dear Mr. Smith:

The Underground Storage Tank Management Division (UST Division) of the South Carolina Department of Health and Environmental Control (DHEC) has reviewed the referenced report submitted by your contractor. The report documents petroleum chemicals in the soil and groundwater above Risk-Based Screening Levels (RBSLs).

To determine what risk the referenced release may pose to human health and the environment, and in accordance with Section 280.65 of the South Carolina Underground Storage Tank Control Regulations, implementation of groundwater sampling is necessary. This work must be conducted in accordance with the most recent revision of the UST Quality Assurance Program Plan (QAPP), your contractor's Annual Contractor Quality Assurance Plan (ACQAP), and in compliance with all applicable regulations. A copy of the UST QAPP is available at scdhec.gov/environment/land-waste/underground-storage-tanks/release-assessment-clean/quality-assurance.

Groundwater samples should be collected from all monitoring wells associated with the above referenced release, and water supply wells, and surface waters within a 1,000 foot radius of the site and analyzed for BTEX, Naphthalene, MTBE, 1,2-DCA, and the 8 oxygenates. All wells should be purged prior to sampling.

Your contractor must complete the Site Specific Work Plan and submit it within 30 days from the date of this letter. Every component may not be necessary to complete the above scope of work. **Please note that approval from DHEC must be issued before work begins.**

Please note that in accordance with R.61-92, Subpart H, Section 280.114, you are required to notify the UST Division by certified mail within ten (10) days of commencing a voluntary or involuntary proceeding in bankruptcy.

On all correspondence concerning this site, please reference the UST Permit number above. Should you have any questions, please contact me by phone at (803) 898-0500, by fax at (803) 898-0673, or by email at brownaj@dhec.sc.gov.

Sincerely,

A handwritten signature in black ink, appearing to be 'GB', with a long horizontal flourish extending to the right.

Guinevere Brown, Hydrogeologist
Corrective Action & Field Support Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Contractor Selection Form
Certified Contractors List
Technical file (w/o enc



Owner/Operator Contractor Selection Form Underground Storage Tank (UST) Management Division

1. CONTRACTOR OF CHOICE

As the current or former UST Owner/Operator and the designated party responsible for the confirmed release reported on the date and permit number provided.

Release Report Date:

Permit Number:

I would like to use the contractor listed below to conduct all site rehabilitation work for the referenced release reported above:

Name of Contractor:

Address:

City: State: Zip:

Telephone Number: Certification Number:

NOTE: Site rehabilitation activities must be performed by a S.C. Certified Site Rehabilitation Contractor per Section 44-2-120(A) of the SUPERB Act and Section IV(A) of the S.C. DHEC SUPERB Site Rehabilitation and Fund Access Regulation R.61-98.

2. FINANCIAL OR FAMILIAL RELATIONSHIP

Does a financial or familial relationship, as defined below, exist between you and the contractor/person that you listed above?

Yes No

O/O Initial:

FINANCIAL RELATIONSHIP: A connection or association through a material interest of sources of income which exceed five percent of annual gross income from a business entity.

FAMILIAL RELATIONSHIP: A connection or association by family or relatives, in which a family member or relative has a material interest. Family or relatives include: father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, son-in-law, daughter-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, grandchild, great-grandchild, step-grandparent, step-great-grandparent, step-grandchild, step-great-grandchild or fiancée.

3. PAYMENT

A. The first \$25,000.00 in eligible site rehabilitation costs for releases reported subsequent to July 1, 1993 will be applied against the applicable SUPERB deductible per Section 44-2-40(D) of the SUPERB Act, upon submittal of the canceled check (front and back) or a notarized statement from the contractor verifying payment.

B. For eligible costs exceeding the \$25,000.00 deductible, you can pay the contractor and, upon the submittal of the canceled check (front and back) or a notarized statement from the contractor verifying payment, be compensated from the SUPERB Account, or have payment issued directly from the SUPERB Account to the contractor. (Check one.)

For eligible costs exceeding the deductible, I request that payment be made to me after I have paid the contractor.

O/O Initial:

- OR -

For eligible costs exceeding the deductible, I request that payment be made directly to the contractor.

O/O Initial:

C. If the release qualifies under amnesty (reported prior to July 1, 1993) per Section 44-2-40(B) of the SUPERB Act, you can pay the contractor and be compensated from the SUPERB Account, or have payment issued directly from the SUPERB Account to the contractor. (Check one.)

For eligible costs, I request that payment be made to me after I have paid the contractor.

O/O Initial:

- OR -

For eligible costs, I request that payment be made directly to the contractor.

O/O Initial:

NOTE: As required by the SUPERB Act, all costs must receive prior financial approval from DHEC regardless of payment option.

4. UST OWNER/OPERATOR OR PARTY RESPONSIBLE FOR ABOVE REFERENCED RELEASE

Signature:

Date Signed:

Printed Name:

Telephone Number: ()

Affiliation (if applicable):

Email Address:

04878



C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

MAY 04 2005

JUDGE MARIE RAWL
PO BOX 1169
HARDEEVILLE SC 29927

Re: Nickelpumper #233
I-95 & US Highway 17, Point South, SC, Jasper County
DHEC UST Permit ID #04878

Dear Judge Rawl:

In accordance with the inspection warrant dated April 6, 2005, a written inventory of activities performed pursuant to the warrant is provided.

- A Department contractor conducted a Tier I assessment, which includes installing three monitoring wells, eight soil borings, sampling the three new wells and the preexisting monitoring well, a water supply well was sampled, a slug test performed, and a site survey was completed.
- The Tier I report received on May 2, 2005 indicated petroleum constituents have impacted soil and groundwater at the site. A copy of the results is enclosed for your file. Additional assessment will be required.

Thank you for your cooperation. If you have any questions concerning this correspondence, please contact me by phone at (803) 896-6323 or (800) 826-5435 (within South Carolina only), by fax at (803) 896-6245, or by email at brineysm@dhec.sc.gov.

Sincerely,

Stephanie Briney, Hydrogeologist
Assessment Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

Enc: Tier I report
CC: Technical file





C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

MAY 04 2005

**MR ROBERT PUCCINI
SUNSTAR INC
7373 HODGSON MEMORIAL DR #6
SAVANNAH GA 31406-1503**

Re: Nicklepumper #233, 3296 Point South Dr., Yemassee, SC
UST Permit # 04878
Release reported May 16, 2002
Tier I Report received May 2, 2005
Jasper County

Dear Mr. Puccini:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced Tier I report submitted on your behalf by Geological Resources, Inc. Access to your property was gained through a warrant, since you denied access to the property for completion of a Tier I assessment. has reviewed the referenced Tier I report submitted on your behalf by Geological Resources, Inc. The concentrations of chemicals of concern (CoC) in the groundwater found during the assessment exceed risk based screening levels established by the State of South Carolina; therefore, a Tier II Assessment is necessary. A copy of the results is enclosed for your file.

If you have any questions concerning this correspondence, please contact me by phone at (803) 896-6323 or (800) 826-5435 (within South Carolina only), by fax at (803) 896-6245, or by email at brineysm@dhec.sc.gov.

Sincerely,

Stephanie Briney, Hydrogeologist
Assessment Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Tier I Report

cc: Technical File (w/out enc)



C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

APR 11 2005

**TERRY KENNEDY
GEOLOGICAL RESOURCES INC
2301 CROWN POINT EXECUTIVE DR STE F
CHARLOTTE NC 28227-6725**

Re: Bid # SB-19189-04/30/02-EMW; PO#408994
Notice to Proceed

Dear Mr. Kennedy:

Based on the award of the referenced bid package, enclosed are the information packets to conduct an Initial Groundwater Assessment (IGWA) and Tier I Assessments at two facilities. The packets contain the necessary approval for work to begin. The facilities have been assigned Cost Agreement (CA) numbers as listed below. Please reference the CA numbers and Purchase Order #408994 on the appropriate invoice submitted for payment against the facility. As specified in the referenced bid, **the completed invoice form and associated report (include contract certification number) are expected on or before the designated due date (see below).**

UST Permit#	Facility	County	Release #	Work Scope	Due Date*	CA #	Approved Amt
02472	Rohde Shop-Rite	Colleton	1	IGWA	60 days	24378	\$600.00
04878	Nickelpumper	Jasper	1	Tier I	60 days	24342	\$2,847.45

*From receipt of letter

Geological Resources, Inc. will perform services at the sites on behalf of the sites UST owner; however, payments will be made from the SUPERB Account. The sites UST owners have no obligation for payment for these scopes of work. **Please note, if there are any changes in the established cost agreement amounts (e.g., additional water supply wells sampled, additional well footage, etc.) contact the site's project manager for technical and/or financial approval. Failure to do so prior to submittal of invoice may result in delay of payment.**

The Bureau grants preapproval for transportation of drums of virgin petroleum contaminated soil and drums of groundwater from the referenced site to a permitted treatment facility. The contaminated soil and/or groundwater must be properly stored in labeled 55-gallon drums or equivalent containers. The contaminated soil and/or groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. Please note, transportation of waste oil contaminated soil must receive preapproval from the Division of Waste Assessment & Emergency Response.

Mr. Kennedy
Page 2

Please provide this office with a schedule of drilling dates and coordinate all work with me before commencing work at the facilities. If you have any questions or need further assistance, please contact me at (800) 826-5435 (within SC only) or (803) 896-6647.

Sincerely,



Konstantine T. Akhvlediani, Hydrogeologist
Assessment Section
Assessment & Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Information Packets
Monitoring Well Approvals
Approved Cost Agreements

cc: Technical Files (w/copy of MWA)



C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

Monitoring Well Installation Approval Form

Date of Issue: April 5, 2005

Approval No.: UMW-19130

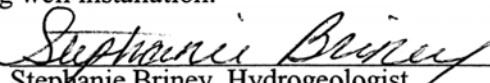
Approval is hereby granted to: Geological Resources, Inc.
(On behalf of): Sunstar Inc.
UST Permit #: 04878
Address: Nickelpumper # 233, 3296 Point South Dr., Yemassee, SC
County: Jasper

This approval is for the construction of three monitoring wells in accordance with the South Carolina Well Standards and Regulations (R.61-71) and the technical specifications of the Tier I Assessment Document. The well(s) are to be constructed within the surficial aquifer for the intended purpose of monitoring groundwater quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.
2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.
3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.
4. **A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to Stephanie Briney at (803) 896-6323 or brineysm@dhec.sc.gov and Russell Berry (District Contact) at (843) 846-1030 or berryre@dhec.sc.gov.**
5. Please provide groundwater quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) in the technical report.
6. Monitoring wells and temporary monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.
7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Division.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:


Stephanie Briney, Hydrogeologist
Assessment Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

Approved Cost Agreement 04342

Facility: 04878 NICKELPUMPER 233

BRINEYSM

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
10 SAMPLE COLLECTION		A GROUND WATER	1.0000	19.95	19.95
11 ANALYSES	GW GROUNDWATER	A BTEX+NAPTH+MTBE	1.0000	30.00	30.00
		E LEAD	1.0000	10.00	10.00
		F EDB	1.0000	37.50	37.50
20 TIER I		TIER I	1.0000	2,750.00	2,750.00
				Total Amount	2,847.45

STATE OF SOUTH CAROLINA
COUNTY OF JASPER

Application for Inspection Warrant
Pursuant to Section 48-1-50(24)

To: Presiding Judge, Jasper County Magistrate's Court

Mark Berenbrok, or any duly authorized Environmental Control Officer of the South Carolina Department of Health and Environmental Control (SCDHEC), hereby applies for an inspection warrant, pursuant to Section 48-1-50(24) of the Code of Laws of South Carolina, 1976, as amended, to conduct an administrative inspection(s) of the following establishment, premises, or component thereof:

1. The establishment is known as Nickelpumper #233, and is located at I-95 and US Highway 17, Point South, County of Jasper, South Carolina. Tax Map #088-48-00-008.

The Nickelpumper #233, SCDHEC Underground Storage Tank (UST) permit #04878, was operated as a gasoline station, and has been closed since the mid 1990s. Three USTs are located at the site. The USTs do not meet state and federal UST requirements. A release of petroleum substances was confirmed by a SCDHEC investigation in May 2002 and additional assessment is required. An Order of Civil Contempt (copy attached) was issued by the court on October 27, 2003. To date, Sunstar, Inc., the UST and property owner of record, has not complied with the Order of Civil Contempt. The assessment of environmental conditions in the vicinity of the underground storage tanks to determine the extent and severity of the petroleum release is reasonably necessary to protect human health and the environment.

2. Section 48-1-50(24) of the 1976 Code and Regulations promulgated thereunder authorize DHEC to protect the public's health, and investigate and enter property on behalf of that interest.

3. This inspection will be undertaken as part of an inspection program, authorized by Statute and Regulations issued thereunder, designed to assure the safety of public health within South Carolina.

4. The inspection(s) will be conducted at a reasonable time, and shall be completed with reasonable promptness. The Department of Health and Environmental Control officer's credentials and a copy of the inspection warrant will be presented if the owner of the property is present. Inspection(s) will begin as soon as practicable after the issuance of the warrant. The inspection(s) will require multiple site visits, but will be completed within 120 days of the issuance of the warrant.


5. The following activities will be conducted:

a) Sampling of soils and/or groundwater in the vicinity of the UST system.

6. Environmental Control Officers are authorized to inspect the designated premises, and may be accompanied by one or more Environmental Control Officers, or other duly authorized employees of the department of Health and Environmental Control. These reasonable activities referenced above will be completed by employees of the South Carolina Department of Health and Environmental Control, and/or contractors retained by them. All activities will be completed in the presence of a representative of the South Carolina Department of Health and Environmental Control.

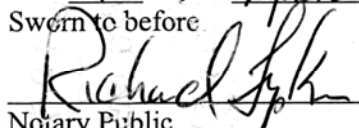
7. A return will be made to the Court upon completion of the inspection, or not later than the expiration date of the Inspection Warrant.

SWORN AND SUBSCRIBED TO BY:



Mark Berenbrok, Environmental Control Officer
South Carolina Department of Health
and Environmental Control

This 4 day of April 2005
Sworn to before



Notary Public

My commission expires 3-29-2009

04878-APPIW2:DOC

STATE OF SOUTH CAROLINA
COUNTY OF JASPER

Inspection Warrant Pursuant
to Section 48-1-50(24)

TO ANY DULY AUTHORIZED ENVIRONMENTAL CONTROL OFFICER OF THE SOUTH
CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

It appearing from the attached sworn application that there are reasonable grounds to conduct an
administrative inspection pursuant to Section 48-1-50(24) of the Code of Laws of South Carolina,
1976, as amended, at the following described premises:

Nickelpumper #233, I-95 & US Highway 17, Point South, County of Jasper, South
Carolina. Tax Map #088-48-00-008

NOW THEREFORE you are hereby authorized to conduct an administrative inspection at the
subject premises and to collect and retain such information as necessary for such inspection. The
activities contemplated by this inspection include sampling of soils and/or groundwater in the
vicinity of the UST system.

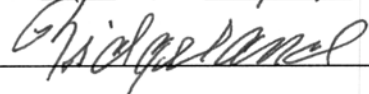
This inspection warrant shall expire one hundred twenty (120) days from the date of issuance.
The Department is authorized to access the site as necessary throughout the course of this
warrant's duration. A copy of the inspection warrant shall be delivered to the person in charge of
the premises inspected at the time of the inspection or as soon thereafter as practicable. If such
person is unascertainable after reasonable diligence in attempting to locate the person, a copy of
this warrant shall be posted in a prominent place on the premises.

A written inventory of activities performed pursuant to this Inspection Warrant shall be made to
the Jasper County Magistrate whose name is affixed below. A copy of such inventory shall be
made available to the owner of the premises so inspected if demand is made for a copy thereof.



Presiding Magistrate

This 6 day of April 2005

, South Carolina

04878-IW2:DOC



UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone (803) 898-4350 Fax (803) 898-4330

October 21, 2003

Mr. Bo Frier, Vice-President
Farmers and Merchants Bank
Post Office Box 187
Lakeland, Georgia 31635

Re: Nickelpumper #233
I-95 & US Highway 17 (3296 Point South Drive), Point South, SC, Jasper County
Underground Storage Tank Permit ID #04878

Dear Mr. Frier:

As a follow-up to our recent conversation, this office is providing you with an update on the underground storage tank (UST) system and environmental conditions at the referenced facility.

Our records indicate that three USTs owned by Sunstar, Inc. (Sunstar), are located at the facility and were last used in approximately 1995. The UST system does not meet upgrading standards and must be permanently closed. The Department began enforcement activities against Sunstar in 1996 to compel UST system compliance with applicable State regulations. Those enforcement actions are currently ongoing.

As a result of Sunstar's failure to manage the UST system in accordance with applicable State and Federal regulations, and to safeguard human health and the environment, in 2002 the UST Program emptied the UST system of 385 gallons of fluids and performed environmental assessment activities. The assessment activities indicate soil and groundwater in the vicinity of the UST system have been impacted by petroleum hydrocarbons. A release (release #1) was confirmed on May 28, 2002, and additional assessment will be required. Sunstar has failed to comply with the UST Program's subsequent requests for additional assessment.

Farmers and Merchants Bank informed the UST Program in a April 24, 2002, letter that Farmers and Merchants Bank's interest in the referenced facility is limited to a December 22, 1995, **Mortgage of Real Estate**, wherein the owner of the store, Sunstar, granted the bank a lien on the real estate in the amount of \$764,301.34.

In 1997, the South Carolina General Assembly amended Section 80 (B) of the State Underground Petroleum Environmental Response Bank Act to clarify that persons who hold *indicia of ownership* primarily to protect a security interest in property impacted by a release from a UST are exempt from the requirements to conduct site rehabilitation activities other than necessary abatement

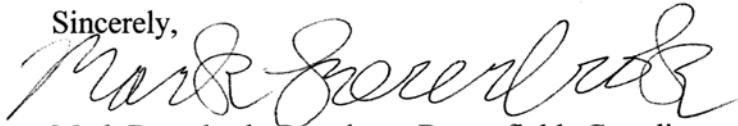
actions to eliminate any imminent threat to human health or the environment. The *indicia of ownership* exemption includes those persons who acquire title to property through foreclosure or other means necessary to protect their security interest, provided that person does not participate in the management of the UST and is not otherwise engaged in petroleum production, marketing, or refining. This applies equally to subsequent lenders who acquire the USTs and property through foreclosure in the future.

Based upon the above, and Farmers and Merchants Bank desire to acquire the referenced property, the following information is provided:

1. The UST Program intends to continue to hold Sunstar responsible for site rehabilitation activities associated with release #1;
2. The UST Program intends to seek cost recovery from Sunstar for abatement and site rehabilitation activities associated with release #1;
3. Farmers and Merchants Bank will be responsible for the payment of annual UST registration fees (\$100 per UST per year) assessed in the fiscal year in which it acquires the UST system, and applicable future fees, until the UST system is permanently closed;
4. Farmers and Merchants Bank can acquire the property without becoming responsible for site rehabilitation activities associated with release #1, provided the bank permanently closes the UST system, and attempts to divest itself of the property, within 12 months from the date the marketable title or deed has been issued, approved and recorded, and the bank has obtained access to the UST system and property; and
5. Farmers and Merchants Bank, and subsequent property owners, must allow the Department's representatives and/or contractors, or Sunstar's representatives and/or contractors, access to the property to perform rehabilitation activities that are directed by the UST Program.

The UST Program is not aware of any laws or regulations that prohibit the use or development of properties where a petroleum release has occurred. If you have any questions or comments, please call me at (803) 896-6848.

Sincerely,



Mark Berenbrok, Petroleum Brownfields Coordinator
Regulatory Compliance Division
Underground Storage Tank Program
Bureau of Land and Waste Management

MKB/mkb
04878-23:DOC

CC: Regulatory File
Technical File
Will Green
Etta Williams, Legal Office



2600 Bull Street
Columbia, SC 29201-1708

**BUREAU OF LAND AND WASTE MANAGEMENT
UNDERGROUND STORAGE TANK PROGRAM**

Phone (803) 896-6240 Fax (803) 896-6245

AUG 04 2003

CERTIFIED

**MARVIN GIBSON
C/O ROBERT PUCINI
42 SHELLWIND DRIVE
SAVANNAH GA 31411**

Re: **Notice of Violation**
Nickelpumper 233, 3296 Point South Dr, Yemassee, SC 29945
UST Permit #04878
Release # Reported May 16, 2002
Jasper County

Dear Mr. Gibson:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control directed you to complete a tier I assessment in July 2003 with the assessment report due on July 15, 2003. To date the required report has not been received. In accordance with Section 280.65 of the South Carolina Underground Storage Tank Regulations, the assessment must be conducted as chemicals of concern are above the risk-based-screening levels.

Implementation of this scope of work should proceed upon receipt of this correspondence. **The report must be submitted within thirty days from the date of this letter. If the report is not received within thirty days of this letter, enforcement procedures will be initiated.**

On all correspondence regarding this site, please reference UST Permit #04878. If you have any questions concerning this correspondence, please call me at (803) 896-6629.

Sincerely,

Umar K. Khattak, Ph.D., Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division

cc: Russell Templeton, Esquire, P O Box 8870, Columbia, SC, 29202
Technical File

DHEC/UST/UKK/7/31/2003

*Tech-file # 04878***Umar Khattak - Re: Nickelpumper 233-UST#04878**

From: Mark K. Berenbrok
To: Khattak, Umar
Date: 7/31/03 9:37 AM
Subject: Re: Nickelpumper 233-UST#04878

You can try to contact him at Golden Isles Petroleum, 7373 Hodgson Memorial Drive #6, Savannah, GA, 31406-2586. The phone is 912-692-8070. He still has a store in SC in Bluffton (00993). The address is good since the paid invoice for FY 04 fees went there. Even if you do manage to talk to him, I'd still send the NOV regardless of what he says.

>>> Umar Khattak 07/29/03 04:50PM >>>

Mark,

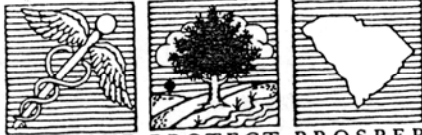
I was expecting a Tier I rpt from Mr. Pucini back on July 15. If you have a phone number, please give it to me so that I can call him. If not, I will be sending out an NOV. Thanks. Umar

Umar K. Khattak, Ph.D., Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division
Bureau of Land & Waste Management
SC Dept. of Health & Environmental Control
2600 Bull Street
Columbia, SC 29201
Voice: 803-896-6629
Fax: 803-896-6245
Email: <khattauk@dhec.sc.gov>

*# changed to:
912-596-0987*

left message 7/31/03

D H E C



PROMOTE PROTECT PROSPER

2600 Bull Street
Columbia, SC 29201-1708

COMMISSIONER:
C. Earl Hunter

BOARD:
Bradford W. Wyche
Chairman

Mark B. Kent
Vice Chairman

Howard L. Brilliant, MD
Secretary

Carl L. Brazell

Louisiana W. Wright

L. Michael Blackmon

Lawrence R. Chewning, Jr., DMD

OFFICE OF GENERAL COUNSEL

TEL.: (803)898-3349 FAX: (803)898-3367

RECEIVED

APR 18 2003

April 17, 2003

UNDERGROUND STORAGE
TANK PROGRAM

VIA CERTIFIED MAIL: # 7001 2510 0008 8164 2829
RETURN RECEIPT REQUESTED

Russell W. Templeton, Esquire
Post Office Box 8870
Columbia, South Carolina 29202

Re: S.C. Dept. of Health & Environmental Control vs.
Sunstar, Inc.; CA No.: 02-CP-27-202; DHEC File No. 10107

Dear Mr. Templeton:

Enclosed for your records, please find a copy of the filed *Consent Agreement for Order for Summary Judgment* in the above-referenced matter.

If you have any questions or concerns, please feel free to contact this office.

Yours very truly,

Carrie A. Hendrix

Carrie A. Hendrix
Administrative Specialist for

#04878

Etta R. Williams
DHEC Staff Attorney

/cah

Enclosure as stated

cc: Mark Berenbrok, UST Program

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STATE OF SOUTH CAROLINA) IN THE COURT OF COMMON PLEAS
COUNTY OF JASPER) FOR THE FOURTEENTH JUDICIAL CIRCUIT
)

South Carolina Department of Health) CA No.: 02-CP-27-202
and Environmental Control)
)

Plaintiff,)
)

-vs-)

Sunstar, Inc.)
)

Defendant.)
)

CONSENT AGREEMENT FOR
ORDER FOR SUMMARY JUDGMENT

FILED
PAGE
2009 APR 15 AM 10:40
CLERK OF COURT/RMC
JASPER COUNTY, SC

#1
PMB

WHEREAS, Plaintiff, South Carolina Department of Health and Environmental Control ("DHEC" or "the Department"), is an agency of the state of South Carolina, vested with all the powers, functions, and duties granted to the Department and its officers and agents by statute, and has regulatory authority over management of the State Underground Petroleum Environmental Response Bank (SUPERB) Act, S. C. Code Ann. § 44-2-10 et seq. (2002), and the Regulations promulgated pursuant thereto, 25A S.C. Code Ann. Regs. 61-92 (Supp. 2001); and

WHEREAS, Defendant, Sunstar, Inc. ("Sunstar"), owns underground storage tanks (USTs) as defined in the State Underground Petroleum Environmental Response Bank (SUPERB) Act, Title 44, Chapter 2 of the South Carolina Code of Laws as amended; and

WHEREAS, Defendant Sunstar owns underground storage tanks (USTs) which are located at Exit 33 I-95 @US 17, Exit 33, Point South, Jasper County, South Carolina, UST Permit # 04878; and

WHEREAS, Defendant Sunstar is responsible, as the owner of the USTs, for adhering to the SUPERB Act and rules and regulations promulgated under the Act; and

WHEREAS, Respondent DHEC issued Administrative Order (AO) 95-0581-UST against Defendant Sunstar, for violations of the SUPERB Act, S. C. Code Ann. § 44-2-10 et seq. (2002), and the regulations promulgated pursuant thereto, 25A S.C. Code Ann. Regs. 61-92 (Supp. 2001), and ordered, *inter alia*, Defendant to abandon tanks and submit a closure assessment report and to pay an assessed civil penalty in the amount of nine thousand, seven hundred (\$9,700.00) dollars; and

WHEREAS, Defendant Sunstar failed to appeal Administrative Order 95-0581-UST to the Administrative Law Judge Division (ALJD) within fifteen (15) day period prescribed by S.C. Code Ann. Regs. 61-72 and the Rules of Procedure for the administrative Law Judge Division; and

RECEIVED

APR 17 2003

DHEC

WHEREAS, Administrative Order 95-0581-UST became final as written because of Defendant Sunstar's failure to appeal the Order to the ALJD; and

WHEREAS Plaintiff DHEC filed the above-captioned action in order to enforce Defendant Sunstar's compliance; and

WHEREAS Plaintiff DHEC also filed, on December 24, 2002, a Motion for Summary Judgment in the above-captioned matter and a hearing was scheduled on the Motion for Monday, February 3, 2003; and

WHEREAS Defendant Sunstar failed to appear for the hearing but sent a letter, dated February 3, 2003, consenting to the Order for Summary Judgment against Defendant to the Jasper County Clerk.

NOW THEREFORE IT IS ORDERED, ADJUDGED, AND DECREED, upon the motion and consent of Etta R. Williams, as the attorney for the Plaintiff; and with the consent of Russell W. Templeton, as the attorney for the Defendant, that the above-named Defendant agrees to a Judgment in this matter and shall strictly comply with the terms and conditions of this agreement for Summary Judgment.

THAT IN CONSIDERATION THEREOF, Defendant Sunstar accepts a Judgment in the above-captioned matter regarding the following and agrees to perform the following *no later than thirty (30) days after the execution and filing of this Order*:

1. Permanently close the underground storage tanks (USTs) and submit a closure assessment report for the USTs located at Exit 33 I-95 @ US 17, Exit 33, Point South, South Carolina, UST Permit # 04878; and
2. Pay to Plaintiff DHEC an assessed civil penalty in the amount of \$9,700.00.

AND IT IS SO ORDERED, ADJUDGED, AND DECREED.

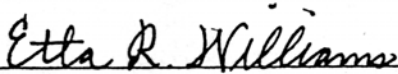


Presiding Judge of the
Fourteenth Judicial Circuit

DATED: 9th DAY OF April, 2003.

AT: ~~JASPER~~, SOUTH CAROLINA
Walterboro

I SO MOVE AND CONSENT:



ETTA R. WILLIAMS
ATTORNEY FOR THE PLAINTIFF
COLUMBIA, SOUTH CAROLINA

DATED: ~~March~~ 8, 2003.
9th April

I SO CONSENT:



RUSSELL W. TEMPLETON.
ATTORNEY FOR DEFENDANT
COLUMBIA, SOUTH CAROLINA

DATED: March 31, 2003.



2600 Bull Street
Columbia, SC 29201-1708

**BUREAU OF LAND AND WASTE MANAGEMENT
UNDERGROUND STORAGE TANK PROGRAM**

Phone (803) 896-6240 Fax (803) 896-6245

MAY 06 2003

CERTIFIED MAIL

**ROBERT PUCINI
42 SHELLWIND DRIVE
SAVANNAH GA 31411**

Re: Nickelpumper 233, 3296 Point South Dr, Yemassee, SC 29945
UST Permit #04878; UMW#17215
Release # Reported May 16, 2002
Jasper County

Dear Mr. Gibson:

The Underground Storage Tank Program of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the information on-file for the referenced facility. The report suggests that the chemicals of concern may have impacted the subsurface soil and the groundwater at concentrations that substantially exceed risk-based screening levels.

Future necessary actions include the completion of a Tier I Assessment to determine the extent of the petroleum contaminates. Please have your contractor complete the assessment report and submit a Tier I Assessment Report within **sixty** days from the date of this letter. All documents involving geologic interpretation or engineering must be prepared by a qualified professional registered in the State of South Carolina. The Tier I assessment report guidance may be obtained from our UST website at www.scdhec.net/eqc/admin/html/eqforms.html#ust. Since the scope of work is outlined in the Tier I guidance document, a separate plan is not required.

The Bureau grants pre-approval for transportation of virgin petroleum contaminated soil and groundwater from the referenced site to a permitted treatment facility. The contaminated soil or groundwater must be properly stored in labeled containers or covered with plastic as appropriate. The contaminated soil and/or groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of soil and/or groundwater on site.

On all correspondence regarding this site, please reference UST Permit #04878. Please call me at (803) 896-6629 or by email at khattauk@dhec.sc.gov if you have questions or need additional information.

Sincerely,

Umar Khattak, Ph.D., Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division

enc: Certified contractors list
Monitoring well permit UMW-17215

cc: Russell Templeton, Esquire, P O Box 8870, Columbia, SC, 29202
Technical file (w/ monitoring well permit only)

DHEC/UST/UKK/4878_TierI-Directive/5/5/2003



2600 Bull Street
Columbia, SC 29201-1708

Monitoring Well Installation Approval Form

Date of Issue: May 5, 2003

Approval No.: UMW-17215

Approval is hereby granted to: Sunstar Inc
(On behalf of): Nickelpumper 233 3296 Point South Dr, Yemassee
UST Permit #: 04878
County: Jasper

This approval is for the construction of three (3) permanent monitoring wells in accordance with the construction plans and technical specifications outlined in the Tier I document. The wells are to be constructed within the surficial aquifer for the intended purpose of monitoring ground-water quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.
2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.
3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.
4. **A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to Umar Khattak at (803) 896-6629 or Khattauk@dhec.sc.gov .**
5. Please provide ground-water quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to me with the technical report.
6. Monitoring wells and temporary monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.
7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Division.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:

Umar K. Khattak

Umar K. Khattak, Ph.D., Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

cc: Low Country District EQC
Technical File

DHEC/UST/UKK/4878_TierI-Directive/5/5/2003



2600 Bull Street
Columbia, SC 29201-1708

**UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT**

Phone (800) 826-5435

Fax (803) 896-6245

TERRY KENNEDY
GEOLOGICAL RESOURCES INC
4913 ALBERMARLE RD STE 101
CHARLOTTE NC 28205

OCT 08 2002

Re: Bid # SB-19189-04/30/02-EMW; PO#408994

Dear Mr. Kennedy:

Based on the award of the referenced bid package, enclosed are information packets to conduct an Initial Ground Water Assessment at the referenced facility. The packet contains the necessary approval for work to begin. The facility has been assigned an individual Cost Agreement (CA) number as listed below. Please reference the CA number and Purchase Order #228368 on the appropriate invoice submitted for payment against the facility. An invoice form is enclosed for your convenience. As specified in the referenced bid, **the completed invoice form and associated IGWA report (include contract certification number) is expected on or before the designated due date (see below).**

UST Permit #	County	Release #	Due Date*	Cost Agreement #	Approved Amt
04878	Jasper	1	45 days	17312	\$300.00

*From receipt of letter

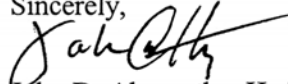
Geological Resources, Inc. will perform services at the site on behalf of the site's owner/operator (O/O); however, payments will be made from the SUPERB Account. The site's O/O has no obligation for payment for this scope of work.

