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

Thanks, Just

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	Туре	Status	Entity Creation Date
SUN STAR BUILDING MAINTENANCE, INC.	<u>J604438</u>	Profit Corporation	Automated Administrative dissolution/Revocation	3/17/1986
SUN STAR FOODS,	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SUNSTAR ACCEPTANCE CORPORATION	K222583	Profit Corporation	Withdrawn	11/13/1992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.	<u>J801111</u>	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)	<u>08058925</u>	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		Active/Compliance	9/2/2009
SUNSTAR PROPERTY HOLDINGS, LLC	09048931		Active/Compliance	7/10/2009
SUNSTAR TECHNOLOGIES, INC.	K616642	Profit Corporation	Automated Administrative dissolution/Revocation	2/12/1996

	SUNSTAR, INC.	0628347	Profit Corporation	Admin. Dissolved	4/4/2006
	SUNSTAR, INCORPORATED	K406256	Profit Corporation	Automated Administrative dissolution/Revocation	2/2/1994
	SUNSTAR, LLC (DE)	08046428	Limited Liability Company	Active/Owes Current Year AR	5/19/2008
The state of the s	Records Returned 1 o	f 19 total 19	9		



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Annual Registration

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Name Reservation

File Name Reservation

<u>Online</u>

Online Orders

Register for Online

Orders

▶ Order Certificate of Existence

Order Certified Documents

View Filed Documents

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:

Principal Office Address:

SC 7373 HODGSON MEMORIAL DR #

SAVANNAH GA 31406-1503

Registered Agent

Agent Name: Office Address: J. BAKER MCGEE

313 ALBANY AVENUE

WAYCROSS GA 31502

Agent County:

WARE

Officers

Title:

CEO

Name:

ROBERT H PUCCINI

Address:

7373 HODGSON MEMORIAL DR

BLD₆

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 2 0 2012

Re:

QAPP Contractor Addendum Request

Groundwater Sampling Contract
Solicitation # IEB 5400002759 PO#46

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	Site Name	County	# samples and requested analysis*	Project
	Permit#	ono manio	,	•	Manager
	14597	Hoopers Auto Service	Anderson	15-BTEXMN, DCA, Oxygenates, & EDB	R. Miner
\overline{C}	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.

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,

Staff Biologist

Midlands Environmental Consultants, Inc.

Brendon P. Kelly

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

David Ebinger
SC DHEC Project Manager

Brendon P. Kelly
Contractor QA Manager

Jeff L. Coleman
Site Rehabilitation Contractor

Michael Woodrum
Laboratory Director

Date 2/2//2

Signature

Date 2/4//2

Date 2/6/12

Signature

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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
Ì			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

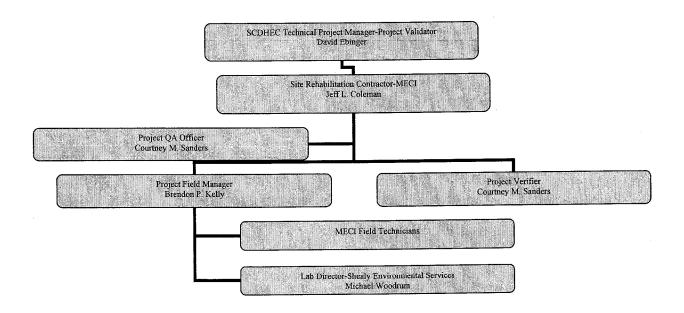


Figure 1A Organizational Chart

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.

Midlands Environmental Consultants, Inc. Nickelpumper 233 QAPP Addendum Revision 0 February 6, 2012

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 are 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		Professional		State of South	
Geologist	Bryan T. Shane, P.G.	Geologist	10/30/1993	Carolina	1102
Senior		OSHA 40 hr			
Scientist	Jeff Coleman	HAZWOPER	7/27/2007	N/A	N/A
		OSHA 8 hr			
		HAZWOPER			
		refresher	7/27/2011	N/A	N/A
Project		OSHA 40 hr			
Scientist	Brendon Kelly	HAZWOPER	8/21/2009	N/A	N/A
		OSHA 8 hr			
		HAZWOPER			
		refresher	12/15/11	N/A	N/A
Staff		OSHA 40 hr			
Geologist	John Bryant	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		OSHA 40 hr			
Biologist	Courtney Sanders	HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr			
		HAZWOPER			
		refresher	12/15/11	N/A	N/A
Staff		OSHA 40 hr			
Biologist	Kyle Pudney	HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr			
		HAZWOPER			
		refresher	12/15/11	N/A	N/A
Staff		OSHA 40 hr		-	
Biologist	Chris Lashley	HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr			
		HAZWOPER			
		refresher	12/15/11	N/A	N/A
Staff		OSHA 40 hr			
Biologist	Gavin Globensky	HAZWOPER	7/29/2011	N/A	N/A
Staff		OSHA 40 hr			
Biologist	Ryan Ariail	HAZWOPER	9/23/2011	N/A	N/A
Lab Manager	Michael Woodrum	***	***	Lab	SC 32010
				Certification	

Table 3A Required Training and Licenses

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

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 LaboratoryS	Shealy Environmental Services, Inc
Name of Lab Director	Michael Woodrum
SC DHEC Certification Number_	32010
Parameters this Lab will analyze	for this project:

BTEX, Napth, 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 MailCourier _X_ 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

ltem	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

ltem	01 (5)		February 6, 2012
Itelli	Start Date	End Date	Comments
			Odinincing
			. <u> </u>
Table 54 Sampling Activity			

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.

Attack to clear washe		
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
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
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
	change battery, use back-up indicator if need be. Attempt to clean probes, recalibrate in the field. Use metal detector, measure from known points, contact project manager for	change battery, use back-up indicator if need be. Attempt to clean probes, recalibrate in the field. Use metal detector, measure from known points, contact project manager for additional information. of rotation until problem identified and corrected. Record on field sheets, notify office staff. Take meters out of rotation until problem identified and corrected. Record method used to attempt to locate the well on field sheets, and possibly reasoning for the well to be

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 form 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	
	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
3-34-021	3-34-021	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
0 114 0 10		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:

Fa	ilure	Re	spons	е	Documented Where?	Individual Responsible
Field	meters	Attempt	to	clean	Record on field sheets, notify	Field Staff, Field Manager

not working	probes, recalibrate in	office staff. Take meters out of	
	the field.	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@shcalylab.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 <u>mwoodrum@shealyla</u> b.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.	

				February 6, 2012
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
Semivolatile Mass Specc	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 YSI 550A	09C 101302, 10K 101895, 07M 100905 04L 2026AK,	Check buffer solutions for expiration Replace membrane	Weekly 4 to 8	In stock at office	B. Kelly Field Staff

	08B 101407,		weeks		
	04A 0912AI				
YSI 550A	04L 2026AK,				
	08B 101407,				
	04A 0912AI	Replace batteries	As Needed	In stock at office	Field Staff
	04L 2026AK,	General inspection for			····
	08B 101407,	wear and tear on		Major fixes will be	
YSI 550A	04A 0912AI	equipment	Daily	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 &	Type of Inspection	Requirement	Individual	Resolution of
Serial Number	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Responsible	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

		1 001441 0, 2012
		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	Frequency of	Acceptance Criteria	Corrective Action	Person	SOP
	Procedure	Calibration		(CA)	Responsible	Reference*
				, ,	for CA	
				recalibrate		
				clean/replace		
	Conductivity	As directed by		probe tip,		
YSI 63	Calibration	manufacturer	+/- 10 uS	recalibrate	Field Staff	4.3.6
				clean/replace		
				probe tip,		
YSI 550A	DO calibration	Daily	+/- 0.25 mg/l	recalibrate	Field Staff	4.3.6
				clean/replace		
	Temperature			probe tip,		
YSI 550A	Calibration	Daily	+/- 1 °C	recalibrate	Field Staff	4.3.6
Electronic						
Water Level	Checked vs.		+/- 0.01 foot per 10	Replace probe		
Indicator	Standard	Monthly	foot length	tape	Field Staff	***
Oil/Water	Checked vs.		+/- 0.01 foot per 10	Replace probe		
Interface probe	Standard	Monthly	foot length	tape	Field Staff	***

Table 13A Instrument Calibration Criteria and Corrective Action

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	O2Si, Restek,	Certificates of analysis and	Vendor specific	Laboratory Analysts
standards	High Purity, VHG, Supelco	laboratory verifications	storage conditions	
Sample	Daniels Scientific,	Certificates of analysis and	Bottle storage area	Sample receiving personnel
Containers	QEC	laboratory testing		
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	Shealy	Choponica box, no noto	Stored in Vehicle	2. rony, riola otali
preserved amber	Environmental		Bay, Off of the	
vials	Services	Custody seal intact	ground	B. Kelly, Field Staff
250 mL HNO3	Shealy	Custody seal intact	Stored in Vehicle	B. Kelly, Field Staff

^{*} 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.

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

Table 14A List of Consumables and Acceptance Criteria

B9 Data Acquisition Requirements (Non-Direct Measurements)

- 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 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.

Midlands Environmental Consultants, Inc. Nickelpumper 233 QAPP Addendum Revision 0 February 6, 2012

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?

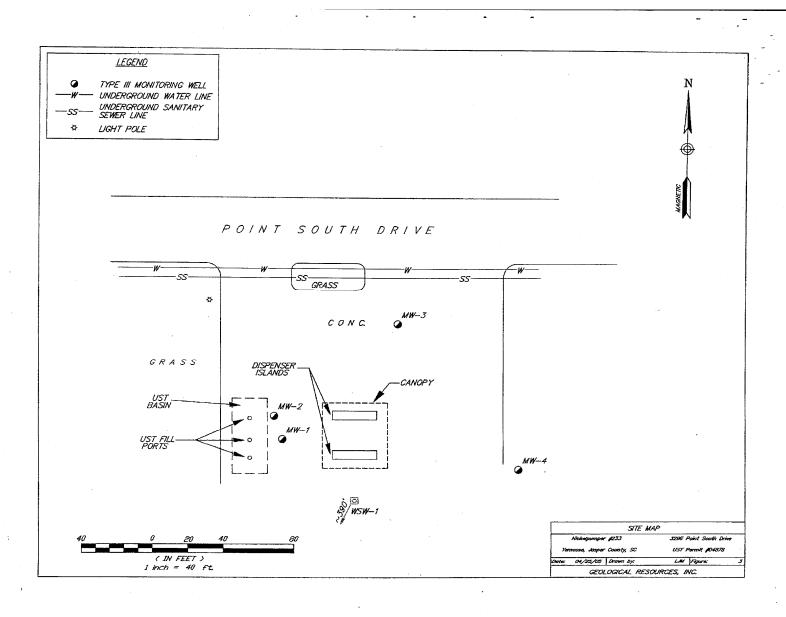
The laboratory participates in annual Proficiency Testing through an approved vendor, Wibby Environmental. If during a random audit, severe problems are found, work will be stopped by the according Wibby Environmental representative and the QA officer contacted to determine corrective action. Proficiency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





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

Client	Report to Contact		Sampler (Printed Name)		Quote No.
Address	Telephone No. / Fax No. / Em	ail	Waybill No.		Page
City State Zip Code	Preservative				Number of Containers
	1. Unpres. 4. HNO3 7. Na	ОН			Bottle (See Instructions on back)
Project Name	2. NaOH/ZnA 5. HCL				Preservative
	3. H2SO4 6. Na Thio.				Lot No.
Project Number P.O Numb		<u>.s.</u>			
Sample ID / Description (Containers for each sample may be combined on one line)	Time G G GM DM MM	Other Other Analysis			Remarks / Cooler ID
				· .	
· .		1617			
Turn Around Time Required (Prior lab approval required for	expedited TAT) Sample Disposal	QCR	equirements (Specify)	Possible Hazard Identification	
☐ Standard ☐ Rush (Please Specify)	☐ Return to Client	☐ Disposal by Lab		□Non-Hazard □Flammable □Skin Irrita	ant □Poison □Unknown
Relinquished by / Sampler	Date		ceived by	Date	Time
2. Relinquished by	Date	Time 2. Re	ceived by	Date	Time
3. Relinquished by	Date	Time 3. Re	ceived by	Date	Time
4. Relinquished by	Date	Time 4. La	boratory Received by	Date	Time
Note: All samples are retain unless other arran	ed for six weeks from r gements are made.	eceipt LAB	JSE ONLY red on Ice (Check) □ Yes □ No	o □ Ice Pack Receipt Temp°	C Temp. Blank 🗆 Y / 🗆 N



C. Earl Hunter, Commissioner

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

FEB 2 3 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 email. 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 preapproval 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)



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

MEMORANDUM

TO: Midlands Environr	mental 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

Brendon P. Kelly
Contractor QA Manager

Jeff L. Coleman
Site Rehabilitation Contractor

Michael Woodrum
Laboratory Director

Date 2/2//2

Signature

Date 2/2//2

Date 2/6/12

Signature

Approved Cost Agreement 38723

Facility: 04878 NICKELPUMPER 233

EBINGEDJ

PO Number;

Task / Description Categories	Item Description	Qty / Pct	Unit Price	Amount
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 Amo	unt	225 00

Approved Cost Agreement 38722

Facility: 04878 NICKELPUMPER 233

EBINGEDJ
PO Number:

Task / Description Categories Item Description Qty / Pct **Unit Price** <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.

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 requeste	d analyses for each well:
--	---------------------------

Monitoring Well	Purge	9	Gauge Only	Not Located	BTEX, Naphthalene, MTBE	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)
3					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 dicloroethane

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

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	X		
5	number, and certification number provided? 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?	Х		
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?			Х
14	Has a description of the soil sample collection and preservation been detailed?			Х
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	Х		
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)			Х
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: Field Personnel: Jasper

B. Owen

Midlands
Environmental
Consultants, Inc.
235-B Dooley Road, Lexington, SC 25013
(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
MVV-1	Υ	2/28/12	11:40	2.5-12.5	***	3.19	***	4.92	***	Odor
MW-2	Υ	2/28/12	11:30	2-12	***	0.60	***	6.41	2.0	No Odor
MVV-3	Y	2/28/12	11:51	2-12	***	2.26	***	1.70	***	No Odor
MVV-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	Υ	2/28/12	12:00	***	***	***	***	***	***	Field Blank
Trip Blank	Υ	2/28/12	12:05	***	***	***	***	***	***	Trip Blank
				-						
-										
							·			
	L	I	1		1,		1		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):

Field Personnel:

General Weather Conditions:

PID readings, if required

Remarks:

2/28/2012

Clear, Sunny

15:10

Sample Time:

B. Owen

Facility Name:

Site ID#: __04878

Water Supply Well

Parameters within 10%

Nickelpumper 233

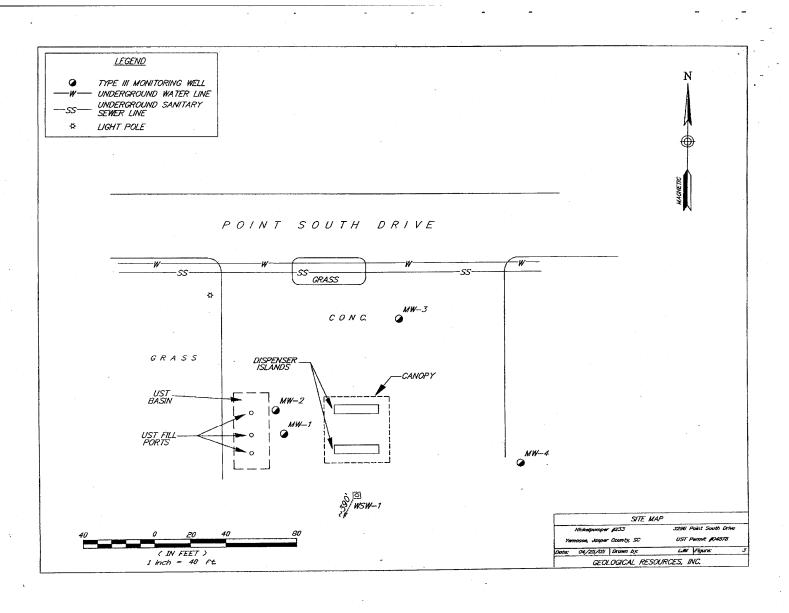
Public

Monitoring Well#

Private

MW-2

Ambient Air Temperatur	re:°C			Monitoring	Well Diam	eter (D):		2	inches
H/G 1 (2.24 M.)	Quality Assurance			Conversion	r Factor (C)	: 3.14 x (D/			well C=0.163 well C=0.652
pH/Conductivity Meter	DO Meter			* Euro Duo	luct Thickn	2001		ioi a 4 men	feet
YSI 63	YSI 550A								feet
09C 101302	04L 2026AK 08B 101895				ree Product		17.05		feet
10K 101895 07M 100905	X 04A 0912AI	X			Depth (TW		17.03		feet
							C=TWD-DC	SW)	0.95 feet
Calibration Buffer: $4, 7$, & 10				olume (CV=			0.163	
	Chain of Custody				olume (3 X		A	0.103	0.46 gallons
Relinquished by Dat	e/Time Received by	Date/Time					efore Sampling	ing will not be re	0.5 gals.
Cumulative Volume Pur	ged (gallons)		Inital	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 (µ	ımhos/cm)		71.7	85.9	90.5				
Water Temperature (°C)			22.3	22.4	22.4				
Dissolved Oxygen			0.20	0.56	0.48				





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 Report to			ontac								Samp	er (Pri	inted N	lame)	_	, .				- [Juote Mo.
SCOHEC				, 7	7/01	11 1	4				L		X'	AN	<u> </u>	NE	<u>V</u>				
Address 2000 Bull St. City State Zipt Columns SC 200		Telephone	No. /	Fax l	No. / Ei	mail					Waybi	II No.									Page/_ of/
City State Zip	Code	Preserva	tive							Γ											Number of Containers
Columbia SC 20	1170	1. Unpres.	4.	HNO	3 7.1	VaOH															Bottle (See Instructions on back)
Project Name		2. NaOH/ZnA	5.	HCL						1											Preservative
Nickel Pumper 23	3	3. H2SO4	6.	Na Th	nio.				A.A.	5.											Lot No.
Project Number	P.O Numbe	er	Į.			rix		S													
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Turn Around Time Required (Prior lab appro	al required for	expedited TAT	Sar	nple	Dispos	al			1	C Req	uireme	nts (S	pecify)		Poss	ible H	azard l	dentifi	cation		
☐ Standard ☐ Rush (Please Specify)	•	·					Dis	sposal by	Lab					~	□Nor	ı-Hazar	d □Fk	ammabl	e ⊡Sk	in Irritant	T
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Note: All samples are retained for six weeks from receipt					- 1	LAB US	SE ONL			ae 🗆 N	lo 🗆 le	e Pack	Becc	int Terr	·	°C	Temp. Blank □ Y / □ N				

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.

Project Scientist

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





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.



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. 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

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)

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

Date Sampled:02/28/2012 1140
Date Received: 02/28/2012

Laboratory ID: NB28052-001

Matrix: Aqueous

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	•	Kun 1 A		Cceptance	
Surrogate	<u> </u>	% Recovery	Limits C	% Recovery	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

B = Detected in the method blank

P = The RPF

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

1,1,1,2-Tetrachloroethane

Date Sampled: 02/28/2012 1140 Date Received: 02/28/2012

Laboratory ID: NB28052-001

Matrix: Aqueous

EDB & DBCP by Microextraction

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

57-137

107

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"

Description: MW-2

Date Sampled: 02/28/2012 1130 Date Received: 02/28/2012

Laboratory ID: NB28052-002

Matrix: Aqueous

Volatile Organic Compound	ds by	GC/MS
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Run 1	Prep Method 5030B	Analytical	Method 8260B		Analysis I 03/02/2012	•	Prep	Date	Batch 79206			
Param	neter				CAS	Analytical	Result	o	PQL	MDL	Units	Run
Benze					lumber 71-43-2	Method 8260B	550		50	2.0	ug/L	1
	chloroethane)7-06-2	8260B	15	J	50 50	3.0	ug/L	1
•	enzene				0-41-4	8260B	700		50	17	ug/L	1
Methy	l tertiary butyl eth	er (MTBE)		163	34-04-4	8260B	190		50	4.0	ug/L	1
Napht	halene			9	91-20-3	8260B	250		50	17	ug/L	1
Tolue	ne			10	8-88-3	8260B	3300		50	17	ug/L	1
Xylen	es (total)			133	30-20-7	8260B	3300		50	17	ug/L	1
Surro	gate		Q	Run 1 % Recove	Accepta ry Limit							
1,2-Di	chloroethane-d4			89	70-1	30						
Bromo	fluorobenzene			96	70-1	30						
Toluer	ne-d8			95	70-1	30						

Volatile Organic Compounds by GC/MS

				. g a	P	<i>n</i> , 00,,,,,		
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 A % 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	

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"

Description: MW-2

Date Sampled:02/28/2012 1130 Date Received: 02/28/2012

Laboratory ID: NB28052-002

Matrix: Aqueous

EDB & DBCP by Microextraction

Run **Prep Method Analytical Method** Dilution Analysis Date Analyst Batch 1 8011 8011 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
	Run 1 Accept	ance						

Surrogate Q % Recovery Limits 98

1,1,1,2-Tetrachloroethane

57-137

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%

Description: MW-3

Date Sampled:02/28/2012 1151 Date Received: 02/28/2012

Laboratory ID: NB28052-003

Matrix: Aqueous

	*	Vo	latile Org	ganic C	ompounds	s by G	C/M	S			
Run 2	Prep Method 5030B	Analytical Method 8260B		Analysis D 03/05/2012	_	Prep	Date	Batch 79390			
Paran	neter		N	CAS umber	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benze	ene		7	1-43-2	8260B	0.39	J	5.0	0.20	ug/L	2
1,2-Di	chloroethane		10	7-06-2	8260B	ND		5.0	0.30	ug/L	2
Ethyll	oenzene		10	0-41-4	8260B	3.2	J	5.0	1.7	ug/L	2
Methy	I tertiary butyl ether	(MTBE)	163	4-04-4	8260B	ND		5.0	0.40	ug/L	2
Naphi	halene		9	1-20-3	8260B	19		5.0	1.7	ug/L	2
Toluer	пе		10	8-88-3	8260B	ND		5.0	1.7	ug/L	2
Xyien	es (total)		133	0-20-7	8260B	2.8	J	5.0	1.7	ug/L	2
Surro	gate	·Q	Run 2 % Recove	Accepta ry Limit							
1,2-Di	chloroethane-d4		96	70-13	0			·			
Bromo	ofluorobenzene		99	70-13	0						
Tolue	ne-d8		101	70-13	0						

Volatile Organic Compounds by GC/MS

Run 2	Prep Method 5030B	Analytical Method 8260B	Dilution 1	Analysis 03/05/2012	•	Prep I	Date	Batch 79390				
Param	eter		1	CAS lumber	Analytical Method	Result	Q	PQL	MDL	Units	Run	
Diisopi	ropyl ether (IPE)		10	08-20-3	8260B	ND		10	0.40	ug/L	2	
Ethano	ol		(64-17-5	8260B	ND		1000	33	ug/L	2	
3,3-Dir	methyl-1-butanol		62	24-95-3	8260B	ND		100	1.0	ug/L	2	
Ethyl-te	ert-butyl ether (ETBE)		. 63	37-92-3	8260B	ND		100	0.20	ug/L	2	
tert-An	nyl alcohol (TAA)		•	75-85-4	8260B	ND		100	6.7	ug/L	2	
tert-An	nyl methyl ether (TAM	E)	99	94-05-8	8260B	ND		10	0.20	ug/L	2	
tert-bu	ıtyl alcohol (TBA)			75-65-0	8260B	11	J	100	6.7	ug/L	2	
tert-Bu	tyl formate (TBF)		76	62-75-4	8260B	ND		100	1.0	ug/L	2	
Surrog	gate	· Q	Run 2 % Recove	Accept ery Limi								
Bromo	fluorobenzene		99	70-1	30							
1,2-Dic	chloroethane-d4		96	70-1	30							
Toluen	ne-d8		101	70-1	30							

EDB & DBCP by Microextraction

Run 1	Prep Method 8011	Analytical Method 8011	Dilution 1	Analysis Date 03/06/2012 0737	Analyst PMS	Prep Date 03/02/2012 1728	Batch 79247			
Param	eter				alytical lethod	Result Q	PQL	MDL	Units	Run

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"

Description: MW-3

Date Sampled: 02/28/2012 1151 Date Received: 02/28/2012

Laboratory ID: NB28052-003

Matrix: Aqueous

EDB & DBCP by Microextraction

Run **Prep Method Analytical Method** Dilution Analysis Date Analyst Batch 8011 8011 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
	Run 1 Accept	ance					

Limits Surrogate Q % Recovery

1,1,1,2-Tetrachloroethane

108 57-137

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

J = Estimated result < PQL and > MDL

P = The RPD between two GC columns exceeds 40%

Description: Field Blank

Date Sampled:02/28/2012 1200
Date Received:02/28/2012

Laboratory ID: NB28052-004

Matrix: Aqueous

Volatile	Organic	Compounds by	/ GC/MS

Run 1	Prep Method 5030B	Analytical Method 8260B	Dilution 1	Analysis 03/04/2012	•	Prep Da	te Batch 79299			
Param	Parameter			CAS Number	Analytical Method	Result C	Q PQL	MDL	Units	Run
Benze	ne			71-43-2	8260B	ND	5.0	0.20	ug/L	1
1,2-Di	chloroethane			107-06-2	8260B	ND	5.0	0.30	ug/L	1
Ethylb	enzene			100-41-4	8260B	ND	5.0	1.7	ug/L	1
Methy	l tertiary butyl ether	(MTBE)	1	634-04-4	8260B	ND	5.0	0.40	ug/L	1
Naphtl	halene			91-20-3	8260B	ND	5.0	1.7	ug/L	1
Toluer	ne			108-88-3	8260B	ND	5.0	1.7	ug/L	1
Xylene	es (total)		1	330-20-7	8260B	ND	5.0	1.7	ug/L	.1
Surro	gate	Q	Run ' % Recov							

SurrogateQ% RecoveryLimits1,2-Dichloroethane-d49770-130

 Bromofluorobenzene
 99
 70-130

 Toluene-d8
 99
 70-130

Volatile Organic Compounds by GC/MS

Run 1	Prep Method 5030B	Analytical Method 8260B	Dilution 1	Analysis 03/04/2012	•	Prep Date	Batch 79299			
Param	neter			CAS Number	Analytical Method	Result Q	PQL	MDL	Units	Run
Diisop	ropyl ether (IPE)			108-20-3	8260B	ND	10	0.40	ug/L	1
Ethan	ol .			64-17-5	8260B	ND	1000	33	ug/L	1
3,3-Di	methyl-1-butanol			624-95-3	8260B	ND	100	1.0	ug/L	1
Ethyl-t	ert-butyl ether (ETBE	≣)		637-92-3	8260B	ND	100	0.20	ug/L	1
tert-Ar	nyl alcohol (TAA)			75-85-4	8260B	ND	100	6.7	ug/L	1
tert-Ar	nyl methyl ether (TAI	ME)		994-05-8	8260B	ND	10	0.20	ug/L	1 -
tert-bu	tyl alcohol (TBA)			75-65-0	8260B	ND	100	6.7	ug/L	1
tert-Bu	ityl formate (TBF)			762-75-4	8260B	ND	100	1.0	ug/L	1
Surro	gate	Q	Run % Reco							
Bromo	fluorobenzene		99	70-1	30					
1,2-Di	chloroethane-d4		97	70-1	30					
Toluer	ne-d8		99	70-1	30					

EDB & DBCP by Microextraction

Run 1	Prep Method 8011	Analytical Method 8011	Dilution 1	Analysis Date 03/06/2012 0759	Analyst PMS	Prep Date 03/02/2012 1728	Batch 79247			
Paran	neter				alytical lethod	Result Q	PQL	MDL	Units	Run

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"

Description: Field Blank

Date Sampled:02/28/2012 1200 Date Received: 02/28/2012

Laboratory ID: NB28052-004

Matrix: Aqueous

EDB & DBCP by Microextraction

					-,			• •				
Run Prep Method Analy 1 8011		Analytical Method 8011	Dilution 1	Analysis 03/06/2012		Analyst PMS	Prep 03/02/2	Date 012 1728	Batch 3 79247			
Param	neter			CAS Number		llytical ethod	Result	Q	PQL	MDL	Units	Run
1,2-Dil	oromoethane (EDB)			106-93-4		8011	ND		0.020	0.020	ug/L	1
Surro	gate	Q	Run ′ % Recov					-		-		
1,1,1,2	2-Tetrachloroethane		99	57-1	37							

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"

Description: Trip Blank

Date Sampled:02/28/2012 1205 Date Received: 02/28/2012

Laboratory ID: NB28052-005

Matrix: Aqueous

Volatile Organic Compou	ınds	hv	GC/MS
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Run 1	Prep Method 5030B	Analytica	Method 8260B	Dilution 1	Analysis 03/04/2012		ilyst Prep JG	Date	Batch 79299			
Param	neter				CAS Number	Analytic Metho	Deculé	Q	PQL	MDL	Units	Run
Benze	ne				71-43-2	8260	B ND		5.0	0.20	ug/L	1
1,2-Di	chloroethane				107-06-2	8260	B ND		5.0	0.30	ug/L	. 1
Ethylb	enzene				100-41-4	8260	B ND		5.0	1.7	ug/L	1
Methy	l tertiary butyl ether	(MTBE)		1	634-04-4	8260	B ND		5.0	0.40	ug/L	1
Napht	nalene				91-20-3	8260	B ND		5.0	1.7	ug/L	1
Toluer	ne .				108-88-3	8260	B ND		5.0	1.7	ug/L	1
Xylene	es (total)			1	330-20-7	8260	B ND		5.0	1.7	ug/L	1
Surro	gate		Q	Run % Reco								
1,2-Di	chloroethane-d4			93	70-1	30			,			
Bromo	fluorobenzene			98	70-1	30						
Toluer	ne-d8			97	70-1	30						

Volatile Organic Compounds by GC/MS

Run 1	Prep Method 5030B	Analytical Method 8260B	Dilution 1	Analysis 03/04/201.	•	Prep Date	Batch 79299			
Param	neter			CAS Number	Analytical Method	Result Q	PQL	MDL	Units	Run
Diisop	ropyl ether (IPE)			108-20-3	8260B	ND	10	0.40	ug/L	1
Ethano	ol .			64-17-5	8260B	ND	1000	33	ug/L	1
3,3-Di	methyl-1-butanol		(624-95-3	8260B	ND	100	1.0	ug/L	_. 1
Ethyl-t	ert-butyl ether (ETBE)			637-92-3	8260B	ND	100	0.20	ug/L	1
tert-An	nyl alcohol (TAA)			75-85-4	8260B	ND	100	6.7	ug/L	1
tert-An	nyl methyl ether (TAM	E)	(994-05-8	8260B	ND	. 10	0.20	ug/L	1
tert-bu	tyl alcohol (TBA)			75-65-0	8260B	ND	100	6.7	ug/L	1
tert-Bu	ityl formate (TBF)			762-75-4	8260B	ND	100	1.0	ug/L	. 1
Surro	gate	Q	Run ′ % Recov				·	-	-	
Bromo	fluorobenzene		98	70-1	130					
1,2-Di	chloroethane-d4		93	70-1	130					
Toluer	ne-d8		97	70-1	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"

Description: MW-1 Duplicate
Date Sampled:02/28/2012 1140
Date Received: 02/28/2012

Laboratory ID: NB28052-006

Matrix: Aqueous

Volatile Organic Compounds by GC/MS													
Run 1	Prep Method 5030B	Analytical Method 8260B	Dilution 1	Analysis 03/04/2012	•	Prep D	Date Bate 7929						
Param	neter			CAS Number	Analytical Method	Result	Q PQL	MDL	Units	Run			
Benze	ne			71-43-2	8260B	280	5.0	0.20	ug/L	1			
1,2-Di	chloroethane		•	107-06-2	8260B	8.1	5.0	0.30	ug/L	1			
Ethylk	enzene		•	100-41-4	8260B	83	5.0	1.7	ug/L	1			
Methy	I tertiary butyl ethe	er (MTBE)	10	634-04-4	8260B	140	5.0	0.40	ug/L	1			
Napht	halene			91-20-3	8260B	22	5.0	1.7	ug/L	1			
Tolue	ne		•	108-88-3	8260B	330	5.0	1.7	ug/L	1			
Xylen	es (total)		1:	330-20-7	8260B	290	5.0	1.7	ug/L	1			
Surro	gate	Q	Run 1 % Recov										
1,2-Di	chloroethane-d4		92	70-1	30								
Bromo	fluorobenzene		97	70-1	30								
Toluer	ne-d8		99	70-1	30								

Run 1	Prep Method 5030B	Analytical Method 8260B	Dilution 1	Analysis 03/04/2012	•	Prep [Date	Batch 79299			
Param	eter		1	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopi	opyl ether (IPE)		1	08-20-3	8260B	ND		10	0.40	ug/L	1
Ethano	ol .			64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dir	nethyl-1-butanol		6	24-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-to	ert-butyl ether (ETB	≣)	6	37-92-3	8260B	ND		100	0.20	ug/L	. 1
tert-Ar	nyl alcohol (TAA)			75-85-4	8260B	1200		100	6.7	ug/L	1
tert-An	nyl methyl ether (TAI	ME)	9:	94-05-8	8260B	ND		10	0.20	ug/L	1
tert-bu	ityl alcohol (TBA)			75-65-0	8260B	1200		100	6.7	ug/L	1
tert-Bu	tyl formate (TBF)		7	62-75-4	8260B	ND		100	1.0	ug/L	1
Surrog	jate	Q	Run 1 % Recove	Accept ery Limi							
Bromo	fluorobenzene		97	70-1	30						
1,2-Dic	chloroethane-d4		92	70-1	30						
Toluen	e-d8		99	70-1	30						

EDB & DBCP by Microextraction

Run 1	Prep Method 8011	Analytical Method 8011	Dilution 1	Analysis Da 03/06/2012 (•	Prep 03/02/2	Date 012 1728	Batch 79247			
				CAS	Analytical			_			_
Param	eter			Number	Method	Result	Q.	PQL	MDL	Units	Run

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"

Description: MW-1 Duplicate Date Sampled:02/28/2012 1140 Date Received: 02/28/2012

Laboratory ID: NB28052-006

Matrix: Aqueous

EDB & DBCP by Microextraction

Analytical Method Dilution Analysis Date Analyst Prep Date Run **Prep Method** Batch 1 8011 8011 1 03/06/2012 0820 **PMS** 03/02/2012 1728 79247 CAS Analytical **PQL** MDL Units Run **Parameter** Result Q Number Method 1 1,2-Dibromoethane (EDB) 106-93-4 8011 ND 0.020 0.020 ug/L Run 1 Acceptance Surrogate Q % Recovery Limits

1,1,1,2-Tetrachioroethane

123 57-137

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%

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79206-001 Batch: 79206

Analytical Method: 8260B

Matrix: Aqueous Prep Method: 5030B

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. % Red	•	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

Batch: 79206

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 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	Acceptan Limit	ice					
Bromofluorobenzene	99	70-130)					
1,2-Dichloroethane-d4	90	70-130)					

PQL = Practical quantitation limit

Toluene-d8

P = The RPD between two GC columns exceeds 40%

70-130

N - Recovery is out of criteria

ND = Not detected at or above the MDL

 $J = Estimated result < PQL and <math>\geq MDL$

+ - 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

102

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79206-003

Batch: 79206

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
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 % Red		eptance 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

Batch: 79206

Matrix: Aqueous 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 % Red	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

 $J = Estimated result < PQL and <math>\geq MDL$

+ - RPD is out of criteria

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79206-002

Batch: 79206

Analytical Method: 8260B

Matrix: Aqueous Prep Method: 5030B

Spike Amount Result % Rec **Parameter** (ug/L) (ug/L) Q Dil % 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 03/02/2012 0931 102 70-130 Naphthalene 50 44 89 70-130 03/02/2012 0931 Toluene 50 50 1 101 70-130 03/02/2012 0931 Xylenes (total) 100 110 107 70-130 03/02/2012 0931 Acceptance Surrogate Q % Rec Limit Bromofluorobenzene 70-130 99 1,2-Dichloroethane-d4 90 70-130 Toluene-d8 102 70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79206-003

Batch: 79206

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
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 > MDL

+ - RPD is out of criteria

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

Volatile Organic Compounds by GC/MS - Duplicate

Sample ID: NB28052-001DU

Batch: 79206

Matrix: Aqueous 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

Analytical Method: 8260B

Batch: 79299

Matrix: Aqueous

Prep Method: 5030B

Parameter	Result	c	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	9	98	70-130				
1,2-Dichloroethane-d4	9	94	70-130				
Toluene-d8	g	7	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"

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79299-002

Batch: 79299

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	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	Accepta Limi					
Bromofluorobenzene	99	70-13	30				
1,2-Dichloroethane-d4	93	70-13	30				
Toluene-d8	100	70-13	30				

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
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 % Red	Ac	ceptance 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"

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79299-001

Batch: 79299

Analytical Method: 8260B

Matrix: Aqueous Prep Method: 5030B

Parameter	Resul	t (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

Batch: 79299

Analytical Method: 8260B

Matrix: Aqueous

Prep Method: 5030B

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"

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79299-003

Batch: 79299

Matrix: Aqueous

Analytical Method: 8260B

Prep Method: 5030B

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 % Re		ptance imit						
Bromofluorobenzene	98	70	0-130						
1,2-Dichloroethane-d4	95	70	0-130						
Toluene-d8	98	70	0-130						

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79325-001

Batch: 79325

Analytical Method: 8260B

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	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

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	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"

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79325-002

Batch: 79325

Matrix: Aqueous

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

Batch: 79325

Matrix: Aqueous

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spi Amo (ug.	unt	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	100)	810		1	81	14	70-130	20	03/05/2012 0744
tert-butyl alcohol (TBA)	100	C	720		1	72	1.3	70-130	20	03/05/2012 0744
Surrogate	Q	% Rec		eptance Limit						
Bromofluorobenzene		96	-	70-130						
1,2-Dichloroethane-d4		91	. 7	70-130						
Toluene-d8		102	7	70-130						

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79390-001

Batch: 79390

Analytical Method: 8260B

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	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"

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79390-001

Batch: 79390

Matrix: Aqueous 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

Batch: 79390

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	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	Accepta Limi					
Bromofluorobenzene	100	70-13	30				
1,2-Dichloroethane-d4	99	70-13	30				
Toluene-d8	101	70-13	30				

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79390-003

Analytical Method: 8260B

Batch: 79390

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	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"

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79390-003

Batch: 79390

Matrix: Aqueous

Analytical Method: 8260B

Prep Method: 5030B

Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
50	48		1	97	1.7	70-130	20	03/05/2012 1952
1000	900		1	90	3.8	70-130	20	03/05/2012 1952
Q % Red				* *				
99	7	0-130						
96	7	0-130						
100	7	0-130				,		,
	Amount (ug/L) 50 1000 Q % Rec 99 96	Amount (ug/L) 50 48 1000 900 Q % Rec 1 99 7 96 7	Amount (ug/L) Result (ug/L) Q 50 48 1000 900 Q % Rec Acceptance Limit 99 70-130 96 70-130	Amount (ug/L) Result (ug/L) Q Dil 50 48 1 1000 900 1 Acceptance Limit 99 70-130 96 70-130	Amount (ug/L) Result (ug/L) Q Dil % Rec 50 48 1 97 1000 900 1 90 Acceptance Limit 99 70-130 96 70-130	Amount (ug/L) Result (ug/L) Q Dil % Rec % RPD 50 48 1 97 1.7 1000 900 1 90 3.8 Acceptance Limit 99 70-130 96 70-130	Amount (ug/L) Result (ug/L) Q Dil % Rec % RPD % Rec Limit 50 48 1 97 1.7 70-130 1000 900 1 90 3.8 70-130 Acceptance Limit 99 70-130 96 70-130	Amount (ug/L) Result (ug/L) Q Dil % Rec % RPD % Rec Limit % RPD Limit 50 48 1 97 1.7 70-130 20 1000 900 1 90 3.8 70-130 20 Q % Rec Limit Limit 99 70-130 70-

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79390-001

Batch: 79390

Analytical Method: 8260B

Matrix: Aqueous

Prep Method: 5030B

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 % Re	Acceptano c Limit	:e			
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"

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ79390-002

Batch: 79390

Matrix: Aqueous 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

Batch: 79390

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
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		otance mit						
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"

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ79561-001

Batch: 79561

Analytical Method: 8260B

Prep Method: 5030B

Matrix: Aqueous

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

Batch: 79561

Matrix: Aqueous

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spiko Amou (ug/L	unt Result		Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-butyl alcohol (TBA)	1000		1100		1	115	70-130	03/07/2012 0913
Surrogate	Q	% Rec	Accepta Limit					
Bromofluorobenzene		95	70-13	0			· · · · · · · · · · · · · · · · · · ·	
1,2-Dichloroethane-d4		95	70-13	80				
Toluene-d8		98	70-13	0 -				

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ79561-003

Batch: 79561

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
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"

EDB & DBCP by Microextraction - MB

Sample ID: NQ79247-001

Batch: 79247

Analytical Method: 8011

Matrix: Aqueous

Prep Method: 8011

Prep Date: 03/02/2012 1728

			5 S			
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

Batch: 79247

Analytical Method: 8011

Matrix: Aqueous

Prep 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	Acceptar Limit					
1.1.1.2-Tetrachloroethane	100	57-13	7				

EDB & DBCP by Microextraction - MS

Sample ID: NB28052-001MS

Batch: 79247

Analytical Method: 8011

Matrix: Aqueous Prep 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 % Re		ptance mit					
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

 $J = Estimated result < PQL and <math>\geq MDL$

+ - 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

EDB & DBCP by Microextraction - MSD

Sample ID: NB28052-001MD

Batch: 79247

Analytical Method: 8011

Matrix: Aqueous

Prep 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	% RPI) Analysis Date
1,2-Dibromoethane (EDB)	ND	0.25	0.31		1	123	5.1	60-140	20	03/06/2012 0654
Surrogate	Q % R		eptance _imit					-		
1,1,1,2-Tetrachloroethane	116	5 5	7-137							

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

 $\textbf{Number}\ 10659$

Client		Report to 0	ontac									Samp	ler (P	rinted	Name		?					Quote No.	_
Address Zuoo Bull St.		Telephone	No. /	Fax	No.	/ Em	1 /1 nail	-				Wayb	ill No.	DC	M	<u>/ C</u>	DWE	~_				Page of /	
City State Zip	Code	Preserva	tive					Т		T	r		Ī	1	Т-	Т	T	T	Т	T	1	Number of Containers	
Columbia SC 2		1. Unpres.		HNO	13	7. Na	аОН			<u> </u>	 	 	 	1	1 -	†	╁┈	†	\vdash	1	1	Bottle (See Instructions on ba	ck)
Project Name		2. NaOH/ZnA		HCL										1	1	1	 	 		+		Preservative	<u> </u>
Nickel Pumper 23	3	3. H2SO4		Na T						3		<u> </u>		1	1	1	1	1	1			Lot No.	
Project Number 04878/38722	P.O Numb	er	ab osite		N	/atri	x		Si.	Z.	8-00											NB200	5
Sample D / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	GW	DW	ww	s	Other	Analysis	BKK, NAM, MIL	12 BCA. 8-BKY	EDB										Remarks / Cooler ID	
MW-I	Z-28	1140	Ģ							X	×	×										ODOR	
MW-Z		1150			Ш					X	×	×	<u> </u>						<u> </u>	<u> </u>	<u> </u>	No ODER	
mw·3	*	1151	*		Ш					X	X	X										NO DOOR	
MN-4			_	\vdash	Ł					_												NL	
WSW-1	-		_	\vdash						_		_	_									NL	
FIELD BLANK	2.28	1200	G							بإ	x	X											
TRIP BLOWK		12.5								ند	x												
MW-1 DIPLUME	*	1140	X	-						1	1	X	_	ļ		+	-	-	-	-	-	OMR	_
				-	\vdash		H			-		-	-	+	-		+-	-	+	+-	+		\dashv
Turn Around Time Required (Prior lab appro	val required for	expedited TAT	Sam	ple	Disp	l osal				l Q	C Req	uireme	nts (S	pecify	_)	Pos	sible H	azard	Identif	ication			لـــــ
☐ Standard ☐ Rush (Please Specify)			□R	eturn	to Cli	ient		Disp	osal by	Lab						□No	n-Hazar	d □Fl	ammab	le ⊡Sk	kin Irritan	t □Poison □Unknown	
1. Relinquished by / Sampler			Date		ر. ا	2	Time	e S	48	15	Recei	ved by	_	9					Date	2-18	x-12	Time /5 4	
2. Relinquished by			Date				Tim			2	Recei	yed by							Date	э		Time	
3. Relinquished by			Date	Э			Tim			3	Recei	ved by	1	Λ					Date	9		Time	
4. Relinquished by			Date	-2	D.	-/	J im	96	15	4	Labor	atory F	Receive	ed by					Pat	} % -	ル	Time 1015	_
Note: All samples	are retain ther arran					m r	eçe	ipt		L	AB US	E ONL	Y Check)	- N	es 🗆 N	lo 🗆 la	e Pack	Rece			_	Temp. Blank Y / D N	
uniess of	uigi ailail	gements	aie	····a	uc.							011100 (0	JIIOUN)					Trieve	THE LESS	Y-F		Tromp. Dianity Li 1 / Li N	

Client: SC DHCC

Page 1 of 1 Replaces Date: 05/06/11 Effective Date: 10/11/11

Sample Receipt Checklist (SRC)

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

Means of	receipt:	SESI	☐ Client ☐ UPS ☐ FedEx ☐ Airborne Exp ☐ Other
Yes 🗌	No 🔲		Were custody seals present on the cooler?
Yes 🗌	No		2. If custody seals were present, were they intact and unbroken?
)/temperat	ure upon re	
		nperature E	Blank Against Bottles
Method o			
If respons	se is No (c	or Yes for 1	4, 15, 16), an explanation/resolution must be provided.
			3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified?
Yes 🗌	No 🗌	NA-	PM notified by SRC, phone, note (circle one), other: (For
			coolers received via commercial courier, PMs are to be notified immediately.
Yes _	No 🗌	NA-	4. Is the commercial courier's packing slip attached to this form?
Yes	No	\\ \	5. Were proper custody procedures (relinquished/received) followed?
Yes	No	NAT	5a Were samples relinquished by client to commercial courier?
Yes	No .		6. Were sample IDs listed?7. Was collection date & time listed?
Yes Yes	No No		8. Were tests to be performed listed on the COC?
Yes	No 🗌		9. Did all samples arrive in the proper containers for each test?
Yes	No		10. Did all container label information (ID, date, time) agree with COC?
Yes	No		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes	No		12. Was adequate sample volume available?
			13. Were all samples received within ½ the holding time or 48 hours, whichever
Yes	No 🗌		comes first?
Yes 🗌	No.		14. Were any samples containers missing?
Yes 🗌	No		15. Were there any excess samples not listed on COC?
Yes 🗌	No D	NA 🗌	16. Were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any VOA vials?
Yes	No	NA	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes 🗌	No 🗌	NA	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes 🗌	No 🗌	NA.	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb
			(<0.2mg/L) samples free of residual chlorine?
Yes	No 🗌	NA.	20. Were collection temperatures documented on the COC for NC samples?
Yes 🗌	No 🗌	NA.	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 I	Preservat	ion (Mus	t be completed for any sample(s) incorrectly preserved or with headspace.)
Sample(s			were received incorrectly preserved and were adjusted
according	gly in sam	ple receivin	ng 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/
		/pest/PCB	
		aken, if no	
		Yes	
			Date of response:
Comments	<u>. </u>	·	

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.

Ensure that the QC samples met performance criterie and that any deviations were documented.

Lab Data Qualifiers

Determine that the laboratory data qualifiers were defined and applied as specified in methods, procedures, or contracts.

		Verification, Validation and Usability Report (WUR)	
	UST Permit #: 04878	Docket 5		March 14, 2012
	Facility Name: NICKELPUMPER 233	Report Received: March 12, 2012	Signature:	DIL
	Cost Agreement: 38723		UST Project Manager:	
	Project Objective: plume delineation			
	Groundwater Sampling: MV Scope of Work: Water Supply Sampling: W Analytical Parameters: BTE.			
	Item	Comments	Impact on Usability	Corrective Action
	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)	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		
ness	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.	Missing: none Ambient temperature: 18 deg C (from purge sheet) No other conditions provided		
Completeness	Varification Report (Contractor Checklist) Summarize deviations from methods, procedures, or contracts. Include qualified data and explanation of all data qualifiers.	#37 No topo has been provided, nor is it required - N/A is appropriate response	No impact	Notify contractor
	Analytes Ensure that required lists of analytes were reported as specified.	Complete	-	
	Sampling Plan Ensure that required sample locations were reported as specified. Determine if atterations to sample locations continue to satisfy the project objectives.	Missing samples: MW-4, WSW-1 Not located	Unlikely	
	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	COC does not indicate preservative, number of containers or matrix	Likely	Notify contractor
	data from being used for the intended purpose.			
	Work Scope Examine deviations from contract / work plan - repairs, waste disposal etc (no impact on data quality)	·	><	
	Sample Receipt Checklist (or equivalent) Ensure consistency with COC, LCN. Examine checklist against contract, method or procedural requirements.	SRC, LCN and COC are consistent	-	
	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 confract 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.	Specified hold time for VOCs with preservative: 14 days sampled 2/28 all analysis completed by 3/7 Preservative Not Indicated	Likely	
	Sample Handling Ensure that required sample handling, receipt, and storage procedures were followed, and that any deviations were documented.	As specified		
	Sampling Methods and Procedures Establish that required sampling methods were used and that any deviations were noted. Establish that required sampling procedures and field measurements met performance criteria end that any deviations were documented (e.g., techniques, equipment, decontamination, volume, temperature, preservatives, etc.)	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?

QC results indicate high bias for TAME, TBF, ETBA and ethanol - ND in all samples

As specified

--No impact

	Icantana da antana			
1	Confirmatory Analyses Evaluate agreement of laboratory results.	Trip blanks - ND		
1		Field blanks: ND		
1	Evaluate the implications of unacceptable QC sample results on the data usability for the			
1	associated samples: blank contamination, matrix effects			
1				
1				
1	1			
1	Co-located Field Duplicates Compare results of collocated field duplicates with criteria established in the QAPP.	•	++Significant	
1	RPD (%) = ((CS - CD)/(CS + CD)/2) x 100			
ı		#04878 02-28-2012		
		MW-1 Dup	ŀ	
		Benzene RPD: 160 Toluene RPD: 159		
		Ethylbenzene RPD: 159		
		Tot Xylenes RPD: 155		
1		MtBE RPD: 161		
1		Naphthalene RPD: 158		
		1,2-DCA RPD: 158 TAA RPD: 143		
		TBA RPD: 161	'	
		01-00-1900		
	1	01-00-1900		
	i			
1				
1				
1				
		Com	ments	
	Completeness	Oili	inents	
	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)			
₹	Critical Samples			
l p	Establish that critical samples and critical target analytes/COCs, as defined in the QAPP,	Bata abada antha artista		
ΙĘ	were collected and analyzed. Determine if the results meet criteria specified in the QAPP.	Data should not be relied on		
≗				
. =	■			
1 ≥				
5				
. Requirements				
	Conformance Criteria			
User	Conformance Criteria Evaluate QC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods).			
User	Conformance Criteria Evaluate QC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods). Describe the exact process for handling data that do not meet DQQs (i.e., when			·
with User	Conformance Criteria Evaluate QC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods).	Data should not be relied on		·
with User	Conformance Criteria Evaluate CC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods). 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,	Data should not be relied on		·
with User	Conformance Criteria Evaluate CC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods). 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,	Data should not be relied on		·
with User	Conformance Criteria Evaluate CC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods). 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,	Data should not be relied on		·
with User	Conformance Criteria Evaluate CC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods). 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,	Data should not be relied on		
with User	Conformance Criteria Evaluate QC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those cutlined in the methods). 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.	Data should not be relied on		
econciliation with User	Conformance Criteria Evaluate CG date against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods). Describe the exact process for handling data that do not meet DQOs (i.e., when measurement performance criteria are not med). Depending on how those data will be used, specify the restrictions on use of those data for environmental decision-making. Comparability	Data should not be relied on		
with User	Conformance Criteria Evaluate QC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those cutlined in the methods). 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.			
econciliation with User	Conformance Criteria Evaluate QC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods). 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. Comparability Ensure that results from different data collection activities schieve an acceptable level of	Data should not be relied on MW-1 Duplicate is not consistent with MW-1 values from this and prior eve	nts; MW-2, 3 are consi	stent with prior events
econciliation with User	Conformance Criteria Evaluate QC data against project-specific performance criteria in the QAPP (i.e., evaluate quality parameters beyond those outlined in the methods). 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. Comparability Ensure that results from different data collection activities schieve an acceptable level of		nts; MW-2, 3 are consi	stent with prior events



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.

Maun

Project Coordinator

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 Carolin	a 28205	
Phone Number: (704) 563-1663		
Well Driller: Terry D. Kennedy	Cert. #:	B 01693
Address: 4913 Albemarle Road, Suite 101, Charlotte, North Carolin	a 28205	
Phone Number: (704) 563-1663		
eceptor and Site Data lease place a check in the appropriate answer block for each questi	ion:	
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?		Х
If "yes" provide additional information:		
Sanitary sewer line on-site ~50' north of UST basin; water line on-site	~50' north o	f UST basin;
swamp/pond ~327' north/northeast of site.		
		·
	· · · · · · · · · · · · · · · · · · ·	

Initial Grou Page 2	und W	ater Assessment	Report	SCDHEC U	ST Permit #:	04878	
Were any v	water v	wells within a 250) foot radius samp	led?	Yes	X	No
Is there a p	ublic	water supply line	in the area?	X	Yes		- No
Is the curre residential	ent us or ind	e of the facility ustrial?	and surrounding p	properties com	mercial, resider	ıtial, agr	icultural or
Site: Co	mmer	ical	Adjacer	nt Properties:	Vacant/Comm	erical	
Primary So	oil Typ						
		Method and Date		auger on 12/17	/02		
_			ole polyethylene ba	ailer	· · · · · · · · · · · · · · · · · · ·	<u>-</u>	
Soil Sample	e Obta	ained at: 4.5-5.	<u>0</u> fe	et.			
Boring #: N	AW-1		Soil Analytical	Data (mg/kg)			
Benzen	e	Toluene	Ethylbenzene	. Xylenës	Naphthalen	ie T	otal Lead
4.29		54.4	15	91.6	9.05		7.3
Benzo(a) anthracer	ne	Benzo(b)- fluorantliene <0.066	Benzo(k)- fluoranthene <0.066	Chrysene <0.066	Dibenzo(a,h anthracene <0.066		otal PAHs -
			Ground W	ater Data			
Depth to G				<u>.</u>		<u></u>	
_	_	mpling Method:	Disposable polye	ethylene bailer			
Date Samp		12/17/02					
Free Produc	ct Thi	ckness: Sheen					
Equilibrate	d Valı	ues *					
Temperatur	re (C°):		pH (s.u.):			
Dissolved (· • /	Speci 19 gallons for deve		ee (µmhos/cm): ed 5 gallons pric	or to sam	pling.

SCDHEC UST Permit #:

04878

Page 3

Ground Water Analytical Data (μ 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)-	Benzo(b)-	Benzo(k).	Chrysene	Dibenzo(a,h)-	Total	Total
anthracene	fluoranthene	fluoranthene		anthracene	PAHs	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. #:

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 provi	ded by SCDHI	<u> </u>	6. PERMIT NUMBER: UMW-16621				
Name: (last) (fir	st)		W. F. KONT ROMBER, OWYF 10021				
Address:	•		7. USE:				
City: Dillon State: SC Zip			□ Residential □ Public Supply □ Process □ Irrigation □ Air Conditioning □ Emergency				
Telephone: Work: Hom	ie:		□ Test Well				
LOCATION OF WELL: Name: Nicklepumper #233			8. WELL DEPTH (completed) Date Started: 12/17/02				
Street Address: 3296 Point South Drive			12.5 Feet Date Completed: 12/17/02				
City: Point South Zip: SC COUNTY: Jasper			9. ☐ Mud Rotary ☐ Jetted 💥 Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other				
Latitude: 032º 37' 47.1" N Longitude: 08	0° 52' 44.4 W		10. CASING:)/ Threaded Welded Height: Above/Below				
3. SYSTEM NAME: SYSTEM	NUMBER:		Diam.: 2" Type: PVC □ Galvanized Surface 0 ft. Steel □ Other Sch. 40 lb./ft.				
Nicklepumper #233	MW-1		0 in. to 2.5 ft. depth Drive Shoe? □ Yes No				
4. CUTTING SAMPLES: Yes		™ No	11. SCREEN				
Geophysical Logs:	nclose)	∏ No	Type: PVC				
Formation Description:	Thickness of	Depth to Bottom	Type: PVC Diam.: 2"				
	Stratum	of Stratum	Sieve Analysis Yes (please enclose) <u>No</u>				
Light brown fine sand; moist	3'	3'	12. STATIC WATER LEVEL 3.21 ft. below land surface after 24 hours				
Light brown clay; wet; strong petroleum odor	9.5+	12.5+	13. PUMPING LEVEL Below Land Surface.				
			ft. after hrs. Pumping G.P.M. Pumping Test: □ Yes (please enclose)				
,			Yield:				
PID 471 ppm-v @ 4.5-5'			14. WATER QUALITY Chemical Analysis ⊅ Yes □ No Bacterial Analysis □ Yes □ No Piease enclose lab results.				
			15. ARTIFICIAL FILTER (filter pack) Yes Do Installed from 1 ft. to 12.5 ft. Effective size #2 Uniformity Coefficient				
			16. WELL GROUTED? Yes □ No Y Neat Cement □ Sand Cement □ Concrete □ Other Depth: From 0 ft. to 0.5 ft.				
			17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:				
			5ftWdirection Type well disinfected □ Yes Type:				
			upon completion No 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) Turbline				
			□ Jet (deep) □ Reciprocating □ Centrifugal				
			19. WELL DRILLER: Terry Kennedy CERT. NO. B 01693				
'Indicate Water Bearing Zones (Use a 2 nd sheet if needed)			Address: 4913 Albemarle Road, Suite 101, Charlotte, NC 28205				
5. REMARKS: Bentonite seal from 0.5'-1.0'			Telephone No.: 704-563-1663				
			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: My Course Date: 12/17/02				
			Managed 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/mi). 7.1171 (2)			Facility Name	Nicklenumber #233	ű			
Field Personnel:				04878		Monitoring Well #	Well #	MW-1
General Weather Conditions: CLEAR COUC			Well Diameter (D):		.167	42	feet	
Ambient Air Temperature:	ပ		Conversion facto	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	2 for a 2 inch well C = 0.163 for a 4 inch well C = 0.652	well C = 0.16 vell C = 0.65	. 2 33	
Quality As			* Free Product Thickness:	ickness:				feet
PH Meter Conductivity Meter serial no.			Depth to Ground Water (DGW) Total Well Depth (TWD)	Water (DGW) (TWD)		101		feet feet
			Length of the wa	Length of the water column (LWC = TWD-DGW)	= TWD-DGW)		4.4	feet
pH=10.0 Standard			1 casing volume	1 casing volume (CV = LWC X C) $\vec{I}_{L} \leq g$	58	/ SS	/, SS	9
Chain of Custody			Total volume of \	Total volume of Water Purged Before Sampling	ore Sampling			gals
Relinquished by Date/Time Received by	Date/Time		*If free product is	*If free product is present over 1/8 inch, sampling will not be required.	inch, samplin	a will not be		Total Purged
	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	5th Vol. Post Sampling	Sample
Cumulative Volume Purged (gallons)	0.25					_		
Time (military)	144							100 Ass
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: SHEN-NO REMONDS SANCED		THE	NS PUL	S GALLONS PLISE TO SAMPLING BALED 9 CALLONS FOR DEVELOPMENT	MPLING BAS FR	20 De	SVELLARA	SAT.

APPENDIX C Laboratory Data

İ

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

FROM



ANALYTICAL REPORT

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

Project:

Project Name: NICKLE PUMPER 233 #04878

Sampler: TERRY KENNEDY

Lab Number: 02-A208053

Sample ID: MW-1 Sample Type: Soil

Site ID:

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

Page: 1

Analyte	Result	Unite	Report Limit	nil Factor	Analysis Date	Analygig Time	Ynallart '	Method	Batch
•General Chemistry Parame	ITERS+								
V Dry Weight	77.7	k		1	12/21/02	13:35	K. Keller	CLP	0692
ORGANIC PARAMETERS*			٠,		•				
enzo (a) anthracene	ND	mg/k g	0.056	1	13/22/02	23,16	M.Schott	8270C	1600
lonzo(b) fluoranthene	ND	mg/kg	0.066	1	12/22/02		M.Schott	9270C	1600
onzo (k) fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
hrysene	ИĎ	mg/kg	0.066	1	12/22/02	23:16	M. Schott	8270C	1600
ibenzo(a, h) anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
VOLATILE ORGANICS*									
enzene	4.29	mg/kg	0.794	500	12/20/02	22122	CHollingsw	0260B	341
Ethylbenzene	15	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Maphthalene	9.05	mg/kg	1.98	500	12/20/02	22:22	CHOILINGSW	02608	341
oluene	54.4	mg/kg	0.794	\$00	12/20/02	22:22	CHollingsw	82608	341
Kylenes (Total)	91.6	mġ/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
·Metals•					·				ı
.ead	7 - 3	ma\kä	0.99	1	12/23/02	76:43	C. Martin	6010B	2072

FROM

Received: 1/ 2/03 14:49;

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



ANALYTICAL REPORT

Laboratory Number: 02-A208053

Sample ID: MW-1

Project: Page 2

34, . 105.

36. - 100.

45. - 108.

Sample Extraction Data

	Wt/Vol					
arameter	Extracted	Extract Vol	Date	Time	Analyst	Method
******		*******				
BNA'&	30.0 ga	n 1,0 ml	12/21/02		M. Cauthen	3550
Volatile Organic	в 6,3 g	5.0 ml	12/17/02	9:55	K. Turner	5035
Surrogate			1 Rec	ove r y	Target	Range
VOA Surr 1,2-DCA	-d4	•	1	04.	56,	- 155.
VOA Surr Toluene	-da		1	19.	79.	- 130.
VOA Surr, 4-BFB			1,	02.	. 62.	- 155.
VOA SUTT, DEFM			1	0a.		- 127,

78.

80.

LABORATORY COMMENTS:

BNA Surr-Nitrobenzene-d5

BNA Surr-2-Fluorobiphenyl

BNA Surr-Terphonyl-d14

ND - Not detected at the report limit.