The Bureau grants preapproval for transportation of drums of virgin petroleum contaminated soil and drums of groundwater from the referenced site to a permitted treatment facility. The contaminated soil and/or groundwater must be properly stored in labeled 55-gallon drums or equivalent containers. The contaminated soil and/or groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. Please note, transportation of waste oil contaminated soil must receive preapproval from the Division of Waste Assessment & Emergency Response.

Mr. Kennedy
Page 2

Please provide this office with a scheduled drilling date and coordinate all work with me before commencing work at the facility. If you have any questions or need further assistance, please contact me at (800) 826-5435 (within SC only) or (803) 896-6396.

Sincerely,



John D. Abernathy, Hydrogeologist
State Lead & Field Services Section
Assessment & Corrective Action Division

enc: Information Packet (w/copy of monitoring well approval form)
IGWA Invoice Form

cc: Sunstar, Inc., 7373 Hodgson Memorial Dr. #6, Savannah, GA 31406-2586 (w/o enc)
Mark Berenbrok, USTField Project Coordinator
Technical File



Monitoring Well Installation Approval Form

PROMOTE PROTECT PROSPER Approval is hereby granted to: Geological Resources, Inc.
2600 Bull Street
Columbia, SC 29201-1708


On Behalf of: Sunstar, Inc.
Date of Issue: September 25, 2002
Approval: UMW-16621
UST Permit # 03726

This approval is for the construction of one Type II monitoring well(s) in accordance with the South Carolina Well Standards and Regulations. The well(s) are to be constructed within the shallow aquifer for the intended purpose of monitoring ground-water quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.
2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.
3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.
4. A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to John Abernathy at (803) 898-4360 or abernajd@dhec.state.sc.us.
5. Please provide ground-water quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to me with the technical report.
6. Monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.
7. Monitoring wells will be abandoned, when no longer required, by or under the direct supervision of a licensed well driller certified by the State of South Carolina.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:


John D. Abernathy, Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division

cc: Low Country District EQC (w/copy of monitoring well approval)
Technical File



2600 Bull Street
Columbia, SC 29201-1708

**BUREAU OF LAND AND WASTE MANAGEMENT
UNDERGROUND STORAGE TANK PROGRAM**

Phone (803) 896-6240 Fax (803) 896-6245

APR 23 2003

CERTIFIED MAIL

**ROBERT PUCINI
SUNSTAR, INC
7373 HODGSON MEMORIAL DR #6
SAVANNAH GA 31406**

Re: Nickelpumper 233, 3296 Point South Dr, Yemassee, SC 29945
UST Permit #04878; UMW#17215
Release # Reported May 16, 2002
Jasper County

Dear Mr. Gibson:

The Underground Storage Tank Program of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the information on-file for the referenced facility. The report suggests that the chemicals of concern may have impacted the subsurface soil and the groundwater at concentrations that substantially exceed risk-based screening levels.

Future necessary actions include the completion of a Tier I Assessment to determine the extent of the petroleum contaminates. Please have your contractor complete the assessment report and submit a Tier I Assessment Report within **sixty** days from the date of this letter. All documents involving geologic interpretation or engineering must be prepared by a qualified professional registered in the State of South Carolina. The Tier I assessment report guidance may be obtained from our UST website at www.scdhec.net/eqc/admin/html/eqforms.html#ust. Since the scope of work is outlined in the Tier I guidance document, a separate plan is not required.

The Bureau grants pre-approval for transportation of virgin petroleum contaminated soil and groundwater from the referenced site to a permitted treatment facility. The contaminated soil or groundwater must be properly stored in labeled containers or covered with plastic as appropriate. The contaminated soil and/or groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of soil and/or groundwater on site.

On all correspondence regarding this site, please reference UST Permit #04878. Please call me at (803) 896-6629 or by email at khattauk@dhec.sc.gov if you have questions or need additional information.

Sincerely,

Umar Khattak, Ph.D., Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division

enc: Certified contractors list
Monitoring well permit UMW-17215

cc: Russell Templeton, Esq., 1825 Bull St., Columbia, SC 29202
Technical file (w/ monitoring well permit only)

DHEC/UST/UKK/4878_TierI-Directive/4/22/2003

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL



Monitoring Well Installation Approval Form

2600 Bull Street
Columbia, SC 29201-1708

Date of Issue: April 22, 2003

Approval No.: UMW-17215

Approval is hereby granted to: Sunstar Inc
(On behalf of): Nickelpumper 233 3296 Point South Dr, Yemassee
UST Permit #: 04878
County: Jasper

This approval is for the construction of three (3) permanent monitoring wells in accordance with the construction plans and technical specifications outlined in the Tier I document. The wells are to be constructed within the surficial aquifer for the intended purpose of monitoring ground-water quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.
2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.
3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.
4. A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to Umar Khattak at (803) 896-6629 or Khattauk@dhec.sc.gov.
5. Please provide ground-water quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to me with the technical report.
6. Monitoring wells and temporary monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.
7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Division.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:

Umar K. Khattak, Ph.D., Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

cc: Low Country District EQC
Technical File

DHEC/UST/UKK/4878_TierI-Directive/4/22/2003



UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone (803) 898-4350 Fax (803) 898-4330

January 10, 2003

Judge Marie Rawl
Post Office Box 1169
Hardeeville, South Carolina 29927

Re: Nickelpumper #233
I-95 & US Highway 17, Point South, SC, Jasper County
DHEC UST Permit ID #04878

Dear Judge Rawl:

In accordance with the inspection warrant dated September 18, 2002, a written inventory of activities performed pursuant to the warrant is provided.

- A Department contractor removed 385 gallons of petroleum products and water from the underground storage tanks on October 21, 2002.
- Installation of a monitoring well was started and completed by the UST Program's contractor on 12/17/02.
- The assessment report received on 01/09/03 indicated petroleum constituents have impacted soil and groundwater at the site. Additional assessment will be required.

Thank you for your cooperation. Please contact me at 800-826-5435 if you have any questions or comments.

Sincerely,

Mark Berenbrok, Petroleum Brownfields Coordinator
Regulatory Compliance Division
Underground Storage Tank Program

MKB/mkb
04878-22:DOC

CC: Technical file

STATE OF SOUTH CAROLINA
COUNTY OF JASPER

Inspection Warrant Pursuant
to Section 48-1-50(24)

TO ANY DULY AUTHORIZED ENVIRONMENTAL CONTROL OFFICER OF THE SOUTH
CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

It appearing from the attached sworn application that there are reasonable grounds to conduct an administrative inspection pursuant to Section 48-1-50(24) of the Code of Laws of South Carolina, 1976, as amended, at the following described premises:

Nickelpumper #233, I-95 & US Highway 17, Point South, County of Jasper, South Carolina. Tax Map #088-48-00-008

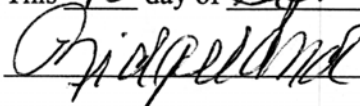
NOW THEREFORE you are hereby authorized to conduct an administrative inspection at the subject premises and to collect and retain such information as necessary for such inspection. The activities contemplated by this inspection include removal of the liquids in the underground storage tanks (USTs), and sampling of soils and/or groundwater in the vicinity of the UST system.

This inspection warrant shall expire ninety (90) days from the date of issuance. The Department is authorized to access the site as necessary throughout the course of this warrant's duration. A copy of the inspection warrant shall be delivered to the person in charge of the premises inspected at the time of the inspection or as soon thereafter as practicable. If such person is unascertainable after reasonable diligence in attempting to locate the person, a copy of this warrant shall be posted in a prominent place on the premises.

A written inventory of activities performed pursuant to this Inspection Warrant shall be made to the Jasper County Magistrate whose name is affixed below. A copy of such inventory shall be made available to the owner of the premises so inspected if demand is made for a copy thereof.



Presiding Magistrate

This 18 day of Sept 2002
, South Carolina
04878-10;DOC

Mail From: Mark K. Berenbrok

File Edit View Actions Tools Window Help



From: Mark K. Berenbrok
To: hutchirl; shradeaa
Subject: May site assessments: Warren Green Grocery, 04887; Nickelpumper 233, 04878; Sycamore Grocery, 11677



Close

Message:
Office staff performed the initial assessment at these three sites in May. Soil impact in excess of RBSLs was found at all three. Out of compliance tanks are located at Warren Green and Nickelpumper. The project for Sycamore Grocery is already in corrective action because of smelly soils Andy found earlier this year.

The tank owner at Warren Green is elderly and often claims she does not own the tanks. Tanks at Nickelpumper are listed as being owned by Sunstar, who says they no longer belong to them. There is an unappealed AO at the Nickelpumper, and Etta is proceeding with legal actions in the Jasper County Courts against Sunstar.

The projects for Warren Green and Nickelpumper should come down today or tomorrow. Chuck is working up the report for Sycamore.



Reply



Forward



Delete

Date: 6/3/02 2:18PM

Windows taskbar showing Start button, open applications (GroupWi..., EFIS - E..., ROEFO..., MAIN, Reports ...), Mail Fr..., system tray (N, 3:22 PM)

PROJECT TRANSFER CHECKLIST

Site Name/Full ID # Nickel pumper 233 / #04878

Release # 1 For UST # 1-3 Release Report Date 5-15-02

Free Product Reported? Yes / No Impacted Water Supply Well Reported? Yes / No

Receptor(s) within 1000 feet of UST system? (Well / Surface Water Body / Wetland / Other)

Worst Case Analysis / Sample #	Soil (mg/kg) / # <u>NPO4878-01</u>	Water (ug/l) / # _____
Benzene	<u>7.38</u>	/
Toluene	<u>78.0</u>	
Ethylbenzene	<u>23.0</u>	
Xylenes	<u>136</u>	
Naphthalene	<u>13.9</u>	
Benzo(a)anthracene	<u>50.066</u>	
Benzo(b)flouranthene	<u>//</u>	
Benzo(k)flouranthene	<u>//</u>	
Chrysene	<u>//</u>	
Dibenz(a,h)anthracene	<u>//</u>	
MTBE (water only)	_____	
Other _____	_____	

REGULATORY INFORMATION

1. All USTs Registered? Yes / No / NA
2. Regulatory PM Berenbrok
3. All Applicable Annual Fees Paid? Yes / No / NA
4. Financial responsibility Certification Received? Yes / No / NA Type _____
5. Site In Substantial Compliance? Yes / No / NA
6. Insurance Statement Received? Yes / No / NA Dated _____
7. UST Status (account for all USTs in database) * No abatement as of 6-12-02. Program is trying to get access to empty tanks.

_____ USTs Permanently Closed	Date Closed _____
_____ USTs CIU & Passed TT	Date Tested _____
_____ USTs TOU & Emptied	Date Emptied _____



OFFICE OF GENERAL COUNSEL
2600 Bull Street, Columbia, South Carolina 29201
Telephone (803) 898-3349 Fax (803) 898-3367

August 27, 2002

RECEIVED

AUG 27 2002

Underground Storage
Tank Program

VIA CERTIFIED MAIL - # 7001 0360 0002 0813 5549
RETURN RECEIPT REQUESTED

Mr. Robert Puccini
Sunstar, Inc.
c/o Russell Templeton, Esquire
1825 Bull Street
Columbia, South Carolina 29202

Re: Nickelpumper #233
I-95 & US Highway 17, Point South, SC, Jasper County
Underground Storage Tank Permit ID #04878

Dear Mr. Puccini:

A recent inspection performed by personnel of the Underground Storage Tank (UST) Program has found that you have not performed the activities outlined in the Administrative Order dated April 14, 1998. A copy of the Administrative Order is enclosed.

Because of your failure to comply with the activities outlined in the Administrative Order, the UST Program will perform some activities on your behalf to protect human health and the environment. These activities will consist of the following:

1. Emptying the USTs of all liquids; and
2. Conducting an assessment to determine if petroleum substances have impacted groundwater at the site. Soil contamination by petroleum substances has been confirmed. The assessment will consist of the installation of one ground water monitoring well, one soil boring, analysis of ground-water sample(s) and soil sample(s) for petroleum constituents, and a receptor survey.

You will be provided a copy of the reports upon completion of the work. The estimated initial cost for emptying the UST system is \$800.00. An additional charge of \$0.28 will be assessed for each gallon of liquid in excess of 500 gallons. The estimated cost for conducting the site assessment described above is \$300, plus administrative costs. The Department is required to seek recovery of all funds expended for these activities. At a future date, you will be billed for the costs incurred. Please note that additional assessment may be required.

Please complete and return the enclosed Right-of-Entry form to my attention on or before September 11, 2002. Please note that after the UST Program performs the activities noted above, you are still required to perform all the remaining activities outlined in the Administrative Order. As such, DHEC's performance of the above-listed activities is not a waiver of its legal rights to seek enforcement of that Order and all other Orders related to this matter. Furthermore, as already stated, DHEC's performance is not a waiver of its legal rights to seek reimbursement of the costs incurred related to these activities.

Section 48-1-50(24) of the 1976 Code and Regulations promulgated thereunder authorize DHEC to protect the public's health, and investigate and enter property on behalf of that interest. In the event you do not grant the UST Program right-of-entry to the site, the UST Program will have no alternative but to seek to obtain an Inspection Warrant to gain access to the site to perform the activities noted above.

Please contact me at 803-898-3350 if you have any questions or comments.

Sincerely,

Etta R. Williams

Etta Williams, Staff Counsel
Office of General Counsel

MKB/mkb
04878-08:DOC

CC: Robert Puccini, Sunstar Inc., 7373 Hodgson Memorial Drive, # 6
Savannah, Georgia 30406-2586
Bo Frier, Farmers and Merchants Bank, P O Box 187, Lakeland, Georgia 31635
Justin Hughes, SCDHEC UST
Mark Berenbrok, SCDHEC UST
John Abernathy, SCDHEC UST

Enclosure: Administrative Order (copy)
Right-of-Entry form

ADMINISTRATIVE ORDER

NUMBER 95-0581-UST EFFECTIVE DATE: APR 14 1998

Facility Name: Nickelpumper #233

Site ID#: 04878

Facility Address: Exit 33 I-95 @ US 17, Exit 33, Point South, Hampton County, SC

To: Sunstar Inc.

Findings of Fact

1. Sunstar Inc. owns underground storage tanks as defined in the State Underground Petroleum Environmental Response Bank (SUPERB) Act, Title 44, Chapter 2 of the South Carolina Code of Laws as amended, which are located at the above referenced facility.
2. A Notice of Violation, dated **April 22, 1997**, attached and incorporated herein as part of this Order, was issued citing the above referenced facility for violations of the South Carolina Underground Storage Tank Control Regulations, R.61-92.
3. A Proposed Consent Order was sent by certified mail and was received by the owner/operator on October 10, 1997. No response was received. An attempt to resolve enforcement actions by telephone was unsuccessful. Owner did not attend an enforcement conference scheduled for December 16, 1997. Owner did not submit a financial package due January 28, 1998.
4. Based on inspection of the facility as set forth in the Notice of Violation, the owner/operator is found to have violated the provisions set forth below with corresponding civil penalties.

R.61-92

Section 280.70(c)

Failure to properly abandon a temporarily closed underground storage tank system after twelve (12) months
- abandon tanks and submit a closure assessment report

TOTAL PENALTY: \$9,700

Conclusions of Law

1. The Department has authority under Section 44-2-140 of the SUPERB Act to issue Orders requiring compliance and assessing civil penalties for violations of the above laws and regulations.
2. The owner/operator violated the above referenced regulations.

Therefore, in accordance with approved procedures, the Department hereby issues this Administrative Order directing the owner/operator referenced above to correct the violations listed above and on the attached Notice of Violation, return the signed Certification of Compliance form, and pay a civil penalty in the amount of **\$9,700 within thirty (30) days of receipt.**

It is further ordered that the failure to comply with any provision of this Administrative Order shall be grounds for sanctions under the Superb Act, Section 44-2-140 to include additional civil penalties and enforcement of the Administrative Order in the appropriate court.

The payment of the penalty amount must be in the form of a certified check payable to the "Department of Health and Environmental Control" with the number of the Administrative Order written on the check. Send the check and the Certification of Compliance Form to:

Sonya M. Younger
Enforcement Section
Division of Underground Storage Tank Management
South Carolina Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

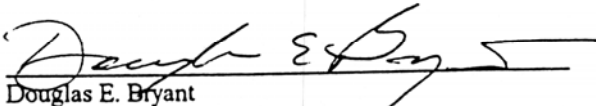
Pursuant to the Administrative Procedures Act and R.61-72, this Administrative Order may be contested by serving a request for a contested case hearing upon the Clerk of the Board of the Department of Health and Environmental Control within 15 calendar days of receipt of this letter. The request must be received by the Clerk of the Board, South Carolina Department of Health and Environmental Control, 2600 Bull Street, Columbia, SC 29201.

The request must contain the following:

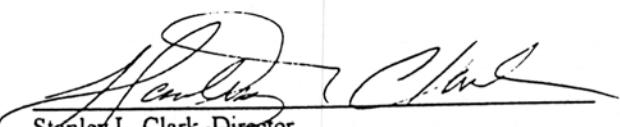
- A. The name of the party requesting the hearing and the issue(s) for which the hearing is requested;
- B. The caption or other information sufficient to identify the decision, Order, action, or inaction which is the subject of the hearings; and
- C. The relief requested.

This Order becomes final as written fifteen (15) days after receipt unless a contested case hearing is requested.

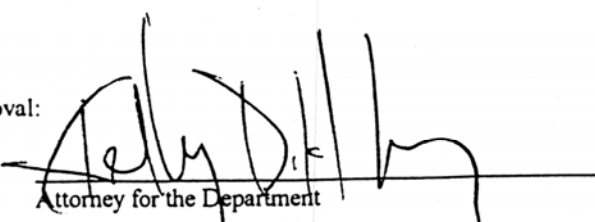
The South Carolina Department of Health and Environmental Control

By: 
 Douglas E. Bryant
 Commissioner

Date: 4/14/98
 Columbia, South Carolina

By: 
 Stanley L. Clark, Director
 Division of Underground Storage Tank Management

Date: March 25, 1998

Approval: 
 Attorney for the Department

Date: April 14, 1998

DEB/SLC/smy
 04878.ao
 DHEC/UST/031098

revised 6/98

PERMISSION FORM

UNDERGROUND STORAGE TANK AND PROPERTY OWNER

Nickelpumper #233, I-95 & US Highway 17, Point South, SC, Jasper County, UST Permit #04878

If you are the owner of the former underground storage tanks and the property owner, please complete this form.

I, _____, certify that I am the legal owner of the underground storage tanks and property located at the facility identified below or serve as the authorized representative for the owner. I grant permission to the South Carolina Department of Health and Environmental Control (SCDHEC) to secure on my behalf contractor services to conduct abatement and/or assessment activities, and authorize SCDHEC, or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct abatement and/or assessment activities, as required. I understand that SCDHEC will be responsible for notifying me of all activities that are necessary prior to their initiation, and will provide to me a copy of the assessment report.

Name of Facility _____ Phone # _____

Street Address of Facility _____

Town, City, District, Suburb _____

Name of nearest intersecting street, road, highway, alley _____

Is this facility within the city limits? (yes or no) _____

Does a public water or sewer utility service this facility? (yes or no) _____, if no, please provide the name and phone number of a person that we can contact that can assist in the location of private water and septic tank lines _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) _____. If yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation _____, Phone number _____

Is the property currently leased or rented to someone? (yes or no) _____. If yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the former or existing underground storage tanks, they should be moved before SCDHEC's contractor gets to the site.

NAME of UST/property owner (Please Print): _____

Phone Number (home) _____ (work) _____

Signature of UST/property Owner: _____

Witness: _____

Date: _____ Month _____ Day _____ Year

04878-09:DOC




South Carolina Department of Health
and Environmental Control

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone (803) 896-6240 Fax (803) 896-6245

MEMORANDUM

DATE: June 3, 2002

TO: File

FROM: Mark Berenbrok, USTfield Coordinator
Regulatory Assistance Section 

RE: Nickelpumper #233
Point South, SC, Jasper County
Underground Storage Tank Permit #04878
May 15, 2002, Site Assessment Activities

Personnel (Dale Stoudemire, Chuck Hightower, Andy Ruocco, Mark Berenbrok) from the South Carolina Department of Health and Environmental Control (SCDHEC) performed assessment activities in the vicinity of the underground storage tank (UST) system on May 15, 2002. The purpose of the work was to evaluate potential soil impact from operation of the UST system. Three USTs are located in a single area on the West side of the site and service two dispenser islands. The UST system has reportedly not been used since 1995 when the site building burned. The site is overgrown with vegetation and the only above ground structure is a single canopy over the two dispenser islands.

A soil boring (SB-1) was installed next to the USTs with a stainless steel auger. A soil sample (NP04878-01) was collected from the bottom of the soil boring at approximately four feet below grade. Another soil boring was installed at the North dispenser island with a stainless steel auger. However, no soil sample was taken due to auger refusal at two feet below grade. See Appendix Two for site map with soil boring location.

The soil sample was analyzed for the following:

- A. Benzene, toluene, ethyl benzene, xylene (BTEX), naphthalene, and EDB. Collection and preservation procedures are in accordance with SW846, (Update III) Method 5035, and analysis by EPA analytical method 8260B.
- B. Polynuclear aromatic hydrocarbons (PAH). Collection and preservation procedures are in accordance with SW846 (Update III) Method 3550B, and analysis by EPA analytical method 8270C.

Sampling and equipment decontamination procedures are described in Appendices Three and Four.

The analytical results for the sample(s) are given in Appendix One. The results were compared to the risk based screening levels published in the SCDHEC **South Carolina Risk-Based Corrective Action For Petroleum Releases** (dated May 15, 2001). Since samples were classified as predominantly sand, Table B2 was used.

Contaminant concentrations for soil sample NP04878-01 exceeded the SCDHEC RBSLs. The extent of impact to subsurface soils and ground water underlying the site is unknown.

The Nickelpumper #233 site is located South of the former Point South Café Site (UST Permit #15151). A release investigation is ongoing at the former Point South Café.

The liquid levels for the three USTs were measured. Tank 1 contains approximately 4.5 inches of water and petroleum; Tank 2 contains approximately 4.5 inches of water; and Tank 3 contains approximately 5 inches of petroleum.

04878-01:DOC

Enclosures: Appendix One - Analytical Results
Appendix Two - Site Map
Appendix Three - Sampling Methodology And Preservation
Appendix Four - Equipment Decontamination
Appendix Five - Sample Collection Information
Appendix Six - Analytical Results
Appendix Seven - Site Conditions
Appendix Eight - Receptors
Appendix Nine -Photographs (five)

Appendix One

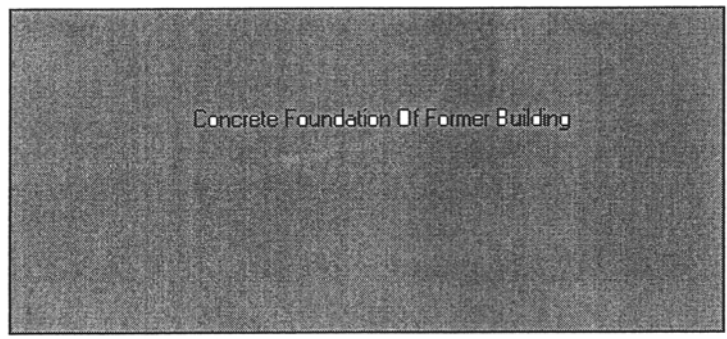
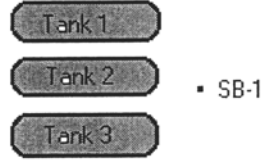
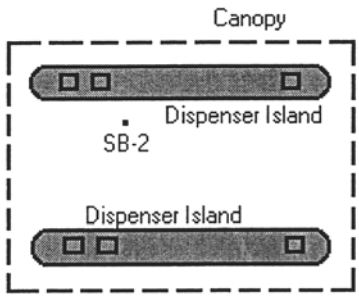
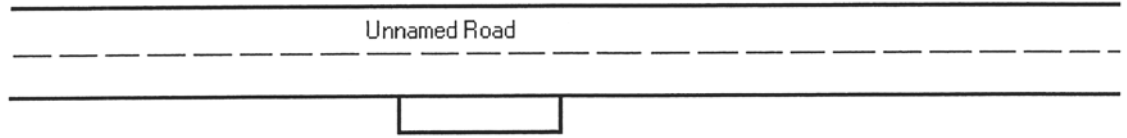
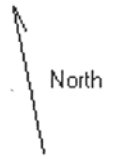
Analytical Results For Soil Samples						
Analyte	SCDHEC RBSLs* (mg/kg)	Sample NP04878-01 (mg/kg)				
Benzene	0.007	7.38				
Toluene	1.450	78.0				
Ethylbenzene	1.150	23.0				
Xylenes	14.500	136				
Naphthalene	0.036	13.9				
TPH	-----	-----				
Benzo(a) anthracene	0.066	<0.066				
Benzo(b) Fluoranthene	0.066	<0.066				
Benzo(k) Fluoranthene	0.066	<0.066				
Chrysene	0.066	<0.066				
Dibenz(ah) Anthracene	0.066	<0.066				

*SCDHEC RBSL levels for sandy soil. Values in bold text exceed SCDHEC RBSLs.

Appendix Two

Site Map

Former Point South Cafe Site
UST Permit ID #15151



Sketch Map for Nickelpumper #233 (Not to Scale)
Point South, SC, Jasper County
Underground Storage Tank Permit #04878
May 15, 2002, Site Assessment Activities

Appendix Three

Sampling Methodology and Preservation

Soil samples for BTEX/naphthalene analysis are taken with a sampling device that collects a standard soil volume weighing approximately five grams. The sampling device is pushed into soil until the coring body is completely full and then removed. The core of soil (approximately five grams) is extruded into a laboratory prepared, pre-weighed 40 milliliter VOA glass jar containing sodium bisulfate and stir-bar. Two samples are taken with sodium bisulfate. Five grams of soil are also extruded into a laboratory prepared, pre-weighed 40 milliliter VOA glass jar containing methanol. One sample is taken with methanol. A new disposable sampling device is used for each sampling location.

New disposable latex gloves are used at each sampling location.

Soil samples for PAH analysis are placed into a laboratory supplied glass jar and filled to capacity with soil. One sample is taken.

Soil samples for moisture analysis are placed into a laboratory supplied glass jar and filled to capacity with soil. One sample is taken.

Soil samples for TPH are placed into a laboratory supplied glass jar and filled to capacity with soil.

Soil samples for the 8 RCRA metals are placed into a laboratory supplied glass jar and filled to capacity.

All samples are labeled with an individual sample identification number, immediately placed on ice, and transported with chain-of-custody to a South Carolina Department of Health and Environmental Control certified laboratory for analysis.

Appendix Four

Equipment Decontamination

All sampling equipment such as auger buckets, stems, and KV flights and rods, are cleaned and decontaminated with an Alconox wash and thoroughly rinsed with de-ionized water between sampling locations.

Appendix Five

Sample Collection Information					
Sample #	NP04878-01				
Location UST/Dispenser	UST				
Matrix Soil/Water	Soil				
Soil Type Clay/Sand	Sand				
Depth (Feet Below Grade)	4				
Date/Time of Collection	05-15-02 1220				
Collected By	Berenbrok				

Appendix Six

Analytical Results

SCDHEC Laboratory Certification #84009



ANALYTICAL REPORT

SCDHEC 2200
 UNDERGRD STOR TANK-DEBRA THOMA
 2600 BULL STREET
 COLUMBIA, SC 29201

Lab Number: 02-A80985
 Sample ID: NP04878-01
 Sample Type: Soil
 Site ID:

Project:
 Project Name: VARIOUS
 Sampler: BERENBROK, MARK

Date Collected: 5/15/02
 Time Collected: 12:20
 Date Received: 5/17/02
 Time Received: 9:00
 Page: 1

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	77.8	%		1	5/21/02		D. Harris	CLP	8901
ORGANIC PARAMETERS									
Naphthalene	2.21	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Acenaphthene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Anthracene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Fluoranthene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Fluorene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Pyrene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Benzo(a)anthracene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Benzo(a)pyrene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Benzo(b)fluoranthene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Benzo(k)fluoranthene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Chrysene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Dibenzo(a,h)anthracene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Indeno(1,2,3-cd)pyrene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Acenaphthylene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Benzo(g,h,i)perylene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Phenanthrene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
VOLATILE ORGANICS									
Benzene	7.38	mg/kg	0.119	50	5/19/02	7:00	J.Gott	8260B	8587
Ethylbenzene	23.0	mg/kg	1.19	500	5/20/02	11:49	J.Gott	8260B	50
Naphthalene	13.9	mg/kg	2.98	500	5/20/02	11:49	J.Gott	8260B	50
Toluene	78.0	mg/kg	1.19	500	5/20/02	11:49	J.Gott	8260B	50

Sample report continued . . .

ANALYTICAL REPORT

Laboratory Number: 02-A80985
 Sample ID: NP04878-01
 Project:
 Page 2

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
Xylenes (Total)	136.	mg/kg	1.19	500	5/20/02	11:49	J.Gott	8260B	50

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	29.6 gm	1.0 ml	5/20/02		D. Harris	3550
Volatile Organics	4.2 g	5.0 ml	5/15/02	12:20	B. Messay	5035

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	73.	56. - 145.
VOA Surr Toluene-d8	90.	71. - 137.
VOA Surr, 4-BFB	83.	72. - 141.
VOA Surr, DBFM	86.	69. - 134.
BNA Surr-Nitrobenzene-d5	82.	15. - 126.
BNA Surr-2-Fluorobiphenyl	82.	22. - 119.
BNA Surr-Terphenyl-d14	91.	25. - 147.

LABORATORY COMMENTS:

ND - Not detected at the report limit.
 B - Analyte was detected in the method blank.
 J - Estimated Value below Report Limit.
 # - Recovery outside Laboratory historical or method prescribed limits.
 All results reported on a wet weight basis.

End of Sample Report.

TESTAMERICA, INC. - NASHVILLE

COOLER RECEIPT FORM

Client: DHEC / UST Program

EC# 285088

Cooler Received On: 5-17-2nd And Opened On: 5-18-2008 By: Marvin Blumhofer

5-17-2

Ma Blum
(Signature)

1. Temperature of Cooler when opened 2.0 Degrees Celsius
2. Were custody seals on outside of cooler?..... YES...NO
a. If yes, how many, what kind and where: 1 fruit
3. Were custody seals on containers and intact?..... NO...YES
4. Were the seals intact, signed, and dated correctly?..... YES...NO
5. Were custody papers inside cooler?..... YES...NO
6. Were custody papers properly filled out (ink, signed, etc)?..... YES...NO
7. Did you sign the custody papers in the appropriate place?..... YES...NO
8. What kind of packing material used? Bubblewrap Peanuts Vermiculite Other None.
9. Was sufficient ice used (if appropriate)?..... YES...NO
10. Did all bottles arrive in good condition (unbroken)?..... YES...NO
11. Were all bottle labels complete (#, date, signed, pres, etc)?..... YES...NO
12. Did all bottle labels and tags agree with custody papers?..... YES...NO
13. Were correct bottles used for the analysis requested?..... YES...NO
14. a. Were VOA vials received?..... YES...NO
b. Was there any observable head space present in any VOA vial?..... NO...YES
15. Was sufficient amount of sample sent in each bottle?..... YES...NO
16. Were correct preservatives used?..... YES...NO
17. Was residual chlorine present?..... NO...YES
18. Corrective action taken, if necessary:

See attached for resolution



5/23/02

SCDHEC 2200
UNDERGRD STOR TANK-DEBRA THOMA
2600 BULL STREET
COLUMBIA, SC 29201

This report includes the analytical certificates of analysis for all samples listed below. These samples relate to your project VARIOUS. The Laboratory Project number is 285088. An executed copy of the chain of custody and the sample receipt form are also included as an addendum to this report.

Sample Identification	Lab Number	Page 1
		Collection Date
-----	-----	-----
WGO4887-01	02-A80984	5/15/02
NP04878-01	02-A80985	5/15/02
11677-01	02-A80986	5/15/02

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

Report Approved By:  Report Date: 5/23/02

Paul E. Lane, Jr., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Jennifer P. Flynn, Technical Services

Gail A. Lage, Technical Serv.
Glenn L. Norton, Technical Serv.
Kelly S. Comstock, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 84009

PROJECT QUALITY CONTROL DATA

Project Number:

Page: 1

Matrix Spike Recovery

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
UST ANALYSIS								
Naphthalene	mg/kg	< 0.165	1.16	1.67	69	25. - 120.	7	02-A81208
Acenaphthene	mg/kg	< 0.165	1.39	1.67	83	36. - 115.	7	02-A81208
Anthracene	mg/kg	< 0.165	1.39	1.67	83	37. - 121.	7	02-A81208
Fluoranthene	mg/kg	< 0.165	1.39	1.67	83	36. - 127.	7	02-A81208
Fluorene	mg/kg	< 0.165	1.45	1.67	87	35. - 124.	7	02-A81208
Pyrene	mg/kg	< 0.165	1.42	1.67	85	33. - 130.	7	02-A81208
Benzo(a)anthracene	mg/kg	< 0.165	1.39	1.67	83	37. - 125.	7	02-A81208
Benzo(a)pyrene	mg/kg	< 0.165	1.39	1.67	83	37. - 128.	7	02-A81208
Benzo(b)fluoranthene	mg/kg	< 0.165	1.35	1.67	81	25. - 134.	7	02-A81208
Benzo(k)fluoranthene	mg/kg	< 0.165	1.45	1.67	87	40. - 129.	7	02-A81208
Chrysene	mg/kg	< 0.165	1.35	1.67	81	38. - 129.	7	02-A81208
Dibenzo(a,h)anthracene	mg/kg	< 0.165	1.29	1.67	77	16. - 139.	7	02-A81208
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.165	1.35	1.67	81	11. - 142.	7	02-A81208
Acenaphthylene	mg/kg	< 0.165	1.39	1.67	83	33. - 120.	7	02-A81208
Benzo(g,h,i)perylene	mg/kg	< 0.165	1.35	1.67	81	10. - 145.	7	02-A81208
Phenanthrene	mg/kg	< 0.165	1.39	1.67	83	35. - 125.	7	02-A81208

Matrix Spike Recovery

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
VOA PARAMETERS								
Benzene	mg/kg	< 0.0020	0.0504	0.0500	101	58. - 136.	8587	blank
Toluene	mg/kg	< 0.0020	0.0474	0.0500	95	54. - 139.	8587	blank
Toluene	mg/kg	< 0.0020	0.0507	0.0500	101	54. - 139.	50	blank

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Page: 2

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
UST PARAMETERS						
Naphthalene	mg/kg	1.16	1.09	6.22	41.	7
Acenaphthene	mg/kg	1.39	1.29	7.46	38.	7
Anthracene	mg/kg	1.39	1.29	7.46	37.	7
Fluoranthene	mg/kg	1.39	1.29	7.46	43.	7
Fluorene	mg/kg	1.45	1.35	7.14	37.	7
Pyrene	mg/kg	1.42	1.32	7.30	43.	7
Benzo(a)anthracene	mg/kg	1.39	1.25	10.61	40.	7
Benzo(a)pyrene	mg/kg	1.39	1.29	7.46	42.	7
Benzo(b)fluoranthene	mg/kg	1.35	1.32	2.25	45.	7
Benzo(k)fluoranthene	mg/kg	1.45	1.32	9.39	39.	7
Chrysene	mg/kg	1.35	1.25	7.69	39.	7
Dibenzo(a,h)anthracene	mg/kg	1.29	1.16	10.61	44.	7
Indeno(1,2,3-cd)pyrene	mg/kg	1.35	1.22	10.12	45.	7
Acenaphthylene	mg/kg	1.39	1.29	7.46	39.	7
Benzo(g,h,i)perylene	mg/kg	1.35	1.22	10.12	48.	7
Phenanthrene	mg/kg	1.39	1.25	10.61	41.	7

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
VOA PARAMETERS						
Benzene	mg/kg	0.0504	0.0502	0.40	30.	8587
Toluene	mg/kg	0.0474	0.0477	0.63	32.	8587
Toluene	mg/kg	0.0507	0.0498	1.79	32.	50

Project QC continued . . .

PROJECT QUALITY CONTROL DATA
 Project Number:
 Page: 3

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
UST PARAMETERS						
Naphthalene	mg/kg	1.67	1.16	69	51 - 118	7
Acenaphthene	mg/kg	1.67	1.42	85	50 - 115	7
Anthracene	mg/kg	1.67	1.48	89	53 - 121	7
Fluoranthene	mg/kg	1.67	1.48	89	53 - 127	7
Fluorene	mg/kg	1.67	1.48	89	51 - 124	7
Pyrene	mg/kg	1.67	1.52	91	51 - 129	7
Benzo(a)anthracene	mg/kg	1.67	1.48	89	53 - 125	7
Benzo(a)pyrene	mg/kg	1.67	1.48	89	53 - 128	7
Benzo(b)fluoranthene	mg/kg	1.67	1.48	89	43 - 134	7
Benzo(k)fluoranthene	mg/kg	1.67	1.52	91	52 - 129	7
Chrysene	mg/kg	1.67	1.45	87	53 - 129	7
Dibenzo(a,h)anthracene	mg/kg	1.67	1.32	79	35 - 139	7
Indeno(1,2,3-cd)pyrene	mg/kg	1.67	1.39	83	31 - 142	7
Acenaphthylene	mg/kg	1.67	1.42	85	50 - 120	7
Benzo(g,h,i)perylene	mg/kg	1.67	1.39	83	27 - 145	7
Phenanthrene	mg/kg	1.67	1.45	87	52 - 125	7

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
VOA PARAMETERS						
Benzene	mg/kg	0.0500	0.0500	100	79 - 127	8587
Benzene	mg/kg	0.0500	0.0502	100	79 - 127	8587
Ethylbenzene	mg/kg	0.0500	0.0501	100	78 - 126	50
Naphthalene	mg/kg	0.0500	0.0446	89	62 - 139	8587
Naphthalene	mg/kg	0.0500	0.0426	85	62 - 139	8587
Naphthalene	mg/kg	0.0500	0.0491	98	62 - 139	50
Toluene	mg/kg	0.0500	0.0472	94	79 - 126	8587
Toluene	mg/kg	0.0500	0.0465	93	79 - 126	8587

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Page: 4

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
Toluene	mg/kg	0.0500	0.0502	100	79 - 126	50
Xylenes (Total)	mg/kg	0.150	0.149	99	77 - 123	50

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
UST PARAMETERS					
Naphthalene	< 0.165	mg/kg	7	5/21/02	11:11
Acenaphthene	< 0.165	mg/kg	7	5/21/02	11:11
Anthracene	< 0.165	mg/kg	7	5/21/02	11:11
Fluoranthene	< 0.165	mg/kg	7	5/21/02	11:11
Fluorene	< 0.165	mg/kg	7	5/21/02	11:11
Pyrene	< 0.165	mg/kg	7	5/21/02	11:11
Benzo(a)anthracene	< 0.165	mg/kg	7	5/21/02	11:11
Benzo(a)pyrene	< 0.165	mg/kg	7	5/21/02	11:11
Benzo(b)fluoranthene	< 0.165	mg/kg	7	5/21/02	11:11
Benzo(k)fluoranthene	< 0.165	mg/kg	7	5/21/02	11:11
Chrysene	< 0.165	mg/kg	7	5/21/02	11:11
Dibenzo(a,h)anthracene	< 0.165	mg/kg	7	5/21/02	11:11
Indeno(1,2,3-cd)pyrene	< 0.165	mg/kg	7	5/21/02	11:11
Acenaphthylene	< 0.165	mg/kg	7	5/21/02	11:11
Benzo(g,h,i)perylene	< 0.165	mg/kg	7	5/21/02	11:11
Phenanthrene	< 0.165	mg/kg	7	5/21/02	11:11

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
VOA PARAMETERS					
Benzene	< 0.0020	mg/kg	8587	5/18/02	16:19

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Page: 5

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Analysis Date	Analysis Time
Benzene	< 0.0020	mg/kg	8587	5/19/02	4:17
Ethylbenzene	< 0.0020	mg/kg	50	5/20/02	10:41
Naphthalene	0.0015	mg/kg	8587	5/18/02	16:19
Naphthalene	0.0015	mg/kg	8587	5/19/02	4:17
Naphthalene	0.0015	mg/kg	50	5/20/02	10:41
Toluene	< 0.0020	mg/kg	8587	5/18/02	16:19
Toluene	0.0012	mg/kg	8587	5/19/02	4:17
Toluene	< 0.0020	mg/kg	50	5/20/02	10:41
Xylenes (Total)	< 0.0020	mg/kg	50	5/20/02	10:41
VOA Surr 1,2-DCA-d4	89.	% Rec	50	5/20/02	10:41
VOA Surr 1,2-DCA-d4	89.	% Rec	532	5/20/02	10:41
VOA Surr Toluene-d8	91.	% Rec	50	5/20/02	10:41
VOA Surr Toluene-d8	91.	% Rec	532	5/20/02	10:41
VOA Surr, 4-BFB	88.	% Rec	50	5/20/02	10:41
VOA Surr, 4-BFB	88.	% Rec	532	5/20/02	10:41
VOA Surr, DBFM	95.	% Rec	50	5/20/02	10:41
VOA Surr, DBFM	95.	% Rec	532	5/20/02	10:41

- Value outside Laboratory historical or method prescribed QC limits.

End of Report for Project 285088

Appendix Seven

Site Conditions

	Yes	No	Unk
A. Were any petroleum-stained or contaminated soils found in the UST excavation, soil borings, trenches, or monitoring wells? If yes, indicate depth and location on the site map.	X		
B. Were any petroleum odors detected in the excavation, soil borings, trenches, or monitoring wells? If yes, indicate location on site map and describe the odor (strong, Mild, etc.)	X		
C. Was water present in the UST excavation, soil borings, or trenches? If yes, how far below land surface (indicate location and depth)?		X	
D. Did contaminated soils remain stockpiled on site after closure? If yes, indicate the stockpile location on the site map. Name of DHEC representative authorizing soil removal:		X	
E. Was a petroleum sheen or free product detected on any excavation or boring waters? If yes, indicate location and thickness.		X	

Appendix Eight

Receptors

	Yes	No
A. Are there any lakes, ponds, streams, or wetlands located within 1000 feet of the UST system? If yes, indicate type of receptor, distance, and direction on site map.	X	
B. Are there any public, private, or irrigation water supply wells within 1000 feet of the UST system? If yes, indicate type of well, distance, and direction on site map.		X
C. Are there any underground structures (e.g., basements) located within 100 feet of the UST system? If yes, indicate the type of structure, distance, and direction on site map.		X
D. Are there any underground utilities (e.g., telephone, electricity, gas, water, sewer, storm drain) located within 100 feet of the UST system that could potentially come in contact with the contamination? If yes, indicate the type of utility, distance, and direction on the site map.	NA	NA
E. Has contaminated soil been identified at a depth less than 3 feet below land surface in an area that is not capped by asphalt or concrete? If yes, indicate the area of contaminated soil on the site map.		X

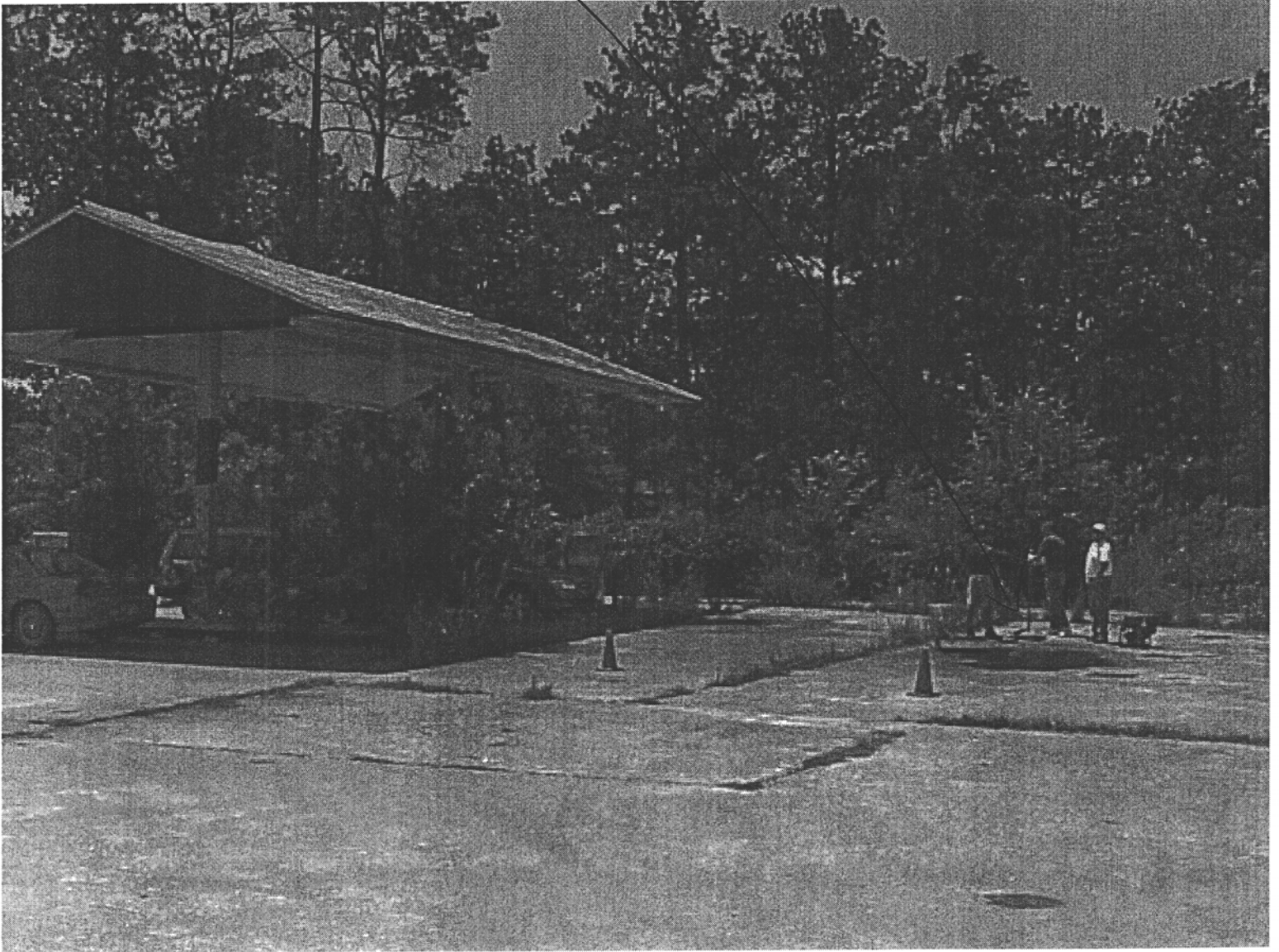
Appendix Nine

Photographs



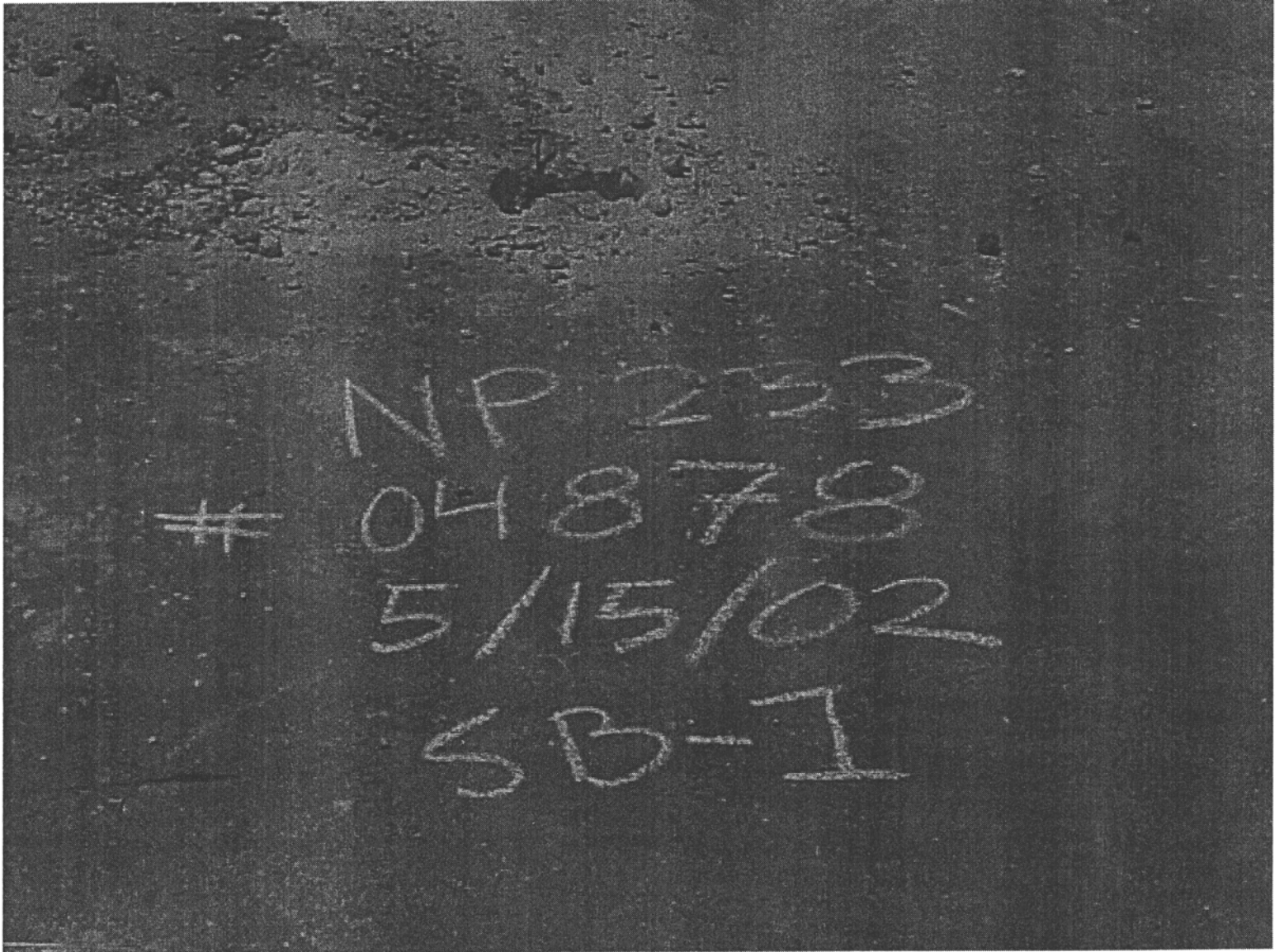
Nickel pumper #233
UST Permit #04878
5-15-02 photograph

SB-1 location



Nickelpumper #233
UST Permit # 04878
5-15-02 photograph

SB-1



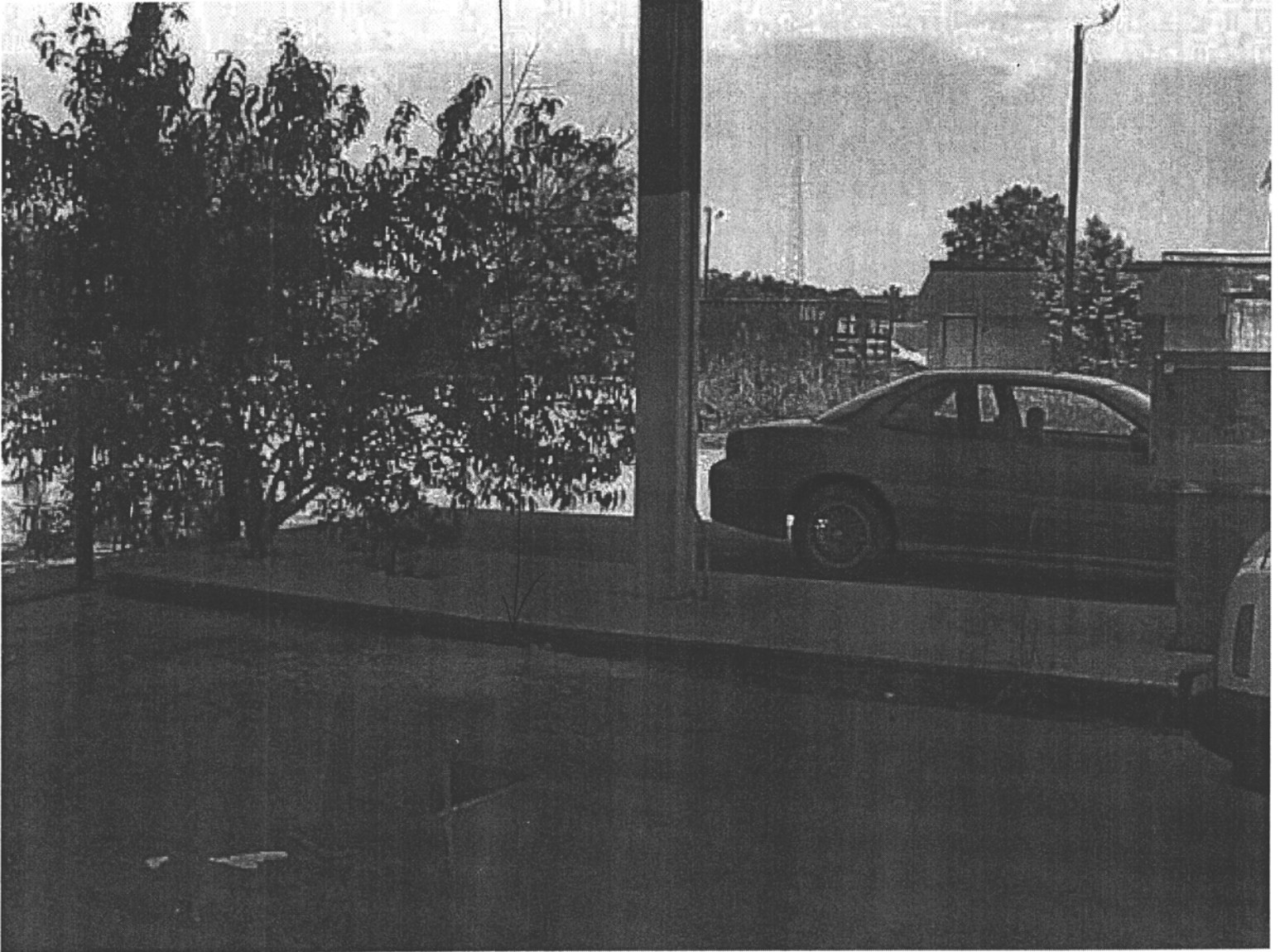
Nickelpumper #233
UST Permit #04878
5-15-02 photograph

SB-2 location



Nickelpumper # 233
UST Permit # 04878.
5-15-02 photograph

SB-2 location



Nickel pumper #233
UST permit #04878
5-15-02 photograph



Geological Resources, Inc.

January 8, 2003

Mr. Umar Khattak
Environmental Health Manager
Bureau of Underground Storage Tank Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201-1708

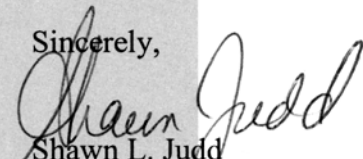
Re: Nickelpumper #233
Site ID# 04878
CP # 17312:P; PO # 408994

Dear Mr. Khattak:

Please find enclosed two copies of the **original report** for the above referenced site.

The original invoice has been submitted to Ms. Pat Holland of the Finance Section as specified in the contract.

Sincerely,


Shawn L. Judd
Project Coordinator

RECEIVED

JAN 09 2003

UNDERGROUND STORAGE
TANK PROGRAM

4913 Albemarle Road Suite 101 Charlotte, NC 28205
Phone: (704) 563-1663 / (888) 870-4133 Fax: (704) 563-1662

www.geologicalresourcesinc.com

INITIAL GROUND WATER ASSESSMENT REPORT

Facility Name: Nickelpumper #233

UST Permit Number: 04878

UST Owner or Operator's Name: Not provided by SCDHEC

Address: Not provided by SCDHEC

Phone Number: Not provided by SCDHEC

Property Owner's Name (if different than USTowner/operator): Not provided by SCDHEC

Address: Not provided by SC DHEC

Phone Number: Not provided by SCDHEC

Contractor: Geological Resources, Inc. Cert. #: 74

Address: 4913 Albemarle Road, Suite 101, Charlotte, North Carolina 28205

Phone Number: (704) 563-1663

Well Driller: Terry D. Kennedy Cert. #: B 01693

Address: 4913 Albemarle Road, Suite 101, Charlotte, North Carolina 28205

Phone Number: (704) 563-1663

Receptor and Site Data

Please place a check in the appropriate answer block for each question:

Receptor Survey Questions	No	Yes*
Is there a drinking water supply well (public or private) or surface water intake within 1,000 feet of the UST?	X	
Are irrigation or other non-drinking water wells located within 1,000 feet of the UST?	X	
Are there other potential receptors (i.e. utilities, surface waters, wetlands) less than 500 feet from the UST?		X

If "yes" provide additional information:

Sanitary sewer line on-site ~50' north of UST basin; water line on-site ~50' north of UST basin;

swamp/pond ~327' north/northeast of site.

Were any water wells within a 250 foot radius sampled? Yes X No

Is there a public water supply line in the area? X Yes No

Is the current use of the facility and surrounding properties commercial, residential, agricultural or residential or industrial?

Site: Commerical Adjacent Properties: Vacant/Commerical

Soil and Boring/Monitoring Well Data

Primary Soil Type: Sand

Well Installation Method and Date: Hollow stem auger on 12/17/02

Development Method: Disposable polyethylene bailer

Soil Sample Obtained at: 4.5-5.0 feet.

Soil Analytical Data (mg/kg)

Boring #: MW-1

Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Total Lead
4.29	54.4	15	91.6	9.05	7.3

Benzo(a)-anthracene	Benzo(b)-fluoranthene	Benzo(k)-fluoranthene	Chrysene	Dibenzo(a,h)-anthracene	Total PAHs
<0.066	<0.066	<0.066	<0.066	<0.066	<0.33

Ground Water Data

Depth to Ground Water: 3.21

Well Purging/Sampling Method: Disposable polyethylene bailer

Date Sampled: 12/17/02

Free Product Thickness: Sheen

Equilibrated Values *

Temperature (C°): pH (s.u.):

Dissolved Oxygen (mg/l): Specific Conductance (µmhos/cm):

* Sheen- no readings; bailed 9 gallons for development; bailed 5 gallons prior to sampling.

Ground Water Analytical Data ($\mu\text{g/l}$)

Well #: MW-1

Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	EDB
9,250	16,200	3,600	18,700	18,000	<250	0.27


Benzo(a)-anthracene	Benzo(b)-fluoranthene	Benzo(k)-fluoranthene	Chrysene	Dibenzo(a,h)-anthracene	Total PAHs	Total Lead
<10.0	17.0	<10.0	<10.0	<10.0	17.0	33.0

Appendices

- Appendix A: Well Construction Record
- Appendix B: Ground Water Sampling Data Sheet
- Appendix C: Laboratory Data
- Appendix D: Topographic Map
- Appendix E: Site Base Map
- Appendix F: Material Manifest
- Appendix G: IGWA Invoice

Report Completed By: Geological Resources, Inc. Contractor Cert. #: 74

Date: 1/8/03

Reviewed by:  Registration No#: _____



APPENDIX A
Well Construction Record

APPENDIX B
Ground Water Sampling Data Sheet

Field Data Information Sheet for Ground-Water Sampling
 South Carolina Department of Health and Environmental Control
 Bureau of Underground Storage Tank Management

Date (mm/dd/yy): 12/17/02
 Field Personnel: TK, HK
 General Weather Conditions: CLEAR COOL
 Ambient Air Temperature: 18 C

Quality Assurance

pH Meter	Conductivity Meter
serial no. _____	serial no. _____
pH=4.0 _____	Standard _____
pH=7.0 _____	Standard _____
pH=10.0 _____	Standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Nicklepumper #233
 Site ID # 04878 Monitoring Well # MW-1
 Well Diameter (D): .167 feet
 Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
 for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
 Depth to Ground Water (DGW) 3.21 feet
 Total Well Depth (TWD) 12.61 feet
 Length of the water column (LWC = TWD-DGW) 9.4 feet

1 casing volume (CV = LWC X C) = 1.53
 3 casing volume 3 X CV = 4.59 gals (standard purge volume)

Total volume of Water Purged Before Sampling _____ gals
 Total volume of Water Purged for Post Sampling _____ gals
 Total Purged _____ gals

*If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)	<u>0.25</u>							
Time (military)	<u>1147</u>							<u>1200</u> 14:55
pH (s.u.)								
Specific Cond. (umhos/cm)								
Water Temperature (degrees C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
Dissolved Oxygen (mg/l)								
PID readings, if required								
Remarks:	<u>SHEEN - NO READINGS</u> NO READINGS - <u>BAILED 5 GALLONS PRIOR TO SAMPLING</u> <u>BAILED 9 GALLONS FOR DEVELOPMENT</u>							

APPENDIX C
Laboratory Data

FROM

(THU) 1 2 2003 13:41/ST.13:38/NO.5012020814 P 13

TestAmerica

INCORPORATED

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
4913 ALBEMARLE RD
CHARLOTTE, NC 28205

Lab Number: 02-A208053
Sample ID: MW-1
Sample Type: Soil
Site ID:

Project:
Project Name: NICKLE PUMPER 233 #04878
Sampler: TERRY KENNEDY

Date Collected: 12/17/02
Time Collected: 9:55
Date Received: 12/18/02
Time Received: 9:00
Page: 1

Analyte	Result	Units	Report Limit	Nil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	77.7	%		1	12/21/02	13:35	K. Keller	CLP	8692
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Benzo(b)fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Benzo(k)fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Chrysene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Dibenzo(a,h)anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
VOLATILE ORGANICS									
Benzene	4.29	mg/kg	0.794	500	12/20/02	22:22	CHollingsaw	8260B	341
Ethylbenzene	15	mg/kg	0.794	500	12/20/02	22:22	CHollingsaw	8260B	341
Naphthalene	9.05	mg/kg	1.98	500	12/20/02	22:22	CHollingsaw	8260B	341
Toluene	54.4	mg/kg	0.794	500	12/20/02	22:22	CHollingsaw	8260B	341
Xylenes (Total)	91.6	mg/kg	0.794	500	12/20/02	22:22	CHollingsaw	8260B	341
METALS									
Lead	7.3	mg/kg	0.99	1	12/23/02	16:43	C. Martin	6010B	2072

Sample report continued . . .

FROM

(THU) 1 2 2003 13:41/ST. 13:38/NO. 5012020814 P 14

TestAmerica

INCORPORATED

ANALYTICAL REPORT

Laboratory Number: 02-A208053

Sample ID: MW-1

Project:

Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	30.0 gm	1.0 ml	12/21/02		M. Cauthen	3550
Volatile Organics	6.3 g	5.0 ml	12/17/02	9:55	K. Turner	5035

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	104.	56. - 155.
VOA Surr Toluene-d8	119.	79. - 130.
VOA Surr, 4-BFB	102.	62. - 155.
VOA Surr, DBFM	108.	74. - 127.
BNA Surr-Nitrobenzene-d5	78.	34. - 105.
BNA Surr-2-Fluorobiphenyl	80.	36. - 100.
BNA Surr-Terphenyl-d14	81.	45. - 108.

LABORATORY COMMENTS:

ND - Not detected at the report limit.

B - Analyte was detected in the method blank.

J - Estimated Value below Report Limit.

E - Estimated Value above the calibration limit of the instrument.