- B Analyte was detected in the method blank.
- J Recimated Value below Report Limit.
- R = Retimated 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



ANALYTICAL REPORT

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

Project:

Project Name: NICKLE PUMPER 233 #04878

Sampler: TERRY KENNEDY

Lab Number: 02-A208054

Sample ID: MW-1 Sample Type: Water

Site ID:

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

Page: 1

Analyte	Result	Unite	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst'	Method	Batch

ORGANIC PARAMETERS									
Benzo (a) anchracens	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		M. Schott	8270C	2677
Benzo(k)fluoranthene	ND	ug/L	10.0	1.0	12/23/02		M.Schott	8270C	2677
Chrysene	ND	ug/L	10.0 4	1.0	12/23/02	, , -	M.Schott	8270C	2677
Dibenzo (a.h) anthracene	ND	ug/L	10.0	1.0	12/23/02	22:01	M.Schott	\$270¢	3677
·VOLATILE ORGANICS*									
Benzene	9250	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5040
roluene	16200	ug/L	500.	500.	12/27/02		C. Wani	8260B	5269
Ethylbenzene	3600	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5272 5269
Xylenes (Total)	18700	ug/L	50.0	\$0.0	12/24/02	14:35	C. Wani	8260B	5269
Methyl-t-butyl ether	18000	ug/L	500,	500.	12/27/02		C. Wani	8260B	5272
Naphthalene	ND	ug/L	250.	50.0	12/24/02		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									1
Lead	22. 4	/-							'
~~~~	33.0	ug/L	3.0	1.0	12/20/02	10:46	C. Johnson	6010B	A676 <b>A</b> £

Sample report continued . . .



Laboratory Number: 02-A208054

Sample ID: MW-1

Project: Page 2

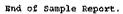
Sample Extraction Data

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

Surrogate	* Recovery	Taryet Range
VOA SUFF 1,2-DCA-d4	107,	73 133.
VOA Surr Toluene-d0	Ø <b>9.</b>	80, - 121.
VOA Surr, 4-BFB	90.	00. <b>-</b> 128.
VOA Surr, DBFM	101,	81 121.
ANA Surr-Nitrobenzene-d5	73.	40 127.
BNA Surr-2-Fluorobiphenyl	68.	42 113.
BNA Surr-Terphenyl-dl4	40.	41 129

#### LABORATORY COMMENTS:

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





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
	нильнення	
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: ______ A. www. 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



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

Project:

Project Name: NICKLE PUMPER 233 #04878

Sampler: TERRY KENNEDY

Lab Number: 02-A208053

Sample ID: MW-1 Sample Type: Soil

Site ID:

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 PARAME	eters*								
Dry Weight	77.7	8		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
Senzo(b) fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
enzo(k) fluoranthene	ND .	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
hrysene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
ibenzo(a,h)anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
VOLATILE ORGANICS*									
enzene	4.29	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
thylbenzene	15	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
Taphthalene	9.05	mg/kg	1,98	500	12/20/02	22:22	CHollingsw	8260B	341
oluene	54.4	mg/kg	0.794	500	12/20/02	22;22	CHollingsw	8260B	341
ylenes (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 . . .



Laboratory Number: 02-A208053

Sample ID: MW-1

Project: Page 2

#### Sample Extraction Data

MILL AOT	Wt	:/	v	01
----------	----	----	---	----

Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method
BNA's	30.0 g	m 1.0 ml	12/21/02		M. Cauthen	3550
Volatile Organic	s 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:

- ${\tt ND}$  = Not detected at the report limit.
- ${\bf B}$  = 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.



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

Project:

Project Name: NICKLE PUMPER 233 #04878

Sampler: TERRY KENNEDY

Lab Number: 02-A208054

Sample ID: MW-1 Sample Type: Water

Site ID:

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
*	, as he say say say say say say say	*********	~~~~						
*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 . . .



Laboratory Number: 02-A208054 Sample ID: MW-1

Project: Page 2

#### Sample Extraction Data

#### Wt/Vol

Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method
			4442422			
BNA's	200. m	1 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 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 . . .



BNA Surr-Nitrobenzene-d5 % Rec

Project Number:

Project Name: NICKLE PUMPER 233 #04878

Page: 2

Laboratory Receipt Date: 12/18/02

BNA Surr-2-Fluorobiphenyl	% Rec				63	42 113.	2677	
BNA Surr-Terphenyl-d14	% Rec				72	41 129.	2677	
	Matrix Sp	ike Recovery						
Note: If Blank is referen	nced as the s	ample spiked, ir	nsufficient	volume was re	eceived for	MS/MSD analys	is for that	method
and the method requ	uirements 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 Sp	ike Recovery						
Note: If Blank is referen	nced as the s	ample spiked, ir	nsufficient	volume was re	eceived for	MS/MSD analys:	is for that	method
and the method requ	uirements for	MS/MSD analysis	s could not	be met.				
Analyte	units	Orig. Val,	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
M TO 00 TO M M M M M M M IN 10 TO 10 TO 10 TO 10								
MISC PARAMETERS								
Ethylene Dibromide	mg/l	< 0.00002	0.00029	0.00029	100	40 - 140	193	02-A208120
	Matrix Spik	e Duplicate						
Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch		
Analyte **UST PARAMETERS**	_	_	-	RFD		Q.C. Batch		
	units	Orig. Val.	-			-		
UST PARAMETERS	units	Orig. Val.						
UST PARAMETERS Benzo(a)anthracene	units mg/kg .	Orig. Val.	1.62	1.83	35.	1600		
UST PARAMETERS Benzo(a) anthracene Benzo(b) fluoranthene	units mg/kg . mg/kg	Orig. Val.	1.62	1.83	35. 40.	1600		
UST PARAMETERS Benzo(a) anthracene Benzo(b) fluoranthene Benzo(k) fluoranthene	units mg/kg mg/kg mg/kg	Orig. Val.	1.62 1.52 1.78	1.83 1.95 2.22	35. 40. 36.	1600 1600 1600		

69 40, - 127, 2677



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				
*******				err een det met fan han om om het het						
VOA PARAMETERS										
Benzene	mg/l	0.0512	0.0521	1.74	1.5.	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 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. Ba	atch
METALS						
Lead	mg/l	0.0520	0.0510	1.94	20 8670	5
Lead	mg/kg	91.0	91.5	0.55	20 207	2
	Matrix Spike	Duplicate				
Analyte	units	Orig. Val.	Duplicate	RPD	Limit Q.C. B	atch
				the first first fact that the first first first	ньяня эншина	
MISC PARAMETERS						
Ethylene Dibromide	mg/l	0.00029	0.00031	6.67	50 193	
	Laboratory Con	ntrol 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 - 1.26	2677
Dibenzo(a,h)anthracene	mg/l	0,0500	0.0290	58	31 - 149	2677

Project QC continued . . .



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
4 4 4 5 5 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5	** ** ** ** ** **					
Addison Danasicianos dada						
VOA PARAMETERS Benzene	mg/l ,	0.0500	0.0494	99	78 - 127	5269
Benzene	mg/1 .	0.0500	0.0478	96	78 - 127	5269
Benzene	mg/kg	0.0500	0.0487	97	77 - 123	341
Ethylbenzene	mg/kg mg/l	0.0500	0.0545	109	78 - 125	5269
-					78 - 125	
Ethylbenzene	mg/1	0.0500	0.0530	106		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	1.1.1	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 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 Con	ntrol 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 Ca	libration Veri	fication			
Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
METALS						
	Laboratory Con	ntrol Data				
Analyte	units		Analyzed Val		Target Range	Q.C. Batch
		******	*******			
MISC PARAMETERS						
Ethylene Dibromide	mg/l	0.00029	0.00031	107	73 - 141	193

Project QC continued . . .



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 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)	< 0.0003	mg/r mg/kg	341	12/20/02	14:49
Methyl-t-butyl ether	< 0.0015	mg/ng 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	12/28/02	14:49
•				12/27/02	
VOA Surr Toluene-d8	90.	% Rec	5272	, ,	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 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
I	Blank Data				
Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed

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 . . .

Test/\merica

is this work being conducted for regulatory purposes?

Compliance Monitoring

To assist us in using the proper analytical methods,

Project Name: NICKLE PUMPER 233 #04878 State: ₿ Report To: LOLL LON Quote #.4204217199 Site/Location ID: POINT SOUTH Invoice To: Project #: Fax 704 563-1662 Client #: STE 10, Client Name GROCELAR RESURCES Address 4913 ACBENIARIE 20 TOND Telephone Number 704 503 / 663 City/State/Zip Code: (HARCOTTE Project Manager. JOHN Sampler Signature: Sampler Name: (Print Name)

Analyze For

Matrix Preservation & # of Containers

			 	 ()	 	 	1.1			
QC Deliverables							LABORATORY COMMENTS: init Lab Temp:	Custody Seels: V N/A	Bottles Supplied by Test America: Y N	Method of Shipment:
210 ST 28	X	X						Time:	Time:	Time.
Tenor V	×	XX	-				Wied Candre Soil	Date:	Date:	Date:
	X	X					ied Cani Eur Lea			
Mone@ Other (Specify Con out	3						J			
H⁵SO⁴ M€OH HCI		0						Received By:	Received By:	Received By:
SL - Studge DW - Drinking Water GW - Groundwater Specify Other HUO ₃	M	1 mb					,			
G = Grab, C = Composite Field Fittered	7	CJ						Time	Time:	Time
beldms SamiT	1~							12/17/02 Date: 1/02	Date:	Date:
betqmas enso	35/00 Solf-1/21	002/21/4/21								
TAT Standard Rush (surcharges may apply) Date Needed: 12/24/62 Fax Results: (Y) N SAMPLE ID	1-MM	NW-1					Special Instructions:	Relinquished By M. W.	Relinguished By:	Relinquished By:

Fax COC in

QC Deliverables Project Name: NICLLEPUMBER 233 #04878 (Batch QC) Level 2 Level 3 Level 4 REMARKS None Other: State: To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes? Report To: JOST LEGIS Compliance Monitoring 9000 # 420421 7 199 Site/Location ID: POUNT SOUTH Analyze For: Invoice To: Project #: FAX# (704) 332-9073 Charlotte office Fax 704 563.1662 MOUNTAIN OF Client #: Typer (Specify States) Preservation & # of Container STE 10 2820S ierpsnoj *OS^zI HOBY IOI Client Name GROUGICAC PESSIGLES 3 ONH TONDO ラ で で Specify Other WW - Wastewater St. - Shudge DW - Drinking Water GW - Groundwater S - Soll/Solid Address: 4913 ARBENIARLE Telephone Number: 754 SS3 (663 Filtered City/State/Zip Code: CHARLD77E S = Grab, C = Composite2 FB288 TERRY. 12/12/20 belgmaS emil Project Manager: 104/N Test/\merica Date Sampled Sampler Signature Sampler Name: (Print Name) Rush (surcharges may apply) Date Needed: 12/24/02 420805 313818 208053 Fax Results: (Y) N TAT Standard ーるが SAMPLE ID NO

z Custody Seals: Y N N/A
Bottles Supplied by Test America: LABORATORY COMMENTS: Method of Shipment: Rec Lab Temp: Init Lab Temp: Date! 2-18-2 Time: 5:00 Time: Time: Date: Date: Received By: Received By: Received By: Time: <u>Time:</u> Date: Date: Special Instructions: Relinquished By: Relinquished By

TESTAMERICA, INC.-NASHVILLE

COOLER RECEIPT FORM

Cli	ent:	Creological	Resour	185		вс#	313818	_
Co	oler R	eceived On: <u>12</u>	2 <u>/18/02</u> And O _l	pened On: 12	<u>/18/02_</u> By <u>:</u>	MARVIN BL	UMHOEFER	-
					Min 6	A.M		
				(Signature)			
1.	Temp	erature of Coole	r when opened	1,5 De	grees C	<u>elsius</u>		
2.	Were	custody seals on	outside of cool	er?		()	YES NO	N/A
	a.	If yes, how ma	ny, what kind	and where:		front		
	b.	n -	s intact, signed,	and dated cor	rrectly?		YES NO	N/A
3.	Were	custody seals on	containers and	l intact?			NO YES	N/A
4.	Were	custody papers	inside cooler?	********	••••••	(YES NO I	N/A
5.	Were	custody papers	properly filled	out (ink,signe	d,etc)?		YES NO	N/A
6.		ou sign the custo					YES NO I	N/A
7.	What	kind of packing	material used?	Bubblewrap	Peanuts	Vermiculite	Other I	None
8.		sufficient ice use				(YES NO	
9.	Did a	all bottles arrive	in good conditi	ion(unbroken)?		YES NO	N/A
10	. Wei	re all bottle labe	ls complete (#,d	late,signed,pr	es,etc)?		.YES NO	N/A
11	. Did a	all bottle labels a	nd tags agree v	with custody p	apers?		YES NO	N/A
12		re correct bottles						
13	. a. V	Vere VOA vials 1	received?				.ves no	N/A
	b. V	Vas there any ob	servable head	space present	in any VO	A vial?	.NO YES	N/A
14	. Was	sufficient amou	nt of sample se	nt in each bot	tle?	,(YES NO	N/A
15	. Wer	e correct preser ot, record standa	vatives used? ard ID of prese	rvative used b	ere		YES NO	N/A
		residual chlorin rective action tal			***********		NO YES	N/A
	S	See attached for	r resolution					

SAMPLE NONCONFORMANCE/COC REVISION FORM

Test/America

Nashville Division

MIBB

317818

Date/Time:

ACCT NO. 2100

Received by:

DATE RECEIVED 12.18.2

Relinquished by:

COMPANY Geologic Rogerces

Date/Time

17-18-2 16:00		N _	La/18/02	1600
Relinquished by:		Received		Date/Time:
JON 19.18.05/1	700	17-18-	-2 17:00	
Relinquished by:	Date/Time:	Received	by:	Date/Time:
PROBLEM(S):				
FOC/TOC?		METALS	3 LIST?	
TPH METHOD?		TCLP W	/HAT?	
EDB METHOD?		HERB LI	IST- LONG OR SHO	ORT?
NEED LIST OF COMPOUNDS:		8260 INS	STEAD OF 8021?	
TEMPERATURE UPON RECEIPT		SATURE	DAY DELIVERY MAI	RKED?
ICE OR NO ICE??		FIELD T	EST OUT OF HOL	_D
NO COC - PLEASE FAX		NO ANA	ALYSIS REQUESTE	.D
DOCUMENTATION LEVEL?		OUT OF	HOLDING TIME 1	TEST
OTHER: OF OB M	loched			
	<u> </u>			
RESOLUTION:				
CONTACTED	DATE/TIME	EMAIL	LEFT MESSAGE	
• • • • • •	12-18-0a /1600	EIVIAIL	LEF I MESSAGE	
Chwww.	10-10-00 / 11000	 		

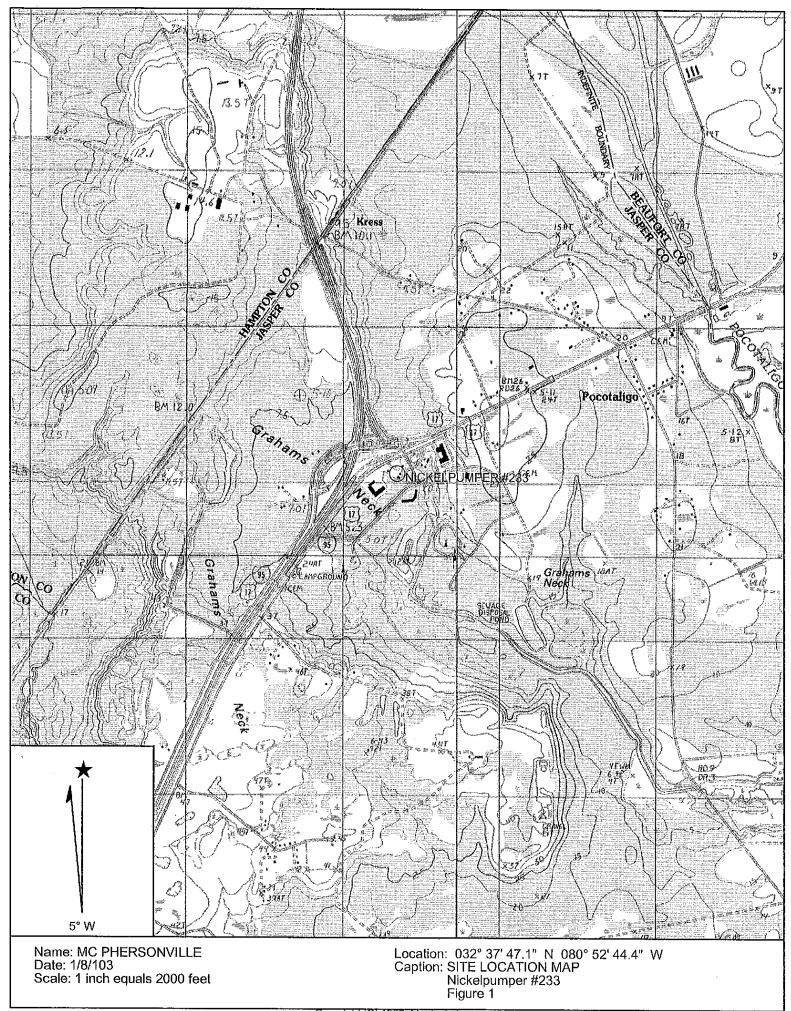
SAMPLE NONCONFORMANCE/COC REVISION FORM

Test/Americ	ca		
Nashville Division	1-0	$\sim 11a$	
DATE RECEIVED;	102	ACCT NO.:	•
SDG NUMBER: 313818		COMPANY NAME: <u>GRI</u>	
Relinquished by:	Date/Time:	Received by:	Date/Time
MH 19-3	0.02/155	50	a de la Companya de l
Relinquished by:	Date/Time:	Received by: MDB	Date/Time:
		12-20,02	16:30
Relinguished by:	Date/Time:	Received by:	Date/Time:
NONCONFORMANCE ISSUE(S) <u>:</u>		
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 O	F 8021?
TEMPERATURE UPON RECEIPT?	,	SATURDAY DELIVERY MARKED?	
ICE OR NO ICE??		SAMPLES TO BE SUBCONTRACT	ED?
NO COC - PLEASE FAX		NO ANALYSIS REQUESTED?	
DOCUMENTATION LEVEL?		OUT OF HOLDING TIME TEST	
OTHER: Ad	d Pb t	0 02A-20	8053
RESOLUTION: Per	FAX fre	m TA-CLT Suc	CtR.
PERSON CONTACTED	DATE/TIME	VIA E-MAIL or VOICEMAIL	NOTES AND/OR COMMENTS:
,			

APPENDIX D Topographic Map

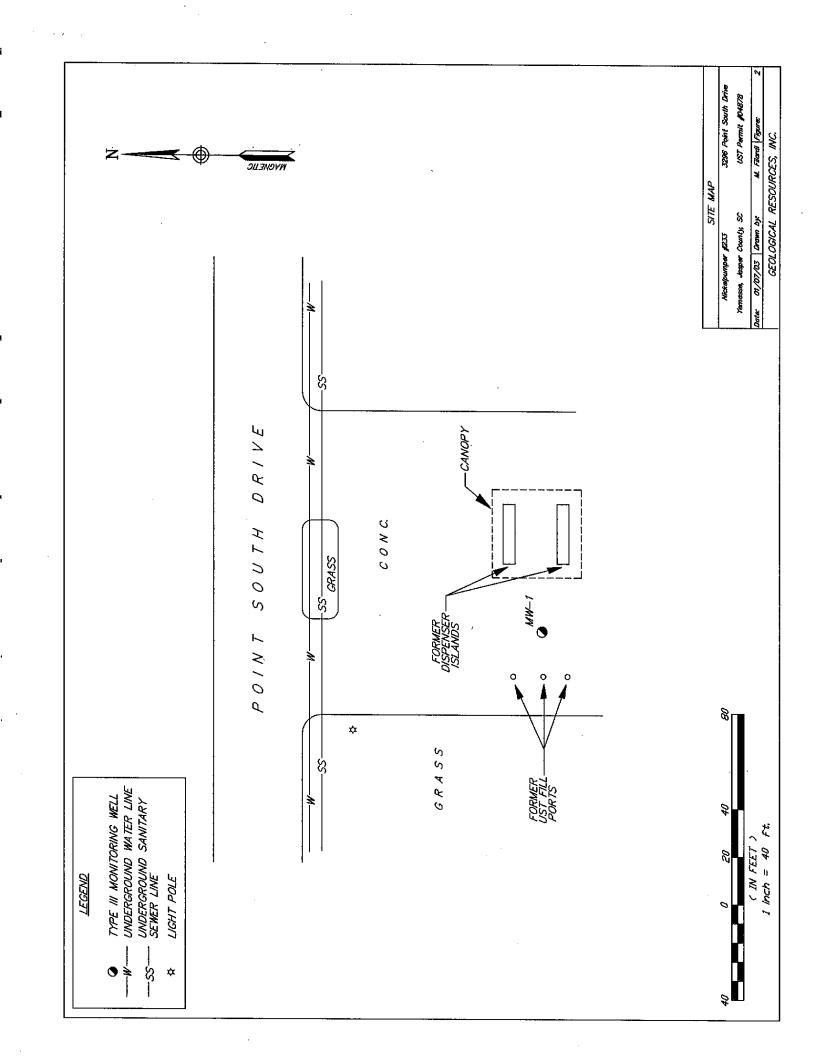
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Copyright (C) 1997, Maptech, Inc.

APPENDIX E Site Base Map



APPENDIX F Material Manifest



SIGNATURE OF FACILITY AGENT

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

Manifest	No	9	4.	24	1/		-
P.O. No.							
Job No.	(),)		2)	8	7	

NON-HAZARDOUS SPECIAL WASTE

Section I.	GENERATOR (Geo	erator completes all of Section 1)	A Commence of the Commence of
GENERATOR LOCATION	The state of the s	WORK CONTRACTED BY	
NAME A A A A A A A A A A A A A A A A A A	STATE OF THE STATE	Bill To (If different from information at le	m) -
ORIGINATING ADDRESS		NAME	Commence of the Commence of th
MAILING ADDRESS		ADDRESS MILL TO THE TOTAL TOTA	nulla Rud
CITY	ST ATE ZIP	city for the first	STATE
PHONE NO.	and the same of th	PHONE NO.	3.11.63
CONTACT NAME		CONTACT NAME	- merch
DES. OF WASTE:	40-00 Marcido	E STATE OF THE STA	No. Type Units Quantity
Section II. INV	OICE INFORMATION	GALLONS	DRUMS
	DESCRIPTION	QUA	
	UMPED FROM TANKS OR DRUMS	gon	LINE TOTAL
2. OFF SPEC LIGHT OIL, WAT	ER & GAS PUMPED FROM TANKS OR DRUMS		
3. 55 GALLON DRUMS REMO	VED - SOLID		-143
4. 55 GALLON DRUMS REMO	VED: LIQUID	14	
5.			
6.		: "	
7.			
8.			
9. ARRIVAL TIME:			
10. DEPARTURE TIME:			· · · · · · · · · · · · · · · · · · ·
hazardous waste subject to the La a hazardous waste as defined by	ed, and is in proper condition for transportation according and Disposal Restrictions, 1 certify and warrant that the was 40 CFR Part 261.	te has been treated in accordance with the r	requirements of 40 CFR Part 268 and is no longer
Generato	r Authorized Agent Name	Signature	Shipment Date
Section III.	TRANSPORTER TRANSPORTER (C. Prinsporter II est	enerator complete a-d; Transporter I complete e- ppjeto h-n)	gi
	HAZ~MAT	ZO TRANS	PORTER II
TRA	ANSPORTATION AND DISPOSAL	e. Name	
P. O. BOX	37392 • CHARLOTTE, N.C. 28237	f. Address	<u> Ennember Rock (</u>
		- Marichit	/ C
a. Driver Name / Title		g. Driver Name / Title	LANGE
b. Phone No.	c. Truck No,	h. Phone No.	i. Truck No,
Hazardous Waste Transporter Pe EPA NCR 000003186 EPA NCD048461370	ermits	j. Transporter II Permit Nos,	
d.		Landon La	177367
Driver Signature	Shipnent Date	Driver Signature	Shippent Date
Section IV.	FACILITY INFORMATION AND	DICERTIFICATE OF DIST	OSAL
Site Name:	Haz-Mat Transportation & Disposal, Inc.	a. Phone No.	<u>704-332-5600</u>
Physical Address:	210 Dalton Avenue	b. Maiing Address:	P.O. Box 37392
·	Charlotte, N.C. 28237		<u>Charlotte, N.C. 28237</u>
			STIMILOTO, INIO. E0201
e. Discrepancy Indication Space This is to certify that all non-bazardous ma	sterial removed from above location has been received and will be discoved	of in accordance with applicable level state and find a	d consisting to the fell side of the fel
are blended into a beneficial reusable luel then into the CMUD sanitation sewer (4) Our treatment system operates on a first	alerial removed from above location has been received and will be disposed for use in large industrial burners. (2) Waste waters are to be treated with pol system under permit IUP#5012. (3) Sludges from treatment systems as tin, first out basis and product should be processed within seven days.	orm accordance with approache local, state and federa ymers, pH adjusters, and a flocculant, then flows through the hauled to E.P.A. approved facilities for proper	r regulations in the fullowing manner. (1) Petroleum products gh a dissolved air flotation system for prefreatment separation, disposal. Manifest and certificate of disposal are on tile.

DATE





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,

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

John F. Hess, Fr., P.C. License No. 4170

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

В. **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

Ε. **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

 N_0

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'

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

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: 1.51

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'

	<u> </u>		The property is
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'

	1 3		sample Bepin. 1,5
Sampling Interval	Field Screening Results (ppm-y)	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	<0.00243	NR⁴
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	<0.0853	<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 of 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

COCHAIN - 1	RBSL ²	MW-1	MW-2	MW-3	MIW-4	WSW-1
Free Product Thickness						
Benzene	5	7,0003	918	24.6	<1.04	<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	7.7.	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 x 10⁻⁵ to 6.98 x 10⁻⁵ feet/minute (3.47 x 10⁻² to 0.10 feet/day)

Hydraulic Gradient: 0.02 feet/foot

Effective Porosity: 0.23

Estimated Seepage Velocity: 3.02 x 10⁻³ to 8.70 x 10⁻² feet/day (1.10 to 3.18 feet/year)

Additional Comments: N/A

TIER I EVALUATION Current Land Use III.

A.

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	Path Select Evalu (Yes	ed for ation	Exposure Point or Reason for Non-Selection	Data Requirements (IF Pathway Selected)
Air	Inhalation Explosion Hazard	Yes Yes	<u>No</u> <u>No</u>	Utilities do not intersect contaminant plume.	None
Ground Water	Ingestion Dermal Contact Volatile Inhalation	<u>Yes</u> <u>Yes</u> <u>Yes</u>	No No 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	Yes Yes Yes	No No 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 Yes Yes Yes	No No No No	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 Yes Yes Yes	No No No No	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.

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

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

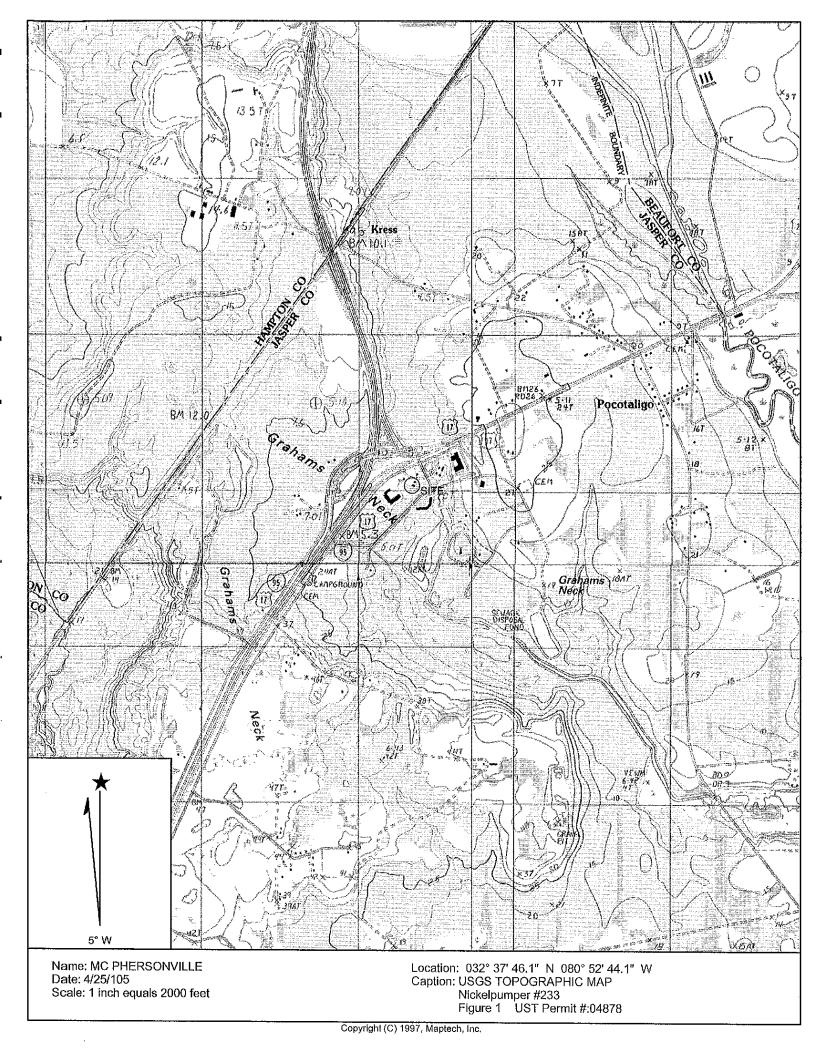
Appendix E: Certificate of Disposal

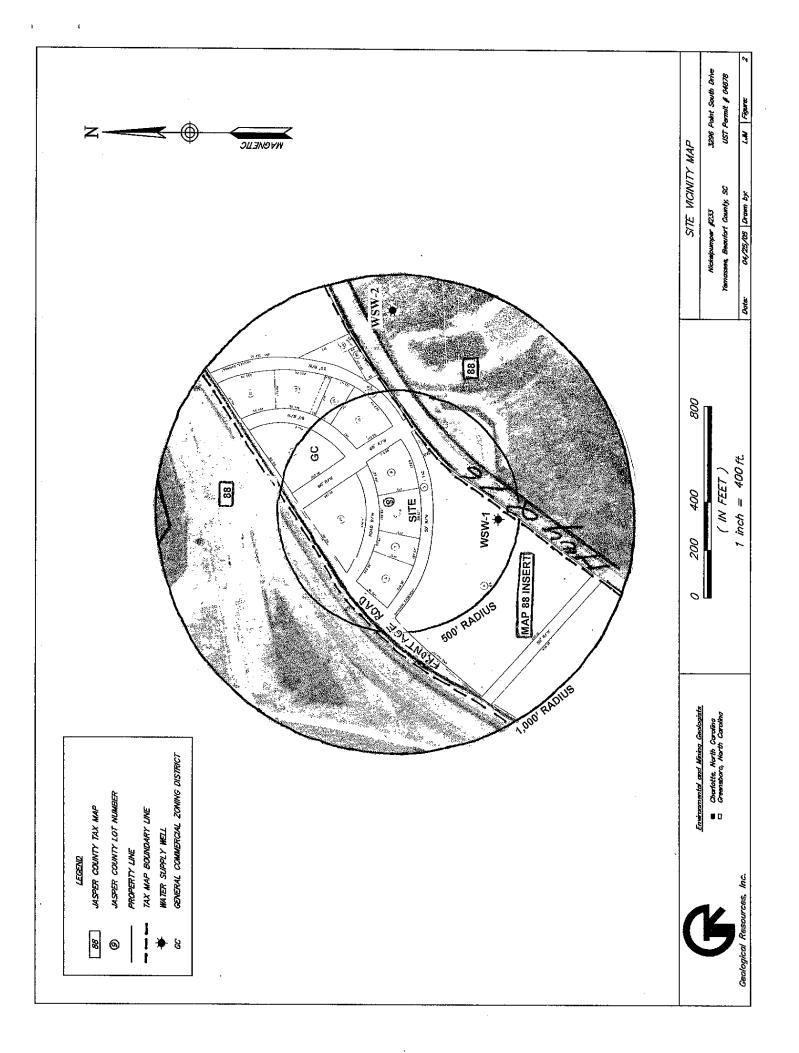
Appendix F: Jasper County Tax Assessor's Office & Planning Officials

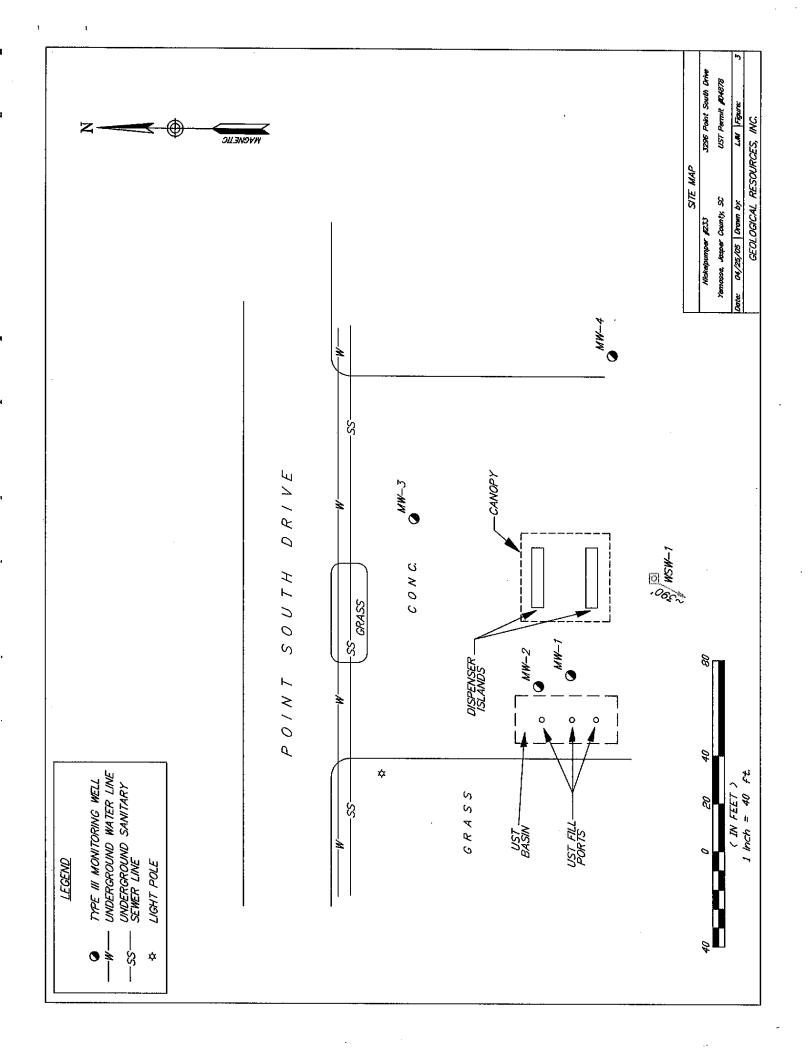
Appendix G: Summary of Adjacent Property Owner Information

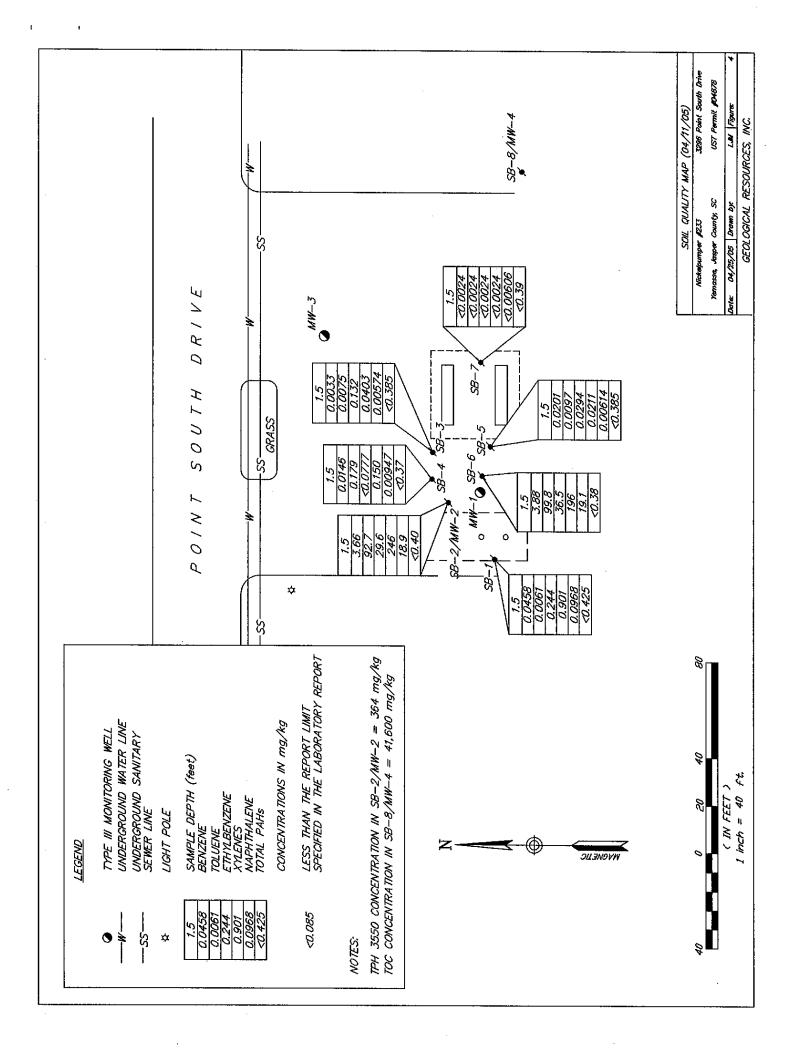
Appendix H: Summary of Water Supply Well Owner Information

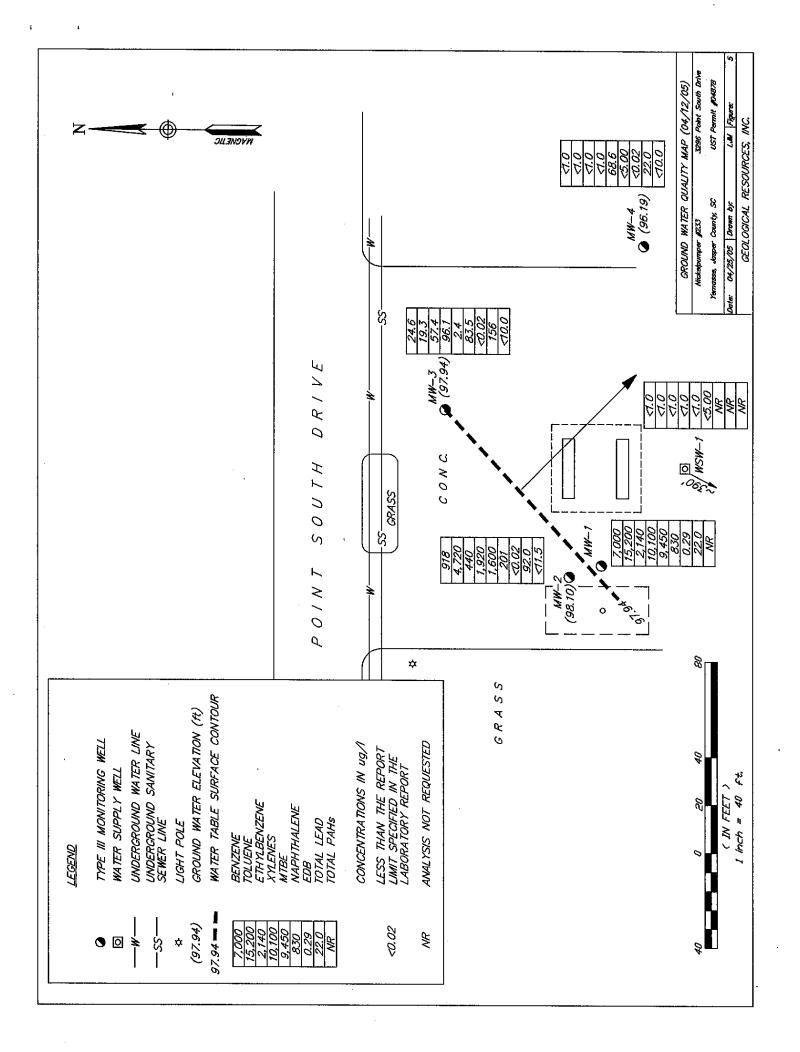
FIGURES











APPENDICES

APPENDIX A
Well Construction Records



Water Well Record Bureau of Water

PROMOTE PROTECT PROSPER ZOUU	Bull Street, Columbia, SC-29201-1708; (803) 898-4300
1. WELL OWNER INFORMATION:	7. PERMIT NUMBER:
Name: SUNSTAN IM.	UMW 19130
Address: 9366 ford avenue (first)	8. USE:
	☐ Residential ☐ Public Supply ☐ Process ☐ integration ☐ Air Conditioning ☐ Expression
City: Richmond Hill State: 6A ZID: 31324	☐ Test Well ☐ Replacement
Telephone: Work: Onknown Home:	9. WELL DEPTH (completed) Date Started: 4/1 11105
2. LOCATION OF WELL: COUNTY: \According	10 CASINO W Through The Date Completed: U 111105
Name: 1/2 // // Change of the co-	
Street Address: 3296 Pount South Drive	Dlam.: Helght: Above Beicw
Street Address: 3296 Pount SouthDrive City: Lemanoee, SC Zip: 29945	Type: X PVC 🖾 Galvanized Surface
	10./10.
Latitude: Longitude: 32° 37' 46.1" N 80° 52′ 44.1" W	In. tofl. depth Drive Shoe?
1 3. TOBLIC 313 I EIW NAME: PUBLIC SYSTEM NUMBER	11. SCREEN:
Nickle Amper#233 MW-2	Type: SCh 40 Dlam.: 0"
4. ABANDONMENT: Yes No	Slot/Gauge: (), () Length: 10/
	Set Between: ft. and ft. NOTE: MULTIPLE SCREENS ft. USE SECOND SHEET ft.
Grouted Depth: fromft, toft	fl. and fl. USE SECOND SHEET , Sleve Analysis II Yes (please enclose) (A No
*Thickness Depth to Formation Description of Bottom of	12. STATIC WATER I EVE! (.9)
Stratum Stratum	13. PUMPING LEVEL Below Land Surface.
Corampon Brown 1005e	ft. after has Pumping Char
Fine Silty SAND, WET () 10	Pumping Test: 🖂 Yes (please enclose) 🏋 No
@ ~3 Strong	Yleki:
De had a single	
Petroleumodor	Chemical Analysis X Yes DNo Bacterial Analysis D Yes No Please enclose lab results.
Trom Dragon DC	
areanish apay firm 10- 12-	15. ARTIFICIAL FILTER (filter pacif) X Yes II No Installed from ft. to 12 ft.
Fine Sandy Clay.	Effective size # 2 Uniformity Coefficient
Frice surely chart	16. WELL GROUTED? TYPES INO
	Neat Cement Bentonite Bentonite/Cement Other
Wet, Strong Petroleum	Neat Cement
Odoc	17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction
	Type
3'.	Weil Distrifected 🖾 Yes 💢 No Type: Amount:
	18. PUMP: Date Installed: Not Installed to
	Model No.:
**	H.P Volts Length of drop pipe ft. Capacity gpm TYPE: Submersible Jet (shallow) Type:
	☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal
	19. WELL DRILLER: 2 CERT. NO.: 1695
	OSO + Crown pointer, ar
ndicate Water Bearing Zones	Charlottine 28227
	Telephone No.: 704 - 845 - 400 Fax No.: 704845 4012
(Use a 2nd sheet if needed)	my direction and this report is true to the best of my knowledge and belief.
REMARKS:	
sentanite 0.5-1	910 10
NW-2	Signed: 4. Burt Block Date: 411(05
TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored	Mail Pilla
Dug Dalven	If D Level Driller, provide supervising driller's name;
☐ Cable tool X Other (1 X2 0 V2 d	
FC 1903 (07/2003) COPY 4 MAIL TO CO DETENTION	



Water Well Record Bureau of Water

PROMOTE PROTECT PROSPER	pull atteet, colditiols, 20-28501-1708; (803) 898-4300
1. WELL OWNER INFORMATION:	7, PERMIT NUMBER:
Name: SXXS+CU_IMC. (IIcal)	UMW 19130
Address: 9366 Ford avenue	8. USE;
City: Richmond Hollin: 6A Zip: 31324	☐ Irrigation ☐ Air Conditioning ☐ Emergency
Telsphone: Work: WYWOWN Home:	9 WELL DEPTH (completed) 5 to 0 to 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 2. LOCATION OF WELL: COUNTY: TACAS	
Name: Nickle Pomper #233 Street Address: 3206 Point Southdr. City: Yemassee, Sc. 210; 19915	10. CASING: Threaded Welded
Street Address: 3296 POINTSWITH AV	Dlam.: Helght: Above Below
Olly: Yemassee, SC Zlp: 29945	Type: 14 PVC El Galvanized Surface
	Steel Other Weight
Lalltude: Longitude: 80°52' 44.1"W	in lo 13 fl. depth Drive Shoe? Tiyes Two
3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBE	in. to ft. depth
	11. SCREEN: 71 Dlam.: 311 Slot/Gauge: 0.01 Length: 101
Nickle Pumper #233 MW-3	Slot/Gauge: O.O. Length: 101
4. ABANDONMENT: Yes No	Set Between:ft. andft. NOTE; MULTIPLE SCREENS
Grouted Depth: fromft. toft	ft. andft. USE SECOND SHEET .
*Thickness Depth to	
Formation Description of Bottom o	12. STATIC WATER LEVEL
Stratum Stratum	13. PUMPING LEVEL Below Land Surface.
Corayion brown 1005 0- 8-	ft. after hrs. Pumping G.P.M.
	Pumping Test: [] Yes (please enclose) [KNo., Yield:
Pine Suty Sand,	14. WATER QUALITY
1300	Chemical Analysis ∑Yes _□No Bacterial Analysis □ Yes ∑YNo
Weter 3- Strong	Please enclose lab results.
	15. ARTIFICIAL FILTER (filter pack) Yes I No Installed from ft. to 2 ft. Effective size #2 Uniformity Coefficient
Petraleum Odor	Installed from 1 ft. to 12 ft.
Coreenish gray 8-12-	Effective size # Uniformity Coefficient
	- 16. WELL GROUTED? TYPES IN No
fin fine Sandy	Neat Cement Dentonite Dentonite Dentonite Cement Douber The Control of the Contr
	Depth: From O ft. to O.S ft.
Clay wet Strong	17. NEAREST SOURGE OF POSSIBLE CONTAMINATION:ft direction
Dala	Well Disinfected ☐ Yes Amount:
Petroleum Odor	do EUNIO
	18. POMP: Date installed: Not Installed Model No.:
100	H.P. Volts Length of drop plpe ft. Capacity gpm
	TYPE: Submersible Del (shallow) Del Turbine
	☐ Jet (deep) ☐ Reclprocating ☐ Centrifugal
	19. WELL DRILLER: BUT + BYOWN CERT. NO.: [(095
	Address: (Print) 2301-F Crown Parit exide. A B C D (circle one)
	Charlotte, nc 28227
Indicate Water Bearing Zones	Telephone No.: 704-845-4017 Fax No.: 704-845-41012
(Use a 2nd sheet if needed)	20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under
5. REMARKS:	my direction and this report is true to the best of my knowledge and belief.
Remion etc	of the prison of
0.5-1	L. K. Ahrai
11W-3	Signed: Well Driller Date: UIII (QS)
. TYPE: ☐ Mud Rotary ☐ Jetlad ☐ Bored	
D Dug D Air Rotery D Driven	If D Level Driller, provide supervising driller's name:
Cable lool Other (1168100 d	
and the state of t	



Water Well Record Bureau of Water

PROMOTE PROTECT PROSPER ZOUU E	sull Street, Columbia, SC-29201-1708; (803) 898-4300
1. WELL OWNER INFORMATION:	7. PERMIT NUMBER:
Name: SUNSKULINC.	Umw 19130
d. n	8. USE:
Address: 9366 Ford avenue	
Charles Co.	La Process
City: Richmond Hillstale: CeA ZIp: 31324	T Find Saids
	☐ Test Well ☐ Replacement
Telephone: Work: WKM (XXX) Home: 2. LOGATION OF WELL: COUNTY: JACKY	9. WELL DEPTH (completed) Date Started: 4/11/105
2. LOCATION OF WELL; COUNTY: JACKEY	Dale Completed: 4 11 05"
1 Marie MUSCLO POMIDER #222	10. CASING: Threaded Welded
Sireet Address; 3290 DOM + MIND DC	Diam.: Height: Above ☐ Below [☐
city: Vemassee, SC Zip: 29945	Type: IX PVC II Galvanized Surfaceft.
	Steel Ciber Wolch
Latitude: Longitude: 32° 37' 46.1"N 80°52' 44.1"W	Drive Shoe? Ti Yes XNo
37° 37' 46.1"N 80°52' 44.1"W	In. toft. depth
3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBERS	dd pondeli.
	Type: Sch 4D Plan: 3"
Mickle Dumper #233 MW-4	Slot/Gauge: DO Length: 10'
4. ABANDONMENT: Yes No	Set Between: Oft. and Aft. NOTE: MULTIPLE SCREENS
	ft. andft. USE SECOND SHEET
Grouted Depth: fromft. toft.	Sleve Analysis Yes (please enclose) No
*Thickness Depth to *	12. STATIC WATER LEVEL 3.3(e ft. below land surface after 24 hours
Formation Description of Bottom of	R. below land surface after 24 hours
Stratum Stratum	13. PUMPING LEVEL Below Lend Surface.
Corayión brown loose D- 8-	ft. after hrs. Pumping G.P.M.
CARROLL IOLOUR LOOK C 9	Pumping Test: [] Yes (please enclose) TVNo.
Cain State Cont	
fine Silty Sand,	14. WATER QUALITY
1/1/10 42-51000	Chemical Analysis 🛱 Yes 🔲 No 🖰 Bacterial Analysis 📋 Yes 💢 No
Wet@ -3-Strong	Please enclose lab results.
	15. ARTIFICIAL FILTER (filter pack) 文Yes 日 No Installed from It. to 12 ft. Effective size 井之 Uniformity Coefficient
Petroleumodor	Installed from
	Effective size # > Uniformity Coefficient
Transingay frim 8 12	16. WELL GROUTED? Yes □ No
^	Neet Cament IT Bontontto Et partartia Command IT Controlled
Line Sandy Clay	Depth: From
· ([
Wet, Strong Petroleum	17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction
	TypeA
Odor	Well Disinfected 🖾 Yes 💢 No Type: Amount:
· · · · · · · · · · · · · · · · · · ·	18. PUMP: Date Installed: Not installed D
	Mfr. Name: Model No.;
8/	H.P. Volts Length of drop pipe ft. Capacity gpm
	TYPE: Submersible Jet (shallow) Turbine
	□ Jel (deep) □ Reclprocating □ Centrifugal
	19. WELL DRILLER: BUT Brown CERT, NO.: (1095
,	Address: (Print)
,	Charlotte, NC 28227
Indicate Water Bearing Zones	Telephone No.: 704 8454070 . Fax No.: 7048454012
(Use a 2nd sheet if needs it	20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under
(Use a 2nd sheet if needed)	my direction and this report is true to the best of my knowledge and belief.
REMARKS:	
Bentonete 0.5-1	010 10.
	N. Kunst Karen
MM-4	Signed: Note Property Date: 4/11/05
TVDH: [1] Mud Doton.	VVER DTINE!
TYPE: CI Mud Rotary	If D Level Driller, provide supervising driller's name:
E Elivoir ; ;	
Cable tool Mother augured	
The state of the s	

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):	T	Facility Name:	Nickle Pumper #233	:233			2011
Field Personnel:		Site ID #	04878		Monitoring Well #	Well #	1/22
General Weather Conditions:		Well Diameter (D):	;(a	200		feet	
Ambient Air Temperature:		Conversion fact	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	2)2 for a 2 inch well C = 0.16 for a 4 inch well C = 0.652	well C = 0.	.163 52	
Quality Assurance PH Meter Conductivity Meter serial no. \$CONDUCTIVITY Meter pH=4.0 Standard pH=7.0 Standard pH=10.0 Standard		* Free Product Thickness: Depth to Ground Water (DGW) Total Well Depth (TWD) Length of the water column (L) 1 casing volume (CV = LWC X)	* Free Product Thickness: Depth to Ground Water (DGW) Total Well Depth (TWD) Length of the water column (LWC = TWD-DGW) 1 casing volume (CV = LWC X C) =)GW)		2.07 19.00 10.03 1.43	feet feet feet
Chain of Custody		3 casing volume Total volume of Total volume of	3 casing volume 3 X CV = CLO g	efore Sampling	gais (stanc	gals (standard purge volume) 3 25 gal	ne) gals qals
Refinquished by Date/Time Received by Date	Date/Time	*If free product	$\frac{2,25}{2}$	/8 inch, samplii	g will not	.	Total Purge
	Initial 1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)	25/675	ST.					
Time (military)	01 1003	1608					Ölgi
pH (s.u.)	7 905	4.3				-	•
Specific Cond. (umhos/cm)	10.070	70.03					
Water Temperature (degrees C)	20	20					
Turbidity (subjective: clear, slightly cloudy, cloudy) $\mathcal{L}_{\mathcal{L}}$	Southercloude	, clouder					:
Dissolved Oxygen (mg/l)	,0/41/	4,1,					
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

1 100 11 1						
Field Personnel:	Site ID #	04878	3	Monitoring Well #	, (ell #	11111-2
General Weather Conditions:	Well Diameter (D):	ا: ۵):	Ö	167 feet	*	
Ambient Air Temperature:	Conversion fac	Conversion factor (C): 3.14 X (D/2)2 for a 2 inch well $C = 0.163$ for a 4 inch well $C = 0.652$)2 for a 2 inch for a 4 inch v	2 for a 2 inch well C = 0.16 for a 4 inch well C = 0.652	m	
Quality Assurance PH Meter Conductivity Meter serial no. Serial no. PH=4.0 Standard PH=7.0 Standard Standard Standard	* Free Product Thickness: Depth to Ground Water (DGW) Total Well Depth (TWD) Length of the water column (L) 1 casing volume (CV = LWC X	* Free Product Thickness: Depth to Ground Water (DGW) Total Well Depth (TWD) Length of the water column (LWC = TWD-DGW) 1 casing volume (CV = LWC X C) =)GW	1	10.09 10.09	feet feet feet
Chain of Custody	3 casing volum Total volume of	3 casing volume 3 X CV =	pling nplin	gals (standar	gals (standard purge volume)	me) gals gals
Relinquished by Date/Time Received by Date/Time	*If free product	*If free product is present over 1/8 inch, sampling will not be required	s inch, sampli	ng will not be		Total Purged
				1 1		
Cumulative Volume Purged (gallons)	1st Vol. 2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Time (military)	16.86					1555
pH (s.u.)	4.6					
Specific Cond. (umhos/cm)	57.0					
Water Temperature (degrees C)	30					
Turbidity (subjective: clear, slightly cloudy, cloudy)	duffy					
Dissolved Oxygen (mg/l)	5,3					
ngs, if required						
Remarks: bowled assem	assertially dry of	ter 200	200 gallaus removad	2 rok	000	

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):	11000			Facility Name:	Facility Name: Nickle Pumper #233	£233			0
Field Personnel:	SSIF.			Site ID #	04878		Monitoring Well#	y Well #	いぎつ
General Weather Conditions:	conditions: C(C)			Well Diameter (D):	ä		D.C.	feet	
Ambient Air Temperature:	erature:	ပ		Conversion fact	Conversion factor (C): 3.14 X (D/2)2 for a 2 inch well $C = 0.163$ for a 4 inch well $C = 0.652$	(2)2 for a 2 inch well C = 0.16 for a 4 inch well C = 0.652	well C = 0.6	.163 52	
	Quality Assurance			* Free Product Thickness:	hickness:				feet
pH Meter serial no.	Conductivity Meter			Depth to Ground Water (DGW) Total Well Depth (TWD)	d Water (DGW)			S.C. 75.6	feet
pH=4.0	Standard			Length of the w	Length of the water column (LWC = TWD-DGW)	C = TWD-DGW	1	10.44	feet
pH=10.0	Standard			1 casing volume (CV = LWC X C) = 3 casing volume 3 X CV =	(CV = LWC X C)		gals (stano	(,)()	Ime)
ပ <u>ါ</u>	Chain of Custody			Total volume of	Total volume of Water Purged Before Sampling	oling	·	375	gais
Relinquished by	Date/Time Received by	Date/Time		*If free product	*If free product is present over 1/8 inch, sampling will not be required	n rost samplin /8 inch, sampli	'y ing will not	١, ١,	_ gans Total Purgec
			-				:		
		Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Burged (gellone)	p Durned (gallone)	900	7,00	375					

	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	5th Vol. Post Sampling	Sample
Cumulative Volume Purged (gallons)	0.75	200	3.75					
Time (military)	1251	h24	1527					1529
ph (s.u.)	4,4	43	h'h					•
Specific Cond. (umhos/cm)	Ĺ	22'	11					
Water Temperature (degrees C)	1	0	61					
Turbidity (subjective: clear, slightly cloudy, cloudy)	5 Clares	Jours	500					
Dissolved Oxygen (mg/l)	22	271	dill					
PID readings, if required	,							

A STATE OF THE STA

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/w):			Facility Name:	Nickle Pumper #233	233			
Field Personnel:				04878		Monitoring Well #	Print	
General Weather Conditions:			Well Diameter (D):		**	feet		
Ambient Air Temperature:	o __		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	or (C): 3.14 X (D)	2)2 for a 2 incl for a 4 inch	? for a 2 inch well $C=0.163$ for a 4 inch well $C=0.652$		-
pH Meter Serial no. Standard Standard Standard			* Free Product Thickness: Depth to Ground Water (DGW) Total Well Depth (TWD) Length of the water column (LWC = TWD-DGW)	hickness: Water (DGW) TWD) ter column (LW	C = TWD-DGW	3,36	feet feet feet	···.
			1 casing volume (CV = LWC X C) = 3 casing volume 3 X CV =	(CV = LWC X C)	4,23	gals (standard purge volume)	e volume)	
Chain of Custody			Total volume of Water Purged Before Sampling Total volume of Water Purged for Post Sampling	Nater Purged B Nater Purged fo	efore Sampline r Post Samplin	27.25	gals gals	
Relinquished by Date/Time Received by	Date/Time		*If free product is	s present over 1	/8 inch, sampl	*If free product is present over 1/8 inch, sampling will not be required		bed
	,							· · · · · · · · · · · · · · · · · · ·
	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol. Post Sampling	ipling Sample	e)
Cumulative Volume Purged (gallons)	52'					521		
Time (military)	15,00	1505				150	9 15%	
pH (s.u.)	<i>2.4</i>	50				4,8		
Specific Cond. (umhos/cm)	7	II.	-			:13		
Water Temperature (degrees C)	1	17						
Turbidity (subjective: clear, slightly cloudy, cloudy)	Sclower	Cloudy	T	\		clour	B	
Dissolved Oxygen (mg/l)	200	6,5	Jan San San San San San San San San San S	100		N	2	•
PID readings, if required								
Remarks:	1. '					52		· ·
								7

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): 7 / 2 / 0 >	Facility Name:	Nickle Pumper #233			-
Field Personnel:	Site ID #	04878	Monitori	Monitoring Well #	1-MSM
General Weather Conditions:	Well Diameter (D):	<u>.</u>		feet	
Ambient Air Temperature:	Conversion fact	or (C): 3.14 X (D/2)2	Conversion factor (C): 3.14 X (D/2)2 for a 2 inch well $C=0.163$ for a 4 inch well $C=0.652$: 0.163 3.652	
PH Meter Serial no. PH=4.0 Standard Standard Standard	* Free Product Thickness: Depth to Ground Water (DGW) Total Well Depth (TWD) Length of the water column (L)	* Free Product Thickness: Depth to Ground Water (DGW) Total Well Depth (TWD) Length of the water column (LWC = TWD-DGW)	TWD-DGW)		feet feet feet
Chain of Custor	1 casing volume 3 casing volume Total volume of	1 casing volume (CV = LWC X C) = 3 casing volume 3 X CV = Total volume of Water Purced Before Sampling		gals (standard purge volume)	ne) gais
	Total volume of	Total volume of Water Purged for Post Sampling	ost Sampling		gals
Relinquished by Date/Time Received by Date/Time	*if free product is	s present over 1/8	*If free product is present over 1/8 inch, sampling will not be required.		Total Purged
Initial	1st Vol. 2nd Vol.	3rd Vol.	4th Vol. 5th Vol.	. Post Sampling	Sample
Cumulative Volume Purged (gallons)					
Time (military)					1559
рН (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



2960 FONTER CREIGHTON DRIVE . NASHVILLE, TENNESSEE 37204 800-765-0980 • 615-726-3404 FAX

ANALYTICAL REPORT

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

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER Sampler: KEN PIMIENTA

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

Site ID:

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 PARAME	eters								
% Dry Weight	79.1	8		1.0	4/14/05		A. Runnels	CLP	882
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1013
Benzo(b) fluoranthene	ИD	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1013
Benzo(k)fluoranthene	ир	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	. 1013
Chrysene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1013
Dibenzo(a,h)anthracene	ND .	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	1013
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
			···				w	~~~~~~~~	
Sample Extraction Data									
Wt/Vol									

Sample Extraction	Data						
	Wt/Vol						
Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method	
							•
BNA's	30.0 gr	n 1.0 ml	4/14/05		J. Davis	3550	
Volatile Organic	s 6.35 g	5.0 ml	4/11/05	9:53	N, Noman	5035	

Sample report continued . . .



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ANALYTICAL REPORT

Laboratory Number: 05-A51746

Sample ID: SB-1 (1.5)

Project: Page 2

Surrogate	B. Do courseur	Managa Banas
	% 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:

- $\mbox{ND} = \mbox{Not}$ 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.



2900 FOSTER GREIGHTON DRIVE . NASHVILLE, TENNESSES 37204 800-765-0980 • 616-726-3404 FAX

ANALYTICAL REPORT

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

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Site ID:

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	Bate
GENERAL CHEMISTRY PARAME	TERS								
% Dry Weight	84.1	95		1.0	4/14/05		A. Runnels	CLP	882
ORGANIC PARAMETERS									
TPH (Diesel Range)	364.	mg/kg	59.5	5.0	4/15/05	9:31	M.Jarrett	8015B	987
Benzo(a) anthracene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M.Schott	8270C	101
Benzo(b) fluoranthene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M.Schott	8270C	101
Benzo(k) fluoranthene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M.Schott	8270C	101
Chrysene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M.Schott	8270C	101
Dibenzo(a,h)anthracene	ND	mg/kg	0.080	1.0	4/15/05	20:57	M.Schott	8270C	101
VOLATILE ORGANICS									
Benzene	3.66	mg/kg	0.200	100.	4/16/05	5:10	J. Adams	8260B	222
Ethylbenzene	29.6	mg/kg	2.00	1000	4/16/05	3:16	J. Adams	8260B	223
Naphthalene	18.9	mg/kg	0.498	100.	4/16/05	5;18	J. Adams	8260B	222
Toluene	92.7	mg/kg	2.00	1000	4/16/05	3:16	J. Adams	8260B	223
Xylenes (Total)	246.	mg/kg	2.00	1000	4/16/05	3:16	J. Adams	8260B	223

Sample Extraction Data

	Wt/Vol					
Parameter	Extracted	Extract Vol	Date	Timo	Analyst	Method
BNA's	29.8 g	m 1.0 ml	4/14/05		J. Davis	3550
EPH/DRO	25.0 g	m 1.0 ml	4/14/05		J. Davis	3550
Volatile Organic	s 5,97 g	5.0 ml	4/11/05	10:29	N. Noman	5035



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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:

 ${\tt ND}$ = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

 ${\tt E} = {\tt Estimated}$ 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.



2000 Foster Greighton Drive • Nashville, Tennessee 37204 800-765-0980 • 615-726-3404 Fax

ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110

JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Sample Type: Soil

Site ID:

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 PARAME	TERS								
% Dry Weight	85.9	8		1.0	4/14/05		A. Runnels	CTb	882
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	101
Benzo(b) fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1013
Benzo(k)fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	101
Chrysene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	1013
Dibenzo(a,h)anthracene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	101
VOLATILE ORGANICS									
Benzene	0.0033	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	220
Ethylbenzene	0.132	mg/kg	0.0016	1.0	4/15/05	16:4Ò	J. Adams	8260B	220
Naphthalene	0.00574	mg/kg	0.00410	1.0	4/15/05	16:40	J. Adams	8260B	220
Toluene	0.0075	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	220
Xylenes (Total)	0.0403	mg/kg	0.0016	1.0	4/15/05	16:40	J. Adams	8260B	2200

Sample Extraction	Data .					
	Wt/Vol					
Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method
BNA's	30.2 g	m 1.0 ml	4/14/05		J. Davis	3550
Volatile Organic	s 7.10 g	5.0 ml	4/11/05	11:11	N. Noman	5035
					·	
Surrogate			% Rec	overy	Target	Range

Sample report continued . . .



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ANALYTICAL REPORT

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

Project: Page 2

Surrogate	% Recovery	Target Range
	-ancanass=	
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.



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ANALYTICAL REPORT

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

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Sample Type: Soil

Site ID:

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

Time Received: 8:00

		Report	Dil	Analysis	Analysis			
Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batc
				~~~~				
CTERS*								
89.5	ફ		1.0	4/14/05		A. Runnels	CLP	882
ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	101
ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	101
ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1011
ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	101
ND	mg/kg	0.074	1.0	4/15/05	21:39	M.Schott	8270C	1013
0.0146	mg/kg	0.0016	1.0	4/15/05	20:14	J. Adams	8260B	220
ND	mg/kg	0.0777	50.0	4/15/05	18:43	J. Adams	8260B	2209
0.00947	mg/kg	0.00389	1.0	4/15/05	20:14	J. Adams	8260B	220
0.179	mg/kg	0.0777	50.0	4/15/05	18;43	J. Adams	8260B	220
0.150	mg/kg	0.0777 ·	50.0	4/15/05	18:43	J. Adams	8260B	2209
	**TERS**  89.5  ND  ND  ND  ND  ND  O.0146  ND  0.00947	ND mg/kg ND mg/kg ND mg/kg ND mg/kg ND mg/kg ND mg/kg ND mg/kg ND mg/kg 0.0146 mg/kg 0.00947 mg/kg 0.179 mg/kg	Result Units Limit	Result Units Limit Factor	Result Units Limit Factor Date	Result Units Limit Factor Date Time  THERS*  89.5 % 1.0 4/14/05  ND mg/kg 0.074 1.0 4/15/05 21:39  O.0146 mg/kg 0.074 1.0 4/15/05 21:39  O.0146 mg/kg 0.0777 50.0 4/15/05 18:43  O.00947 mg/kg 0.00389 1.0 4/15/05 20:14  O.179 mg/kg 0.0777 50.0 4/15/05 18:43	Result Units Limit Factor Date Time Analyst	Result Units Limit Factor Date Time Analyst Method  TERS*  89.5 % 1.0 4/14/05 A. Runnels CLP  ND mg/kg 0.074 1.0 4/15/05 21:39 M.Schott 8270C  O.0146 mg/kg 0.074 1.0 4/15/05 21:39 M.Schott 8270C  O.0146 mg/kg 0.077 50.0 4/15/05 18:43 J. Adams 8260B  ND mg/kg 0.00389 1.0 4/15/05 20:14 J. Adams 8260B  O.00947 mg/kg 0.00389 1.0 4/15/05 20:14 J. Adams 8260B  O.179 mg/kg 0.0777 50.0 4/15/05 18:43 J. Adams 8260B

Sample Extraction Data

	Wt/Vol						
Parameter	Extracted	i Er	xtract Vol	Date	Time	Analyst	Method
BNA's	30.5	cau)	1.0 ml	4/14/05		J. Davis	3550
Volatile Organics		-	5.0 ml	4/11/05	11:26	N. Noman	5035
				7-006-			

Surrogate

% Recovery

Target Range



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#### ANALYTICAL REPORT

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

Project: Page 2

Surrogate	% Recovery	Target Range
<b></b>		
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.

 ${f E}$  = 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.



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#### ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110

JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Site ID:

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

Time Received: 8:00

			Report	Dil	Analysis	Analysis			
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batch
*GENERAL CHEMISTRY PARAME	TERS*								
% Dry Weight	87.0	8		1.0	4/14/05		A. Runnels	CLP	382
*ORGANIC PARAMETERS*									
Benzo(a)anthracene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	101
Benzo(b) fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	101
Benzo(k) fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	101
Chrysene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	101
Dibenzo(a,h)anthracene	ИD	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C	101
*VOLATILE ORGANICS*									
Benzene	0.0201	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	220
Ethylbenzene	0.0294	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	220
Naphthalene	0.00614	mg/kg	0.00409	1.0	4/15/05	17:11	J. Adams	8260B	220
Toluene	0.0097	mg/kg	0.0016	1.0	4/15/05	17:11	J. Adams	8260B	220
Xylenes (Total)	0.0211	mg/kg	0,0016	1.0	4/15/05	17:11	J. Adams	8260B	220

arameter	Wt/Vol Extracted	i Ext	tract Vol	Date	Time	Analyst	Method
BNA¹s	29.8	дш	1.0 ml	4/14/05		J. Davis	3550
Volatile Organic	5 7.02	g	5.0 ml	4/11/05	13:23	N. Noman	5035



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#### ANALYTICAL REPORT

Laboratory Number: 05-A51750

Sample ID: SB-5 (1.5)

Project: Page 2

Surrogate	% Recovery	Target Range
	* Kecovery	raiget kange
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-Eluorobiphenyl	78.	35 106.
BNA Surr-Terpheny1-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.



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### ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110

JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Sample Type: Soil

Site ID:

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	Batc
							•		
*GENERAL CHEMISTRY PARAME	TERS*								
% Dry Weight	88.6	8		1.0	4/14/05		A. Runnels	CLP	882
*ORGANIC PARAMETERS*									
Benzo(a)anthracene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	101
Benzo(b) fluoranthene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	101
Benzo(k)fluoranthene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	101
Chrysene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	101
Dibenzo(a,h)anthracene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	101
*VOLATILE ORGANICS*									
Benzene	3.88	mg/kg	0.172	100.	4/16/05	5:48	J. Adams	8260B	222
Ethylbenzene	36.5	mg/kg	1.72	1000	4/16/05	3:46	J. Adams	8260B	223
Naphthalene	19.1	mg/kg	4.30	1000	4/16/05	3:46	J. Adams	8260B	223
Toluene	99,8	mg/kg	1.72	1000	4/16/05	3:46	J. Adams	8260B	223
Xylenes (Total)	196.	mg/kg	1.72	1000	4/16/05	3:46	J. Adams	8260B	223

Sample Extraction Data

	Wt/Vol					
Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method
					~~~~~~	
BNA's	29.8	ym 1.0 ml	4/14/05		J. Davis	3550
Volatile Organic	s 6.56 ¢	g 5.0 ml	4/11/05	13:50	N. Noman	5035
						FE.L.
Surrogate			% Rec	covery	Target	: Range



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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.	70 106
		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.
- ${\tt E}$ = 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.



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ANALYTICAL REPORT

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

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Site ID:

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

λnalyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAME	TERS					•			
% Dry Weight	86.2	8		1.0	4/14/05		A. Runnels	CLP	882
ORGANIC PARAMETERS									
Benzo (a) anthracene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	101
Benzo(b) fluoranthene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270¢	101
Benzo(k)fluoranthene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	101
Chrysene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	101
Dibenzo(a,h)anthracene	ND	mg/kg	0.078	1.0	4/15/05	23:56	M.Schott	8270C	101
VOLATILE ORGANICS									
Benzene	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	220
Ethylbenzene	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	220
Naphthalene	ND	mg/kg	0.00606	1.0	4/15/05	17:41	J. Adams	8260B	220
Toluene	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	220
Xylenes (Total)	ND	mg/kg	0.0024	1.0	4/15/05	17:41	J. Adams	8260B	220

Sample Extraction	Data	•	~~~			
Parameter	Wt/Vol Extracted	Extract Vol	Date	Time	Analyst	Method
BNA's	29.7 gm	n 1.0 ml	4/14/05		J. Davis	3550
Volatile Organic	s 4.79 g	5.0 ml	4/11/05	14:20	N. Noman	5035
Surrogate				covery	-	Range



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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-Terphenvl-d14	87.	41 117.

LABORATORY COMMENTS:

 $\mbox{ND} = \mbox{Not}$ 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.



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ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110

JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Sample Type: Soil

Site ID:

Date Collected: 4/11/05

Time Collected: 15:21

Date Received: 4/13/05

Time Received: 8:00

•			Report	Di1	Analysis	Analysis	;		
Analyte	Result	Units	Limit	Factor	Date	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.



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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	'51.752
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
$\mathcal{L}_{\mathcal{A}} = \{ (1, 2, \dots, 2^{n}) \mid (1, 2, \dots, 2^{n}) \in \mathcal{A} \mid (1, 2, \dots, 2^{n}) \in \mathcal{A} \}$						
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



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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
~~~~~~~		<b></b>				
**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 - 129	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



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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
				<b>-</b>	
		•			
**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

 $[\]ensuremath{\mathfrak{h}}$  = Value outside Laboratory historical or method prescribed QC limits.