R - Recovery outside Laboratory historical or method prescribed limits.

All results reported on a wet weight basis.

End of Sample Report.

FROM

(THU) 1 2 2003 13:41/ST. 13:38/NO. 5012020814 P 15

TestAmerica

INCORPORATED

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
 JOHN BROWN
 4913 ALBEMARLE RD
 CHARLOTTE, NC 28205

Lab Number: 02-A208054
 Sample ID: MW-1
 Sample Type: Water
 Site ID:

Project:
 Project Name: NICKLE PUMPER 233 #04878
 Sampler: TERRY KENNEDY

Date Collected: 12/17/02
 Time Collected: 12:00
 Date Received: 12/18/02
 Time Received: 9:00
 Page: 1

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Benzo(b)fluoranthene	17.0	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Benzo(k)fluoranthene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Chrysene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Dibenzo(a,h)anthracene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
VOLATILE ORGANICS									
Benzene	9250	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Toluene	16200	ug/L	500.	500.	12/27/02	23:25	C. Wani	8260B	5272
Ethylbenzene	3600	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Xylenes (Total)	18700	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Methyl-t-butyl ether	18000	ug/L	500.	500.	12/27/02	23:25	C. Wani	8260B	5272
Naphthalene	ND	ug/L	250.	50.0	12/24/02	14:35	C. Wani	8260B	5269
VOLATILE ORGANICS by GC									
Ethylene Dibromide	0.27	ug/L	0.02	1.0	12/21/02	15:50	Carmichael	8011	193
METALS									
Lead	33.0	ug/L	3.0	1.0	12/20/02	10:46	C.Johnson	6010B	8676

Sample report continued . . .

FROM

(THU) 1 2 2003 13:42/ST.13:38/NO.5012020814 P 16

TestAmerica

INCORPORATED

ANALYTICAL REPORT

Laboratory Number: 02-A208054

Sample ID: MW-1

Project:

Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	200. ml	1.0 ml	12/21/02		M. Cauthen	3510/625

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	107.	73. - 133.
VOA Surr Toluene-d8	89.	80. - 121.
VOA Surr, 4-BFB	90.	80. - 128.
VOA Surr, DBFM	101.	81. - 121.
BNA Surr-Nitrobenzene-d5	73.	40. - 127.
BNA Surr-2-Fluorobiphenyl	68.	42. - 113.
BNA Surr-Terphenyl-d14	48.	41. - 129.

LABORATORY COMMENTS:

- ND = Not detected at the report limit.
 B = Analyte was detected in the method blank.
 J = Estimated value below Report Limit.
 E = Estimated value above the calibration limit of the instrument.
 # = Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

Test America

INCORPORATED

12/30/02

GEOLOGICAL RESOURCES 2110
JOHN BROWN
4913 ALBEMARLE RD
CHARLOTTE, NC 28205

This report includes the analytical certificates of analysis for all samples listed below. These samples relate to your project NICKLE PUMPER 233 #04878. The Laboratory Project number is 313818.

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report.

Sample Identification	Lab Number	Page 1
		Collection Date
-----	-----	-----
MW-1	02-A208053	12/17/02
MW-1	02-A208054	12/17/02

These results relate only to the items tested.
This report shall not be reproduced except in full and with permission of the laboratory.

Report Approved By: *Paul E. Lane, Jr.*

Report Date: 12/30/02

Paul E. Lane, Jr., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Roxanne L. Connor, Technical Services

Gail A. Lage, Technical Serv.
Glenn L. Norton, Technical Serv.
Kelly S. Comstock, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 84009

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
 JOHN BROWN
 4913 ALBEMARLE RD
 CHARLOTTE, NC 28205

Lab Number: 02-A208053
 Sample ID: MW-1
 Sample Type: Soil
 Site ID:

Project:
 Project Name: NICKLE PUMPER 233 #04878
 Sampler: TERRY KENNEDY

Date Collected: 12/17/02
 Time Collected: 9:55
 Date Received: 12/18/02
 Time Received: 9:00
 Page: 1

Analyte	Result	Units	Report	Dil	Analysis		Analyst	Method	Batch
			Limit		Factor	Date			
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	77.7	%		1	12/21/02	13:35	K. Keller	CLP	8692
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Benzo(b)fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Benzo(k)fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Chrysene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
Dibenzo(a,h)anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
VOLATILE ORGANICS									
Benzene	4.29	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Ethylbenzene	15	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Naphthalene	9.05	mg/kg	1.98	500	12/20/02	22:22	CHollingsw	8260B	341
Toluene	54.4	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Xylenes (Total)	91.6	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
METALS									
Lead	7.3	mg/kg	0.99	1	12/23/02	16:43	C. Martin	6010B	2072

Sample report continued . . .

ANALYTICAL REPORT

Laboratory Number: 02-A208053
 Sample ID: MW-1
 Project:
 Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	30.0 gm	1.0 ml	12/21/02		M. Cauthen	3550
Volatile Organics	6.3 g	5.0 ml	12/17/02	9:55	K. Turner	5035

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	104.	56. - 155.
VOA Surr Toluene-d8	119.	79. - 130.
VOA Surr, 4-BFB	102.	62. - 155.
VOA Surr, DBFM	108.	74. - 127.
BNA Surr-Nitrobenzene-d5	78.	34. - 105.
BNA Surr-2-Fluorobiphenyl	80.	36. - 100.
BNA Surr-Terphenyl-d14	81.	45. - 108.

LABORATORY COMMENTS:

ND = Not detected at the report limit.
 B = Analyte was detected in the method blank.
 J = Estimated Value below Report Limit.
 E = Estimated Value above the calibration limit of the instrument.
 # = Recovery outside Laboratory historical or method prescribed limits.
 All results reported on a wet weight basis.

End of Sample Report.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
 JOHN BROWN
 4913 ALBEMARLE RD
 CHARLOTTE, NC 28205

Lab Number: 02-A208054
 Sample ID: MW-1
 Sample Type: Water
 Site ID:

Project:
 Project Name: NICKLE PUMPER 233 #04878
 Sampler: TERRY KENNEDY

Date Collected: 12/17/02
 Time Collected: 12:00
 Date Received: 12/18/02
 Time Received: 9:00
 Page: 1

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Benzo(b)fluoranthene	17.0	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Benzo(k)fluoranthene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Chrysene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
Dibenzo(a,h)anthracene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	8270C	2677
VOLATILE ORGANICS									
Benzene	9250	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Toluene	16200	ug/L	500.	500.	12/27/02	23:25	C. Wani	8260B	5272
Ethylbenzene	3600	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Xylenes (Total)	18700	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
Methyl-t-butyl ether	18000	ug/L	500.	500.	12/27/02	23:25	C. Wani	8260B	5272
Naphthalene	ND	ug/L	250.	50.0	12/24/02	14:35	C. Wani	8260B	5269
VOLATILE ORGANICS by GC									
Ethylene Dibromide	0.27	ug/L	0.02	1.0	12/21/02	15:50	Carmichael	8011	193
METALS									
Lead	33.0	ug/L	3.0	1.0	12/20/02	10:46	C.Johnson	6010B	8676

Sample report continued . . .

ANALYTICAL REPORT

Laboratory Number: 02-A208054
 Sample ID: MW-1
 Project:
 Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	200. ml	1.0 ml	12/21/02		M. Cauthen	3510/625

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	107.	73. - 133.
VOA Surr Toluene-d8	89.	80. - 121.
VOA Surr, 4-BFB	90.	80. - 128.
VOA Surr, DBFM	101.	81. - 121.
BNA Surr-Nitrobenzene-d5	73.	40. - 127.
BNA Surr-2-Fluorobiphenyl	68.	42. - 113.
BNA Surr-Terphenyl-d14	48.	41. - 129.

LABORATORY COMMENTS:

- ND = Not detected at the report limit.
- B = Analyte was detected in the method blank.
- J = Estimated Value below Report Limit.
- E = Estimated Value above the calibration limit of the instrument.
- # = Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 1

Laboratory Receipt Date: 12/18/02

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for MS/MSD analysis for that method and the method requirements for MS/MSD analysis could not be met.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
UST ANALYSIS								
Benzo(a)anthracene	mg/kg	< 0.066	1.65	1.67	99	42. - 123.	1600	02-A207665
Benzo(b)fluoranthene	mg/kg	< 0.066	1.55	1.67	93	40. - 123.	1600	02-A207665
Benzo(k)fluoranthene	mg/kg	< 0.066	1.82	1.67	109	42. - 130.	1600	02-A207665
Chrysene	mg/kg	< 0.066	2.01	1.67	120	40. - 123.	1600	02-A207665
Dibenzo(a,h)anthracene	mg/kg	< 0.066	1.78	1.67	107	16. - 139.	1600	02-A207665
Benzo(a)anthracene	mg/l	< 0.0010	0.0400	0.0500	80	49. - 126.	2677	blank
Benzo(b)fluoranthene	mg/l	< 0.0010	0.0370	0.0500	74	45. - 127.	2677	blank
Benzo(k)fluoranthene	mg/l	< 0.0010	0.0420	0.0500	84	46. - 134.	2677	blank
Chrysene	mg/l	< 0.0010	0.0500	0.0500	100	48. - 126.	2677	blank
Dibenzo(a,h)anthracene	mg/l	< 0.0010	0.0300	0.0500	60	31. - 149.	2677	blank

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for MS/MSD analysis for that method and the method requirements for MS/MSD analysis could not be met.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
VOA PARAMETERS								
Benzene	mg/l	< 0.0010	0.0512	0.0500	102	78. - 132.	5269	02-A209083
Benzene	mg/kg	< 0.0003	0.0520	0.0500	104	63. - 133.	341	blank
Toluene	mg/l	< 0.0006	0.0472	0.0500	94	77. - 134.	5272	blank
Toluene	mg/kg	< 0.0008	0.0512	0.0500	102	61. - 131.	341	blank
VOA Surr 1,2-DCA-d4	% Rec				104	73. - 133.	5272	
VOA Surr Toluene-d8	% Rec				88	80. - 121.	5272	
VOA Surr, 4-BFB	% Rec				89	80. - 128.	5272	
VOA Surr, DBFM	% Rec				102	81. - 121.	5272	

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 2

Laboratory Receipt Date: 12/18/02

BNA Surr-Nitrobenzene-d5	% Rec	69	40. - 127.	2677
BNA Surr-2-Fluorobiphenyl	% Rec	63	42. - 113.	2677
BNA Surr-Terphenyl-d14	% Rec	72	41. - 129.	2677

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for MS/MSD analysis for that method and the method requirements for MS/MSD analysis could not be met.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
*****METALS**								
Lead	mg/l	< 0.0030	0.0520	0.0500	104	80 - 120	8676	Duplicate
Lead	mg/kg	9.38	91.0	100.	82	80 - 120	2072	Duplicate

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for MS/MSD analysis for that method and the method requirements for MS/MSD analysis could not be met.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
*****MISC PARAMETERS**								
Ethylene Dibromide	mg/l	< 0.00002	0.00029	0.00029	100	40 - 140	193	02-A208120

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
*****UST PARAMETERS**						
Benzo(a)anthracene	mg/kg	1.65	1.62	1.83	35.	1600
Benzo(b)fluoranthene	mg/kg	1.55	1.52	1.95	40.	1600
Benzo(k)fluoranthene	mg/kg	1.82	1.78	2.22	36.	1600
Chrysene	mg/kg	2.01	1.95	3.03	34.	1600
Dibenzo(a,h)anthracene	mg/kg	1.78	1.62	9.41	37.	1600
Benzo(a)anthracene	mg/l	0.0400	0.0350	13.33	37.	2677

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 3

Laboratory Receipt Date: 12/18/02

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
Benzo(b)fluoranthene	mg/l	0.0370	0.0320	14.49	38.	2677
Benzo(k)fluoranthene	mg/l	0.0420	0.0380	10.00	36.	2677
Chrysene	mg/l	0.0500	0.0440	12.77	38.	2677
Dibenzo(a,h)anthracene	mg/l	0.0300	0.0270	10.53	45.	2677

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
VOA PARAMETERS						
Benzene	mg/l	0.0512	0.0521	1.74	15.	5269
Benzene	mg/kg	0.0520	0.0514	1.16	19.	341
Toluene	mg/l	0.0472	0.0467	1.06	16.	5272
Toluene	mg/kg	0.0512	0.0496	3.17	28.	341
VOA Surr 1,2-DCA-d4	% Rec		104.			5272
VOA Surr 1,2-DCA-d4	% Rec		107.			341
VOA Surr Toluene-d8	% Rec		89.			5272
VOA Surr Toluene-d8	% Rec		115.			341
VOA Surr, 4-BFB	% Rec		89.			5272
VOA Surr, 4-BFB	% Rec		101.			341
VOA Surr, DBFM	% Rec		102.			5272
VOA Surr, DBFM	% Rec		113.			341
BNA Surr-Nitrobenzene-d5	% Rec		62.			2677
BNA Surr-2-Fluorobiphenyl	% Rec		59.			2677
BNA Surr-Terphenyl-d14	% Rec		64.			2677

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 4

Laboratory Receipt Date: 12/18/02

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
METALS						
Lead	mg/l	0.0520	0.0510	1.94	20	8676
Lead	mg/kg	91.0	91.5	0.55	20	2072

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
MISC PARAMETERS						
Ethylene Dibromide	mg/l	0.00029	0.00031	6.67	50	193

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
UST PARAMETERS						
Benzo(a)anthracene	mg/kg	1.67	1.62	97	42 - 123	1600
Benzo(b)fluoranthene	mg/kg	1.67	1.52	91	40 - 123	1600
Benzo(k)fluoranthene	mg/kg	1.67	1.75	105	42 - 130	1600
Chrysene	mg/kg	1.67	1.95	117	40 - 123	1600
Dibenzo(a,h)anthracene	mg/kg	1.67	1.68	101	16 - 139	1600
Benzo(a)anthracene	mg/l	0.0500	0.0390	78	49 - 126	2677
Benzo(b)fluoranthene	mg/l	0.0500	0.0350	70	45 - 127	2677
Benzo(k)fluoranthene	mg/l	0.0500	0.0430	86	46 - 134	2677
Chrysene	mg/l	0.0500	0.0490	98	48 - 126	2677
Dibenzo(a,h)anthracene	mg/l	0.0500	0.0290	58	31 - 149	2677

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 5

Laboratory Receipt Date: 12/18/02

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
-----	-----	-----	-----	-----	-----	-----
VOA PARAMETERS						
Benzene	mg/l	0.0500	0.0494	99	78 - 127	5269
Benzene	mg/l	0.0500	0.0478	96	78 - 127	5269
Benzene	mg/kg	0.0500	0.0487	97	77 - 123	341
Ethylbenzene	mg/l	0.0500	0.0545	109	78 - 125	5269
Ethylbenzene	mg/l	0.0500	0.0530	106	78 - 125	5269
Ethylbenzene	mg/kg	0.0500	0.0462	92	73 - 134	341
Naphthalene	mg/l	0.0500	0.0452	90	52 - 140	5269
Naphthalene	mg/l	0.0500	0.0446	89	52 - 140	5269
Naphthalene	mg/kg	0.0500	0.0540	108	54 - 135	341
Toluene	mg/l	0.0500	0.0447	89	78 - 127	5272
Toluene	mg/l	0.0500	0.0476	95	78 - 127	5272
Toluene	mg/kg	0.0500	0.0470	94	76 - 120	341
Xylenes (Total)	mg/l	0.150	0.166	111	77 - 126	5269
Xylenes (Total)	mg/l	0.150	0.159	106	77 - 126	5269
Xylenes (Total)	mg/kg	0.150	0.137	91	75 - 123	341
Methyl-t-butyl ether	mg/l	0.0500	0.0547	109	66 - 137	5272
Methyl-t-butyl ether	mg/l	0.0500	0.0561	112	66 - 137	5272
Ethylene Dibromide	mg/l	0.00029	0.00031	107	73 - 141	193
VOA Surr 1,2-DCA-d4	% Rec			105	73 - 133	5272
VOA Surr 1,2-DCA-d4	% Rec			104	73 - 133	5272
VOA Surr 1,2-DCA-d4	% Rec			105	56 - 155	341
VOA Surr Toluene-d8	% Rec			89	80 - 121	5272
VOA Surr Toluene-d8	% Rec			88	80 - 121	5272
VOA Surr Toluene-d8	% Rec			114	79 - 130	341
VOA Surr, 4-BFB	% Rec			89	80 - 128	5272
VOA Surr, 4-BFB	% Rec			88	80 - 128	5272
VOA Surr, 4-BFB	% Rec			98	62 - 155	341
VOA Surr, DBFM	% Rec			103	81 - 121	5272
VOA Surr, DBFM	% Rec			101	81 - 121	5272

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 6

Laboratory Receipt Date: 12/18/02

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
VOA Surr, DBFM	% Rec			112	74 - 127	341
BNA Surr-Nitrobenzene-d5	% Rec			64	40 - 127	2677
BNA Surr-2-Fluorobiphenyl	% Rec			60	42 - 113	2677
BNA Surr-Terphenyl-d14	% Rec			69	41 - 129	2677

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
METALS						
Lead	mg/l	0.0500	0.0490	98	80 - 120	8676
Lead	mg/kg	100.	91.4	91	80 - 120	2072

Continuing Calibration Verification

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
METALS						

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
MISC PARAMETERS						
Ethylene Dibromide	mg/l	0.00029	0.00031	107	73 - 141	193

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 9

Laboratory Receipt Date: 12/18/02

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
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MISC PARAMETERS

Ethylene Dibromide	< 0.00002	mg/l	193	12/21/02	13:59
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= Value outside Laboratory historical or method prescribed QC limits.

End of Report for Project 313818

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 8

Laboratory Receipt Date: 12/18/02

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Analysis Date	Analysis Time
Xylenes (Total)	< 0.0009	mg/l	5269	12/24/02	11:51
Xylenes (Total)	< 0.0009	mg/l	5269	12/25/02	0:25
Xylenes (Total)	< 0.0013	mg/kg	341	12/20/02	14:49
Methyl-t-butyl ether	< 0.0005	mg/l	5272	12/27/02	16:04
Methyl-t-butyl ether	< 0.0005	mg/l	5272	12/28/02	9:15
VOA Surr 1,2-DCA-d4	105.	% Rec	5272	12/27/02	16:04
VOA Surr 1,2-DCA-d4	106.	% Rec	5272	12/28/02	9:15
VOA Surr 1,2-DCA-d4	109.	% Rec	341	12/20/02	14:49
VOA Surr Toluene-d8	90.	% Rec	5272	12/27/02	16:04
VOA Surr Toluene-d8	88.	% Rec	5272	12/28/02	9:15
VOA Surr Toluene-d8	119.	% Rec	341	12/20/02	14:49
VOA Surr, 4-BFB	88.	% Rec	5272	12/27/02	16:04
VOA Surr, 4-BFB	89.	% Rec	5272	12/28/02	9:15
VOA Surr, 4-BFB	102.	% Rec	341	12/20/02	14:49
VOA Surr, DBFM	101.	% Rec	5272	12/27/02	16:04
VOA Surr, DBFM	101.	% Rec	5272	12/28/02	9:15
VOA Surr, DBFM	114.	% Rec	341	12/20/02	14:49
BNA Surr-Nitrobenzene-d5	93.	% Rec	2677	12/23/02	15:01
BNA Surr-2-Fluorobiphenyl	85.	% Rec	2677	12/23/02	15:01
BNA Surr-Terphenyl-d14	113.	% Rec	2677	12/23/02	15:01

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
METALS					
Lead	< 0.0022	mg/l	8676	12/20/02	10:46
Lead	< 0.39	mg/kg	2072	12/23/02	16:43

Project QC continued . . .

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 7

Laboratory Receipt Date: 12/18/02

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed

UST PARAMETERS					
Benzo(a)anthracene	< 0.066	mg/kg	1600	12/22/02	14:51
Benzo(b)fluoranthene	< 0.066	mg/kg	1600	12/22/02	14:51
Benzo(k)fluoranthene	< 0.066	mg/kg	1600	12/22/02	14:51
Chrysene	< 0.066	mg/kg	1600	12/22/02	14:51
Dibenzo(a,h)anthracene	< 0.066	mg/kg	1600	12/22/02	14:51
Benzo(a)anthracene	< 0.0010	mg/l	2677	12/23/02	15:01
Benzo(b)fluoranthene	< 0.0010	mg/l	2677	12/23/02	15:01
Benzo(k)fluoranthene	< 0.0010	mg/l	2677	12/23/02	15:01
Chrysene	< 0.0010	mg/l	2677	12/23/02	15:01
Dibenzo(a,h)anthracene	< 0.0010	mg/l	2677	12/23/02	15:01

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed

VOA PARAMETERS					
Benzene	< 0.0005	mg/l	5269	12/24/02	11:51
Benzene	< 0.0005	mg/l	5269	12/25/02	0:25
Benzene	< 0.0003	mg/kg	341	12/20/02	14:49
Ethylbenzene	< 0.0003	mg/l	5269	12/24/02	11:51
Ethylbenzene	< 0.0003	mg/l	5269	12/25/02	0:25
Ethylbenzene	< 0.0005	mg/kg	341	12/20/02	14:49
Naphthalene	< 0.00120	mg/l	5269	12/24/02	11:51
Naphthalene	< 0.00120	mg/l	5269	12/25/02	0:25
Naphthalene	0.00120	mg/kg	341	12/20/02	14:49
Toluene	< 0.0006	mg/l	5272	12/27/02	16:04
Toluene	< 0.0006	mg/l	5272	12/28/02	9:15
Toluene	< 0.0008	mg/kg	341	12/20/02	14:49

Project QC continued . . .

TESTAMERICA, INC.-NASHVILLE

COOLER RECEIPT FORM

Client: Geological Resources BC# 313818

Cooler Received On: 12/18/02 And Opened On: 12/18/02 By: MARVIN BLUMHOEFER

M. Blumhoefer
(Signature)

1. Temperature of Cooler when opened 1.5 Degrees Celsius
2. Were custody seals on outside of cooler?..... YES NO N/A
 - a. If yes, how many, what kind and where: 1 front
 - b. Were the seals intact, signed, and dated correctly?..... YES NO N/A
3. Were custody seals on containers and intact?..... NO YES N/A
4. Were custody papers inside cooler?..... YES NO N/A
5. Were custody papers properly filled out (ink, signed, etc)?..... YES NO N/A
6. Did you sign the custody papers in the appropriate place?..... YES NO N/A
7. What kind of packing material used? Bubblewrap Peanuts Vermiculite Other None
8. Was sufficient ice used (if appropriate)?..... YES NO N/A
9. Did all bottles arrive in good condition (unbroken)?..... YES NO N/A
10. Were all bottle labels complete (#, date, signed, pres, etc)?..... YES NO N/A
11. Did all bottle labels and tags agree with custody papers?..... YES NO N/A
12. Were correct bottles used for the analysis requested?..... YES NO N/A
13. a. Were VOA vials received?..... YES NO N/A
 - b. Was there any observable head space present in any VOA vial?..... NO YES N/A
14. Was sufficient amount of sample sent in each bottle?..... YES NO N/A
15. Were correct preservatives used?..... YES NO N/A
If not, record standard ID of preservative used here _____
16. Was residual chlorine present?..... NO YES N/A
17. Corrective action taken, if necessary:

See attached for resolution

SAMPLE NONCONFORMANCE/COC REVISION FORM

TestAmerica
INCORPORATED

Nashville Division

313818

ACCT NO. 2110

DATE RECEIVED 12.18.2

COMPANY Geologic Resources

Relinquished by: <u>MDB</u>	Date/Time:	Received by: <u>JGH</u>	Date/Time:
<u>12-18-2 16:00</u>		<u>12/18/02</u>	<u>1600</u>
Relinquished by:	Date/Time:	Received by: <u>MDB</u>	Date/Time:
<u>JGH</u>	<u>12-18-02/1700</u>	<u>12-18-2 17:00</u>	
Relinquished by:	Date/Time:	Received by:	Date/Time:

PROBLEM(S):

FOC/TOC?

METALS LIST?

TPH METHOD?

TCLP WHAT?

EDB METHOD?

HERB LIST- LONG OR SHORT?

NEED LIST OF COMPOUNDS:

8260 INSTEAD OF 8021?

TEMPERATURE UPON RECEIPT

SATURDAY DELIVERY MARKED?

ICE -- OR-- NO ICE??

FIELD TEST-- OUT OF HOLD

NO COC - PLEASE FAX

NO ANALYSIS REQUESTED

DOCUMENTATION LEVEL?

OUT OF HOLDING TIME-- TEST

OTHER: 0 EDB Method

RESOLUTION: 8011

CONTACTED	DATE/TIME	EMAIL	LEFT MESSAGE
<u>Charles Abaniza</u>	<u>12-18-02/1600</u>		

Revised 8/9/00

SAMPLE NONCONFORMANCE/COC REVISION FORM

TestAmerica
INCORPORATED

Nashville Division

DATE RECEIVED: 12/18/02

ACCT NO.: 2110

SDG NUMBER: 313818

COMPANY NAME: GRI

Relinquished by:	Date/Time:	Received by:	Date/Time:
<u>JDH</u>	<u>12-20-02 / 1550</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:
		<u>MAB</u>	<u>12-20-02 16:30</u>
Relinquished by:	Date/Time:	Received by:	Date/Time:

NONCONFORMANCE ISSUE(S):

OIL & GREASE METHOD?

METALS LIST?

TPH METHOD?

TCLP WHAT?

EDB METHOD?

HERB LIST- LONG OR SHORT?

NEED LIST OF COMPOUNDS?

RUN SOILS BY 8260 INSTEAD OF 8021?

TEMPERATURE UPON RECEIPT?

SATURDAY DELIVERY MARKED?

ICE -- OR-- NO ICE??

SAMPLES TO BE SUBCONTRACTED?

NO COC - PLEASE FAX

NO ANALYSIS REQUESTED?

DOCUMENTATION LEVEL?

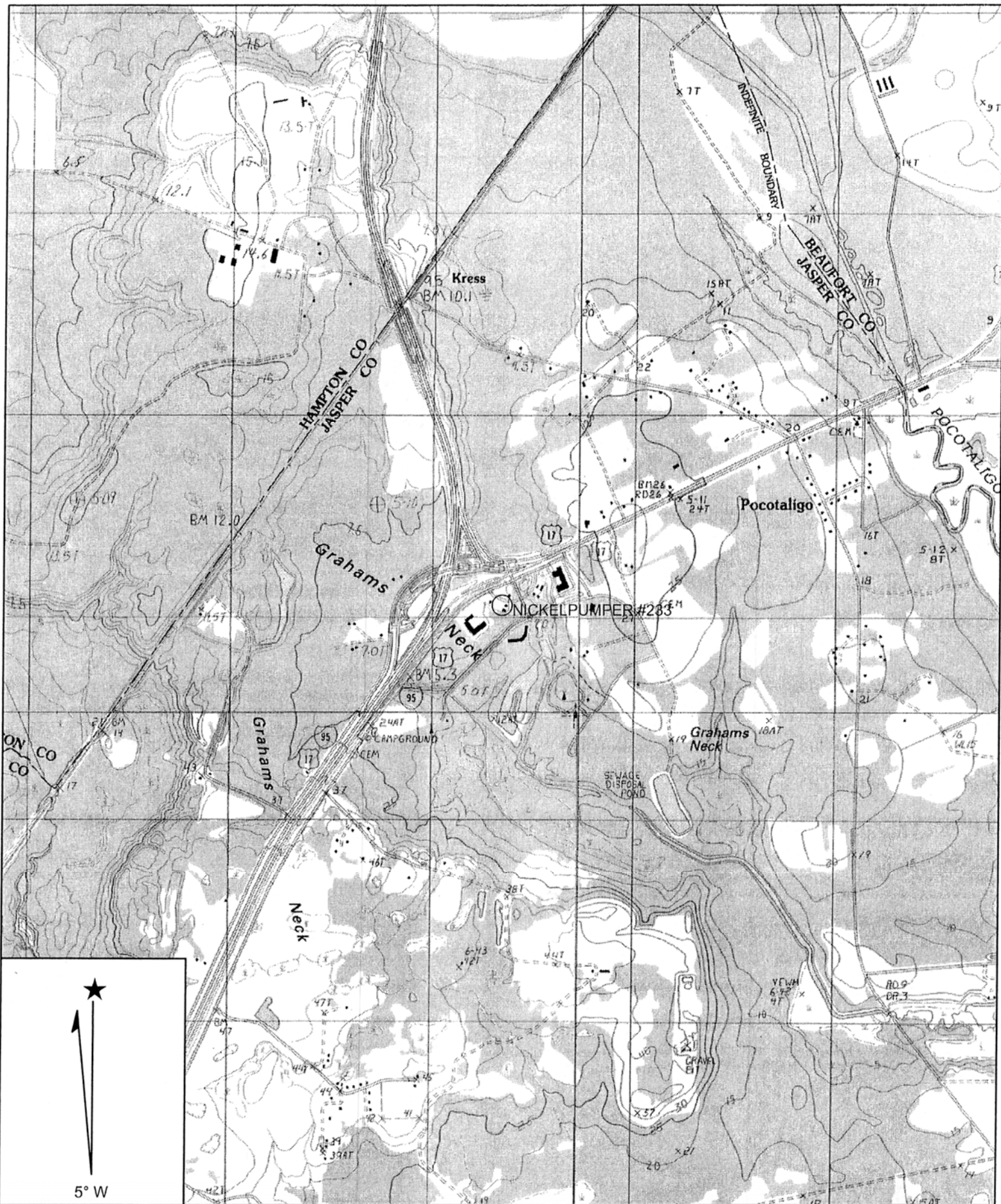
OUT OF HOLDING TIME -- TEST:

OTHER: Add Pb to 02A-208053

RESOLUTION: per FAX from TA-CLT Svc Ctr.

PERSON CONTACTED	DATE/TIME	VIA E-MAIL or VOICEMAIL	NOTES AND/OR COMMENTS:

APPENDIX D
Topographic Map



Name: MC PHERSONVILLE
 Date: 1/8/103
 Scale: 1 inch equals 2000 feet

Location: 032° 37' 47.1" N 080° 52' 44.4" W
 Caption: SITE LOCATION MAP
 Nickelpumper #233
 Figure 1

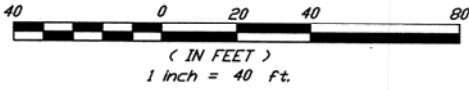
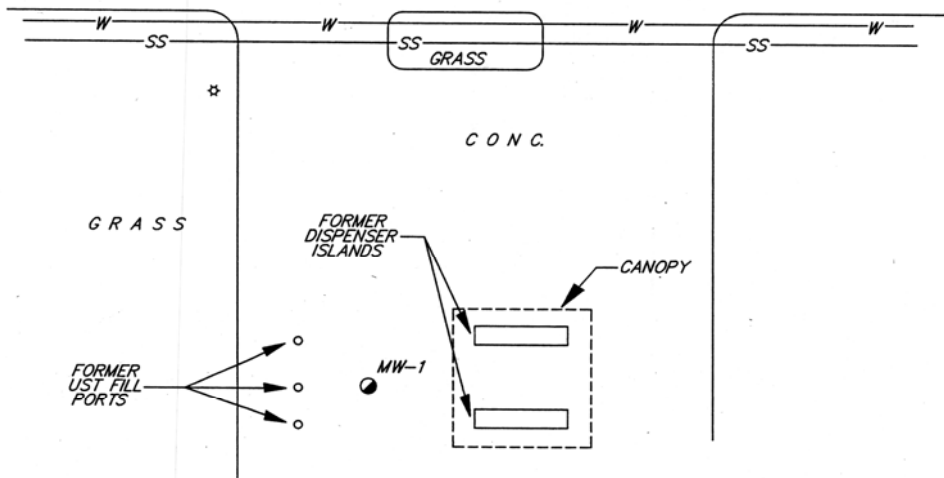
APPENDIX E
Site Base Map

LEGEND

- TYPE III MONITORING WELL
- W— UNDERGROUND WATER LINE
- SS— UNDERGROUND SANITARY SEWER LINE
- ☆ LIGHT POLE



POINT SOUTH DRIVE



SITE MAP	
Nickelpumper #233	3296 Point South Drive
Yemassee, Jasper County, SC	UST Permit #04878
Date: 01/07/03	Drawn by: M. Filardi
Figures: 2	
GEOLOGICAL RESOURCES, INC.	