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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



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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.

Roxanne & Connor

Report Approved By:

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 Manage Mark Hollingsworth, Director of Project

Laboratory Certification Number: 84009

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# COOLER RECEIPT FORM

BC#



	Client Name :	CKI			
(	Cooler Received	Opened On:_	4/13/05	Accessioned B	y: Mark Beasley
				_M. QG/	
				Log-in Personnel	Signature
J		Cooler when tria		Degrees Cels	
2	. Were custody seal	s on outside of cool	er?	F.291.9P1.DD21.D34.F44.44.44.44	YES(NO)NA
	a. If yes, ho	w many and where	:		
3,				* 4 > 1 > 2 = 2 = 2 = 2 0 0 1 4 = 4 0 7 = 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	- 111 X 111 11X
4.	Were the seals inta	ct, signed, and dat	ed correctly?	*****************	YESNONA
5.	Were custody paper	s inside cooler?	*************	************	(YES)NONA
6.				tc)?	7
7.	Did you sign the cus	tody papers in the	appropriate pla	ce?	YES)NONA
8.	What kind of packin	g material used? 🥊	Subblewrap Pe	anuts Vermiculite	Other Nana
9.	G	ice Ice-pack	Ice (direct cor		Other None
10.	Did all containers a	rrive in good condi			
11.					
12.					
13.	Were correct contain				(YES).NONA (YES.).NONA
	a. Were VOA vials				$\simeq$
					VESNONA
				y VOA vial?	NOYES. NA
	Was sufficient amou				VES. NONA
16,	Were correct preserv	ratives used?	***************************************	************	YES)NONA
	If not, record sta	ndard ID of prese	rvative used her	e	
17.	Was residual chlorin	e present?			(NO)YESNA
18.	Indicate the Airbill T	racking Number (1	ast 4 digits for I	cdex only) and Nam	
	9756			x omj, and Ham	e of Conlier Delow:
UPS		DHL	Route	Off-street	Fedex Misc.
19. I	f a Non-Conformance	exists, see attached	or comments b	elow.	

Relinquished By:	Relinquished By:	Relinquished By:			Special instructions:		2K-X(1.5)	SR-7 (1.5)	58-6 (1.5)	185 (15)	58-4 (1.5)	56-3 (115)	SB-2/15)	55-1(1)(5)	Fax Results: Y N	Date Needed:	LAT Standard Rush (surcharges may apply)		Sampler	Sampler Name: (Print Name)	Telephone Number.	Project	Address: City/State/Zip Code:	Testan ANALYTICAL I
		munio)		7026	1/1		7/1/83	4						11/1/10	Date Sampled		y apply)		Sampler Signature:	rint Name)	Number: /7	2	3/7	Menica AL TESTING CORPORATION Client Name GL
Date:	Date:	Day 1700					1251		1350 6	1305 6	1126 0	_	1029 6	223	Time Sampled G = Grab, C =	~~~					24/25	12 T	2017 W102	
Time:	Time	Something the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the stat						200							Field Filtered  SL - Studge DW GW - Groundwat	- Drink	ing Water	N.	meline	nieid	15-40,	The Co	to NY Crown	
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By:	, , , , , , , , , , , , , , , , , , ,	THE CHAIN			  -  -				2	2	2	N:	CAĞ	_	NeOH H ₂ SO ₄ Methanol None			ç∞ #± Ω,			Fax / 704		727	Client #:
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Date:	Date:	July 2					×	X	X	×	ΧI	ΙX	×	X	BIEX DAH	Nag 22	h 82	(Q)			7104			0
	Date: 4/13/c5 Tim	<u> </u>	-		}								×		TPH					Invoice To:	Report To:	Site/Location ID:	Project Name:	ø. ≃
		8					-									_		\nalyze For:	42					b assist us in this work be Compl
Method of Shipment:	Bottles Sup	Custody Se	Hec La	init Lat	LABORATO	-	<u> </u>				-		-			_			4217	۳۷. ا آ	Shawlad	Verma Stee	licke	st us in using the proper work being conducted fo Compliance Monitoring
hipment:	Bottles Supplied by Test America:	<u>a</u> .	Rec Lab Temp: 7 d	init Lab Temp:	LABORATORY COMMENTS:				-							_			99		7	6	Nickel Kumpic	roper analytic ted for regula oring
		2	_		NTS		51753	78	~_	95	र्द	34	, 47	34.15	- O		//o		<b>P</b>	J.		State	1	To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes? Compliance Monitoring
	z														Other: Level 4	(Batch QC)	QC DeliverablesNone Level 2					1		.7



## **COOLER RECEIPT FORM**

BC#



C	Client Name: 6KF	•
C	Cooler Received/Opened On: 04/13/05 Accessioned By: Benjam	in C.Wright
	Log-in Personnel Signa	fure
1.	,	
2.	2. Were custody seals on outside of cooler?	YES. (NONA
	a. If yes, how many and where:	
3.		NOYESNA
4.	4. Were the seals intact, signed, and dated correctly?	YESNONA
5.	5. Were custody papers inside cooler?	_
6.	, , , , , , , , , , , , , , , , , , ,	
7.		
8,		
9.		
10,	lo. Did all containers arrive in good condition ( unbroken)?	YES, NONA
11.	11. Were all container labels complete (#, date, signed, pres., etc)?	
12.		YESNONA
13.	2 577	FES,NONA
14.	4. a. Were VOA vials received?	YESNONA
	b. Was there any observable head space present in any VOA vial?	RO. YESNA
15.	5. Was sufficient amount of sample sent in each container?	YESNONA
16.	6. Were correct preservatives used?	VESNONA
	If not, record standard ID of preservative used here	NUTRALIA.
17.	7. Was residual chlorine present?	NOYES.NA
18.	8. Indicate the Airbill Tracking Number (last 4 digits for Fedex only) and Name of	Courier below:
<b>A</b>	Fed-En UPS Velocity DHL Route Off-stree	et Misc,
19	9 If a Non-Canformance exists and etteched an annual 1	

OC Deliverable (Betch QC) _ Level 4 Level 2 Level 3 REMARKS None offici Figure  $\widetilde{\mathcal{M}}$ To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes? 5 LABORATORY COMMENTS: Project Name: NICLE TUMPER hit Lab Temp: Rec Lab Temp: Compliance Monitoring 204217199 Hamas Sce MAN Analyze For Report To: Site/Location ID: Quote #: Invoice To: Project #: Stop Fax (704) 1945-4012 Other (Specify) Matrix Preservation & # of Container N SUON lonartie! *oszł Birt HOW 0 4 Q HCI N ^EÓNH Specify Other NVV - Wastewater ₹ V 3 3 GW - Groundwaler S - Solvsolid St - Shidge DW - Drinking Water PUK - 4010 behatilit blei: eliab, C = Composite howly 528 1558 ime Sampled Test/Imerica ANALTICA ANALTICAL TESTING CORPORATION belgms2 etsQ Sampler Signature: Client Name Address: Sampler Name: (Print Name) city/state/Zip Code: Project Manager. Telephone Number: Rush (surcharges may apply) Z Special Instructions 412501 PHI-3 2-MW Fax Results: 35 Date Needed: Standard MSW-SAMPLE ID J-MC

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

Method of Shipment:

Time:

Received By: Received By

Time: Time:

Date: Date:

Relinquished By:

Relinquished By:

Relinquished By



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#### ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110

JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

CHARLOWN FOIRT BARCIDA,

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

Lab Number: 05-A51509

Sample ID: WSW-1 Sample Type: Water

Site ID:

Date Collected: 4/12/05

Time Collected: 15:59

Date Received: 4/13/05

Time Received: 8:00

			Report	Dil	Analysis	Analysi	.5		
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batch
*VOLATILE ORGANICS*									
Benzene	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	51.6
Toluene	ND	ug/l	1.0	1.0	4/14/05	0:07	B.Herford	8260B	516
Ethylbenzene	ND	ug/1	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.	70 121,
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.
- ${\tt E}$  = Estimated Value above the calibration limit of the instrument.
- # = Recovery outside Laboratory historical or method prescribed limits.



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#### ANALYTICAL REPORT

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

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

Lab Number: 05-A51510

Sample ID: MW-1 Sample Type: Water

Site ID:

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

		Report	Dil	Analysis	Analys	is		
Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batch
7000	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
15200	ug/l	500.	500.	4/14/05	20:07	B.Herford	8260B	543
2140	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
10100	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
9450	ug/l	50.0	50.0	4/14/05	19:35	B.Herford	8260B	8273
830.	ug/l	250.	50.0	4/14/05	19:35	B.Herford	8260B	8273
C*								
0.29	ug/1	0.02	1.0	4/15/05	5:05	M. Ricke	8011	9117
22.0	ug/l	3.0	1.0	4/20/05	12:16	R.Street	7421	2813
	7000 15200 2140 10100 9450 830.	7000 ug/1 15200 ug/1 2140 ug/1 10100 ug/1 9450 ug/1 830. ug/1	Result Units Limit  7000 ug/l 50.0 15200 ug/l 500. 2140 ug/l 50.0 10100 ug/l 50.0 9450 ug/l 50.0 830. ug/l 250.	Result Units Limit Factor  7000 ug/1 50.0 50.0 15200 ug/1 500. 500. 2140 ug/1 50.0 50.0 10100 ug/1 50.0 50.0 9450 ug/1 50.0 50.0 830. ug/1 250. 50.0	Result Units Limit Factor Date  7000 ug/l 50.0 50.0 4/14/05 15200 ug/l 500. 500. 4/14/05 2140 ug/l 50.0 50.0 4/14/05 10100 ug/l 50.0 50.0 4/14/05 9450 ug/l 50.0 50.0 4/14/05 830. ug/l 250. 50.0 4/14/05	Result Units Limit Factor Date Time  7000 ug/1 50.0 50.0 4/14/05 19:35 15200 ug/1 500. 500. 4/14/05 20:07 2140 ug/1 50.0 50.0 4/14/05 19:35 10100 ug/1 50.0 50.0 4/14/05 19:35 9450 ug/1 50.0 50.0 4/14/05 19:35 830. ug/1 250. 50.0 4/14/05 19:35	Result Units Limit Factor Date Time Analyst  7000 ug/l 50.0 50.0 4/14/05 19:35 B.Herford 15200 ug/l 500. 500. 4/14/05 20:07 B.Herford 2140 ug/l 50.0 50.0 4/14/05 19:35 B.Herford 10100 ug/l 50.0 50.0 4/14/05 19:35 B.Herford 9450 ug/l 50.0 50.0 4/14/05 19:35 B.Herford 830. ug/l 250. 50.0 4/14/05 19:35 B.Herford 830. ug/l 250. 50.0 4/14/05 19:35 B.Herford	Result Units Limit Factor Date Time Analyst Method  7000 ug/l 50.0 50.0 4/14/05 19:35 B.Herford 8260B 15200 ug/l 500. 500. 4/14/05 20:07 B.Herford 8260B 2140 ug/l 50.0 50.0 4/14/05 19:35 B.Herford 8260B 10100 ug/l 50.0 50.0 4/14/05 19:35 B.Herford 8260B 9450 ug/l 50.0 50.0 4/14/05 19:35 B.Herford 8260B 830. ug/l 250. 50.0 4/14/05 19:35 B.Herford 8260B 830. ug/l 250. 50.0 4/14/05 19:35 B.Herford 8260B

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.



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### ANALYTICAL REPORT

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

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

Lab Number: 05-A51511

Sample ID: MW-2 Sample Type: Water

Site ID:

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

			Report	Di1	Analysis	Analys	is		
Analyte	Result	Units	Limit	Factor	Date	Time	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		5522
Benzo(k)fluoranthene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug		5522
Chrysene	ND	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug	8270C	5522
Dibenzo(a,h)anthracene	МD	ug/l	2.3	1.0	4/16/05	8:34	U. Burroug		5522
*VOLATILE ORGANICS*									
Benzene	918.	ug/l	10.0	10.0	4/14/05	20:39	B.Herford	82.60B	8273
Toluene	4720	ug/1	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 PARAME	TERS*								
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/1	1.00	1.0	4/13/05		G. Baun	9056	8149



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#### ANALYTICAL REPORT

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

Page 2

#### Sample Extraction Data

	Wt/Vol					
Parameter	Extracted Ext	ract Vol	Date	Time	Analyst	Method
BNA's	875. ml	1.0 m1	4/14/05		J. Davis	3510/625
Surrogate			% Rei	covery	Targe	t Range
			~~			
VOA Surr 1,2-DC	A-d4		,	96,	7	0 130.
VOA Surr Toluene	e−d8			.02.	7	8 121.
VOA Surr, 4-BFB			:	114.	7	8 126.
VOA Surr, DBFM			•	97.	7	9 122.
BNA Surr-Nitrob	enzene-d5		1	51,	3	1, - 112,
BNA Surr-2-Fluo	robiphenyl			56.	3	3 101.
BNA Surr-Terpher	nyl-d14		i	61.	3	1 111.
Surr., 1,3-DCB			•	95.0	8	3 134.
Surr - Acetylene	e		!	98.0	7	0 130.

### LABORATORY COMMENTS:

- $\mbox{ND} = \mbox{Not}$  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.



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### ANALYTICAL REPORT

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

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

Lab Number: 05-A51512

Sample ID: MW-3
Sample Type: Water

Site ID:

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

			Report	Di.l	Analysis	Analys	is		
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	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/1	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	ИD	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/].	0.02	1.0	4/15/05	5:44	M. Ricke	8011	9117
*MISCELLANEOUS GC PARAME	TERS*								
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/1	1.00	1.0	4/13/05		G. Baun	9056	8149



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#### ANALYTICAL REPORT

Laboratory Number: 05-A51512

Sample ID: MW-3

Page 2

Sample Extract	ion Data			
Parameter	Wt/Vol Extracted Extract Vol	Date Time	Analyst	Method
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 Tol	uene-d8	102.	78.	121.
VOA Surr, 4-	BFB	113.	78.	126.
VOA Surr, DB	FM	97.	79.	122.
BNA Surr-Nit	robenzene-d5	64.	31.	112.
BNA Surr-2-F	luorobiphenyl	56.	33.	101.
BNA Surr-Ter	phenyl-d14	64,	31,	111.
Surr., 1,3-D	СВ	109.	83.	134.
Surr - Acety	lene	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.



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### ANALYTICAL REPORT

GEOLOGICAL.RESOURCES 2110 JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

Lab Number: 05-A51513

Sample ID: MW-4
Sample Type: Water

Site ID:

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

			Report	Dil	Analysis	Analys	is		
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batc
*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	ИD	ug/l	1.0	1.0	4/14/05	16:22	B.Herford	8260B	8273
Ethylbenzene	ИD	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 PARAME	TERS*								
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	mq/l	0.10	1.0	4/13/05	14:10	G. Baun	9056	8149
Sulfate	8.61	mg/1	1.00	1.0	4/13/05		G. Baun	9056	8149



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#### ANALYTICAL REPORT

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

Page 2

Sample Extraction Data

	W	t/	Vo.	
--	---	----	-----	--

Parameter	Extracted	Extract Vol.	Date	Time	Analyst	Method
BNA's	975. m	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:

- ${\tt ND}$  = 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.



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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		C. Batch	Spike Sample
						<del></del>		
**UST ANALYSIS**,								
Benzo(a)anthracene	mg/l	< 0.0008	0.0350	0.0500	70	28 144.	5522	BLANK
Benzo(b) fluoranthene	mg/1	< 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/1	< 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-Witrobenzene-d5	% Rec				64	31 - 112	5522	
BNA Surr-2-Fluorobiphenyl	% Rec				63	33 - 101	5522	
BNA Surr-Terphenyl-dl4	% Rec				69	31 - 111	5522	
**METALS**								
Ferrous Iron	mg/1	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/1	< 0.00002	0.00034	0.00029	117	40 - 140	9117	05-A49910
Methane	mg/L	< 0.026	1,41	1.33	106	40 - 140	81.28	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/1	0.0450	0.0450	0.00	20	2813
**MISC PARAMETERS**						
Ethylene Dibromide	mg/l	0.00034	0.00029	15.87	50	91.17
Methane	mg/L	1.41	1.38	2.15	50	8128



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PROJECT QUALITY CONTROL DATA

Project Number:
Project Name: NICKEL PUMPER

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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 - <u>1</u> 32	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/1.	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/1.	0.0500	0.0546	109	79 - 124	51.6
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 - 1.21	0273
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



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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	<pre>% Recovery</pre>	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	1.03	90 - 110	8149
Sulfate	mg/l	15.0	15.0	100	90 - 110	8149
	Duplica	ates				

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/1	5522	4/15/05	22:33



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PROJECT QUALITY CONTROL DATA

Project Number:

Project Name: NICKEL PUMPER

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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/1.	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	4/1.4/05	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



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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
M₩-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. This report shall not be reproduced except in full and with permission of the laboratory.

Report Approved By:

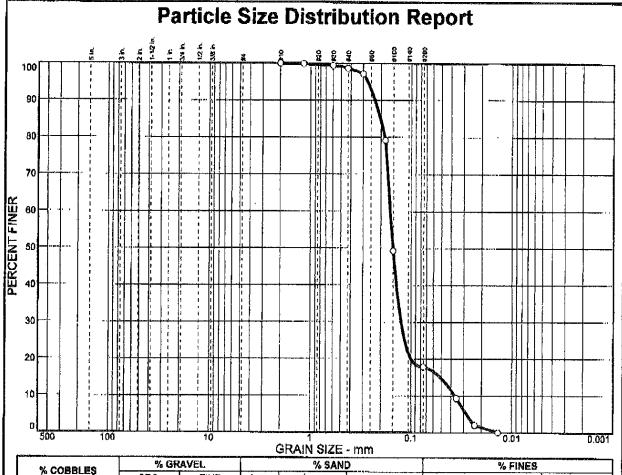
Report Date: 4/20/05

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 Manage Mark Hollingsworth, Director of Project

Laboratory Certification Number: 84009

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APPENDIX D Slug Test Data



CONTRACTOR OF THE PARTY OF THE				PIWIN Oldeks	- 1111111		
% COBBLES	% GRAVEL			% SAND		% FINES	
// OOBBEES	CRS.	FINE	CRS.	MÉDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.3	80.9	17.8	0.0

SIEVE	PERCENT	SPEC.*	PASS?
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USCS= SM	Classification AASHT	O= A-2-4(0)
Nickel Pumper N	Remarks	

(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

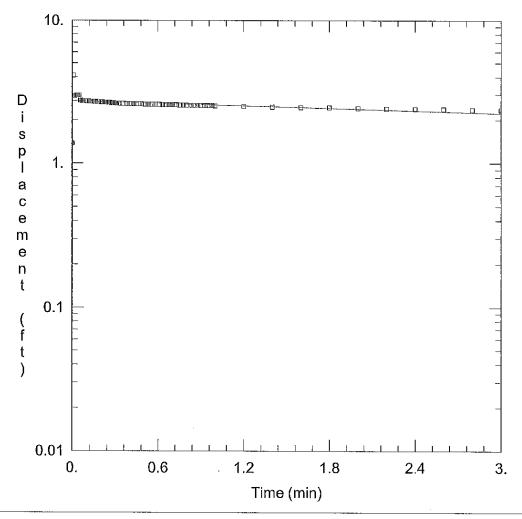
Figure



DHEC 3531 (07/1999)

Summary of Slug Test Division of Underground Storage Tank Management

Site Data		•		
UST Permit #: 04878		County	: Jasper	
Facility Name: <u>Nickel Pumpe</u>	ſ.			
Slug Data				
See Appendix Table level logs, etc. (complete as appropriate)].			•	measurements, [water
Water Level Recovery Data was measured by [Hermit Data Logger, Manually with Water L	y <u>Hermit</u> evel Indicator, etc. (1	Data Loga ist method)].	jer	
Complete the following table for each well te	sted.		<i>9</i>	
COMPLETE A SECOND SHEET IF MORE T	HAN FOUR WELLS	S ARE TESTED		ſ
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 AppendixTable	Figure	for	calculations (comp	lete as appropriate).
The method for aquifer calculations was	Bouwer-Rice	- Unconfin	ed(i.e. Bouw	er-Rice, Cooper, etc.).
Calculated values by well were as follows:				
Slug Test Conducted in Well(s) Numb	er Mw-3	- M	W-4	
Hydraulic Conductivity (K)	~ · · · · · · · · · · · · · · · · · · ·		10-5 Al/min	
Thickness of the aquifer used to calculate hydra				
The aquifer is confined	semi-confine	ed <u>\</u> w	ater table (check as	appropriate).
The estimated seepage velocity is3.18				
a hydraulic conductivity of _6.97 x 10 ⁻⁵ to _3	2.41 × 10-5 Ff/min	a hydraulic gradier	nt of	, and
a porosity of 23 percent for _				
	•		•	,
•				ļ



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 Wellbore Radius: 0.208 ft

Screen Length: 10. ft Gravel Pack Porosity: 0.045 Casing Radius: 0.083 ft Well Skin Radius: 0.208 ft

Total Well Penetration Depth: 10.41 ft

SOLUTION

Aquifer Model: Unconfined

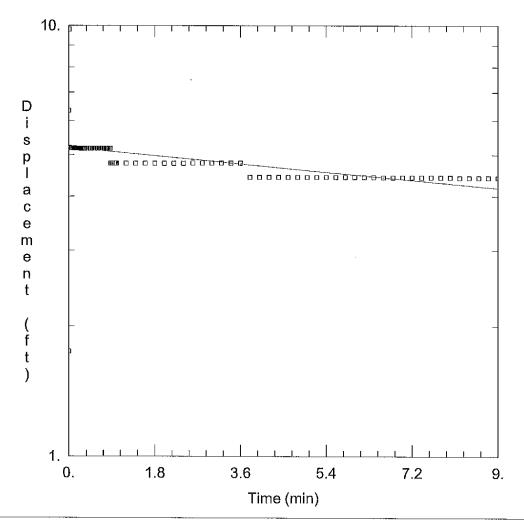
K = 6.975E-05 ft/min

Solution Method: Bouwer-Rice

y0 = 2.718 ft

Nickel Pumper

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Ш	2,70	0,27	2,62	0.50 7.57
12	2.69	0,58	2,62	6,51 2.57
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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 Wellbore Radius: 0.208 ft Screen Length: 10. ft

Gravel Pack Porosity: 0.045

Casing Radius: 0.083 ft Well Skin Radius: 0.208 ft

Total Well Penetration Depth: 8.55 ft

SOLUTION

Aquifer Model: Unconfined

K = 2.414E-05 ft/min

Solution Method: Bouwer-Rice

y0 = 5.206 ft

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APPENDIX E Certificate of Disposal



SIGNATURE OF FACILITY AGENT

HAZ~MAT

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

Manifest	No	1.4	1		-
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NON-HAZARDOUS SPECIAL WASTE

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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	48 (1) 130-14
5. 55-GALLON DRUM REMOVED - SOLID OR EMPTY	(1) NICKEL Pumper
6. 55-GALLON DRUM REMOVED - LIQUID	
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10. ARRIVALTIME: DEPARTURETIME:	
described, classified and packaged, and is in proper condition for transportation according hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the value hazardous waste as defined by 40 CFR Part 261.	ng to applicable regulations; AND, if the waste is a treatment residue of a previously restricte vaste has been treated in accordance with the requirements of 40 CFR Part 268 and is no long
Generator Authorized Agent Name	Shipment Date
Section III. TRANSPORTER - FARM	BORTEN (General of Complete a cl. Transporter Leonoblette e p. 1
	TRANSPORTER II
HAZ~MAT	e. Name
TRANSPORTATION AND DISPOSAL	
P.O. BOX 37392 • CHARLOTTE, N.C. 28237	f. Address (Charles) policy
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	g. Driver Name / Title
•	h, Phone No
Hazardous Waste Transporter Permits EPA NCR 000003186 EPA NCD048461370	j. Transporter II Permit Nos.
d,	a transministration of the contract of the con
Driver Signature Shipment Date	Driver Signature Shipment Date
Section IV: FACILITY INFORMATION ANI	CERTIFICATE OF DISPOSAL
Site Name: Haz-Mat Transportation & Disposal, Inc.	a. Phone No. 704-332-5600
940 Delton Avenue	b. Mailing Address: P.O. Box 37392
Physical Address: 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 dispare blended into a beneficial reusable firet for use in large industrial burners. (2) Waste waters are to be treated	posed of in accordance with applicable local, state and federal regulations in the following manner: (1) Petroleum products with polymers, pH adjusters, and a flocculant, then flows through a dissolved air flotation system for pretreatment separation are hauled to E.P.A. approved facilities for proper disposal. Manifest and certificate of disposal are on find days.

OPIGINAL - FINAL TS D . VELLOW - DISPOSER . PINK - 1ST TS D . GOLD - GENERATOR

DATE

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 2 3 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,

Minds Homeday Minda Hornosky, Hydrogeologist

Assessment Section, Underground Storage Tank Management Division

Bureau of Land and Waste Management

enc: Information Packets

John Bryant, UST Management Division (w/o enc) cc:

Technical Files (w/enc)



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 V. Coleman Semor 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

Jeff L. Coleman
Contractor QA Manager

Bryan T. Shane, P.G.
Site Rehabilitation Contractor

Daniel J. Wright
Laboratory Director

Date

Date

John Bryant
Date

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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 LaboratoryShealy Environmental Services, Inc
Name of Lab DirectorDaniel J. Wright SC DHEC Certification Number 32010
Parameters this Lab will analyze for this project:
The well network will be sampled for BTEX, Napth, 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 MailCourierX_ Hand delivered
Other (please specify): F-mailed electronic copies

Record Produced E		Produced By Hardcopy/ Storage Location Electronic For how long?		Archival	
Instrument Raw	Target,	Hardcopy and	Hardcopy: Offsite storage for 7 yrs	Yes	
Data	Thermospec, or	Electronic	Electronic: Two external storage		
	Iteva software		device backups – one offsite, one		
			onsite storage for 10 yrs		
Final Reports	LIMS	Electronic	Electronic: Two external storage	Yes	
			device backups – one offsite, one		
			onsite storage for 10 years		
			MECI office: 231 Dooley Road /	Yes	
Field Work	Field Staff	Hardcopy	Min. 5 years		
	,		MECI office: 231 Dooley Road /	Yes	
Chain of Custody	Field Staff	Hardcopy	Min. 5 years		
		Hardcopy &	MECI office: 231 Dooley Road /	Yes	
QAPP Addendum	Jeff L. Coleman	Electronic	Min. 5 years		
			MECI office: 231 Dooley Road /	Yes	
Internal QC record	Jeff L. Coleman	Hardcopy	Min. 5 years		
		Hardcopy &	MECI office: 231 Dooley Road /	Yes	
Sampling Report	Jeff L. Coleman	Electronic	Min. 5 years		
1903 Water Well	EDPS	Hardcopy	MECI office: 231 Dooley Road /	Yes	
Record Form			Min. 5 years		

Table 2A Record Identification, Storage, and Disposal

Section B Measurement/Data Acquisition

B1 Sampling Process/Experimental Design

ltem	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
	<u> </u>		

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 discreet intervals within a water column or from wells were 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	Attempt to clean probe,	Record on field sheets, notify	Field Staff, Field Manager
working properly	change battery, use back-up	office staff. Take indicator out	
	indicator if need be.	of rotation until problem is	
		identified and corrected.	
Field meters not working	Attempt to clean probes,	Record in field sheets, notify	Field Staff, Field Manager
	recalibrate in the field.	office staff. Take meters out	
		of rotation until problem	
· · ·		identified and corrected.	
Wells not located	Use metal detector, measure	Record method used to	Field Staff
	from known points, contact	attempt to locate the well on	
	project manager for	field sheets, and possibly	

	additional information.	reasoning for the well to be	
L		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	
рH	Standard	MECI SOP 4.3.6	YSI 63	Place probe in
Conductivity	Standard	MECI SOP 4.3.6	YSI 63	sample and allow to
Dissolved Oxygen	Standard	MECI SOP 4.3.6	YSI 550A	equilibrate before
Temperature	Standard	MECI SOP 4.3.6	YSI 550A	recording reading

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
	09C 101302, 10K			
YSI 63	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	Donlare betteries	As Nooded	Field Stoff
	101407, 04A 0912AI 04L 2026AK, 08B	Replace batteries General inspection for wear and tear on	As Needed	Field Staff
YSI 550A	101407, 04A 0912AI	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
Semivolatile Mass Specc	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

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.

^{*} 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. 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	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.

Midlands Environmental Consultants, Inc. Nickelpumper 233 QAPP Addendum Revision 0 January 7, 2014

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?

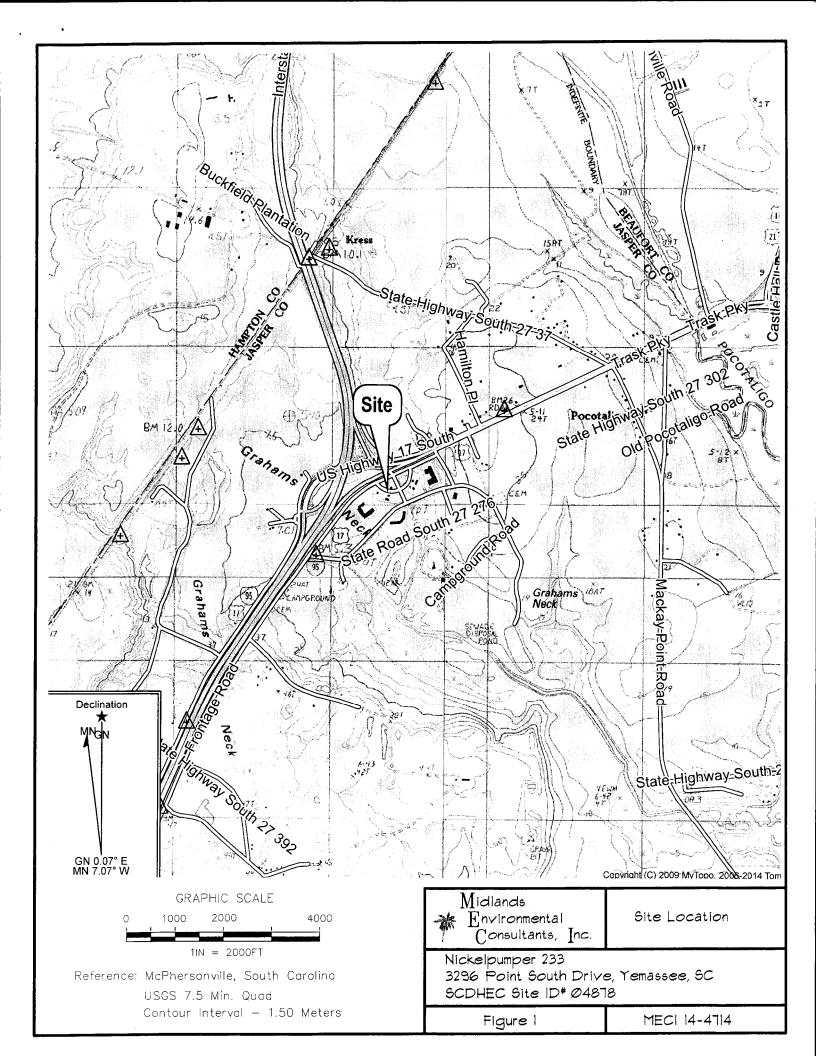
The laboratory participates in annual Proficiency Testing through an approved vendor, Wibby Environmental. If during a random audit, severe problems are found, work will be stopped by the according Wibby Environmental representative and the QA officer contacted to determine corrective action. Proficiency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

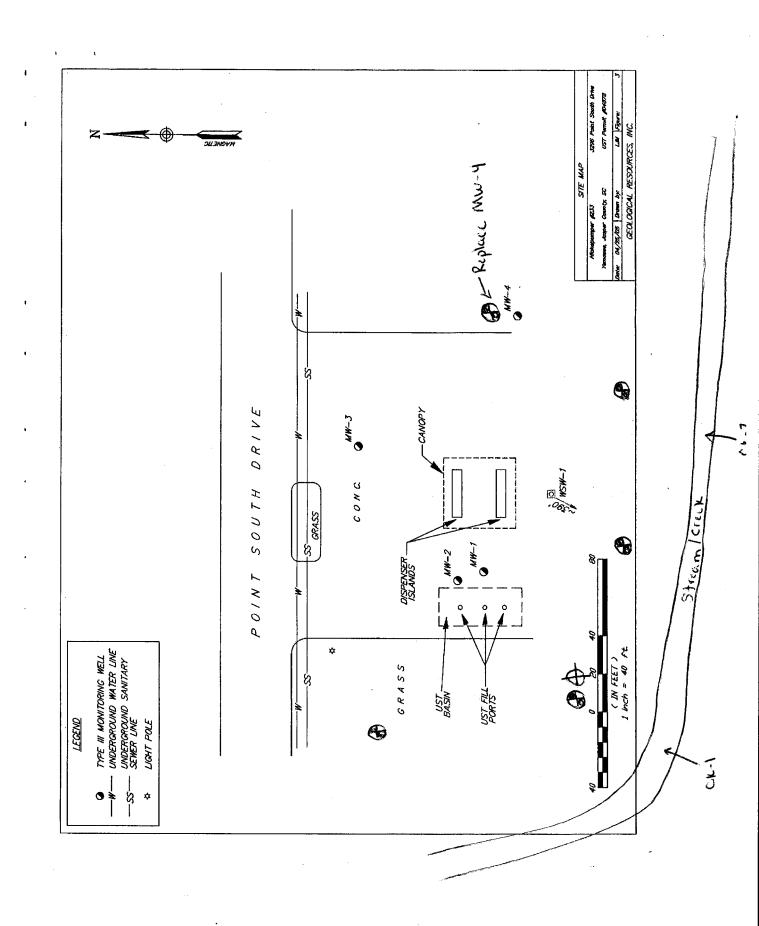
C2 Reports to Management

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).







ASSESSMENT COMPONENT INVOICE SOUTH CAROLINA

Department of Health and Environmental Control
Underground Storage Tank Management Division
State Underground Petroleum Environmental Response Bank Account

Facility Name: Nickelpumper 233

UST Permit #: 04878 Cost Agreement #: Proposal ITEM TOTAL QUANTITY UNIT UNIT PRICE 1. Plan Preparation A1. Site-specific Work Plan 1 \$400.00 \$400.00 each B1. Tax Map \$70.00 \$0.00 each 3. Survey (500 x 500 feet) A1. Comprehensive Survey 1 \$1,000.00 \$1,000.00 each 4. Mob/Demob (Each) A1. Equipment 1 each \$250.00 \$250.00 B1. Personnel \$800.00 4 \$200.00 each C1. Adverse Terrain Vehicle to install wells \$0.00 each \$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 \$2.75 \$0.00 per foot 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 \$31.00 \$1,705.00 per foot D1. Rock Drilling per foot \$23.00 \$0.00 G1. Rock Multi-sampling ports/screens \$7.00 \$0.00 per foot H1. Recovery Well (4 inch diameter) \$28.00 \$0.00 per foot K. Re-develop Existing Well \$4.00 per foot \$0.00 10. Groundwater Sample Collection / Gauge Depth to Water or Product * A1. Groundwater Purge per well \$15.00 \$135.00 C1. Water Supply 2 \$5.00 \$10.00 per well/recep D1. Groundwater No Purge or Duplicate 2 samples \$15.00 \$30.00 E1. Gauge Well only \$5.00 per well \$0.00 F1. Sample Below Product well \$5.00 \$0.00 G1. Pasive Diffusion Bag \$0.00 \$20.00 each

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	1446	\$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 RCŔA Metals		sample	\$50.00		\$0.00
H1. TPH (9070)		sample	\$0.00		\$0.00
PP. Ethanol		sample	\$0.00		\$0.00
11. Analyses-Soil				30 2 C	,
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)	ļ	sample	\$0.00		\$0.00
V1. TPH- GRO (5030B/8015B)		sample	\$0.00		\$0.00
W1. Grain size/hydrometer		sample	\$150.00	an in	\$0.00
X1. Total Organic Carbon		sample	\$130.00		\$0.00
11. Analyses-Air		Jampic	Ψ0.10		Ψ0.00
Y1. BTEX + Naphthalene		sample	\$7.00	44.4	\$0.00
12. Aquifer Characterization*		Sample	Ψ1.00		Ψ0.00
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)*		Cacii	Ψ300.00		Ψ0.00
AA. Wastewater	100	gallon	\$1.25	91.2	\$125.00
BB. Free Product	100	gallon	\$0.00	206.00	\$0.00
C1. Soil Treatment/Disposal	2	ton	\$50.04		\$100.08
· ·		I	\$0.04		\$100.00
D1. Drilling fluids 18. Miscellaneous (attach receipts)	<u></u>	gallon	\$0.00	(1) 計量量	\$0.00
		aaah	\$100.00		\$0.00
High Strength Well Pad Replacement Free Product Hydrocarbon (Age and Type Identification		each			
Free Product Hydrocarbon (Age and Type Identification		each	\$7.00	12.0	\$0.00
	l	each	\$0.00		\$0.00
20 Tier Lace (Use DUEC 2665 form)		each	\$0.00		\$0.00
20. Tier I Asse. (Use DHEC 3665 form) 21. IGWA (Use DHEC 3666 form)		standard	\$5,100.00	The second	\$0.00
25. Well Repair*		standard	\$1,051.00	AND CO	\$0.00
· ·		aaah	40.00		00.00
A1. Additional Copies of the Report		each	\$0.00	1100	\$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	145.7	\$0.00
II. Convert Flush-mount to Stick-up		each	\$0.00	104	\$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

Number

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Client			Report to Contact							Sampler (Printed Name)										
Address		Telephon			elephone No. / Fax No. / Email						Way	Waybill No.								
City	State	Zip Code	Preserv																	
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		r	3. H2SO4	6.	Na Thio),														
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Sample ID / Desc (Containers for each sam combined on one	ple may l	pe Date	Time	G=Grab C=Composite	GW D	www	s	Other	Analysis											
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☐ Standard ☐ Rush (Ple	ease Spe	cify)		□ Re	eturn to I	Client		Disp	osal by Lat)					□Non	-Hazard	□Flan	nmable	□Skin	Irritant
1. Relinquished by / San	npler			Date			Tim	те		1. Re	ceived by							Date		
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3. Relinquished by		Date	Date		Time		3. Received by						Date							
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Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

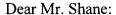
BRYAN SHANE MIDLANDS ENVIRONMENTAL CONSULTANTS PO BOX 854 LEXINGTON SC 29071-0854

JAN 1 6 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



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 email 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)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL



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

Jeff L. Coleman
Contractor QA Manager

Bryan T. Shane, P.G.
Site Rehabilitation Contractor

Daniel J. Wright
Laboratory Director

Approved Cost Agreement 47289

Facility: 04878 NICKELPUMPER 233

BRYANTJC PO Number:

Task / Description Categories	Item Description	Qty / Pct	Unit Price	<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 Amo	ount	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 2016

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 bryantic@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

Technical file (no enc) cc:



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 1 0 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. \Box 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. \Box 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.)





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

100

Re:

Request for Right of Entry

Nickelpumper 233, 3296 Point South Drive, Yemassee, SC 29945

UST Permit # 04878

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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

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 Caroline 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.

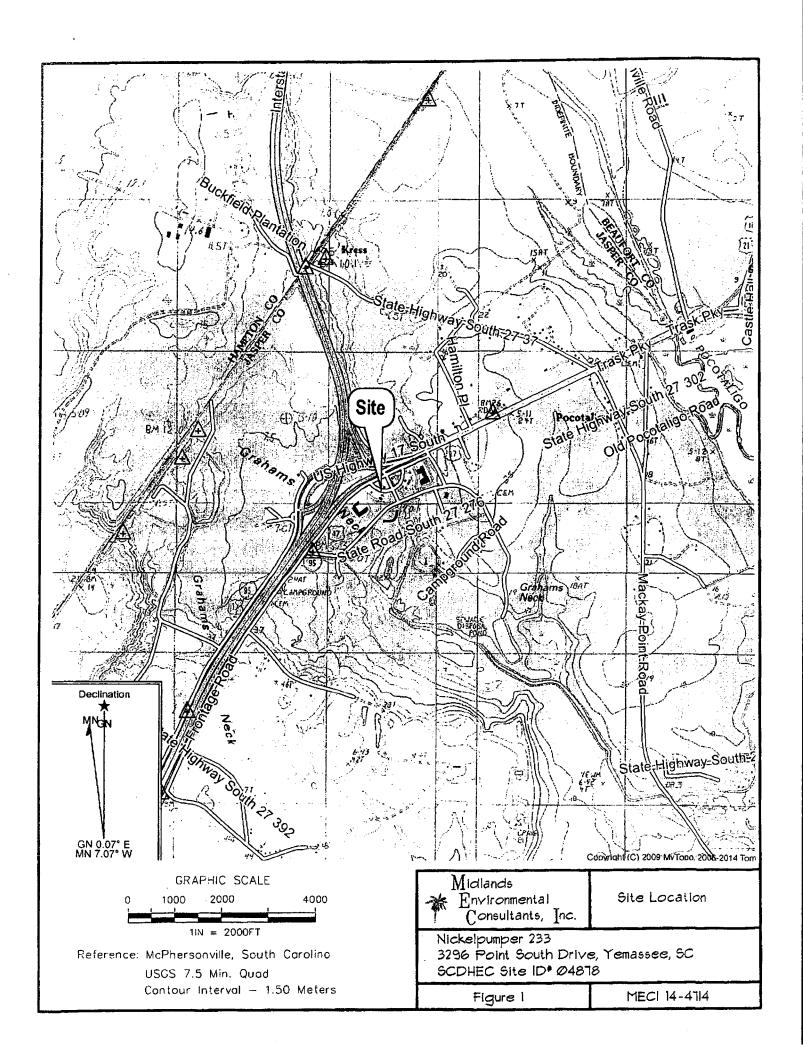
The wells consist of 2-inch diameter PVC pipe (Schedule 40 with flush-threaded joints) inserted into an 8-inch or 10-inch diameter augered borehole (Figure 3). The bottom 10 or 15-foot section of each monitoring well is a manufactured well screen with 0.020-inch slots. The well screen will be set to 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.

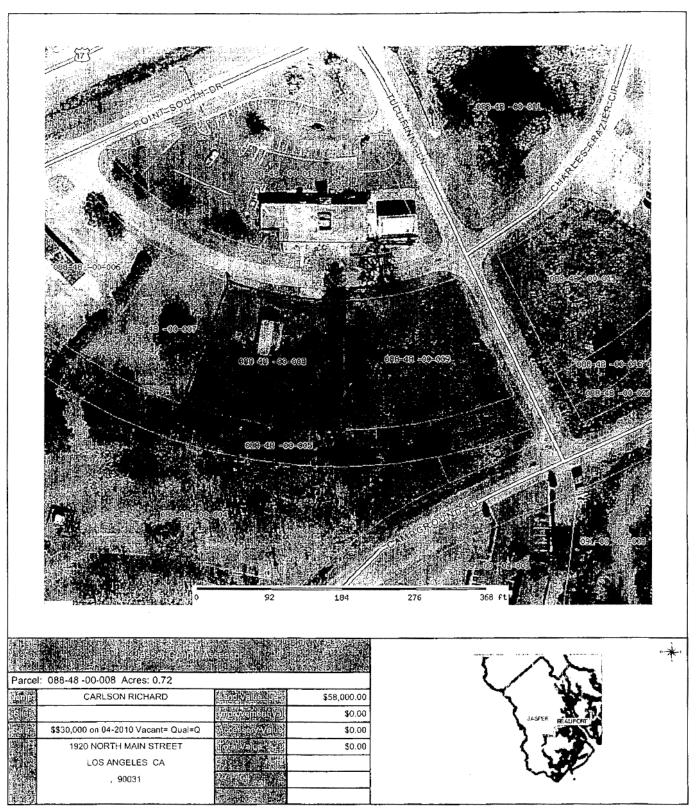
Before any work is initiated, MECl personnel will coordinate with the property owner at each phase of the above referenced assessment. Please sign and return the attached Permission Form or contact MECl at (803) 808-2043 about the right of entry to your property. Collect telephone calls will be accepted to minimize any inconvenience.

Sincerely,

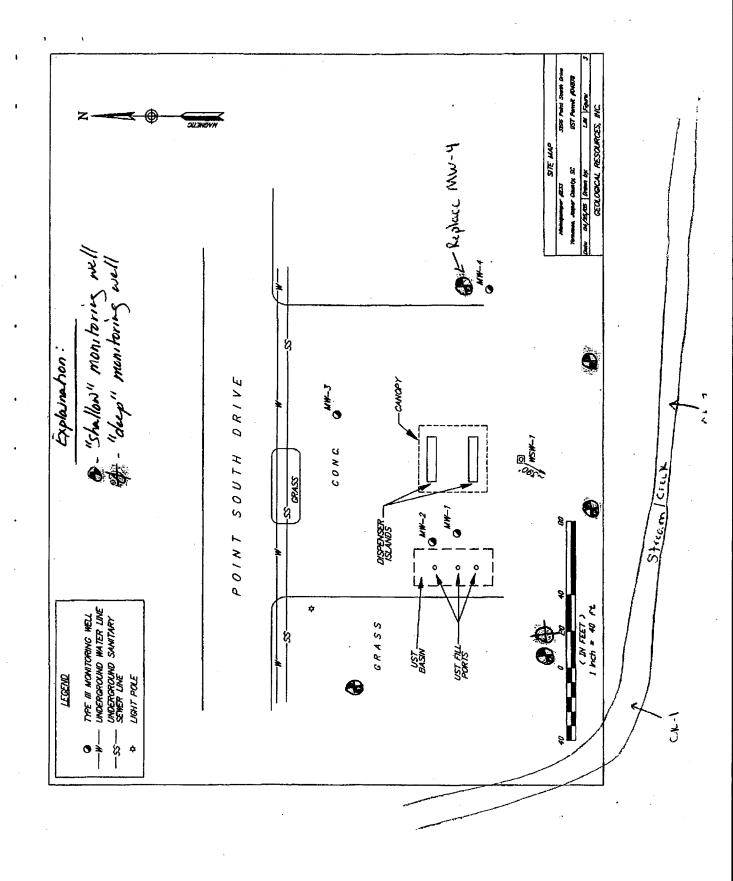
Midlands Environmental Consultants, Inc.

Serior Scientist





The Jasper County Assessor's Office makes every effort to produce the most accurate information possible. No warrantles, 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 ASSUMI RESPONSIBILITY FOR ERRORS OR OMISSIONS —THIS IS NOT A SURVEY--Date printed: 01/09/14: 13:28:49



TYPICAL TYPE II MONITORING WELL

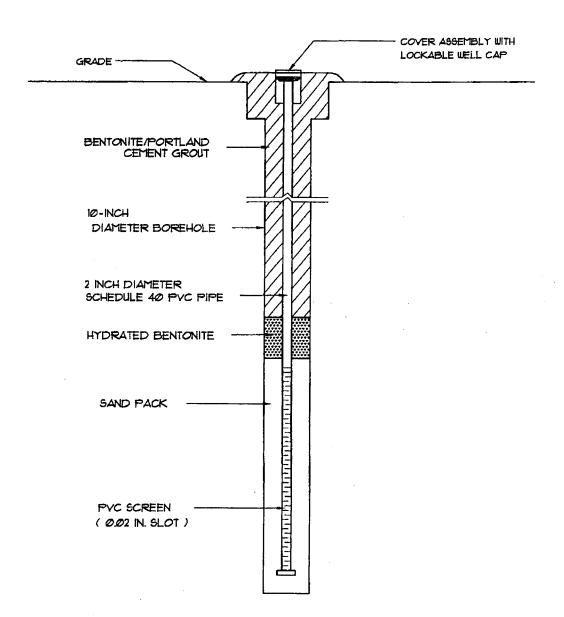


FIGURE 3

Midlands

Environmental

Consultants, Inc.

231 Dooley Road Lexington, SC 29013 (803) 808-2043 fax: 808-2048



PERMISSION TO ENTER PROPERTY

Ι,	, 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
	vironmental 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 Dr	ive (Jasper County Tax Map Number 088-048-00-008) for the purpose of performing
	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:		
		Daytime Phone#
Property Owner's Signature	Date	
		Evening Phone#
Printed Name	Date	
Access Denied:		
		Daytime Phone#
Property Owners Signature	Date	
D		Evening Phone#
Printed Name	Date	
11/1/1	× 1/9/	<u>/14</u>
MECI Representative	//	
231 Dooley Pd. I	evinaton SC 20072	Tolombone (902) 909 3042 + F (902) 909 0045
231 Dooley Rd., L	exington, 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.

south Carolina Department of Health and E selected by SCDHEC, to enter this property a corrective action activities, as required. The course of the course of the compensation to the contractor will be from the	ertify that I am the legal owner of the property presentative for the property owner. I authorize the environmental Control (SCDHEC), or a contractor at reasonable times only to conduct assessment and contractor will be designated as the contractor for the uired environmental site rehabilitation activities. e SUPERB Account and I will have no obligation to will notify me of all activities that are necessary prior he 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, highwa	ay, alley
Is this facility within the city limits? (yes or no)	
Is this facility serviced by a public water or sewer please provide the name of a person we can contain septic tank lines Name, phone number	er utility? (yes or no), if no, act that can assist in the location of private water and
Were underground storage tanks previously remainder if yes, please provide the name	moved from the ground at this facility? (yes or no) e of a person we can contact that can assist in the excavation
Is the property currently leased or rented to some their name and phone in the pending assessment activities. If vehicle monitoring wells, they should be moved before S	neone? (yes or no), if yes, please provide number and let them know about so or other mobile structures are parked over the 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:Day	
Day	Year Year

RICHARD CARLSON THERE WILL BE NO COST TO THE PROPERTY
OWNER FOR ANY & ALL WORK PERFORMES
RIGHT OF ENTRY - USF Permit # 04878 ON THE PLOTER TO PER LETTER 1/27/14 JOHN BLYANT. 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, ICHARD ARLSON, 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 Acant Prop. Phone #
Name of Facility Phone #
Street Address of Facility 3296 POINT SOUTH DR. VACANT FROA.
Street Address of Facility 3296 POINT SOUTH DR. VACANT PROP. Town, City, District, Suburb YEMA SSEE 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 Dan't Know
Is this facility serviced by a public water or sewer utility? (yes or no) (Down 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)
Is the property currently leased or rented to someone? (yes or no) \nearrow , 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): CARLSON
Phone Number (home) (work) (323) 222 - 3 007 \
Phone Number (home) (work) (323)222-3007 (Current Mailing Address /920 MAIN ST. Los ANGELES (A. 9003) Signature of Property Owner:
Signature of Property Owner:
Witness Eter BArtolders
Date: FeB. 22, 2014 Month Year O 13 feeh
UST Division/ SMB

UST

Document Receipt Information

Hard Copy	, CD	Email
Date Received	6-5-14	
Date Received Permit Number		
Project Manager	John	Bryant
Name of Contractor	MECI	
UST Certification Num	ber	
Docket Number	·	14 tech
Scanned		
Addit	ncial A	Semment

ADDITIONAL ASSESSMENT REPORT

Nickelpumper 233 3296 Point South Drive Yemassee, South Carolina SCDHEC SITE ID 04878 CA # 47289

Prepared By:

Midlands
Environmental
Consuitants, Inc.

231 Dooley Road, Lexington, SC 23073 (803) 808-2043 fax: 808-2048

May 29, 2014

MECI Project No. 14-4714



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.

Senior Scientist

Bryan T. Shane, P.G. Principal Geologist

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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

					;
Telephone #:	Address:	Name:	Facility Address:	Facility Name:	The Contract Operator information
(323) 222-3007	1920 North Main Street, Los Angeles, CA 90031	Richard Carlson)rive, Yemass	Nickelpumper 233 UST Permit #: 04878	

B Property Owner Information

Telephone #	Address	Tax Map #:	Name
(323) 222-3007	1920 North Main Street, Los Angeles, CA 90031	Jasper County Tax Map #: 088-48-00-008	Richard Carlson

C. Contractor Information

Telephone #:	Address:	Certification #:	Name:
(803) 808-2043	P. O. Box 854, Lexington, SC 29071	9	Midlands Environmental Consultants, Inc.

D. SCDHEC Certified Well Driller

Telephone #:	Address:	Certification #:	Driller:	Name:
(704) 607-7529	17538 Greenhill Road, Charlotte, NC 28278	B 02053	David Brown	Environmental Drilling & Probing Services, LLC.

E. SCDHEC Certified Laboratory

Telephone #:	Address:	Certification #:	Name:
(803) 791-9700	106 Vantage Point Drive, West Columbia, SC 29172	32010	Shealy Environmental Services, Inc.

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:

48.36	43.5-48.5	X		DW-1
9.36	2.0-9.5		X	MW-8
8.95	2.0-9.0		Х	MW-7
12.32	2.0-12.0		х	MW-6
12.00	2.0-12.0		X	MW-5
12.23	2.0-12.0		X	MW-4R
Total Depth (ft)	Screened Interval (ft)	Double Cased	Single Cased	Well Number

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 bailing 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 MicroTPI/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:

** = Indicates Field Duplicate	Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dictoroethane PAH = polycyclic aromatic hydrocarbons	Trip Blank	Field Blank	MW- Dup.	DW-1	MW-8	MW-7	MW-6	MW-5	MW-4R	MW-3	MW-2	MW-1		Monitoring Well	
uplic	œne, t matic				×	X	X	×	×	X		X	X		Purge	
ate	oluen hydr				L						L				No Purge	
	e, eth										Х				Not Located	
	ylbenzene, & t	Х	X	Х	Х	X	Х	×	Х	X ·		Х	X		BTEX, Naphthalene, MTBE (EPA Method 8260-B)	
	otal xylene		х	x	x	x	х	x	х	Х		x	×	Х		EDB (EPA Method 8011)
	es MTBI	х	Х	х	х	х	Х	X	×	Х		Х	х		1,2 DCA (EPA Method 8260-B)	
	E=methyl	×	x	×	×	×	X	×	×	Х		Х	Х		8 Oxygenates (EPA Method 8260-B)	
	tertiary b									·			i	Analyte Sampled	Total Lead (EPA Method 6010)	
	utyl ethei													mpled	Filtered Lead (EPA Method 6010)	
	r 1,2 DC														Sulfate (EPA Method 375.2)	
	1 = 1,2 di														Nitrate (EPA Method 335.2)	
	cloroetha														Methane (RSK Method)	
	ine														PAH's (EPA Method 8270)	

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 PLS# 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	Wells Above RBSL
	(ug/l)	
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 Pocotaligo 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:

Compound	RBSL	Wells Above RBSL
	(ug/l)	
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 (SSTL'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

Nickelpumper 233 – Additional Assessment MECI Project Number 14-4714

> May 29, 2014 SCDHEC Site ID 04878

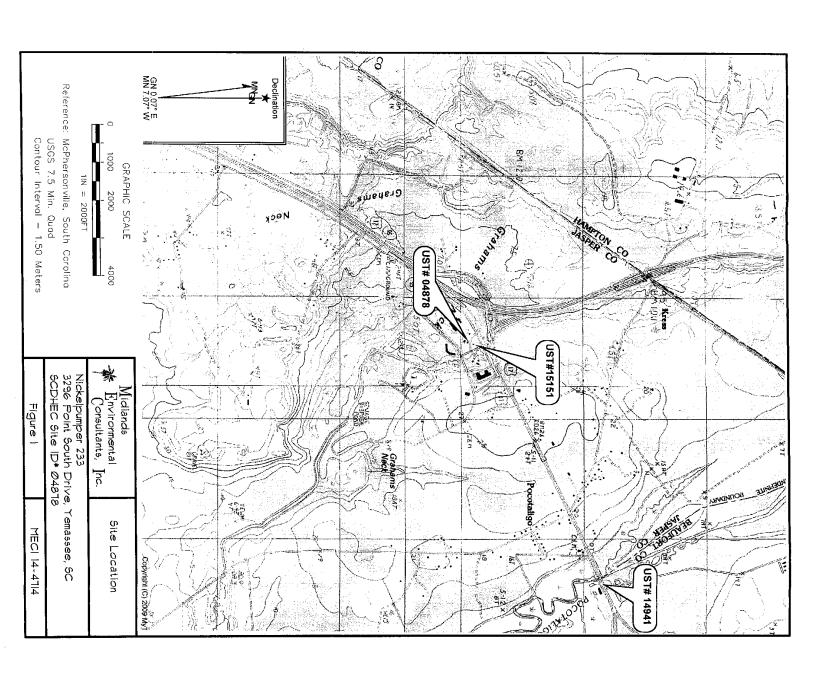
this information so that a mutual understanding and agreement of the terms and conditions of our services can be established.