APPENDIX F
Material Manifest



HAZ~MAT
 TRANSPORTATION AND DISPOSAL
 P. O. BOX 37392 • CHARLOTTE, N.C. 28237
 (704) 332-5600
 FAX (704) 375-7183

Manifest No. 14537
 P.O. No. _____
 Job No. 01 3787

NON-HAZARDOUS SPECIAL WASTE

Section I. GENERATOR (Generator completes all of Section I)

GENERATOR LOCATION	WORK CONTRACTED BY								
NAME <u>HAZ-MAT TRANSPORTATION AND DISPOSAL</u>	Bill To (If different from information at left)								
ORIGINATING ADDRESS <u>3010 Dalton Avenue</u>	NAME <u>HAZ-MAT TRANSPORTATION AND DISPOSAL</u>								
MAILING ADDRESS _____	ADDRESS <u>4913 Dalton Avenue, Charlotte, NC</u>								
CITY _____ STATE <u>NC</u> ZIP _____	CITY <u>Charlotte</u> STATE <u>NC</u> ZIP _____								
PHONE NO. _____	PHONE NO. <u>704-332-1163</u>								
CONTACT NAME _____	CONTACT NAME <u>Shirley Taylor</u>								
DES. OF WASTE: <u>110 - non hazardous</u>	<table border="1"> <tr> <td>No.</td> <td>Type</td> <td>Units</td> <td>Quantity</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	No.	Type	Units	Quantity				
No.	Type	Units	Quantity						

Section II. INVOICE INFORMATION **GALLONS** **DRUMS**

DESCRIPTION	QUANTITY	LINE TOTAL
1. WATER, OIL & COOLANT PUMPED FROM TANKS OR DRUMS		
2. OFF SPEC LIGHT OIL, WATER & GAS PUMPED FROM TANKS OR DRUMS		
3. 55 GALLON DRUMS REMOVED - SOLID		
4. 55 GALLON DRUMS REMOVED - LIQUID	14	1
5.		
6.		
7.		
8.		
9. ARRIVAL TIME:		
10. DEPARTURE TIME:		

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name _____ Signature _____ Shipment Date 12/23/02

Section III. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

HAZ~MAT TRANSPORTATION AND DISPOSAL P. O. BOX 37392 • CHARLOTTE, N.C. 28237	TRANSPORTER II
a. Driver Name / Title _____	e. Name <u>PAUL J. ...</u>
b. Phone No. _____ c. Truck No. _____	f. Address <u>4913 Dalton Avenue, Charlotte, NC</u>
Hazardous Waste Transporter Permits EPA NCR 000003186 EPA NCD048461370	g. Driver Name / Title <u>JOHN ...</u>
d. Driver Signature _____ Shipment Date _____	h. Phone No. <u>704-332-1163</u> i. Truck No. _____
	j. Transporter II Permit Nos. _____
	Driver Signature _____ Shipment Date <u>12/23/02</u>

Section IV. FACILITY INFORMATION AND CERTIFICATE OF DISPOSAL

Site Name: <u>Haz-Mat Transportation & Disposal, Inc.</u>	a. Phone No. <u>704-332-5600</u>
Physical Address: <u>210 Dalton Avenue</u> <u>Charlotte, N.C. 28237</u>	b. Mailing Address: <u>P.O. Box 37392</u> <u>Charlotte, N.C. 28237</u>

e. Discrepancy Indication Space _____
 This is to certify that all non-hazardous material removed from above location has been received and will be disposed of in accordance with applicable local, state and federal regulations in the following manner: (1) Petroleum products are blended into a beneficial reusable fuel for use in large industrial burners. (2) Waste waters are to be treated with polymers, pH adjusters, and a flocculant, then flows through a dissolved air flotation system for pretreatment separation, then into the CMUD sanitation sewer system under permit IUP#5012. (3) Sludges from treatment systems are hauled to E.P.A. approved facilities for proper disposal. Manifest and certificate of disposal are on file. (4) Our treatment system operates on a first in, first out basis and product should be processed within seven days.

SIGNATURE OF FACILITY AGENT _____ DATE _____ MONTH _____ DAY _____ YEAR _____



Geological Resources, Inc.

April 28, 2005

Mr. Stephanie Briney
Division of UST Management
South Carolina DHEC
2600 Bull Street
Columbia, SC 29201-1708

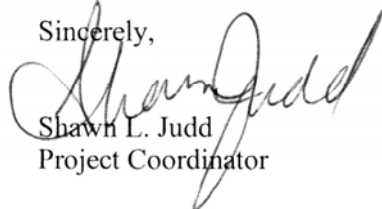
Re: Nickle Pumper #233
UST Permit #: 04878
CA #: 24342

Dear Ms. Briney:

Please find enclosed the original plus one copy of the Tier I report for activities conducted at the above referenced site. The original invoice has been submitted to Ms. Pat Holland of the Finance Section.

If you have any questions, please call me at (704) 845-4010.

Sincerely,



Shawn L. Judd
Project Coordinator

RECEIVED

MAY 02 2005

UNDERGROUND STORAGE
TANK PROGRAM

**TIER I ASSESSMENT REPORT
NICKLE PUMPER #233
3296 POINT SOUTH DRIVE
YEMASSEE, SOUTH CAROLINA
JASPER COUNTY
UST PERMIT #: 04878
CA #: 24342**

Prepared For:

Sunstar, Inc.
9366 Ford Avenue
Richmond Hill, Georgia 31324

Prepared By:

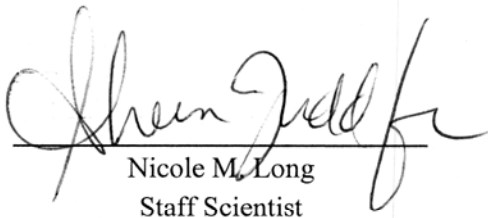
Geological Resources, Inc.
2301-F Crown Point Executive Drive
Charlotte, North Carolina 28227

RECEIVED

MAY 02 2005

**UNDERGROUND STORAGE
TANK PROGRAM**

April 28, 2005


Nicole M. Long
Staff Scientist



TIER I ASSESSMENT REPORT OF FINDINGS

I. INTRODUCTION

A. Owner/Operator Information

Name: Sunstar, Inc.

Address: 9366 Ford Avenue, Richmond Hill, Georgia 31324

Telephone Number: Unknown

B. Property Owner Information

Name: Sunstar, Inc.

Address: 9366 Ford Avenue, Richmond Hill, Georgia 31324

Telephone Number: Unknown

C. Contractor Information

Name: Geological Resources, Inc.

Address: 2301-F Crown Point Executive Drive, Charlotte, North Carolina 28227

Telephone Number: (704) 845-4010

D. Site Information

Name: Nickle Pumper #233

Address: 3296 Point South Drive, Yemassee, South Carolina 29945

Description of Adjacent Land Use: Commercial

Predicted Future Land Use: Commercial

E. Site History

Date Release Reported to SCDHEC: May 16, 2002

Estimated Quantity of Release: Unknown

Cause of Release: Unknown

UST No.	Product	Date Installed	Currently In Use?	Date Closed
1	Gasoline	1975	No	Temporarily of out service
2	Gasoline	1975	No	Temporarily of out service
3	Gasoline	1975	No	Temporarily of out service

Other releases at this site?

Yes

No

If yes, date reported to SCDHEC: N/A

Status of release: N/A

No further action date: N/A

II. SITE CHARACTERISTICS

A. Site Geography: The site is located at 3296 Point South Drive in Jasper County at latitude 32° 37' 46.1" north and longitude 80° 52' 44.1" west. The majority of the site is vacant with the exception of a free standing canopy on the southern end of the property. The property to the north contains a vacant building and a former petroleum retail facility. The property to the east is an open field. The property to the south contains a Days Inn and the property to the west contains a car wash. Please note that the UST basin contains one 6,000-gallon gasoline UST, one 8,000-gallon gasoline UST and one 10,000-gallon gasoline UST which are temporarily out of service. The former dispenser island is located on the southern portion of the property. Concrete covers the UST basin as well as the areas to the north, east and south of the source area. Grass covers the area to the west of the source area.

B. Mean Elevation of Site: Approximately 10 feet above mean sea level.

Additional Comments: N/A

C. Exposure Analysis

Describe all potential receptors and preferred pathways within a 1,000-foot radius of the site.

Two water supply wells (WSW-1 and WSW-2) were identified within a 1,000-foot of the source area. Water supply well WSW-1 is located approximately 400 feet east of the source and is reportedly used for irrigation purposes only. Water supply well WSW-2 is located approximately 850 feet east of the source area on private property. However, the water supply well is owned by the Beaufort-Jasper Water & Sewer Authority. Public water is provided in the area by the Beaufort-Jasper Water & Sewer Authority. Two ponds are located approximately 400 feet northeast and 700 feet southeast of the source area, respectively.

Additional Comments: According to Mr. Hal Jones, Planning and Building Services Director at the Jasper County Planning and Building Services Department, the site and all properties located within a 1,000-foot radius are currently zoned General Commercial (GC).

D. Utilities Survey

List the utilities on-site, and adjacent to the site within a 250-foot radius, that could serve as exposure points or ingestion pathways.

Utility	On-site or Distance/Direction from Site	Depth to Utility
Electric	On-site/approximately 2 feet south of the source area. Off-site/approximately 135 feet east of the source area.	~3'
Water	On-site/approximately 80 feet north of the source area. Off-site/parallel to Point South Drive.	~3'
Sanitary Sewer	On-site/approximately 80 feet north of the source area. Off-site/parallel to Point South Drive.	~3'
Storm Sewer	On-site/approximately 80 feet north of the source area. Off-site/parallel to Point South Drive.	~3'

Additional Comments: N/A

E. Site Geology

Provide a brief description of the regional geology and hydrogeology.

The site is located in the Coastal Plain Physiographic Province of South Carolina. The Coastal Plain is part of an extensive geologic province that roughly parallels the Atlantic Ocean and continues northward and southward through the neighboring states. In South Carolina, the Coastal Plain is expressed physiographically in three regional belts: The Upper Coastal Plain, The Middle Coastal Plain and the Lower Coastal Plain. The surface deposits in the Coastal Plain are generally characterized by a recurrent sequence of clean fine to medium sand, muddy fine sand, and clean to muddy, medium to coarse sand or gravelly sand. These textures represent changes in depositional environments from beach to backbarrier, to river, respectively. The major aquifer systems in the Middle and Lower Coastal Plain are the Middendorf Aquifer System, the Black Creek Aquifer System, the Tertiary Aquifer System and the Surficial Aquifer System. The Surficial Aquifer System consists mostly of beds of unconsolidated sand, shelly sand and shell. In places, clay beds are sufficiently thick and continuous to divide the system into two or three aquifers. However, the system is mostly undivided. Complex interbedding of fine-and coarse-grained textured sediments is typical of the system. The thickness of the Surficial Aquifer System is typically less than 50 feet and thickens coastward. The sediments that comprise the Surficial Aquifer System range from late Miocene to Holocene in age.

Provide a brief description of the site specific geology and stratigraphy:

The site is underlain by silty fine sand grading downward to fine sandy clay. The percentages of sand, silt and clay in a soil sample collected from MW-2 at a depth of 7 feet were 82.2%, 17.8% and 0.0%, respectively. The depths to ground water in monitoring wells at the site measured on April 12, 2005 ranged from 1.56 to 3.36 feet. Based on data obtained on April 11, 2005, the triangulated direction of ground water flow was toward the southeast.

F. Soil Boring Data

Drilling Date(s): 04/10/05 through 04/11/05

Provide a brief justification for the location of the soil borings.

- SB-1 - UST Basin
- SB-2/MW-2 - UST Basin
- SB-3 - Product Piping/Dispenser Island
- SB-4 - Product Piping
- SB-5 - Product Piping/Dispenser Island
- SB-6 - Product Piping
- SB-7 - Dispenser Island
- SB-8/MW-4 - Background Boring

Background Boring:

Borehole: SB-8/MW-4

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-4'	N/A	Grayish brown silty fine sand; loose.	Wet; no odor.
4-12'	N/A	Greenish gray fine sandy clay; firm.	Wet; no odor.

UST Area Borings:

Borehole: SB-1

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-2'	1,519 @ 1.5'	Grayish brown silty fine sand; loose.	Dry; petroleum odor.

Borehole: SB-2/MW-2

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-10'	2,000 + @ 1.5'	Grayish brown silty fine sand; loose.	Wet @ 3'; strong petroleum odor.
10-12'	N/A	Greenish gray fine sandy clay; firm.	Wet; strong petroleum odor.

Product Piping/Dispenser Borings:

Borehole: SB-3

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-2'	1.5	Grayish brown silty fine sand; loose.	Dry; minor petroleum odor.

Borehole: SB-4

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-2'	N/A	Grayish brown silty fine sand; loose.	Dry; minor petroleum odor.

Borehole: SB-5

Sampling Date: 04/11/05

Sample Depth: 1.5'

Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions
0-2'	N/A	Grayish brown silty fine sand; loose.	Dry; minor petroleum odor.

Product Piping/Dispenser Island Borings:

Borehole: SB-6		Sampling Date: 04/11/05		Sample Depth: 1.5'	
Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions		
0-2'	N/A	Brown silty fine sand; loose.	Dry; strong petroleum odor.		

Borehole: SB-7		Sampling Date: 04/11/05		Sample Depth: 1.5'	
Sampling Interval	Field Screening Results (ppm-v)	Lithology	Soil Conditions		
0-2'	N/A	Grayish brown silty fine sand; loose.	Dry; no odor.		

Soil Analytical Data (mg/kg):

COC	RBSL ¹	SB-1	SB-2 / MW-2	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8 / MW-4
Benzene	0.007	0.0458²	3.66	0.0033	0.0146	0.0201	3.88	<0.0024 ³	NR ⁴
Toluene	1.450	0.0061	92.7	0.0075	0.179	0.0097	99.8	<0.0024	NR
Ethylbenzene	1.150	0.244	29.6	0.132	<0.0777	0.0294	36.5	<0.0024	NR
Xylenes	14.500	0.901	246	0.0403	0.150	0.0211	196	<0.0024	NR
Total BTEX	---	1.1969	371.96	0.1831	0.3436	0.0803	336.18	<0.0096	NR
Naphthalene	0.036	0.0968	18.9	0.00574	0.00947	0.00614	19.1	<0.00606	NR
Benzo(a)anthracene	0.066	<0.085 ³	<0.080	<0.077	<0.074	<0.077	<0.076	<0.078	NR
Benzo(b)fluoranthene	0.066	<0.085	<0.080	<0.077	<0.074	<0.077	<0.076	<0.078	NR
Benzo(k)fluoranthene	0.066	<0.085	<0.080	<0.077	<0.074	<0.077	<0.076	<0.078	NR
Chrysene	0.066	<0.085	<0.080	<0.077	<0.074	<0.077	<0.076	<0.078	NR
Dibenzo(a,h)anthracene	0.066	<0.085	<0.080	<0.077	<0.074	<0.077	<0.076	<0.078	NR
TPH 3550	---	NR	364	NR	NR	NR	NR	NR	NR
TOC (background boring)	---	NR	NR	NR	NR	NR	NR	NR	41,600

Notes:

1. May 2001 Risk-Based Screening Levels for sandy soil for all separation distances.
2. Concentrations in bold face type exceeded the RBSL.
3. Less than the report limit specified in the laboratory report.
4. Analysis not requested.

Discuss the horizontal and vertical extent of COC in soil.

Concentrations of one or more BTEX constituents and/or naphthalene that exceeded the RBSLs were reported in soil samples collected from SB-1, SB-2 and SB-4 through SB-6. However, due to the shallow depth to ground water, the COC are probably present due to fluctuations in the water table and not as a direct result of the release.

Additional Comments: NA

**G. Chemicals of Concern - Ground Water
Well Installation Information**

Well No.	Installation Date	Development Date	Sampling Date
MW-1	12/17/02	04/12/05	04/12/05
MW-2	04/11/05	04/12/05	04/12/05
MW-3	04/11/05	04/12/05	04/12/05
MW-4	04/11/05	04/12/05	04/12/05

Soil Analytical Data - Monitoring Wells

Soil samples were collected from SB-2 and SB-8 during the installation of MW-2 and MW-4, respectively. Please refer to the table containing soil analytical data for the results of analyses.

Summary of Monitoring Well and Ground Water Data (feet)

Well No.	TOC Elevation	Depth to Water	Water Table Elevation	Screened Interval
MW-1	100.00	2.00	98.00	2.5-12.5
MW-2	100.01	1.91	98.10	2-12
MW-3	99.50	1.56	97.94	2-12
MW-4	99.55	3.36	96.19	2-12

Dissolved Oxygen Measurements (mg/L)

	MW-1	MW-2	MW-3	MW-4
Dissolved Oxygen	4.1	5.3	4.6	6.5

Ground Water Analytical Data¹

COC	RBSL ²	MW-1	MW-2	MW-3	MW-4	WSW-1
Free Product Thickness	---	---	---	---	---	---
Benzene	5	7,000³	918	24.6	<1.0 ⁴	<1.0
Toluene	1,000	15,200	4,720	19.3	<1.0	<1.0
Ethylbenzene	700	2,140	440	57.4	<1.0	<1.0
Xylenes	10,000	10,100	1,920	96.1	<1.0	<1.0
Total BTEX	---	34,440	7,998	197.4	<4.0	<4.0
MTBE	40	9,450	1,600	2.4	68.6	<1.0
Naphthalene	25	830	201	83.5	<5.00	<5.00
EDB	0.05	0.29	<0.02	<0.02	<0.02	NR ⁵
Lead	15	22.0	92.0	156	22.0	NR
Benzo(a)anthracene	10	NR	<2.3	<2.0	<2.0	NR
Benzo(b)fluoranthene	10	NR	<2.3	<2.0	<2.0	NR
Benzo(k)fluoranthene	10	NR	<2.3	<2.0	<2.0	NR
Chrysene	10	NR	<2.3	<2.0	<2.0	NR
Dibenzo(a,h)anthracene	10	NR	<2.3	<2.0	<2.0	NR
Methane	---	NR	1.10	0.329	<0.026	NR
Nitrate	---	NR	<0.10	<0.10	<0.10	NR
Sulfate	---	NR	3.52	9.50	8.61	NR
Ferrous Iron	---	NR	21.1	67.8	3.87	NR

Notes:

1. COC concentrations reported in µg/l; natural attenuation parameter concentrations reported in mg/l.
2. May 2001 Risk-Based Screening Levels.
3. Concentrations in bold face type exceeded the RBSLs.
4. Less than the report limit specified in the laboratory report.
5. Analysis not requested.

Additional Comments: NA

H. Aquifer Characteristics

Hydraulic Conductivity: 2.41×10^{-5} to 6.98×10^{-5} feet/minute (3.47×10^{-2} to 0.10 feet/day)

Hydraulic Gradient: 0.02 feet/foot

Effective Porosity: 0.23

Estimated Seepage Velocity: 3.02×10^{-3} to 8.70×10^{-2} feet/day (1.10 to 3.18 feet/year)

Additional Comments: N/A

III. TIER I EVALUATION

A. Current Land Use

Identify any potential receptors or human exposure pathways (e.g. basements, contaminated soils from UST closures, etc.) within a 1,000-foot radius for current land use.

Media (For Exposure)	Exposure Route	Pathway Selected for Evaluation (Yes/No)	Exposure Point or Reason for Non-Selection	Data Requirements (IF Pathway Selected)
Air	Inhalation Explosion Hazard	Yes <u>No</u> Yes <u>No</u>	Utilities do not intersect contaminant plume.	None
Ground Water	Ingestion Dermal Contact Volatile Inhalation	<u>Yes</u> No <u>Yes</u> No <u>Yes</u> No	Two water supply wells were identified within a 1,000-foot radius of the source area.	Tier II Evaluation
Surface Water	Ingestion Dermal Contact Volatile Inhalation	<u>Yes</u> No <u>Yes</u> No <u>Yes</u> No	Two surface water bodies were identified within a 1,000-foot radius of the source area.	Tier II Evaluation
Surficial Soil	Ingestion Dermal Contact Volatile Inhalation Leaching to Ground Water	Yes <u>No</u> Yes <u>No</u> Yes <u>No</u> Yes <u>No</u>	The UST basin and dispenser island are paved; depth to the seasonal high water table <4 feet.	None
Subsurface Soil	Ingestion Dermal Contact Volatile Inhalation Leaching to Ground Water	Yes <u>No</u> Yes <u>No</u> Yes <u>No</u> Yes <u>No</u>	The UST basin and dispenser island are paved; depth to the seasonal high water table <4 feet.	None

B. Future Land Use

Identify any potential receptors or human exposure pathways (e.g. basements, contaminated soils from UST closures, etc.) within a 1,000-foot radius for future land use.

Media (For Exposure)	Exposure Route	Pathway Selected for Evaluation (Yes/No)	Exposure Point or Reason for Non-Selection	Data Requirements (IF Pathway Selected)
Air	Inhalation Explosion Hazard	Yes <u>No</u> Yes <u>No</u>	Utilities do not intersect contaminant plume.	None
Ground Water	Ingestion Dermal Contact Volatile Inhalation	<u>Yes</u> No <u>Yes</u> No <u>Yes</u> No	Two water supply wells were identified within a 1,000-foot radius of the source area.	Tier II Evaluation
Surface Water	Ingestion Dermal Contact Volatile Inhalation	<u>Yes</u> No <u>Yes</u> No <u>Yes</u> No	Two surface water bodies were identified within a 1,000-foot radius of the source area.	Tier II Evaluation
Surficial Soil	Ingestion Dermal Contact Volatile Inhalation Leaching to Ground Water	Yes <u>No</u> Yes <u>No</u> Yes <u>No</u> Yes <u>No</u>	The UST basin and dispenser island are paved; depth to the seasonal high water table <4 feet.	None
Subsurface Soil	Ingestion Dermal Contact Volatile Inhalation Leaching to Ground Water	Yes <u>No</u> Yes <u>No</u> Yes <u>No</u> Yes <u>No</u>	The UST basin and dispenser island are paved; depth to the seasonal high water table <4 feet.	None

Recommendations for Further Action:

Concentrations of each BTEX constituent and naphthalene that exceeded the RBSLs were reported in soil samples collected at the site. However, the surficial soils are within the zone of water table fluctuation. Therefore, no additional soil assessment or remediation should be required. Concentrations of each BTEX constituent, naphthalene, MTBE, EDB and lead that exceeded the RBSLs were reported in ground water samples collected at the site. Due to the presence of water supply wells and two surface water bodies within a 1,000-foot radius of the source area, a Tier II evaluation should be performed.

Attachments:

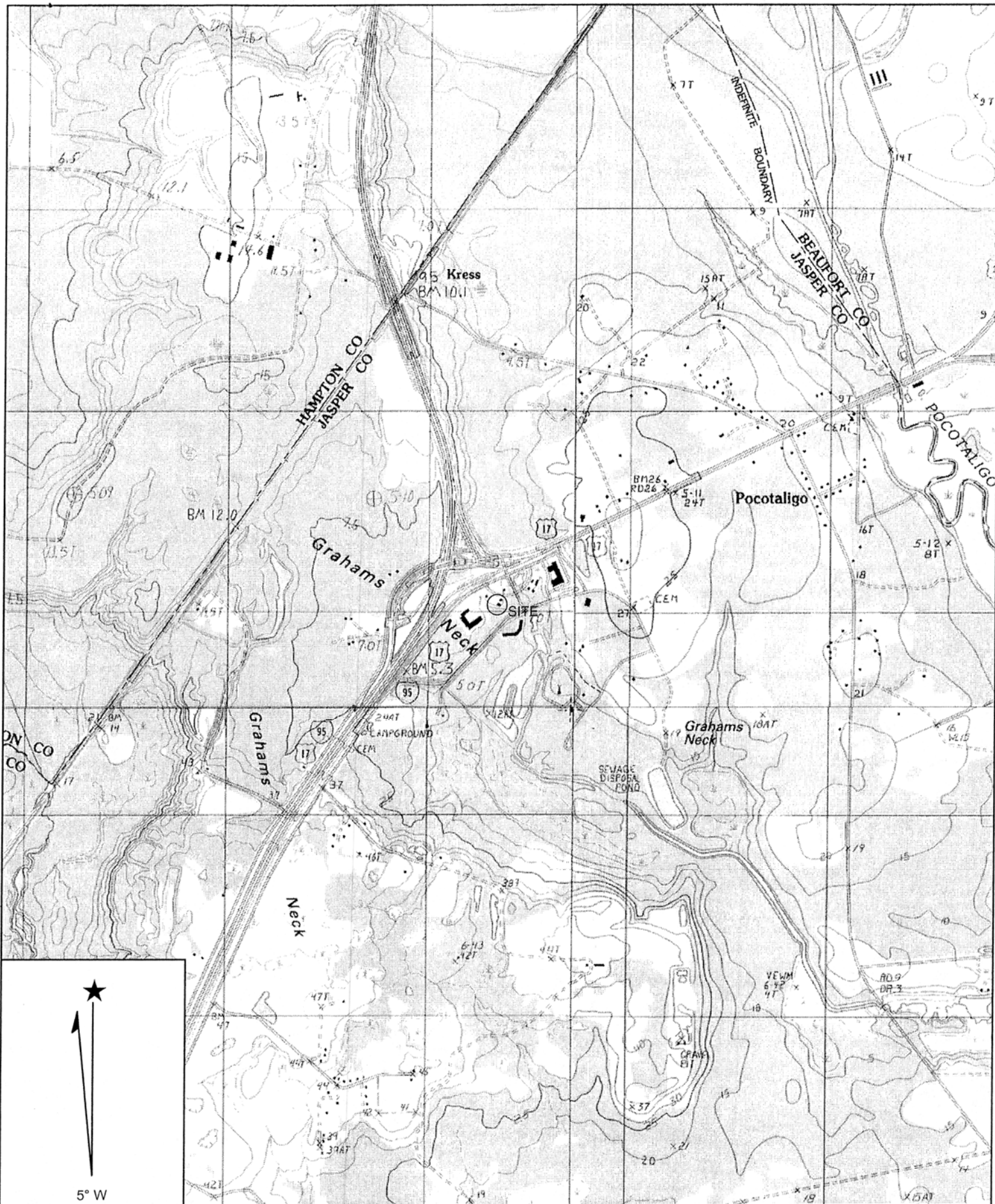
Figures:

- Figure 1: USGS Topographic Map
- Figure 2: Site Vicinity Map
- Figure 3: Site Map
- Figure 4: Soil Quality Map
- Figure 5: Ground Water Quality Map

Appendices:

- Appendix A: Well Construction Records
- Appendix B: Ground Water Sampling Data Sheets
- Appendix C: Laboratory Reports
- Appendix D: Slug Test Data
- Appendix E: Certificate of Disposal
- Appendix F: Jasper County Tax Assessor's Office & Planning Officials
- Appendix G: Summary of Adjacent Property Owner Information
- Appendix H: Summary of Water Supply Well Owner Information

FIGURES

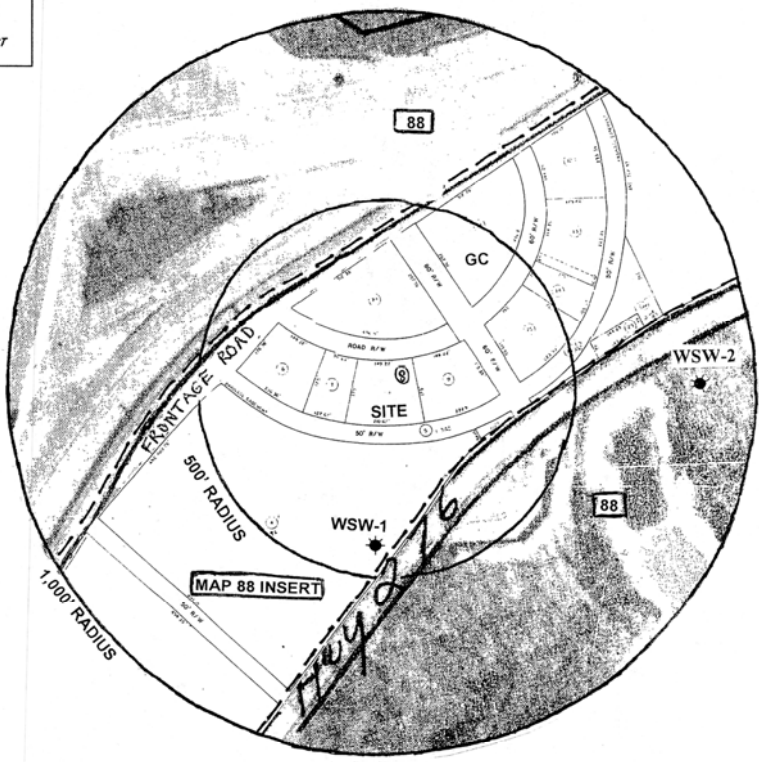


Name: MC PHERSONVILLE
 Date: 4/25/105
 Scale: 1 inch equals 2000 feet

Location: 032° 37' 46.1" N 080° 52' 44.1" W
 Caption: USGS TOPOGRAPHIC MAP
 Nickelpumper #233
 Figure 1 UST Permit #:04878

LEGEND

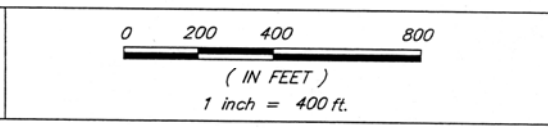
88	JASPER COUNTY TAX MAP
⊙	JASPER COUNTY LOT NUMBER
—	PROPERTY LINE
- - -	TAX MAP BOUNDARY LINE
★	WATER SUPPLY WELL
GC	GENERAL COMMERCIAL ZONING DISTRICT



Geological Resources, Inc.

Environmental and Mining Geologists

- Charlotte, North Carolina
- Greensboro, North Carolina



SITE VICINITY MAP

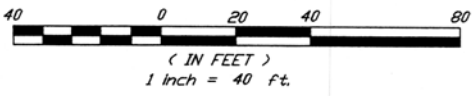
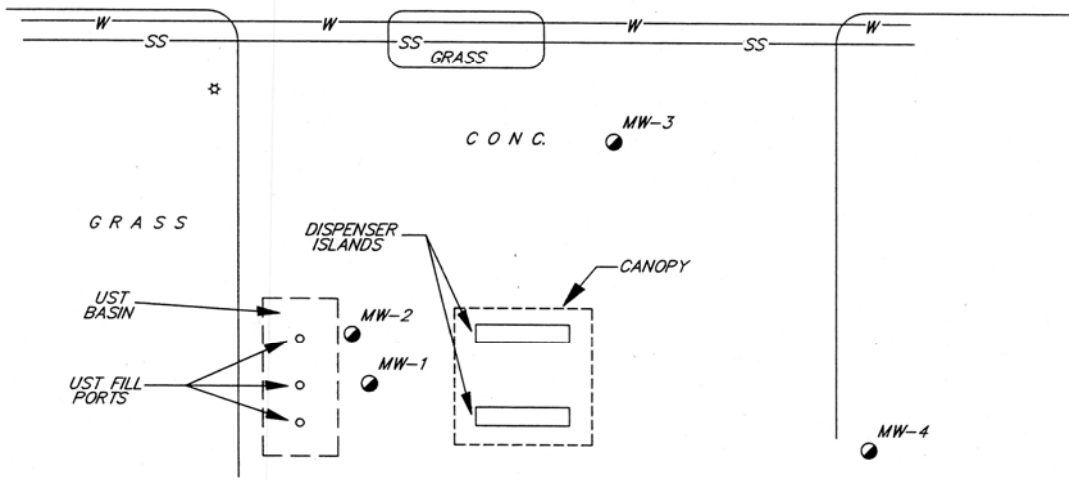
Nickabumper #233	3296 Point South Drive
Yemassee, Beaufort County, SC	UST Permit # 04878
Date: 04/25/05	Drawn by: LJM Figure: 2

LEGEND

- TYPE III MONITORING WELL
- W— UNDERGROUND WATER LINE
- SS— UNDERGROUND SANITARY SEWER LINE
- ☆ LIGHT POLE



POINT SOUTH DRIVE



SITE MAP			
Nickelpumper #233		3296 Point South Drive	
Yamasse, Jasper County, SC		UST Permit #04878	
Date: 04/25/05	Drawn by: LJM	Figure: 3	
GEOLOGICAL RESOURCES, INC.			