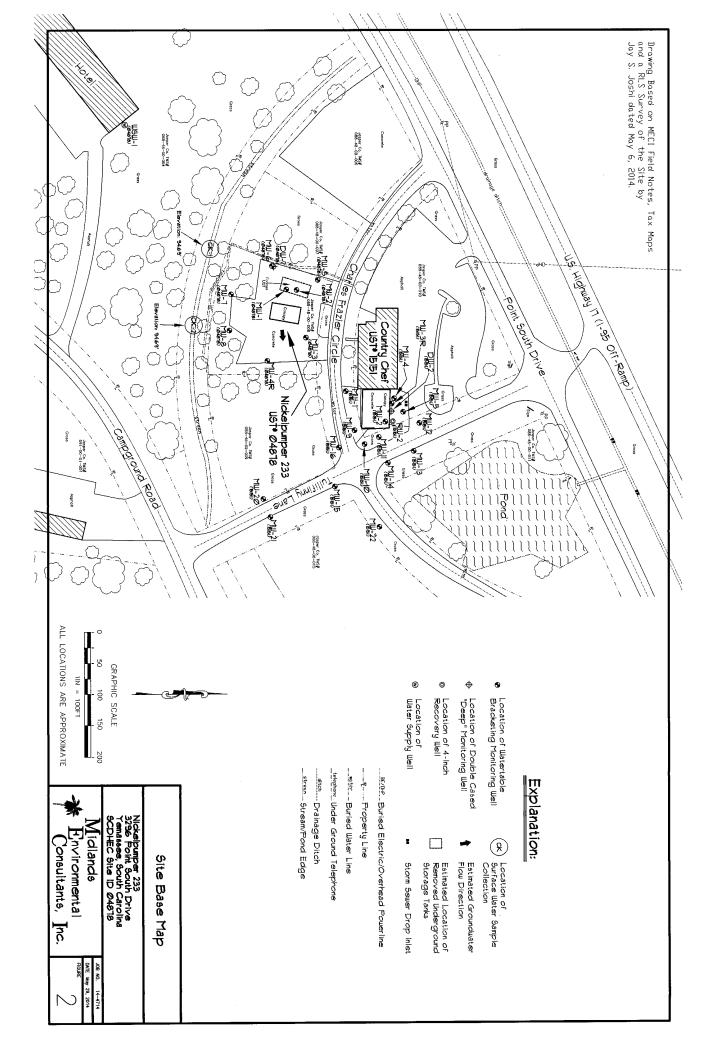
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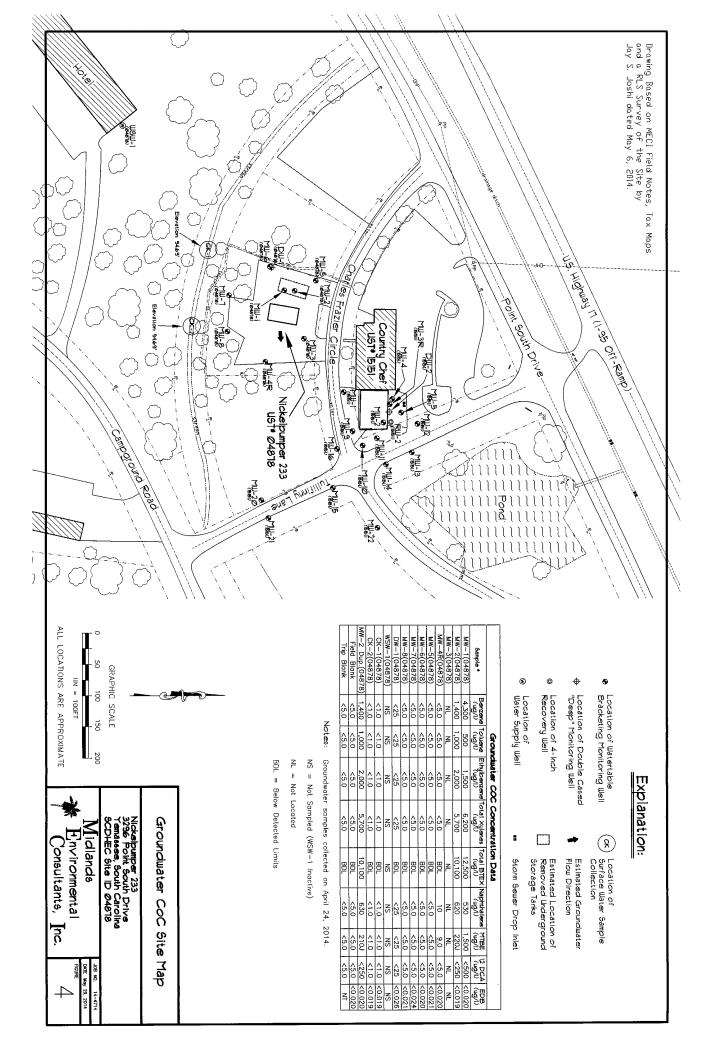
Well-bead PElsyation 100.56 100.56 100.57 100.57 100.06 100.07 100.51 100.52 100.52 100.42 99.77 100.04 98.86 98.30 98.76 98.30 98.76 98.30 98.76 98.30 98.76 98.30 NL NL NL NL NL NL NL NL NL N	MATERIAL MATERIAL		I = Not Measured	. S. N.		m the top of the PVC riser pipe.		
Sample Screened Interest Depth to the Interest Weight and the Interest <t< th=""><th>APRIL 24, 2014 SAMPLING EVENT NICKEL ELPUMPER 233 YEMASSEE SOUTH CAROLINA MECI PROJECT NUMBER 043714 SCDHEC SITE ID NUMBER 04371 SCDHEC SITE ID NUMBER 043714 SCDHEC SITE ID NUMBER 04</th><th></th><th>= Not Located</th><th></th><th>-</th><th>,</th><th></th><th>ı</th></t<>	APRIL 24, 2014 SAMPLING EVENT NICKEL ELPUMPER 233 YEMASSEE SOUTH CAROLINA MECI PROJECT NUMBER 043714 SCDHEC SITE ID NUMBER 04371 SCDHEC SITE ID NUMBER 043714 SCDHEC SITE ID NUMBER 04		= Not Located		-	,		ı
Sample Semented Depth to D	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCODHEC STEE ID NUMBER 13-4714 SCODHEC STEE ID NUMBER 13-4714 SCODHEC STEE ID STEE	N	98.42	Z		2.0-12.0	4/24/2014	RW-2(15151)
Sample Semented between the bottom May be the bottom Weighted between the bottom </td <td> APRIL 24, 2014 SAMPLING EVENT NICKEL PUMPER 233 YEMASSEE SOUTH CAROLINA MEC) PROJECT NUMBER 13-4714 SCODIEC STIE ID NUM 100.05 SCODIEC STIE ID NUM 1</td> <td>¥</td> <td>ξ.</td> <td>¥.</td> <td></td> <td>1.8-11.8</td> <td>4/24/2014</td> <td>RW-1(15151)</td>	APRIL 24, 2014 SAMPLING EVENT NICKEL PUMPER 233 YEMASSEE SOUTH CAROLINA MEC) PROJECT NUMBER 13-4714 SCODIEC STIE ID NUM 100.05 SCODIEC STIE ID NUM 1	¥	ξ.	¥.		1.8-11.8	4/24/2014	RW-1(15151)
Sample Screamed (Sepht) (b) Depht (o) Weight (Invest) Height (Invest) 100.56 100.57 100.57 100.06 100.57 100.06 100.57 100.06 100.57 100.06 100.57 100.06 100.57 100.06 100.57 100.06 100.57 100.06 100.57 100.06 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.57 100.52 100.57 100.52 100.52 100.52 100.52 100.52 100.52 100.52 100.52 100.52 100.52 100.52 100.52 100.52 100.52 100.52	APRIL 24, 2014 SAMPLING EVENT NICKEL PUMPER 233 YEMASSEE SOUTH CAROLINA MEC) PROJECT NUMBER 13-4714 SCODIEC NUM 100.51 SCODIEC T NUM 100.51 SC	N	99.72	M		50.0-55.0	4/24/2014	DW-2(15151)
Sampio Secretariad Depath of	APRIL 24, 2014 SAMPLING EVENT NICKEL PUMPER 233 YEMASSEE SOUTH CAROLINA MECI PROJECT NUMBER 04878 Web. 1544 SCUHEC STIE ID NUMBER 04878 SEMENTON NICKEL PUMPER 233 YEMASSEE SOUTH CAROLINA MECI PROJECT NUMBER 04878 Web. 1544 SCUHEC STIE ID NUMBER 04878 SEMENTON NICKEL PUMPER 04878 Web. 1544 SCUHEC STIE ID NUMBER 04878 SEMENTON NICKEL PUMPER 04878 NICKEL PUMPER 04878 NICKEL PUMPER 04878 SEMENTON NICKEL PUMPER 04878	N	99.37	M		3.0-13.0	4/24/2014	MW-22(15151)
Barriols Secriment Secriment With High (Index) With Private (Index) With Private (Index) With Private (Index) With Private (Index) With Private (Index) With Private (Index) With Private (Index) With Private (Index) With Private (Index) With Private (Index) With Private (Index) Private (Index) With Private (Index) 100.56 100.56 100.57 100	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE SOUTH CARPOLINA MECI PROJECT NUMBER 13-4714 SCENETC NUMBER 13-19 SCENETC NUMBER 13-19	NM	99.07	M		3.0-13.0	4/24/2014	MW-21(15151)
Sentifies Section and Interval With Princit With Princit 22882012 2.5-12.5 3.19 100.56 22882014 2.0-12.0 0.80 100.57 22882014 2.0-12.0 2.26 100.57 22882014 2.0-12.0 P.I. 100.06 412422014 2.0-12.0 P.I. 100.05 42842014 2.0-12.0 P.I. 100.05 42842014 2.0-12.0 P.I. 100.05 42842014 2.0-12.0 1.25 100.51 42842014 2.0-12.0 1.25 100.52 42842014 2.0-12.0 1.20 100.04 42842014 2.0-12.0 NM 100.05 42842014 2.0-12.0 NM 98.50 42842014 2.0-12.0 NM 98.50 42842014 2.0-12.0 NM 98.50 42842014 2.0-12.0 NM 98.50 42842014 2.0-12.0 NM 99.83 42842014 <	APRIL 24, 2014 SAMPLING EVENT NICKEL-PUMPER 233 YEMAGSSEE, SOUTH CARPOLINA MECI PROJECT NUMBER 13-4714 SCHERC SITE ID NU	N N	98.95	ZM		3.0-13.0	4/24/2014	MW-20(15151)
	APRIL 24, 2014 SAMPLING EVENT NICKEL/PUMPER 233 YEMASSEE, SOUTH CARROLINA MECI PROJECT NUMBER 13-4714 SCORHEC SITE ID NUMBER	롣	Ę	ž		2.0-12.0	4/24/2014	MW-19(15151)
Sampin Screened	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 13-4714 SCDHEC SITE ID NUMBER 13-4714 2282012 25-12.5 2282014 20-12.0 2	롣	롣	Z		2.0-12.0	4/24/2014	MW-18(15151)
	APRIL 24, 2014 SAMPLING EVENT NUMBER 73.3.3 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 73.471.4 MECI PROJECT NUMBER 73.471.4 SCDHEC SITE ID NUMBER 73.471.4 SCHEC PROJECT NUMBER 73.471.4 SCHEC PROJECT NUMBER 73.471.4 SCHEC PROJECT NUMBER 73.471.4 SCHEC PROJECT NUMBER 73.471.4 SCHEC SITE ID NUMBER 73.	¥	롣	₽		2.0-12.0	4/24/2014	MW-17(15151)
Sampio Screened Inferval Uppath io Wathreit Well-head Heart (feed) ZZ822012 4/24/2014 2.5-12.5 3.19 100.56 2Z882014 4/24/2014 2.0-12.0 0.60 100.57 4/24/2014 2.0-12.0 NL 100.06 4/24/2014 2.0-12.0 NL 100.07 4/24/2014 2.0-12.0 NL 100.05 4/24/2014 2.0-12.0 NL 100.05 4/24/2014 2.0-12.0 NL 100.11 4/24/2014 2.0-12.0 NL 100.51 4/24/2014 2.0-12.0 NL 99.77 4/24/2014 2.0-12.0 1.20 100.52 4/24/2014 2.0-9.5 0.54 99.71 4/24/2014 2.0-12.0 NM 99.85 4/24/2014 2.0-12.0 NM 99.85 4/24/2014 2.0-12.0 NM 99.85 4/24/2014 2.0-12.0 NM 99.85 4/24/2014 2.0-12.0 NM NL NL	APRIL 24, 2014 SAMPLING EVENT NUMBER 73.4714 APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13.4714 SCDHEC SITE ID NUMBER 13.4714 SCDHEC SITE ID NUMBER 13.4714 SCDHEC SITE ID NUMBER 13.471 SCHEC PROJECT NUMBER 13.471 SCHEC PR	M	100.05	X X		2.0-12.0	4/24/2014	MW-16(15151)
Sample Screened Method Evented ZZBZ2012 2.5-12.5 3.19 100.56 4/24/2014 2.0-12.0 0.60 1.37 100.56 4/24/2014 2.0-12.0 0.60 100.57 100.56 4/24/2014 2.0-12.0 NL 100.06 100.06 4/24/2014 2.0-12.0 NL 100.06 100.06 4/24/2014 2.0-12.0 NL 100.11 99.77 4/24/2014 2.0-12.0 NL 100.51 100.66 4/24/2014 2.0-12.0 NL 99.77 12.25 100.51 4/24/2014 2.0-12.0 1.29 100.52 100.52 100.52 4/24/2014 2.0-12.0 1.20 100.42 100.42 100.52	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CACACA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 13-4714 SCHEC PROJECT NUMBER 13-4714 SCHEC SITE ID NUMBER 13-4718 100.55 2228/2014 20-12.0 2228/2014 20-12.0 2228/2014 20-12.0 20-12.0 2228/2014 20-12.0 2	M	99.88	Z X		2.0-12.0	4/24/2014	MW-15(15151)
Barriol Scores red (Hindrical Date) Physit for Hindrical Haber (Head) Well-baid Haber (Head) Well-baid Haber (Head) Well-baid (Head) Well-baid (Head) Well-baid (Head) Well-baid (Head) Well-baid (Head) Well-baid (Head) Well-baid (Head) Well-baid (Head) Well-baid (Head) Well-baid (Head) Hough (Head) House (Head)	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CACACA MEC) PROJECT NUMBER 13-4714 MEC) PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 13-4714 SCDHEC SITE ID NUMBER 13-4714 100.56 22282014 20-12.0 2282014 20-12.0 2282014 20-12.0 20-12.0 2282014 20-12.0 20-12.0 2282014 20-12.0	M	99.92	M		2.0-12.0	4/24/2014	MW-14(15151)
Barriori Screened Date Depath io Healt-foad Date 100.56 100.56 100.57 100.52	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CARCINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Sample Screenard Screenard State of 100.56 22822012 2-1-2.5 3.19 22822014 2-0-12.0 1.22 100.57 22822014 2-0-12.0 NL 100.06 22822014 2-0-12.0 NL 100.06 22822014 2-0-12.0 NL 100.06 22822014 2-0-12.0 NL 100.06 22822014 2-0-12.0 NL 100.06 22822014 2-0-12.0 NM 98.77 42422014 2-0-12.0 NM 98.77 42422014 2-0-12.0 NM 98.76 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59 42422014 2-0-12.0 NM 98.59	M	99.94	NM ———		2.0-12.0	4/24/2014	MW-13(15151)
Sampie Screened What-fried House 100.56	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 23 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCEDHEC SITE ID NUMBER 04878 2228/2014 2.0-12.0 2.0-12.		99.93	NM M		2.0-12.0	4/24/2014	MW-12(15151)
Sampie Senemical Interval Weal-liveal Wather (lead) Weal-liveal House Weal-liveal Head on 100.56 2/28/2014 2.0-12.0 0.60 100.57 100.56 100.57 4/24/2014 2.0-12.0 NL 100.06 100.57 4/24/2014 2.0-12.0 NL 100.06 4/24/2014 2.0-12.0 NL 99.77 4/24/2014 2.0-12.0 1.20 100.52 4/24/2014 2.0-12.0 NM 99.71 4/24/2014 2.0-12.0 NM 98.50 4/24/2014 2.0-12.0 NM 98.50 4/24/2014 2.0-12.0 NM 98.59 4/24/2014 2.0-12.0 NM 98.59 4/24/2014 2.0-12.0 NL NL 4/24/2014 2.0-12.0 NL NL	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCIPPOJECT NUMBER 13-4714 SCIPPOJECT NUMBER 13-4714 SCIPPOJECT NUMBER 13-4714 SCIPPOJECT SITE ID NUMBER 04878 SETTION NUMBER 04878 SETTION NUMBER 13-4714 SCIPPOJECT NUM 98.59 ACCURATION NUM 98.59 ACCU	MN	99.83	M		2.0-12.0	4/24/2014	MW-11(15151)
Semond Date Semond Interval Depth to Water (seed) Elevation Elevation 2/28/2014 4/24/2014 2.0-12.0 2.0-12.0 2.0-12.0 4/24/2014 0.60 1.37 100.56 1.00.57 2/28/2014 4/24/2014 2.0-12.0 2.0-12.0 2.0-12.0 NL 100.57 1.02 4/24/2014 2.0-12.0 2.0-12.0 NL 100.57 1.02 4/24/2014 2.0-12.0 NL 100.11 1.00.51 4/24/2014 2.0-12.0 2.0-12.0 1.25 1.89 100.57 100.51 4/24/2014 2.0-12.0 2.0-12.0 1.20 1.89 100.52 100.52 4/24/2014 2.0-12.0 2.0-12.0 NM 100.42 99.71 4/24/2014 2.0-12.0 2.0-12.0 NM 98.65 4/24/2014 2.0-12.0 2.0-12.0 NM 98.65 4/24/2014 2.0-12.0 2.0-12.0 NM 98.76 4/24/2014 2.0-12.0 2.0-12.0 NM 98.59 4/24/2014 2.0-12.0 2.0-12.0 NM 98.59 4/24/2014 2.0-12.0 2.0-12.0 NM 98.59 4/24/2014 2.0-12.0 2.0-12.0 NM 98.59 4/24/2014	APRIL 24, 2014 SAMPELING EYENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLLINA MECI PROJECT LUMBER 13-4714 SCOPHEC SITE ID NUMBER 104878 2282014 2.0-12.0 2.5-12.5 2282014 2.0-12.0 2.0-12.		48	NM .		2.0-12.0		22.
Sample Screened Interval Depth of Water (seed) Pepth of Elevation 2/28/2014 4/24/2014 2.0-12.0 2.0-12.0 4/24/2014 0.60 1.37 100.56 1.00.56 1.37 2/28/2014 4/24/2014 2.0-12.0 2.0-12.0 2.0-12.0 0.60 NL 100.57 100.57 2/28/2014 4/24/2014 2.0-12.0 2.0-12.0 NL 100.06 100.06 4/24/2014 2.0-12.0 NL 100.11 4/24/2014 2.0-12.0 1.25 100.57 4/24/2014 2.0-12.0 1.25 100.51 4/24/2014 2.0-12.0 1.29 100.52 4/24/2014 2.0-12.0 1.29 100.52 4/24/2014 2.0-12.0 1.29 100.52 4/24/2014 2.0-12.0 NM 100.08 4/24/2014 2.0-12.0 NM 98.71 4/24/2014 2.0-12.0 NM 98.65 4/24/2014 2.0-12.0 NM 98.30 4/24/2014 2.0-12.0 NM 98.76 4/24/2014 2.0-12.0 NM 98.76 4/24/2014<	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCOPHEC SITE ID NUMBER 1	M	99.50	M		2.0-12.0	4/24/2014	MW-9(15151)
Sample Date Screened Inférval Depth to Made (Red) Depth to Made (Red) Investitation 2/28/2014 2/24/2014 2.0-12.0 0.60 1.37 100.56 1.37 2/28/2014 4/24/2014 2.0-12.0 0.60 1.02 100.57 100.56 2/28/2014 4/24/2014 2.0-12.0 NL 100.67 100.65 2/28/2014 2.0-12.0 NL 100.06 100.05 4/24/2014 2.0-12.0 NL 100.11 100.06 4/24/2014 2.0-12.0 1.25 100.51 100.52 4/24/2014 2.0-12.0 1.89 100.52 100.51 4/24/2014 2.0-9.5 0.54 99.71 100.87 4/24/2014 2.0-12.0 NM 100.87 4/24/2014 2.0-12.0 NM 100.87 4/24/2014 2.0-12.0 NM 100.87 4/24/2014 2.0-12.0 NM 98.65 4/24/2014 2.0-12.0 NM 98.65 4/24/2014 2.0-12.0 NM 98.76 4/24/2014 2.0-12.0 NM 98.59 <	APRIL 24, 2014 ASAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECH PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 13-			7		2.0-12.0	4/24/2014	75
Sample Screened Pate Depoit to Historial Depoit to Water (fee) Multiplication 2788/2014 2.0-12.0 3.19 100.56 2728/2014 2.0-12.0 0.60 100.57 4724/2014 2.0-12.0 2.26 100.06 4724/2014 2.0-12.0 NL 100.11 4724/2014 2.0-12.0 2.41 99.77 4724/2014 2.0-12.0 1.25 100.51 4724/2014 2.0-12.0 1.25 100.51 4724/2014 2.0-12.0 1.89 100.52 4724/2014 2.0-9.0 1.20 100.42 4724/2014 2.0-9.0 1.20 100.51 4724/2014 2.0-9.0 1.20 100.52 4724/2014 2.0-12.0 NM 98.71 4724/2014 2.0-12.0 NM 98.65 4724/2014 2.0-12.0 NM 98.59 4724/2014 2.0-12.0 NM 98.59 4724/2014 2.0-12.0 NM 98.59 <	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 04878 Sample Screened Screened Screened Date Screened Screened Screened C288/2014 2.0-12.0 Date C288/2014 2.0-12.0 Date C288/2014 2.0-12.0 Date C288/2014 C20-12.0 Date C288/2014 C20-12.0 NIL Date Date Screened Screened C288/2014 C20-12.0 NIL Date C288/2014 C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIL Date C20-12.0 NIM Date C20-12.0 NIM Date C20-12.0 NIM S8.59 S8.59 S8.59	<u>R</u>	Z.	F		2.0-12.0	4/24/2014	MW-7(15151)
Sample Screened Interval Depoth to Wather (evo) Medit field Howards 2789/2012 288/2014 2288/2014 2288/2014 2288/2014 2288/2014 2288/2014 2288/2014 2288/2014 2288/2014 2288/2014 2288/2014 2288/2014 2288/2014 220-12.0 2.0-12.0 1.02 NIL 100.06 1.02 100.55 100.05 100.05 100.05 4/24/2014 4/24/2014 4/24/2014 20-12.0 2.0-12.0 1.20 NIL 1.25 100.11 100.51 4/24/2014 4/24/2014 4/24/2014 20-12.0 2.0-12.0 1.20 1.20 1.20 100.51 1.00.51 4/24/2014 4/24/2014 4/24/2014 2.0-12.0 NIM 100.04 100.04 100.04 100.04 4/24/2014 4/24/2014 2.0-12.0 NIM 98.65 98.76 98.76 4/24/2014 4/24/2014 2.0-12.0 NIM 98.59 98.59	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCIPTION NUMBER 13-4714 SC		Z	Z			4/24/2014	MW-6(15151)
Sample Screened Interval Depoth to Water (seo) Medit Seed Elevation 2/28/2012 4/24/2014 2.5-12.5 2.5-12.5 4/24/2014 3.19 2.0-12.0 2.0-12.0 4/24/2014 0.60 1.02 100.56 1.00.56 1.00.57 1.00.57 2/28/2014 4/24/2014 2.0-12.0 2.0-12.0 4/24/2014 NIL 2.0-12.0 2.0-12.0 4/24/2014 100.06 1.00.51 1.89 100.05 100.05 1.00.05 4/24/2014 4/24/2014 2.0-12.0 2.0-9.0 4/24/2014 1.89 2.0-12.0 4/24/2014 100.42 99.71 4/24/2014 4/24/2014 2.0-12.0 2.0-12.0 2.0-12.0 NIM NM 100.04 98.55 4/24/2014 4/24/2014 2.0-12.0 2.0-12.0 2.0-12.0 NIM 98.76	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCIPHEC SITE ID NUMBER 1	MN	98.59	MA.		2.0-12.0	4/24/2014	MW-5(15151)
Sample Screened Interval Depth to Whater (feet) Well-freed Elevation 2/28/2012 2/28/2014 2/24/2014 2.5-12.5 2.5-12.5 2.5-12.5 2.24/2014 3.19 1.03.5 1.37 100.56 100.55 100.57 2/28/2014 4/24/2014 2.0-12.0 2.0-12.0 2.26 NIL 100.05 100.05 4/24/2014 2.0-12.0 NIL 100.05 100.05 4/24/2014 2.0-12.0 2.41 99.77 4/24/2014 2.0-12.0 1.89 100.52 4/24/2014 2.0-9.0 1.20 100.42 4/24/2014 2.0-9.5 0.54 99.71 4/24/2014 2.0-12.0 NIM 100.05 4/24/2014 2.0-9.5 0.54 99.71 4/24/2014 2.0-12.0 NIM 100.05 4/24/2014 2.0-12.0 NIM 98.65 4/24/2014 2.0-12.0 NIM 98.65	### APRIL 24, 2014 SAMPLING EYENT NICKEL PUMPER 233 YEMASSEE, SOUTH CAROLINA	NM	98.76	NM .		2.0-12.0	4/24/2014	MW-4(15151) 💒 🖫
Sample Screened Interval Depoth to Warter (feat) Modification Warter (feat) Modification House 2728/2012 2728/2014 2.0-12.0 2.0-12.0 0.60 1.02 100.56 1.02 2728/2014 4724/2014 2.0-12.0 2.0-12.0 NIL NIL 100.56 100.57 2728/2014 4724/2014 2.0-12.0 2.0-12.0 NIL 100.57 100.57 4724/2014 4724/2014 2.0-12.0 2.0-12.0 2.41 2.0-12.0 99.77 4724/2014 4724/2014 2.0-12.0 2.0-9.5 1.20 1.20 100.51 100.52 4724/2014 4724/2014 2.0-9.5 2.0-12.0 1.20 1.20 100.42 100.57 4724/2014 4724/2014 2.0-12.0 2.0-12.0 NM 100.42 100.57 4724/2014 4724/2014 2.0-12.0 2.0-12.0 NM 100.57 4724/2014 4724/2014 2.0-12.0 2.0-12.0 NM 100.42 100.57	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 04878 Screened Metal Site in Number (teet) Date Interval Metal Section 1.37 2728/2014 2.0-12.0 0.60 4724/2014 2.0-12.0 NIL 100.57 4724/2014 2.0-12.0 1.25 4724/2014 2.0-12.0 1.25 4724/2014 2.0-12.0 1.89 4724/2014 2.0-12.0 1.89 4724/2014 2.0-9.0 1.20 4724/2014 2.0-9.0 1.20 4724/2014 2.0-12.0 NIM 4724/2014 2.0-12	N	98.30	NM ——		2.0-12.0	4/24/2014	MW-3R(15151)
Sample Screened Interval Depoth to Water fee0 Modification Elevation 2/28/2012 4/24/2014 2.5-12.5 2.5-12.5 4/24/2014 3.19 2.0-12.0 2.0-12.0 4/24/2014 0.60 1.037 1.02 100.56 100.55 1.00.57 1.00.57 2/28/2014 4/24/2014 2.0-12.0 2.0-12.0 2.0-12.0 NIL NIL NIL NIL NIL 100.06 100.11 99.77 4/24/2014 4/24/2014 2.0-12.0 2.0-12.0 1.89 1.89 100.52 100.52 4/24/2014 4/24/2014 2.0-9.0 2.0-9.5 1.20 1.00.54 100.42 99.71 4/24/2014 4/24/2014 2.0-9.0 2.0-9.5 1.20 1.00.54 99.71 100.42 4/24/2014 4/24/2014 2.0-12.0 2.0-9.5 1.89 1.00.52 100.42 100.87	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Smipio Scissoned Meci PROJECT NUMBER 04878 Scissoned Meci PROJECT NUMBER 04878 Scissoned Meci PROJECT NUMBER 04878 Scissoned Meci PROJECT NUMBER 04878 Scissoned Meci PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Minior (tea) M	MN	98.65	NM .		2.0-12.0	4/24/2014	MW-2 (15151)
Sample Screened Interval Depth to What feed Well-lised Elevation 2/28/2012 4/24/2014 2.5-12.5 2.5-12.5 4/24/2014 3.19 2.0-12.0 2.0-12.0 4/24/2014 0.60 2.0-12.0 2.0-12.0 2.0-12.0 100.56 1.02 2/28/2014 4/24/2014 2.0-12.0 2.0-12.0 NIL 100.06 100.06 4/24/2014 2.0-12.0 NIL 100.01 100.05 4/24/2014 2.0-12.0 2.41 2.0-12.0 99.77 4/24/2014 2.0-12.0 2.0-12.0 1.89 100.52 100.42 100.42 4/24/2014 2.0-9.0 2.0-9.5 0.54 0.54 99.71 100.87	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Sample Schemad Date 100.57 10	N	100.04	M		2.0-12.0	4/24/2014	MW-1 (15151)
Sample Screened Interval Depth to Warter (feor) Modification Interval Modification Warter (feor) Modification Interval Modification Warter (feor) Modification Interval Modification Warter (feor) Modification Interval Modification Interval <t< td=""><td>APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Semple Screened Number (teet) 100.56 11.37 100.56 12728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0</td><td>96.97</td><td></td><td>3.90</td><td></td><td>43.5-48.5</td><td></td><td>DW-1(04878)</td></t<>	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Semple Screened Number (teet) 100.56 11.37 100.56 12728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0	96.97		3.90		43.5-48.5		DW-1(04878)
Sample Screened Interval Depth to Water fee0 Well-fieed Elevation 2/28/2012 2/28/2014 2/24/2014 2/28/28/28/28/28/28/28/28/28/28/28/28/28	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Sempio Dato Photo Interval 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2.0-12.0 3.19 100.56 100.57	99.17	99.71	0.54		2.0-9.5	4/24/2014	MW-8(04878)
Sample Screened Interval Depth to When feed When feed 100.56 100.57 100.57 100.57 100.06 100.06 100.06 100.06 100.06 100.06 100.06 100.06 100.06 100.06 100.06 100.06 100.05	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 04878 Sample Screened Date Project NUMBER 04878 Screened Screened Project NUMBER 04878 Screened Screened Screened Project NUMBER 04878 Screened Screened Number (feet)			1.20	7			Ş9,
Sample Screened Depth to Well-fieed Date Interval Wither (feed) Elivation 2/28/2012 2.5-12.5 3.19 100.56 4/24/2014 2.0-12.0 0.60 100.57 4/24/2014 2.0-12.0 2.26 100.57 4/24/2014 2.0-12.0 2.26 100.06 4/24/2014 2.0-12.0 NIL 100.06 4/24/2014 2.0-12.0 NIL 100.11 4/24/2014 2.0-12.0 2.41 99.77 4/24/2014 2.0-12.0 1.25 100.51	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 04878 Scroened Date 2/28/2014 2.0-12.0 0.60 4/24/2014 2.0-12.0 0.60 4/24/2014 2.0-12.0 NIL 4/24/2014 2.0-12.0 NIL 4/24/2014 2.0-12.0 2.41 4/24/2014 2.0-12.0 2.41 4/24/2014 2.0-12.0 2.41 4/24/2014 2.0-12.0 2.51 4/24/2014 2.0-12.0 0.60 4/24/2014 2.0-12.0 100.06	98.63	100.52	1.89		2.0-12.0	4/24/2014	MW-6(04878)
Sample Screened Depth to Interval Modification Date Interval Water (fee) Elevation 2/28/2012 2.5-12.5 3.19 100.56 4/24/2014 2.0-12.0 0.60 100.57 4/24/2014 2.0-12.0 2.26 100.57 2/28/2014 2.0-12.0 2.26 100.06 4/24/2014 2.0-12.0 NIL 100.06 4/24/2014 2.0-12.0 NIL 100.11 4/24/2014 2.0-12.0 2.41 99.77	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Screened Water (ted) Date 1.37 1.02 1.03 1.04 1.05 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.02 1.03 1.03 1.04 1.05 1.02 1.00 1.05 1.02 1.00 1.05 1.00 1.05 1.00 1.05 1.00 1.05 1.00	99.26	100.51	1.25	.5	2.0-12.0	4/24/2014	MW-5(04878)
Samble Screened Date Depth to Date Weil-feed Head Date Interval Water (feed) Elevation 2728/22012 2.5-12.5 3.19 100.56 4724/2014 2.0-12.0 0.60 100.57 4/24/2014 2.0-12.0 0.60 100.57 2/28/2014 2.0-12.0 2.26 100.06 4/24/2014 2.0-12.0 NL 100.06 2/28/2014 2.0-12.0 NL 100.11	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Sample Screened Water (tee) 100.56 4724/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2728/2014 2.0-12.0 2.0	97.36	99.77	2.41		2.0-12.0	4/24/2014	MW-4R(04878)
Sample Screened Depth to Well-freed Date Inferval Water (teet) Elevation 2728/2012 2.5-12.5 3.19 100.56 4/24/2014 2.0-12.0 0.60 100.57 4/24/2014 2.0-12.0 1.02 100.57 2/28/2014 2.0-12.0 2.26 100.06 4/24/2014 2.0-12.0 2.26 100.06 4/24/2014 2.0-12.0 NL 100.06	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Sample Sample Screened Well head 1.37 100.56 100.57 100.57 100.57 100.66 100.06	2		in the second		2.0-12.0	2/28/2014	MW-4(04878)
Sample Screened Depth to Well-fixed Date Inferval Water (teet) Elevation 2/28/2012 2.5-12.5 3.19 100.56 4/24/2014 1.37 100.56 2/28/2014 2.0-12.0 0.60 100.57 4/24/2014 2.0-12.0 1.02 100.57	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Sample Screened Date 2/28/2014 2.5-12.5 1.37 With read 100.56 100.57 100.57	97.80 NL	100.06 100.06	2.26 NL		2.0-12.0	2/28/2014 4/24/2014	MW-3(04878)
Sample Screened Depth to Well-freed Date Interval Water (feet) Elevation 2/28/2012 2.5-12.5 3.19 100.56 4/24/2014 1.37 100.56	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Sample Scrienad Scr	99.97 99.55		0.60 1.02	ji	2.0-12.0	2/28/2014 4/24/2014	MW-2(04878)
Sample Screened Depth to Well-head Date interval Wester (teet) Elevation	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878 Sample Screened Debts Well-head Sample Screened Water (teet) Debts Screened Water (teet)	99.19	100.56	3.19 1.37		2.5-12.5	2/28/2012 4/24/2014	MW-1(04878)
	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 13-4714 SCDHEC SITE ID NUMBER 04878	Groundwate Elevation		pth to	Wab	Screened		Number

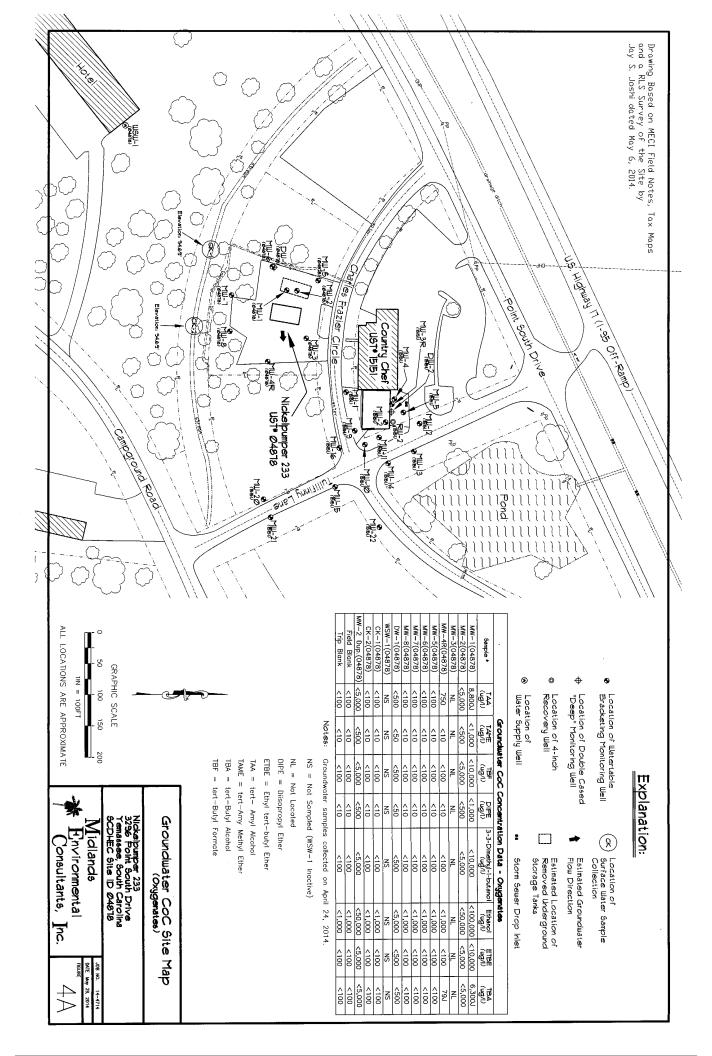
Notes:		Trip Blank(04878)		Field Blank(04878)	MW-2 Dup.(04878)	MW-1 Dup.(04878)	CK-2(04878)	CK-1(04878)	WSW-1(04878)	DW-1(04878)	MW-8(04878)	MW-7(04878)	MW-6(04878)	MW-5(04878)	MW-4R(04878)	MW-3(04878)	MW-2(04878)	(07010)	Number	50 Miles (1997)
1. BDL = Below Practical Quantitative Limits 2. ugl = micrograms per liter 3. MTBE = Methyl-Techary-Burly Ether 4. 1,2 DCA = 1,2-Dickloroethane 5. EDB = 1,2 - Dibromoethane	4/24/14	2/28/12	4/24/14	2/28/12	4/24/14	2/28/12	4/24/14	4/24/14	2/28/12 4/24/14	4/24/14	4/24/14	4/24/14	4/24/14	4/24/14	4/24/14	2/28/12 4/24/14	2/28/12 4/24/14	4/24/14	Date	
ctical Quantitative Li s per liter eritary-Butyl Ether chioroethane moethane	<5.0	<5.0	<5.0	<5.0	1,400	280	4.0	<1.0	N N	<25	<5.0	<5.0	<5.0	<5.0	<5.0	0.39J NL	550 1,400	4,300	(ug/l)	G
mits	<5.0	<5.0	<5.0	<5.0	1,000	330	4.0	<1.0	N N	<25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 NL	3,300 1,000	500	(ug/i)	ROUNDW APR YEI MEC
NL = Not Located T. NT = Not Tested NS = Not Sampled (WSW-1 Inactive) "Values included in Total BTEX Calculations. "B" Values = Detected in Method Blank	<5.0	<5.0	<5.0	<5.0	2,000	83	4.0	<1.0	NS NS	<25	<5.0	<5.0	< 5.0	<5.0	< 5.0	3.2J NL	700 2,000	1,500	Ethylbenzene (ug/l)	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
SW-1 Inactive) Fotal BTEX Calculations in Method Blank	<5.0	<5.0	<5.0	<5.0	5,700	290	<1.0	<1.0	NS NS	<25	<5.0	<5.0	<5.0	<5.0	<5.0 °	2.8J	3,300 5,700	6,200	% ! o	TABLE 3 TER COC CONCENTR CA, 2014 SAMPLING NICKELPUMPER 233 NICKELPUMPER 273 NICKELFUMBER 1 PROJECT NUMBER 1
	BDL	BDL	BDL	BDL	10,100	983	BDL	BDL	N N	BDL	BDL	BDL	BDL	BDL	BDL	NL NL	7,850 10,100	12,500	(ug/l)	RATION DA EVENT 3 OLINA 14-4774 4878
 T values report concentrations above the method detection limits (MDL) and below actual reporting first (RL). 	<5.0	<5.0	<5.0	<5.0	630	22	<1.0	<1.0	NS NS	<25	<5.0	<5.0	< 5.0	<5.0	6	N 19	250 620	530	Naphthalene (ug/f)	TA
oncentrations above IDL) and below act.	<5.0	<5.0	<5.0	<5.0	2100	140	4.0	<1.0	N S	<25	<5.0	<5.0	<5.0	<5.0	9.0	<5.0	190 220J	1,500		
e the method lal reporting limit (F	<5.0	<5.0	<5.0	<5.0	<250	.2	1.0	<1.0	N S	<25	<5.0	<5.0	<5.0	<5.0	<5.0	^5.0	15.	<500		ř.
R J.	N T	Ŋ	<0.020	<0.020	<0.020	<0.020	<0.019	<0.019	NS NS	<0.026	<0.021	<0.024	<0.020	<0.021	<0.020	<0.020 NL	<0.020	<0.020	(M)	

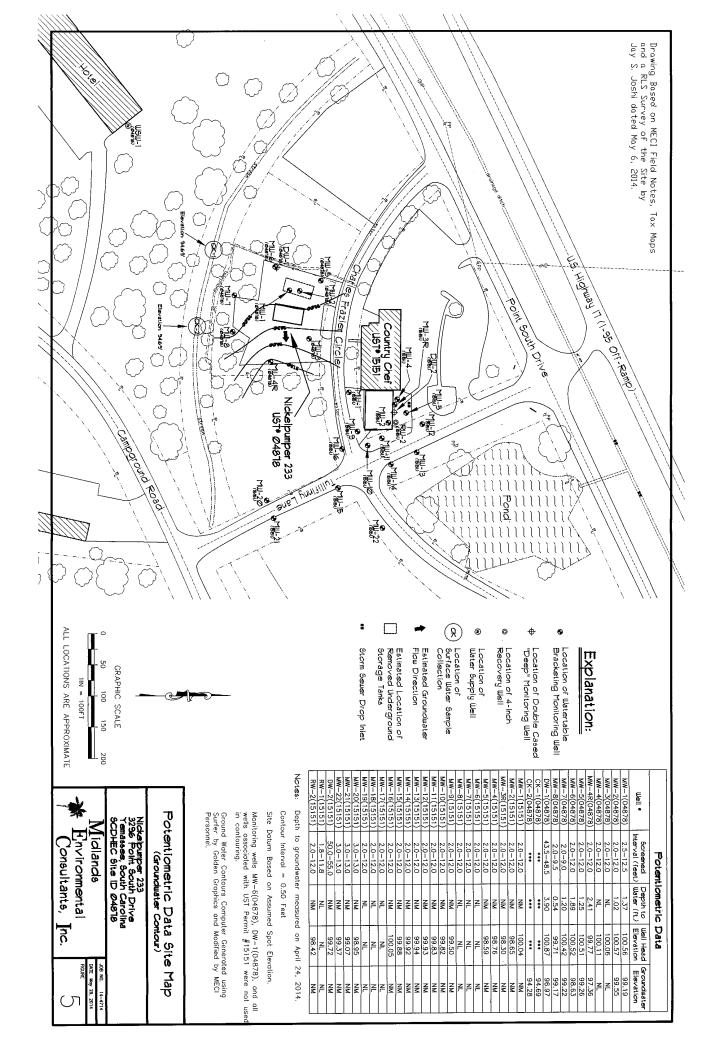
			NS = Not Sampled (WSW-1 inactive) "I" values report concentrations above the method	NS = Not Sampled (WSW-1 inactive) Y values report concentrations abor	/ethyl Ether shol	5. TAME = tert-Amyl Methyl Ether 6. TBA = ter-Butyl Alcohol	ams per liter opyl Ether	1. ug/l = micrograms per liter 2. DIPE = Disopropyl Ether	Notes:
<100 <100	<100	<1,000 <1,000	<100	<u> </u>	<100 <100	40	4100 4100	02/28/12 04/24/14	Trip Blank(04878)
100	^100	<1,000	<100	<u> </u>	<100	^10	^100	04/24/14	Field blank(04676)
, io			*5,000	\$ 60	*5 ,000	\$ 60	45,000	04/24/14	
1,200	<100		<100	3	400		1,200	02/28/12	MW-1 Dup. (04878)
100		<1,000	< 000		<100	<10	<u>^100</u>	04/24/14	CK-2(04878)
<100	<100	<1,000	<100	-10	<100	<10	<100	04/24/14	CK-1(04878)
NS NS	S. S.	N N	S S	<u> </u>	NS NS	8 8	S S	02/28/12 04/24/14	WSW-1(04878)
~500	<500	<5,000	<500	<50	<500	<50	<500	04/24/14	DW-1(04878)
^100	<100	<1,000	<100	<10	<100	40	<100	04/24/14	MW-8(04878)
100	<100	<1,000	<100	40	<100	40	<100	04/24/14	MW-7(04878)
<100	<100	< 1,000	<100	<10	<100	<u> </u>	<100	04/24/14	MW-6(04878)
^100	<100	<1,000	<100	40	<100	40	<100	04/24/14	MW-5(04878)
79.	<100	^1 ,000	<100	<10	<100	<10	750	04/24/14	MW-4R(04878)
¥ 1	№ ^100	~1,000 N L	×100	N 410	NL ~100	¥ 4	NL ^100	02/28/12 04/24/14	MW-3(04878)
<1,000 <5,000	<1,000 <5,000	<10,000 <50,000	<1,000 <5,000	<500	<1,000 <5,000	<100 <500	280.J <5,000	02/28/12 04/24/14	MW-2(04878)
6,300J	<10,000	<100,000	<10,000	<1,000	<10,000	<1,000	8,800J	04/24/14	MVV-1(U40/0)
		(light)	budanos	(Jan)	(Ngu)			Date	
		res)	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	APRIL 24, 2014 SAMPLING EVENT NICKELPUMPER 233 YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 14-4714 SCDHEC SITE ID NUMBER 04878	OC CONCE IL 24, 2014 IIL 24, 2014 NICKELP MASSEE, S I PROJECT)HEC SITE I	DWATER CARPRAIN APRING MEC SCI	GROUN		





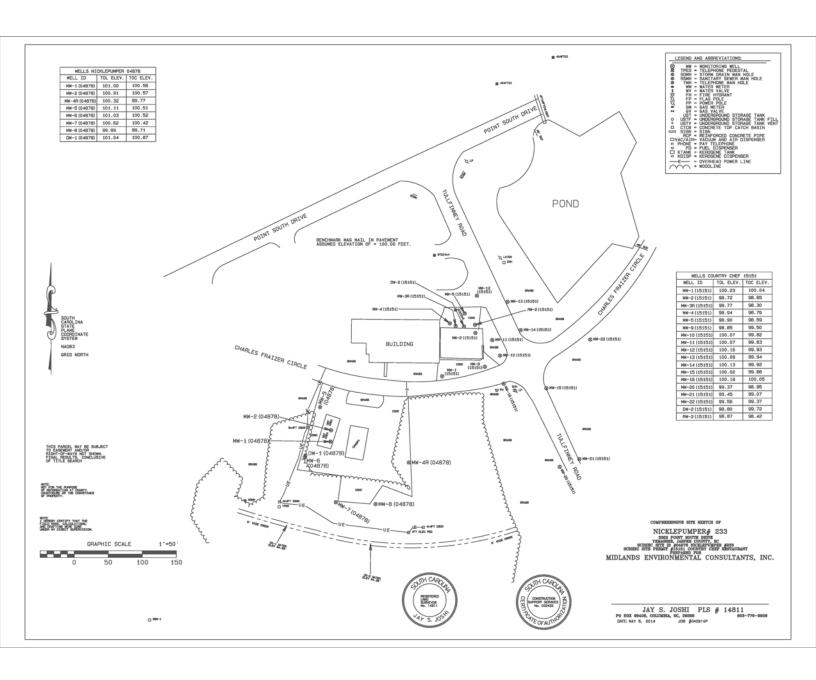






APPENDIX A:

SITE SURVEY



APPENDIX B:

SAMPLING LOGS, LABORATORY DATA SHEETS, & CHAIN-OF-CUSTODY FORMS

Field Data Information Sheet for Groundwater Sampling

Facility Name:

Nicklepumper 233

Date (mm/dd/yy):

Water Temperature (°C)

PID readings, if required

Remarks:

Sample Time:

12:38

Dissolved Oxygen

Turbidity (NTU)

4/24/2014

Field Personnel:	T. Elder, D. N	/IcCartha	····	.	Site ID#:	04878		_	Monitorin	g Well #	MW-1
General Weather C	Conditions:	Overcast		.	Water Su	pply Well		Public		_Private	
Ambient Air Tempe	erature:	21.0 °C		-	Monitorin	g Well Dian	neter (D):		2	inches	
pH/Conductivity M		Assurance DO Meter			Conversion	n Factor (C)): 3.14 x (D	/2) ²		h well C=0. h well C=0.	
YSI 63		YSI 550A			* Free Pro	duct Thickn	iess:				feet
09C 101302	X	04L 2026AK	X	.	Depth to F	ree Product	(DFP)				feet
10K 101895		08B 101895		.	•	round Wat	` /	1.37			_ feet
07M 100905		04A 0912AI		.		Depth (TW	•	12.5			_ feet
Calibration Buffer:	4, 7, & 10				-	the water co				11.13	feet
	Chain of	Custody			_	olume (CV= olume (3 X)= X	0.16	3 1.81 5 9.07	gallons gallons
Relinquished by	Date/Time	Received by	Date/Time	.		me of Wate	_	•	ling g will not be	3 required.	_gals.
Cumulative Volum	e Purged (galle	ons)		Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post S	Sampling
Time (military)			· · · · · · · · · · · · · · · · · · ·	12:35	1	Ziid VOI	J14 V01	711 701	301 401	10813	- amping
pH (s.u.)				Sheen	12:38 Sheen	<u> </u>	·			 	+
,										+	+-
Specific Conductiv	rity (μmhos/cm	1)		Sheen	Sheen		1				

Sheen

Sheen

Sheen

Sheen

Sheen

Sheen

Dry @ 3.0 Gallons

Date (mm/dd/yy):	4/24/2014			Facility Name:	Nicklepumper 233		
Field Personnel:	T. Elder, D. N	/IcCartha		Site ID#: 04878		Monitoring Well#	MW-2
General Weather (Conditions:	Overcast		Water Supply Well	Public	Private	
Ambient Air Temp	erature:	21.0 °C		Monitoring Well Dian	neter (D):	2 inches	
pH/Conductivity M		Assurance DO Meter		Conversion Factor (C)): 3.14 x (D/2) ²	for a 2 inch well C=0 for a 4 inch well C=0	
YSI 63	<u>ietei</u>	YSI 550A		* Free Product Thickn	iess:	ioi a 4 inchi wen C=0	feet
09C 101302	X	04L 2026AK	X	Depth to Free Product			feet
10K 101895		08B 101895		Depth to Ground Wate	er (DGW) 1.02		feet
07M 100905		04A 0912AI		Total Well Depth (TW	/D) 12		feet
Calibration Buffer:	4, 7, & 10			Length of the water co	olumn (LWC=TWD-	DGW) 10.98	feet
				1 casing volume (CV=	=LWC X C)=	X <u>0.163</u> 1.79	gallons
	Chain of	Custody		3 casing volume (3 X	CV)=	5 8.95	gallons
				Total Volume of Wate	er Purged Before San	npling 2	gals.
Relinguished by	Date/Time	Received by	Date/Time	*If free product is preser	nt over 1/8 inch, sampl	ing will not be required.	_~

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampl
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 Co	llected			

Field Data Information Sheet for Groundwater Sampling

Facility Name:

Site ID#: 04878

Water Supply Well

Nicklepumper 233

Public

Monitoring Well #

Private

MW-3

4/24/2014

T. Elder, D. McCartha

Overcast

Date (mm/dd/yy):

General Weather Conditions:

Field Personnel:

Ambient Air Temperature: 21.0 °C		Monitoring	g Well Dian	neter (D):		2	inches	
pH/Conductivity Meter Quality Assurance DO Meter			n Factor (C)	,	•		well C=0.16 well C=0.65	
YSI 63 09C 101302		Depth to F Depth to C Total Well Length of 1 1 casing vo	duct Thicknown Tree Product Ground Water Depth (TW) the water coolume (CV= olume (3 X	(DFP) er (DGW) (D) elumn (LWG) ELWC X C)	12 C=TWD-DO	0.163		gallons
Relinquished by Date/Time Received by Date/T	rime		ime of Wate duct is prese	_	-	ling g will not be re		gals.
					-			
Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sar	mpling
Cumulative Volume Purged (gallons) Time (military)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sa	mpling
	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sa	mpling
Time (military)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sa	mpling
Time (military) pH (s.u.)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sa	mpling
Time (military) pH (s.u.) Specific Conductivity (μmhos/cm)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sa	mpling
Time (military) pH (s.u.) Specific Conductivity (µmhos/cm) Water Temperature (°C)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sa	mpling
Time (military) pH (s.u.) Specific Conductivity (μmhos/cm) Water Temperature (°C) Dissolved Oxygen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sa	mpling

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy):	4/24/2014			Facility Nam
Field Personnel:	T. Elder, D. N	McCartha		Site ID#:
General Weather C	onditions:	Overcast		Water Suppl
Ambient Air Tempe	erature:	21.0 °C		Monitoring W
	Quality A	<u>Assurance</u>		Conversion F
pH/Conductivity M	<u>eter</u>	DO Meter		
YSI 63		YSI 550A		* Free Produc
09C 101302	X	04L 2026AK	X	Depth to Free
10K 101895		08B 101895		Depth to Gro
07M 100905		04A 0912AI		Total Well De
Calibration Buffer:	4, 7, & 10			Length of the
				1 casing volu
	Chain of	f Custody		3 casing volu
				Total Volume
Relinquished by	Date/Time	Received by	Date/Time	*If free produc

Site ID#:	04878		Monitor	ing Well #	MW-4R
Water Sup	ply Well	Public		Private	
Monitoring	Well Diameter (D)):	2	inches	
Conversion	Factor (C): 3.14 x	$(D/2)^2$		ch well C=0.	
* Free Prod	uct Thickness:				feet
Depth to Fr	ee Product (DFP)				eet
Depth to G	ound Water (DGW	V) 2.41			feet
Total Well	Depth (TWD)	- 12			feet
Length of tl	ne water column (L	WC=TWD-I	OGW)	9.59	feet
1 casing vo	lume (CV=LWC X	(C)=	X <u>0.1</u>	63 1.56	gallons
	lume (3 X CV)=			5 7.82	gallons

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sa	mpling
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						Ĺ
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

Date (mm/dd/yy):	4/24/2014					
Field Personnel: T. Elder, D. McCartha						
General Weather Conditions: Overcast						
Ambient Air Tempe	erature:	21.0 °C				
	Quality A	<u>Assurance</u>				
pH/Conductivity M	<u>eter</u>	DO Meter				
YSI 63		YSI 550A				
09C 101302	X	04L 2026AK	X			
10K 101895		08B 101895				
07M 100905		04A 0912AI				
Calibration Buffer:	4, 7, & 10					
	Chain o	f Custody				
Relinquished by	Date/Time	Received by	Date/Time			

Facility Name:	Nicklepumper 233			
Site ID#: 04878		Monitori	ng Well #	MW-5
Water Supply Well	Public		Private	
Monitoring Well Diam	eter (D):	2	inches	
Conversion Factor (C)	: 3.14 x (D/2) ²		ch well C=0.	
* Free Product Thickn	acc.	for a 4 inc	in wen C-0.	feet
Depth to Free Product				feet
Depth to Ground Wate	` ′			feet
Total Well Depth (TW	D) 12			feet
Length of the water co	lumn (LWC=TWD-	DGW)	10.75	feet
l casing volume (CV=	LWC X C)=	X 0.10	53 1.75	gallons
	CV)=		5 8.76	gallons

Cumulative Volume Purged (gallons)	Inital	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							ŀ

Remarks:	Sample Time:	12:19	Dry @ 7.0 Gallons	-	

Date (mm/dd/yy): 4/24/2014	Facility Name: Nicklepumper 233
Field Personnel: T. Elder, D. McCartha	Site ID#: 04878 Monitoring Well # MW-6
General Weather Conditions: Overcast	Water Supply Well Public Private
Ambient Air Temperature: 21.0 °C	Monitoring Well Diameter (D): inches
Quality Assurance pH/Conductivity Meter DO Meter	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
YSI 63 YSI 550A	* Free Product Thickness: feet
09C 101302 X 04L 2026AK X	Depth to Free Product (DFP) feet
10K 101895 08B 101895	Depth to Ground Water (DGW) 1.89 feet
07M 100905 04A 0912AI	Total Well Depth (TWD) 12 feet
Calibration Buffer: 4, 7, & 10	Length of the water column (LWC=TWD-DGW) 10.11 feet
	l casing volume (CV=LWC X C)= X 0.163 1.65 gallons
Chain of Custody	3 casing volume (3 X CV)= 5 8.24 gallons
	Total Volume of Water Purged Before Sampling 2.5 gals.
Relinquished by Date/Time Received by Date/Time	*If free product is present over 1/8 inch, sampling will not be required.
	White the second

Cumulative Volume Purged (gallons)	Inital	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	
			1.1.100	

Date (mm/dd/yy): 4/24/2014	Facility Name: Nicklepumper 233
Field Personnel: T. Elder, D. McCartha	Site ID#: 04878 Monitoring Well # MW-7
General Weather Conditions: Overcast	Water Supply Well Public Private
Ambient Air Temperature: 21.0 °C	Monitoring Well Diameter (D): 2 inches
Quality Assurance pH/Conductivity Meter DO Meter	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
YSI 63 YSI 550A	* Free Product Thickness: feet
09C 101302 X 04L 2026AK X	Depth to Free Product (DFP) feet
10K 101895 08B 101895	Depth to Ground Water (DGW) 1.20 feet
07M 100905 04A 0912AI	Total Well Depth (TWD) 9 feet
Calibration Buffer: 4, 7, & 10	Length of the water column (LWC=TWD-DGW) 7.80 feet
	1 casing volume (CV=LWC X C)= X
Chain of Custody	3 casing volume (3 X CV)= 5 6.36 gallons
Relinquished by Date/Time Received by Date/Time	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)	Inital	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		

Field Personnel: T. Elder, D. McCartha		Site ID#: 04878	Monitoring Well # MW-8
General Weather Conditions: Overcast		Water Supply Well Public	Private
Ambient Air Temperature: 21.0 °C	;	Monitoring Well Diameter (D):	2 inches
Quality Assurance pH/Conductivity Meter DO Meter		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
YSI 63 YSI 550A		* Free Product Thickness:	feet
09C 101302 X 04L 2026AK	X	Depth to Free Product (DFP)	feet
10K 101895 08B 101895		Depth to Ground Water (DGW) 0.5	4 feet
07M 100905 04A 0912AI		Total Well Depth (TWD) 9.5	5 feet
Calibration Buffer: 4, 7, & 10		Length of the water column (LWC=TWI	D-DGW) 8.96 feet
		1 casing volume (CV=LWC X C)=	_X <u>0.163</u> 1.46 gallons
Chain of Custody		3 casing volume (3 X CV)=	5 7.30 gallons
		Total Volume of Water Purged Before S	ampling <u>1</u> gals.
Relinquished by Date/Time Received by	Date/Time	*If free product is present over 1/8 inch, sam	pling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sa	ampling
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	

Date (mm/dd/yy): 4/24/2014	Facility Name: Nicklepumper 233
Field Personnel: T. Elder, D. McCartha	Site ID#: 04878 Monitoring Well # DW-1
General Weather Conditions: Overcast	Water Supply Well PublicPrivate
Ambient Air Temperature: 21.0 °C	Monitoring Well Diameter (D): inches
Quality Assurance pH/Conductivity Meter DO Meter	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
YSI 63 YSI 550A	* Free Product Thickness: feet
09C 101302 X 04L 2026AK X	Depth to Free Product (DFP) feet
10K 101895 08B 101895	Depth to Ground Water (DGW) 3.90 feet
07M 100905 04A 0912AI	Total Well Depth (TWD) 48.5 feet
Calibration Buffer: 4, 7, & 10	Length of the water column (LWC=TWD-DGW) 44.60 feet
	1 casing volume (CV=LWC X C)= X 0.163 7.27 gallons
Chain of Custody	3 casing volume (3 X CV)= 5 36.35 gallons
	Total Volume of Water Purged Before Sampling6gals.
Relinquished by Date/Time Received by Date/Time	*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sa	ampling
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	-

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

Date Completed: 05/01/2014 Lot Number: PD26007

HUMMMY Kelly M. Maberry Project Manager



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

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

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

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

policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below. 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

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.

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.

Sample Summary Midlands Environmental Consultants, Inc. Lot Number: PD26007

Sample Number Sample ID	Sample ID	Matrix	Date Sampled	Date Received
001	MVV-1	Aqueous	04/24/2014 1238	04/25/2014
002	MVV-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
800	DW-1	Aqueous	04/24/2014 1159	04/25/2014
900	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)

Midlands Environmental Consultants, Inc. Lot Number: PD26007 **Executive Summary**

Sample	Sample Sample ID	Matrix	Parameter	Method	Result	۵	Units	Page
001	MW-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	8800	د	ug/L	Сh
001	MW-1	Aqueous	Benzene	8260B	4300		ug/L	ហ
001	MW-1	Aqueous	Ethylbenzene	8260B	1500		ug/L	σı
001	MW-1	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	1500		ug/L	υı
001	MW-1	Aqueous	Naphthalene	8260B	530		ug/L	۲٦.
001	MW-1	Aqueous	tert-butyl alcohol (TBA)	8260B	6300	ے	ug/L	თ
001	MW-1	Aqueous	Toluene	8260B	8700		ug/L	ഗ
001	MW-1	Aqueous	Xylenes (total)	8260B	6200		ug/L	5
002	MW-2	Aqueous	Benzene	8260B	1400	-	ug/L	თ
002	MW-2	Aqueous	Ethylbenzene	8260B	2000		ug/L	6
002	MW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	220	ر	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)	82608	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	ے	ng/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	_	пд/L	15
011	MW-2 Dup	Aqueous	Naphthalene	8260B	630		ug/L	15
011	MW-2 Dup	Aqueous	Toluene	8260B	1000		⊔g/L	15
011	MW-2 Dup	Aqueous	Xylenes (total)	8260B	5700		ug/L	15

(24 detections)

Description: MW-1 Client: Midlands Environmental Consultants, Inc.

Laboratory ID: PD26007-001

Matrix: Aqueous

Date Received: 04/25/2014 Date Sampled:04/24/2014 1238

Volatile Organic Compounds by GC/MS

	A Clari	o Cigarit	Volatile Organic Compounds by Commo	40 07 000	П			
1 5030B	Analytical Method 8260B	100 04/2	100 04/29/2014 1706 DCS	DCS	45777			
		CAS	Analytical					
Parameter		Number	Method	Result Q	Pop	MDL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	L 0088	10000	670	ug/L	_
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND	1000	20	ug/L	<u> </u>
Benzene		71-43-2	8260B	4300	500	20	ug/L	_
tert-Butyl formate (TBF)		762-75-4	8260B	N	10000	100	ug/L	_
1,2-Dichloroethane		107-06-2	8260B	ND	500	30	ug/L	_
Diisopropyl ether (IPE)		108-20-3	8260B	N	1000	4 0	ug/L	_
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND	10000	100	ug/L	_
Ethànol		64-17-5	8260B	S	100000	3300	ug/L	_
Ethylbenzene		100-41-4	8260B	1500	500	170	ug/L	_
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	N	10000	20	ug/L	_
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	1500	500	4 0	ug/L	_
Naphthalene		91-20-3	8260B	530	500	170	ug/L	_
tert-butyl alcohol (TBA)		75-65-0	8260B	6300 J	10000	670	ug/L	_
Toluene		108-88-3	8260B	8700	500	170	ug/L	_
Xylenes (total)		1330-20-7	8260B	6200	500	170	ug/L	_
Surrogate	Q %F	Run 1 Acce % Recovery Li	Acceptance / Limits					
1,2-Dichloroethane-d4		105 70	70-130					
Bromofluorobenzene		100 70	70-130					
Toluene-d8		103 7	70-130					

EDB & DBCP by Microextraction Analytical Method Dilution Analysis Date Analyst Prep Date Batch 8011 1 04/30/2014 1347 MEM 04/29/2014 1408 45751

Run Prep Method 1 8011	Analytical Method Dilution Analysis Date Analyst Prep Date Batch 8011 1 04/30/2014 1347 MEM 04/29/2014 1408 45751	sis Date Analy 2014 1347 MEI	st Prep Date vi 04/29/2014 1408	Batch 45751			
Parameter	CAS Number	Analytical Method	Analytical Method Result Q PQL	PQL	MDL	MDL Units Run	Run
1,2-Dibromoethane (EDB)	106-93-4		ND	0.020	0.020 0.020 ug/L	ug/L	_
Surrogate	Run 1 Acceptance Q % Recovery Limits	tance its					
1,1,1,2-Tetrachloroethane	113 57-137	137					

PQL = Practical quantitation limit

B = Delected in the method blank

E = Quantitation of compound exceeded the calibration range H = Qut of holding time

ND = Not delected 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 or where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria

Description: MW-2 Client: Midlands Environmental Consultants, Inc.

Laboratory ID: PD26007-002 Matrix: Aqueous

	Volatile	e Organ	Volatile Organic Compounds by GC/MS	ounds	by GC	MS			:
Run Prep Method 1 5030B	Analytical Method 8260B	Dilution A	Dilution Analysis Date Analyst Prep Date 50 04/29/2014 1728 DCS	Analyst 8 DCS	Prep Da	ite Batch 45777	7 3		
Parameter		CAS	. %		Result Q	ک مور	M.D.	Units	Run
tert-Amyl alcohol (TAA)		75-85-4		8260B	N N	5000	340	ug/L	٠.
tert-Amyl methyl ether (TAME)		994-05-8		8260B	N	500	10	ug/L	_
Benzene		71-43-2		8260B	1400	250	10	ug/L	_
tert-Butyl formate (TBF)		762-75-4		8260B	B	5000	50	ng/L	_
1,2-Dichloroethane		107-06-2		8260B	B	250	15	ug/L	_
Diisopropyl ether (IPE)		108-20-3		8260B	B	500	20	ug/L	_
3,3-Dimethyl-1-butanol		624-95-3		8260B	N	5000	50	ug/L	_
Ethanol		64-17-5		8260B	Š	50000	1700	ug/L	_
Ethylbenzene		100-41-4		8260B	2000	250	85	ug/L	_
Ethyl-tert-butyl ether (ETBE)		637-92-3		8260B	ND	5000	1 0	J∕bn	_
Methyl tertiary butyl ether (MTBE)		1634-04-4		8260B	220 .	J 250	20	ug/L	_
Naphthalene		91-20-3	_	8260B	620	250	85	ug/L	_
tert-butyl alcohol (TBA)		75-65-0		8260B	R	5000	340	ug/L	_
Toluene		108-88-3		8260B	1000	250	85	ug/L	_
Xylenes (total)		1330-20-7	•	8260B	5700	250	85	ug/L	_
Surrogate	Q %R	Run 1 Acceptance % Recovery Limits	ceptance Limits						
1,2-Dichloroethane-d4		24	70-130						
Bromofluorobenzene		99	70-130						
		103	70-120						

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Run Prep Method	Analytical Method Dilution Analysis Date Analyst Prep Date Batch	sis Date Analys	t Prep Date 04/29/2014 1408	Batch 8 45751			
Parameter	CAS	Analytical Method	Result Q PQL	PQL	MDL	MDL Units Run	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND	0.019	0.019	9 ug/L	1
Surrogate	Run 1 Acceptance Q % Recovery Limits	ance ts					
1,1,1,2-Tetrachloroethane	136 57-137	37					

PCL = Practical quantitation first

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of hoding time

ND = Not detected at or above the MDL

J = Estimated result < POL 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"

Description: MW-4R Client: Midlands Environmental Consultants, Inc.

Laboratory ID: PD26007-003 Matrix: Aqueous

Date Sampled:04/24/2014 1122
Date Received: 04/25/2014

Volatile O 7

Run Prep Method A 1 5030B	nalytical Method 8260B	Analytical Method Dilution Analysis Date Analyst Prep Date 8260B 1 04/29/2014 1812 DCS	Analysis Date Analyst 04/29/2014 1812 DCS	Prep Date	Batch 45777			
Parameter	;	CAS	Analytical	Result Q	Por	M Dr.	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	750	100	6.7	ug/L	_
tert-Amyl methyl ether (TAME)		994-05-8	8260B	N D	10	0.20	ug/L	_
Benzene		71-43-2	8260B	N	5.0	0.20	ug/L	_
tert-Butyl formate (TBF)		762-75-4	8260B	N	100	1.0	ug/L	_
1,2-Dichloroethane		107-06-2	8260B	N	5.0	0.30	ug/L	_
Diisopropyl ether (IPE)		108-20-3	8260B	N	10	0.40	ug/L	_
3,3-Dimethyl-1-butanol		624-95-3	8260B	N D	100	1.0	ng/L	_
Ethanol		64-17-5	8260B	N N	1000	33	ug/L	_
Ethylbenzene		100-41-4	8260B	N	5.0	1.7	ug/L	_
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	N	100	0.20	ug/L	
Methyl tertlary butyl ether (MTBE)		1634-04-4	8260B	9.0	5.0	0.40	ug/L	_
Naphthalene		91-20-3	8260B	10	5.0	1.7	ug/L	<u>.</u>
tert-butyl alcohol (TBA)		75-65-0	8260B	79 J	100	6.7	ug/L	_
Toluene		108-88-3	8260B	Ŋ	5.0	1.7	ug/L	
Xylenes (total)		1330-20-7	8260B	ND	5.0	1.7	ug/L	_
Surrogate	Q %	Run 1 Acceptance % Recovery Limits	ince s					
1,2-Dichloroethane-d4		105 70-130	30					
Bromoffuorobenzene		101 70-130	30					
Toluene-d8		100 70-130	30					

EDB & DBCP by Microextraction Analytical Method Dilution Analysis Date Analyst Prep Date

Run Prep Method 1 8011	Analytical Method Dilution Analysis Date Analyst Prep Date 8011 1 04/30/2014 1408 MEM 04/29/2014 1:	Dilution Analysis Date Analyst Prep Date 1 04/30/2014 1408 MEM 04/29/2014 1408	st Prep Date d 04/29/2014 1408	Batch 1408 45751			
Parameter	CAS Number		Analytical Method Result Q PQL	PQL	MDL	MDL Units Run	Run
1,2-Dibromoethane (EDB)	106-93-4		ND		0.020	0.020 ug/L 1	1
Surrogate	Run 1 Acceptanc Q % Recovery Limits	eptance .imits					
1,1,1,2-Tetrachloroethane	117 57-137	57-137					

POL = Practical quantitation timit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Qu1 of holding time

N0 = 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 "V"

Description: MW-5 Client: Midlands Environmental Consultants, Inc.

Laboratory ID: PD26007-004
Matrix: Aqueous

Date Sampled: 04/24/2014 1219

Date Received: 04/25/2014

ts Run	Units	MDL	PQL	Result Q	Analytical Method	CAS Ana Number M		Parameter
			Batch 8 45751	Analyst Prep Date MEM 04/29/2014 1408	~ ``	Analytical Method Dilution Analysis Date 8011 1 04/30/2014 1418	Analytical Method 8011	Run Prep Method 1 8011
]				raction	licroext	EDB & DBCP by Microextraction		
						97 70-130		Toluene-d8
						92 70-130 97 70-130		1,2-Dichloroethane-d4 Bromofluorobenzene
						Run 1 Acceptance % Recovery Limits	۵ %	Surrogate
1	ug/L	1.7	5.0	ND	8260B	1330-20-7		Xylenes (total)
A 1	ng/L	1.7	5.0	ND	8260B	108-88-3		Toluene
/L 1	ug/L	6.7	100	N	8260B	75-65-0		tert-butyl alcohol (TBA)
<u>1</u>	ug/L	1.7	5.0	N	8260B	91-20-3		Naphthalene
A 1	ug/L	0.40	5.0	N	8260B	1634-04-4		Methyl tertiary butyl ether (MTBE)
Æ 1	ug/L	0.20	100	N	8260B	637-92-3		Ethyl-tert-butyl ether (ETBE)
/L 1	ug/L	1.7	5.0	B	8260B	100-41-4		Ethylbenzene
/L 1	ug/L	33	1000	B	8260B	64-17-5		Ethanol
/L 1	-Gu	1.0	100	B	8260B	624-95-3		3,3-Dimethyl-1-butanol
/L 1	ug/L	0.40	70	N	8260B	108-20-3		Diisopropyl ether (IPE)
/L 1	ug/L	0.30	5.0	N	8260B	107-06-2		1,2-Dichloroethane
/L 1	ug/L	1.0	100	N	8260B	762-75-4		tert-Butyl formate (TBF)
/L 1	ug/L	0.20	5.0	N	8260B	71-43-2		Benzene
1	ug/L	0.20	10	S	8260B	994-05-8		tert-Amyl methyl ether (TAME)
/L 1	ug/L	6.7	1 00	Š	8260B	75-85-4		tert-Amyl alcohol (TAA)
ts Run	Units	MDL	PQ	Result Q	Analytical Method	CAS Ana Number M		Parameter
÷			Batch 45779	Prep Date	te Analyst 328 DCS	Analytical Method Dilution Analysis Date 8260B 1 04/29/2014 1828	Analytical Method 8260B	Run Prep Method 1 5030B

POL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Qut of holding time

ND = Not detected at or above the MDL

J = Estimated result < POL and > MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

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

1,1,1,2-Tetrachloroethane

Run 1 Acceptance % Recovery Limits 104 57-137

Description: WW-6 Client: Midlands Environmental Consultants, Inc.

Laboratory ID: PD26007-005 Matrix: Aqueous

Date Sampled:04/24/2014 1152
Date Received: 04/25/2014

Volatile Organic Compounds by GC/MS

1 5030B	Analytical Method Dilution Analysis Date 8260B 1 04/29/2014 185	Analysis Date Analyst 04/29/2014 1851 DCS	/st Prep Date S	Batch 45779			
Parameter	CAS	Analytical Method	Result Q	PQL	MDL	Units	Rus
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND	100	6.7	ug/L	_
tert-Amyl methyl ether (TAME)	994-05-8	8260B	Ň	1 0	0.20	ug/L	_
Benzene	71-43-2	82608	R	5.0	0.20	ug/L	_
tert-Butyl formate (TBF)	762-75-4	8260B	N	100	1.0	ug/L	_
1,2-Dichloroethane	107-06-2	8260B	N	5.0	0.30	ug/L	_
Diisopropyl ether (IPE)	108-20-3	8260B	N	10	0.40	ug/L	_
3,3-Dimethyl-1-butanol	624-95-3	8260B	N	100	1.0	ug/L	
Ethanol	64-17-5	8260B	N	1000	33	ug/∟	_
Ethylbenzene	100-41-4	8260B	ND	5.0	1.7	ug/∟	-
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	N	100	0.20	ug/L	_
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	N	5.0	0.40	ug/L	_
Naphthalene	91-20-3	8260B	ND	5.0	1.7	ug/L	_
tert-butyl alcohol (TBA)	75-65-0	8260B	ND	100	6.7	ug/L	_
Toluene	108-88-3	8260B	N	5.0	1.7	ug/L	_
A ficines (total)	Run 1 Acceptance	ance	ā	ć		ģ	-
Surrogate	1.3	is .					
1,2-Dichloroethane-d4	91 70-130	130					
Bromofluorobenzene	98 70-130	130					
Toluene-d8	98 70-130	130					
	EDB & DBCP by Microextraction	by Microe	ktraction				
Run Prep Method 1 8011	Analytical Method Dilution Analysis Date 8011 1 04/30/2014 1428	٠.	Analyst Prep Date MEM 04/29/2014 1408	Batch 08 45751			
Parameter	CAS Number	Analytical Method	Result Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	N D	0.020	0.020	ug/L	
Surrogate	Run 1 Acceptance Q % Recovery Limits	lance its					
1.1,1.2-Tetrachloroethane	107 57-137	137					

P = The RPC	$J = Estimated result < PQL and \geq MDL P = The RP$	ND = Not detected at or above the MDI.
E = Quantitation of compound exceeded the calibration range H = Out of holding time	B = Detected in the method blank	PQL = Practical quantitation limit
꿈 좋	E = Qua P = The	= Detected in the method blank = Estimated result < PQL and > MDL

Description; MW-7 Client: Midlands Environmental Consultants, Inc.

Laboratory ID: PD26007-006

Matrix: Aqueous

Date Received: 04/25/2014 Date Sampled:04/24/2014 1137

Volatile Organic Compounds by GC/MS

	ACIMEN	Volatile Organic Compounds by Conno	Ollipoulius	o by Collett				
Run Prep Method 1 5030B	Analytical Method Dilution Analysis Date 8260B 1 04/30/2014 0050	Dilution Analysis Date 1 04/30/2014 0050		Analyst Prep Date	Batch 45838			
		CAS	Analytical					
Parameter		Number	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	N	10	0.20	ug/L	_
Benzene		71-43-2	8260B	N	5.0	0.20	ug/L	
tert-Butyl formate (TBF)		762-75-4	8260B	N O	100	1.0	ug/L	_
1,2-Dichloroethane		107-06-2	8260B	N	5.0	0.30	ug/L	_
Diisopropyl ether (IPE)		108-20-3	8260B	N	10	0.40	ug/L	_
3,3-Dimethyl-1-butanol		624-95-3	8260B	N	100	1.0	ug/L	_
Ethanol		64-17-5	8260B	B	1000	33	ug/L	_
Ethylbenzene		100-41-4	8260B	Ö	5.0	1.7	ug/L	_
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	N	100	0.20	ug/L	_
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	N	5.0	0.40	ug/L	_
Naphthalene		91-20-3	8260B	N	5.0	1.7	ug/L	_
tert-butyl alcohol (TBA)		75-65-0	8260B	Ŋ	100	6.7	ug/L	_
Toluene		108-88-3	8260B	N	5.0	1.7	J∕gu	-
Xylenes (total)		1330-20-7	8260B	N	5.0	1.7	ug/L	-
Surrogate	Q %F	Run 1 Acceptance % Recovery Limits	100					
1,2-Dichloroethane-d4		104 70-130	0					
Bromofluorobenzene		100 70-130	0					
Toluene-d8		101 70-130	,					

1,1,1,2-Tetrachloroethane

Surrogate

ø

Run 1 Acceptance % Recovery Limits 83

57-137

106-93-4 Number CAS

Analytical Method 8011

Result Q N

0.024 P

0.024 M D

Units ug/L

R

1,2-Dibromoethane (EDB)

Parameter

Run Prep Method 1 8011

EDB & DBCP by Microextraction

Analytical Method Dilution Analysis Date Analyst Prop Date Batch
8011 1 04/30/2014 1439 MEM 04/29/2014 1408 45751

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not delected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Client: Midlands Environmental Consultants, Inc.