LEGEND

- TYPE III MONITORING WELL
- W— UNDERGROUND WATER LINE
- SS— UNDERGROUND SANITARY SEWER LINE
- * LIGHT POLE

1.5	SAMPLE DEPTH (feet)
0.0458	BENZENE
0.0061	TOLUENE
0.244	ETHYL BENZENE
0.901	XYLENES
0.0968	NAPHTHALENE
<0.425	TOTAL PAHs

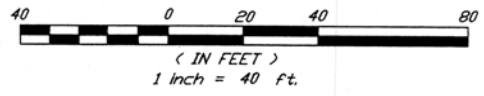
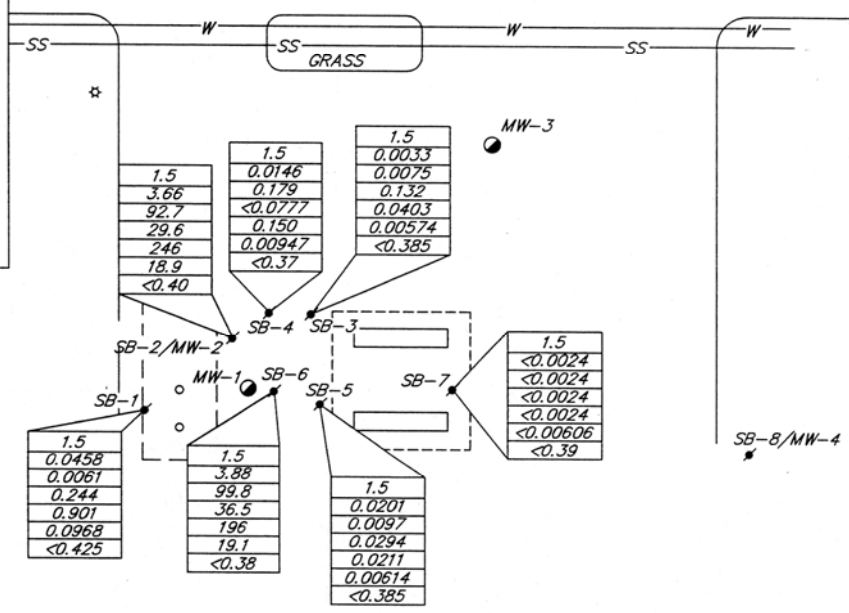
CONCENTRATIONS IN mg/kg

<0.085 LESS THAN THE REPORT LIMIT SPECIFIED IN THE LABORATORY REPORT

NOTES:

TPH 3550 CONCENTRATION IN SB-2/MW-2 = 364 mg/kg
 TOC CONCENTRATION IN SB-8/MW-4 = 41,600 mg/kg

POINT SOUTH DRIVE



SOIL QUALITY MAP (04/11/05)			
Nickelbump #233		3296 Point South Drive	
Yemassee, Jasper County, SC		UST Permit #04878	
Date: 04/25/05	Drawn by: LJM	Figure: 4	
GEOLOGICAL RESOURCES, INC.			

LEGEND

- TYPE III MONITORING WELL
- WATER SUPPLY WELL
- W— UNDERGROUND WATER LINE
- SS— UNDERGROUND SANITARY SEWER LINE
- ☆ LIGHT POLE
- (97.94) GROUND WATER ELEVATION (ft)
- 97.94 - - - WATER TABLE SURFACE CONTOUR

7,000	BENZENE
15,200	TOLUENE
2,140	ETHYLBENZENE
10,100	XYLENES
9,450	MTBE
830	NAPHTHALENE
0.29	EDB
22.0	TOTAL LEAD
NR	TOTAL PAHs

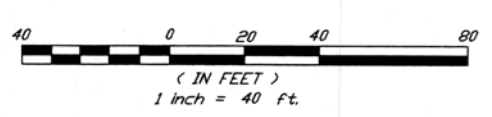
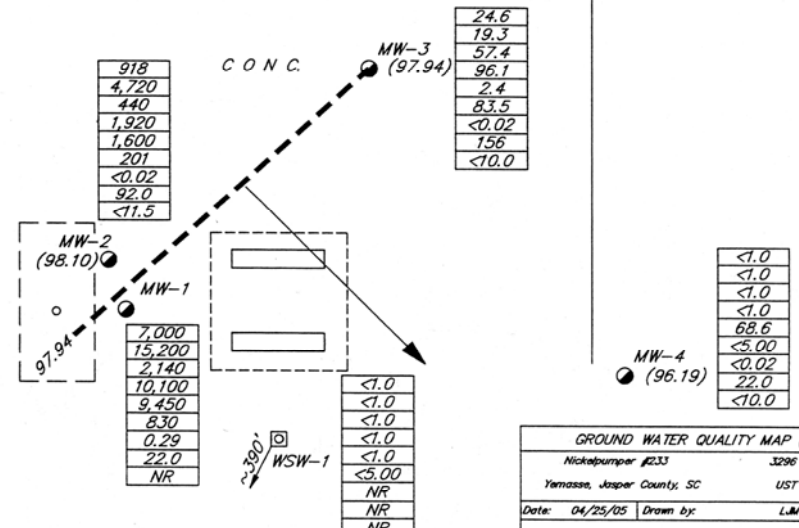
CONCENTRATIONS IN ug/l
 <0.02 LESS THAN THE REPORT LIMIT SPECIFIED IN THE LABORATORY REPORT
 NR ANALYSIS NOT REQUESTED



POINT SOUTH DRIVE

GRASS

CONC.



GROUND WATER QUALITY MAP (04/12/05)	
Nickelbump #233	3296 Point South Drive
Yemassee, Jasper County, SC	UST Permit #04878
Date: 04/25/05	Drawn by: LJM Figure: 5
GEOLOGICAL RESOURCES, INC.	

APPENDICES

APPENDIX A
Well Construction Records

APPENDIX B
Ground Water Sampling Data Sheets

Field Data Information Sheet for Ground-Water Sampling
 South Carolina Department of Health and Environmental Control
 Bureau of Underground Storage Tank Management

Date (mm/dd/yy): 5/12/05
 Field Personnel: BBIKP
 General Weather Conditions: Cloudy
 Ambient Air Temperature: 72 C

Quality Assurance

pH Meter	Conductivity Meter
serial no. <u>807061</u>	serial no. _____
pH=4.0 _____	Standard _____
pH=7.0 _____	Standard _____
pH=10.0 _____	Standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Nickle Pumper #233
 Site ID # 04878 Monitoring Well # MW-1
 Well Diameter (D): 2' feet
 Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
 for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
 Depth to Ground Water (DGW) 2.00 feet
 Total Well Depth (TWD) 12.00 feet
 Length of the water column (LWC = TWD-DGW) 10.00 feet

1 casing volume (CV = LWC X C) = 1.63
 3 casing volume 3 X CV = 4.89 gals (standard purge volume)

Total volume of Water Purged Before Sampling 2.25 gals
 Total volume of Water Purged for Post Sampling _____ gals
3.25 Total Purged

*If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)	<u>0.25</u>	<u>1.75</u>	<u>3.25</u>					
Time (military)	<u>1601</u>	<u>1603</u>	<u>1608</u>					<u>1610</u>
pH (s.u.)	<u>4.7</u>	<u>4.5</u>	<u>4.3</u>					
Specific Cond. (umhos/cm)	<u>0.07</u>	<u>0.07</u>	<u>0.08</u>					
Water Temperature (degrees C)	<u>20</u>	<u>20</u>	<u>20</u>					
Turbidity (subjective: clear, slightly cloudy, cloudy)	<u>Slightly cloudy</u>	<u>cloudy</u>	<u>cloudy</u>					
Dissolved Oxygen (mg/l)	<u>1.0</u>	<u>4.1</u>	<u>4.1</u>					
PID readings, if required								
Remarks:								

Field Data Information Sheet for Ground-Water Sampling
 South Carolina Department of Health and Environmental Control
 Bureau of Underground Storage Tank Management

Date (mm/dd/yy): 4/2/05
 Field Personnel: Burt, Ken
 General Weather Conditions: Cloudy
 Ambient Air Temperature: 72 C

Quality Assurance

pH Meter serial no. <u>8090dd</u>	Conductivity Meter serial no. _____
pH=4.0 _____	Standard _____
pH=7.0 _____	Standard _____
pH=10.0 _____	Standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Nickle Pumper #233
 Site ID # 04878 Monitoring Well # MW-2
 Well Diameter (D): 0.167 feet
 Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
 for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
 Depth to Ground Water (DGW) 1.91 feet
 Total Well Depth (TWD) 12 feet
 Length of the water column (LWC = TWD-DGW) 10.09 feet

1 casing volume (CV = LWC X C) = 1.64 gals
 3 casing volume 3 X CV = 4.93 gals (standard purge volume)

Total volume of Water Purged Before Sampling 2.00 gals
 Total volume of Water Purged for Post Sampling _____ gals
2.00 Total Purged

*If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)	<u>0.25</u>	<u>1.75</u>						
Time (military)	<u>1542</u>	<u>1545</u>						<u>1555</u>
pH (s.u.)	<u>4.5</u>	<u>4.6</u>						
Specific Cond. (umhos/cm)	<u>0.15</u>	<u>0.16</u>						
Water Temperature (degrees C)	<u>19</u>	<u>20</u>						
Turbidity (subjective: clear, slightly cloudy, cloudy)	<u>cloudy</u>	<u>cloudy</u>						
Dissolved Oxygen (mg/l)	<u>1.7</u>	<u>5.3</u>						
PID readings, if required								
Remarks:	<u>bailed essentially dry after 2.00 gallons removed</u>							

Field Data Information Sheet for Ground-Water Sampling
 South Carolina Department of Health and Environmental Control
 Bureau of Underground Storage Tank Management

Date (mm/dd/yy): 4/12/05
 Field Personnel: BBLLP
 General Weather Conditions: cloudy
 Ambient Air Temperature: 72 C

Quality Assurance

pH Meter	Conductivity Meter
serial no. <u>8091dd</u>	serial no. _____
pH=4.0 _____	Standard _____
pH=7.0 _____	Standard _____
pH=10.0 _____	Standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Nickle Pumper #233
 Site ID # 04878 Monitoring Well # MW-3
 Well Diameter (D): 2' feet
 Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
 for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
 Depth to Ground Water (DGW) 1.56 feet
 Total Well Depth (TWD) 15.0 feet
 Length of the water column (LWC = TWD-DGW) 13.44 feet

1 casing volume (CV = LWC X C) = 1.70
 3 casing volume 3 X CV = 5.11 gals (standard purge volume)

Total volume of Water Purged Before Sampling 3.75 gals
 Total volume of Water Purged for Post Sampling _____ gals
3.75 Total Purged

*If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)	<u>0.25</u>	<u>2.00</u>	<u>3.75</u>					
Time (military)	<u>1521</u>	<u>1524</u>	<u>1527</u>					<u>1529</u>
pH (s.u.)	<u>4.4</u>	<u>4.3</u>	<u>4.4</u>					
Specific Cond. (umhos/cm)	<u>.17</u>	<u>.22</u>	<u>.17</u>					
Water Temperature (degrees C)	<u>19</u>	<u>19</u>	<u>19</u>					
Turbidity (subjective: clear, slightly cloudy, cloudy)	<u>cloudy</u>	<u>cloudy</u>	<u>cloudy</u>					
Dissolved Oxygen (mg/l)	<u>2.2</u>	<u>2.7</u>	<u>4.6</u>					
PID readings, if required								
Remarks:								

Field Data Information Sheet for Ground-Water Sampling
 South Carolina Department of Health and Environmental Control
 Bureau of Underground Storage Tank Management

Date (mm/dd/yy): 4/12/05
 Field Personnel: EP, BB
 General Weather Conditions: cloudy
 Ambient Air Temperature: 72 C

Quality Assurance

pH Meter serial no.	<u>809061</u>	Conductivity Meter serial no.	
pH=4.0		Standard	
pH=7.0		Standard	
pH=10.0		Standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Nickle Pumper #233
 Site ID # 04878 Monitoring Well # MW-4
 Well Diameter (D): 2" feet
 Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
 for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
 Depth to Ground Water (DGW) 3.36 feet
 Total Well Depth (TWD) 12.0 feet
 Length of the water column (LWC = TWD-DGW) 8.64 feet

1 casing volume (CV = LWC X C) = 1.40
 3 casing volume 3 X CV = 4.22 gals (standard purge volume)

Total volume of Water Purged Before Sampling 2.25 gals
 Total volume of Water Purged for Post Sampling .25 gals
2.50 Total Purged

*If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)	<u>.25</u>						<u>1.25</u>	
Time (military)	<u>1500</u>	<u>1505</u>					<u>1509</u>	<u>1508</u>
pH (s.u.)	<u>5.4</u>	<u>5.0</u>					<u>4.8</u>	
Specific Cond. (umhos/cm)	<u>.14</u>	<u>.14</u>					<u>.13</u>	
Water Temperature (degrees C)	<u>17</u>	<u>17</u>					<u>17</u>	
Turbidity (subjective: clear, slightly cloudy, cloudy)	<u>slightly</u>	<u>cloudy</u>	<u>cloudy</u>				<u>cloudy</u>	
Dissolved Oxygen (mg/l)	<u>2.7</u>	<u>6.5</u>		<u>Bailed</u>			<u>3.8</u>	
PID readings, if required								
Remarks:	<u>DRY @ 2.25</u>							

Field Data Information Sheet for Ground-Water Sampling
 South Carolina Department of Health and Environmental Control
 Bureau of Underground Storage Tank Management

Date (mm/dd/yy): 4/12/05
 Field Personnel: K.P.BB
 General Weather Conditions: Cloudy
 Ambient Air Temperature: 72 C

Quality Assurance

pH Meter	Conductivity Meter
serial no. <u>80901</u>	serial no. _____
pH=4.0 _____	Standard _____
pH=7.0 _____	Standard _____
pH=10.0 _____	Standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Nickle Pumper #233
 Site ID # 04878 Monitoring Well # WSW-1
 Well Diameter (D): _____ feet
 Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
 for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
 Depth to Ground Water (DGW) _____ feet
 Total Well Depth (TWD) _____ feet
 Length of the water column (LWC = TWD-DGW) _____ feet

1 casing volume (CV = LWC X C) = _____ gals (standard purge volume)
 3 casing volume 3 X CV = _____ gals (standard purge volume)

Total volume of Water Purged Before Sampling _____ gals
 Total volume of Water Purged for Post Sampling _____ gals
 Total Purged _____ gals

*If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)								
Time (military)								1559
pH (s.u.)								
Specific Cond. (umhos/cm)								
Water Temperature (degrees C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
Dissolved Oxygen (mg/l)								
PID readings, if required								
Remarks:								

APPENDIX C
Laboratory Reports

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51746
Sample ID: SB-1 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 9:53
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	79.1	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	0.0458	mg/kg	0.0020	1.0	4/15/05	19:44	J. Adams	8260B	2206
Ethylbenzene	0.244	mg/kg	0.0995	50.0	4/15/05	18:12	J. Adams	8260B	2209
Naphthalene	0.0968	mg/kg	0.00498	1.0	4/15/05	19:44	J. Adams	8260B	2206
Toluene	0.0061	mg/kg	0.0020	1.0	4/15/05	19:44	J. Adams	8260B	2206
Xylenes (Total)	0.901	mg/kg	0.0995	50.0	4/15/05	18:12	J. Adams	8260B	2209

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	30.0 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	6.35 g	5.0 ml	4/11/05	9:53	N. Noman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51746
Sample ID: SB-1 (1.5)
Project:
Page 2

Surrogate -----	% Recovery -----	Target Range -----
VOA Surr, 1,2-DCAd4	105.	72. - 125.
VOA Surr Toluene-d8	101.	80. - 124.
VOA Surr, 4-BFB	96.	25. - 185.
VOA Surr, DBFM	99.	73. - 124.
BNA Surr-Nitrobenzene-d5	87.	10. - 153.
BNA Surr-2-Fluorobiphenyl	80.	35. - 106.
BNA Surr-Terphenyl-d14	91.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51747
Sample ID: SB-2 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 10:29
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	84.1	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
TPH (Diesel Range)	364.	mg/kg	59.5	5.0	4/15/05	9:31	M. Jarrett	8015B	9877
Benzo(a)anthracene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M. Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M. Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M. Schott	8270C	1011
Chrysene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M. Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M. Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	3.66	mg/kg	0.200	100.	4/16/05	5:18	J. Adams	8260B	2223
Ethylbenzene	29.6	mg/kg	2.00	1000	4/16/05	3:16	J. Adams	8260B	2232
Naphthalene	18.9	mg/kg	0.498	100.	4/16/05	5:18	J. Adams	8260B	2223
Toluene	92.7	mg/kg	2.00	1000	4/16/05	3:16	J. Adams	8260B	2232
Xylenes (Total)	246.	mg/kg	2.00	1000	4/16/05	3:16	J. Adams	8260B	2232

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	29.8 gm	1.0 ml	4/14/05		J. Davis	3550
EPH/DRO	25.0 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	5.97 g	5.0 ml	4/11/05	10:29	N. Noman	5035

ANALYTICAL REPORT

Laboratory Number: 05-A51747
Sample ID: SB-2 (1.5)
Project:
Page 2

Surrogate -----	% Recovery -----	Target Range -----
TPH Hi Surr., o-Terphenyl	90.	35. - 135.
VOA Surr, 1,2-DCAd4	103.	72. - 125.
VOA Surr Toluene-d8	101.	80. - 124.
VOA Surr, 4-BFB	110.	25. - 185.
VOA Surr, DBFM	105.	73. - 124.
BNA Surr-Nitrobenzene-d5	97.	10. - 153.
BNA Surr-2-Fluorobiphenyl	81.	35. - 106.
BNA Surr-Terphenyl-d14	82.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.
The TRPH-Diesel MS/MSD were not reported due to the matrix of the sample spiked.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51748
Sample ID: SB-3 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 11:11
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analysis Analyst	Analysis Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	85.9	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	0.0033	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	2206
Ethylbenzene	0.132	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	2206
Naphthalene	0.00574	mg/kg	0.00410	1.0	4/15/05	16:40	J. Adams	8260B	2206
Toluene	0.0075	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	2206
Xylenes (Total)	0.0403	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	2206

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	30.2 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	7.10 g	5.0 ml	4/11/05	11:11	N. Noman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51748
Sample ID: SB-3 (1.5)
Project:
Page 2

Surrogate -----	% Recovery -----	Target Range -----
VOA Surr, 1,2-DCAd4	100.	72. - 125.
VOA Surr Toluene-d8	109.	80. - 124.
VOA Surr, 4-BFB	110.	25. - 185.
VOA Surr, DBFM	96.	73. - 124.
BNA Surr-Nitrobenzene-d5	93.	10. - 153.
BNA Surr-2-Fluorobiphenyl	85.	35. - 106.
BNA Surr-Terphenyl-d14	91.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51749
Sample ID: SB-4 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 11:26
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	89.5	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	0.0146	mg/kg	0.0016	1.0	4/15/05	20:14	J. Adams	8260B	2206
Ethylbenzene	ND	mg/kg	0.0777	50.0	4/15/05	18:43	J. Adams	8260B	2209
Naphthalene	0.00947	mg/kg	0.00389	1.0	4/15/05	20:14	J. Adams	8260B	2206
Toluene	0.179	mg/kg	0.0777	50.0	4/15/05	18:43	J. Adams	8260B	2209
Xylenes (Total)	0.150	mg/kg	0.0777	50.0	4/15/05	18:43	J. Adams	8260B	2209

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	30.5 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	7.19 g	5.0 ml	4/11/05	11:26	N. Noman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51749
Sample ID: SB-4 (1.5)
Project:
Page 2

Surrogate -----	% Recovery -----	Target Range -----
VOA Surr, 1,2-DCAd4	96.	72. - 125.
VOA Surr Toluene-d8	104.	80. - 124.
VOA Surr, 4-BFB	99.	25. - 185.
VOA Surr, DBFM	99.	73. - 124.
BNA Surr-Nitrobenzene-d5	81.	10. - 153.
BNA Surr-2-Fluorobiphenyl	78.	35. - 106.
BNA Surr-Terphenyl-d14	81.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

Ethylbenzene by 8260 reported with an elevated PQL due to contamination from previous samples. Sample volume insufficient to repeat without dilution.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51750
Sample ID: SB-5 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 13:23
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analysis Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	87.0	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	0.0201	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	2206
Ethylbenzene	0.0294	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	2206
Naphthalene	0.00614	mg/kg	0.00409	1.0	4/15/05	17:11	J. Adams	8260B	2206
Toluene	0.0097	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	2206
Xylenes (Total)	0.0211	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	2206

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	29.8 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	7.02 g	5.0 ml	4/11/05	13:23	N. Noman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51750
Sample ID: SB-5 (1.5)
Project:
Page 2

Surrogate	% Recovery	Target Range
-----	-----	-----
VOA Surr, 1,2-DCAd4	100.	72. - 125.
VOA Surr Toluene-d8	104.	80. - 124.
VOA Surr, 4-BFB	114.	25. - 185.
VOA Surr, DBFM	97.	73. - 124.
BNA Surr-Nitrobenzene-d5	82.	10. - 153.
BNA Surr-2-Fluorobiphenyl	78.	35. - 106.
BNA Surr-Terphenyl-d14	87.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51751
Sample ID: SB-6 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 13:50
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	88.6	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	3.88	mg/kg	0.172	100.	4/16/05	5:48	J. Adams	8260B	2223
Ethylbenzene	36.5	mg/kg	1.72	1000	4/16/05	3:46	J. Adams	8260B	2232
Naphthalene	19.1	mg/kg	4.30	1000	4/16/05	3:46	J. Adams	8260B	2232
Toluene	99.8	mg/kg	1.72	1000	4/16/05	3:46	J. Adams	8260B	2232
Xylenes (Total)	196.	mg/kg	1.72	1000	4/16/05	3:46	J. Adams	8260B	2232

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	29.8 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	6.56 g	5.0 ml	4/11/05	13:50	N. Noman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51751
Sample ID: SB-6 (1.5)
Project:
Page 2

Surrogate -----	% Recovery -----	Target Range -----
VOA Surr, 1,2-DCAd4	101.	72. - 125.
VOA Surr Toluene-d8	103.	80. - 124.
VOA Surr, 4-BFB	111.	25. - 185.
VOA Surr, DBFM	102.	73. - 124.
BNA Surr-Nitrobenzene-d5	87.	10. - 153.
BNA Surr-2-Fluorobiphenyl	78.	35. - 106.
BNA Surr-Terphenyl-d14	85.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51752
Sample ID: SB-7 (1.5)
Sample Type: Soil
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/11/05
Time Collected: 14:20
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
% Dry Weight	86.2	%		1.0	4/14/05		A. Runnels	CLP	8827
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	1011
Benzo(b)fluoranthene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	1011
Benzo(k)fluoranthene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	1011
Chrysene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	1011
Dibenzo(a,h)anthracene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	1011
VOLATILE ORGANICS									
Benzene	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	2206
Ethylbenzene	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	2206
Naphthalene	ND	mg/kg	0.00606	1.0	4/15/05	17:41	J. Adams	8260B	2206
Toluene	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	2206
Xylenes (Total)	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	2206

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	29.7 gm	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics	4.79 g	5.0 ml	4/11/05	14:20	N. Noman	5035

Surrogate	% Recovery	Target Range
-----	-----	-----

ANALYTICAL REPORT

Laboratory Number: 05-A51752
Sample ID: SB-7 (1.5)
Project:
Page 2

Surrogate -----	% Recovery -----	Target Range -----
VOA Surr, 1,2-DCAd4	87.	72. - 125.
VOA Surr Toluene-d8	103.	80. - 124.
VOA Surr, 4-BFB	102.	25. - 185.
VOA Surr, DBFM	97.	73. - 124.
BNA Surr-Nitrobenzene-d5	85.	10. - 153.
BNA Surr-2-Fluorobiphenyl	77.	35. - 106.
BNA Surr-Terphenyl-d14	87.	41. - 117.

LABORATORY COMMENTS:

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

E = Estimated Value above the calibration limit of the instrument.

= Recovery outside Laboratory historical or method prescribed limits.

All reported results for metals or Organic analyses have been corrected for dry weight.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
 JOHN BROWN
 2301 CROWN POINT EXEC.DR, STE F
 CHARLOTTE, NC 28227

Lab Number: 05-A51753
 Sample ID: SB-8 (1.5)
 Sample Type: Soil
 Site ID:

Project:
 Project Name: NICKEL PUMPER
 Sampler: KEN PIMIENTA

Date Collected: 4/11/05
 Time Collected: 15:21
 Date Received: 4/13/05
 Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETERS									
TOC	41600	mg/kg	1000	1.0	4/17/05	10:41	M.Checolle	9060M	962

LABORATORY COMMENTS:

ND = Not detected at the report limit.
 B = Analyte was detected in the method blank.
 J = Estimated Value below Report Limit.
 E = Estimated Value above the calibration limit of the instrument.
 # = Recovery outside Laboratory historical or method prescribed limits.
 Extracted TOC result corrected for dry weight.

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 1

Laboratory Receipt Date: 4/13/05

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for the defined analytical batch for MS/MSD analysis on an true sample matrix. Laboratory reagent water was used for QC purposes.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
UST ANALYSIS								
Benzo(a)anthracene	mg/kg	< 0.066	1.65	1.67	99	36. - 138.	1011	'51752
Benzo(b)fluoranthene	mg/kg	< 0.066	1.58	1.67	95	30. - 137.	1011	'51752
Benzo(k)fluoranthene	mg/kg	< 0.066	1.52	1.67	91	28. - 142.	1011	'51752
Chrysene	mg/kg	< 0.066	1.48	1.67	89	33. - 137.	1011	'51752
Dibenzo(a,h)anthracene	mg/kg	< 0.066	1.62	1.67	97	19. - 149.	1011	'51752
VOA PARAMETERS								
Benzene	mg/kg	< 0.0008	0.0451	0.0500	90	53 - 136	2206	blank
Benzene	mg/kg	< 0.0008	0.0451	0.0500	90	53 - 136	2223	blank
Toluene	mg/kg	< 0.0005	0.0452	0.0500	90	43 - 139	2206	blank

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
UST PARAMETERS						
Benzo(a)anthracene	mg/kg	1.65	1.72	4.15	31.	1011
Benzo(b)fluoranthene	mg/kg	1.58	1.52	3.87	40.	1011
Benzo(k)fluoranthene	mg/kg	1.52	1.68	10.00	33.	1011
Chrysene	mg/kg	1.48	1.55	4.62	31.	1011
Dibenzo(a,h)anthracene	mg/kg	1.62	1.75	7.72	34.	1011
VOA PARAMETERS						
Benzene	mg/kg	0.0451	0.0458	1.54	34.	2206
Benzene	mg/kg	0.0451	0.0458	1.54	34.	2223
Toluene	mg/kg	0.0452	0.0464	2.62	39.	2206
VOA Surr, 1,2-DCAd4	% Rec		95.			2206
VOA Surr Toluene-d8	% Rec		102.			2206
VOA Surr, 4-BFB	% Rec		102.			2206
VOA Surr, DBFM	% Rec		100.			2206

PROJECT QUALITY CONTROL DATA
Project Number:
Project Name: NICKEL PUMPER
Page: 2
Laboratory Receipt Date: 4/13/05

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
UST PARAMETERS						
TPH (Diesel Range)	mg/kg	40.0	38.9	97	54 - 126	9877
UST PARAMETERS						
Benzo(a)anthracene	mg/kg	1.67	1.82	109	41 - 138	1011
Benzo(b)fluoranthene	mg/kg	1.67	1.82	109	34 - 136	1011
Benzo(k)fluoranthene	mg/kg	1.67	1.58	95	32 - 142	1011
Chrysene	mg/kg	1.67	1.65	99	38 - 135	1011
Dibenzo(a,h)anthracene	mg/kg	1.67	1.82	109	25 - 149	1011
VOA PARAMETERS						
Benzene	mg/kg	0.0500	0.0468	94	76 - 124	2206
Benzene	mg/kg	0.0500	0.0468	94	76 - 124	2223
Ethylbenzene	mg/kg	0.0500	0.0462	92	70 - 128	2206
Naphthalene	mg/kg	0.0500	0.0383	77	59 - 152	2206
Naphthalene	mg/kg	0.0500	0.0383	77	59 - 152	2223
Toluene	mg/kg	0.0500	0.0472	94	72 - 125	2206
Xylenes (Total)	mg/kg	0.150	0.136	91	71 - 129	2206
VOA Surr, 1,2-DCAd4	% Rec			97	72 - 125	2206
VOA Surr Toluene-d8	% Rec			102	80 - 124	2206
VOA Surr, 4-BFB	% Rec			102	25 - 185	2206
VOA Surr, DBFM	% Rec			100	73 - 124	2206
MISC PARAMETERS						
TOC	mg/kg	29900	29700	99	90 - 110	962

Duplicates

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch	Sample Dup'd
TOC	mg/kg	< 1000	< 1000	N/A	25.	962	05-A53628

PROJECT QUALITY CONTROL DATA
 Project Number:
 Project Name: NICKEL PUMPER
 Page: 3
 Laboratory Receipt Date: 4/13/05

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
UST PARAMETERS					
TPH (Diesel Range)	< 0.10	mg/kg	9877	4/14/05	17:27
Benzo(a)anthracene	< 0.066	mg/kg	1011	4/15/05	14:24
Benzo(b)fluoranthene	< 0.066	mg/kg	1011	4/15/05	14:24
Benzo(k)fluoranthene	< 0.066	mg/kg	1011	4/15/05	14:24
Chrysene	< 0.066	mg/kg	1011	4/15/05	14:24
Dibenzo(a,h)anthracene	< 0.066	mg/kg	1011	4/15/05	14:24
VOA PARAMETERS					
Benzene	< 0.0008	mg/kg	2206	4/15/05	11:57
Benzene	< 0.0008	mg/kg	2223	4/16/05	1:44
Ethylbenzene	< 0.0005	mg/kg	2206	4/15/05	11:57
Naphthalene	< 0.00130	mg/kg	2206	4/15/05	11:57
Naphthalene	0.00130	mg/kg	2223	4/16/05	1:44
Toluene	< 0.0005	mg/kg	2206	4/15/05	11:57
Xylenes (Total)	< 0.0013	mg/kg	2206	4/15/05	11:57
VOA Surr, 1,2-DCAd4	108.	% Rec	2206	4/15/05	11:57
VOA Surr Toluene-d8	103.	% Rec	2206	4/15/05	11:57
VOA Surr, 4-BFB	99.	% Rec	2206	4/15/05	11:57
VOA Surr, DBFM	104.	% Rec	2206	4/15/05	11:57
MISC PARAMETERS					
TOC	< 1000	mg/kg	962	4/17/05	10:41

= Value outside Laboratory historical or method prescribed QC limits.

4/22/05

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

This report includes the analytical certificates of analysis for all samples listed below. These samples relate to your project identified below:

Project Name: NICKEL PUMPER
Project Number: .
Laboratory Project Number: 412553.

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. Any QC recoveries outside laboratory control limits are flagged individually with an #. Sample specific comments and quality control statements are included in the Laboratory notes section of the analytical report for each sample report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

Sample Identification	Lab Number	Page 1 Collection Date
-----	-----	-----
SB-1 (1.5)	05-A51746	4/11/05
SB-2 (1.5)	05-A51747	4/11/05
SB-3 (1.5)	05-A51748	4/11/05
SB-4 (1.5)	05-A51749	4/11/05
SB-5 (1.5)	05-A51750	4/11/05
SB-6 (1.5)	05-A51751	4/11/05
SB-7 (1.5)	05-A51752	4/11/05
SB-8 (1.5)	05-A51753	4/11/05

Sample Identification

Lab Number

Page 2
Collection Date

These results relate only to the items tested.
This report shall not be reproduced except in full and with
permission of the laboratory.

Report Approved By: Roxanne L Connor

Report Date: 4/22/05

Johnny A. Mitchell, Laboratory Director
Michael H. Dunn, M.S., Technical Director
Pamela A. Langford, Senior Project Manager
Eric S. Smith, QA/QC Director
Sandra McMillin, Technical Services

Gail A. Lage, Senior Project Manager
Glenn L. Norton, Technical Services
Kelly S. Comstock, Technical Services
Roxanne L. Connor, Senior Project Manager
Mark Hollingsworth, Director of Project

Laboratory Certification Number: 84009

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If you have received this material in error, please notify us immediately at 615-726-0177.