Date Sampled:04/24/2014 1126
Date Received:04/25/2014 Description: N/W-8

> Laboratory ID: PD26007-007 Matrix: Aqueous

Units Rur	0.021						
Units Run		0.021	N	8011	106-93-4		1,2-Dibromoethane (EDB)
	MDL	PQL	Result Q	Analytical Method	CAS Number		Parameter
		Batch 408 45751	Analyst Prep Date MEM 04/29/2014 1408		Dilution Analysis Date 1 04/30/2014 1450	Analytical Method Dilution Analysis Date 8011 1 04/30/2014 1450	Run Prep Method 1 8011
			raction	Microex	EDB & DBCP by Microextraction	EDI	;
					99 70-130		Toluene-d8
					99 70-130		Bromofluorobenzene
				8	% Recovery Limits	Q % R	Surrogate
ug/L 1	1.7	5.0	S	8260B	1330-20-7		Xylenes (total)
ug/L 1	1.7	5.0	ND	8260B	108-88-3		Toluene
ug/L 1	6.7	100	ND	8260B	75-65-0		tert-butyl alcohol (TBA)
ug/L 1	1.7	5.0	ND	8260B	91-20-3		Naphthalene
ug/L 1	0.40	5.0	N	8260B	1634-04-4		Methyl tertiary butyl ether (MTBE)
ug/L 1	0.20	100	N	8260B	637-92-3		Ethyl-tert-butyl ether (ETBE)
ug/L 1	1.7	5.0	N	8260B	100-41-4		Ethylbenzene
ug/L 1	33	1000	ND	8260B	64-17-5		Ethanol
ug/L 1	1.0	100	ND	8260B	624-95-3		3,3-Dimethyl-1-butanol
ug/L 1	0.40	10	N	8260B	108-20-3		Diisopropyl ether (IPE)
ug/L 1	0.30	5.0	ND	8260B	107-06-2		1,2-Dichloroethane
ug/L 1	1.0	100	ND	8260B	762-75-4		tert-Butyl formate (TBF)
ug/L 1	0.20	5.0	ND	8260B	71-43-2		Benzene
ug/L 1	0.20	10	N	8260B	994-05-8		tert-Amyl methyl ether (TAME)
ug/L 1	6.7	100	N	8260B	75-85-4		tert-Amyl alcohol (TAA)
Units Run	MDL	PQL	Result Q	Analytical Method	CAS Number		Parameter
		Batch 45838	t Prep Date	Date Analys 4 0112 JJG	Dilution Analysis Date 1 04/30/2014 0112	Analytical Method Dilution Analysis Date Analyst Prep Date 8260B 1 04/30/2014 0112 JJG	Run Prep Method 1 5030B
		V.	by GC/M	mpounds	Volatile Organic Compounds by GC/MS	Volatile	

PQL = Practical quantitation fimit

B = Detected in the method blank

E = Quantilation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estinated result. PQL and \(\) MDL

P = The RPD between two GC columns exceeds 40%

Valence applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "V" H = Out of holding time N = Recovery is out of criteria

1,1,1,2-Tetrachloroethane

87

57-137

Date Sampled: 04/24/2014 1159

Date Received: 04/25/2014 Description: DW-1 Client Midlands Environmental Consultants, Inc. Laboratory ID: PD26007-008 Matrix: Aqueous

fun Prop Method Analytical Method Dilution Analysis Date Analyst Prop Date Batch						*	CAS Analytical	,		
Prop Method					Prep Date 04/29/2014 1408		\naiysis Date 4/30/2014 150	Dilution 1 1 0	Analytical Method 8011	Run Prep Method 1 8011
Prop Method Analytical Method Dilution Analysis Date Date D				:	action	croextr	CP by Mi	B & DB		
Prep Method Analytical Method Dilution Analysis Date Analysis Date Analysis Date Analysis Date Analysis Date Analysis Date Analysis Date Analysis Date Analysical School School School School Analysical Analysical School Analysical Ana							70-130	103		Toluene-d8
Prep Method Analytical Method Dilution Analysis Date Analysis Prep Date Batch							70-130	101		Bromofluorobenzene
Prep Method Analytical Method Dilution Analysis Date A							70-130	103		1,2-Dichloroethane-d4
Prep Method Analytical Method Dilution Analysis Date Date Analysis Date							cceptance Limits	Run 1 A		Surrogate
Prep Method Analytical Method Dilution Analysis Date A	_	ug∕L	8.5	25	N	1260B		1330-20		xylenes (total)
Prep Method Analytical Method Dilution Analysis Date Analysis Da	_	ug/L	8.5	25	N	260B	_	108-88		Toluene
Prop Method Analytical Method Dilution Analysis Date Analysis Prop Date Batch 5030B 8260B 5 04/30/2014 01/33 J.G 45838 45838 meter CAS Analytical Very Method Result Q PQL MDL Units myl alcohol (TAA) 75-85-4 8260B ND 500 34 ug/L myl methyl ether (TAME) 994-05-8 8260B ND 500 1.0 ug/L myl formate (TBF) 77-43-2 8260B ND 500 5.0 ug/L ubyl formate (TBF) 762-75-4 8260B ND 50 5.0 ug/L ubyl formate (TBF) 107-06-2 8260B ND 50 5.0 ug/L propyl ether (IPE) 108-20-3 8260B ND 50 5.0 ug/L propyl ether (IPE) 624-95-3 8260B ND 500 5.0 ug/L propyl ether (ETBE) 624-95-3	_	ug/L	34	500	N	260B	_	75-6		tert-butyl alcohol (TBA)
Prop Method Analytical Method Dilution Analysis Date Analysis Prop Date Batch 5030B 8260B 5 04/30/2014 01/33 JLG 45838 45838 meter CAS Analytical Very Method Result Q PQL MDL Units myl alcohol (TAA) 75-85-4 8260B ND 500 34 ug/L myl methyl ether (TAME) 994-05-8 8260B ND 50 1.0 ug/L ne 71-43-2 8260B ND 50 5.0 1.0 ug/L ubyl formate (TBF) 762-75-4 8260B ND 50 5.0 ug/L ubyl intribulation (HPE) 107-06-2 8260B ND 50 2.0 ug/L propyl ether (IPE) 624-95-3 8260B ND 500 5.0 ug/L panzene 624-95-3 8260B ND 500 1.0 ug/L penzene 637	_	ug/L	8.5	25	N	260B	~	91-20		Naphthalene
Prop Method Analytical Method Dilution Analysis Date Analysis Prop Date Batch 5030B 8260B 5 04/30/2014 01/33 J.I.S 45838 45838 moter CAS Analytical V 45838 45838 V 45838 moter Number Method Result Q PQL MDL Units myl alcohol (TAA) 75-85-4 8260B ND 500 34 ug/L myl methyl ether (TAME) 994-05-8 8260B ND 50 1.0 ug/L ane 71-43-2 8260B ND 50 5.0 ug/L wyl formate (TBF) 762-75-4 8260B ND 50 5.0 ug/L chlorocethane 107-06-2 8260B ND 50 2.0 ug/L propyl ether (IPE) 108-20-3 8260B ND 500 5.0 ug/L pent-butyl ether (ETBE) 624-95-3 8260B N	_	ug/L	2.0	25	N	260B	-	1634-0-		Methyl tertiary butyl ether (MTBE)
Prop Method Analytical Method Dilution Analysis Date Analysis Prop Date Batch 5030B 8260B 5 04/30/2014 01/33 J.I.G 45838 45838 meter Logon Analytical Very Polt MDL Units meter Number Method Result Q POL MDL Units myl alcohol (TAA) 75-85-4 8260B ND 500 34 ug/L myl methyl ether (TAME) 994-05-8 8260B ND 25 1.0 ug/L sne 71-43-2 8260B ND 500 5.0 ug/L uyl formate (TBF) 762-75-4 8260B ND 50 5.0 ug/L chlorocethane 108-20-3 8260B ND 50 2.0 ug/L propyl ether (IPE) 108-20-3 8260B ND 50 5.0 ug/L propyl ether (IPE) 624-95-3 8260B	_	ug/L	1.0	500	B	260B	_	637-92		Ethyl-tert-butyl ether (ETBE)
Prop Method Analytical Method Dilution Analysis Date Analysis Prop Date Batch 5030B 8260B 5 04/30/2014 01/33 J.I.G Veg Date MDL Units meter CAS Analytical Veg Date MDL Units myl alcohol (TAA) 75-85-4 8260B ND 500 34 ug/L myl methyl ether (TAME) 994-05-8 8260B ND 25 1.0 ug/L uyl formate (TBF) 77-43-2 8260B ND 500 5.0 ug/L uyl formate (TBF) 762-75-4 8260B ND 50 5.0 ug/L propyl ether (IPE) 108-20-3 8260B ND 50 2.0 ug/L propyl ether (IPE) 108-20-3 8260B ND 50 5.0 ug/L propyl ether (IPE) 624-95-3 8260B ND 500 5.0 ug/L propyl ether (IPE) 624-95-3 8260B <td>_</td> <td>ug/L</td> <td>8.5</td> <td>25</td> <td>R</td> <td>260B</td> <td></td> <td>100-41</td> <td></td> <td>Ethylbenzene</td>	_	ug/L	8.5	25	R	260B		100-41		Ethylbenzene
Prep Method Analytical Method Dilution Analysis Date Analysis Prep Date Batch 5030B 8260B 5 0/30/2014 0133 J.I.G 45838 45838 meter CAS Analytical CAS Analytical myl alcohol (TAA) 75-85-4 8260B ND 500 34 ug/L myl methyl ether (TAME) 994-05-8 8260B ND 50 1.0 ug/L ne 71-43-2 8260B ND 50 5.0 ug/L uyl formate (TBF) 762-75-4 8260B ND 50 5.0 ug/L uyl formate (TBF) 107-06-2 8260B ND 50 5.0 ug/L voplyl ether (IPE) 108-20-3 8260B ND 50 5.0 ug/L 0 0g/L 624-95-3 8260B ND 500 5.0 ug/L	_	ug/L	170	5000	N	260B	-	64-17		Ethanol
Prep Method Analytical Method Dilution Analysis Date Analysis Da	_	ug/L	5.0	500	N D	260B	-	624-9		3,3-Dimethyl-1-butanol
Prop Method Analytical Method Dilution Analysis Date Analysis Prop Date Batch 5030B 8260B 5 04/30/2014 0133 JJC 45838 CAS Analytical Method Result Q PQL MDL Units moter Number Method ND 500 34 ug/L myl alcohol (TAA) 75-85-4 8260B ND 50 1.0 ug/L myl methyl ether (TAME) 994-05-8 8260B ND 50 1.0 ug/L sne 71-43-2 8260B ND 50 5.0 ug/L ub/l formate (TBF) 762-75-4 8260B ND 500 5.0 ug/L ub/l chlorocethane 107-06-2 8260B ND 25 1.5 ug/L	_	ug/L	2.0	50	N	260B	_	108-20		Diisopropyl ether (IPE)
Prop Method Analytical Method Dilution Analysis Date Analysis Prop Date Batch 5030B 8260B 5 04/30/2014 0133 JJC 45838 Tester CAS Analytical Method Result Q PQL MDL Units myl alcohol (TAA) 75-85-4 8260B ND 50 34 ug/L myl methyl ether (TAME) 994-05-8 8260B ND 50 1.0 ug/L ene 71-43-2 8260B ND 50 5.0 ug/L ubyl formate (TBF) 762-75-4 8260B ND 500 5.0 ug/L	_	ug/L	1.5	25	N	260B		107-06		1,2-Dichloroethane
Prep Method Analytical Method Dilution Analysis Date Analysis Prep Date Batch 5030B 8260B 5 04/30/2014 0133 JJG 45838 meter CAS Analytical Method Result Q PQL MDL Units myl alcohol (TAA) 75-85-4 8260B ND 50 34 ug/L myl methyl ether (TAME) 994-05-8 8260B ND 50 1.0 ug/L sne 71-43-2 8260B ND 25 1.0 ug/L	_	ug/L	5.0	500	Ŋ	260B		762-75		tert-Butyl formate (TBF)
Prop Method Analytical Method Dilution Analysis Date Analysis Prop Date Batch 5030B 8260B 5 04/30/2014 0133 JJG 45838 meter CAS Analytical Valuable Valuable Q PQL MDL Units myl alcohol (TAA) 75-85-4 8260B ND 500 34 ug/L myl methyl ether (TAME) 994-05-8 8260B ND 50 1.0 ug/L	_	ug/L	1.0	25	N _O	260B	,,,	71-4:		Benzene
Analytical Method Dilution Analysis Date Analyst Prep Date Batch 8280B 5 04/30/2014 0133 JJG 45838 CAS Analytical CAS Analytical Result Q PQL MDL Units Number Method Result Q PQL MDL Units 75-85-4 8260B ND 500 34 ug/L	_	ug/L	1.0	50	B	260B	-	994-0		tert-Amyl methyl ether (TAME)
Prep Method Analytical Method Dilution Analysis Date Analyst Prep Date Batch 5030B 8250B 5 04/30/2014 0133 JJG 45838 CAS Analytical Result Q PQL MDL Units	_	ug/L	¥	500	N	260B		75-8		tert-Amyl alcohol (TAA)
Prep Method Analytical Method Dilution Analysis Date Analysis Prep Date 5030B 8260B 5 04/30/2014 0133 JJG	R	Units	MDL	PQL	1 1	-		Numb		Parameter
				Batch 4 5838	Prep Date		Analysis Date 4/30/2014 013	Dilution 1 5 0	Analytical Method 8260B	Prep N

ND = Not detected at or above the MDL	PQL = Practical quantitation limit
J = Estimated result < PQL and ≥ MDL	B = Detected in the method blank
P = The RPD between two GC columns exceeds 40%	on of compound exceeded the calibration rai
N = Recovery is out of criteria	nge H = Out of holding time

Surrogate
1,1,1,2-Tetrachloroethane

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Run 1 Acceptance % Recovery Limits 88

57-137

106-93-4

8011

Ŗ

0.026

0.026

ug/Ľ

1,2-Dibromoethane (EDB)

Date Sampled:04/24/2014 1250
Date Received: 04/25/2014 Description: CK-1 Client: Midlands Environmental Consultants, Inc. Laboratory ID: PD26007-009

Matrix: Aqueous

	Volatil	Volatile Organic Compounds by GC/MS	compou	nds by c	C/MC				
Run Prep Method 1 5030B	Analytical Method Dilution Analysis Date 8260B 1 04/30/2014 0008	Dilution Analys		Analyst Prep Date	Date	Batch 45838			
		CAS	Analytical						
Parameter		Number	Method	Result	۵	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND	,	100	6.7	ug/L	_
tert-Amyl methyl ether (TAME)		994-05-8	8260B		-	6	0.20	ug/L	_
Benzene		71-43-2	8260B	N	-	1.0	0.13	ug/L	_
tert-Butyl formate (TBF)		762-75-4	8260B			100	1.0	ug/L	
1,2-Dichloroethane		107-06-2	8260B		-	1.0	0.15	ųg/L	
Diisopropyl ether (IPE)		108-20-3	8260B			6	0.40	ug/L	_
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND	_	100	1.0	ug/L	_
Ethanol		64-17-5	. 8260B		_	1000	33	ug/L	_
Ethylbenzene		100-41-4	8260B		_	1.0	0.33	ug/L	_
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B		•	100	0.20	ųg/L	_
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	8		1.0	0.40	ug/L	_
Naphthalene		91-20-3	8260B	ND		1.0	0.40	g/L	_
tert-butyl alcohol (TBA)		75-65-0	8260B	N D	•	100	6.7	ug/L	_
Toluene		108-88-3	8260B	ND		1.0	0.33	ug/L	_
Xylenes (total)		1330-20-7	8260B	N		1.0	0.33	ug/L	_
Surrogate	Q %F	Run 1 Acceptance % Recovery Limits	ance						
1,2-Dichloroethane-d4		104 70-130	30		i				
Bromofluorobenzene		100 70-130	30						
Toluene-d8		102 70-130	30						
	EDI	EDB & DBCP by Microextraction	by Micro	extracti	on				
Run Prep Method 1 8011	Analytical Method Dilution Analysis Date Analyst Prep Date 8011 1 04/30/2014 1511 MEM 04/29/2014	Dilution Analys	Analysis Date An 04/30/2014 1511 N	Analyst Prep Date MEM 04/29/2014 1408	Date 2014 1408	Batch 45751			
Parameter		CAS Number	Analytical Method	Result	۵	PQL	M DL	Units	Run
1,2-Dibromoethane (EDB)		106-93-4	8011	N		0.019	0.019	ug/L	_
Surrogate	۵ * ا	Run 1 Acceptance % Recovery Limits	ance ts						
						1			

POL = Practical quantitation limit

B = Detected in the method blank

ND = Not detected at or above the MDL

J = Estimated result < POL 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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1,1,1,2-Tetrachloroethane

103

57-137

Description: CK-2
Date Sampled:04/24/2014 1253
Date Received: 04/25/2014 Client: Midlands Environmental Consultants, Inc. Laboratory ID: PD26007-010

Matrix: Aqueous

Dren Method	Analytical Mathod Dilution Analysis Data Analysis Dran Data	dian Analysi	, Data Analys	· Dans Date	- 1			
1 5030B	Analytical Method Dilution Analysis Date Analyst Prep Date 8260B 1 04/30/2014 0027 JJG	ution Analysis Date 1 04/30/2014 0027	s Date Analys 14 0027 JJG	t Prep Date	Batch 45838			
		CAS	Analytical		2			,
Parameter		Number	Method	Result Q	PQL	MDL	Units	몽
tert-Amyl alcohol (TAA)		75-85-4	8260B	N	100	6.7	ug/L	_
tert-Amyl methyl ether (TAME)		994-05-8	8260B	N	10	0.20	ug/L	_
Benzene		71-43-2	8260B	N	1.0	0.13	ug/L	_
tert-Butyl formate (ТВF)		762-75-4	8260B	N	100	1.0	ug∕L	_
1,2-Dichloroethane		107-06-2	8260B	Ŋ	1.0	0.15	ug/L	_
Diisopropyl ether (IPE)		108-20-3	8260B	N	10	0.40	ng/L	_
3,3-Dimethyl-1-butanol		624-95-3	8260B	R	100	1.0	ng/L	
Ethanol		64-17-5	8260B	N	1000	33	ug/L	_
Ethylbenzene		100-41-4	8260B	N	1.0	0.33	ug/L	_
Ethyl-terf-butyl ether (ETBE)		637-92-3	8260B	B	100	0.20	ug/L	_
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	N N	1.0	0.40	ug/L	_
Naphthalene		91-20-3	8260B	N	1.0	0.40	ug/L	_
tert-butyl alcohol (TBA)		75-65-0	8260B	N N	100	6.7	ug/L	_
Toluene		108-88-3	8260B	B	1.0	0.33	ug/L	_
Xylenes (total)		1330-20-7	8260B	N	1.0	0.33	ug/L	_
Surrogate	Q % Run	Run 1 Acceptance % Recovery Limits	, nce					
1,2-Dichloroethane-d4	105	15 70-130	0					
Bromofluorobenzene	101	11 70-130	0					
Toluene-d8	104	70 400	0					

EDB & DBCP by Microextraction Analytical Method Dilution Analysis Date Analysis Prep Date Batch 8011 1 04/30/2014 1522 MEM 04/29/2014 1408 45751

Run Prep Method 1 8011	Analytical Method Dilution Analysis Date Analyst Prep Date Batch 8011 1 04/30/2014 1522 MEM 04/29/2014 1408 45751	ysis Date Ana /2014 1522 MB		Batch 408 45751			
Parameter	CAS Number	CAS Analytical Method	Analytical Method Result Q PQL	PQL	MDL Units	Units	R Ln
1,2-Dibromoethane (EDB)	106-93-4		ND	0.020	0.020 0.020 ug/L	ug/L	_
Surrogate	Run 1 Acceptance Q % Recovery Limits	ptance nits					
1,1,1,2-Tetrachloroethane	93 57-137	-137					

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Qut 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

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

Description: MW-2 Dup
Date Sampled:04/24/2014 1230
Date Received: 04/25/2014 Client: Midlands Environmental Consultants, Inc. Laboratory ID: PD26007-011

Matrix: Aqueous

Volatile Organic Compounds by GC/MS

	Volatile	Volatile Organic Compounds by GC/MS	ompound	s by GC/N	S			
Run Prep Method 1 5030B	Analytical Method E 8260B	Dilution Analysis Date Analyst Prep Date 50 04/29/2014 1750 DCS	s Date Analys 114 1750 DCS	st Prep Date	Batch 45777			
Parameter	:	CAS	Analytical	Result Q	PQL	M D	Units	R
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND	5000	340	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	S	500	10	ug/L	_
Benzene		71-43-2	8260B	1400	250	6	ug/L	-
tert-Butyl formate (TBF)		762-75-4	8260B	N	5000	50	ug/L	_
1,2-Dichloroethane		107-06-2	8260B	N O	250	15	ug/L	_
Diisopropyl ether (IPE)		108-20-3	8260B	N	500	20	ug/L	-
3,3-Dimethyl-1-butanol		624-95-3	8260B	N	5000	50	ug/L	_
Ethanol		64-17-5	8260B	N	50000	1700	ug/L	_
Ethylbenzene		100-41-4	8260B	2000	250	85	ug/L	_
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	N D	5000	10	ng/L	_
Methyl tertiary butyl ether (MTBE)	Ÿ	1634-04-4	8260B	210 J	250	20	ug/L	_
Naphthalene		91-20-3	8260B	630	250	85	ug/L	_
tert-butyl alcohol (TBA)		75-65-0	8260B	N	5000	340	ug/L	_
Toluene		108-88-3	8260B	1000	250	85	ug/L	_
Xylenes (total)	ı	_	8260B	5700	250	85	ug/L	_
Surrogate	Q %Re	Run 1 Acceptance % Recovery Limits	nce s					
1,2-Dichloroethane-d4		106 70-130	õ					
Bromofluorobenzene		98 70-130	ŏ					
Toluene-d8		103 70-130	Ö					
	EDE	EDB & DBCP by Microextraction	y Microex	traction				
Run Prep Method 1 8011	Analytical Method E 8011	Dilution Analysis Date 1 04/30/2014 1614	s Date Analy:)14 1614 MEN	Analyst Prep Date MEM 04/29/2014 1408	Batch 1408 45752			
Parameter	· :	CAS Number	Analytical Method	Result Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)		106-93-4	8011	N N	0.020	0.020	ug/L	_

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 H = Qut of holding time J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of c	B = Detected in the method blank J = Estimated result < PQL and ≥ MDL	PQL = Practical quantitation limit ND = Not detected at or above the MDL

1,1,1,2-Tetrachloroethane

Surrogate

Run 1 Acceptance Q % Recovery Limits 113

57-137

Description: Field Blank Client: Midlands Environmental Consultants, Inc. Laboratory ID: PD26007-012

Matrix: Aqueous

Date Received: 04/25/2014 1305

Volatile Organic Compounds by GC/MS

				Analytical	000		
			07/20/20 17 170	1		0011	0011
		Batch 8 45752	Analyst Prep Date Batch	Date Analyst	Analytical Method Dilution Analysis Date Analyst Prep Date	Analytical Method	Run Prep Method
			raction	Microext	EDB & DBCP by Microextraction	E	
					102 70-130		Toluene-d8
					101 70-130		Bromofluorobenzene
					102 70-130		1,2-Dichloroethane-d4
				ď	Run 1 Acceptance % Recovery Limits	Q %	Surrogate
ug/L 1	1.7	5.0	Š	8260B	1330-20-7		Xylenes (total)
ug/L 1	1.7	5.0	N	8260B	108-88-3		Toluene
ug/L 1	6.7	100	N	8260B	75-65-0		tert-butyl alcohol (TBA)
ug/L 1	1.7	5.0	B	8260B	91-20-3		Naphthalene
ug/L 1	0.40	5.0	N	8260B	1634-04-4		Methyl tertiary butyl ether (MTBE)
ug/L 1	0.20	100	N	8260B	637-92-3		Ethyl-tert-butyl ether (ETBE)
ug/L 1	1.7	5.0	B	8260B	100-41-4		Ethylbenzene
ug/L 1	33	1000	B	8260B	64-17-5		Ethanol
ug/L 1	1.0	100	B	8260B	624-95-3		3,3-Dimethyl-1-butanol
ug/L 1	0.40	10	N	8260B	108-20-3		Diisopropyl ether (IPE)
ug/L 1	0.30	5.0	N	8260B	107-06-2		1,2-Dichloroethane
ug/L 1	1.0	1 00	N	8260B	762-75-4		tert-Butyl formate (TBF)
ug/L 1	0.20	5.0	B	8260B	71-43-2		Benzene
ug/L 1	0.20	10	B	8260B	994-05-8		tert-Amyl methyl ether (TAME)
ug/L 1	6.7	100	N	8260B	75-85-4		tert-Amyl alcohol (TAA)
Units Run	MDL	ρ P	Result Q	Analytical Method	CAS Number		Parameter
		45838		4 0155 JJG	1 04/30/2014 0155	8260B	1 5030B
			Citaty of 1 left bate		Dilution Allaysis Date	Charle and mothers	ren

ND = Not detected at or above the MDI.	PQL = Practical quantitation limit
J = Estimated result < PQL and ≥ MDL	B = Detected in the method blank
P = The RPD between two GC columns exceeds 40%	E = Quantitation of compound exceeded the calibration range
N = Recovery is out of criteria	H = Out of holding time

1,1,1,2-Tetrachloroethane

Surrogate

Run 1 Acceptance
Q % Recovery Limits
103 57-137

106-93-4

8011

B

0.020

0.020

ug/L

1,2-Dibromoethane (EDB)

Client: Midlands Environmental Consultants, Inc. Laboratory ID: PD26007-013 Matrix: Aqueous

Description: Trip Blank
Date Sampled:04/24/2014 1306
Date Received: 04/25/2014

	Volatile Organic Compounds by GC/MS	ic Compounds	by GC/MS				
Run Prep Method 1 5030B	Analytical Method Dilution Analysis Date Analyst Prep Date 8260B 1 04/30/2014 0217 JJG	Analysis Date Analys 04/30/2014 0217	t Prep Date	Batch 45838			
Parameter	CAS		Result 0	<u>B</u>			
tert-Amyl alcohol (TAA)	75-85-4	4 8260B	N N	100	6.7	ug/L	_
tert-Amyl methyl ether (TAME)	994-05-8		N	10	0.20	ug/L	_
Benzene	71-43-2	2 8260B	R	5.0	0.20	ug/L	_
tert-Butyl formate (TBF)	762-75-4	4 8260B	ND	100	1.0	ug/L	_
1,2-Dichloroethane	107-06-2	2 8260B	N	5.0	0.30	ug/L	_
Diisopropyl ether (IPE)	108-20-3	3 8260B	N	10	0.40	ug/L	_
3,3-Dimethyl-1-butanol	624-95-3	3 8260B	N	100	1.0	ug/L	_
Ethanol	64-17-5		B	1000	33	ug/L	-
Ethylbenzene	100-41-4	4 8260B	B	5.0	1.7	ng/L	_
Ethyl-tert-butyl ether (ETBE)	637-92-3	3 8260B	N	1 00	0.20	ug/L	_
Methyl tertiary butyl ether (MTBE)	1634-04-4	4 8260B	N	5.0	0.40	ug/L	_
Naphthalene	91-20-3	3 8260B	N	5.0	1.7	ug/L	_
tert-butyl alcohol (TBA)	75-65-0	0 8260B	N	100	6.7	ug/L	_
Toluene	108-88-3	3 8260B	N	5.0	1.7	ug/L	_
Xylenes (total)	1330-20-7	7 8260B	ND	5.0	1.7	ug/L	_
Surrogate	Run 1 Ac	Acceptance Limits					
1,2-Dichloroethane-d4	103	70-130					
Bromofluorobenzene	102	70-130					
Toluene-d8	102	70-130					

PQL = Practical quantitation limit

B = Delected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out delected 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 "N"

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QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ45777-001 Matrix: Aqueous
Batch: 45777 Prep Method: 5030B
Analytical Method: 8260B

Parameter	Result	#	₽	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	04/29/2014 1056
tert-Amyl methyl ether (TAME)	N		_	10	0.20	ug/L	04/29/2014 1056
Benzene	N			5.0	0.20	ug/L	04/29/2014 1056
tert-Butyl formate (TBF)	N		-	100	1.0	ug/L	04/29/2014 1056
1,2-Dichtoroethane	N		_	5.0	0.30	ng/L	04/29/2014 1056
Diisopropyl ether (IPE)	ND		-	10	0.40	ug/L	04/29/2014 1056
3,3-Dimethyl-1-butanol	N		_	100	1.0	ug/L	04/29/2014 1056
Ethanol	ND		_	1000	33	ug/L	04/29/2014 1056
Ethylbenzene	N		-	5.0	1.7	ug/L	04/29/2014 1056
Ethyl-tert-butyl ether (ETBE)	N		<u>.</u>	100	0.20	ug/L	04/29/2014 1056
Methyl tertiary butyl ether (MTBE)	N		_	5.0	0.40	ug/L	04/29/2014 1056
Naphthalene	N		_	5.0	1.7	ug∕L	04/29/2014 1056
tert-butyl alcohol (TBA)	N		_	100	6.7	ng/L	04/29/2014 1056
Toluene	N		_	5.0	1.7	ug/L	04/29/2014 1056
Xylenes (total)	ND		_	5.0	1.7	ug/L	04/29/2014 1056
Surrogate	۵	% Rec	Acceptance Limit				
Bromofluorobenzene		101	70-130				
1,2-Dichloroethane-d4		105	70-130				
Toluene-d8		1 03	70-130				

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ45777-002 Batch: 45777			P	Matrix: Aqueo Prep Method: 5030B	Matrix: Aqueous ethod: 5030B		
Analytical Wethod: 8260B							
	Spike	Result				% Rec	
Parameter	(ug/L)	(ug/L)	۵	₽	% Rec	Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	860		_	86	70-130	04/29/2014 0928
tert-Amyl methyl ether (TAME)	50	49		_	97	70-130	04/29/2014 0928
Benzene	50	45		_	90	70-130	04/29/2014 0928
tert-Butyl formate (TBF)	250	230		_	92	70-130	04/29/2014 0928
1,2-Dichloroethane	50	47		_	94	70-130	04/29/2014 0928
Diisopropyl ether (IPE)	50	45		-	91	70-130	04/29/2014 0928
3,3-Dimethyl-1-butanol	1000	930		_	93	70-130	04/29/2014 0928
Ethanol	5000	4300		_	87	60-140	04/29/2014 0928
Ethylbenzene	50	49		_	99	70-130	04/29/2014 0928
Ethyl-tert-butyl ether (ETBE)	50	42		_	84	70-130	04/29/2014 0928
Methyl tertiary butyl ether (MTBE)	50	46		_	92	70-130	04/29/2014 0928

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

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

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

Volatile Organic Compounds by GC/MS - LCS

Analytical Method: 8260B Sample ID: PQ45777-002 Batch: 45777 Matrix: Aqueous Prep Method: 5030B

Parameter Naphthalene tert-butyl alcohol (TBA) Tolliene	Spike Amount (ug/L) 50 1000	Result Q (ug/L) Q 46 910			% Rec 92 91	% Rec Limit 92 70-130 91 70-130 96 70-130
tert-butyl alcohol (TBA)	1000	910	_	_	91	
Toluene	50	48		_	96	
Xylenes (total)	100	100		_	1 102	
Surrogate	Q %Rec	Acceptance Limit				
Bromofluorobenzene	100	70-130				
1,2-Dichloroethane-d4	105	70-130				
Toluene-d8	1	70-130			-	-

Volatile Organic Compounds by GC/MS - LCSD

Bromofluorobenzene Surrogate tert-Butyl formate (TBF) 1,2-Dichloroethane-d4 Xylenes (total) tert-butyl alcohol (TBA) Naphthalene Methyl tertiary butyl ether (MTBE) Ethyl-tert-butyl ether (ETBE) Ethylbenzene Ethanol Benzene tert-Amyl methyl ether (TAME) tert-Amyl alcohol (TAA) Toluene 3,3-Dimethyl-1-butanol Diisopropyl ether (IPE) 1,2-Dichloroethane Parameter Analytical Method: 8260B Sample ID: PQ45777-003 Batch: 45777 1000 5000 50 50 50 50 1000 50 50 250 50 Spike Amount (ug/L) % Rec 1 00 1 04 1 04 900 49 45 230 230 46 45 930 480 47 47 Acceptance Limit 70-130 70-130 Matrix: Aqueous Prep Method: 5030B 90 97 90 92 92 93 93 93 91 91 91 93 93 93 93 0.47 1.0 1.3 5.0 1.9 % Rec Limit 70-130 60-140 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 % RPD Limit 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 04/29/2014 0950 **Analysis Date**

ND = Not detected at or above the MDL PQL = Practical quantitation limit

Toluene-d8

70-130

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

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

Volatile Organic Compounds by GC/MS - MB

Analytical Method: 8260B	Batch: 45779	Sample ID: PQ45779-001	
			4
	Prep Method: 5030B	Matrix: Aqueous	

Parameter	Result	۵	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)	8		_	10	0.20	ug/L	04/29/2014 1123
Benzene	B			5.0	0.20	ug/L	04/29/2014 1123
tert-Butyl formate (TBF)	B			100	1.0	ug/L	04/29/2014 1123
1,2-Dichloroethane	B		-	5.0	0.30	ug/L	04/29/2014 1123
Diisopropyl ether (IPE)	B		_	10	0.40	ng/L	04/29/2014 1123
3,3-Dimethyl-1-butanol	B		_	100	1.0	ug/L	04/29/2014 1123
Ethanol	8		<u></u>	1000	33	ug/L	04/29/2014 1123
Ethylbenzene	Ŗ		_	5.0	1.7	ug/L	04/29/2014 1123
Ethyl-tert-butyl ether (ETBE)	S		→	100	0.20	ug/L	04/29/2014 1123
Methyl tertiary butyl ether (MTBE)	S		<u></u>	5.0	0.40	ng/L	04/29/2014 1123
Naphthalene	B		<u>.</u>	5.0	1.7	ug/L	04/29/2014 1123
tert-butyl alcohol (TBA)	B		<u>.</u>	100	6.7	ug/L	04/29/2014 1123
Toluene	B		-3	5.0	1.7	ug/L	04/29/2014 1123
Xylenes (total)	S		→	5.0	1.7	ng/L	04/29/2014 1123
Surrogate	۵	% Rec	Acceptance Limit				
Bromofluorobenzene		96	70-130				
1,2-Dichloroethane-d4		91	70-130				
Toluene-d8		8	70-130				

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ45779-002 Batch: 45779 Analytical Method: 8260B			Pre	Matrix: Aqueor	Matrix: Aqueous lethod: 5030B		
Parameter	Spike Amount (ug/L)	Result (ug/L)	۵	Dil	% Rec	% Rec	Analysis Date
tert-Amyl alcohol (TAA)	1000	1000		_	100	70-130	04/29/2014 0951
tert-Amyl methyl ether (TAME)	50	50		_	100	70-130	04/29/2014 0951
Benzene	50	47		_	94	70-130	04/29/2014 0951
tert-Butyl formate (TBF)	250	240			98	70-130	04/29/2014 0951
1,2-Dichloroethane	50	47			94	70-130	04/29/2014 0951
Diisopropyl ether (IPE)	50	44			89	70-130	04/29/2014 0951
3,3-Dimethyl-1-butanol	1000	1100		-	106	70-130	04/29/2014 0951
Ethanol	5000	4500		-	90	60-140	04/29/2014 0951
Ethylbenzene	50	48		_	96	70-130	04/29/2014 0951
Ethyl-terd-butyl ether (ETBE)	50	4		-	89	70-130	04/29/2014 0951
Methyl tertiary butyl ether (MTBE)	50	47		_	95	70-130	04/29/2014 0951

ND = Not detected at or above the MDL PQL = Practical quantitation limit

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

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

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Volatile Organic Compounds by GC/MS - LCS

On It	Analytical Method: 8260B	Batch: 45779	Sample ID: PQ45779-002	
		Prep Method: 5030B	Matrix: Aqueous	

Toluene-d8	1,2-Dichloroethane-d4	Bromofluorobenzene	Surrogate	Xylenes (total)	Toluene	tert-butyl alcohol (TBA)	Naphthalene	Parameter
95	83	98	Q %Rec	100	50	1000	50	Spike Amount (ug/L)
70-130	70-130	70-130	Acceptance Limit	98	47	990	37	Result (ug/L)
				_	_		_	D <u>i</u>
				98	95	99	74	% Rec
				70-130	70-130	70-130	70-130	% Rec Limit
				04/29/2014 0951	04/29/2014 0951	04/29/2014 0951	04/29/2014 0951	Analysis Date

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ45779-003						Matrix: Aqueous	queous			
Batch: 45779 Analytical Method: 8260B					Prep I	Prep Method: 5030B)30B			
	Spike	4	Result					% Rec	% RPD	
Parameter	(L)gu)	- :	(ug/L)	۵	ם	% Rec	% RPD	Limit	Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000		990		_	99	1.1	70-130	20	04/29/2014 1014
tert-Amyl methyl ether (TAME)	50		51		-	102	1.8	70-130	20	04/29/2014 1014
Benzene	50		4 6		-	92	<u>1</u> 51	70-130	20	04/29/2014 1014
tert-Butyl formate (TBF)	250		250		_	101	3.5	70-130	20	04/29/2014 1014
1,2-Dichloroethane	50		48		_	97	2.7	70-130	20	04/29/2014 1014
Diisopropyl ether (tPE)	50		48		_	97	8. 4	70-130	20	04/29/2014 1014
3,3-Dimethyl-1-butanol	1000		970		_	97	9.4	70-130	20	04/29/2014 1014
Ethanol	5000		4100		_	2	9.6	60-140	20	04/29/2014 1014
Ethylbenzene	50		48		_	97	1	70-130	20	04/29/2014 1014
Ethyl-tert-butyl ether (ETBE)	50		4 5		_	90	1.2	70-130	20	04/29/2014 1014
Methyl tertiary butyl ether (MTBE)	50		49		_	98	3.9	70-130	20	04/29/2014 1014
Naphthalene	50		37		_	74	0.12	70-130	20	04/29/2014 1014
tert-butyl alcohol (TBA)	1000		830		_	83	6	70-130	20	04/29/2014 1014
Toluene	50		48		_	96	1,2	70-130	20	04/29/2014 1014
Xylenes (total)	100		100			100	1.8	70-130	20	04/29/2014 1014
Surrogate	۵	% Rec	Ac	Acceptance Limit						
Bromofluorobenzene		95		70-130						
1,2-Dichloroethane-d4		82		70-130						
Toluene-d8		93		70-130						

ND = Not detected at or above the MDL PQL = Practical quantitation limit

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

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

Volatile Organic Compounds by GC/MS - MB

Parameter Result Q	Analytical Method: 8260B	Batch: 45838	Sample ID: PQ45838-001	
Dii		Prep Met	2	
PQL		Prep Method: 5030B	Matrix: Aqueous	
PQL MDL			u,	
Units				
Units Analysis Date				

Parameter	Result	Ω 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	_	10	0.20	ij/L	04/29/2014 2208
Benzene	N	_	5.0	0.20	щg/L	04/29/2014 2208
tert-Butyl formate (TBF)	N		100	1.0	щg/L	04/29/2014 2208
1,2-Dichloroethane	N		5.0	0.30	ug/L	04/29/2014 2208
Diisopropyl ether (IPE)	N	_	10	0.40	ug/L	04/29/2014 2208
3,3-Dimethyl-1-butanol	Ň	_	100	1.0	ug/L	04/29/2014 2208
Ethanol	S	_	1000	33	ug/L	04/29/2014 2208
Ethylbenzene	N	_	5.0	1.7	ug/L	04/29/2014 2208
Ethyl-tert-butyl ether (ETBE)	N	_	100	0.20	ug/L	04/29/2014 2208
Methyl tertiary butyl ether (MTBE)	B	_	5.0	0.40	ug/L	04/29/2014 2208
Naphthalene	S	_	5.0	1.7	ug/L	04/29/2014 2208
tert-butyl alcohol (TBA)	ND		100	6.7	ug/L	04/29/2014 2208
Toluene	ND	-	5.0	1.7	ug/L	04/29/2014 2208
Xylenes (total)	ND		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: 8260B			9	Matrix: Aqueo	Matrix: Aqueous ethod: 5030B		
Parameter	Spike Amount (ug/L)	Result (ug/L)	٥	모	% Rec	% Rec	Analysis Date
tert-Amyl alcohol (TAA)	1000	850		_	85	70-130	04/29/2014 2041
tert-Amyl methyl ether (TAME)	50	48		_	97	70-130	04/29/2014 2041
Benzene	50	44			89	70-130	04/29/2014 2041
tert-Butyl formate (TBF)	250	220		_	90	70-130	04/29/2014 2041
1,2-Dichloroethane	50	47		_	95	70-130	04/29/2014 2041
Diisopropyl ether (IPE)	50	44		_	89	70-130	04/29/2014 2041
3,3-Dimethyl-1-butanol	1000	880		_	88	70-130	04/29/2014 2041
Ethanol	5000	4100		_	82	60-140	04/29/2014 2041
Ethylbenzene	50	49		_	98	70-130	04/29/2014 2041
Ethyl-tert-butyl ether (ETBE)	50	41		_	83	70-130	04/29/2014 2041
Methyl tertiary butyl ether (MTBE)	50	43		_	86	70-130	04/29/2014 2041

ND = Not detected at or above the MDL PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

+ = RPD is out of criteria

 $J = Estimated result < PQL and <math>\geq MDL$

Note: Calculations are performed before rounding to avoid round-off errors in calculated results Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ45838-002 Batch: 45838 Analytical Method: 8260B Matrix: Aqueous Prep Method: 5030B

Toluene-d8	1,2-Dichloroethane-d4	Bromofluorobenzene	Surrogate	Xylenes (total)	Toluene	tert-butyl alcohol (TBA)	Naphthalene	Parameter
102	101	100	Q %Rec	100	50	1000	50	Spike Amount (ug/L)
70-130 ·	70-130	70-130	Acceptance Limit	100	48	930	50	Result (ug/L) Q
				_	_	_	_	DI:
				101	95	93	100	% Rec
-				70-130	70-130	70-130	70-130	% Rec Limit
_				04/29/2014 2041	04/29/2014 2041	04/29/2014 2041	04/29/2014 2041	Analysis Date

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ45838-003 Batch: 45838 Analytical Method: 8260B Matrix: Aqueous Prep Method: 50308

Toluene-d8	1,2-Dichloroethane-d4	Bromofluorobenzene	Surrogate	Xylenes (total)	Toluene	tert-butyl alcohol (TBA)	Naphthalene	Methyl tertiary butyl ether (MTBE)	Ethyl-tert-butyl ether (ETBE)	Ethylbenzene	Ethanol	3,3-Dimethyl-1-butanol	Diisopropyl ether (IPE)	1,2-Dichloroethane	tert-Butyl formate (TBF)	Benzene	tert-Amyl methyl ether (TAME)	tert-Amyl alcohol (TAA)	Parameter
101	100	99	Q %Rec	100	50	1000	50	50	50	50	5000	1000	50	50	250	50	50	1000	Spike Amount (ug/L)
70-130	70-130	70-130	Acceptance Limit	99	47	890	50	43	42	48	4000	860	4	46	220	44	47	870	Result (ug/L) Q
	_	_	6	_	_	_		_	_	_	_	_	_	_	_	-	_	_	Dii
				99	93	89	100	86	83	95	80	86	88	93	87	87	94	87	% Rec
				1.9	2.0	3.7	0.65	0.62	0.62	2.6	3.4	1.7	<u>:</u> 1	2.3	2.8	2.2	3.1	1.8	% RPD
				70-130	70-130	70-130	70-130	70-130	70-130	70-130	60-140	70-130	70-130	70-130	70-130	70-130	70-130	70-130	% Rec
				20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	% RPO Limit
				04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	Analysis Date

ND = Not detected at or above the MDL PQL = Practical quantitation limit J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%

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"

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Volatile Organic Compounds by GC/MS - MB

Analytical Method: 8260B	Batch: 45838	Sample ID: PQ45838-001	
	Prep Method: 5030B	Matrix: Aqueous	-

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)	N	_	10	0.20	ng/L	04/29/2014 2208
Benzene	N	_	1.0	0.13	ug/L	04/29/2014 2208
tert-Butyl formate (TBF)	N	_	100	1.0	ug/L	04/29/2014 2208
1,2-Dichloroethane	N	-	1.0	0.15	ug/L	04/29/2014 2208
Diisopropyl ether (IPE)	N	_	10	0.40	ug/L	04/29/2014 2208
3,3-Dimethyl-1-butanol	ND	_	100	1.0	ug/L	04/29/2014 2208
Ethanol	N	_	1000	33	ug/L	04/29/2014 2208
Ethylbenzene	N	_	1.0	0.33	ug/L	04/29/2014 2208
Ethyl-tert-butyl ether (ETBE)	ND		100	0.20	ug/L	04/29/2014 2208
Methyl tertiary butyl ether (MTBE)	ND		1.0	0.40	ug/L	04/29/2014 2208
Naphthalene	ND D	_	1.0	0.40	ug/L	04/29/2014 2208
tert-butyl alcohol (TBA)	N D		100	6.7	ug/L	04/29/2014 2208
Toluene	ND		1.0	0.33	ug/L	04/29/2014 2208
Xylenes (total)	ND		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			פַ	Matrix: Aqueo Prep Method: 5030B	Matrix: Aqueous ethod: 5030B		
Parameter	Spike Amount (ug/L)	Result (ug/L)	e Q	ઘ	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	850		_	85	70-130	04/29/2014 2041
tert-Amyl methyl ether (TAME)	50	48		_	97	70-130	04/29/2014 2041
Benzene	50	44		_	89.	70-130	04/29/2014 2041
tert-Butyl formate (TBF)	250	220			90	70-130	04/29/2014 2041
1,2-Dichloroethane	50	47		_	95	70-130	04/29/2014 2041
Diisopropyl ether (IPE)	50	44			89	70-130	04/29/2014 2041
3,3-Dimethyl-1-butanol	1000	880		_	88	70-130	04/29/2014 2041
Ethanol	5000	4100		_	82	60-140	04/29/2014 2041
Ethylbenzene	50	49		_	98	70-130	04/29/2014 2041
Ethyl-tert-butyl ether (ETBE)	50	41		_	83	70-130	04/29/2014 2041
Methyl tertiary butyl ether (MTBE)	50	43		_	86	70-130	04/29/2014 2041

ND = Not detected at or above the MDL PQL = Practical quantitation limit J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

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"

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Volatile Organic Compounds by GC/MS - LCS

Analytical Method: 82608	Batch: 45838	Sample ID: PQ45838-002	
	Prep Method: 5030B	Matrix	
	: 5030B	Matrix: Aqueous	

Volatile Organic Compounds by GC/MS - LCSD

Matrix: Aqueous Prep Method: 5030B

Sample ID: PQ45838-003
Batch: 45838
Analytical Method: 8260B

Toluene-d8	1,2-Dichloroethane-d4	Bromofluorobenzene	Surrogate	Xylenes (total)	Toluene	tert-butył alcohol (TBA)	Naphthalene	Methyl tertiary butyl ether (MTBE)	Ethyl-tert-butyl ether (ETBE)	Ethylbenzene	Ethanol	3,3-Dimethyl-1-butanot	Disopropyl ether (IPE)	1,2-Dichloroethane	tert-Butyl formate (TBF)	Benzene	tert-Amyl methyl ether (TAME)	tert-Amyl alcohol (TAA)	Parameter
			۵	100	50	1000	50	50	50	50	5000	1000	50	50	250	50	50	1000	Spike Amount (ug/L)
101	100	99	% Rec																2,
			<u> </u>	99	47	890	50	4 3	42	4 8	4000	860	4	46	220	4	47	870	Result (ug/L)
70-130	70-130	70-130	Acceptance Limit																۵
				_	_	_	_	_	_	_	_	_	_	_	-			_	₽
				99	93	89	100	86	83	95	80	86	88	93	87	87	94	87	% Rec
				1.9	2.0	3.7	0.65	0.62	0.62	2.6	3.4	1.7	1	2.3	2.8	2.2	3.1	1.8	% RPD
				70-130	70-130	70-130	70-130	70-130	70-130	70-130	60-140	70-130	70-130	70-130	70-130	70-130	70-130	70-130	% Rec Limit
				20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	% RPD Limit
				04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	04/29/2014 2102	Analysis Date

ND = Not detected at or above the MDL PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

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

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Volatile Organic Compounds by GC/MS - Duplicate

Sample ID: PD26007-009DU Batch: 45838 Analytical Method: 8260B Matrix: Aqueous Prep Method: 5030B

Sample							
Sample					70-130	98	Bromofluorobenzene
Sample Result % RPD Amount (ug/L) (ug/L) Q DII % RPD Limit Lochol (TAA) ND ND ND 1 0.00 20 netthyl ether (TAME) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 mether (IPE) ND ND 1 0.00 20 lether (IPE) ND ND 1 0.00 20 yl-1-butanol ND ND 1 0.00 20 yl-1-butanol ND ND 1 0.00 20 ne ND ND 1 0.00 20 utyl ether (ETBE) ND ND 1 0.00 20 np ND ND 1 0.00 20 np ND ND 1 0.00 20 np ND ND 1 0.00 20					70-130	112	1,2-Dichloroethane-d4
Sample Amount Result (ug/L) Q DII % RPD % RPD Cohol (TAA) ND ND ND 1 0.00 20 Limit ND 1 0.00 20 Limit ND 1 0.00 20 Limit		i			Acceptance Limit	Q %Rec	Surrogate
Sample Amount Result (ug/L) Q DII % RPD % RPD cohol (TAA) ND ND ND 1 0.00 20 eithyl ether (TAME) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20 yc1-butanol ND ND 1 0.00 20 no ND ND 1 0.00 20 uyl ether (ETBE) ND ND 1 0.00 20 ay buyl ether (MTBE) ND ND 1 0.00 20 about (TBA) ND 1 0.00 20 about (TBA) ND 1 0.00 <td>04/30/2014 0534</td> <td>20</td> <td>0.00</td> <td>_</td> <td>0</td> <td>ND N</td> <td>Xylenes (total)</td>	04/30/2014 0534	20	0.00	_	0	ND N	Xylenes (total)
Sample Result % RPD Londol (TAA) ND Limit cohol (TAA) ND ND 1 0.00 20 eithyl ether (TAME) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20 yl-1-butanol ND ND 1 0.00 20 nc ND ND 1 0.00 20 utyl ether (ETBE) ND ND 1 0.00 20 nc ND ND 1 0.00 20 e ND ND 1 0.00 20 e ND 1 0.00	04/30/2014 0534	20	0.00	_	0	N	Toluene
Sample Result % RPD Amount (ug/L) Result (ug/L) Q DII % RPD Limit Cohol (TAA) ND ND 1 0.00 20 cethyl ether (TAME) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20 yl-1-butanol ND 1 0.00 20 nD ND 1 0.00 20 ne ND ND 1 0.00 20 nyl ether (ETBE) ND ND 1 0.00 20 nyl ether (MTBE) ND ND 1 0.00 20 nyl ether (MTBE) ND ND 1 0.00 20 ny butyl ether	04/30/2014 0534	20	0.00	_	ō	N	tert-butyl alcohol (TBA)
Sample Result % RPD Amount (ug/L) (ug/L) Q DII % RPD Limit cohol (TAA) ND ND ND 1 0.00 20 sethyl either (TAME) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 sether (IPE) ND ND 1 0.00 20 pi-1-butanol ND ND 1 0.00 20 ne ND ND 1 0.00 20 utyl ether (ETBE) ND ND 1 0.00 20 nD ND 1 0.00 20 20	04/30/2014 0534	20	0.00	_	0	ND	Naphthalene
Sample Amount Result % RPD Amount (ug/L) Result (ug/L) Q DII % RPD Limit cohol (TAA) ND ND 1 0.00 20 eithyl either (TAME) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20 yl-1-butanoi ND ND 1 0.00 20 ne ND ND 1 0.00 20 nb ND ND 1 0.00 20	04/30/2014 0534	20	0.00	_	0	NO	Methyl tertiary butyl ether (MTBE)
Sample Amount Result (ug/L) Q DII % RPD (Limit) cohol (TAA) ND ND 1 0.00 20 ethyl ether (TAME) ND ND 1 0.00 20 mate (TBF) ND ND 1 0.00 20 sether (IPE) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20 yl-1-butanol ND ND 1 0.00 20	04/30/2014 0534	20	0.00	-	Ō	ND Z	Ethyl-tert-butyl ether (ETBE)
Sample Amount Result (ug/L) Q DII % RPD (Limit) cohol (TAA) ND ND 1 0.00 20 ethyl ether (TAME) ND ND 1 0.00 20 mmate (TBF) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20	04/30/2014 0534	20	0.00				Ethylbenzene
Sample Amount Result (ug/L) Q DII % RPD (Limit) cohol (TAA) ND ND 1 0.00 20 ethyl ether (TAME) ND ND 1 0.00 20 mmate (TBF) ND ND 1 0.00 20 ether (IPE) ND ND 1 0.00 20	04/30/2014 0534	20	0.00	_	ō		Ethanol
Sample Amount (ug/L) Result (ug/L) % RPD % RPD (ug/L) % RPD (ug/L) <th< td=""><td>04/30/2014 0534</td><td>20</td><td>0.00</td><td>_</td><td>0</td><td></td><td>3,3-Dimethyl-1-butanol</td></th<>	04/30/2014 0534	20	0.00	_	0		3,3-Dimethyl-1-butanol
Sample Amount (ug/L) Result (ug/L) Q DII % RPD (Limit) cohol (TAA) ND ND 1 0.00 20 eethyl ether (TAME) ND ND 1 0.00 20 rmate (TBF) ND ND 1 0.00 20 bethane ND ND 1 0.00 20	04/30/2014 0534	20	0.00	_	ō		Diisopropyl ether (IPE)
Sample	04/30/2014 0534	20	0.00	_	ō		1,2-Dichloroethane
Sample	04/30/2014 0534	20	0.00	_	ō		tert-Butyl formate (TBF)
Sample	04/30/2014 0534	20	0.00	_	ō		Benzene
Sample	04/30/2014 0534	20	0.00	_	ō		tert-Amyl methyl ether (TAME)
Sample Amount Result % RPD Amount Q Dil % RPD Limit	04/30/2014 0534	20	0.00	_	ō		tert-Amyl alcohol (TAA)
	Analysis Date	% RPD	% RPD	Di .			Parameter

Volatile Organic Compounds by GC/MS - MS

Sample ID: PD26007-010MS Batch: 45838			Pre	Matr p Metho	Matrix: Aqueous Prep Method: 5030B	U.		
Analytical Method: 8260B								
	Sample Amount	Spike Amount	Result)	!	! !	% Rec	• - •
tert-Amyl alcohol (TAA)	N	1000	870		-	87	70-130	04/30/2014 0556
tert-Amyl methyl ether (TAME)	N D	50	51		_	102	70-130	04/30/2014 0556
Benzene	N	50	48			97	72-127	04/30/2014 0556
tert-Butyl formate (ТВF)	N O	250	0.13	z	-	0.052	70-130	04/30/2014 0556
1,2-Dichloroethane	N D	50	53		-	105	59-143	04/30/2014 0556
Diisopropyl ether (IPE)	N D	50	49		_	98	70-130	04/30/2014 0556
3,3-Dimethyl-1-butanol	ND	1000	950		_	95	70-130	04/30/2014 0556
Ethanol	N D	5000	4500		-	89	70-130	04/30/2014 0556
Ethylbenzene	ND	50	52		_	103	79-132	04/30/2014 0556
Ethyl-tert-butyl ether (ETBE)	ND	50	45		_	91	70-130	04/30/2014 0556
Methyl tertiary butyl ether (MTBE)	N N	50	49		_	98	60-140	04/30/2014 0556

ND = Not detected at or above the MDL PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

 $J = Estimated result < PQL and <math>\geq MDL$

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"

Volatile Organic Compounds by GC/MS - MS

Analytical Method: 8260B Sample ID: PD26007-010MS Batch: 45838 Matrix: Aqueous Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	۵	₽	% Rec	% Rec Limit	Analysis Date
Naphthalene	N	50	46		_	91	62-136 04/30/2014 0556	_
tert-butyl alcohol (TBA)	Š	1000	1100		_	106	70-130 04/30/2014 0556	_
Toluene	N	50	52		_	104	75-125 04/30/2014 0556	o
Xylenes (total)	ND	100	100		_	104	70-130 04/30/2014 0556	Ó
Surrogate	Q %Rec		Acceptance Limit					
1,2-Dichloroethane-d4	111		70-130					
Bromofluorobenzene	99		70-130					
Toluene-d8	108		70-130		-			÷

ND = Not detected at or above the MDL PQL = Practical quantitation limit

J = Estimated result < PQL and > MDL P = The RPD between two GC columns exceeds 40%

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"

EDB & DBCP by Microextraction - MB

Analytical Method: 8011	Batch: 45751	Sample ID: PQ45751-001
Prep Date: 04/29/2014 1408	Prep Method: 8011	Matrix: Aqueous

1,1,1,2-Tetrachloroethane	Surrogate	1,2-Dibromoethane (EDB)	Parameter
106	Q % Rec	B	Result
			۵
57-137	Acceptance Limit	1	DII
		0.020	PQL
		0.020	M DL
		0.020 0.020 ug/L	Units
		04/30/2014 1121	Analysis Date

EDB & DBCP by Microextraction - LCS

Batch: 45751			<u>.</u>	Prep Method: 8011	lethod: 8011		
Analytical Method: 8011				Prep Date:	Prep Date: 04/29/2014 1408)8	
Parameter	Spike Amount (ug/L)	Result	စ	₽	% R ec	% Rec	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.29			116	60-140	04/30/2014 1131
Surrogate	Q %Rec	Acceptance Limit	93				
1,1,1,2-Tetrachloroethane	94	57-137	7				

EDB & DBCP by Microextraction - MB

Sample ID: PQ45752-001 Batch: 45752		פר	Matrix: Aqueous Prep Method: 8011	S		
Analytical Method: 8011			Prep Date: 04/29/2014 1408	2014 1408		
		?	90	2	ř	
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

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"

Shealy Environmental Services, Inc. 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Page: 29 of 30 Level 1 Report v2.1

EDB & DBCP by Microextraction - LCS

Sample ID: PQ45752-002	,		,	Matrix:	Matrix: Aqueous		
Batch: 45752			פַ	Prep Method: 8011	8011		
Analytical Method: 8011				Prep Date:	Prep Date: 04/29/2014 1408	38	2
Parameter	Spike Amount (ug/L)	Result (ug/L)	۵	Dii	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.34			136	60-140	04/30/2014 1604
Surrogate	Q %Rec	Acceptance Limit	69				
1,1,1,2-Tetrachloroethane	115	57-137			į		

EDB & DBCP by Microextraction - MS

Batch: 45752			Pre	p Metho	Prep Method: 8011	•		
Analytical Method: 8011				Prep Da	Prep Date: 04/29/2014 1408)14 1408		
		Spike					2	
Parameter	Amount (ug/L)	Amount (ug/L)	Result (ug/L)	۵	Q Dii	% Rec	% Rec Limit	% Rec Limit Analysis Date
1,2-Dibromoethane (EDB)	B	0.25	0.28		-	112	60-140	60-140 04/30/2014 1625
Surrogate	Q %Rec		Acceptance Limit					
1,1,1,2-Tetrachloroethane	111	5	57-137					

EDB & DBCP by Microextraction - MSD

Sample ID: PD26007-011MD Batch: 45752	C		70	rep I	Matr	Matrix: Aqueous Prep Method: 8011	뚮			
Analytical Method: 8011				3	ep Da	te: 04/29/	Prep Date: 04/29/2014 1408			
Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	۵	Dil	% Rec	% RPD	% Rec % RPD Limit Limit	% RPD Limit	Result (ug/L) Q Dil %Rec %RPD Limit Limit Analysis Date
1,2-Dibromoethane (EDB)	ND	0.25	0.27		1	110	2.0	60-140	20	1 110 2.0 60-140 20 04/30/2014 1635
Surrogate	Q %Rec		Acceptance Limit							
1,1,1,2-Tetrachloroethane	105		57-137							

ND = Not detected at or above the MDL PQL = Practical quantitation limit

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

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

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12.C

Chain of Custody Record

Shoaly E. Renou ment for Sorvices, Inc. Too Vantage roth: Direc. West Columbia. South Carolica 29177 Telephone No. (802) 7or 177(6) Fex No. (803) 741-9111

www.scantapace.com

Number 09598

SHEALY ENVIRONMENTAL SERVICES, INC.

C er	Reput to Crestard		Sherry or Wrinted Normer	entermonentente Ph. A. Territoria	Maria Maria
MECI	B. Shane		Daniel mso	artha	
Athera 1276 Paint South Dr.	Faled one No. 1 Fax No. 1 F	rail - 2041	- 1500 per 144		t of 2
Lity Yem asies State Zip Code	Prese valive				1.3806 of carylers
SC 21145	1. Undres. 4 - 900 7.5	s.dR			As an interest to the transition of the par-
Prunted Marine	2. K-0447 W- 5 = 01				1 () 1 (a 'p')
Miche lumber 233	5.10952 6 No.16 1		***		
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Source of 2 denote to the ex- election with the control of source (A) of the office of the control of the contr	, tame have been	Analysis ATEX, KM ATBE	9-0		Bay Negative Courses (1)
MW-1 4-2	7 12:38 G X				Ofor 1
Mp-2	12:30 X	100		Account of the control of the contro	Oder DUP
MW-3				+ -	Not Sampley
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MW-5	/2:14 X		1 4		No Oder
MW-6	1/:52 X	11/1			No Oder
MW-7	11:37		1 66		No Odor
MW-8	11:26	// v	100		No Odor
DW-I	11:59	V V			No Odor
CK-1 4.1					LOW SERVICED L'A
The Reversion Regardation on guidacount of	ý			Hazard dentification	
	7 South to Chien	and the second s	the sale in the sale of the sa	out fridanskraftt ++ sta	es Official Talance
Davin	Meanin 4-24	16:25	Served by Charges	1/30/14	905
21 Reproduction by	Data		Salvas tv	13.28	**************************************
y frage and a second se	\rangle \cdot \cd	Time 3 Re	relocativ	**************************************	Time
THE PART OF STREET	9/25/4	1350 1	Clar WR	11-25-14	1356
Noth Art camples are ret			LBE OLD	13	
d unless office ar	rangements are made.	Hrace :	radionica tioned. Plant the line Pa	Fill (Record Cav. 17-27)	Larra Jare

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president the second	·
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Chain of Custody Record

Sheaty Environmental Survices, Inc. Title Vantage From Livio West CoLinion, South Coronin 29172 Telephone No. (893) 701-9700 For No. (893) 791-5111 www.mealy shoom

Number 09599

SHEALY ENVIRONMENTAL SERVICES, INC.

MECI	B. Shque	nempros remendo ser a como a colido (185), como esperantegia en estra del filosopo en es	Todd Elder	Charles Mrs
3296 Print South	roscopera No. (Pachle (Crisil 603 - 808 -		Vouyrill Sin	2
Vemassee SC 29945	Preserve 4 Hk/3 7 Naor prisect2 A 3 Str	To the state of th		Pasting Carlot Schur San Francis Country (Past)
Project Number 233	in no size in the fine.	iis VAPTH	x5	PDaudon
Sample III (Description (College value) fractor economics for Cate (protected lucine fire)	Time 3 g cw ow w s	Anelysis ATEX ATEX ATEX ATEX (17-DOT)	8-0	Pan 2 86 (Cook 30)
CK-2 4-24	12:53 GK			4 DL.
W5W-1 4-24	12.30 X	TVV		Non-operable
Field Blank	8:05	X VV		And the second s
Trip Blans 4-24	1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Y		
Tana wild in separation and and other grants	THE CHEST AT SAME OF LIFE OF SAME	GC Rec	gauemos ta (Spilory) Fossible (Februari	y Marian
1 Political Free Names of States	s Sen nor Clent	i Decas what	Madigar i o	000042 (1840-1950) 15-10 (195) 49
Todd Elder	4-24	16 25 1. Ress	Terry Lever	9/25/14 905
2 * 1 - 125 Ji - 5 HV			7 THE SECTION OF THE	
* En incuration by	100%	क्षिण्ड ी विकास	# # * \$ *	Tale 1
to the state of th	1 12-17-1		The state of the s	4-25-14 1350
Note: All samples are retain	red for six weeks from re agements are made.	ceint Inieo Gesein		Se 1.3 1 Som 160 1 /4

SHEALY ENVIRONMENTAL SERVICES, INC.

Sheaty Environmental Services, Inc. Document Number: F-AD-016
Revision Number: 14

Sample Receipt Checklist (SRC)

Page 1 of 1 Replaces Date: 09/26/13 Effective Date: 03/07/14

Client: _NECT Confer Inspected by/date: KWP 14-26-14 Lot #: 702601

	Comments:
Sample labels applied by: $\ker P$ Verified by: Date: $\frac{1}{4} - \frac{2}{6} - \frac{1}{4}U$	Sample lahels ar
and were adjusted according	Sample(s)
SC Drinking Water Project Sample(s) pH verified to be >2 by Date:	SC Drinking Wa
were received with TRC >0.2 mg/L (II #21 is Nn)	Sample(s)
were received with bubbles >6 mm in diameter.	Sample(s)
accordingly in sample receiving with (H ₂ SO ₄ ,HNO ₅ ,HCl,NaOH) using SR #	accordingly in sa
were received incorrectly preserved and were adjusted	Sample(s)
3	Sample Preservation
24. Was the quote number used taken from the container label?	Yes No Z
AA Control of the con	Yes No C
4	Yes No!
1	
NA 20. Were all cyanice and/or suitide samples received at a pH > 12?	Yes L No L
	1
NA [18. Were bubbles present > "pea-size" (1/4" or 6aun in diameter) in any VOA vials?	Yes No Q
17. Were there any excess samples not listed on COC?	Yes U No U
16. Were any samples containers missing?	Yes O No Z
cones first?	Yes Q No [
	I SS Z NO L
13. Did all containers arrive in good condition (unbroken, lids on, etc.)?	Z
11. Were tests to be performed listed on the COC?	Ne Zi sa,
10. Did all container label information (ID, date, time) agree with the COC?	Yes IZI Xo I
9. Was collection date & time listed on all sample containers?	口
8. Was collection date & time listed on the COC?	Yes ED Ze
	大家区を口
6. Were sample IDs listed on the COC?	Yes [2] Xe
	Yes 🔲 Xio 🗆
5. Were proper custody procedures (relinquishal/received) followed?	Yes A No
NA 🔼 4. Is the commercial courier's packing slip attached to this form?	Yes 🗌 🔊 🗌
NA A notified by SRC, phone, note (circle one), other: (For coolers received via commercial courier, PMs are to be notified immediately.)	Yes 🗆 No 🗆
cooler exceeded 6.0°C, was	
rature Blank Against Bottles R Gun ID: #3 IR Gun Correction Wet Lee Blue Ice Dry Ice None	Method: Tempe Method of coolant:
Cooler ID/Original temperature upon receipt/Derived (corrected) temperature upon receipt:	Cooler ID/Origin
NA 2 If custody seals were present, were they intact and unbroken?	Yes No
1. Were custody seals present on the cooler?	Yes 🔲 No
SESI Client UPS FodEx Airborne fixp Other	Means of receipt:
Straight de Straight and the Straight an	The second secon

APPENDIX C:
TAX MAP (Not Applicable)

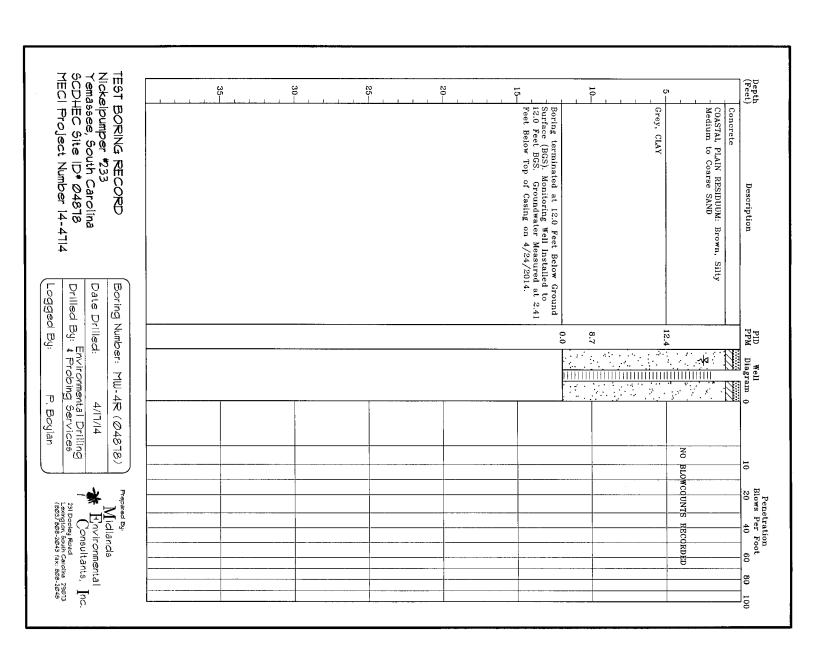
APPENDIX D:

SOIL BORING/FIELD SCREENING LOGS & 1903 FORMS

(Not Applicable)

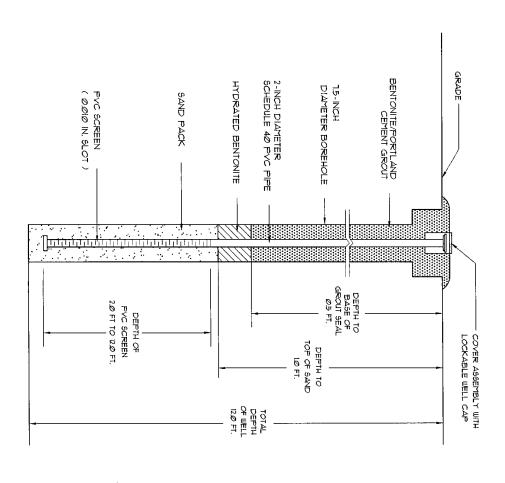
APPENDIX E:

WELL COMPLETION LOGS & 1903 FORMS



MONITORING WELL INSTALLATION RECORD

Nickelpumper *33
Yemassee, South Carolina
SCDHEC Site ID* Ø4878
MECI Project Number 14-4714



Logged By:

P. Boylan

Drilled By: Environmental Drilling & Drilled By: Probing Services, LLC.