COOLER RECEIPT FORM

BC#



412553

Client Name : CPI

Cooler Received/Opened On: 4/13/05 Accessioned By: Mark Beasley

M. Beasley
Log-in Personnel Signature

1. Temperature of Cooler when triaged: 0 Degrees Celsius
2. Were custody seals on outside of cooler?..... YES.. NO...NA
a. If yes, how many and where: _____
3. Were custody seals on containers ?..... NO... YES...NA
4. Were the seals intact, signed, and dated correctly?..... YES.. NO...NA
5. Were custody papers inside cooler?..... YES...NO...NA
6. Were custody papers properly filled out (ink, signed, etc)?..... YES...NO...NA
7. Did you sign the custody papers in the appropriate place?..... YES...NO...NA
8. What kind of packing material used? Bubblewrap Peanuts Vermiculite Other None
9. Cooling process: Ice-pack Ice (direct contact) Dry ice Other None
10. Did all containers arrive in good condition (unbroken)?..... YES...NO...NA
11. Were all container labels complete (#, date, signed, pres., etc)?..... YES...NO...NA
12. Did all container labels and tags agree with custody papers?..... YES...NO...NA
13. Were correct containers used for the analysis requested?..... YES...NO...NA
14. a. Were VOA vials received?..... YES...NO...NA
b. Was there any observable head space present in any VOA vial?..... NO...YES.. NA
15. Was sufficient amount of sample sent in each container?..... YES...NO...NA
16. Were correct preservatives used?..... YES...NO...NA

If not, record standard ID of preservative used here _____

17. Was residual chlorine present?..... NO... YES...NA
18. Indicate the Airbill Tracking Number (last 4 digits for Fedex only) and Name of Courier below:
9756 _____

UPS Velocity DHL Route Off-street Fedex Misc.

19. If a Non-Conformance exists, see attached or comments below:



Client Name : GRF

Cooler Received/Opened On: 04/13/05 Accessioned By: Benjamin C. Wright

[Signature]
Log-in Personnel Signature

1. Temperature of Cooler when triaged: 1.5 Degrees Celsius
2. Were custody seals on outside of cooler?..... YES...NO...NA
a. If yes, how many and where: _____
3. Were custody seals on containers ?..... NO...YES...NA
4. Were the seals intact, signed, and dated correctly?..... YES...NO...NA
5. Were custody papers inside cooler?..... YES...NO...NA
6. Were custody papers properly filled out (ink, signed, etc)?..... YES...NO...NA
7. Did you sign the custody papers in the appropriate place?..... YES...NO...NA
8. What kind of packing material used? Bubblewrap Peanuts Vermiculite Other None
9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None
10. Did all containers arrive in good condition (unbroken)?..... YES...NO...NA
11. Were all container labels complete (#, date, signed, pres., etc)?..... YES...NO...NA
12. Did all container labels and tags agree with custody papers?..... YES...NO...NA
13. Were correct containers used for the analysis requested?..... YES...NO...NA
14. a. Were VOA vials received?..... YES...NO...NA
b. Was there any observable head space present in any VOA vial?..... NO...YES...NA
15. Was sufficient amount of sample sent in each container?..... YES...NO...NA
16. Were correct preservatives used?..... YES...NO...NA

If not, record standard ID of preservative used here _____

17. Was residual chlorine present?..... NO...YES...NA
18. Indicate the Airbill Tracking Number (last 4 digits for Fedex only) and Name of Courier below:
9750

Fed-Ex UPS Velocity DHL Route Off-street Misc.

19. If a Non-Conformance exists, see attached or comments below:

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51509
Sample ID: WSW-1
Sample Type: Water
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/12/05
Time Collected: 15:59
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
VOLATILE ORGANICS									
Benzene	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Toluene	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Ethylbenzene	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Xylenes (Total)	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Methyl-t-butyl ether	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Naphthalene	ND	ug/l	5.00	1.0	4/14/05	0:07	B.Herford	8260B	516

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	95.	70. - 130.
VOA Surr Toluene-d8	104.	78. - 121.
VOA Surr, 4-BFB	122.	78. - 126.
VOA Surr, DBFM	96.	79. - 122.

LABORATORY COMMENTS:

ND = Not detected at the report limit.
B = Analyte was detected in the method blank.
J = Estimated Value below Report Limit.
E = Estimated Value above the calibration limit of the instrument.
= Recovery outside Laboratory historical or method prescribed limits.

TestAmerica

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ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51510
Sample ID: MW-1
Sample Type: Water
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/12/05
Time Collected: 16:10
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis		Analyst	Method	Batch
					Date	Time			
VOLATILE ORGANICS									
Benzene	7000	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
Toluene	15200	ug/l	500.	500.	4/14/05	20:07	B.Herford	8260B	543
Ethylbenzene	2140	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
Xylenes (Total)	10100	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
Methyl-t-butyl ether	9450	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
Naphthalene	830.	ug/l	250.	50.0	4/14/05	19:35	B.Herford	8260B	8273
VOLATILE ORGANICS by GC									
Ethylene Dibromide	0.29	ug/l	0.02	1.0	4/15/05	5:05	M. Ricke	8011	9117
METALS									
Lead	22.0	ug/l	3.0	1.0	4/20/05	12:16	R.Street	7421	2813

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	96.	70. - 130.
VOA Surr Toluene-d8	102.	78. - 121.
VOA Surr, 4-BFB	112.	78. - 126.
VOA Surr, DBFM	98.	79. - 122.
Surr., 1,3-DCB	86.0	83. - 134.

LABORATORY COMMENTS:

ND = Not detected at the report limit.
B = Analyte was detected in the method blank.
J = Estimated Value below Report Limit.
E = Estimated Value above the calibration limit of the instrument.
= Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51511
Sample ID: MW-2
Sample Type: Water
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/12/05
Time Collected: 15:55
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analysis Analyst	Method	Batch
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
Benzo(b)fluoranthene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
Benzo(k)fluoranthene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
Chrysene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
Dibenzo(a,h)anthracene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
VOLATILE ORGANICS									
Benzene	918.	ug/l	10.0	10.0	4/14/05	20:39	B.Herford	8260B	8273
Toluene	4720	ug/l	50.0	50.0	4/14/05	21:11	B.Herford	8260B	543
Ethylbenzene	440.	ug/l	10.0	10.0	4/14/05	20:39	B.Herford	8260B	8273
Xylenes (Total)	1920	ug/l	10.0	10.0	4/14/05	20:39	B.Herford	8260B	8273
Methyl-t-butyl ether	1600	ug/l	10.0	10.0	4/14/05	20:39	B.Herford	8260B	8273
Naphthalene	201.	ug/l	50.0	10.0	4/14/05	20:39	B.Herford	8260B	8273
VOLATILE ORGANICS by GC									
Ethylene Dibromide	ND	ug/l	0.02	1.0	4/15/05	5:25	M. Ricke	8011	9117
MISCELLANEOUS GC PARAMETERS									
Methane	1100	ug/L	26.	1.0	4/15/05	11:40	K. Roberso	RSK175M	8128
METALS									
Ferrous Iron	21100	ug/l	1000	10.0	4/13/05	17:28	W. Choate	3500D	8555
Lead	92.0	ug/l	6.0	2.0	4/20/05	12:16	R.Street	7421	2813
MISCELLANEOUS CHEMISTRY									
Nitrate-N as N	ND	mg/l	0.10	1.0	4/13/05	14:10	G. Baun	9056	8149
Sulfate	3.52	mg/l	1.00	1.0	4/13/05	14:10	G. Baun	9056	8149

ANALYTICAL REPORT

Laboratory Number: 05-A51511
Sample ID: MW-2

Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	875. ml	1.0 ml	4/14/05		J. Davis	3510/625

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	96.	70. - 130.
VOA Surr Toluene-d8	102.	78. - 121.
VOA Surr, 4-BFB	114.	78. - 126.
VOA Surr, DBFM	97.	79. - 122.
BNA Surr-Nitrobenzene-d5	61.	31. - 112.
BNA Surr-2-Fluorobiphenyl	56.	33. - 101.
BNA Surr-Terphenyl-d14	61.	31. - 111.
Surr., 1,3-DCB	95.0	83. - 134.
Surr - Acetylene	98.0	70. - 130.

LABORATORY COMMENTS:

ND = Not detected at the report limit.
 B = Analyte was detected in the method blank.
 J = Estimated Value below Report Limit.
 E = Estimated Value above the calibration limit of the instrument.
 # = Recovery outside Laboratory historical or method prescribed limits.
 M = Method RSK175M/8015BM modified for use with Headspace analyzer.
 Sample for Ferrous Iron analysis received outside method prescribed holding time.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51512
Sample ID: MW-3
Sample Type: Water
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/12/05
Time Collected: 15:29
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report Limit	Dil Factor	Analysis		Analyst	Method	Batch
					Date	Time			
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug	8270C	5522
Benzo(b)fluoranthene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug	8270C	5522
Benzo(k)fluoranthene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug	8270C	5522
Chrysene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug	8270C	5522
Dibenzo(a,h)anthracene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug	8270C	5522
VOLATILE ORGANICS									
Benzene	24.6	ug/l	1.0	1.0	4/14/05	15:50	B. Herford	8260B	8273
Toluene	19.3	ug/l	1.0	1.0	4/14/05	15:50	B. Herford	8260B	8273
Ethylbenzene	57.4	ug/l	1.0	1.0	4/14/05	15:50	B. Herford	8260B	8273
Xylenes (Total)	96.1	ug/l	1.0	1.0	4/14/05	15:50	B. Herford	8260B	8273
Methyl-t-butyl ether	2.4	ug/l	1.0	1.0	4/14/05	15:50	B. Herford	8260B	8273
Naphthalene	83.5	ug/l	5.00	1.0	4/14/05	15:50	B. Herford	8260B	8273
VOLATILE ORGANICS by GC									
Ethylene Dibromide	ND	ug/l	0.02	1.0	4/15/05	5:44	M. Ricke	8011	9117
MISCELLANEOUS GC PARAMETERS									
Methane	329.	ug/L	26.	1.0	4/15/05	11:43	K. Roberso	RSK175M	8128
METALS									
Ferrous Iron	67800	ug/l	5000	50.0	4/13/05	17:28	W. Choate	3500D	8555
Lead	156.	ug/l	9.0	3.0	4/20/05	12:16	R. Street	7421	2813
MISCELLANEOUS CHEMISTRY									
Nitrate-N as N	ND	mg/l	0.10	1.0	4/13/05	14:10	G. Baun	9056	8149
Sulfate	9.50	mg/l	1.00	1.0	4/13/05	14:10	G. Baun	9056	8149

ANALYTICAL REPORT

Laboratory Number: 05-A51512
Sample ID: MW-3

Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	1000 ml	1.0 ml	4/14/05		J. Davis	3510/625

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	95.	70. - 130.
VOA Surr Toluene-d8	102.	78. - 121.
VOA Surr, 4-BFB	113.	78. - 126.
VOA Surr, DBFM	97.	79. - 122.
BNA Surr-Nitrobenzene-d5	64.	31. - 112.
BNA Surr-2-Fluorobiphenyl	56.	33. - 101.
BNA Surr-Terphenyl-d14	64.	31. - 111.
Surr., 1,3-DCB	109.	83. - 134.
Surr - Acetylene	94.0	70. - 130.

LABORATORY COMMENTS:

ND = Not detected at the report limit.
 B = Analyte was detected in the method blank.
 J = Estimated Value below Report Limit.
 E = Estimated Value above the calibration limit of the instrument.
 # = Recovery outside Laboratory historical or method prescribed limits.
 M = Method RSK175M/8015BM modified for use with Headspace analyzer.
 Sample for Ferrous Iron analysis received outside method prescribed holding time.

End of Sample Report.

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

Lab Number: 05-A51513
Sample ID: MW-4
Sample Type: Water
Site ID:

Project:
Project Name: NICKEL PUMPER
Sampler: KEN PIMIENTA

Date Collected: 4/12/05
Time Collected: 15:08
Date Received: 4/13/05
Time Received: 8:00

Analyte	Result	Units	Report	Dil	Analysis		Analyst	Method	Batch
			Limit	Factor	Date	Time			
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	ug/l	2.0	1.0	4/16/05	9:26	U. Burroug	8270C	5522
Benzo(b)fluoranthene	ND	ug/l	2.0	1.0	4/16/05	9:26	U. Burroug	8270C	5522
Benzo(k)fluoranthene	ND	ug/l	2.0	1.0	4/16/05	9:26	U. Burroug	8270C	5522
Chrysene	ND	ug/l	2.0	1.0	4/16/05	9:26	U. Burroug	8270C	5522
Dibenzo(a,h)anthracene	ND	ug/l	2.0	1.0	4/16/05	9:26	U. Burroug	8270C	5522
VOLATILE ORGANICS									
Benzene	ND	ug/l	1.0	1.0	4/14/05	16:22	B. Herford	8260B	8273
Toluene	ND	ug/l	1.0	1.0	4/14/05	16:22	B. Herford	8260B	8273
Ethylbenzene	ND	ug/l	1.0	1.0	4/14/05	16:22	B. Herford	8260B	8273
Xylenes (Total)	ND	ug/l	1.0	1.0	4/14/05	16:22	B. Herford	8260B	8273
Methyl-t-butyl ether	68.6	ug/l	1.0	1.0	4/14/05	16:22	B. Herford	8260B	8273
Naphthalene	ND	ug/l	5.00	1.0	4/14/05	16:22	B. Herford	8260B	8273
VOLATILE ORGANICS by GC									
Ethylene Dibromide	ND	ug/l	0.02	1.0	4/15/05	6:03	M. Ricke	8011	9117
MISCELLANEOUS GC PARAMETERS									
Methane	ND	ug/L	26.	1.0	4/15/05	11:46	K. Roberso	RSK175M	8128
METALS									
Ferrous Iron	3870	ug/l	100.	1.0	4/13/05	17:28	W. Choate	3500D	8555
Lead	22.0	ug/l	3.0	1.0	4/20/05	12:16	R. Street	7421	2813
MISCELLANEOUS CHEMISTRY									
Nitrate-N as N	ND	mg/l	0.10	1.0	4/13/05	14:10	G. Baun	9056	8149
Sulfate	8.61	mg/l	1.00	1.0	4/13/05	14:10	G. Baun	9056	8149

ANALYTICAL REPORT

Laboratory Number: 05-A51513
Sample ID: MW-4

Page 2

Sample Extraction Data

Parameter	Wt/Vol		Date	Time	Analyst	Method
	Extracted	Extract Vol				
BNA's	975. ml	1.0 ml	4/14/05		J. Davis	3510/625

Surrogate	% Recovery	Target Range
VOA Surr 1,2-DCA-d4	96.	70. - 130.
VOA Surr Toluene-d8	100.	78. - 121.
VOA Surr, 4-BFB	113.	78. - 126.
VOA Surr, DBFM	96.	79. - 122.
BNA Surr-Nitrobenzene-d5	58.	31. - 112.
BNA Surr-2-Fluorobiphenyl	55.	33. - 101.
BNA Surr-Terphenyl-d14	48.	31. - 111.
Surr., 1,3-DCB	111.	83. - 134.
Surr - Acetylene	94.0	70. - 130.

LABORATORY COMMENTS:

ND = Not detected at the report limit.
B = Analyte was detected in the method blank.
J = Estimated Value below Report Limit.
E = Estimated Value above the calibration limit of the instrument.
= Recovery outside Laboratory historical or method prescribed limits.
M = Method RSK175M/8015BM modified for use with Headspace analyzer.
Sample for Ferrous Iron analysis received outside method prescribed holding time.

End of Sample Report.

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 1

Laboratory Receipt Date: 4/13/05

Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for the defined analytical batch for MS/MSD analysis on an true sample matrix. Laboratory reagent water was used for QC purposes.

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
UST ANALYSIS								
Benzo(a)anthracene	mg/l	< 0.0008	0.0350	0.0500	70	28. - 144.	5522	BLANK
Benzo(b)fluoranthene	mg/l	< 0.0006	0.0340	0.0500	68	26. - 140.	5522	BLANK
Benzo(k)fluoranthene	mg/l	< 0.0005	0.0320	0.0500	64	28. - 137.	5522	BLANK
Chrysene	mg/l	< 0.0004	0.0360	0.0500	72	29. - 138.	5522	BLANK
Dibenzo(a,h)anthracene	mg/l	< 0.0006	0.0280	0.0500	56	21. - 153.	5522	BLANK
VOA PARAMETERS								
Benzene	mg/l	< 0.0010	0.0534	0.0500	107	62 - 146	516	51509
Benzene	mg/l	< 0.0010	0.0532	0.0500	106	62 - 146	8273	52302
Toluene	mg/l	< 0.0010	0.0550	0.0500	110	68 - 141	516	51509
Toluene	mg/l	< 0.0010	0.0552	0.0500	110	68 - 141	8273	52302
VOA Surr 1,2-DCA-d4	% Rec				94	70 - 130	516	
VOA Surr 1,2-DCA-d4	% Rec				93	70 - 130	8273	
VOA Surr Toluene-d8	% Rec				100	78 - 121	516	
VOA Surr Toluene-d8	% Rec				102	78 - 121	8273	
VOA Surr, 4-BFB	% Rec				103	78 - 126	516	
VOA Surr, 4-BFB	% Rec				106	78 - 126	8273	
VOA Surr, DBFM	% Rec				100	79 - 122	516	
VOA Surr, DBFM	% Rec				98	79 - 122	8273	
BNA Surr-Nitrobenzene-d5	% Rec				64	31 - 112	5522	
BNA Surr-2-Fluorobiphenyl	% Rec				63	33 - 101	5522	
BNA Surr-Terphenyl-d14	% Rec				69	31 - 111	5522	
METALS								
Ferrous Iron	mg/l	0.168	1.03	1.00	86	80 - 120	8555	05-A51530
Ferrous Iron	mg/l	0.168	1.06	1.00	89	80 - 120	8555	05-A51530
Lead	mg/l	< 0.0030	0.0450	0.0500	90	80 - 120	2813	05-A54725
MISC PARAMETERS								
Nitrate-N as N	mg/l	< 0.10	3.08	3.00	103	80 - 120	8149	05-A51511
Sulfate	mg/l	3.52	18.2	15.0	98	80 - 120	8149	05-A51511

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 2

Laboratory Receipt Date: 4/13/05

Ethylene Dibromide	mg/l	< 0.00002	0.00034	0.00029	117	40 - 140	9117	05-A49910
Methane	mg/L	< 0.026	1.41	1.33	106	40 - 140	8128	05-A50818

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
UST PARAMETERS						
Benzo(a)anthracene	mg/l	0.0350	0.0330	5.88	28.	5522
Benzo(b)fluoranthene	mg/l	0.0340	0.0340	0.00	32.	5522
Benzo(k)fluoranthene	mg/l	0.0320	0.0350	8.96	31.	5522
Chrysene	mg/l	0.0360	0.0340	5.71	29.	5522
Dibenzo(a,h)anthracene	mg/l	0.0280	0.0280	0.00	37.	5522
VOA PARAMETERS						
Benzene	mg/l	0.0534	0.0543	1.67	25.	516
Benzene	mg/l	0.0532	0.0540	1.49	25.	8273
Toluene	mg/l	0.0550	0.0572	3.92	29.	516
Toluene	mg/l	0.0552	0.0560	1.44	29.	8273
VOA Surr 1,2-DCA-d4	% Rec		93.			516
VOA Surr 1,2-DCA-d4	% Rec		94.			8273
VOA Surr Toluene-d8	% Rec		101.			516
VOA Surr Toluene-d8	% Rec		103.			8273
VOA Surr, 4-BFB	% Rec		105.			516
VOA Surr, 4-BFB	% Rec		105.			8273
VOA Surr, DBFM	% Rec		99.			516
VOA Surr, DBFM	% Rec		99.			8273
BNA Surr-Nitrobenzene-d5	% Rec		63.			5522
BNA Surr-2-Fluorobiphenyl	% Rec		61.			5522
BNA Surr-Terphenyl-d14	% Rec		63.			5522
METALS						
Ferrous Iron	mg/l	1.03	1.06	2.87	20	8555
Lead	mg/l	0.0450	0.0450	0.00	20	2813
MISC PARAMETERS						
Ethylene Dibromide	mg/l	0.00034	0.00029	15.87	50	9117
Methane	mg/L	1.41	1.38	2.15	50	8128

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 3

Laboratory Receipt Date: 4/13/05

Nitrate-N as N	mg/l	3.08	3.10	0.65	20	8149
Sulfate	mg/l	18.2	18.2	0.00	20	8149

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
UST PARAMETERS						
Benzo(a)anthracene	mg/l	0.0500	0.0320	64	34 - 136	5522
Benzo(b)fluoranthene	mg/l	0.0500	0.0330	66	31 - 132	5522
Benzo(k)fluoranthene	mg/l	0.0500	0.0340	68	34 - 132	5522
Chrysene	mg/l	0.0500	0.0340	68	34 - 132	5522
Dibenzo(a,h)anthracene	mg/l	0.0500	0.0270	54	28 - 146	5522
VOA PARAMETERS						
Benzene	mg/l	0.0500	0.0534	107	76 - 127	516
Benzene	mg/l	0.0500	0.0544	109	76 - 127	8273
Ethylbenzene	mg/l	0.0500	0.0559	112	80 - 124	516
Ethylbenzene	mg/l	0.0500	0.0581	116	80 - 124	8273
Naphthalene	mg/l	0.0500	0.0600	120	61 - 143	516
Naphthalene	mg/l	0.0500	0.0642	128	61 - 143	8273
Toluene	mg/l	0.0500	0.0546	109	79 - 124	516
Toluene	mg/l	0.0500	0.0557	111	79 - 124	543
Toluene	mg/l	0.0500	0.0557	111	79 - 124	8273
Xylenes (Total)	mg/l	0.150	0.168	112	80 - 125	516
Xylenes (Total)	mg/l	0.150	0.174	116	80 - 125	8273
Methyl-t-butyl ether	mg/l	0.0500	0.0518	104	66 - 136	516
Methyl-t-butyl ether	mg/l	0.0500	0.0534	107	66 - 136	8273
Ethylene Dibromide	mg/l	0.00029	0.00033	114	70 - 133	9117
Methane	mg/L	1.33	1.35	102	79 - 121	8128
VOA Surr 1,2-DCA-d4	% Rec			93	70 - 130	516
VOA Surr 1,2-DCA-d4	% Rec			94	70 - 130	543
VOA Surr 1,2-DCA-d4	% Rec			94	70 - 130	8273
VOA Surr Toluene-d8	% Rec			102	78 - 121	516
VOA Surr Toluene-d8	% Rec			101	78 - 121	543
VOA Surr Toluene-d8	% Rec			101	78 - 121	8273
VOA Surr, 4-BFB	% Rec			104	78 - 126	516
VOA Surr, 4-BFB	% Rec			103	78 - 126	543
VOA Surr, 4-BFB	% Rec			103	78 - 126	8273
VOA Surr, DBFM	% Rec			99	79 - 122	516
VOA Surr, DBFM	% Rec			98	79 - 122	543

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 4

Laboratory Receipt Date: 4/13/05

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
VOA Surr, DBFM	% Rec			98	79 - 122	8273
BNA Surr-Nitrobenzene-d5	% Rec			61	31 - 112	5522
BNA Surr-2-Fluorobiphenyl	% Rec			59	33 - 101	5522
BNA Surr-Terphenyl-d14	% Rec			65	31 - 111	5522
METALS						
Ferrous Iron	mg/l	1.00	1.02	102	80 - 120	8555
Lead	mg/l	0.0500	0.0440	88	80 - 120	2813
MISC PARAMETERS						
Nitrate-N as N	mg/l	3.00	3.09	103	90 - 110	8149
Sulfate	mg/l	15.0	15.0	100	90 - 110	8149

Duplicates

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch	Sample Dup'd
Ferrous Iron	mg/l	1.66	1.66	0.00	15.	8555	05-A51535

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
UST PARAMETERS					
Benzo(a)anthracene	< 0.0008	mg/l	5522	4/15/05	22:33
Benzo(b)fluoranthene	< 0.0006	mg/l	5522	4/15/05	22:33
Benzo(k)fluoranthene	< 0.0005	mg/l	5522	4/15/05	22:33
Chrysene	< 0.0004	mg/l	5522	4/15/05	22:33
Dibenzo(a,h)anthracene	< 0.0006	mg/l	5522	4/15/05	22:33

PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

Page: 5

Laboratory Receipt Date: 4/13/05

****VOA PARAMETERS****

Benzene	< 0.0003	mg/l	516	4/13/05	23:35
Benzene	< 0.0003	mg/l	8273	4/14/05	14:47
Ethylbenzene	< 0.0002	mg/l	516	4/13/05	23:35
Ethylbenzene	< 0.0002	mg/l	8273	4/14/05	14:47
Naphthalene	< 0.00120	mg/l	516	4/13/05	23:35
Naphthalene	< 0.00120	mg/l	8273	4/14/05	14:47
Toluene	< 0.0002	mg/l	516	4/13/05	23:35
Toluene	< 0.0002	mg/l	543	4/14/05	14:47
Toluene	< 0.0002	mg/l	8273	4/14/05	14:47
Xylenes (Total)	< 0.0006	mg/l	516	4/13/05	23:35
Xylenes (Total)	< 0.0006	mg/l	8273	4/14/05	14:47
Methyl-t-butyl ether	< 0.0002	mg/l	516	4/13/05	23:35
Methyl-t-butyl ether	< 0.0002	mg/l	8273	4/14/05	14:47
VOA Surr 1,2-DCA-d4	95.	% Rec	516	4/13/05	23:35
VOA Surr 1,2-DCA-d4	95.	% Rec	543	4/14/05	14:47
VOA Surr 1,2-DCA-d4	95.	% Rec	8273	4/14/05	14:47
VOA Surr Toluene-d8	102.	% Rec	516	4/13/05	23:35
VOA Surr Toluene-d8	102.	% Rec	543	4/14/05	14:47
VOA Surr Toluene-d8	102.	% Rec	8273	4/14/05	14:47
VOA Surr, 4-BFB	111.	% Rec	516	4/13/05	23:35
VOA Surr, 4-BFB	110.	% Rec	543	4/14/05	14:47
VOA Surr, 4-BFB	110.	% Rec	8273	4/14/05	14:47
VOA Surr, DBFM	96.	% Rec	516	4/13/05	23:35
VOA Surr, DBFM	97.	% Rec	543	4/14/05	14:47
VOA Surr, DBFM	97.	% Rec	8273	4/14/05	14:47
BNA Surr-Nitrobenzene-d5	57.	% Rec	5522	4/15/05	22:33
BNA Surr-2-Fluorobiphenyl	52.	% Rec	5522	4/15/05	22:33
BNA Surr-Terphenyl-d14	67.	% Rec	5522	4/15/05	22:33

****METALS****

Ferrous Iron	< 0.100	mg/l	8555	4/13/05	17:28
Lead	< 0.0012	mg/l	2813	4/20/05	12:16

****MISC PARAMETERS****

Nitrate-N as N	< 0.10	mg/l	8149	4/13/05	14:10
Sulfate	< 1.00	mg/l	8149	4/13/05	14:10
Ethylene Dibromide	< 0.00002	mg/l	9117	4/15/05	1:13
Methane	< 0.026	mg/L	8128	4/15/05	10:31

= Value outside Laboratory historical or method prescribed QC limits.

4/22/05

GEOLOGICAL RESOURCES 2110
JOHN BROWN
2301 CROWN POINT EXEC.DR, STE F
CHARLOTTE, NC 28227

This report includes the analytical certificates of analysis for all samples listed below. These samples relate to your project identified below:

Project Name: NICKEL PUMPER
Project Number: .
Laboratory Project Number: 412501.

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. Any QC recoveries outside laboratory control limits are flagged individually with an #. Sample specific comments and quality control statements are included in the Laboratory notes section of the analytical report for each sample report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

Sample Identification	Lab Number	Page 1 Collection Date
-----	-----	-----
WSW-1	05-A51509	4/12/05
MW-1	05-A51510	4/12/05
MW-2	05-A51511	4/12/05
MW-3	05-A51512	4/12/05
MW-4	05-A51513	4/12/05

Sample Identification

Lab Number

Page 2
Collection Date

These results relate only to the items tested.
This report shall not be reproduced except in full and with
permission of the laboratory.

Report Approved By:

Gail A. Lage

Report Date: 4/20/05

Johnny A. Mitchell, Laboratory Director
Michael H. Dunn, M.S., Technical Director
Pamela A. Langford, Senior Project Manager
Eric S. Smith, QA/QC Director
Sandra McMillin, Technical Services

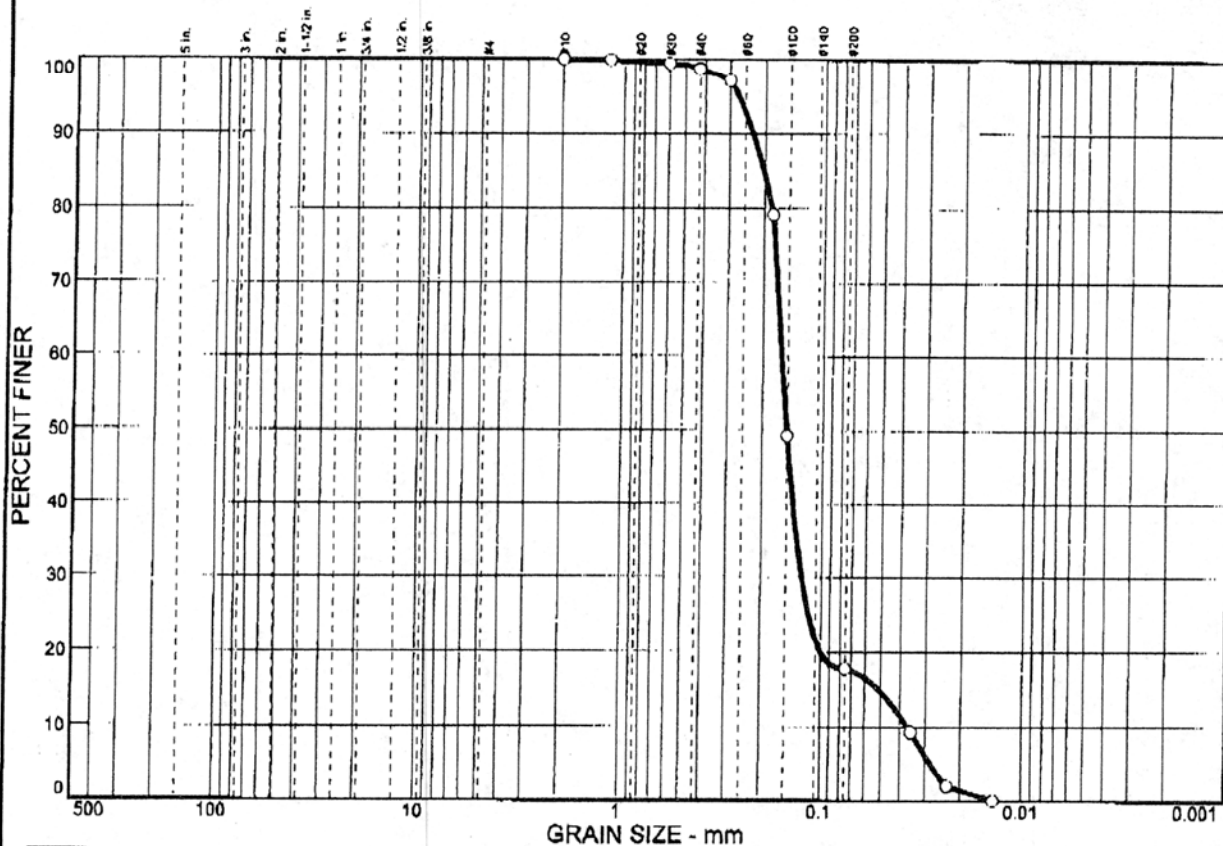
Gail A. Lage, Senior Project Manager
Glenn L. Norton, Technical Services
Kelly S. Comstock, Technical Services
Roxanne L. Connor, Senior Project Manager
Mark Hollingsworth, Director of Project

Laboratory Certification Number: 84009

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APPENDIX D
Slug Test Data

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.3	80.9	17.8	0.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#16	99.9		
#30	99.4		
#40	98.7		
#50	97.2		
#80	79.2		
#100	49.3		
#200	17.8		

Soil Description
Tan poorly graded fine Silty SAND (SM) with trace medium sand

Atterberg Limits
PL= NT LL= NT PI= NT

Coefficients
D₈₅= 0.202 D₆₀= 0.161 D₅₀= 0.151
D₃₀= 0.125 D₁₅= 0.0512 D₁₀= 0.0367
C_u= 4.39 C_c= 2.64

Classification
USCS= SM AASHTO= A-2-4(0)

Remarks
Nickel Pumper MW-2

(no specification provided)

Sample No.: MW-2
Location: Nickel Pumper

Source of Sample:

Date: 4-21-05
Elev./Depth: 7-feet

GET SOLUTIONS, INC.