Driller: D. Brown S.C. I.D. *B 02053

Date Drilled:

4/17/14

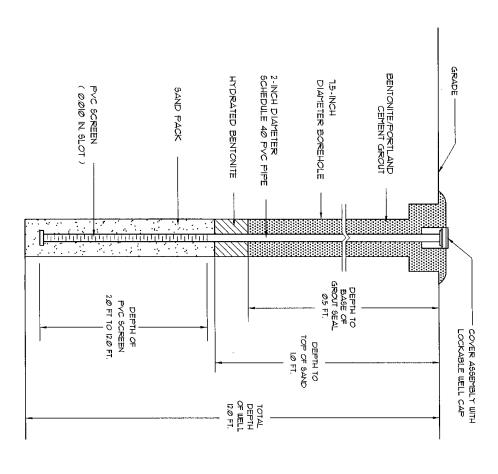
Midlands
Environmental
Consultants, Inc.

231 Dooley Road Lexington, South Carolina 25013 (803) 808-2043 fax: 808-2048 Well Number: MW-412 (04818)

TEST BORING RECORD
Nickelpumper #233
Yemassee, South Carolina
SCDHEC Site ID* Ø4878 MECI Project Number 14-4714 Depth (Feet) 25-20 35— 30-10 5 Boring terminated at 120 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. Grey, CLAY COASTAL PLAIN RESIDUUM: Tan to Brown, Silty Fine to Medium SAND Concrete Description Date Drilled: Boring Number: Drilled By: 4 Probing Services Logged By: 13.6 PPM Well Diagram 0 MW-5 (Ø4878) P. Boylan 4/17/14 NO 10 BLOWCOUNTS Penetration Blows Per Foot 20 40 60 Anvironmental
Consultants, Inc.
231 Declay Read
Levington South Carolina 28013
16031 1603-17041 161: 806-17049 Prepared By: Midlands RECORDED 80 100

MONITORING WELL INSTALLATION RECORD

Nickeipumper *233 Yemassee, South Carolina SCDHEC Site ID* Ø4878 MECI Project Number 14-4714



Well Number: MW-5 (Ø4878)

Date Drilled: 4/17/14

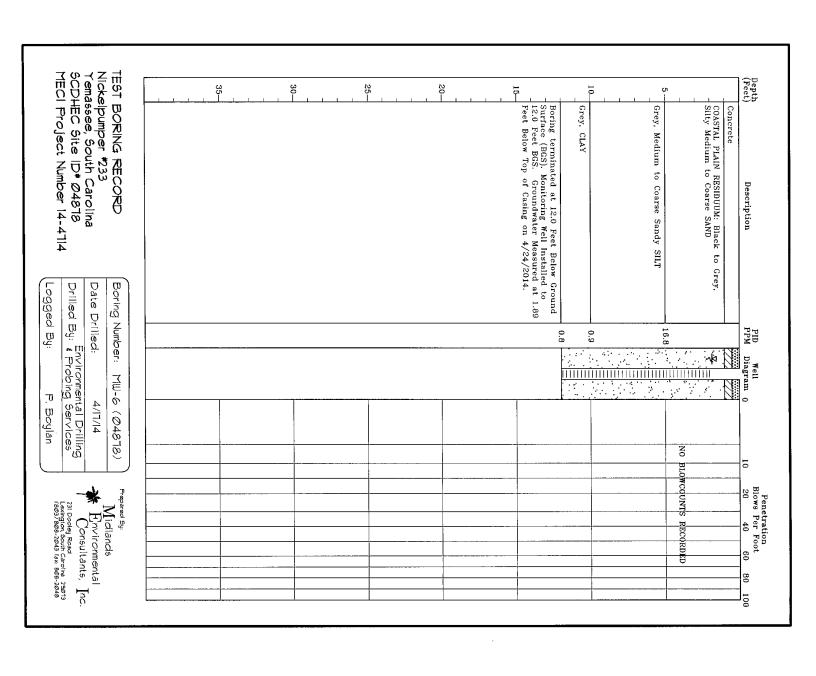
Drilled By: Probing Services, LLC.

Driller: D. Brown S.C. I.D. *B Ø2Ø53

Logged By:

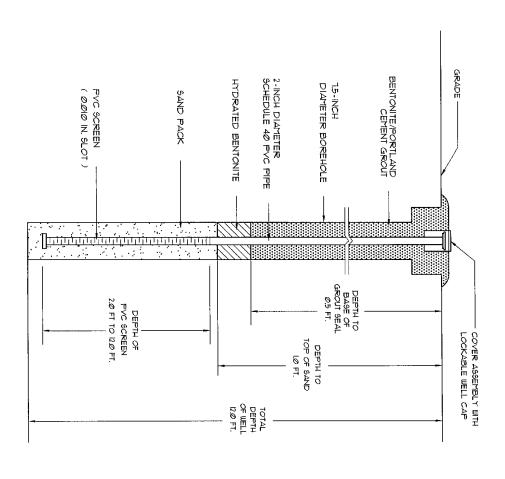
P. Boylan





MONITORING WELL INSTALLATION RECORD

Nickelpumper *233 Yemassee, South Carolina SCDHEC Site ID* Ø4878 MECI Project Number 14-4714



Drilled By: Frobing Services, LLC.

Driller: D. Brown S.C. ID. *B Ø2Ø53

Logged By:

P. Boylan

Date Drilled:

4/17/14

Midlands
Midlands
Environmental
Consultants, Inc.

231 Dooley Road Lexington, South Carolina 23013 (803) 808-2043 fax: 808-2048 Well Number:

MW-6 (Ø4878)

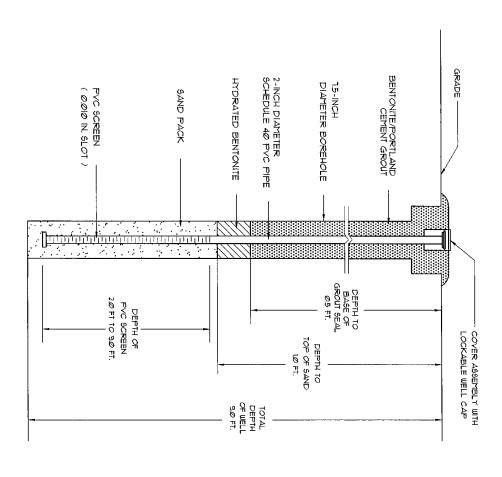
TEST BORING RECORD Nickelpumper *233 Yemassee, South Carolina SCDHEC Site ID* Ø4878 MECI Project Number 14-4714 Depth (Feet) 30-35 25 20-Boring terminated at 9.0 Feet Below Ground Surface (BGS). Monitoring Well installed to 9.0 Feet BGS. Groundwater Measured at 1.20 Feet Below Top of Casing on 4/24/2014. 5 5 Topsoil Grey, CLAY COASTAL PLAIN RESIDUUM: Tan, Silty Medium SAND Description Drilled By: 4 Probing Services Date Drilled: Boring Number: Logged By: PID 0.0 Well Diagram o MW-7 (Ø4878) P. Boylan 4/16/14 No 10 BLOWCOUNTS Midlands

Environmental

Consultants, Inc. Penetration Blows Per Foot 20 40 60 231 Dooley Road Lexington, South Carolina 29013 (803) 808-2043 fax: 808-2048 RECORDED 80 100

MONITORING WELL INSTALLATION RECORD

Nickelpumper *233 Yemassee, South Carolina SCDHEC Site ID* Ø4878 MECI Project Number 14-4714



Well Number: MW-7 (04878)

Date Drilled: 4/6/14

Drilled By: Probing Services, LLC.

Driller: D. Brown S.C. ID. *B 02053

Logged By:

P. Boylan



231 Dooley Road Lexington, South Carolina 29073 (803) 808-2043 Tax: 808-2048

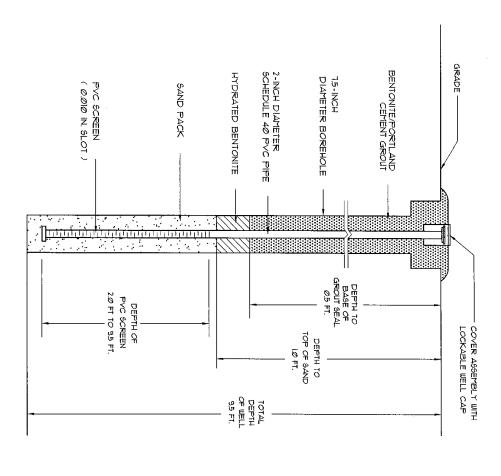
TEST BORING RECORD
Nickelpumper *233
Yemassee, South Carolina
SCDHEC Site ID* Ø4878
MECI Project Number 14-4714 Depth (Feet) 25-20_ 35 30 5 10 Topsoil Boring terminated at 9.5 Feet Below Ground Surface (BGS). Monitoring Well Installed to 9.5 Feet BGS. Groundwater Measured at 0.54 Feet Below Top of Casing on 4/24/2014. COASTAL PLAIN RESIDUUM: Tan, Silty Medium SAND Grey, CLAY Description Boring Number: Drilled By: # Probing Services Date Drilled: Logged By: PID PPM 0.0 0.1 Well Diagram 0 MW-8 (Ø4878) P. Boylan 4/16/14 Ν̈́O 10 BLOWCGUNTS RECORDED Penetration Blows Per Foot Midlands

Environmental

Consultants, Inc. Prepared By: 231 Dooley Road Lexington, South Carolina 29013 (803) 808-2043 fax: 808-2048 60 80 100

MONITORING WELL INSTALLATION RECORD

Nickelpumper \$33
Yemassee, South Carolina
SCDHEC Site ID* \$\tilde{Q}4878
MECI Project Number 14-4714



Well Number: MW-8 (04878)

Date Drilled: 4/16/14

Drilled By: Frobing Services, LLC.

Driller: D. Brown S.C. I.D. S.B 02053

Logged By:

P. Boylan



TEST BORING RECORD
Nickelpumper *233
Yemassee, South Carolina
SCDHEC Site ID* 04878 MECI Project Number 14-4714 $\frac{\mathrm{Depth}}{\mathrm{(Feet)}}$ 60-75 70 65 55 50_ 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. Description Logged By: Drilled By: Probing Services, LLC. Date Drilled: Boring Number: Mdd 0.0 0.0 Well Diagram 0 DW-1 (Ø4878) P. Boylan 4/17/2014 ON 10 BLOWCOUNTS RECORDED Penetration Blows Per Foot 20 40 Midlands

Environmental

Consultants, Inc. Prepared By: 231 Doolely Road Lexington, South Carolina 25073 (803) 806-2043 fax: 805-2046 60 80 100

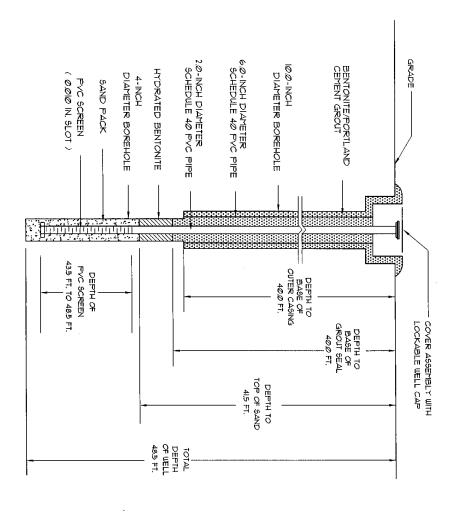
TEST BORING RECORD

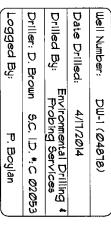
Nickelpumper *233

Yemassee, South Carolina
SCDHEC Site ID* Ø4818 MECI Project Number 14-4714 Depth (Feet) 30-35 25-20-6 5 10-NOTE: 10-inch boring terminated at 40.0 feet. 6-inch outer casing set at 40.0 feet and 4-inch boring initiated. Grey, Medium to Coarse Sandy SILT Grey, CLAY COASTAL PLAIN RESIDUUM: Black to Grey, Silty Medium to Coarse SAND Concrete Description Boring Number: Date Drilled: Logged By: Drilled By: Probing Services, LLC. PID Mqd Well Diagram DW-1 (Ø4878) P. Boylan 4/17/2014 NO 0 BLOWCOUNTS RECORDED Penetration Blows Per Foot 20 40 60 Midlands
Environmental
Consultants, Inc. Prepared By: 23) Doolely Road Lexington, South Carolina 29013 (803) 808-2043 fax: 808-2048 60 80 100

MONITORING WELL INSTALLATION RECORD

Nickelpumper *233 Yemassee, South Carolina SCDHEC Site ID* Ø4878 MECI Project Number 14-4714







II D Level Driller, provide supervising driller's name:	☐ Driven	ary	☐ Air Rotary	o. Tinne. □ Mud Rolary □ Dug □ Cable tool	
Prof. Crimo				4	,
Signed: Date: 5/27/2014					
town)) down				MW-4R	
				. REMARKS:	5.
my direction and this report is true to the best of my knowledge and belief.			eded)	(Use a 2nd sheet if needed)	
Telephone No.: 1/04-00/-/3/29 Fax No.: 803-548-2233			nes	*Indicate Water Bearing Zones	*
19. WELL DRILLER: DAVID BYOWN CERT. NO.: 02053 Address: (Print) Level: A B C D (circle one)					Τ
Reciprocating				į	
H.PVoltsLength of drop pipeft. Capacitygpm TYPE: Submersible Jet (shallow) Turbine					
Name: Model No.: No listanco L.					
s 🗆 No Type: Amount					
17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft direction Type					
□ Neat Cement □ Bentonite ② Bentonite/Cement □ Other					
Effective sizeUniformity Coefficient					
15. ARTIFICIAL FILTER (litter pack) ☑ Yes ☐ No lostelled from 1.0 ft. to 12.0 ft.				100	
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No Please enclose lab results.	12.0	7.5		Grey, CLAY*)
14. WATER QUALITY	4.5	4.0		Brown, Silty SAND*	Ī
Pumping Test: Yes (please enclose) No	0.5	0.5		Concrete)
Surface.	-	Stratum	7000	o company in passing	
	ss Depth to	*Thickness	iption	Formation Description	
nclose) 🗌 No	ft.	ft. to		Grouted Depth: from	
ft_ and 12.0		8	∷ ⊔ Yes ம Give Details Below	4. ABANDONMENT: Give D	
Slot/Gauge: 0.010 Length: 10.0 Feet	MW-4R				
	PUBLIC SYSTEM NUMBER:	BLIC SYST		3. PUBLIC SYSTEM NAME:	6.5
2.0in. to 2.0ft. depthtrive Shoe? ☐ Yes ☐ Noft. depth		••	Longitude:	Latitude:	
Type: ☑ PVC ☐ Galvanized Surfaceft.	5-8510	Zip: 29945-8510		City: Yemassee	
NG: 2 Threaded		Drive	233 Point South	Name: Nickelpumper 233 Street Address: 3296 Point South Drive	
12.0 ft. Date Completed: 4/17/2014	per	COUNTY: Jasper	CC	2. LOCATION OF WELL:	,
9. WELL DEPTH (completed) Date Started: 4/17/2014		Home:	898-4300	Telephone: Work: (803) 898-4300 Home:	
☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement	Zip: 29201-1708	Zip:	State: SC	City: Columbia	
8. USE: ☐ Residential ☐ Public Supply ☐ Process	CHISC	_	reet	Address: 2600 Bull Street	
OK-2000				Name: SCDHEC	
7. PERMIT NUMBER: TRACE (2007)			MATION:	1. WELL OWNER INFORMATION:	٦,
Bureau of Water 2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300	2600 Bu			FROMOTE PROTECT! PR	
Winter Mall Decem			റ —	DHE	

D H E C	N	2600 Bull	Water Well Record Bureau of Water 2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300
1. WELL OWNER INFORMATION: Name: SCDHEC			7. PERMIT NUMBER: UMW-25363
Address: 2000 Pt. II Co	(first)		8. USE:
Address: 2600 Bull Street			☐ Residential ☐ Public Supply
City: Columbia State: SC	Zip: 29201-1708	1-1708	☐ Test Well ☐ Monitor Well ☐ Replacement
Telephone: Work: (803) 898-4300 H	Home:		9. WELL DEPTH (completed) Date Started: 4/17/2014
2. LOCATION OF WELL: COI	COUNTY: Jasper		12.0 ft. Date Completed: 4/17/2014
Name: Nickelpumper 233 Street Address: 2206 Boint Court Deiter			10. CASING: ☑ Threaded ☐ Welded Diam · 2 Inch Heloht Above/Below
City: Yemassee	ip: 29945-851	° —	Galvanized Surface
Latitude: Longitude:			Steel Cot in. to 2.0
	in overtee		- It. 10
3. PUBLIC SYSTEM NAME: PUB 04878	PUBLIC SYSTEM NUMBER: MW-5	UMBER:	0.
NT: 🗆 Yes 🗵	No		Stor/Gauge: 0.010 Length: 10.0 reet
Details Below	Ī	•	
	less		12. STATIC WATER LEVEL 1.25 ft. below land surface after 24 hours
Tomation pescription	Stratum S	ratum	13. PUMPING LEVEL Below Land Surface.
	0.5 0.5	0	se enclose) □ No
irey, CLAY*	8.0 12.0	0.	14. WATER QUALITY Chemical Analysis
			15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No ft. to 12.0 ft.
			Uniformity Coefficient
			16. WELL GROUTED? ② 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
			Vype Amount
			P: Date installed: Not installed
			TYPE: Submersible Jet (shallow) Turbine Jet (deep) Reciprocating Centrifugal
			R: David Brown CERT. NO.: 02053
			1079
Indicate Water Bearing Zones			Telephone No.: //44-07-1/3/29 Fax No.: 803-548-2233
(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.
S. REMARKS:			
MW-5			Signed: Etail I Moren Date: 5/27/2014
TYPE: Mind Rotary	☐ Born		Well Driller
	ry 🗆 Driven	ej l	ITD Level Driller, provide supervising driller's name:
		-	_

D H E C	2800	Water Well Record Bureau of Water 2000 Bull Street Columbia SC 20201 1708: (803) 808 4300
1. WELLOWNER INFORMATION:		7. PERMIT NUMBER:
Name: SCDHEC (last)	(first)	UMW-25363
Address: 2600 Bull Street	(iiiw)	8. USE: Residential Public Supply Process
City: Columbia State: SC	Zip: 29201-1708	☐ Irrigation ☐ Air Conditioning ☐ Test Well ☐ Monitor Well
Telephone: Work: (803) 898-4300	Home:	9. WELL DEPTH (completed) Date Started: 4/17/2014
2. LOCATION OF WELL: CC	COUNTY: Jasper	
Name: Nickelpumper 233		10. CASING: ② Threaded □ Welded Diam 2 Inch Height Above/Relow
City: Vemassee	Zip: 79945-8510	Galvanized Surface
, 1 CHIGOSCO	0109-04667	Steel D Other Weight
Latitude: Longitude		2.0 in. to 2.0 — ft. depth Drive Shoe? ☐ Yes ☐ No — ft. depth
3. PUBLIC SYSTEM NAME: PU 04878	PUBLIC SYSTEM NUMBER: MW-6	Type: Schedule 40 PVC
4. ABANDONMENT: \[\subseteq \text{ Yes } \subseteq \]	No	Sol/Gauge: 9.010 Length: 19.01 Co.
Details Below		tt andtt
	ess	12. STATIC WATER LEVEL 189 ft. below land surface after 24 hours
Formation Description	Stratum Stratum	13. PUMPING LEVEL Below Land Surface.
Concrete	0.5 0.5	tt. afterhrs. PumpingG.P.m. Pumping Test: Yes (please enclose) No
Black, Silty SAND*	4.0 4.5	Yield:
Grey, Sandy SILT*	5.0 9.5	Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No Please enclose lab results.
Grey, CLAY*	2.5 12.0	15. ARTIFICIAL FILTER (filer pack) ☑ Yes ☐ No Installed from 1.0 ft. to 12.0 ft.
		Uniformity Coefficient
		16. WELL GROUTED? ☑ Yes ☐ No ☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other ☐ Depth: From 0.0 ft. to 0.5 ft.
		REST SOURCE OF POSSIBLE CONTAMINATION
		Well Disinfected ☐ Yes ☐ No Type: Amount:
		18. PUMP: Date installed:
		H.P
		CERT. N
		•
Indicate Water Bearing Zones		Telephone No.: 1/04-01/-1/229 Fax No.: 803-548-2233
(Use a 2nd sheet if needed)		 WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of mv knowledge and belief.
5. REMARKS:		
MW-6		Law Trom
		Signed: Date: Date: Well Driller
6. TYPE: ☐ Mud Rotary ☐ Jetted		If D Level Driller, provide supervising driller's name:
	ary	

		☐ Dug ☐ Air Rotary
If D Level Driller, provide supervising driller's name:] [) -
Signed: Date: Date:		
Low / Mora		Tall as = 0
		MW 7
		5. REMARKS:
my direction and this report is true to the best of my knowledge and belief.		(Use a 2nd sheet if needed)
Telephone No.: /04-00/-/329 Fax No.: 803-548-2233	-	"Indicate Water Bearing Zones
ina 28278		
nhill Road		
19. WELL DRILLER: David Brown CERT. NO.: 02053 Address: (Print) Level: A R C D (circle one)		
, recibiocomi		
YPE:		
Volts Length of drop pipe_		
Name: Model No.:		
18. PUMP: Date installed: Not installed []		
Well Disinfected Yes No Type: Amount		
Type		
17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction		
Depth: From <u>0.0</u> ft. to <u>0.5</u> ft.		
□ Neat Cement □ Benton		
16. WELL GROUTED? [7] Yes ☐ No		
Uniformity Coefficient		
6		
15 ARTIFICIAL FILTER (filter pack) Yes No		
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No Please enclose lab results.	5.0 9.0	Grey, CLAY*
?		
Yield:	3.5 4.0	Tan, Silty SAND*
Pumping Test: ☐ Yes (please enclose) ☐ No		Topson
ft. after hrs. PumpingG.P.M.	_	
13. PUMPING LEVEL Below Land Surface.	Stratum Stratum	rolliation peacipaon
12. STATIC WATER LEVEL 1.20 ft. below land surface after 24 hours	ness	
ndose) 🗌 No	11	Grouted Depth: fromft.
ft, and ft		Give Details Below
Set Between: 2.0 ft. and 9.0 ft. NOTE: MULTIPLE SCREENS	No	4. ABANDONMENT: Yes
specificance: 0.010 poorth: 7.0 Feet	MW-7	04878
11. SCREEN: Schedule 40 PVC	PUBLIC SYSTEM NUMBER:	EM NAME:
in. toft, depth		·
In to 2.0ft. depth Drive Shoe? ☐ Yes ☐ No		Latitude: Longitude:
ype: (2) PVC Galvanized Surface	^{2lp:} 29945-8510	City: Yemassee
Height: Above/Below	Drive	3296 Point South
10. CASING: I Threaded Welded		Name: Nickelpumper 233
	COUNTY: Jasper	2. LOCATION OF WELL: COI
9. WELL DEPTH (completed) Date Started: 4/16/2014	Home:	Telephone: Work: (803) 898-4300 H
	Edy. 72701-1100	Cart. Columbia
☐ Irrigation ☐ Air Conditioning ☐ Emergency	7in: 20201_1708	City: Columbia State: SC
	(y	Address: 2600 Bull Street
	(first)	Name: SCDHEC (last)
7. PERMIT NUMBER: UMW-25363		1. WELL OWNER INFORMATION:
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300	2600 Bt	PROMOTE PROTECT PROSPER
Bureau of Water		
Water Well Record		

		$\overline{}$			1		1	1	1	1 1			_		Τ ,				Т	·····									т	
6. TYPE: Mud Rotary Jetted Air Rotary Construct Grade Ci Char	MW-8	5. REMARKS:	(I lea a 2nd cheet if needed)	*Indicate Water Bearing Zones					and the second s				Grey, CLAY*	Tan, Silty SAND*	Topsoil	Formation Description	Grouted Depth: fromf	Give Details Below	□ Vos D	3. PUBLIC SYSTEM NAME: PU 04878	Latitude: Longitude:	City: Yemassee	Name: Nickelpumper 233 Street Address: 3296 Point South Drive	2. LOCATION OF WELL: CO	898-4300	City: Columbia State: SC	(last) Address: 2600 Bull Street		A WELL OWNED INCORMATION:	DHEC
☐ Bored tary ☐ Driven													5.0 9.5	4.0 4.5	0.5 0.5		t to	2	1	PUBLIC SYSTEM NUMBER:		Zip: 29945-8510	Drive	COUNTY: Jasper	Ноте	Zip: 29201-1708	(first)			
red ven							Ì						.5	.5	.5	Bottom of Stratum	Denth to			NUMBER:	1	10		T		01-1708				2600 Bull
If D Level Driller, provide supervising driller's name:	Signed: Well Driller Date: 5/27/2014	my direction and this report is true to the best of my knowledge and belief.	ON: This w	17539 Greenhill Road Charlotte, North Carolina 28278 Felephone No.: 704-607-7329 Felephone No.: 803-548-2233	19. WELL DRILLER; David Brown CERT. NO.: 02053 Address: (Print) Level: A B C D (circle one)] Jet (shallow) ☐ Turbine] Reciprocating ☐ Centrifugal	Model No.:ft. Capacity	Well Disinfected ☐ Yes ☐ No Type: Amount:	17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction Type	16. WELL GROUTED? ☑ Yes ☐ No ☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other	Uniformity Coefficient	15. ARTIFICIAL FILTER (filter pack) ② Yes □ No nstalled from 1.0 ft. to 12.0 ft.	Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No Please enclose lab results.	Yield:	ft, efter hrs. Pumping G.P.M. Pumping Test: Yes (please enclose) No	12. STATIC WATER LEVEL \$1.24 ft. below land surface after 24 hours 13. PUMPING LEVEL Below Land Surface.	se enclose) 🗌 No		0.010 Length: /.3 F	10 PVC	2.0 ft. depth	Type: ☑ PVC ☐ Galvanized Surfaceft.	☑ Threaded ☐ Welded	1	9. WELL DEPTH (completed) Date Started: 4/16/2014		8. USE:	. FERMIT NUMBER: UMW-25363	7 DEDMIT WILLDED.	Water Well Record Bureau of Water 2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

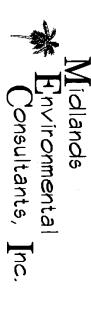
	1 .1				1	· · ·	
5. REMARKS: DW-1	Indicate Water Bearing Zones (Use a 2nd sheet if needed)		Concrete Black, Silty SAND* Grey, Sandy SILT* Grey, CLAY*	3. PUBLIC SYSTEM NAME: P 04878 4. ABANDONMENT:	33 Sint Sou Longitu	1. WELL OWNER INFORMATION: Name: SCDHEC (last) Address: 2600 Bull Street City: Columbia State: SC Telephone: Work: (803) 898-4300 Home	
			Stratum 0.5 0.5 0.5 0.5 0.5 0.5 9.5 0.9 9.4 4.0	UBLIC SYSTE DW-1	COUNTY: Jasper th Drive Zip: 29945-8510 .de:		
			Stratum 0.5 4.5 9.5 9.5	NUMBER: #. Depth to Bottom of	10	(first) Zip: 29201-1708	2600 Bul
Signed: Edul Moure Date: 5/27/2014	19. WELL DRILLER: David Brown Address: (Print) 17539 Greenhill Road Charlotte, North Carolina 28278 Telephone No: 1/94-04/-72/29 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.	16. WELL GROUTED? ② Yes □ No □ Neat Cement □ Bentonite ② Bentonite/Cement □ Other □ Neat Cement □ Bentonite ② Bentonite/Cement □ Other □ Neat Cement □ Bentonite ② Bentonite/Cement □ Other □ Neit in 40.0	13. PUMPING LEVEL Below Land Surface. 1. after	11. SCREEN: Type: Schedule 40 PVC Diam: 2 Inch SlovGauge: 0.010 tength: 5.0 Feet SlovGauge: 0.43.5 ft. and 48.5 ft. NOTE: MULTIPLE SCREENS Set Between: 43.5 ft. and ft. USE SECOND SHEET Sieve Analysis rest to the supplementary to the suppl	ft. Threaded Welded PVC Galvanized Steel Other in, to 48.5 ft depth in, to 40.0 ft depth	7. PERMIT NUMBER: UMW-25363 8. USE: Residential Public Supply Process Proc	Water Well Record Bureau of Water 2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

APPENDIX F:

AQUIFER EVALUATION SUMMARY FORMS, DATA, GRAPHS, EQUATIONS

(Not Applicable)

APPENDIX G:
DISPOSAL MANIFEST



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/bail water from all wells is mixed before usage of the Activated Carbon Unit.
- No free-product was detected in any of the purge water drums.
- 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.
- The existing carbon pack will be replaced/reactivated every 5,000 gallons.
- 5. Record of usage is maintained by Contractor
- Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
- 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.

Senior Scientist



Richland County LF 1047 Highway Church Road Elgin, SC, 29045 Ph: (603) 768-3054

Original Ticket# 1304437

Hauling Ticket# Manual Ticket# Payment Type Credit Account Customer Name MIDLANDSENVIRON MIDLANDS ENVI Carrier Ticket Date 04/18/2014 Route Billing # Gen EPA ID Check# Container Driver Vehicle# 3975 MIDLANDSENVIRON MIDLANDS ENVIRONMENT 3975 Volume **9000469**

Profile Destination Manifest

State Waste Code

Generator VA2718 (SOIL FROM UST ASSESSMENT)
126-MIDLANDSENVIRONMENTAL MIDLANDS ENVIRONMENTAL

3nO už Comments 04/18/2014 15:39:58 04/18/2014 15:54:03

ScaleMaster

Gross 0.0 15200 1b 3220 1b 5980 1b

Net Tons

40-RICHLAN 40-RICHLAN

40-RICHLAN 40-RICHLAN

D G FO →

FUEL-Fuel Surcharg 100 EVF-P-Standard Env 100 RCR-P-Regulatory C 100

SOIL-Cont. Sail -

Product

LD%

Dt.Y

Rate

(E)

Amount

Origin

2, 99

Tons S

Total Ticket Total Fees

SIGNATURE PUTTING TOPICA

Witelpumper 233=75%/Fmr Bushers:25%

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SPECIAL WASTE MANIFEST

WASTE ID NUMBER	
VA2718	Richland Landfill
EXPIRATION DATE	1047 Highway Church Road Elgin, SC 29045
December 11, 2016	Special Waste Phone: 803-744-3345 Fax: 866-904-7194
	Prepared by: Sandra Reeves
GENERATOR OF WASTE:	ENV. CO
CUSTOMER: MIDI ANDS ENV. CON	ACCOUNT NUMBER:
LOCATION OF WASTE:	SULTANTS, INC. 820-469
CITY:	COUNTY:
PHONE NUMBER: 803-808-2043	CONTACT:
FAX NUMBER: 803-808-2048	LYNN SHANE
GENERATOR'S SIGNATURE	DATE:
TE: Midland	environmental Consultants
DATE: 4//8//84	TRUCK NUMBER: 347-5
DRIVER'S SIGNATURE Patrick Rd	
***** TO BE ()	
DISPOSAL SITE: RICHLAND LANDFILL ELGIN, SC	RICHLAND LANDFILL****** (LL ELGIN, SC
DESCRIPTION OF WASTE: SOIL FROM UST ASSESSMENT	Waste Class: SOIL
TICKET NUMBER: 1304437	TONNAGE: 2,99
RECEIVED BY: DUM	

Nickelpumper 233 = 75% = 2.24 tons Four Butless Caff = 25% = 0.75 tons

APPENDIX H:

LOCAL ZONING REGULATIONS
(Not Applicable)

APPENDIX I:

FATE AND TRANSPORT MODELING
(Not Applicable)

APPENDIX J:
ACCESS AGREEMENTS

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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. 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 Signature of Property Owner: Phone Number (home) 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 Is this facility serviced by a public water or sewer utility? (yes or no) / Dowr Row if no, please provide the name of a person we can contact that can assist in the location of private water and Is this facility within the city limits? (yes or no) I Don'T Kuru Street Address of Facility_ RIGHT OF ENTRY- DSF FEMIL # 04878 ON THE FROZERTY Current Mailing Address _ NAME of property owner (Please Print):_ Name of nearest intersecting street, road, highway, alley TAKMACH septic tank lines Name Town, City, District, Suburb Name of Facility __ RICHARD CARLSON to their initiation and will promptly provide to me a summary of the data upon request. former or existing underground storage tanks at the time the release was reported, please complete , phone number 72 FEB 2 8 2014 Day VACANT US7 1920 2014 Phone number 3296 YEMA SSEE HOOP. THEE WILL BE NO COST TO THE PROBENT DUNER FOR POINT SOTH DR. Cours CAR 1500 SOOTH (AROLINA ۲ ۲ Month (work) (323)222-AM & ALL WOCK PERSONNES LOSANGELES YRCANT FROD. 800-00 84-880 Year 3007 P AF SOO 20031 13 tech C(S)

UST Division/ SMB

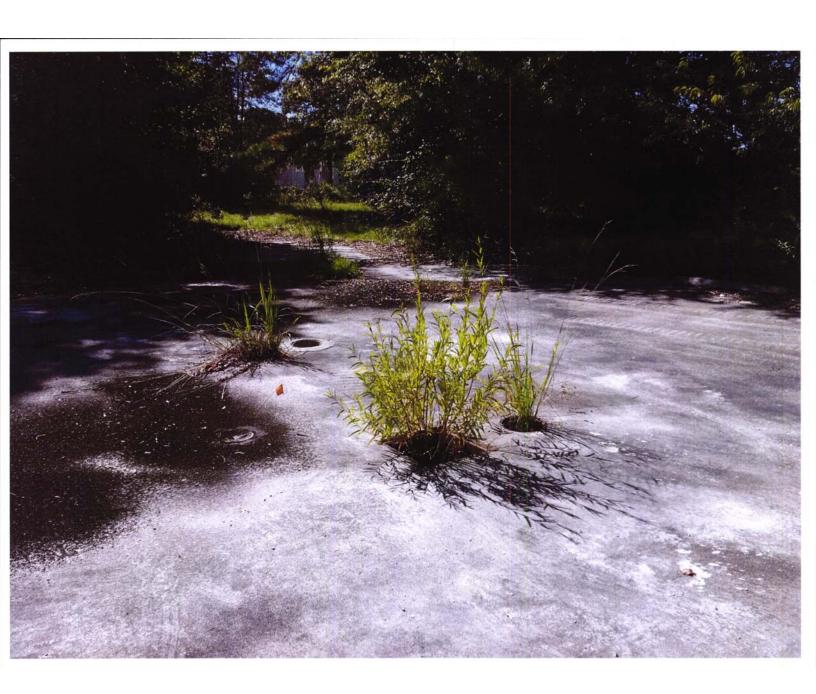
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APPENDIX K:
DATA VERIFICATION CHECKLIST

Contractor Checklist

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









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 2 3 2015

Re:

Site Specific Work Plan Request

Groundwater Sampling Contract Solicitation # IFB-5400007403, PO#4600445246 CHETIN

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 Environmenta	l Consultants, Inc
FROM: John Bryant	
RE: Site Specific Work Plan	n 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 12	Screened 5	Depth to Water (feet)	Well head	Groundwater
MW-1(04878)	2/28/2012	2.5-12.5	3.19	Elevation 100.56	97.37
MA4.0(04070)	4/24/2014		1.37	100.56	99.19
MW-2(04878)	2/28/2014 4/24/2014	2.0-12.0	0.60 1.02	100.57 100.57	99.97 99.55
MW-3(04878)	2/28/2014	2.0-12.0	2.26	100.06	97.80
MAI 4(04070)	4/24/2014		NL	100.06	NL 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	МИ	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	MM	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
MVV-7(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MVV-8(15151)	4/24/2014	2.0-12.0	NL	NL	NL
MVV-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

Elevations based on assumed stor datum.
 Groundwater depits were measured from the top of the PVC riser pipe.
 Groundwater levels measured on 4/24/2014.

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)	Toktene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes. (ug/l)	Total BTEX (ug/l)	Naphihalone (ugh)	MTRE	(ugf)	#DB
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	15,1	<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	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	21 0 J	<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	<50	<5.0	NT

^{1.} BDL = Below Practical Quantillative Limits

ug/i = micrograms per liter
 MTBE = Methyl-Teriany-Butyl Ether
 1,2 DCA = 1,2-Dichlomethane
 EDB = 1,2 - Dibrumosthane

^{6.} NL = Not Located
7. NT = Not Tested
8. NS = Not Sampled (WSW-1 Inactive)
9. "J" Values included in Total STEX Calculations.
10. "B" Values = Detected in Method Blank

^{11 &}quot;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

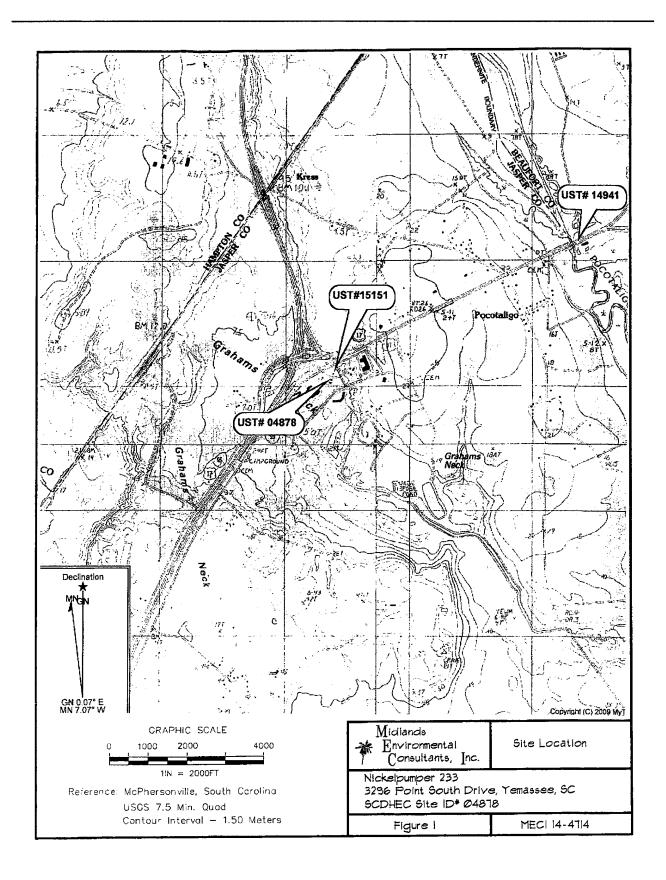
SCDHEC SITE ID NUMBER 04878

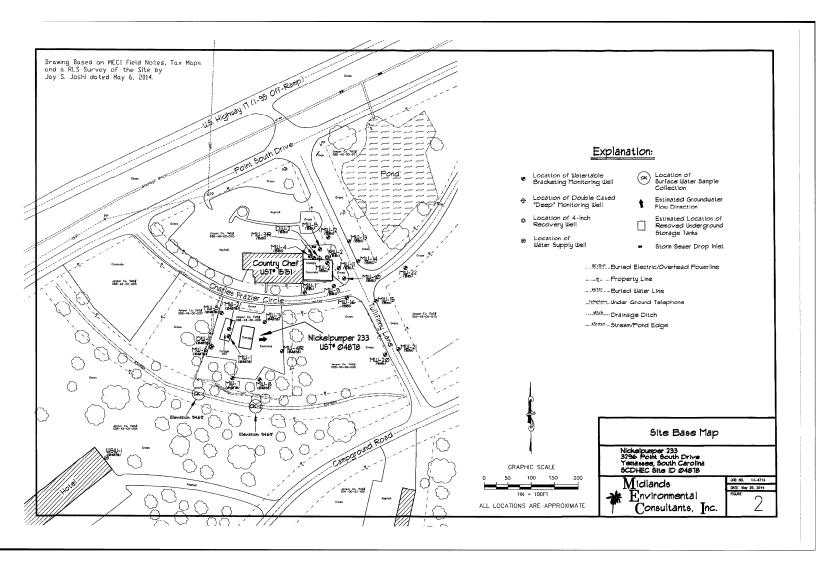
Weil Run Number & Fr	Salpt	5,00		TEF 1		2),3-Dimethyl-1-butanos	Ethanol	ETBE	TBA
MW-1(04878)	02/28/12	7,200	<50	<500	<50	<500	<5,000	<500	11,000
	04/24/14	8,800J	<1,000	<10,000	<1,000	<10,000	<100,000	<10,000	6,300J
							İ		
MW-2(04878)	02/28/12	280J	<100	<1,000	<100	<1,000	<10,000	<1,000	<1,000
	04/24/14	<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	.4 000		
	04/24/14	NL.	NŁ.	NL.	NL NL	NL NL	<1,000 NL	<100 N L	11J NL
								""	INL.
MW-4R(04878)	04/24/14	750	<10	<100	<10	<100	<1,000	<100	79J
	i								
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	-400			
] "	1100	710	~100	110	<100	<1,000	<100	<100
MW-7(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
							1,000	100	1100
MW-8(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
DIA 4(04570)									
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 jaaka	NS	NS .	NO
	04/24/14	NS	NS	NS	NS	NS	NS	NS	NS NS
					İ	,		1 12.4	
CK-1(04878)	04/24/14	<100	<10	<100	<10	<100	<1,000	<100	<100
01/ 0/0 · 0=0)									
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	c100	44.000	*100	
		,,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
							· -	-,	5,555
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				
. Tip Dialin(O1070)	04/24/14	<100	<10	<100 <100	<10 <10	<100 <100	<1,000	<100	<100
· · · · · · · · · · · · · · · · · · ·				3100	>10	<100	<1,000	<100	<100

ug/l = micrograms per liter
 DIPE = Disopropyl Ether
 ETBE = Ethyl ter-butyl Ether
 TAA = bart-Arnyl Alcohol

TAME = text-Armyl Methyl Ether
 TBA = text-Butyl Alcohol
 TBF = text-Butyl Formate
 NL = Not Located

NS = Not Sampled (WSN-1 inactive)
 Values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL).





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.

Ryle V. Pudney
Project Biologist

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 Environm	ental Consultants, Inc. U	ST Contractor Certification Number: 00	9
Facility Name: Nickelpumper 2	33	UST Permit	#: 04878
Facility Address: 3296 Point S	outh Drive, Yemassee, SC	29945	
Responsible Party: Richard Co	arlson	Phone: 95	1-659-0063
RP Address: 1920 North Main	Street, Los Angeles, CA 90	0031	
Property Owner (if different):	SAA		
Property Owner Address: SA	4		
Current Use of Property: Aba	ndoned Building		
Scope of Work (Please ched	ck all that apply)		
□ IGWA □ Ti	er II	Groundwater Sampling	☐ GAC
□ Tier I □ M	onitoring Well Installatio	n 🛘 Other	
Analyses (Please check all t	hat apply)	.1 · ·	
Groundwater/Surface Water:	inat apply)		
☑ BTEXNMDCA (8260B)	☐ Lead	· □ BOD	☐ Methane
☑ Oxygenates (8260B)		□ Nitrate	☐ Ethanol
☑ EDB (8011)	□ TPH	☐ Sulfate	☐ Dissolved Iron
☐ PAH (8270D)	 □ pH	☐ Other	
Soil:	_ p		
□ BTEXN	☐ 8 RCRA Metals	☐ TPH-DRO (3550B/8015	B) □ Grain Size
□ PAH	☐ Oil & Grease (907	•	
Air:		(
□ BTEXN			
Sample Collection (Estimate	the number of samples	of each matrix that are expected to be	collected.)
Soil	•	Supply Wells Air	1 Field Blank
9 Monitoring Wells	T OF SHIPPS	e Water1 Duplicate	
Field Screening Methodolog	ıy		
Estimate number and total col	mpleted depth for each	point, and include their proposed location	ons on the attached map.
# of shallow points proposed:		Estimated Footage:	feet per point
# of deep points proposed:		Estimated Footage:	feet per point
Permanent Monitoring Wells			
_		well, and include their proposed location	ns on the attached man
		Estimated Footage:	
		Estimated Footage:	
		Estimated Footage:	
		SOP):	
Comments, if warranted:	method (consistent with		
Commente, ii wananteu.			
 			

UST Permit #: 04878 Fac	ility Name	e: Nickelpumper 233	
Implementation Schedule (Number of ca Field Work Start-Up: 11/23/2015 Report Submittal: 01/23/16		ys from approval) Field Work Completion: 12/23/2015 # of Copies Provided to Property Owners:	
Aquifer Characterization Pump Test: ☐ Slug Test: ☐ (Check or	ne and pro	ovide explanation below for choice)	
Investigation Derived Waste Disposal Soil:	Tons .	Purge Water: 100.0	Gallons
Drilling Fluids:	Sallons	Free-Phase Product:	Gallons
event, etcDuring the November 4, 2015 site visit, monito was flooded during the time of the site visit. If a accordinglyAll other wells were located and found to be in	s to be aba ring wells Many of these good cond d along with	n the Pond. Water supply well WSW-1 has been disconnecte	are located
Name of Laboratory: SCDHEC Certification Number: Name of Laboratory Director:	Yes/No)	If no, indicate laboratory information below.	
N/A Well Driller as indicated in ACQAO? (*) Name of Well Driller:		If no, indicate driller information below.	
SCLLR Certification Number:			
Yes Other variations from ACQAP. Please	describe	below.	
			
Attachments 1. Attach a copy of the relevant portion	n of the U	SGS topographic map showing the site location.	
 Prepare a site base map. This map must include the following: North Arrow Location of property lines Location of buildings Previous soil sampling locations Previous monitoring well locations Proposed soil boring locations Assessment Component Cost Agree 	Propose Legend v Streets o Location Location	accurately scaled, but does not need to be surveyed. It demonitoring well locations with facility name and address, UST permit number, and it highways (indicate names and numbers) of all present and former ASTs and USTs of all potential receptors	·



ASSESSMENT COMPONENT INVOICE SOUTH CAROLINA

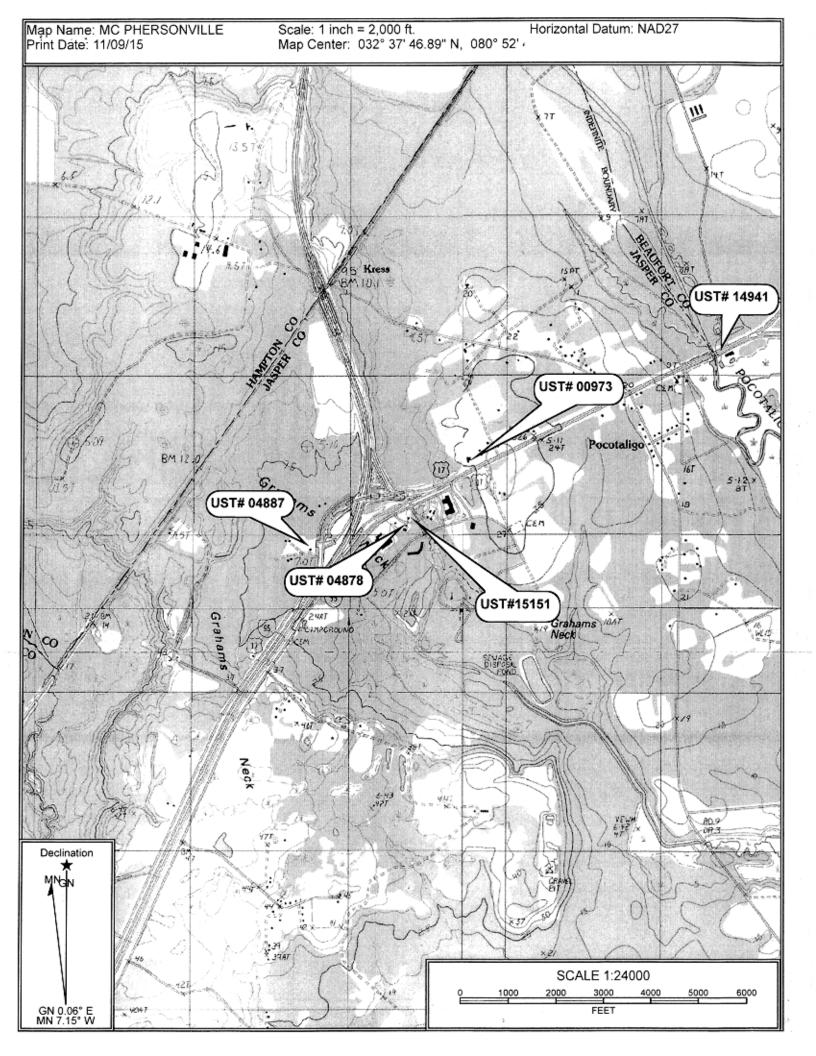
Department of Health and Environmental Control Underground Storage Tank Management Division State Underground Petroleum Environmental Response Bank Account

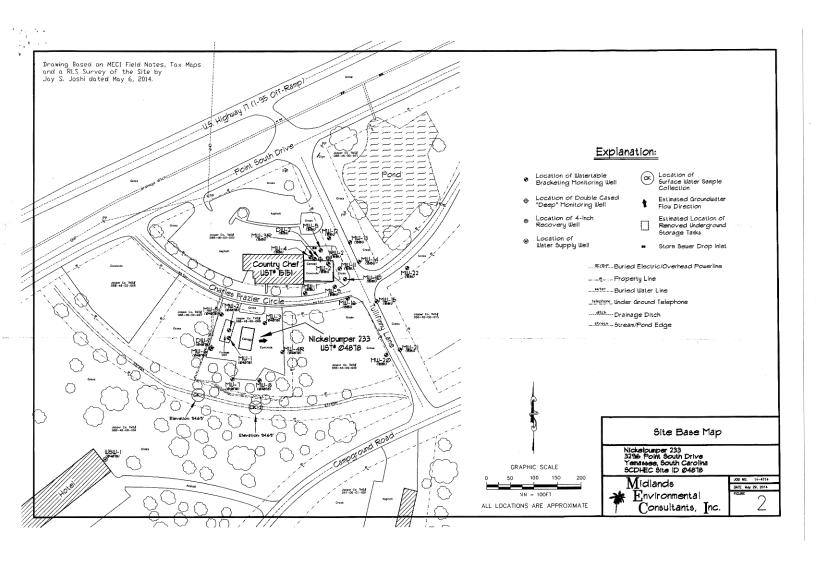
CONTRACT PO NUMBER 4600328425

Facility Name:

Nickelpumper 233

UST Permit #: 04878	Cost Agree	ement #:	Proposal		
ITEM	QUANTITY	UNIT	UNIT PRICE		TOTAL
1. Plan*					
A1. Site Specific Work Plan	1	each	\$0.00	200	\$0.00
C1. QAPP Appendix B		each	\$0.00		\$0.00
2. A1. Receptor Survey		each	\$0.00	Baltico	\$0.00
4. Mob/Demob					
B1. Personnel	1	each	\$350.00		\$350.00
10. Groundwater Sample Collection / Gauge	Depth to Water or Pr	roduct (Each)		建筑	Agreement and the second
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	Gentles 2	\$10.00
17. Disposal* (gallons or tons)				1 47 L	
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 co	ntainer(s)			Addin	
23. D. Site Reconnaissance		each	\$0.00	到 "	\$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	W. W.	\$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	(ANY 91)	\$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			11.	THE POPULATION OF THE PARTY OF	\$634.00





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 1 9 2015

0 18 HCh

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.

Page 2

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,

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 Kincey Ave, Ste 100, Huntersville, NC, 28078 (w/

approved CA)

Technical Files (w/encs.)

Approved Cost Agreement 51361

Facility 04878 NICKELPUMPER 233 BRYANTJC

PO Number

Task / Description Categories	<u>Item</u> <u>Description</u>	Qty / Pct	Unit Price	<u>Amount</u>
11 ANALYSES			·	
GW GROUN	NDWATER A2 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	16 0000	19 00	304 00
L	F1 EDB BY 8011	15 0000	18 00	270 00
		Total Amou	nt	574 00

November 18, 2015 Page 1 of 1 suprcait.rdf Rev: 1.15

Approved Cost Agreement 51360

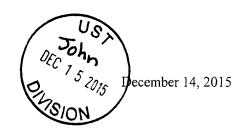
Facility 04878 NICKELPUMPER 233 BRYANTJC

PO Number

Task / Description Categories	Item Description	Qty / Pct	Unit Price	Amount
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
Lance	H1 FIELD BLANK	1 0000	10 00	10 00
17 DISPOSAL				
1	AA WASTEWATER	100 0000	1 00	100 00
18 MISCELLANEOUS				
	SITE SPECIFIC WORK PLAN	1 0000	0.00	0 00
	TRIPBLANK	1 0000	10 00	10 00
		Total Amo	unt	634 00

November 18, 2015 Page 1 of 1 suprcait.rdf Rev: 1.15





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

19the OCKETY

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	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method \$260-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)
								An	alyte Sa	mpled		-		
MW-1	X				, X	X	X	X						
MW-2	X				X	X	X	X						
MW-3				Χ										
MW-4R	Х				X	X	X	Χ -						
MW-5	X				X	X	X	X						-
MW-6	Х				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 dicloroethane 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.

Project Biologist

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?	Х		
8	Has the regional geology and hydrogeology been described?			Х
9	Are the receptor survey results provided as required?			Х
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?			Х
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?			Х
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	Х		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	Х		
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	Х		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	Х		
25	Does the report include a brief discussion of the assessment done and the results?			Х
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?	,		Х

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?			Х
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?	<u></u> .		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)	Х		
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)			Х
40	Has the site potentiometric map been provided? (Figure 5)			Х
41	Have the geologic cross-sections been provided? (Figure 6)			Х
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			Х
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)			Х
47	Have the soil boring/field screening logs been provided? (Appendix D)			Х
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	Υ	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	Υ	12/4/15	11.15	2-12	***	3.45	***	1.22	4.00	Slight Odor
MW-5	Υ	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	Υ	12/4/15	10.32	2-9	***	2.11	***	1.88	1.50	No Odor
MW-8	Υ	12/4/15	10.49	2-9 5	***	1.97	***	1.95	1.00	No Odor
DW-1	Υ	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	Υ	12/4/15	13:40	***	***	***	***	***	***	Field Blank
		,		L	J				41.50	TOTAL GALLONS PURGED

Site Activity Summary

UST Permit #:

04878

Facility Name:

Nickelpumper 233

County: Field Personnel:

Jasper

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
Trıp Blank	Y	12/4/15	13.43	***	***	***	***	***	***	Trip Blank
								,		
							<u></u>			
·····					,			•		
(,*										
;										

					,					
-"	[
								· · · · · ·	0.00	TOTAL GALLONS PURGED

					,						
Date:	12/4/2015	Site ID #:	04	878	Site Name:	Nickelpur	mper 233	Field Personnel:	C. Phillips,	C. Hansen	
County:	Jasper	Project Manager:	J. B	Bryant General Weather Conditions:		Clear		Ambient Air Temp (°F):	: 60		
					Quality Assurance					47559175	10
Met	er Name	Seri	ial #:			10 -	Calibration:				
'Si Pro1030 (pH, Spe	cific Conductivity, Temp.)	15H1	01448	pH 4.0: Y or N	Y	pH 7.0: Yor N	Υ	pH 10.0: Y or N	Y	S.C.: Yor	Y
YSI Pro 20 (D	issolved Oxygen)	12G1	02878	Yor N	Y						
MicroTPI/1	PW (Turbidity)	2013	01183	0.0 NTU: Yor N	Y	1.0 NTU: Yor N	Y	10.0 NTU: Yor N	Y		
					Well Information	4					de de la
и	/ell ID:	M	W-1	Conversion Factor (neter (ft.): C): 1" well = 0.047, 2" " well = 0.652	0.1	63	Method of Purging/Sample Collection	Ва	iler	Perhabbanisma
Sample Type: (i.e. MW, IW, RW, WSW)		N	īw	Screened I.	nterval (ft.):	2.5-	12.5	Total Well Depth (TWD) (ft.):	1:	12.5	
Depth to Free Product (DFP) (ft.):		N	ID .	Depth to Ground	water (DGW) (ft.):	1,3	30	Free Product Thickness (ft.):	Not Detected		
Length of water column (LWC = TWD – DGW) (ft.):		1	1.2	1 casing volume (C	V = LWC x C) (gals.):	1,8	33	5 casing volumes (5 x CV) (gals.);	9.	13	
					Purging Data						7.64
			Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Samp	ling
	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			
Sp	ecific Conductivity (μS/ci	m)	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: Yor N	Y	If yes, Duplicate Time:	12:33	Total Gallons Purged:	9.5)
otes:					Strong Odor			•			

Commence Commence Calibration:	_			1878	Site Name:	Nickelpu		Field Personnel:	C. Phillips, C. Hansen		
Meter Name Serial #: Calibration:		Project Manager; J. B		Bryant		Cle	ear	Ambient Air Temp (°F):	60		
Signature Sign					Quality Assurance		40.00				
YSI Pro 20 (Dissolved Oxygen) 12G102878			Serial #:				Calibration:				
MicroTPUTPW (Turbidity) 201301183 0.0 NTU; Y or N Y 1.0 NTU; Y or N Y 10.0	,	1:	H101448	pH 4.0: Yor N	Y	ρΗ 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Yor	,
Well Information		1:	G102878	Yor N	Y						
Well ID: MVV-2 Well Diameter (ft.): To well = 0.047, 2" well = 0.647, 2" well = 0.647, 2" well = 0.647, 2" well = 0.652 0.163 Put well = 0.047, 2" well = 0.852 Sample Type: (i.e. MW, IW, RW, WSW) MW Screened Interval (ft.): 2-12 Tot (ft.) Depth to Free Product (DFP) (ft.): ND Depth to Groundwater (DGW) (ft.): 1.00 Finth Length of water column (LWC = TWD - DGW) (ft.): 11 1 casing volume (CV = LWC x C) (gals.): 1.79 5 cas x Volume Purged (gallons) 0.00 1.79 3.59 5.38 7.17 Time (military) 12.36 12.39 PH (s.u.) 5.94 6.13 Specific Conductivity (µS/cm) 319.3 425.5 Water Temperature (*C) 17.3 17.1 Dissolved Oxygen (mg/L) 2.21 2.09	T	201301183		0.0 NTU: Yor N	. Y	1.0 NTU: Yor N	Y	10.0 NTU: Y or N	Y		
Well ID: MW-2 Conversion Factor (C): π well = 0.047, 2" well = 0.047, 2" well = 0.852 0.163 Pur well = 0.464, 4" well = 0.852 Sample Type: (i.e. MW, IW, RW, WSW) MW Screened Interval (ft.): 2-12 Tot (C) Depth to Free Product (DFP) (ft.): ND Depth to Groundwater (DGW) (ft.): 1.00 Final Product (DFP) (ft.): 1.00 Final Product (DFP) (ft.): 1.00 Final Product (DFP) (ft.): 1.79 8 cas x 8 cas x 1.79 8 cas x 8 cas x 8 cas x 1.79 1.73 1.71 1.71 1.71 1.71 1.71 1.71 1.71 1.71 1.72 1.72 1.73 1.73 1.71 1.73 1.73 1.74 1.73 <t< td=""><td></td><td></td><td></td><td></td><td>Well Information</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>					Well Information						
Depth to Free Product (DFP) (ft.): ND Depth to Groundwater (DGW) (ft.): 1.00 The content of the conte	T		MW-2	Conversion Factor (C): 1" well = 0.047, 2"	0.1	63	Method of Purging/Sample Collection	Ва	aller	
1 1 1 2 2 2 2 2 2 2	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 Ground	iwater (DGW) (ft.):	. 1.6	00	Free Product Thickness (ft.):	Not Detected		
Initial 1st Vol. 2nd Vol. 3rd Vol. 4th Vol.			11	1 casing volume (C	V = LWC x C) (gals.):	1.79		5 casing volumes (5 x CV) (gals.):	8	.97	
Volume Purged (gallons) 0.00 1.79 3.59 5.38 7.17 Time (military) 12:36 12:39 PH (s.u.) 5.94 6.13 Specific Conductivity (μS/cm) 319.3 425.5 Water Temperature (°C) 17.3 17.1 Dissolved Oxygen (mg/L) 2.21 2.09					Purging Data		18.35				4.02
Time (military) 12:36 12:39 PH (s.u.) 5:94 6:13 Specific Conductivity (µS/cm) 319.3 425.5 Water Temperature (°C) 17.3 17.1 Dissolved Oxygen (mg/L) 2:21 2:09			Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Samp	oling
PH (s.u.) 5.94 6.13 Specific Conductivity (μS/cm) 319.3 425.5 Water Temperature (°C) 17.3 17.1 Dissolved Oxygen (mg/L) 2.21 2.09	is)		0.00	1.79	3,59	5.38	7.17	8.97		2.2	25
Specific Conductivity (μS/cm) 319.3 425.5 Water Temperature (°C) 17.3 17.1 Dissolved Oxygen (mg/L) 2.21 2.09			12:36	12:39						12:	43
Water Temperature (°C) 17.3 17.1 Dissolved Oxygen (mg/L) 2.21 2.09			5.94	6.13						5.8	31
Dissolved Oxygen (mg/L) 2.21 2.09	i/cm	m)	319.3	425.5						370).6
	C)		17.3	17.1						17	.2
Turkidis (ATI)	/L)		2.21	2.09						1.8	15
130.1	Turbidity (NTU)		90.08	130.1						147	1.5
Sampling Data	1971		(de la company)		Sampling Data					2 20 5 5	6864
Sampled By: C. Phillips, C. Hansen Sampling Time: 12:43 Duplicate: Y or N N If yes, Duplicate Time:	C. F	Hansen	Sampling Time:	12:43	Duplicate: Y or N	N ₂		N/A	Total Gallons Purged:	2.2	25
Odor, Dry @ 2.25 Gallons					Odor, Dry @ 2.25 Ga	lons					

Sampled By:	C. Phillips, C.		Sampling Time:	11:15	Duplicate: Y or N	N	If yes, Duplicate	N/A	Total Gallons Purged:	4.0
	Turbidity (NTU)		90.81	168.1	206.50 Sampling Data	210.8				212.
	Dissolved Oxygen (mg/L)		1.22	1.04	1.12	2.45				2.6
	Water Temperature (°C)		17.5	19.4	20.4	19.9				19.
s	pecific Conductivity (μS/cn	n)	109.9	117.5	110.6	126.8				125
	PH (s.u.)		5.26	5.25	5.30	5.38				5.4
	Time (military)		11:05	11:07	11:10	11:12				11:1
	Volume Purged (gallons)		0.00	1.39	2.79	4.18	5.57	6.97		4.0
			Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Samp
					Purging Data					
	of water column FWD – DGW) (ft.):	8.	55	1 casing volume (C	V = LWC x C) (gals.):	1,3	39	5 casing volumes (5 x CV) (gals.):	6.	97
Depth to Fre	e Product (DFP) (ft.):	N	D	Depth to Ground	water (DGW) (ft.):	3.	45	Free Product Thickness (ft.):	Not De	etected
Sample Type: (i.e. MW, IW, RW, WSW)	М	w	Screened I	nterval (ft.):	2-	12	Total Well Depth (TWD) (ft.):	1	2
	Well ID:	MV	/-4R	Conversion Factor (6	neter (ft.): C): 1" well = 0.047, 2" " well = 0.652	0.1	63	Method of Purging/Sample Collection	- Ba	iler
					Well Information			1.35		
MicroTP	I/TPW (Turbidity)	2013	01183	0.0 NTU: Yor N	Υ	1.0 NTU: Yor N	Υ	10.0 NTU: Yor N	Υ	
YSI Pro 20	(Dissolved Oxygen)	12G1	02878	Yor N	Y					
I Pro1030 (pH, S _j	pecific Conductivity, Temp.)	15H1	01448	pH 4.0: Y or N	Y	pH 7.0: Y or N	Υ	pH 10.0: Y or N	Υ	S.C.: Yor
M	eter Name	Seri	al #:				Calibration:			
					Quality Assurance					
County:	Jasper	Project Manager:	J. E	Bryani	General Weather Conditions:	Cle	ear	Ambient Air Temp (°F):	6	ю
Date:	12/4/2015	Site ID #:	04	1878	Site Name:	. Nickelpui	nper 233	Field Personnel:	C. Phillips,	C. Hansen

Date:	12/4/2015	Site ID #:	04	1878	Site Name:	Nickelpur	nper 233	Field Personnel:	C. Phillips,	C. Hansen
County:	Jasper	Project Manager:	J. E	Bryant	General Weather Conditions:	Cle	ear	Ambient Air Temp (*F):	е	0
				(2)	Quality Assurance				4.84	
Me	ter Name	Seri	al #:				Calibration:			
SI Pro1030 (pH, Spe	ecific Conductivity, Temp.)	15H1	01448	pH 4.0: Yor N	Y	pH 7.0: Y or N	Y	ρΗ 10.0: Y or N	Y	S.C.: Yor
YSI Pro 20 (L	Dissalved Oxygen)	12G1	02878	Yor N	Y			-		
MicroTPI/	TPW (Turbidity)	20130	01183	0.0 NTU: Yor N	Y	1.0 NTU: Yor N	Υ	10.0 NTU: Y or N	Y	
					Well Information		and the same of the same of			
	Vell ID:	MV	N-5	Conversion Factor (meter (ft.): 'C): 1" well = 0.047, 2" 4" well = 0.652	0.1	63	Method of Purging/Sample Collection	Ba	iler
Sample Type: (i.	e. MW, IW, RW, WSW)	М	W	Screened	Interval (ft.):	2-	12	Total Well Depth (TWD) (ft.):	1	2
Depth to Free	Product (DFP) (ft.):	N	ID	Depth to Ground	iwater (DGW) (ft.):	2.5	56	Free Product Thickness (ft.):	Not De	etected
	f water column ND – DGW) (ft.):	9.	44	1 casing volume (C	V = LWC x C) (gals.):	1.:	54	δ casing volumes (δ x CV) (gals.):	7.	69
					Purging Data					
			Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Samplin
	Volume Purged (gallons)		0.00	1.54	3.08	4.62	6.15	7.69		
2	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		
. Sp	ecific Conductivity (μS/ci	n)	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	Ν.	If yes, Duplicate Time:	N/A	Total Gallons Purged:	8.00
otes:			•		Slight Odor					

Date:	12/4/2015	Site ID #:	04	878	Site Name:	Nickelpur	mper 233	Field Personnel:	C. Phillips,	C. Hansen	
County:	Jasper	Project Manager:	J. E	Pryant	General Weather Conditions:	Ck	еаг	Ambient Air Temp (°F):	•	0	
			34		Quality Assurance						ii ii
Me	ter Name	Seri	al #:				Calibration:				
'SI Pro1030 (pH, Spe	ecific Conductivity, Temp.)	15H10	01448	pH 4.0: Yor N	Y	pH 7.0: Y or N	Y	pH 10.0: Y or N	Υ	S.C.: Y or N	Υ
YSI Pro 20 (I	Dissolved Oxygen)	12G1	02878	Yor N	Y						
MicroTPI/	TPW (Turbidity)	20130	01183	0.0 NTU: Y or N	Y	1.0 NTU: Yor N	Υ	10.0 NTU: Y or N	Υ		
	44 July 10 10 10 10 10 10 10 10 10 10 10 10 10		1.5.07		Well Information						351114
	Vell ID:	MV	V-6	Conversion Factor (meter (ft.): 'C): 1" well = 0.047, 2" 1" well = 0.652	0,1	63	Method of Purging/Sample Collection	Вя	iler	
Sample Type: (i.	e. MW, IW, RW, WSW)	М	w	Screened i	Interval (ft.):	2-	12	Total Well Depth (TWD) (ft.):	1	2	
Depth to Free	Product (DFP) (ft.):	N	D	Depth to Ground	fwater (DGW) (ft.):		65	Free Product Thickness (ft.):	Not D	etected	
	f water column ND – DGW) (ft.):	9.	35	1 casing volume (C	V = LWC x C) (gals.):		52	5 casing volumes (5 x CV) (gals.):	7.	62	
					Purging Data						
			Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post	Samp	oling
	Volume Purged (gallons)		0.00	1.52	3.05	4.57	6.10	7.62		3.2	25
	Time (military)		11:40	11:44	11:47					11:	.51
	PH (s.u.)		7.12	6.18	5.74					6.0	32
Sį	ecific Conductivity (μS/cr	n)	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	5.8
					Sampling Data						
Sampled By:	C. Phillips, C.	Hansen	Sampling Time:	11:51	Duplicate: Yor N	N	If yes, Duplicate Time:	N/A	Total Gallons Purged:	3.2	25
otes:					No Odor, Dry @ 3.25 G	Sallons					

			į	1						
Date:	12/4/2015	Site ID #:	048	378	Site Name:	Nickelpu	umper 233	Field Personnel:	C. Phillips,	, C. Hansen
County:	Jasper	Project Manager:	J. Bry	ryant	General Weather Conditions:	Cl	lear	Ambient Air Temp (°F):	· ·	60
					Quality Assurance					
Me	eter Name	Ser	orial #:				Calibration:			
YSI Pro1030 (pH, Sp	pecific Conductivity, Temp.)	15H1	1101448	рН 4.0: Yor N	Y	pH 7.0; Yor N	Y	pH 10.0: Y or N	Y	S.C.: Yor Y
YSI Pro 20 (I	(Dissolved Oxygen)	12G1	102878	Yor N	Y	1				
MicroTPI/	VTPW (Turbidity)	2013	301183	0.0 NTU: Yor N	Υ	1.0 NTU: Yor N	Y	10.0 NTU: Yor N	Y	
					Well Information					
v	Well ID:	M	лvv-7	Conversion Factor (C	meter (ft.): 'C): 1" well = 0.047, 2" 4" well = 0.652	0.1	163	Method of Purging/Sample Collection	Ва	ailer
Sample Type: (i.	i.e. MW, IW, RW, WSW)	fv.	MW	Screened I	Interval (ft.):	2	2-9	Total Well Depth (TWD) (ft.):		9
Depth to Free	e Product (DFP) (ft.):	,	ND	Depth to Ground	dwater (DGW) (ft.):	2.	.11	Free Product Thickness (ft.):	Not De	etected
	of water column FWD – DGW) (ft.):	6	6.89	1 casing volume (C	V = LWC x C) (gals.):	1,	.12	5 casing volumes (5 x CV) (gals.):	5.	i.62
					Purging Data				RETTAL CONTRACTOR	
			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
St	pecific Conductivity (µS/c	:m)	110.8	51.3		<u>, </u>				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					8 25 V, 2000, Fr
Sampled By:	C. Phillips, C.	. Hansen	Sampling Time:	10:32	Duplicate: Yor N	N	If yes, Duplicate Time:	N/A	Total Gallons Purged:	1.50
Notes:					No Odor, Dry @ 1.50 G	allons				

Date:	12/4/2015	Site ID #:	0-	4878	Site Name:	Nickelpu	mper 233	Field Personnel:	C. Phillips	C. Hansen	
County:	Jasper	Project Manager:	J. 8	Bryant	General Weather Conditions:	CI	ear	Ambient Air Temp (°F):		30	
					Quality Assurance						2.3
Me	ter Name	Seri	al N:				Calibration:				
SI Pro1030 (pH, Sp	ecific Conductivity, Temp.)	15H1	01448	pH 4.0; Yor N	Y	pH 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Yor N	,
Y\$1 Pro 20 (1	Dissolved Oxygen)	12G1	02878	Yor N	Y			-			
MicroTPI	TPW (Turbidity)	20130	01183	0.0 NTU: Yor N	Y	1.0 NTU: Yor N	Y	10.0 NTU: Yor N	Y		
					Well Information					30.77	5.0
	Well ID:	му	V-8	Conversion Factor	meter (ft.): (C): 1" well = 0.047, 2" 4" well = 0.652	0.1	163	Method of Purging/Sample Collection	Ba	iler	
Sample Type: (i.	e. MW, IW, RW, WSW)	м	w	Screened	Interval (ft.):	2-	9.5	Total Well Depth (TWD) (ft.):	S	1.5	
Depth to Free	Product (DFP) (ft.):	N	D	Depth to Ground	dwater (DGW) (ft.):	1.	97	Free Product Thickness (ft.):	Not D	etected	
	f water column WD – DGW) (ft.):	7.	53	1 casing volume (C	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	Samp	pling
. + .*	Volume Purged (gallons)		0.00	1.23	2.45	3.68	4.91	6.14		1.0	.00
	Time (military)		10:45							10:	:49
	PH (s.u.)		4.78							5.1	24
Sį	pecific Conductivity (µS/ci	n)	80.2							115	5.7
	Water Temperature (°C)		16.9							16	5.7
	Dissolved Oxygen (mg/L)		1.95							2.	.5
	Turbidity (NTU)		78.13							48	7.6
					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:	1.0	.00
tes:					No Odor, Dry @ 1.00 G	Sallons					

Date:	12/4/2015	Site ID #:	04	878	Site Name:	Nickelpur	nper 233	Field Personnel:	C. Phillips,	C. Hansen	
County:	Jasper	Project Manager:	J. B	yant	General Weather Conditions:	Cle	ear	Ambient Air Temp (°F):	6	0	
			4350	r'	Quality Assurance						
Me	ter Name	Seri	al #:				Calibration:				
l Pro1030 (pH, Spe	ecific Conductivity, Temp.)	15H1	01448	pH 4.0: Yor N	Υ	pH 7.0: Y or N	Y	pH 10.0: Y or N	Y	S.C.: Yor	
YSI Pro 20 (L	Dissolved Oxygen)	12G1	02878	Yor N	Y			•			
MicroTPt/	TPW (Turbidity)	2013	01183	0.0 NTU: Yor N	; _Y	1.0 NTU: Yor N	Y	10.0 NTU: Y or N	Y		
					Well Information						
V	Vell ID:	DV	V-1	Conversion Factor (6	neter (ft.): C): 1" well = 0.047, 2" " well = 0.652	0.1	63	Method of Purging/Sample Collection	Ba	iler	
Sample Type: (i.	e. MW, IW, RW, WSW)	M	w	Screened I	nterval (ft.):	43.5	48.5	Total Well Depth (TWD) (ft.):	48	1.5	
Depth to Free	Product (DFP) (ft.):	h	D	Depth to Ground	water (DGW) (ft.):	3.9	91	Free Product Thickness (ft.):	Not De	etected	
	f water column ND – DGW) (ft.):	44	.59	1 casing volume (C	/ = 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	Sampli	
	Volume Purged (gallons)		0.00	7.27	14.54	21.80	29.07	36.34		12.00	
	Time (military)		11:30	11:35		7				11:38	
	PH (s.u.)		6.72	6.98	7					7.06	
Sp	ecific Conductivity (µS/cn	n)	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	125,80						378.9	
					Sampling Data					9-13 A. L.	
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	
95.					No Odor, Dry @ 12.00 G	Gallons			Y N Bailer 48.5 Not Detected 36.34 Post Sam 12 11 7. 63		



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.

Project Biologist



CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT, All relevant fields must be completed accurately.

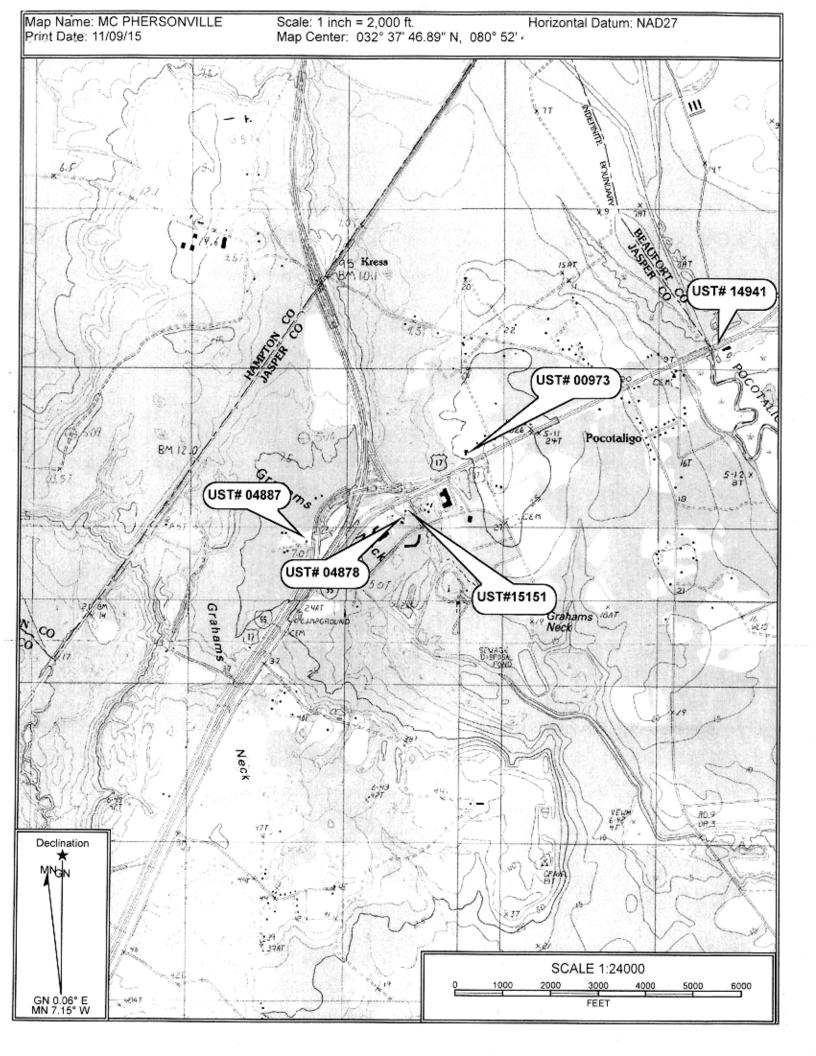
	Section B		lofo							tion (Page	ə:	į	•	и 🦳	2
Company: SCOHEC - UST	Report To:	Toject	_		117	7		-		ice Info ntion:	ormati	ion:			-				7					2	200	017	'3
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Columbia, SC 29201	Purchase C	order N	lo : .							Quote									-1 -	NPDES	1	GROU	ND W	/ATER		DRINKING	WATER
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Requested Due Date/TAT:	Project Nun	W.S	T#	04879	2 CL	人井	31360	ک_	Pace	Prone					_					STATE	55		_		Jaspa	ચ	1
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Section D Matrix C Required Client Information MATRIX /		€	9		COLL	ECTED		ı	1		Pr	resen	ative	s	N/W												
Drinking Wate		(see valid codes to left)	(G=GRAB C=COMP)					8	1	П	T	П	Т	T	6	100	1	$^{-}$	Н	+	\top	Н	Ť	T			
Water Waste Water	ww	8	9	COMPOS		COMPO		COLLECTION	ı							Mibe		S	11				-	9			
Product Soil/Solid	SL.	8	8					13	٦						_	880	λI	genate					- 1	Chlorine (Y/N)			
SAMPLE ID OII Wipe (A-Z, 0.97)	OL WP	- 1	9		1			۲	CONTAINERS						Test	Arraya .		힞					1	ije.			
Sample IDs MUST BE UNIQUE Tissue	AR TS	CODE	빏			,		TEMP	ΙĒ	Pel						2		ଧାପ		. -			- [휭			
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TEM#	- 1	MATRIX	SAMPLE TYPE			1 1		SAMPLE	₩ 8	upre	H ₂ SO ₄	킬로	Na-S.O.	Methanol	Umer Analysis	STEX X	1-1	∞ "	11				1	Residual	_		
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*Important Note: By signing this form you are accept	ing Pace's NE	T 30 da	ay pay	ment terms ar	nd agreeing	to late charg	es of 1.5% pe	r mon	th for a	ny invo	ices no	ot paid v	within 3	0 days.			mr	271175	101		,,,		F-Al	LL-Q-0	20rev.0	7, 15-May-2	

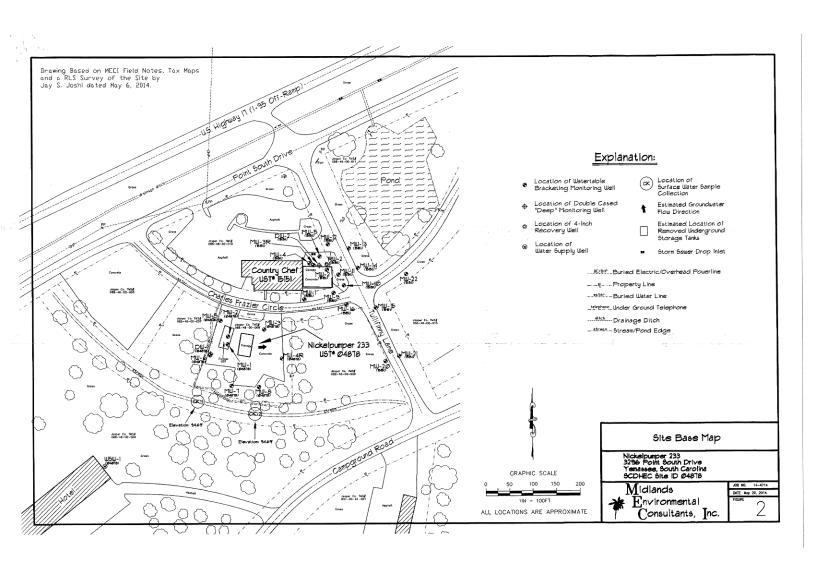


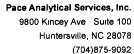
CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT, All relevant fields must be completed accurately.

Section A Required Client Information:	Section E Required		nformation:				j.	,Inyoi		ormation	ic_										Pag		2	of 2	
Company: SCDHEC TIUST	Report To:	7.	Byra.	1+- (15T		5	Atte	tion:												1		200	017	4
2600 Bull Street	Copy To:							Com	pany N	Name:							R	EGULA	TOR	Y AGE	NCY	,			
Columbia SC 29201								Addr	ess:								r	NPD	ES	Γ G	ROU	ND WA	TER [DRINKI	NG WATER
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Phone: 623 818 0606 803 890 0623	Project Nar	me:	Nickle						Project	τ.	Ċ	rto		, ,			S	ite Loc	ation						1 6
Requested Due Date/TAT:	Project Nur	mber:	157# 0	METR	Cost	M26	67		Profile :	#:	<u></u> (1110					-8	ST	ATE:	5	<u></u>		Ja	sper	T
			2.12	711770	2017	3120	_	.0	į			_	1		Rec	quest	ed An	alysis	Filter	ed (Y/	N)				
Section D Matrix C Required Client Information MATRIX Drinking Wat	CODE	codes to left)	COMP	COLL	EÇTED			Γ	L	Pres	servat	tives		N/A											
Water Waste Water Product Soil/Solid	WT WW P SL	biles o v	COM STA	POSITE	COMPO	SITE RAB	COLLECTION								BA136	x tes						(Y/N)	17		
SAMPLE ID Oil Wipe (A-Z, 0-9 / -) Air Sample IDs MUST BE UNIQUE Tissue	OL WP AR TS	CODE (see					TEMP AT CO	rAINERS	pe					Test	A A					-		Chlorine (Y			
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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

trey.carter@pacelabs.com

The Ct

Project Manager

Enclosures

cc Ashleigh Thrash, SCHDEC







CERTIFICATIONS

Project:

NICKLEPUMPER 233 04878/51360

Pace Project No.:

92278594

Charlotte Certification IDs
9800 Kıncey 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



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 Soild	Solid	12/04/15 11 [.] 38	12/05/15 10:00

REPORT OF LABORATORY ANALYSIS



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



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
2278594001	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	
2278594002	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	
PA 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	
PA 8260	o-Xylene	24.3J	ug/L	50.0	12/13/15 02 27	
2278594003	MW 4R					
PA 8260	tert-Amyl Alcohol	504	ug/L	100	12/12/15 15:03	
EPA 8260	Methyl-tert-butyl ether	4 9J	ug/L	50	12/12/15 15:03	
PA 8260	Naphthalene	12.2	ug/L	50	12/12/15 15:03	
2278594011	SWS 3					
PA 8260	Toluene	0 59J	ug/L	1.0	12/11/15 16 11	
2278594012	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	
PA 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	
PA 8260	Ethylbenzene	1260	ug/L	250		
PA 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	
PA 8260	Toluene	6510	ug/L	250	12/14/15 11 44	
PA 8260	Xylene (Total)	3370	ug/L	500	12/14/15 11 44	
PA 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	

REPORT OF LABORATORY ANALYSIS



ANALYTICAL RESULTS

Project.

NICKLEPUMPER 233 04878/51360

Pace Project No 92278594

Date: 12/24/2015 01:24 PM

Sample: MW 1	Lab ID:	92278594001	Collected	12/04/15	12 30	Received: 12/	05/15 10:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qua
8011 GCS EDB and DBCP	Analytical	Method EPA 8	3011 Prepara	ition Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0 020	0 020	1	12/09/15 16 49	12/10/15 07:05	106-93-4	
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 8	3260						
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		
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		
Xylene (Total)	3450	ug/L	500	135	50		12/14/15 11 27		
m&p-Xylene	1960	ug/L	50.0	15 5	5		12/13/15 02 11		
o-Xylene	1490	ug/L	250	80.0	50		12/14/15 11:27	95- 4 7-6	
Surrogates					_			100.00.1	
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	



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 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Lımit ———————	MDL .	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method EPA 8	011 Prepara	ition Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	12/09/15 16 49	12/10/15 07 25	106-93-4	
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 8	260						
tert-Amyl Alcohol	ND	ug/L	1000	768	10		12/13/15 02:27	75-85- 4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	1000	577	10		12/13/15 02 27	75-65-0	
ert-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	
Kylene (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		
1,2-Dichloroethane-d4 (S)	101	%	70-130		10		12/13/15 02 27		
Toluene-d8 (S)	101	%	70-130		10		12/13/15 02:27	2037-26-5	



Project NICKLEPUMPER 233 04878/51360

Pace Project No.: 92278594

Date: 12/24/2015 01:24 PM

Sample: MW 4R	Lab ID:	92278594003	Collected	12/04/15	11 15	Received: 12/	05/15 10:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0 020	0 020	1	12/09/15 16 ⁻ 49	12/10/15 07:45	106-93-4	
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	3260						
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	50	17	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	50	1.7	1		12/12/15 15:03	108-20-3	
Ethanol	ND	ug/L	200	138	1		12/12/15 15:03	6 4 -17-5	
Ethylbenzene	ND	ug/L	50	16	1		12/12/15 15:03	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10 0	36	1		12/12/15 15.03	637-92-3	
Methyl-tert-butyl ether	4.9J	ug/L	50	17	1		12/12/15 15:03	1634-04-4	
Naphthalene	12.2	ug/L	50	20	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	27	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	
p-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		
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		12/12/15 15:03		
Toluene-d8 (S)	109	%	70-130		1		12/12/15 15:03	2037-26-5	



Project

NICKLEPUMPER 233 04878/51360

Pace Project No.:

Date: 12/24/2015 01 24 PM

92278594

Sample: MW 5	Łab ID:	92278594004	Collected	: 12/04/15	13 04	Received: 12/	05/15 10 00 Ma	atrıx Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0 020	1	12/09/15 16.49	12/10/15 08:06	106-93-4	
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 8	260						
tert-Amyl Alcohol	ND	ug/L	100	76 8	1		12/12/15 15 20	75-85-4	
ert-Amylmethyl ether	ND	ug/L	10 0	3.4	1		12/12/15 15:20	994-05-8	
Benzene	ND	ug/L	5.0	17	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	
ert-Butyl Alcohol	ND	ug/L	100	57 7	1		12/12/15 15:20	75-65-0	
ert-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	50	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	50	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	50	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	16	1		12/12/15 15 20	108-88-3	
Xylene (Total)	ND	ug/L	10.0	27	1		12/12/15 15 20	1330-20-7	
n&p-Xylene	ND	ug/L	10.0	3.1	1		12/12/15 15:20	179601-23-1	
o-Xylene	ND	ug/L	50	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	



Project

NICKLEPUMPER 233 04878/51360

Pace Project No . 92278594

Date. 12/24/2015 01 24 PM

Sample: MW 6	Lab ID:	92278594005	Collected.	12/04/15	5 11 51	Received: 12/	05/15 10 00 Ma	atrıx Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qua
8011 GCS EDB and DBCP	Analytical	Method EPA 8	011 Prepara	tion Metho	od: EPA	X 8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0 020	0.020	1	12/09/15 16:49	12/10/15 08 26	106-93-4	
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 8	3260						
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	17	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	
ert-Butyl Alcohol	ND	ug/L	100	57 7	1		12/12/15 15 37	75-65-0	
ert-Butyl Formate	ND	ug/L	50 0	73	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	50	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	17	1		12/12/15 15:37	1634-04-4	
Naphthalene	ND	ug/L	5.0	20	1		12/12/15 15:37	91-20-3	
Toluene	ND	ug/L	50	1.6	1		12/12/15 15:37	108-88-3	
Kylene (Total)	ND	ug/L	10 0	27	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		
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		12/12/15 15:37		
Toluene-d8 (S)	104	%	70-130		1		12/12/15 15 37	2037-26-5	



Project NICKLEPUMPER 233 04878/51360

Pace Project No 92278594

Date: 12/24/2015 01 24 PM

Sample: MW 7	Lab ID:	92278594006	Collected	12/04/15	10.32	Received: 12/	05/15 10.00 Ma	atrix: Water	
_			Report		55	D	A b	040 No	0
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No	Qua
8011 GCS EDB and DBCP	Analytical	Method EPA 8	011 Prepara	ition Metho	d EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	12/09/15 16:49	12/10/15 08 46	106-93-4	
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 8	260						
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	17	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	
ert-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	73	1		12/12/15 15:54	762-75-4	
1,2-Dichloroethane	ND	ug/L	50	1.8	1		12/12/15 15 54	107-06-2	
Diisopropyl ether	ND	ug/L	50	17	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	50	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	50	20	1		12/12/15 15 54	91-20-3	
Toluene	ND	ug/L	50	16	1		12/12/15 15.54	108-88-3	
Xylene (Total)	ND	ug/L	10.0	27	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		
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		12/12/15 15:54		
Toluene-d8 (S)	105	%	70-130		1		12/12/15 15 54	2037-26-5	



Project: NICKLEPUMPER 233 04878/51360

Pace Project No.: 92278594

Date: 12/24/2015 01:24 PM

Sample: MW 8	Lab iD:	92278594007	Collected	12/04/15	10 49	Received 12/	05/15 10 00 Ma	atrıx Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ition Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	12/09/15 17:31	12/10/15 00 56	106-93-4	
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 8	3260						
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	50	17	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	
ert-Butyl Alcohol	ND	ug/L	100	57 7	1		12/12/15 16:11	75-65-0	
ert-Butyl Formate	ND	ug/L	50 0	73	1		12/12/15 16:11	762-75-4	
1,2-Dichloroethane	ND	ug/L	50	18	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	50	16	1		12/12/15 16:11	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10 0	36	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	50	2.0	1		12/12/15 16 11	91-20-3	
Toluene	ND	ug/L	50	16	1		12/12/15 16.11		
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	16	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	



Huntersville, NC 28078 (704)875-9092

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 Ma	atrıx. Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qual
8011 GCS EDB and DBCP	Analytical	Method. EPA 8	011 Prepara	ition Metho	d. 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									



Project NICKLEPUMPER 233 04878/51360

Pace Project No.: 92278594

Date. 12/24/2015 01.24 PM

Sample: SWS 1	Lab ID:	92278594009	Collected	12/04/15	13:20	Received: 12/	05/15 10 00 Ma	atrix: Water	
.	D 14 -	Lleuka	Report	MDL	DF	Prepared	Analyzed	CAS No	Qua
Parameters	Results -	Units	Lımit	MDL .	DF	—————	Analyzeu		Qua
8011 GCS EDB and DBCP	Analytical	Method EPA 8	011 Prepara	ation Metho	od. EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0 020	0 020	1	12/09/15 17:31	12/10/15 01:34	106-93-4	
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 8	3260						
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	36	1		12/11/15 15:38	75-65-0	
tert-Butyl Formate	ND	ug/L	50 0	19	1		12/11/15 15:38	762-75-4	
1,2-Dichloroethane	ND	ug/L	10	0.24	1		12/11/15 15 38	107-06-2	
Diisopropyl ether	ND	ug/L	10	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	10	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		
m&p-Xylene	ND	ug/L	20	0 66	1		12/11/15 15:38		
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	



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 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method EPA 8	011 Prepara	ition Metho	od. EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0 020	0.020	1	12/09/15 17 [.] 31	12/10/15 01:54	106-93-4	
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 8	260						
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	10	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	
ert-Butyl Alcohol	ND	ug/L	100	3.6	1		12/11/15 15:54	75-65-0	
ert-Butyl Formate	ND	ug/L	50.0	19	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	10	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	10	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	10	0.26	1		12/11/15 15 [.] 54	108-88-3	
Kylene (Total)	ND	ug/L	20	0.66	1		12/11/15 15 [.] 54	1330-20-7	
n&p-Xylene	ND	ug/L	20	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		
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	



Project.

NICKLEPUMPER 233 04878/51360

Pace Project No. 92278594

Date. 12/24/2015 01.24 PM

Sample: SWS 3	Lab ID:	92278594011	Collected	12/04/15	13.55	Received 12/	05/15 10 00 Ma	atrix Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
3011 GCS EDB and DBCP	Analytical	Method EPA 8	3011 Prepara	ation Metho	od EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0 020	1	12/09/15 17:32	12/10/15 02.51	106-93-4	
1-Chloro-2-bromopropane (S)	105	%	60-140		1	12/09/15 17 32	12/10/15 02·51	301-79-56	
3260 MSV Low Level SC	Analytical	Method: EPA 8	3260						
tert-Amyl Alcohol	ND	ug/L	100	50 0	1		12/11/15 16 11	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	3.6	1		12/11/15 16 11	75-65-0	
ert-Butyl Formate	ND	ug/L	50.0	1.9	1		12/11/15 16 ⁻ 11	762-75-4	
1,2-Dichloroethane	ND	ug/L	10	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	10	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	
(Vlene (Total)	ND	ug/L	20	0 66	1		12/11/15 16 11	1330-20-7	
m&p-Xylene	ND	ug/L	20	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		-							
1-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	

(704)875-9092



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 Ma	atrix. Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method EPA 8	011 Prepara	ition Meth	od EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0 020	1	12/09/15 17·32	12/10/15 03 10	106-93-4	
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 8	260						
tert-Amyl Alcohol	7600	ug/L	500	384	5		12/13/15 02 44	75-85-4	
ert-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	
ert-Butyl Alcohol	4670	ug/L	500	288	5		12/13/15 02:44	75-65-0	
ert-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	
Kylene (Total)	3370	ug/L	500	135	50		12/14/15 11:44	1330-20-7	
n&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		
1,2-Dichloroethane-d4 (S)	104	%	70-130		5		12/13/15 02:44		
Toluene-d8 (S)	100	%	70-130		5		12/13/15 02:44	2037-26-5	



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 Ma	atrix. Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Meth	od: 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 8	3260						
tert-Amyl Alcohol	ND	ug/L	100	76 8	1		12/12/15 16 28	75-85-4	
ert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		12/12/15 16:28	994-05-8	
Benzene	ND	ug/L	50	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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		12/12/15 16:28	75-65-0	
ert-Butyl Formate	ND	ug/L	50 0	7.3	1		12/12/15 16 28	762-75-4	
1,2-Dichloroethane	ND	ug/L	50	18	1		12/12/15 16 28	107-06-2	
Diisopropyl ether	ND	ug/L	5 0	17	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	50	16	1		12/12/15 16.28	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10 0	36	1		12/12/15 16 [.] 28	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	50	1.7	1		12/12/15 16.28	1634-04-4	
Naphthalene	ND	ug/L	5.0	20	1		12/12/15 16·28	91-20-3	
Toluene	ND	ug/L	50	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		-3 -							
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	



Project:

NICKLEPUMPER 233 04878/51360

Pace Project No.: 92278594

Date. 12/24/2015 01:24 PM

Sample: TRIP BLANK	Lab ID:	92278594014	Collected	12/04/1	5 13 43	Received: 12	2/05/15 10:00 Ma	atrix Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8260 MSV	Analytical	Method: EPA 8	260						
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		12/12/15 16 [.] 45	75-85-4	
tert-Amylmethyl ether	ND	ug/L	100	3.4	1		12/12/15 16:45	994-05-8	
Benzene	ND	ug/L	5.0	17	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	73	1		12/12/15 16 45	762-75-4	
1,2-Dichloroethane	ND	ug/L	50	1.8	1		12/12/15 16 45	107-06-2	
Diisopropyl ether	ND	ug/L	50	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	100	3.6	1		12/12/15 16 45	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	17	1		12/12/15 16 [.] 45	1634-04-4	
Naphthalene	ND	ug/L	5.0	20	1		12/12/15 16:45	91-20-3	
Toluene	ND	ug/L	50	16	1		12/12/15 16 45	108-88-3	
Xylene (Total)	ND	ug/L	10.0	27	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	



Project: NICKLEPUMPER 233 04878/51360

Pace Project No. 92278594

Date: 12/24/2015 01:24 PM

Sample: DW-1 Soild	Lab ID:	92278594015	Collected	. 12/04/15	5 11.38	Received 12	2/05/15 10 [.] 00 Ma	atrix: Solid	
Results reported on a "wet-weig	ht" basis								
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No	Qual
8260/5035A SC Volatile Org	Analytical	Method EPA 8	260						
tert-Amyl Alcohol	ND	ug/kg	100	21.0	1		12/15/15 17:19		
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		
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	50	15	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	18	1		12/15/15 17 19	108-88-3	
Xylene (Total)	ND	ug/kg	10 0	36	1		12/15/15 17·19	1330-20-7	
m&p-Xylene	ND	ug/kg	10.0	36	1		12/15/15 17·19	179601-23-1	
o-Xylene	ND	ug/kg	5 0	19	1		12/15/15 17.19	95-47-6	
Surrogates									
Toluene-d8 (S)	97	%	70-130		1		12/15/15 17 ⁻ 19		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	



Project¹

NICKLEPUMPER 233 04878/51360

Pace Project No

92278594

QC Batch

MSV/34647

Analysis Method:

EPA 8260

QC Batch Method.

EPA 8260

Analysis Description:

Associated Lab Samples

92278594009, 92278594010, 92278594011

8260 MSV Low Level SC

METHOD BLANK: 1626806

Matrix: Water

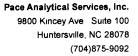
Associated Lab Samples

92278594009, 92278594010, 92278594011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Farameter						
1,2-Dichloroethane	ug/L	ND	10	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	10	0 12	12/11/15 12 13	
≣thanol	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	10	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	
-Xylene	ug/L	ND	10	0.23	12/11/15 12 13	
ert-Amyl Alcohol	ug/L	ND	100	50.0	12/11/15 12:13	
ert-Amylmethyl ether	ug/L	ND	10.0	0 10	12/11/15 12 ⁻ 13	
ert-Butyl Alcohol	ug/L	ND	100	36	12/11/15 12 [.] 13	
ert-Butyl Formate	ug/L	ND	50.0	19	12/11/15 12:13	
oluene	ug/L	ND	10	0.26	12/11/15 12·13	
(ylene (Total)	ug/L	ND	2 0	0.66	12/11/15 12 13	
,2-Dichloroethane-d4 (S)	%	92	70-130		12/11/15 12:13	
I-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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Project⁻

NICKLEPUMPER 233 04878/51360

Pace Project No.. 92278594

LABORATORY CONTROL SAMPLE	1626807	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	



Project:

NICKLEPUMPER 233 04878/51360

Pace Project No

92278594

QC Batch

MSV/34665

Analysis Method

EPA 8260

QC Batch Method

EPA 8260

8260 MSV SC

Associated Lab Samples:

Analysis Description 92278594003, 92278594004, 92278594005, 92278594006, 92278594007, 92278594013, 92278594014

METHOD BLANK 1627855

Matrix. Water

Associated Lab Samples

Date: 12/24/2015 01 24 PM

92278594003, 92278594004, 92278594005, 92278594006, 92278594007, 92278594013, 92278594014

		Blank	Reporting			
Parameter	Units	Result	Lımit	MDL	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND 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	17	12/12/15 13:36	
Diisopropyl ether	ug/L	ND	50	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	16	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	17	12/12/15 13:36	
Naphthalene	ug/L	ND	50	2.0	12/12/15 13 36	
o-Xylene	ug/L	ND	50	16	12/12/15 13 36	
ert-Amyl Alcohol	ug/L	ND	100	76.8	12/12/15 13 36	
ert-Amylmethyl ether	ug/L	ND	10.0	3 4	12/12/15 13:36	
ert-Butyl Alcohol	ug/L	ND	100	57.7	12/12/15 13 36	
ert-Butyl Formate	ug/L	ND	50.0	73	12/12/15 13:36	
Toluene	ug/L	ND	5.0	1.6	12/12/15 13 [.] 36	
(ylene (Total)	ug/L	ND	10.0	27	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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc	Result	% 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	
n&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	
ert-Amyl Alcohol	ug/L	1000	959	96	70-130	
ert-Amylmethyl ether	ug/L	100	83 8	84	70-130	
ert-Butyl Alcohol	ug/L	500	433	87	70-130	
ert-Butyl Formate	ug/L	400	341	85	70-130	
Toluene	ug/L	50	42 7	85	70-130	

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Project.

NICKLEPUMPER 233 04878/51360

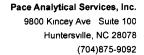
Pace Project No.: 92278594

LABORATORY CONTROL SAMPLE:	1627856	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc	Result	% 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	92278921041	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec		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	10 4	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						
		92278921040	Dup		Max	
Parameter	Units	Result	Result	RPD	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. 4 J	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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Project

NICKLEPUMPER 233 04878/51360

Pace Project No.: 92278594

SAMPLE DUPLICATE 1627857						
		92278921040	Dup		Max	
Parameter	Units	Result	Result	RPD	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		



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
,2-Dichloroethane	ug/L	ND	50	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	50	1.7	12/12/15 21:28	
Diisopropyl ether	ug/L	ND	5 0	17	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	36	12/12/15 21:28	
Ethylbenzene	ug/L	ND	5 0	1.6	12/12/15 21 28	
n&p-Xylene	ug/L	ND	10.0	3 1	12/12/15 21:28	
Methyl-tert-butyl ether	ug/L	ND	5 0	17	12/12/15 21.28	
Naphthalene	ug/L	ND	5.0	2.0	12/12/15 21:28	
-Xylene	ug/L	ND	5 0	16	12/12/15 21:28	
ert-Amyl Alcohol	ug/L	ND	100	76 8	12/12/15 21:28	
ert-Amylmethyl ether	ug/L	ND	10 0	3.4	12/12/15 21.28	
ert-Butyl Alcohol	ug/L	ND	100	57 7	12/12/15 21 28	
ert-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	
(ylene (Total)	ug/L	ND	10.0	2.7	12/12/15 21:28	
,2-Dichloroethane-d4 (S)	%	101	70-130		12/12/15 21:28	
I-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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc	Result	% 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	
n&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	
ert-Amyl Alcohol	ug/L	1000	1200	120	70-130	
ert-Amylmethyl ether	ug/L	100	96 0	96	70-130	
ert-Butyl Alcohol	ug/L	500	573	115	70-130	
ert-Butyl Formate	ug/L	400	426	106	70-130	
Toluene	ug/L	50	49.1	98	70-130	

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Project

NICKLEPUMPER 233 04878/51360

Pace Project No

92278594

LABORATORY CONTROL SAMPLE	1627919	Spike	LCS	LCS	% Rec		
Parameter	Units	Conc	Result	% 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						
		9227864300	6 Spike	MS	MS	% Rec	0

MATRIX SPIKE SAMPLE	1627920						
		92278643006	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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 I	/ 11
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 F	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						
		92278643007	Dup		Max	
Parameter	Units	Result	Result	RPD	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	
Disopropyl 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	
n&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
laphthalene	ug/L	ND	ND		30	
-Xylene	ug/L	ND	ND		30	
ert-Amyl Alcohol	ug/L	ND	ND		30	
ert-Amylmethyl ether	ug/L	ND	ND		30	

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Project:

NICKLEPUMPER 233 04878/51360

Pace Project No. 92278594

SAMPLE DUPLICATE: 1627921		00070040007	Dun		Max	
Parameter	Units	92278643007 Result	Dup Result	RPD	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		



Project:

NICKLEPUMPER 233 04878/51360

92278594015

Pace Project No .

92278594

QC Batch:

MSV/34714

Analysis Method:

EPA 8260

QC Batch Method

EPA 8260

Analysis Description:

Matrix: Solid

8260 MSV 5035A Volatile Organics

Associated Lab Samples

METHOD BLANK. 1629390

5

Associated I	Lab Samples.	9227859401
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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	53	18	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	53	1.9	12/15/15 13:02	
n&p-Xylene	ug/kg	ND	10.7	3.8	12/15/15 13 [.] 02	
Methyl-tert-butyl ether	ug/kg	ND	5.3	16	12/15/15 13 [.] 02	
Naphthalene	ug/kg	1.8J	5.3	1 3	12/15/15 13 02	
o-Xylene	ug/kg	ND	53	2.0	12/15/15 13 02	
ert-Amyl Alcohol	ug/kg	ND	107	22.4	12/15/15 13 02	
ert-Amylmethyl ether	ug/kg	ND	10.7	1 2	12/15/15 13:02	
ert-Butyl Alcohol	ug/kg	ND	107	20.3	12/15/15 13:02	
ert-Butyl Formate	ug/kg	ND	53.4	1 5	12/15/15 13:02	
Toluene	ug/kg	ND	5.3	19	12/15/15 13 02	
(ylene (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	
-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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc	Result	% 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	
thylbenzene	ug/kg	50.7	52.2	103	70-130	
n&p-Xylene	ug/kg	101	99 4	98	70-130	
Methyl-tert-butyl ether	ug/kg	50.7	55 7	110	70-130	
laphthalene	ug/kg	50 7	64 5	127	70-130	
-Xylene	ug/kg	50.7	53.3	105	70-130	
ert-Amyl Alcohol	ug/kg	1010	1300	128	70-130	
ert-Amylmethyl ether	ug/kg	101	110	108	70-130	
ert-Butyl Alcohol	ug/kg	507	633	125	70-130	
ert-Butyl Formate	ug/kg	406	416	103	70-130	
oluene	ug/kg	50 7	54.5	108	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.





Project:

NICKLEPUMPER 233 04878/51360

Pace Project No.. 92278594

Date: 12/24/2015 01 24 PM

LABORATORY CONTROL SAMPLE	1629391	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc	Result	% 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	



Project

NICKLEPUMPER 233 04878/51360

Pace Project No

92278594

QC Batch

OEXT/39572

Analysis Method

EPA 8011

QC Batch Method:

Analysis Description:

GCS 8011 EDB DBCP

EPA 8011

Associated Lab Samples:

92278594001, 92278594002, 92278594003, 92278594004, 92278594005, 92278594006

METHOD BLANK: 1623593

Parameter

Parameter

Matrix: Water

Associated Lab Samples.

92278594001, 92278594002, 92278594003, 92278594004, 92278594005, 92278594006

Blank

Reporting

Result Limit Units

0.24

Conc

28

MDL

Qualifiers

1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane (S) ug/L %

Units

ug/L

%

92278558028

Result

ND 86

0 020 60-140 0.020 12/10/15 00 20 12/10/15 00 20

Analyzed

1623594 LABORATORY CONTROL SAMPLE & LCSD:

MATRIX SPIKE & MATRIX SPIKE DUPLICATE

LCS Spike Result Conc

.29

1623595 LCSD LCS LCSD % Rec % Rec Result

84

85

0.25

% Rec Limits RPD

Max RPD Qualifiers

20

1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane (S)

1623596

ND

1623597

0 25

0 24

90

90

60-140

60-140

2

Parameter 1,2-Dibromoethane (EDB)

MS MSD Spike Spike

28

Conc

MS MSD Result Result

MS % Rec

84

84

% Rec Limits 60-140 90

60-140

% Rec Max RPD RPD Qual 0 20

1-Chloro-2-bromopropane (S)

SAMPLE DUPLICATE

1623598

92278558029 Units Result Parameter ND 1,2-Dibromoethane (EDB) ug/L 84 1-Chloro-2-bromopropane (S) %

Units

ug/L

%

Dup Result ND 78

RPD

9

Max RPD 20

MSD

89

Qualifiers



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

Date: 12/24/2015 01:24 PM

Matrix. Water

Associated Lab Samples: 92278594007, 92278594008, 92278594009, 92278594010, 92278594011, 92278594012, 92278594013

Parameter	Units	Result Limit		MDL	Analyzed	Qualifiers
1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane (S)	ug/L %	ND 102	0 021 60-1 4 0	0 021	12/09/15 23 59 12/09/15 23 59	-

LABORATORY CONTROL SAMPLE &	LCSD 1623617		16	323618						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc	Result	Result	% Rec	% Rec	Limits	RPD	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 SP	IKE DUPLI	CATE. 16236	19		1623620							
Parameter	Units	92278594010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane (S)	ug/L %	ND	28	.28	0.31	0.28	108 109	98 99	60-140 60-140		20	

SAMPLE DUPLICATE: 1623621		92278594013	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND ND	ND		2	0
1-Chloro-2-bromopropane (S)	%	95	228	83		S3





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

S3

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 preserve	ed 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

Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis)

Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NICKLEPUMPER 233 04878/51360

Pace Project No 92278594

011 GCSV/23494 011 GCSV/23494 011 GCSV/23494
•
011 GCSV/23494
011 GCSV/23494
011 GCSV/23494
011 GCSV/23494
011 GCSV/23496

Pace Analytical	
Face Analytical	•

Sample Condition Upon Receipt (SCUR)

Document Number: F-CHR-CS-003-rev.16.1

Page 1 of 2* Issuing Authority: Pace Huntersville Quality Office

ent Name: SCDASC		* Pa	ge 2 of 2 is for Internal Use Only
rier: Fed Ex UP USP C	lier Commerc	Pace Other	Optional .
ody Seal on Cooler/Box Present: U ye	es 🗌 no Sea	ls intact: yes	no Proj. Due Date: Proj. Name:
ring Material: Bubble Wrap Bubble	e Bags 🔲 None [Other	r ioj, warre.
mometer Used: IR Gun (1505)	Type of Ice: W	et Blue None	Samples on ice, cooling process has begun
p Correction Factor No Correction			
ected Cooler Temp.:C should be above freezing to 6°C	Biological Tissu	le is Frozen: Yes No N/A Comments:	Date and Initials of person examining contents:
n of Custody Present:	☐Yes ☐No ☐N	A 1.	
n of Custody Filled Out:	ØYes □No □N	A 2.	
n of Custody Relinquished:	□Yes □No □N/	A 3.	
pler Name & Signature on COC:	□Yes □No □N	A 4.	
ples Arrived within Hold Time:	☐Yes ☐No ☐N	A 5.	
t Hold Time Analysis (<72hr):	□Yes ☑No □N/	A 6.	
n Turn Around Time Requested:	□Yes ☑No □N/	A 7.	
cient Volume:	☐Yes ☐No ☐N/	A 8.	
ect Containers Used:	☑Yes ☑No □N/	9.	
Pace Containers Used:	ØYes □No □N/	Α	
:ainers Intact:	□Yes □No □N/	10.	
red volume received for Dissolved tests	□Yes □No □N/	11.	
ple Labels match COC:	□Yes □No □N/	12. No date	or time on
ncludes date/time/ID/Analysis Matrix:	W >	604115	
ntainers needing preservation have been checked.	□Yes □No □NA	13.	
intainers needing preservation are found to be in bliance with EPA recommendation.	□Yes □No □N/		
tions: VOA, coliform, TOC, O&G, Wi-DRO (water)	☐Yes ☐No	<u> </u>	
iples checked for dechlorination:	□Yes □No □N/	14.	
dspace in VOA Vials (>6mm):	☐Yes ☐No ☐N/	15.	
Blank Present:	□Yes □No □N/	16.	
Blank Custody Seals Present	□Yes □No □N//	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
e Trip Blank Lot # (if purchased):			
nt Notification/ Resolution:		F	ield Data Required? Y / N
Person Contacted:	Date	/Time:	-
mments/ Resolution:			
	1/2/-1		
JRF Review: O Date	1-1-1		Place label here
SRF Review: Date		WO:	#:92278594
te: Whenever there is a discrepancy affecting North samples, a copy of this form will be sent to the North Certification Office (i.e. out of hold, incorrect present incorrect containers)	h Carolina DEHNR		

6	
Pace Analytical	•

CHAIN-OF-CUSTODY / Analytical Request Document

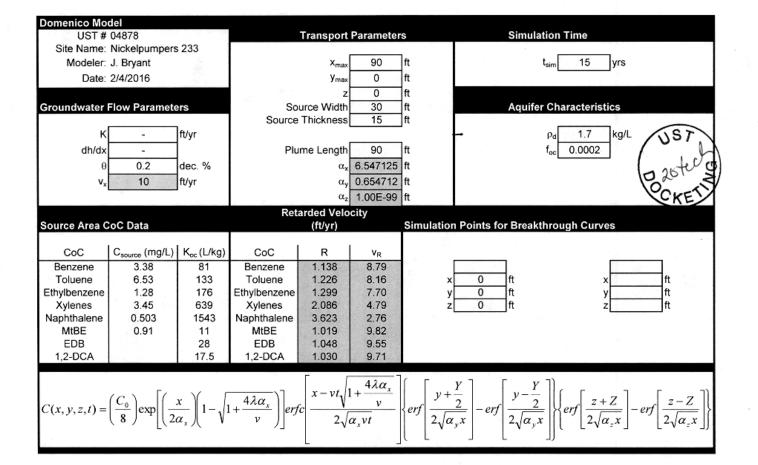
Section A Required Pipic Information: Required Pipic Infor
Company: SCOHEC - UST Report To: J. Bythart - UST Address: 2600 Bull Street Copy to: Company Name: REGULATORY AGENCY Columbia, SC 2920 Address: Pychase Order No: U 600 U 225 13 Peac Oute Proceeding To Bythart J C & duec. SC Pychase Order No: U 600 U 225 13 Peac Oute Proceeding To Bythart J C & duec. SC Pychase Order No: U 600 U 225 13 Peac Oute Proceeding To Bythart J C & duec. SC Pychase Order No: U 600 U 225 13 Peac Oute Proceeding To Bythart J C & duec. SC Pychase Order No: U 600 U 225 13 Peac Oute Proceeding To Bythart J C & duec. SC Pychase Order No: U 600 U 225 13 Peac Oute Proceeding To Bythart J C & duec. SC Pychase Order No: U 600 U 225 13 Peac Oute Proceeding T C C C C C C C C C C C C C C C C C C
Address: Copy To: Copy T
2600 Bull Street Columbia, SC 2920 Email To: Bythat T C Bullet Street Phone Bull Street Frequence of Durant T C Bullet Street Phone Bullet Street Frequence of Durant T C C C Bullet Street Frequence of Durant T C C C Bullet Street Frequence of Durant T C C C Bullet Street Frequence of Durant T C C C Bullet Street Frequence of Durant T C C C C C C C C C C C C
Email To: By Gavit J C @ Juec J C Prichase Order No: U600 422513 Price Buside Priorit: By Gavit J C @ Juec J C Priority Prichase Order No: U600 422513 Price Buside Priorit: By Gavit J C @ Juec J C Priority Prio
Requested Due Date/TAT: Project Number: Proje
Requested Due Date/TAT: Project Number: Proje
Section D Required Chert Information Section D Country Coun
Section D Required Client Information Matrix Codes MATRIX I CODE Drinking Water With Waster Waster W
Required Client Information MIRRIX LODE MIRRIX LODE Dirinking Water With Water With Water With Product P Soul/Solid SL Oil OL (A-Z. 0-9/) Sample IDs MUST BE UNIQUE Tissue Ti
SAMPLE ID SAMPLE ID (A-2.0-91) Sample IDs MUST BE UNIQUE Tissue
SAMPLE ID Sample IDS MUST BE UNIQUE Sample IDS MUST BE UNIQUE Tissue Tissu
SAMPLE ID Solisolid (A-Z. 0-9/) Sample IDs MUST BE UNIQUE Tissue
Sample IDS MUST BE UNIQUE TISSUE OTHER OTH
1 MW ! WT & 12/4/s 12:30 6 6 XXXX Strong odor 01 2 MW 2 WT 12:43 Odor 003 3 MW 3
1 MW ! WT & 12/4/s 12:30 6 6 XXXX Strong odor 01 2 MW 2 WT 12:43 Odor 003 3 MW 3
1 MW ! WT & 12/4/s 12:30 6 6 XXXX Strong odor 01 2 MW 2 WT 12:43 Odor 003 3 MW 3
1 MW ! WT & 12/4/s 12:30 6 6 XXXX Strong odor 01 2 MW 2 WT 12:43 Odor 003 3 MW 3
1 MW 1 2 MW 2 3 MW 3 4 MW 48 WT 11:15
12 MW 2 3 MW 3 4 MW 4R WT 11:15
4 MW 4R WIT 11:15
10 (2000)051
5 MW 5 Slight odor my
1000 57
le lan de la landa
no odor 00/1
100 040C 0081
NO 0401 / DEL
110 0001 DC
ADDITIONAL COMMENTS RELINQUISHED BY / AFFILIATION DATE TIME ACCEPTED BY / AFFILIATION DATE TIME SAMPLE CONDITIONS
C 01 U
Color the 12-5 1000 allet for food 12-55 10:00 3.5 V w
ORIGINAL SAMPLER NAME AND SIGNATURE
ORIGINAL PRINT Name of SAMPLER: Chris Hansen PRINT Name of SAMPLER: Chris Hansen
SIGNATURE of SAMPLER: (MM/DD/Y): 12 / 04 / 15 5 5 5 5 5 5 5 5 5

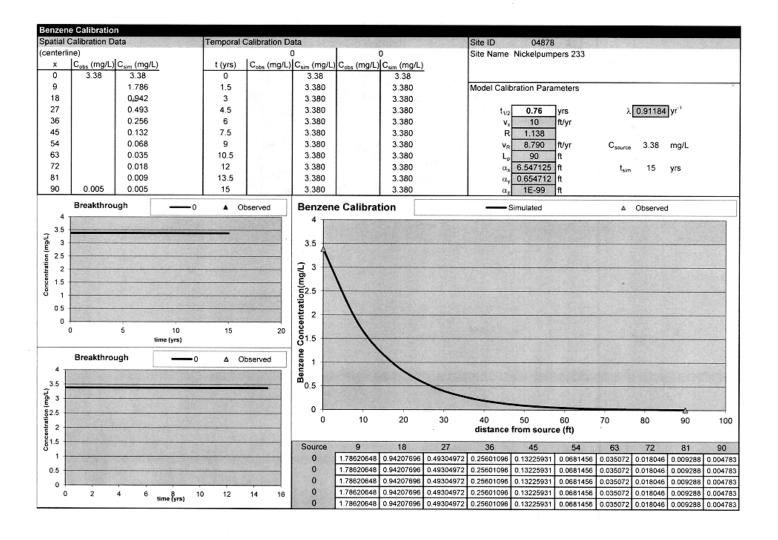
5	
Pace Analytical*	
www.gacelabs.com	

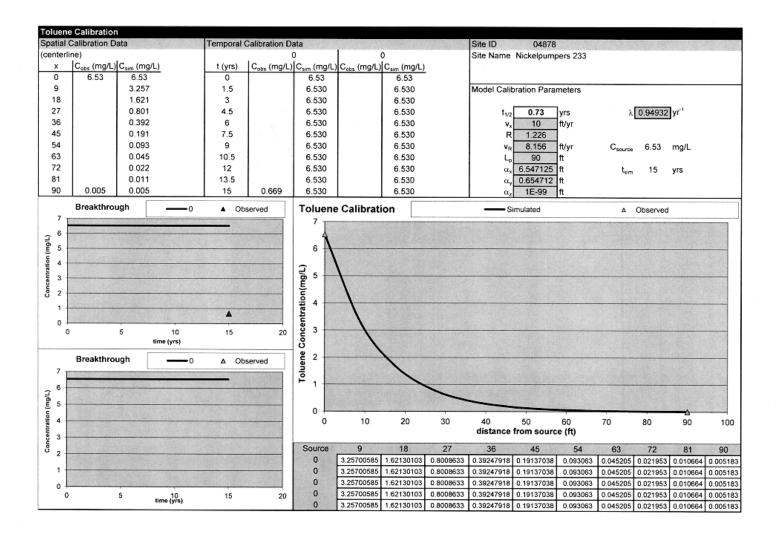
CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

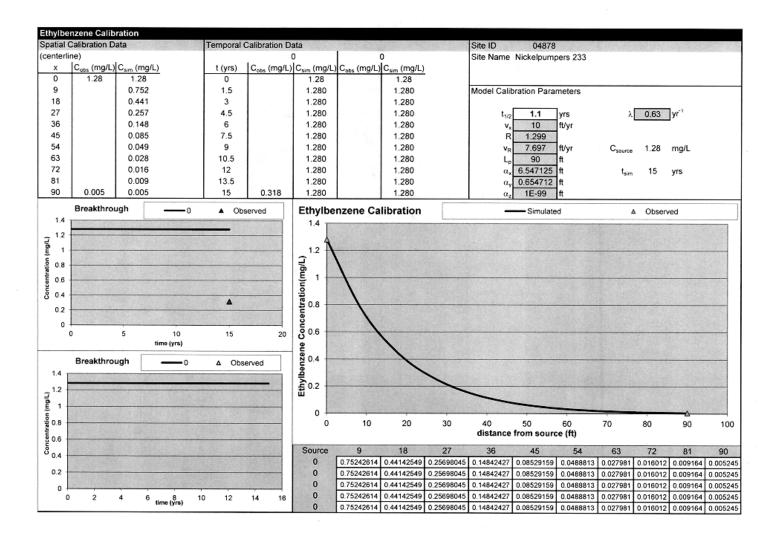
Section C Invoice Inform 2000174 J. Byrant - UST 600 Bull Street REGULATORY AGENCY olumbia SC 29201 Byrant, Jc@dlue.sc.gov UST RCRA OTHER _ 4600422513 Site Locatio Nicklanumper 233 T. Carter Jasper STATE: UST# 04878 Ca# 5/360 Requested Analysis Filtered (Y/N) Matrix Codes MATRIX / CODE COLLECTED Drinking Water Water Waste Water Product Soil/Solid Oil Wipe DW WT WW P SL OL WP AR TS OT (see valid codes) ALIQUA, MYSE SAMPLE TEMP AT COLLECTION 8 oxygenates COMPOSITE ENDIGRAS (G=GRAB (Chlorine (Y/N) SAMPLE ID # OF CONTAINERS (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE MATRIX CODE Air Tissue Other SAMPLE TYPE DATE DATE Pace Project No./ Lab I.D. wr (-Duplicate 12/04/15 12:35 MWI strong odor ola 62 field Blank 13:40 d3 NT L Trip Blank 13 :43 WSW 1 Not sampled ADDITIONAL COMMENTS RELINQUISHED BY / AFFILIATION DATE TIME ACCEPTED BY / AFFILIATION TIME SAMPLE CONDITIONS 12-5-15 OUNX PURON 10:00 12.5.15 10:00 35 SAMPLER NAME AND SIGNATURE Received on Ice (Y/N) **ORIGINAL** Custody Sealed Cool (Y/N) (Y/N) PRINT Name of SAMPLER: Chris, Hansen DATE Sign

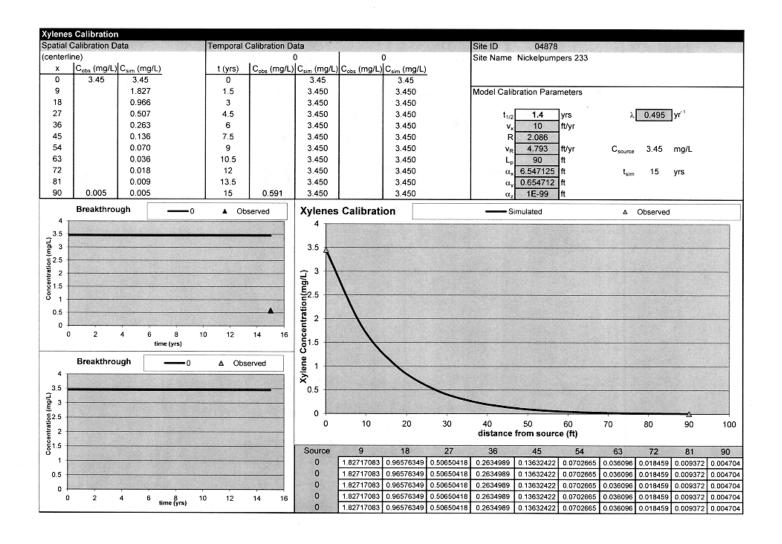
(MM/DD/YY):

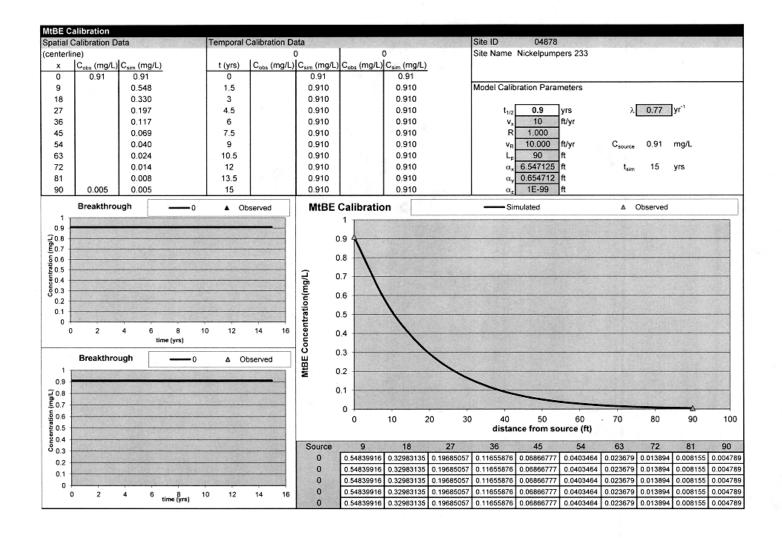


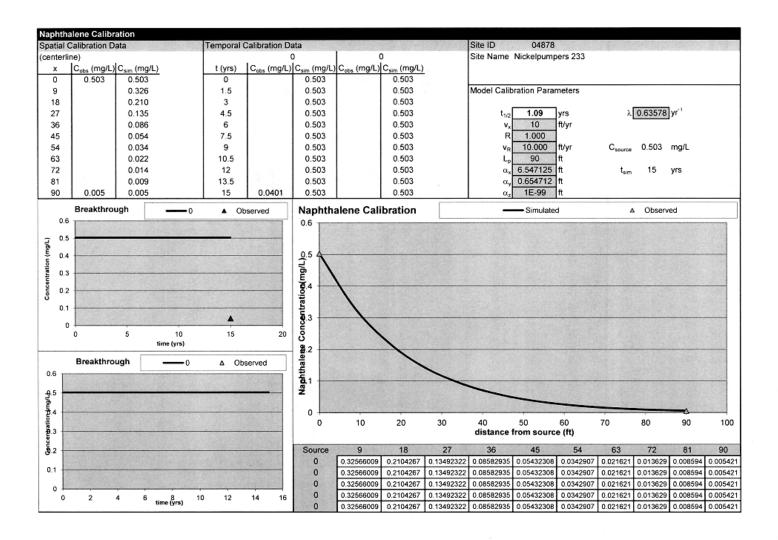


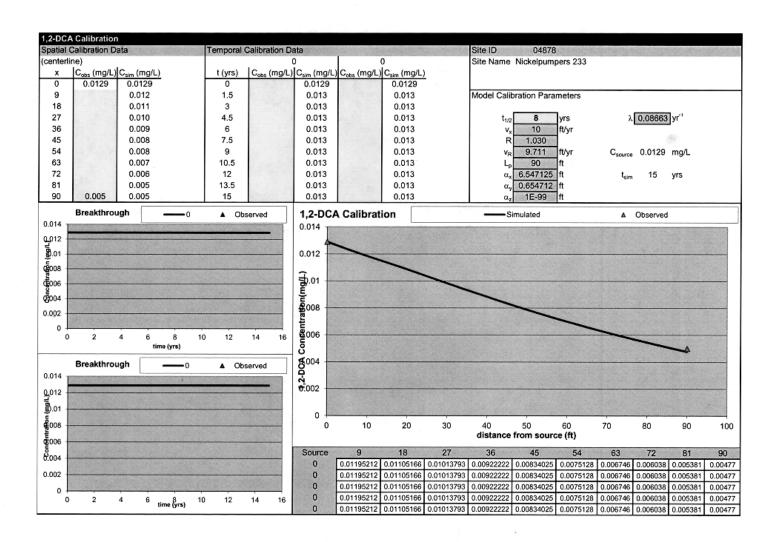












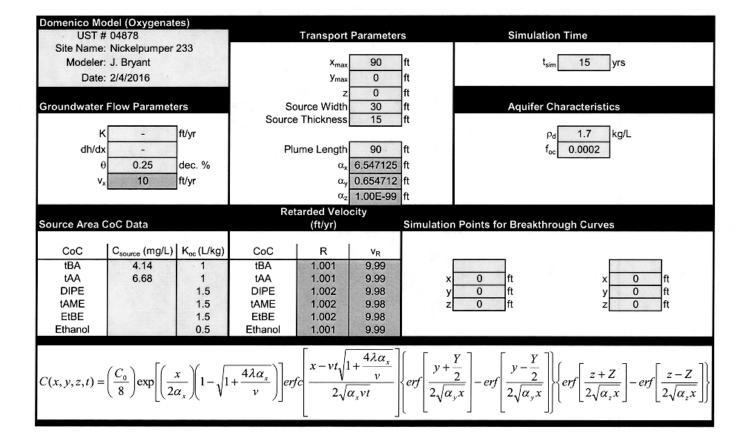
SSTLs

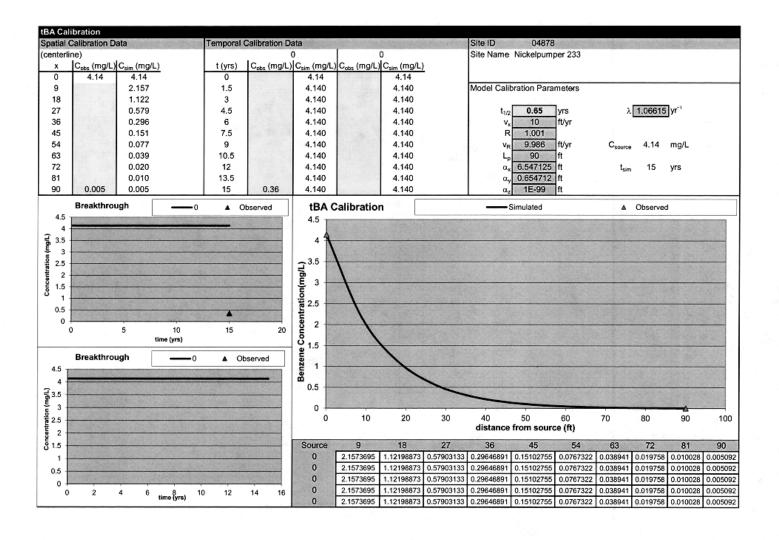
t 1000 yrs

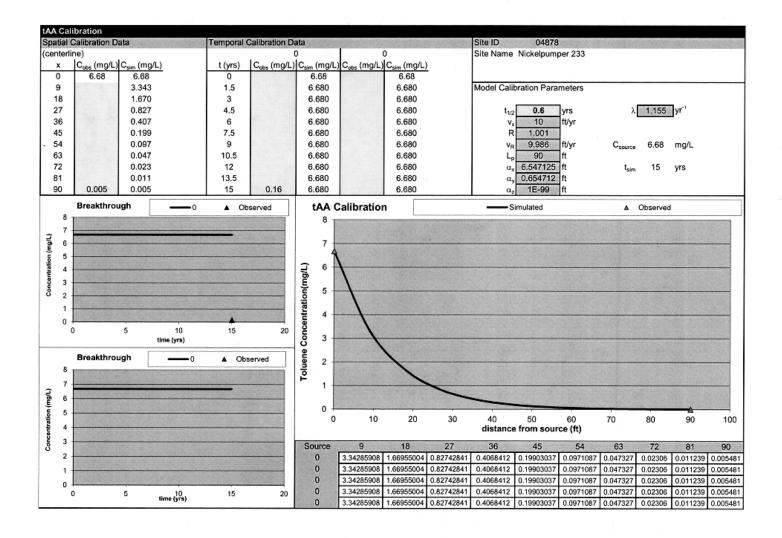
UST Permit # 04878

Site Name: Nickelpumpers 233

SSTLs in I	ng/L	RBSI	Ls (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	
						i Agg				
										s.
			λ (yr ⁻¹): R:	0.912 1.138	0.949 1.226	0.630 1.299	0.495 2.086	0.770 1.000	0.636 1.000	
	Pur	e Substanc	e Solubility:	1750	526	169	175	5110	31	
	- ui		e Solubility:		26.54	3.7	21.68	173	6.7	





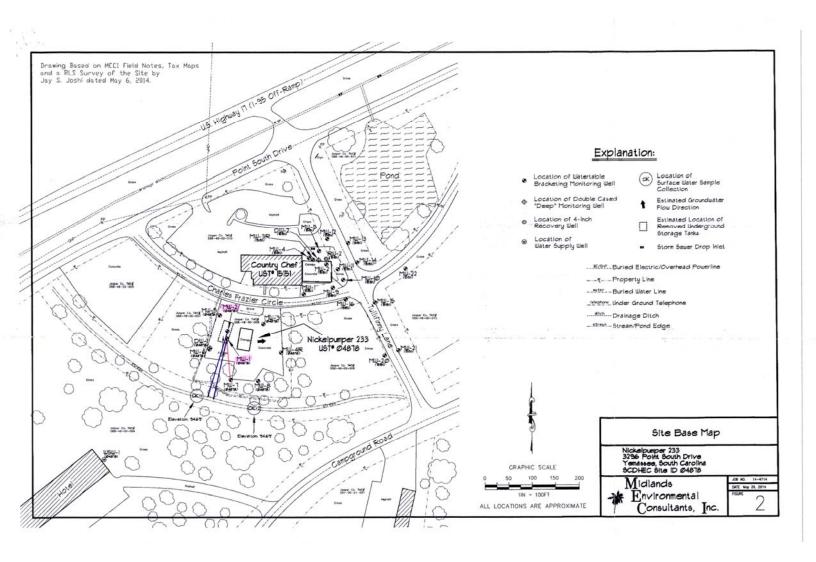


SSTLs

t 1000 yrs

UST Permit # 04878 Site Name: Nickelpumper

SSTLs in r	ng/L	RBSI	_s (mg/L):	1.400	0.240		
MW#	x (ft)	y (ft)	z (ft)	tBA SSTL	tAA SSTL		
MW-1 MW-2	130 140	0	0	22909.717 48404.630			,
				; , = , ×	4.5		
					·		
			λ (yr ⁻¹): R:		1.155 1.001		





TO: Midlands Environmental Consultants, Inc.