Client: Geological Resources, Inc.
Project: Soils Laboratory Services; Various Sites

Project No: OB03-119T

Figure



Summary of Slug Test

Division of Underground Storage Tank Management

Site Data

UST Permit #: 04878 County: Jasper
 Facility Name: Nickel Pumper

Slug Data

See Appendix _____ Table _____ Figure _____ for a list of all data measurements. [water level logs, etc. (complete as appropriate)].

Water Level Recovery Data was measured by Hermit Data Logger
 [Hermit Data Logger, Manually with Water Level Indicator, etc. (list method)].

Complete the following table for each well tested.

COMPLETE A SECOND SHEET IF MORE THAN FOUR WELLS ARE TESTED

Slug Test Conducted in Well(s) Number	MW-3	MW-4		
Initial Rise/Drawdown in Well (feet)	1.38	1.75		
Radius of Well Casing (feet)	0.083	0.083		
Effective Radius of Well (feet)	0.208	0.208		
Static Saturated Aquifer Thickness (feet)	10.41	8.55		
Length of Well Screen (feet)	10	10		
Static Height of Water Column in Well (ft)	10.41	8.55		

Calculations

See Appendix _____ Table _____ Figure _____ for calculations (complete as appropriate).

The method for aquifer calculations was Bouwer-Rice-Unconfined (i.e. Bouwer-Rice, Cooper, etc.).

Calculated values by well were as follows:

Slug Test Conducted in Well(s) Number	MW-3	MW-4	
Hydraulic Conductivity (K)	6.97×10^{-5} ft/min	2.41×10^{-5} ft/min	

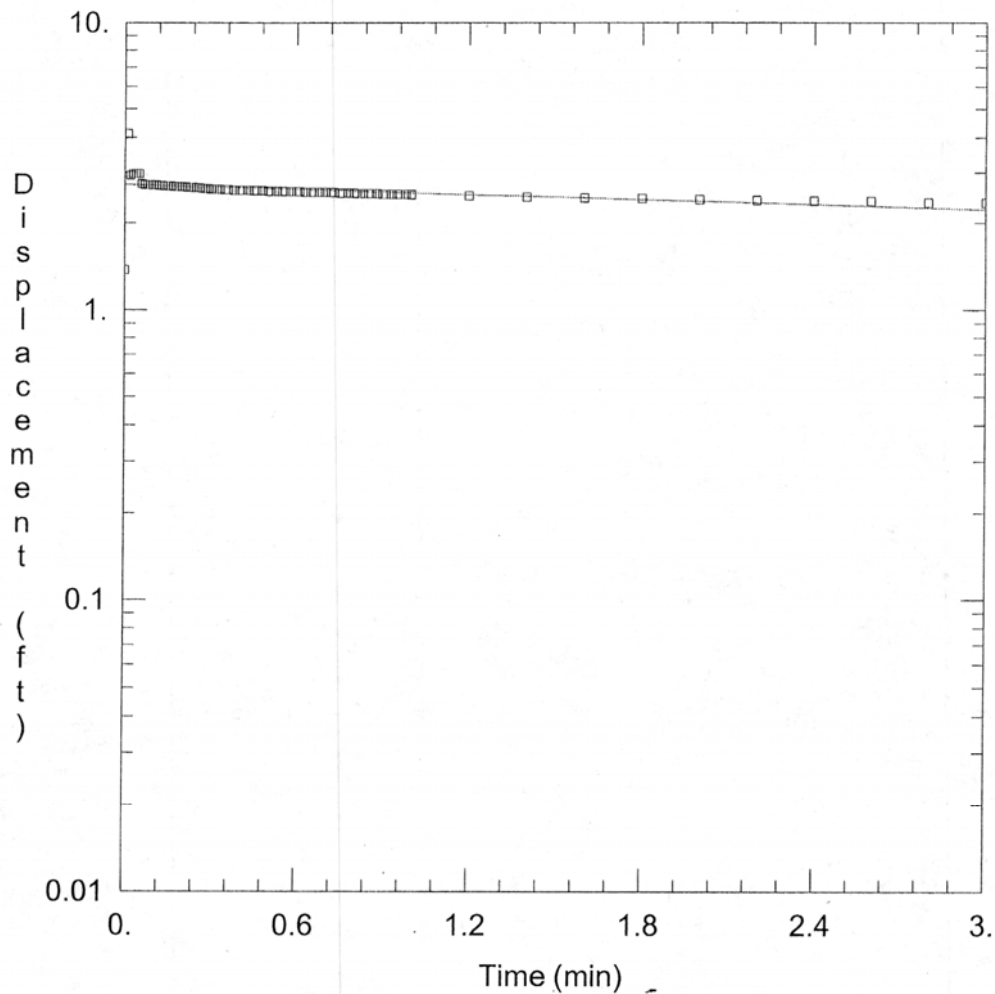
Thickness of the aquifer used to calculate hydraulic conductivity was 10.41 and 8.55 feet.

The aquifer is _____ confined _____ semi-confined water table (check as appropriate).

The estimated seepage velocity is 3.18 to 1.10 feet per year based on

a hydraulic conductivity of 6.97×10^{-5} to 2.41×10^{-5} ft/min, a hydraulic gradient of 0.02, and

a porosity of 23 percent for silty fine sand soil (list type i.e., silty sand, clay, etc).



TEST 19 MW-3

Data Set: F:\Temp Work Folder\Projects\SC State Lead\Nickle Pumper Tier 1\Slug Tests\MW-3.aqt
 Date: 04/25/05 Time: 14:47:28

PROJECT INFORMATION

Company: Geological Resources, Inc.
 Client: Nickelpumper #233
 Project: 04878
 Test Location: Yemassee, SC
 Test Well: MW-3
 Test Date: 04/12/05

AQUIFER DATA

Saturated Thickness: 10.41 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-3)

Initial Displacement: 1.38 ft Casing Radius: 0.083 ft
 Wellbore Radius: 0.208 ft Well Skin Radius: 0.208 ft
 Screen Length: 10. ft Total Well Penetration Depth: 10.41 ft
 Gravel Pack Porosity: 0.045

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 6.975E-05 ft/min y0 = 2.718 ft

Nickel Pumper

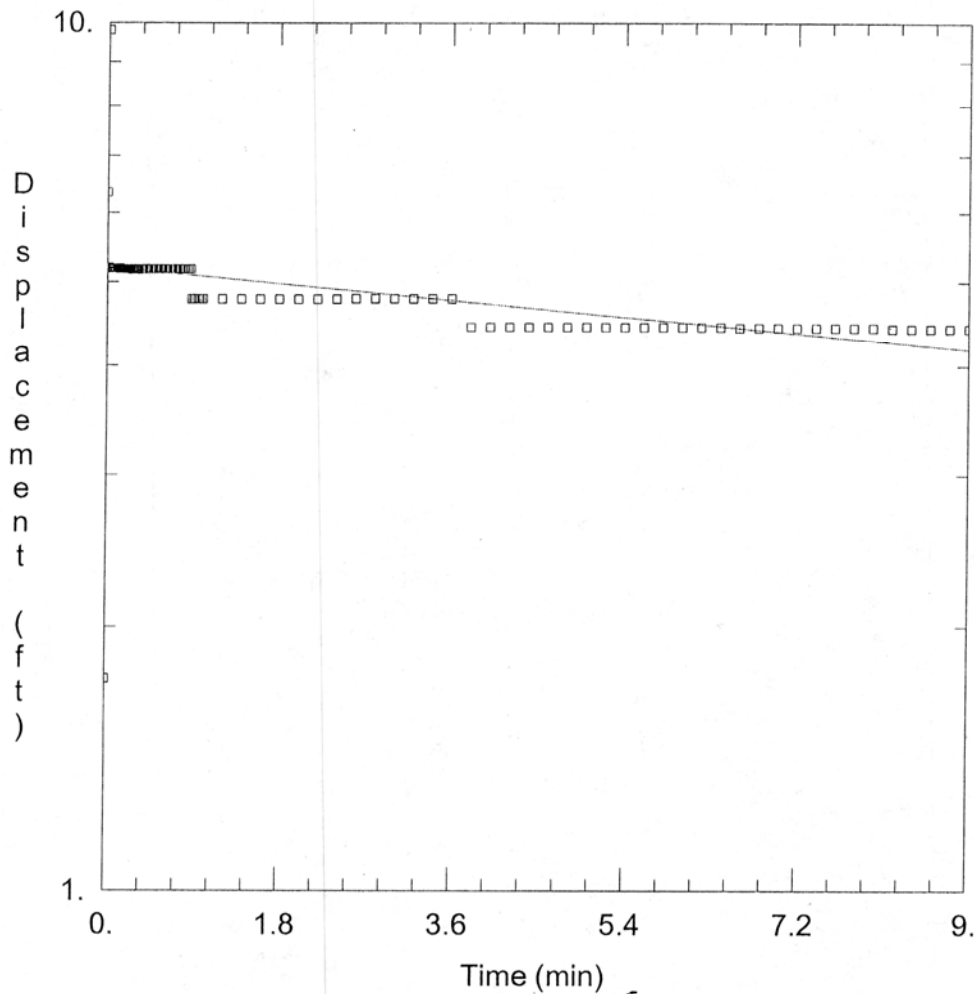
Test # 19 Ref # : 1.59 MW-3 TD = 12

0.00	4.08	0.16	2.68	0.32	2.61
0.01	4.11	0.17	2.67	0.33	2.61
0.02	2.93	0.19	2.67	0.35	2.60
→ 0.03	2.97	0.19	2.67	0.36	2.60
0.04	2.97	0.20	2.66	0.38	2.59
0.05	2.97	0.21	2.66	0.40	2.59
0.06	2.73	0.22	2.65	0.41	2.59
0.07	2.71	0.23	2.65	0.43	2.59
0.08	2.71	0.24	2.65	0.45	2.58
0.09	2.71	0.25	2.64	0.46	↓
0.10	2.70	0.26	2.64	0.48	↓
0.11	2.70	0.27	2.62	0.50	2.57
0.12	2.69	0.28	2.62	0.51	2.57
0.13	2.69	0.29	2.62	0.53	↓
0.14	2.68	0.30	2.61	0.55	↓
0.15	2.68	0.31	2.61	0.56	2.56

cont'd.

0.58	2.56	0.83	2.52	2.00	2.41
0.60	↓	0.85	↓	2.20	2.39
0.61	↓	0.86	↓	2.40	2.38
0.63	2.55	0.88	↓	2.60	2.37
0.65	↓	0.90	2.51	2.80	2.35
0.66	↓	0.91	↓	3.00	2.34
0.68	↓	0.93	↓		
0.70	↓	0.95	↓		
0.72	2.54	0.96	↓		
0.73	2.54	0.98	↓		
0.75	2.53	1.00	2.50		
0.76	↓	1.20	2.49		
0.78	↓	1.40	2.46		
0.80	↓	1.60	2.44		
0.81	2.52	1.80	2.43		

Sat. Thick. = $12 - 1.59 = 10.41$
 Int. Disp. = $2.97 - 1.59 = 1.38$
 $K = 6.97 \times 10^{-5}$ ft/min
 $V = 6.06 \times 10^{-6}$ ft/min
 $= 8.73 \times 10^{-3}$ ft/day
 $= 3.18$ ft/year



TEST 18 MW-4

Data Set: F:\Temp Work Folder\Projects\SC State Lead\Nickle Pumper Tier 1\Slug Tests\MW-4.aqt
 Date: 04/25/05 Time: 15:04:49

PROJECT INFORMATION

Company: Geological Resources, Inc.
 Client: Nickelpumper #233
 Project: 04878
 Test Location: Yemassee, SC
 Test Well: MW-4
 Test Date: 04/12/05

AQUIFER DATA

Saturated Thickness: 8.55 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 1.75 ft Casing Radius: 0.083 ft
 Wellbore Radius: 0.208 ft Well Skin Radius: 0.208 ft
 Screen Length: 10. ft Total Well Penetration Depth: 8.55 ft
 Gravel Pack Porosity: 0.045

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 2.414E-05 ft/min y0 = 5.206 ft

Nickel Pumper

4-12-05

Test # 18 Ref # : 345 MW-4 TD = 12

0.00	6.34	0.13	5.19	0.26	5.17	0.43	5.18
0.01	9.80	0.14	5.18	0.27	5.17	0.45	
→ 0.02	5.20	0.15	5.18	0.28	5.18	0.46	
0.03	5.19	0.16		0.29	5.18	0.48	
0.04	5.19	0.17		0.30	5.17	0.50	
0.05	5.19	0.18		0.31	5.18	0.51	
0.06	5.19	0.19		0.32	5.17	0.53	
0.07	5.19	0.20		0.33	5.17	0.55	
0.08	5.19	0.21		0.35	5.18	0.56	
0.09	5.19	0.22		0.36	5.18	0.58	
0.10	5.19	0.23		0.38	5.18	0.60	
0.11	5.19	0.24		0.40	5.18	0.61	
0.12	5.19	0.25		0.41	5.18	0.63	↓

Cont'd

0.65	5.18	0.90	4.78	2.80	4.79	5.80	4.44
0.66		0.91		3.00		6.00	
0.68		0.93		3.20		6.20	
0.70		0.95		3.40		6.40	↓
0.71		0.96		3.60	↓	6.60	4.43
0.73		0.98		3.80	4.44	6.80	
0.75		1.00		4.00		7.00	
0.76		1.20		4.20		7.20	
0.78		1.40		4.40		7.40	
0.80		1.60		4.60		7.60	
0.81		1.80		4.80		7.80	
0.83		2.00		5.00		8.00	↓
0.85		2.20		5.20		8.20	4.42
0.87	↓	2.40	↓	5.40		8.40	↓
0.88	4.78	2.60	4.79	5.60	↓	8.60	↓
						8.80	↓
						9.00	↓

MW-4

$$\text{Sat. Thick.} = 12 - 3.45 = 8.55$$

$$\text{Juit. Disp.} = 5.20 - 3.45 = 1.75$$

$$K = 2.41 \times 10^{-5} \text{ ft/min}$$

$$V = 2.09 \times 10^{-6} \text{ ft/min}$$

$$= 3.02 \times 10^{-3} \text{ ft/day}$$

$$= 1.10 \text{ ft/year}$$

APPENDIX E
Certificate of Disposal



HAZ-MAT

TRANSPORTATION AND DISPOSAL
P.O. BOX 37392 • CHARLOTTE, N.C. 28237
(704) 332-5600
FAX (704) 375-7183

Manifest No. 24759
P.O. No. _____
Job No. 05-2657
2753

NON-HAZARDOUS SPECIAL WASTE

Section I. GENERATOR (Generator complete all of Section I)

GENERATOR LOCATION: Inerstate Trucking, Bobby Jones, Bucks
 NAME: Procealy, 341 Knox Stop
 ORIGINATING ADDRESS: 01 Rhode Rite, Nickel Pumper, GAYAN
 MAILING ADDRESS: Convenience Plus
 CITY _____ STATE _____ ZIP _____
 PHONE NO. _____
 CONTACT NAME _____
 DES. OF WASTE: _____

WORK CONTRACTED BY: _____
 Bill To (If different from information at left): _____
 NAME: _____
 ADDRESS: _____
 CITY _____ STATE _____ ZIP _____
 PHONE NO. _____
 CONTACT NAME _____

No.	Type	Units	Quantity
-----	------	-------	----------

Section II. INVOICE INFORMATION

DESCRIPTION	QUANTITY	LINE TOTAL
1. PETROLEUM CONTACT WATER PUMPED FROM TANKS, DRUMS OR AFVR		
2. OFF-SPEC LIGHT OIL, DIESEL OR GAS PUMPED FROM TANKS OR DRUMS		
3. SOLUBLE OILS OR COOLANTS PUMPED FROM STORAGE		
4. SEDIMENT OR SOLIDS VACUUMED FROM CONTAINMENT AREA		
5. 55-GALLON DRUM REMOVED - SOLID OR EMPTY	<u>4 (1)</u>	<u>Nickel Pumper</u>
6. 55-GALLON DRUM REMOVED - LIQUID	<u>3 (1)</u>	<u>11/17</u>
7.		
8.		
9.		
10. ARRIVAL TIME: _____ DEPARTURE TIME: _____		

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: Ken Pincetta Signature: _____ Shipment Date: 04/18/05

Section III. TRANSPORTER (Generator complete a-d; Transporter I complete e-j; Transporter II complete h-n)

HAZ-MAT

TRANSPORTATION AND DISPOSAL
P.O. BOX 37392 • CHARLOTTE, N.C. 28237

TRANSPORTER II

a. Driver Name/Title _____
 b. Phone No. _____ c. Truck No. _____
 Hazardous Waste Transporter Permits
 EPA NCR 000003186
 EPA NCD048461370
 d. Driver Signature _____ Shipment Date _____

e. Name _____
 f. Address _____
 g. Driver Name/Title _____
 h. Phone No. _____ i. Truck No. _____
 j. Transporter II Permit Nos. _____
 Driver Signature _____ Shipment Date 04/18/05

Section IV. FACILITY INFORMATION AND CERTIFICATE OF DISPOSAL

Site Name: Haz-Mat Transportation & Disposal, Inc. a. Phone No. 704-332-5600
 Physical Address: 210 Dalton Avenue b. Mailing Address: P.O. Box 37392
Charlotte, N.C. 28206 Charlotte, N.C. 28237

e. Discrepancy Indication Space
This is to certify that all non-hazardous material removed from above location has been received and will be disposed of in accordance with applicable local, state and federal regulations in the following manner: (1) Petroleum products are blended into a beneficial reusable fuel for use in large industrial burners. (2) Waste waters are to be treated with polymers, pH adjusters, and a flocculant, then flows through a dissolved air flotation system for pretreatment separation, then into the CMUD sanitation sewer system under permit IUP#5012. (3) Sludges from treatment systems are hauled to E.P.A. approved facilities for proper disposal. Manifest and certificate of disposal are on file. (4) Our treatment system operates on a first in, first out basis and product should be processed within seven days.

SIGNATURE OF FACILITY AGENT: Michael Pickett DATE: _____ MONTH: 4 DAY: 18 YEAR: 05

APPENDIX F
Jasper County Tax Office and Planning Officials

JASPER COUNTY TAX OFFICE & PLANNING OFFICIALS

Tax Assessor's Office

914 Gray's Highway
Ridgeland, South Carolina 29936
Office: (843) 726-7801
Ms. Linda M. Mouzon
Tax Assessor

www.jaspercountysc.org/tax_collector.htm

Planning & Building Services

914 Gray's Highway
P.O. Box 1659
Ridgeland, South Carolina 29936
Office: (843) 726-7780
Mr. Hal Jones
Planning & Building Services Director
www.jaspercountysc.org/planning.htm

APPENDIX G
Adjacent Property Owner Information

**SUMMARY OF ADJACENT PROPERTY OWNER INFORMATION
NICKLE PUMPER #233**

Tax Map/Lot Number	Name	Address
088-48-00-8 (Site)	Sunstar, Inc.	9366 Ford Avenue Richmond Hill Georgia, 31324
088-48-00-7	Benjamin Josselson c/o James H. Moss	P.O. Drawer 507 Beaufort, South Carolina 29902
088-48-00-5 & 088-48-00-9	Point South Partners	P.O. Box 2028 Beaufort, South Carolina 29901
088-48-00-10	Country Chef LLC	97 Bull Point Drive Seabrook, South Carolina 29940
088-48-00-4	CCS Hospitality LLC	3196 Point South Drive Yemassee, South Carolina 29945

APPENDIX H
Water Supply Well Owner Information

**SUMMARY OF WATER SUPPLY WELL OWNER INFORMATION
NICKLE PUMPER #233**

Well No.	Tax Map/Parcel Number	Name	Address
WSW-1	088-48-00-4	CCS Hospitality LLC	3196 Point South Drive Yemassee, South Carolina 29945
WSW-2	091-00-03-11	Thomas Darrell Johnson Jr. & Wanda J. Johnson	P.O. Box 1125 Hardeeville, South Carolina 29927

STATE OF SOUTH CAROLINA
COUNTY OF JASPER

Application for Inspection Warrant
Pursuant to Section 48-1-50(24)

To: Presiding Judge, Jasper County Magistrate's Court

Mark Berenbrok, or any duly authorized Environmental Control Officer of the South Carolina Department of Health and Environmental Control (SCDHEC), hereby applies for an inspection warrant, pursuant to Section 48-1-50(24) of the Code of Laws of South Carolina, 1976, as amended, to conduct an administrative inspection(s) of the following establishment, premises, or component thereof:

1. The establishment is known as Nickelpumper #233, and is located at I-95 and US Highway 17, Point South, County of Jasper, South Carolina. Tax Map #088-48-00-008.

The Nickelpumper #233, SCDHEC Underground Storage Tank (UST) permit #04878, was operated as a gasoline station, and has been closed since the mid 1990s. Three USTs are located at the site. The USTs do not meet state and federal UST requirements. A release of petroleum substances was confirmed by a SCDHEC investigation in May 2002 and additional assessment is required. An Order of Civil Contempt (copy attached) was issued by the court on October 27, 2003. To date, Sunstar, Inc., the UST and property owner of record, has not complied with the Order of Civil Contempt. The assessment of environmental conditions in the vicinity of the underground storage tanks to determine the extent and severity of the petroleum release is reasonably necessary to protect human health and the environment.

2. Section 48-1-50(24) of the 1976 Code and Regulations promulgated thereunder authorize DHEC to protect the public's health, and investigate and enter property on behalf of that interest.

3. This inspection will be undertaken as part of an inspection program, authorized by Statute and Regulations issued thereunder, designed to assure the safety of public health within South Carolina.

4. The inspection(s) will be conducted at a reasonable time, and shall be completed with reasonable promptness. The Department of Health and Environmental Control officer's credentials and a copy of the inspection warrant will be presented if the owner of the property is present. Inspection(s) will begin as soon as practicable after the issuance of the warrant. The inspection(s) will require multiple site visits, but will be completed within 120 days of the issuance of the warrant.


5. The following activities will be conducted:

a) Sampling of soils and/or groundwater in the vicinity of the UST system.

6. Environmental Control Officers are authorized to inspect the designated premises, and may be accompanied by one or more Environmental Control Officers, or other duly authorized employees of the department of Health and Environmental Control. These reasonable activities referenced above will be completed by employees of the South Carolina Department of Health and Environmental Control, and/or contractors retained by them. All activities will be completed in the presence of a representative of the South Carolina Department of Health and Environmental Control.

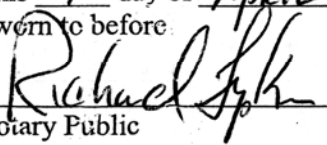
7. A return will be made to the Court upon completion of the inspection, or not later than the expiration date of the Inspection Warrant.

SWORN AND SUBSCRIBED TO BY:



Mark Berenbrok, Environmental Control Officer
South Carolina Department of Health
and Environmental Control

This 4 day of April 2005
Sworn to before:



Notary Public

My commission expires 3-29-2009

04878-APPIW2:DOC

From: Mark K. Berenbrok
To: Green Jr., William K.; williaer
Date: 4/26/04 10:09AM
Subject: Nickelpumper #233, 04878

I spoke with Bo Frier of Farmers and Merchants Bank concerning the potential sale of this place. FMB is in the first mortgage position on the property. The sale of the property that he was talking about in December fell thru. However, Sunstar has signed the quit-claim deed for the property. Mr Frier has not recorded the deed with Jasper County yet. He's going to meet with Terry Kennedy of GRI about the tank closure issues and then record the deed. This should happen in the next few weeks. Terry Kennedy will coordinate the tank closure with us. He also believes Sunstar is a non-operating company that hasn't done any business since 1996.

CC: brineysm

UST Permit # 04878
UST Facility name Nickelpumper 233

Tier I report received 5/2/05

Monitoring well #	TOC elevation	Depth to Water	Water Table Elevation	Screened Interval
MW-1	100	2	98	2.5-12'
MW-2	100.01	1.91	98.1	2'-12'
MW-3	99.5	1.56	97.94	2'-12'
MW-4	99.5	3.36	96.19	2'-12'

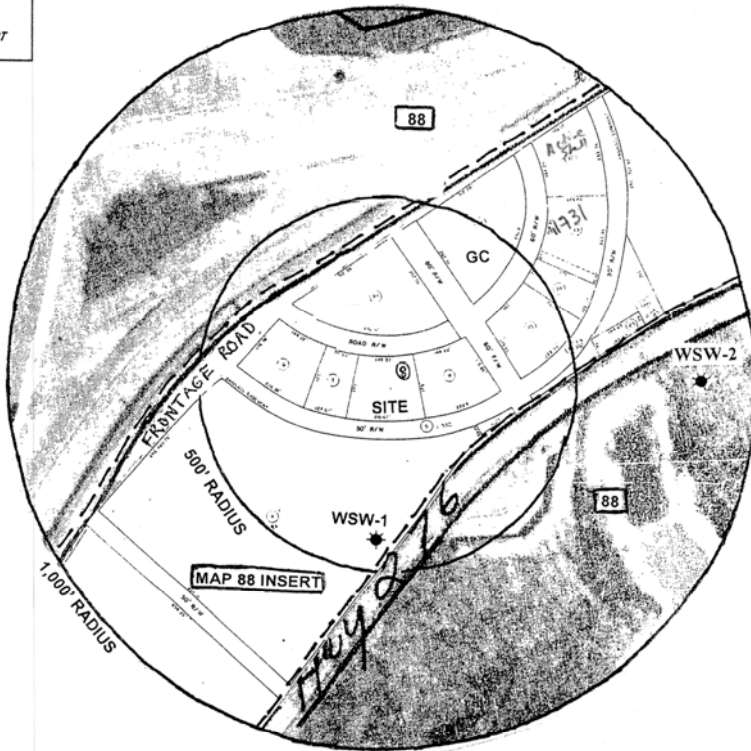
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LEGEND	
88	JASPER COUNTY TAX MAP
⊙	JASPER COUNTY LOT NUMBER
—	PROPERTY LINE
- - -	TAX MAP BOUNDARY LINE
★	WATER SUPPLY WELL
GC	GENERAL COMMERCIAL ZONING DISTRICT



Geological Resources, Inc.

Environmental and Mining Geologists

- Charlotte, North Carolina
- Greensboro, North Carolina

0 200 400 800



(IN FEET)

1 inch = 400 ft.

SITE VICINITY MAP

Nickelpumper #233 3296 Point South Drive
 Yemassee, Beaufort County, SC UST Permit # 04878

Date: 04/25/05 Drawn by: LJM Figure: 2

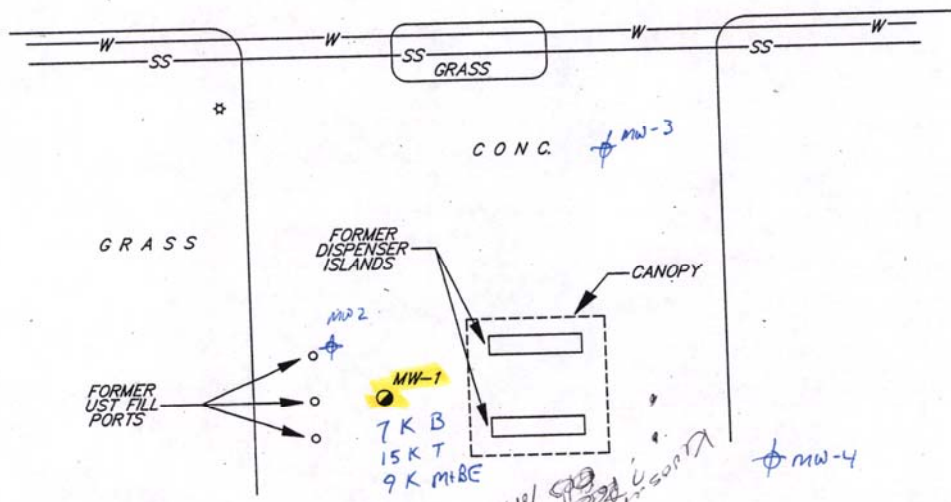
LEGEND

- TYPE III MONITORING WELL
- W— UNDERGROUND WATER LINE
- SS— UNDERGROUND SANITARY SEWER LINE
- * LIGHT POLE

15191



POINT SOUTH DRIVE



GRASS

CONC.

FORMER DISPENSER ISLANDS

CANOPY

FORMER UST FILL PORTS

MW-1
7 K B
15 K T
9 K M+BE

MP2

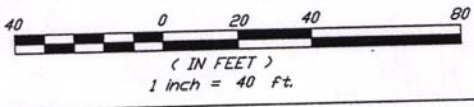
MW-4

Drainage Ditch

390' to WSW

- All wells w/ CoC > R35L
- Needs Tier II?

Wetlands



SITE MAP	
Nickelpumper #233	3296 Point South Drive
Yamasse, Jasper County, SC	UST Permit #04878
Date: 01/07/03	Drawn by: M. Fiorini Figure: 2
GEOLOGICAL RESOURCES, INC.	



UST # ~~04878~~ 04878

- Tape this front page to the pole
OR site.

- I have to be there. GRI scheduled
for next ~~Tuesday~~ 4/12/05

Monday 4/11/05

10:00



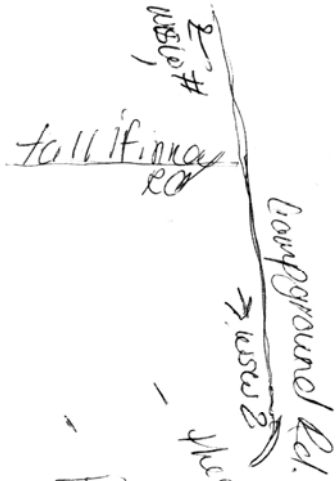
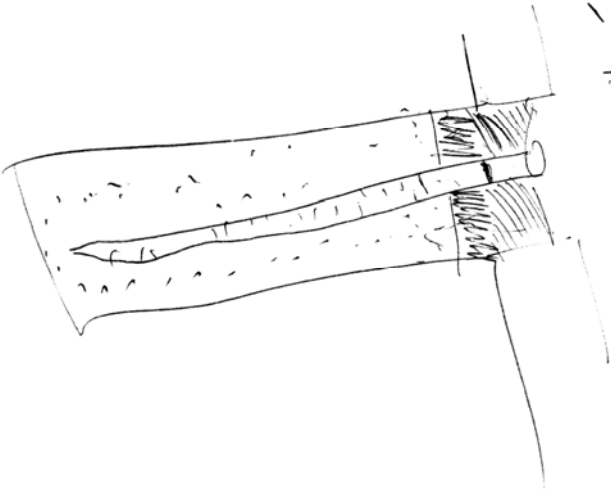
Pumper
UST # 0118

Country Kitchen
UST # 15151



Campground rd
~~Fullifinny rd.~~
 - left at KNIGHTS INN

- ~~pot~~ potable water well
 #2
 KOA campground



- sand pack & borehole
 was gravity
 no decontamination
 area

- potable well #1
 843 - 9200
 The peak is at 9200
 The peak is at 9200
 The peak is at 9200

Horizontal distance of 1000 ft =



← Not a well

I
95

Point South
11731
↓ JS
Exxon

00973
↓
BP JS

13811 ~~Texaco~~
Shell No release

15751 JS
County
Kit

Tulfinny Rd.

Fireworks
n.

Nitel 04878
Paper
mine