UNDERGROUND STORAGE TANK PROGRAM BUREAU OF LAND AND WASTE MANAGEMENT 2600 Bull Street, Columbia, South Carolina 29201 Telephone: 803-898-2544

MEMORANDUM

FROM: John Bryant	
RE: Site Specific Work Plan F	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 1 4 2017

BRYAN SHANE, P.G. MIDLANDS ENVIRONMENTAL CONSULTANTS, INC. PO BOX 854 **LEXINGTON SC 29071**

Site Specific Work Plan Request Re:

> **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 bryantic@dhec.sc.gov.

Sincerely,

John C. Bryant, Hydrogeologist

Corrective Action Section

UST Management Division

Bureau of Land & Waste Management

enc: Site Information Packages

Technical Files cc:

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		(\$0	CDHEC Project Manager)
From: Jeff L. Coleman Contractor: Midlands Environmental Cons	suitants, Inc. LIST Contra	(Columber: 009	ntractor Project Manager)
Facility Name: Nickelpumper 233		UST Permit #:	04878
Facility Address: 3296 Point South Drive,	Yemassee, SC 29945		·· ····
Responsible Party: Richard Carlson		Phone: 951-65	9-0063
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 tha	et anniv)		
☐ IGWA ☐ Tier II	at apply)	☑ Groundwater Sampling	☐ GAC
	g Well Installation	Other	
Analyses (Please check all that appl	у)	- 4	
Groundwater/Surface Water:			
BTEXNMDCA (8260B)	Lead Lead	☐ BOD	Methane
Oxygenates (8260B)	8 RCRA Metals	☐ Nitrate	Ethanol
☑ EDB (8011)	☐ TPH	☐ Sulfate	☐ Dissolved Iron
PAH (8270D)	∏ рН	Other	
Drinking Water Supply Wells:	□ Manual (000 0 045	4 == 0.45 (C)	•
☐ BTEXNMDCA (524.2) ☐ Oxygenates & Ethanol (8260B)	☐ Mecury (200.8 245.	<i>.</i> — ·	1)
Soil:	RCRA Metals (200.	6)	
	CRA Metals	☐ TPH-DRO (3550B/8015B)	☐ Grain Size
_	il & Grease (9071)	☐ TPH-GRO (5030B/8015B)	☐ TOC
Air:	,		□ .00
☐ BTEXN			
Sample Collection (Estimate the nur	nber of samples of each n	natrix that are expected to be col	lected.)
Soil	1 Water Supply We	ilsAir	2 Field Blank
9 Monitoring Wells	3 Surface Water	2 Duplicate	2 Trip Blank
Field Sergering Mothedelegy	· · · · · · · · · · · · · · · · · · ·		
Field Screening Methodology Estimate number and total completed	denth for each point, and i	include their proposed locations	on the attached was
# of shallow points proposed:			
# of deep points proposed:	Estir	nated Footage:	feet per point
Field Screening Methodology:			lost per point
Permanent Monitoring Wells			· · · · · · · · · · · · · · · · · · ·
Estimate number and total completed	depth for each well, and in	nclude their proposed locations o	n the attached map.
# of shallow wells:			
# of deep wells:	Estimated	Footage:	feet per point
# of recovery wells:	Estimated	Footage:	feet per point
Comments, if warranted:			
	····		
IFO COSTO (COMPAND)			

UST	Permit #: 04878 Fa	acility Name:	Nickelpumper 233	
Imple	ementation Schedule (Number of c	calendar days	s from approval)	
	Minds Ohnd I Inc. anomora		Find Mode Commission, property	
Repo	nt Submittal: 19/22/2017		# of Copies Provided to Property Owners: 0	
4 ~				
-	fer Characterization		!	
Pump	o Test: ☐ Slug Test: ☐ (Check o	one and provi	ide explanation below for choice)	
		 		
	tigation Derived Waste Disposal	Tons	Purge Water: 100.0	Gallons
Drillin	g Fluids:	Gallons	Free-Phase Product:	Gallons
event -During if any of existing -Monito -The way	, etc. I the initial site visit, monitoring wells MW-3, MW-4 of these wells are located during the sampling every g wells. Dring well samples will be analyzed for BTEXNM	Ils to be aband 4R, MW-6, MW-7, ent, they will be sai M, 1,2-DCA, 8-OXY isit. MECI will atte	empt to sample the WSW and the surface water samples.	t to navigate.
Yes		(Yes/No)	If no, indicate laboratory information below.	
	Name of Laboratory:			
				
	Name of Laboratory Director:			
N/A \	Well Driller as indicated in ACQAP? Name of Well Driller:	•	If no, indicate driller information below.	
	SCLLR Certification Number:			
None (Other verictions from ACOAD Diese	no donoribo ba		
INOTIE (Other variations from ACQAP. Pleas	ie describe be	siow.	
				
				
				
	nments Attach a copy of the relevant portion	on of the USG	SS topographic map showing the site location.	
2.	Prepare a site base map. This ma must include the following: North Arrow		curately scaled, but does not need to be surveyed. The monitoring well locations	: map
	Location of property lines		h facility name and address, UST permit number, and b	ar scale
	Location of buildings		nighways (indicate names and numbers)	
	Previous soil sampling locations Previous monitoring well locations		fall present and former ASTs and USTs	
	Proposed soil boring locations	Location of	f all potential receptors	
3.	Assessment Component Cost Agre	eement, SCDI	HEC 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**

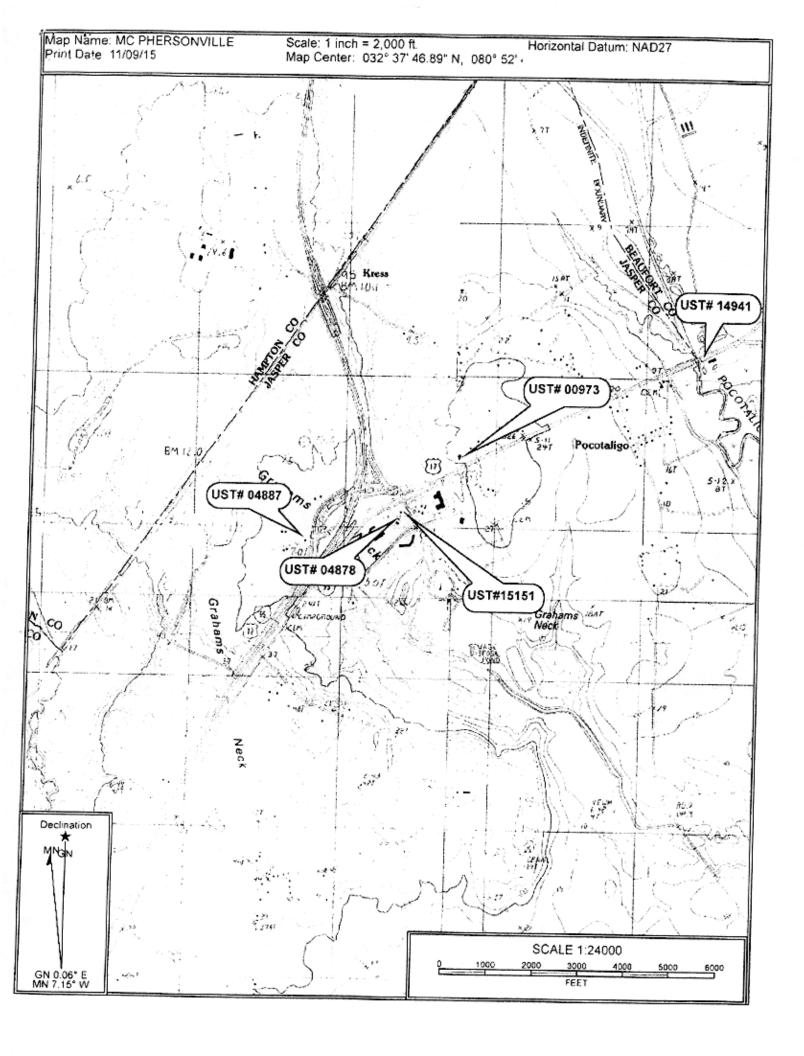
\$533.00

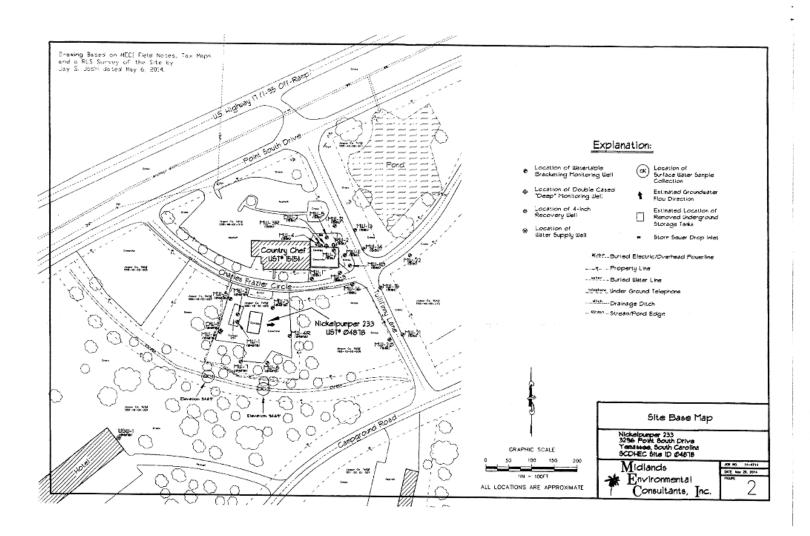
Facility Name: Nickelpumper 233

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** \$1.00 each \$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 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 \$18.00 samples \$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** \$25.00 each \$0.00 Isopleth Map \$25.00 each \$0.00 High-Strength Well Pad Replacement \$75.00 each \$0.00 Data Table each \$50.00 \$0.00 Low Flow Sampling \$55.00 per well \$0.00 25. Well Repair B1. Repair 2x2 MW Pad \$50.00 each \$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 \$25.00 \$0.00 each F1. Replace well cover bolts \$2.60 each \$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

^{*}The appropriate mobilization cost can be added to complete these tasks, as necessary







AUG 3 1 2017

US > 23 CO CHETIE

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,

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 Kincey Ave, Ste 100, Huntersville, NC, 28078 (w/app. CA)

Technical Files (w/enc)

Approved Cost Agreement

55470

Facility: 04878 NICKELPUMPER 233

BRYANTJC PO Number:

Task / Description	Categories	Item Description	Qty / Pct	<u>Unit Price</u>	Amount
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 MISCELLANEOL	JS				
		MULTIPLIER FOR 24 HOUR TURNAROUND	3.0000	\$0.000	0.00

Total Amount 817.00

Approved Cost Agreement

55469

Facility: 04878 NICKELPUMPER 233

BRYANTJC PO Number:

Task / Description Categories	Item Description	Oty / Pct	Unit Price	<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.





EDB - Ethylene Dibromide

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)
									Ana	lyte Sam	pled		-
MW-1	х						х	x	x	х			
MW-2	x						x	х	х	х			
MW-3						х							
MW-4R	х						х	х	х	х			
MW-5	х		$\neg \neg$				х	х	х	х			
MW-6	х						х	х	х	x			
MW-7	х						х	x	х	x			-
MW-8	х						x	х	х	х			-
DW-1	х		$\neg 1$				х	x	х	x			
SW-1		х					х	х	х	х			

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)
									Ana	lyte Sam	pled		
SW-2		х					х	х	х	х			
SW-3		х					х	х	х	х			
DUP (MW-1)							х	х	х	х			
Field Blank							х	х	х	х			
Trip Blank							х		х	х			
WSW-1					х								

MTBE=Methyl tertiary butyl ether 1,2 DCA = 1,2 Dicloroethane 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.

Attachments:

3

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	х	-	
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?	х		
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?	х		<u> </u>
7	Has the facility history been summarized?	Х		
8	Has the regional geology and hydrogeology been described?			Х
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?			
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?			
18	Has justification been provided for the locations of the monitoring wells?			Х
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	х		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	х		
22	Has the purging methodology been detailed? See MECI SOP	х		
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	х		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	х		
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
	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)		-	х
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)			Х
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)	х		
38	Has the site base map been provided with all required elements? (Figure 2)	Х		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)		<u>_</u>	х
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)		·	х
43	Has the site survey been provided and include all necessary elements? (Appendix A)		· · · ·	х
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	х		
45	Is the laboratory performing the analyses properly certified?	х		
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)			х
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			
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?	х		

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	Υ	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	Υ	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



	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
										· · · · · · · · · · · · · · · · · · ·
					<u></u>			<u> </u>		·
										
									0.00	TOTAL GALLONS PURGED

Mid! ★ Env	ironmenta	1					Moni	torir	ng W	ell P	urge				
I Co	nsultants,	Inc.					And	d Sar	mplir	ig Da	ata				
mpling Date(s): mpling Case#:	15/16/11 10/10/11	*			-	Job Name Job Number		Tudon,			<u>Calib</u> Calibration pH: Conduction	vitv· (a for :	No (Please Ci	rcie)
Well No.	- Z Purge	Sample	pH(i)	cond(i)	Temp.	T					Dissolved	Öxvaen '	Calibrated Eve	No No ary 3 Months by	- - QA Managei
	Volume	Time	4.92	, ,	(°C)	DO (mg/l)	Turbidity (NTU)	product	Initial H ₂ O		Well Depth	Water Height	Gallon	s Purged	T :
	1st	11:05	5.00	84.5 82.6	25-2	2.53	27,52			man rigo	(feet)	*(feet)	**calc.	actual	Notes
mu.	2nd 3rd 4th	11:04	5.63 5.04	46.9 79.3	24.7 24.5 24.7	2.46 2.35 2.27	34.16 40.19 86.22		4.53		1.5-	7.47	1,74	6.50	
	5th Sampling	11:09	5.05	78.6 77.4	23.6 22.9	2.14	50.32		7.53		12.5		6.40	gallons	pub, a-you
MH . 7	initiai 1st	11:15	5.88	262.4	24.3	3.27	20.00					/			
	2nd 3rd 4th		3.08	200.6	25. 9	3.15	24.18		3.%6		2-12	8.2	1.33	bey	od e
	5th Sampling	11:24	5. %z	200,1	\$ 24.2	3.02	60.00						6.64	2.0	925
	Initia) 1st	11:28		8-82	27.4	1.22	32.44								i
Mn.3	2nd 3rd 4th	11:29	5.58	60.9	26.9 25.3 24.7	1.30 1.391 1.50	50.33 21.69 80.32		5.83		2112	8.12	1.33	6.75	we
5	5th Sampling Initial	11:32	5.35	60.7 60.4	24.1 75.8	1.62	41.16 85.99				-	V.//*	6.65	gallans	ødor
ma-4r	1st 2nd	10!() 10!(2_	5.17	83.1 83.1 81.2	21.3 20.8 20.2	4.62 4.60	20.27 37.18 16.21								
mm-dr	3rd 4th 8th	10114		81.2	20.0	3.86	81.36 70.22	6.4	6.49		2-12	s. 5 1	.89	4.5 galla ₁₀	~ °
epth of Well) - (Dep Well Volume =x.047	Sampling th to Water = \ for 1° wells *			80.5	19.4	3.66	96.12						4.49		ader
Vell Volume =x.047	[Casing 1"	Gallons 0.047	for 4" wells,	1.469 for 6" 1	wells	Volume x 5 ≈ G	ialions Pu	rged (calcu	ilated)	-	Case #1 Case #2 Case #3	7h/Consustance SN 15H101448 15E101481 10K 101895	12G102878 14H103098 08B101407	Turbidity 201301183 201301174

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CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT, All relevant fields must be completed accurately.

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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.
- 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
- 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 44.25 gallons were treated on October 16, 2017, at the referenced site.

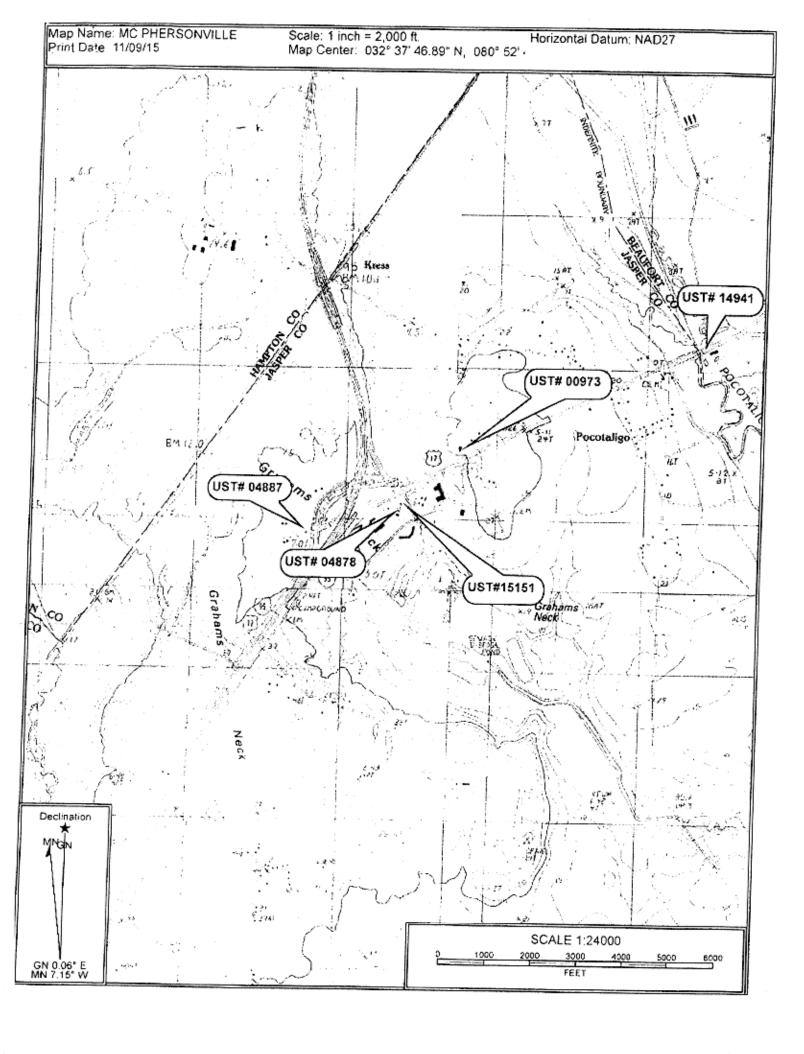
Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

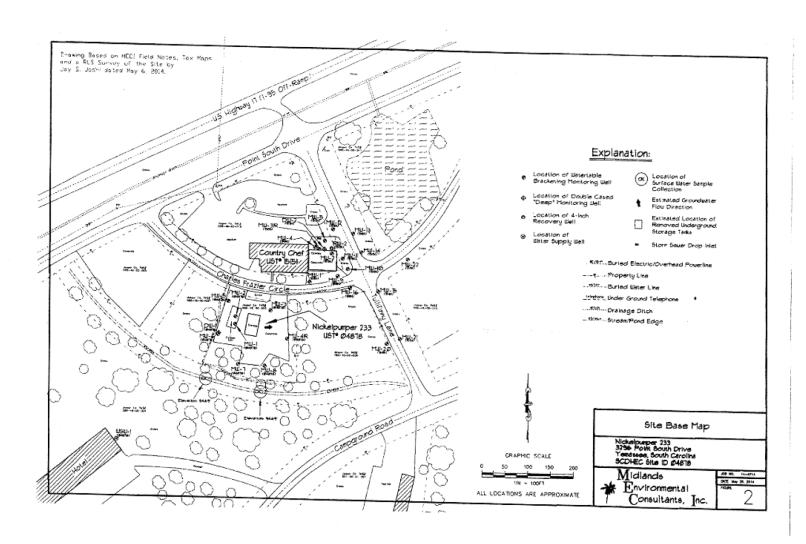
Should you have any questions or comments, please contact the undersigned.

Sincerely,

Midlands Environmental Consultants, Inc.

Kryle V. Pudney Project Biologist







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.

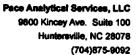
Sincerely,

Trey Carter trey.carter@pacelabs.com (704)875-9092 Project Manager

The Ct

Enclosures







CERTIFICATIONS

Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.:

92359447

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078 Louislana/NELAP Certification # LA170028 North Carolina Drinking Water Certification #: 37708 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



SAMPLE SUMMARY

Project: NICKLE PUMPER 233 04878/55470

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 08:24
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	NOW-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
2359447008	DW-1	Water	10/16/17 10:49	10/17/17 06:24
2359447009	DUPLICATE	Water	10/16/17 11:09	10/17/17 06:24
2359447010	FIELD BLANK	Water	10/16/17 11:40	10/17/17 06:24
2359447011	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
235944 7013	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



SAMPLE ANALYTE COUNT

Project:

NICKLE PUMPER 233 04878/55470

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92359447001	MW-1	EPA 8011	KPS		PASI-C
		EPA 8260	SWB	20	PASI-C
92359447002	MW-2	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
2359447003	MW-4R	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
2359447004	MW-5	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
2359447005	MW-6	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
2359447006	MW-7	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
2359447007	MW-8	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
2359447008	DW-1	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
2359447009	DUPLICATE	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
2359447010	FIELD BLANK	EPA 8011	KPS	2	PASI-C
		EPA 8260	SWB	20	PASI-C
2359447011	TRIP BLANK	EPA 8260	SWB	20	PASI-C
2359447012	SW-1	EPA 8011	KPS	2	PASI-C
		EPA 8260	GAW	20	PASI-C
2359447013	SW-2	EPA 8011	KPS	2	PASI-C
		EPA 8260	GAW	20	PASI-C
2359447014	SW-3	EPA 8011	KPS	2	PASI-C
		EPA 8260	GAW	20	PASI-C

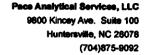


SUMMARY OF DETECTION

Project:

NICKLE PUMPER 233 04878/55470

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2359447001	MW-1					
EPA 826 0	tert-Amyl Alcohol	7690	ug/L	5000	10/19/17 23:03	
EPA 826 0	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	
PA 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	
2359447002	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 826 0	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-Xyiene	7.6	ug/L	5.0	10/20/17 15:43	
2359447003	MW-4R					
EPA 8260	tert-Amyl Alcohol	283	ug/L	100	10/19/17 17:42	
2359447009	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	
PA 8260	Methyl-tert-butyl ether	1270	ug/L	250	10/19/17 23:38	
PA 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	





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.

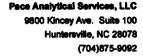
Matrix Spikes

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:





Project: NICK

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

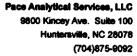
P5: The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.

- 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:





Project: NICK

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 Rienk

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: 2123611)
 - 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: 2123611)
 - tert-Butyl Formate





Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Method: EPA 8260
Description: 8260 MSV
Cilent: 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.



Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: MW-1	Lab ID:	92359447001	Collected	10/16/17	7 11:09	Received: 10/	17/17 06:24 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
3011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Meth	od: EPA	8011		-	
1,2-Dibromoethane (EDB) S <i>urrogates</i>	ND	ug/L	0.019	0.019	1	10/19/17 15:44	10/19/17 19:14	106-93-4	
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 8	260						
tert-Amyl Alcohol	7690	ug/L	5000	3840	50		10/19/17 23:03	75-85-4	
ert-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	
ert-Butyl Alcohol	5460	ug/L	5000	2880	50		10/19/17 23:03	75-65-0	
ert-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	
Kylene (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	
Surrogates		-							
4-Bromofluorobenzene (S)	95	%	70-130		50		10/19/17 23:03		
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	



Project: NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: MW-2	Lab ID:	92359447002	Collected	: 10/16/17	7 11:24	Received: 10/	17/17 06:24 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
T de de l'éctora				- INDL		- Trepared	- Aleiy200		
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	10/19/17 15:44	10/19/17 19:34	106-93-4	
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 8	260						
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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/20/17 15:43	75-65-0	
ert-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	u g/ 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	υg/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	
Kylene (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	



Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: MW-4R	Lab ID:	92359447003	Collected:	10/16/17	7 10:15	Received: 10/	17/17 06:24 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	10/19/17 15:45	10/19/17 20:34	106-93-4	
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 8	260						
tert-Amyl Alcohol	283	ug/L	100	76.8	1		10/19/17 17:42	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		10/19/17 17:42	994-05-8	
Benzene Communication Communic	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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 17:42	75-65-0	
ert-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	
Kylene (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	
p-Xylene	ND	ug/L	5.0	1.6	1		10/19/17 17:42	95-47-6	
Surrogetes		•							
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	



Project: NIC

Date: 10/24/2017 09:44 AM

NICKLE PUMPER 233 04878/55470

Sample: MW-5	Lab ID:	92359447004	Collected	: 10/16/17	7 11:32	Received: 10/	17/17 06:24 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Meth	od: EPA	N8011			
1,2-Dibromoethane (EDB) S <i>urrogates</i>	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/19/17 20:54	106-93-4	
1-Chloro-2-bromopropane (S)	78	%	60-140		1	10/19/17 15:45	10/19/17 20:54	301-79-56	
B260 MSV	Analytical	Method: EPA 8	260						
tert-Arnyl 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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 16:19	75-65-0	
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	
Surrogates		J	-	_					
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	



Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: MW-6	Lab ID:	92359447005	Collected	10/16/17	7 11:00	Received: 10/	17/17 08:24 Ma	atrix: Water	
			Report						_
Parameters	Results	Units	Limit 	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ition Meth	od: EPA	\8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	10/19/17 15:45	10/19/17 21:13	106-93-4	
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 8	3260						
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	75-65-0	
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	
Disopropyl 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	NĐ	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	
Surrogates		-							
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	



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 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/19/17 21:33	106-93-4	
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 8	260						
lert-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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 16:52	75-65-0	
ert-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	
Kylene (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 Surrogates	ND	ug/L	5.0	1.6	1		10/19/17 16:52	95-47-6	
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		
Toluene-d8 (\$)	105	%	70-130		1		10/19/17 16:52		



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 Ma	ıtrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Metho	xd: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	10/19/17 15:45	10/19/17 21:53	106-93-4	
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 8	260						
tert-Arnyl 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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 17:09	75-65-0	
ert-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	
Kylene (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	
Surrogates				•					
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	



Project: NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: DW-1	Lab ID:	92359447008	Collected:	10/16/17	7 10:49	Received: 10/	17/17 06:24 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	10/19/17 15:45	10/19/17 22:32	106-93-4	
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 8	260						
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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		10/19/17 17:25	75-65-0	
ert-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	
Kylene (Totai)	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 S <i>urrogates</i>	ND	ug/L	5.0	1.6	1		10/19/17 17:25	95-47-6	
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	



Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: DUPLICATE	Lab ID:	92359447009	Collected:	10/16/17	7 11:09	Received: 10/	17/17 06:24 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
0011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ition Metho	od: EPA	.8011		•	
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/19/17 22:52	106-93-4	
I-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 8	260						
ert-Amyl Alcohol	8560	ug/L	5000	3840	50		10/19/17 23:38	75-85-4	
ert-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	
ert-Butyl Alcohol	6080	ug/L	5000	2880	50		10/19/17 23:38	75-65-0	
ert-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	108-88-3	
(ylene (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	
Surrogates		_							
I-Bromofluorobenzene (S)	95	%	70-130		50		10/19/17 23:38		
1,2-Dichloroethane-d4 (S)	102	%	70-130		50		10/19/17 23:38		
Toluene-d8 (S)	102	%	70-130		50		10/19/17 23:38	2037-26-5	



Project: NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: FIELD BLANK	Lab 1D:	92359447010	Collected:	10/16/17	7 11:40	Received: 10/	17/17 06:24 Ma	atrix: Water	
			Report						
Parameters	Results	Units -	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ition Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	10/19/17 15:45	10/19/17 23:12	106-93-4	
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 8	260						
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	75-65-0	
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	107-08-2	
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	1.6	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	
Surrogates		-							
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	



Project: NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: TRIP BLANK	Lab ID:	92359447011	Collected:	10/16/17	7 11:42	Received: 10	V17/17 06:24 Ma	atrix: Water	
			Report						
Parameters	Results	Units -	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical	Method: EPA 8	260						
tert-Arnyl 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 Surrogates	ND	ug/L	5.0	1.6	1		10/19/17 13:32	95-47-6	
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	



Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: SW-1	Lab ID:	92359447012	Collected	: 10/16/17	7 10:00	Received: 10/	17/17 06:24 Ma	atrix: Water	
			Report						
Parameters	Results -	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/19/17 23:51	106-93-4	
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 8	260						
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		10/21/17 19:34	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	3.6	1		10/21/17 19:34	75-65-0	
ert-Butyl Formate	ND	ug/L	50.0	1.9	1		10/21/17 19:34	762-75-4	
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	υg/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	1634-04-4	
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)	106	%	70-130		1		10/21/17 19:34	2037-26-5	



Project: NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: SW-2	Lab ID:	923 5944 7013	Collected:	10/16/17	10:05	Received: 10/	17/17 06:24 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
3011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Metho	xd: EPA	8011			
1,2-Dibromoethane (EDB) S <i>urrogates</i>	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/20/17 00:11	106-93-4	
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 8	260						
lert-Amyl Alcohol	ND	ug/L	100	50.0	1		10/21/17 20:08	75-85-4	
lert-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	
ert-Butyl Alcohol	ND	ug/L	100	3.6	1		10/21/17 20:08	75-65-0	M1
ert-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	
Kytene (Total)	ND	ug/L	1.0	1.0	1		10/21/17 20:08	1330-20-7	
n&p-Xytene	ND	ug/L	2.0	0.66	1		10/21/17 20:08	179601-23-1	
o-Xytene	ND	ug/L	1.0	0.23	1		10/21/17 20:08	95-47-6	
Surrogates		_							
4-Bromofluorobenzene (S)	107	%	70-130		1		10/21/17 20:08		
1,2-Dichloroethane-d4 (S)	79	%	70-130		1		10/21/17 20:08		
Toluene-d8 (S)	111	%	70-130		1		10/21/17 20:08	2037-26-5	



Project: NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Sample: SW-3	Lab ID:	92359447014	Collected	10/16/17	7 11:45	Received: 10/	17/17 08:24 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ntion Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	10/19/17 15:45	10/20/17 00:31	106-93-4	
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 8	260						
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	
ert-Butyl Alcohol	ND	ug/L	100	3.6	1		10/21/17 20:25	75-65-0	
ert-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 S <i>urrogates</i>	ND	ug/L	1.0	0.23	1		10/21/17 20:25	95-47-6	
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	



Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

QC Batch:

383439

LABORATORY CONTROL SAMPLE: 2125279

Date: 10/24/2017 09:44 AM

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	

		Spike	LCS	LCS	% Rec
Parameter	Units	Conc.	Result	% Rec	Limits
1.2-Dichlomethane	ua/l	50	45.3	91	70-1

Parameter	Units	Conc.	Result	% 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-Arnyl 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	

alts 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.



LCS

Result

134

Spike

Conc.

150

LCS

% Rec

89

% Rec

Limits

70-130

Qualifiers

Project:

NICKLE PUMPER 233 04878/55470

Units

ug/L

Pace Project No.: 92359447

Xylene (Total)

Date: 10/24/2017 09:44 AM

LABORATORY CONTROL SAMPLE: 2125279

Parameter

1,2-Dichloroethane-d4 (S)	%			104	70-130		
4-Bromofluorobenzene (S)	%			103	70-130		
Toluene-d8 (S)	%			94	70-130		
MATRIX SPIKE SAMPLE:	2125281						
		92359447013	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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 I	M1
tert-Butyl Formate	ug/L	ND	160	ND	0	70-130 I	
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						
		92359447012	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND 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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Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Date: 10/24/2017 09:44 AM

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)	%	106	110	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.



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:

Date: 10/24/2017 09:44 AM

92359447003, 92359447004, 92359447005, 92359447006, 92359447007, 92359447008, 92359447010,

92359447011

		Blank	Reporting			
Parameter	Units	Result	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 Aicohol	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	
Diisopropyi 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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Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Date: 10/24/2017 09:44 AM

LABORATORY CONTROL SAMPLE:	2123288					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
ert-Butyl Formate	ug/L	400	414	103	70-130	
oluene	ug/L	50	48.0	96	70-130	
ene (Total)	ug/L	150	164	110	70-130	
Dichloroethane-d4 (S)	%			102	70-130	
kromofluorobenzene (S)	%			103	70-130	
luene-d8 (S)	%			95	70-130	

MATRIX SPIKE SAMPLE:	2123611						
		92359268026	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND 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 I	/1
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 I	V 11
tert-Butyl Formate	ug/L	ND	160	12.3J	8	70-130 (M 1,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						
		92359268027	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND 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-Xy lene	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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REPORT OF LABORATORY ANALYSIS

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Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

1,2-Dichloroethane-d4 (S)

4-Bromofluorobenzene (S)

Date: 10/24/2017 09:44 AM

Toluene-d8 (S)

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)

103

100

105

96

101

104

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.



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

Date: 10/24/2017 09:44 AM

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					
Barranta	1.1-11-	Spike	LCS	LCS	% Rec	OK6
Parameter	Units	Conc.	Result	% 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 L	.1
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	ua/L	50	52.4	105	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.



Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Date: 10/24/2017 09:44 AM

LABORATORY CONTROL SAMPLE:	2123734	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Kylene (Total)	ug/L	150	158	105	70-130	
,2-Dichloroethane-d4 (S)	%			101	70-130	
-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE SAMPLE:	2123735						
		92359224010	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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	MO
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	υg/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						
		92359224011	Dup		Max	
Parameter	Units	Result	Result	RPD	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	
ert-Amyl Alcohol	ug/L	ND	ND	-	30	
tert-Amylmethyl ether	ug/L	ND	ND		30	

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.



Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Date: 10/24/2017 09:44 AM

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		

Results presented on this page are in the units indicated by the "Units" column except where an afternate unit is presented to the right of the result.



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

Date: 10/24/2017 09:44 AM

METHOD BLANK: 2124461

Matrix: Water

Associated Lab Samples: 92359447002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
,2-Dichloroethane	ug/L	ND	5.0	1.8	10/20/17 12:07	
,3-Dimethyl-1-Butanol	ug/L	ND	100	32.1	10/20/17 12:07	
enzene	ug/L	ND	5.0	1.7	10/20/17 12:07	
iisopropyl ether	ug/L	ND	5.0	1.7	10/20/17 12:07	
thanol	ug/L	ND	200	131	10/20/17 12:07	
thyl-tert-butyl ether	ug/L	ND	10.0	3.6	10/20/17 12:07	
thylbenzene	ug/L	ND	5.0	1.6	10/20/17 12:07	
n&p-Xylene	ug/L	ND	10.0	3.1	10/20/17 12:07	
lethyl-tert-butyl ether	ug/L	ND	5.0	1.7	10/20/17 12:07	
laphthalene	ug/L	ND	5.0	2.0	10/20/17 12:07	
-Xylene	ug/L	ND	5.0	1.6	10/20/17 12:07	
ert-Amyl Alcohol	ug/L	ND	100	76.8	10/20/17 12:07	
ert-Amylmethyl ether	ug/L	ND	10.0	3.4	10/20/17 12:07	
ert-Butyl Alcohol	ug/L	ND	100	57.7	10/20/17 12:07	
ert-Butyl Formate	ug/L	ND	50.0	7.3	10/20/17 12:07	
oluene	ug/L	ND	5.0	1.6	10/20/17 12:07	
ylene (Total)	ug/L	ND	5.0	5.0	10/20/17 12:07	
,2-Dichloroethane-d4 (S)	%	94	70-130		10/20/17 12:07	
-Bromofluorobenzene (S)	%	99	70-130		10/20/17 12:07	
oluene-d8 (S)	%	102	70-130		10/20/17 12:07	

LABORATORY CONTROL SAMPLE:	2124462					
_		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	
n&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	
ert-Amyl Alcohol	ug/L	1000	928	93	70-130	
ert-Amylmethyl ether	ug/L	100	99.8	100	70-130	
ert-Butyl Alcohol	ug/L	500	500	100	70-130	
ert-Butyl Formate	ug/L	400	391	98	70-130	
Toluene	ug/L	50	46.3	93	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.



LCS

Result

Spike

Conc.

% Rec

Limits

Qualifiers

LCS

% Rec

Project:

NICKLE PUMPER 233 04878/55470

Units

Pace Project No.: 92359447

Date: 10/24/2017 09:44 AM

LABORATORY CONTROL SAMPLE: 2124462

Parameter

,							
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						
		92359479020	Spike	MS	MŞ	% Rec	
Parameter	Units	Result	Conc.	Result	% 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						
		92359479021	Dup		Max	
Parameter	Units	Result	Result	RPD	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	
ert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	

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.





Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Date: 10/24/2017 09:44 AM

Parameter	Units	92359479021 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Butyl Alcohol	ug/L		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.



QUALITY CONTROL DATA

Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.:

92359447

QC Batch:

383079

Analy

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:

Date: 10/24/2017 09:44 AM

92359447001, 92359447002, 92359447003, 92359447004, 92359447005, 92359447006, 92359447007,

92359447008, 92359447009, 92359447010, 92359447012, 92359447013, 92359447014

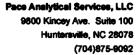
Rlank Reporting MDL Analyzed Qualifiers Parameter Units Result Limit ug/L 1,2-Dibromoethane (EDB) ND 0.019 0.019 10/19/17 16:16 60-140 10/19/17 16:16 133 1-Chioro-2-bromopropane (S)

LABORATORY CONTROL SAMPLE & LCSD: 2122989 2122990 LCS LCSD LCS LCSD % Rec Max Spike **RPD RPD** Qualifiers Conc. Result Result % Rec % Rec Limits Parameter Units 60-140 1,2-Dibromoethane (EDB) ug/L .24 0.24 0.25 101 101 1 20 1-Chloro-2-bromopropane (S) % 101 103 60-140

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2122991 2122992 MSD MS MSD MSD MS % Rec Max MS 92359447002 Spike Spike % Rec % Rec Limits RPD RPD Qual Result Result **Parameter** Units Result Conc. Conc. 1,2-Dibromoethane (EDB) ug/L ND .25 .25 0.27 0.27 110 107 60-140 2 20 1-Chloro-2-bromopropane 104 106 60-140 (S)

SAMPLE DUPLICATE: 2122993 92359447007 Dup Max RPD **RPD** Qualifiers Parameter Units Result Result ug/L ND ND 20 1,2-Dibromoethane (EDB) 97 112 17 1-Chloro-2-bromopropane (S) %

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.





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

Date: 10/24/2017 09:44 AM

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be blased 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.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Date: 10/24/2017 09:44 AM

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	MVV-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
923 5944 7010	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
9235944 7014	SW-3	EPA 8011	383079	EPA 8011	383187
923 5944 7012	SW-1	EPA 8260	383439		
92359447013	SW-2	EPA 8260	383439		
92359447014	SW-3	EPA 8260	383439		
92359447001	MW-1	EPA 8260	383179		
923 594 47002	MW-2	EPA 8260	383305		
92359447003	MW-4R	EPA 8260	383117		
92359447004	MW-5	EPA 8260	383117		
92369447005	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		

Pace Analytical"	Sample Condition Upon Rece	hpt(SCUR)	Page 1 of 2	
Pace Analytical	Document No.:		Issuing Authority:	
L	F-CAR-CS-033-Rev.0	4	Pace Quality Office	
Laboratory receiving samples: Asheville Eden	Greenwood	Huntersville		chanicsville
Sample Condition Upon Receipt Client Name:	E()		92359447	
Courier: Fed Ex Commercial Pace	UPS USPS Other:	Client 9235944		Harriston and
Custody Seal Present? Yes No	Seals intact? Yes	No Date/In	itials Person Examining Contents:	LD10-17-17
Packing Material: Bubble Wrap Thermometer: T1702 Correction Factor: Cooler Temp Correct	Type of Ice:	☐ Other ☐Blue ☐None Temp shou	Biological Tissue Frozen? Yes No No N/A	
USDA Regulated Soil (ATN/A, water sample)		has begun	out of temp criteria. Samples on i	ce, cooling process
Did samples originate in a quarantine zone within	the United States: CA, NY, or SC (check		ginate from a foreign source (inte iii and Puerto Rico)? Yes - E	mationally,
			Comments/Discrepancy:	
Chain of Custody Present?	FYES DNO DN/A	1.		
Samples Arrived within Hold Time?	-ETYes □No □N/A	2.		
Short Hold Time Analysis (<72 hr.)?	OYES DINO ON/A			
Rush Turn Around Time Requested?	DYES 200 ON/A	4.		
Sufficient Volume?	TYES ONO ON/A	5.		
Correct Containers Used?	Yes No ON/A	6.		
-Pace Containers Used?	DIVE DIVO DIVA	•		
Containers Intact?	ETES ONO ON/A	7.		
Dissolved analysis: Samples Field Filtered?	□Yes □No □N/Ā		. 1 .	
Sample Labels Match COC?	Oves ANO ON/A	- No dat	estine on	samples es
-Includes Date/Time/ID/Analysis Matrix:		recen	red 2	
Headspace in VOA Vials (>5-6mm)? Trip Blank Present?	Yes - No ON/A	10.		
		11.		
Trip Blank Custody Seals Present? CLIENT NOTIFICATION/RESOLUTION	Yes Ho ON/A		Field Data Required	No. ONO
Course Contract		Date/Time:	ricio Data Requirea	
Comments/Sample Discrepancy:				
Lot ID of split containers:				
Project Manager SCURF Review:		Date:	10/19/17	
Project Manager SRF Review:		Date:	10/19/17	

Document Name:

Document Revised: August 4, 2017

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)

Pace Analytical"

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:

*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

PM: RWC

Due Date: 10/24/17

CLIENT: 92-SCOHEC

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (CF)	BP3U-250 mL Plastic Unpreserved (N/A)	8P2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP45-125 mL Plastic H2SO4 (pH < 2) (CI-)	8P3N-250 mL plastic HNO3 (pH < 2)	BP42-125 mL Plastic ZN Acetate & NaOH (>9)	8P4C-125 mt Plastic NaOH (pH > 12) (CI-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG15-1 liter Amber H2504 (pH < 2)	A635-250 mL Amber H2504 (pH < 2)	AG3A[DG3A]-250 mt Amber NH4CI (N/A)(CH)	DG9H-40 mt VOA HC! (W/A)	VG9T-40 mL VOA Na252O3 (N/A)	V69U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 viols 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)		8P3A-250 ml Plastic (NH2)25O4 (9.3-9.7)	Cubitainer	VSGU-20 mL Scindillation vials (N/A)	NS
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		pH Ad	justment Log for Pres	erved Samples		
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot W

<i>56)</i>	
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/ Pace Analytic	aı
1-	

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

Due Date: 10/24/17

CLIENT: 92-SCDHEC

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (CI-)	BP3U-250 mL Plastic Unpreserved (N/A)	8P2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (CI·)	BP3N-250 mL plastic HNO3 (pH < 2)	BP42-125 mL Plastic ZN Acetate & NaCH (>9)	8P4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG15-1 liter Amber H2504 (pH < 2)	AG35-250 mL Amber H2504 (pH < 2)	AG34[DG3A]-250 mL Amber NH4Cl (N/A)(CF)	DG9H-40 mt VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mt 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 mt Sterile Plastic (N/A lab)	SP2T-250 mL Sterile Plastic (N/A - lab)		8P3A-250 ml Plastic (NH2)2504 (9.3-9.7)	Cubitainer	VSGU-20 mL Scinciliation viais (N/A)	GN
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pH Adjustment Log for Preserved Samples														
Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #									
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9	
Pace Ar	nalytical*

CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Qa.	Pace Analytical www.pacelabs.com	Section I	R							Sect	ion C												Pag	yo:	,	of 2	
Rec	uired Client Information:	Required	Projec	ct Infor	mation:					Invoic	e Inform	nation:											\vdash	-	110	EFOC	
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	Pace Analytical*
	www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately

Pace Analytical"		The Chain-of-Custody is	a LEGAL DOCUMENT. All relevant fields must be complete	d accurately.	643
Section A Section	n B d Project Information:		Section C	Page: 7	of 2 a
Company: Depost T		.1 .1~	Invoice Information: Attention:	1 2	2195527
Address: Copy To		TRU- HVAVO	Company Name:		130021
Address Zbcc Bull Stout Copy To			Address:	REGULATORY AGENCY ROUND WATER	
Columbia SC 24202	e Order No.: 111 a.a	. 00 51	Price Quote		
Styants Colle. sc.gar	4600	422513	Reference:	UST RCRA	OTHER
Requested Due Date/TAT: Project N	Wickey by	mpur 233	Manager T. Cortu	Site Location	Jasper
The state of the s	N2 - 678	05455-47 8E		STATE:	
Section D Matrix Codes				Analysis Filtered (Y/N)	
Section D Matrix Codes Required Client Information MATRIX / CODE	MP) oleft)	COLLECTED	Preservatives >		
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	ŀ		Jarganting	Temp is	Custody Custody Sealed Cool (V/N) (V/N)
		SIGNATURE of SAMPLER:	(MM/DD/YY):	1-11-11	00 00
*Important Note: By signing this form you are accepting Pace's N	NET 30 day payment terms ar	nd agreeing to late charges of 1,5% per mont	for any invokes the paid thin 30 days.	F-ALL-Q	1-020rev.07, 15-May-2007



64878

BRYAN SHANE, PG MIDLANDS ENVIRONMENTAL CONSULTANTS INC PO BOX 854 LEXINGTON SC 29071 JAN 3 0 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
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^{*}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 agreementtotal) 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)

www.scdhec.gov

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, Midla	nds Environmental Consultants, Inc.	
FROM: Ed Mendenhall		
RE: <u>Site-Specific Work</u>	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 MW-3 replacement and west of MW-4R. Survey new MW	and south of /s.
CA#	56052	

UST
RICHARD CARLSON PROCEEDS THERE WILL BE NO COST TO THE PROPERTY OWNER FOR AM & ALL WORK PERFORMES
RIGHT OF ENTRY - USF Permit # 04878 ON THE PROPERTY
RIGHT OF ENTRY - USF Permit # 04878 ON THE PEOPER THE P
I, ICHARD ARCLEON, 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. YACATI POP.
Street Address of Facility 3296 POINT SOUTH DR. VACANT PROP. Town, City, District, Suburb YEMA SSEE SOUTH CAROLINA
Name of nearest intersecting street, road, highway, alley TAKMAP# 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) / Down Rows, 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
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): CARLON
Phone Number (home) (work) (323) 222 - 3 007
Current Mailing Address 1920 pd MAIN ST. LOS ANGELES CA. 90031
Signature of Property Owner:
Witness Eter BAttolders
Date: FeB. 22, 2014 Month Year 13 feeh
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	
MW-1	Y	10/16/17	11:09	2.5-12.5	***	4.53	***	2.53	6,50	Comments
MW-2	Y	10/16/17	11:24	2-12	***	3.80	***	3.27	 	Odor
MW-3	N	10/16/17	NL	2-12	***	NL	***		2.00	Odor
MW-4R	Y	10/16/17	10:15	2-12	***		<u> </u>	NL .	0.00	Not Located
MW-5	Y	10/16/17	11:32			6.49	***	4.02	4.50	No Odor
MW-6	Y			2-12	***	3.83	***	1.22	6.75	No Odor
		10/16/17	11:00	2-12	***	4.85	***	0.92	3.00	No Odor
MW-7		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	
DW-1	Υ `	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	***	***	***	***	***		No Odor
SW-2	Y	10/16/17	10:05	***	***	***			0.00	AKA CK-1 (Collected south of MW-6)
SW-3	Y	10/16/17	11:45	***			***	***	0.00	AKA CK-2 (Collectd south of MW-8)
DUP					***	***	***	***	0.00	Collected from pond adjacent to 15151-MW13
		10/16/17	11:09	***	***	***	***	***	0.00	Duplicate of MW-11
ield Blank	Y	10/16/17	11:40	***	***	***	***	***	0.00	
rip Blank	Υ .	10/16/17	11:42	***	***	***	***	***	0.00	Field Blank
									0.00	Trip Blank



SUMMARY OF DETECTION

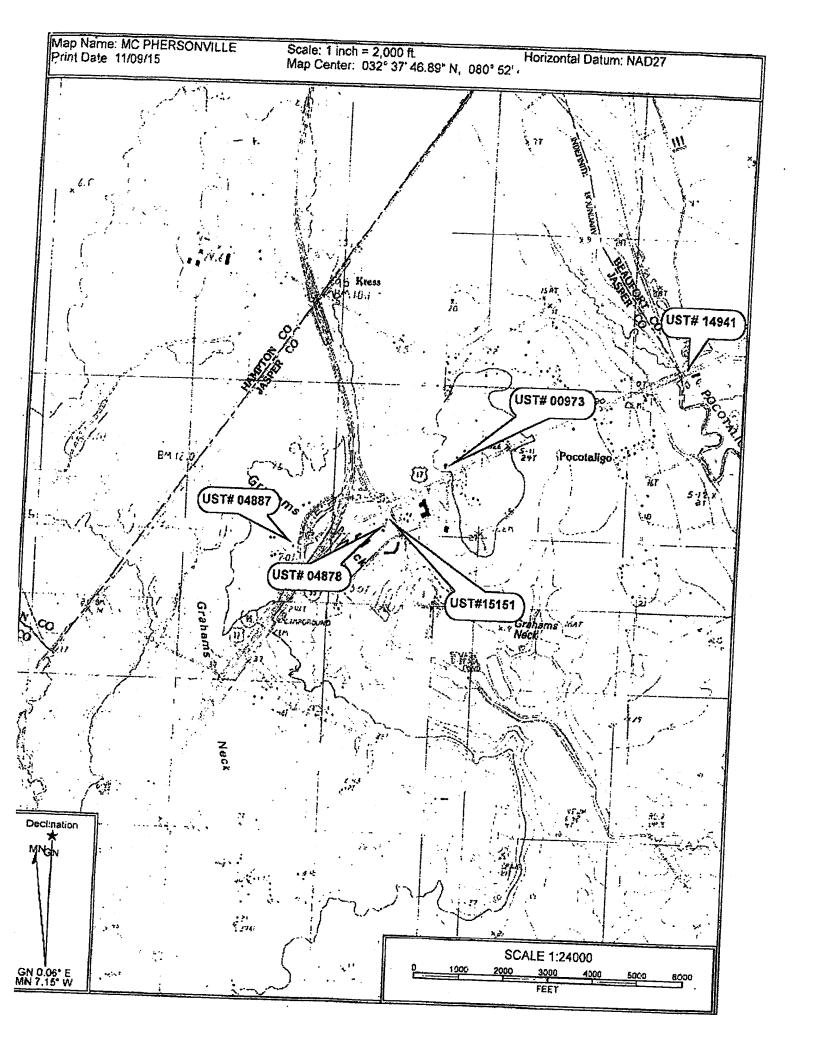
Project:

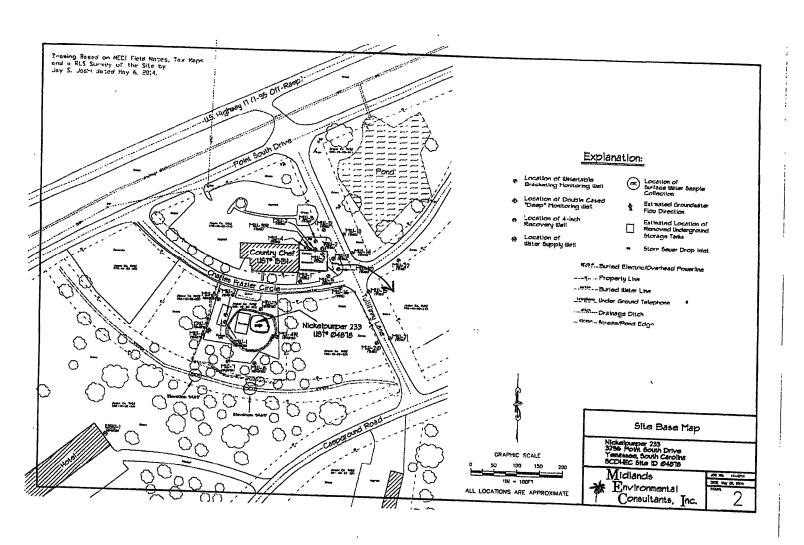
NICKLE PUMPER 233 04878/55470

Pace Project No.: 92359447

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92359447001	MW-1					Guanners
EPA 8260	tert-Amyl Alcohol	7690	ug/L	5000	40//04/5	
EPA 8260	Benzene	4580	ug/L	5000		
EPA 8260	tert-Butyl Alcohol	5460	ug/L ug/L	250	10/19/17 23:03	
EPA 8260	Ethylbenzene	12804>	ug/L	5000	10/19/17 23:03	
EPA 8260	Methyl-tert-butyl ether	8994>	ug/L ug/L	250	10/19/17 23:03	No 1,2-DC
EPA 8260	Naphthalene	4874>	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 1	_	250	10/19/17 23:03	
EPA 8260	m&p-Xylene	3410	ug/L	250	10/19/17 23:03	
EPA 8260	o-Xylene	974	ug/L	500	10/19/17 23:03	
2359447002	MW-2	3/4	ug/L	250	10/19/17 23:03	
EPA 8260	Benzene	رح.				
EPA 8260	Ethylbenzene	133	ug/L	5.0	10/20/17 15:43	
EPA 8260	Methyl-tert-butyl ether	153	ug/L	5.0	10/20/17 15:43	
EPA 8260	Naphthalene	4.0J	ug/L	5.0	10/20/17 15:43	
EPA 8260	Toluene	84.6 V	ug/L	5.0	10/20/17 15:43	
EPA 8260	Xylene (Total)	7.0	ug/L	5.0	10/20/17 15:43	
EPA 8260	m&p-Xylene	173	ug/L	5.0	10/20/17 15:43	
EPA 8260	o-Xylene	165	ug/L	10.0	10/20/17 15:43	
2359447003	•	7.6	ug/L	5.0	10/20/17 15:43	
	MW-4R					
EPA 8260	tert-Amyl Alcohol	283	ug/L	100	10/19/17 17:42	
2359447009	DUPLICATE					
PA 8260	tert-Amyl Alcohol	8560	ug/L	5000	40/40/47.00.00	
PA 8260	Benzene	6370	ug/L		10/19/17 23:38	
PA 8260	tert-Butyl Alcohol	6080	ug/L ug/L		10/19/17 23:38	
EPA 8260	Ethylbenzene	1850	ug/L		10/19/17 23:38	
PA 8260	Methyl-tert-butyl ether	1270	ug/L		10/19/17 23:38	
PA 8260	Naphthalene	712	ug/L		10/19/17 23:38	
PA 8260	Toluene	7390	ug/L		10/19/17 23:38	
PA 8260	Xylene (Total)	6300	-		10/19/17 23:38	
PA 8260	m&p-Xylene	4870	ug/L		10/19/17 23:38	
PA 8260	o-Xylene	1430	ug/L		10/19/17 23:38	
	• • • • • • • • • • • • • • • • • • • •	1430	ug/L	250	10/19/17 23:38	

REPORT OF LABORATORY ANALYSIS





SCDHEC UST Management Tracking

BOTH billable and unbillable tanks

Site Information for N-04878 Facility: NICKELPUMPER 233

Bus. Address

3296 POINT SOUTH DR

SC 29945 YEMASSEE

Phone

County Jasper

District Beaufort EQC Office

Category

Retail Sales

Trans. of Ownership 01/23/07

Last Inspection 07/17/17

Bus. Address

Tank Owner CARLSON, RICHARD LOS ANGELES

1920 N MAIN ST

Phone 951-659-0063

Financial Responsibility Financial Mechanism **Expiration Date**

None

28 July 2012

Bus.

Operator Address

Phone

Bus. Address

Land Owner CARLSON, RICHARD 1920 N MAIN ST

LOS ANGELES

CA 90031-3217

CA 90031-3217

Phone 951-659-0063

Tanks

Billable

Aband. 0

Other

Compliance Operator(s)

3

<u>ID</u>

Training Date

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?

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:

Rel. No. **Active Tnks**

Reported **NFA**

05/16/02

Status Confirmed - Active **Product** Fin. Type With SUPERB Cos RBCA / Score

Petroleum 2BB 728

Compl Required **Compliance Met**

N

SCDHEC UST Management Tracking

BOTH billable and unbiliable tanks

Site Information for N-04878 Facility: NICKELPUMPER 233

this plume is co-mingled with the plume for Site #15151w hich is in corrective action. Also, an enforcement action is pending for tank abandonment and closure.

Significant? N Memo Date: 02/24/01

PER NANCY L IN LEGAL - GOLDEN ISLES PETROLEJIM IS IN BANKRUPTCY AND I Site Memo:

IS TOO LATE TO MAKE

01-02-97 F

CLAIMS AGAINST THEM. (KM 5/13/94)

3-23-95 TC TO DISTRICT FOR SITE VISIT TO FIND TANK AND

OWNERSHIP i

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 visited this site on 12-31-96. The tanks have about one i MONTHS. DMO to two inches of fluid in them. The dispensers are

present. The i system was a pressure system with no mlids. RSM

12/30/97 I visited

this site in response to request from Richard i

Pittenger from ARM. He believed the site was unregistered. Ii checked all 3 tanks again. Two still have about 2-3 in. of fluid. i

to have a bit more fluid present (5-6 inches) i

The third tank seems 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

Tier I directive, per Mark Berenbrok, to Robert Pucini of Sunstar, Inc. 7373 Hodgson Memorial Dr., #6, Site Memo:

STATUS, DMO

Savannah, GA 31406, and his attorney, Russell Templeton, Esq., 1825 Bull St., Columbia, SC 29202.

Significant? N Memo Date: 11/20/02

This facility is located on the South side of I-95 at exit 33 in Point South. It is behind site #15151. Site Memo:

> **Confirmed** 05/28/02 Emer. Resp. Superb Qualified Compliance Met Dt 06/27/02 CU init. 01/09/03 Abate. Met Superb Determ. Dt Fin Res Mechanism CU Compl. **Transferred** Project Manager BUTLER KATHYRN H CU > MCL Source UST Responsible Party CARLSON RICHARD

Tank No. Const. Class N Tank Const. Mat. SL Pipe Const. Mat. SL T Status TOS Operate Tank Protect. CP Pipe Protect. <u>CP</u> **Notify** 12/11/85 Capacity 6,000 Tank Cont. Meth. SW Pipe Cont. Meth. SW **Variance** Product GN BFVV Ver Overfill Type Piping Type PR Compl. 12/29/14 C Status OUT Age @ Notif. 10 Dist. to Well 101 Spill Det. Left Gal. 0 Owner @ ABD Last Use 05/15/02 Aband. <u>Me</u>thod CAS No. Chem. Under Dispenser Cont. N Drop Tube N Tank Leak Det. Pipe Leak Det.

SCDHEC UST Management Tracking

BOTH billable and unbillable tanks

Site Information for N-04878 Facility: NICKELPUMPER 233

Tank No.	2	Const.	Class N	Tank Const. Mat. SL	Pipe Const. Mat.	SL
		<u>Operate</u>	T Status TOS	Tank Protect.	CP Pipe Protect.	<u>CP</u>
		Notify 12/11/85	Capacity 8,000	Tank Cont. Meth. SW	Pipe Cont. Meth.	
		<u>Variance</u>	Product GN	Overfili Type BFV\	Ver Piping Type	- PR
		Compl. 12/29/14	C Status OUT	Age @ Notif. 10	Dist. to Well	101
		Spill Det.	Left Gal. 0	Owner @ ABD		Last Use 05/15/02
		Aband.	Method	CAS No. Che	em.	
		Under Dispenser Co	nt. N <u>Drop Tube</u>	N <u>Tank Leak Det.</u>	<u>Pipe Leak De</u>	<u>t.</u>
Tank No.	3	Const.	Class N	Tank Const. Mat. SL	Pipe Const. Mat.	SL
		Operate_	T Status TOS	Tank Protect.	CP Pipe Protect.	<u>CP</u>
		Notify 12/11/85	Capacity 10,000	Tank Cont. Meth. SW	Pipe Cont. Meth.	sw
		<u>Variance</u>	Product GN	Overfill Type BFVV	Ver Piping Type	PR
		Compl. 12/29/14	C Status OUT	Age @ Notif. 10	Dist. to Well	101
		Spill Det.	Left Gal. 0	Owner @ ABD		Last Use 05/15/02
		Aband.	Method	CAS No. Che	<u>m.</u>	
		Under Dispenser Co	nt. N Drop Tube	N Tank Leak Det.	Pipe Leak Det	







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. Pudgey Project Biologist

Senior Scientist



Site-Specific Work Plan for Approved ACQAP Underground Storage Tank Management Division

To: Mr. Ed Mendenhall From: Mr. Jeff Coleman		(SCDHEC Project Manager)(Contractor Project Manager)			
Contractor: Midlands Environmental C	consultants, Inc. UST Contra	actor Certification Number: 009			
Facility Name: Nickelpumper 233		UST Permit #: 04878			
Facility Address: 3296 Point South Dr	ive, Yemassee, SC 29945				
Responsible Party: Richard Carlson		Phone: 951-65	59-0063		
RP Address: 1920 North Main Street, Los Angeles, CA 90031					
Property Owner (if different): SAA					
Property Owner Address: SAA					
Current Use of Property: Vacant Lo					
Scope of Work (Please check all	that apply)	<u>-</u>			
☐ IGWA ☐ Tier II		Groundwater Sampling	☐ GAC		
☐ Tier I	ring Well Installation	Other Subsequent Survey			
Analyses (Please check all that a	pply)				
Groundwater/Surface Water:	_				
BTEXNMDCA (8260B)	Lead	BOD			
Oxygenates (8260B)	8 RCRA Metals	☐ Nitrate	Ethanol		
☐ EDB (8011)	☐ TPH	Sulfate	☐ Dissolved Iron		
PAH (8270D)	□ pH	Other			
Drinking Water Supply Wells:	— ** ***	-			
BTEXNMDCA (524.2)	☐ Mecury (200.8 245.		1)		
Oxygenates & Ethanol (8260B) Soil:	RCRA Metals (200.	8)			
	RCRA Metals	T TOU DOG (OFFIDERALES)			
= = =	Oil & Grease (9071)	☐ TPH-DRO (3550B/8015B)	☐ Grain Size		
Air.	Oll or Olease (2011)	☐ TPH-GRO (5030B/8015B)	☐ TOC		
BTEXN					
Sample Collection (Estimate the	number of complex of each s		WA		
Soil	number of samples of each n ———— Water Supply We	The state of the s	lected.) Field Blank		
Monitoring Wells	Surface Water	Duplicate	Freid Blank		
		Duplicate			
Field Screening Methodology					
Estimate number and total complete	ed depth for each point, and	include their proposed locations	on the attached map.		
# of shallow points proposed:	Estir	mated Footage:	feet per point		
# of deep points proposed:	Estir	nated Footage:	feet per point		
Field Screening Methodology:					
Permanent Monitoring Wells					
Estimate number and total complete	ed depth for each well, and in	oclude their proposed locations o	n the offschad man		
# 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:			reer per penn		

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					
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. -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:					
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.					
 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 Location of property lines Location of buildings Previous soil sampling locations Previous monitoring well locations Previous monitoring well locations Previous monitoring well locations Previous monitoring well locations Proposed monitoring well locations Location of all present and former ASTs and USTs Location of all potential receptors 					
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#4600602150

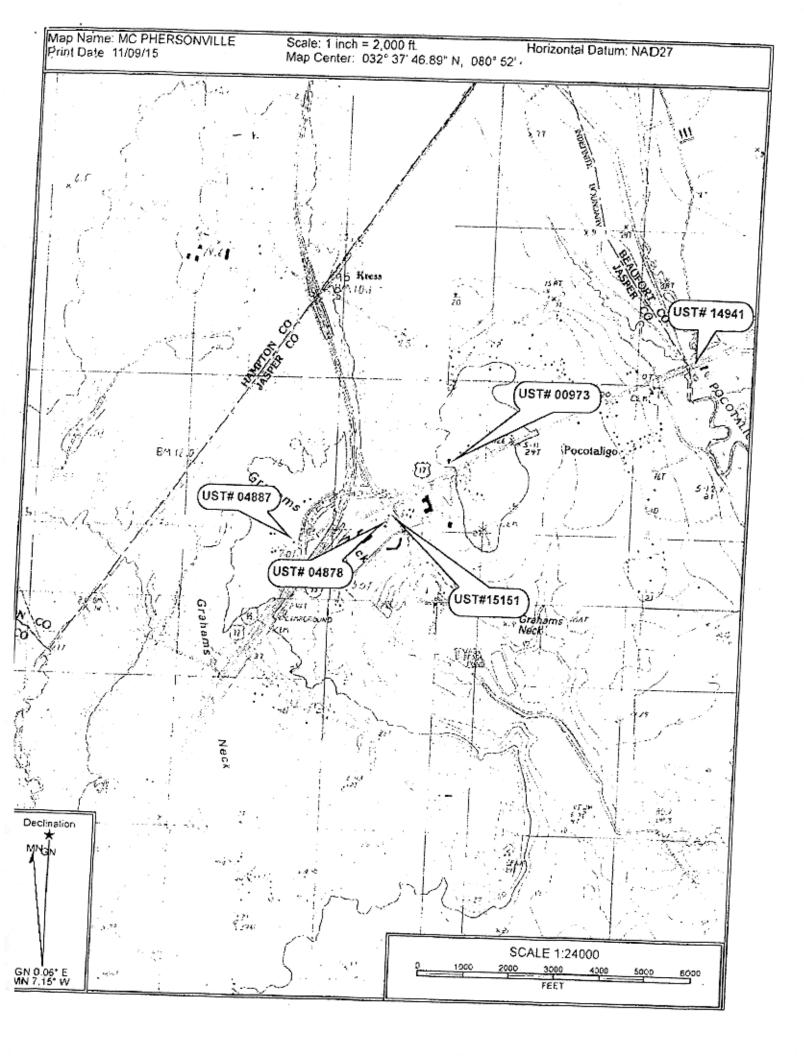
Facility Name: Nick

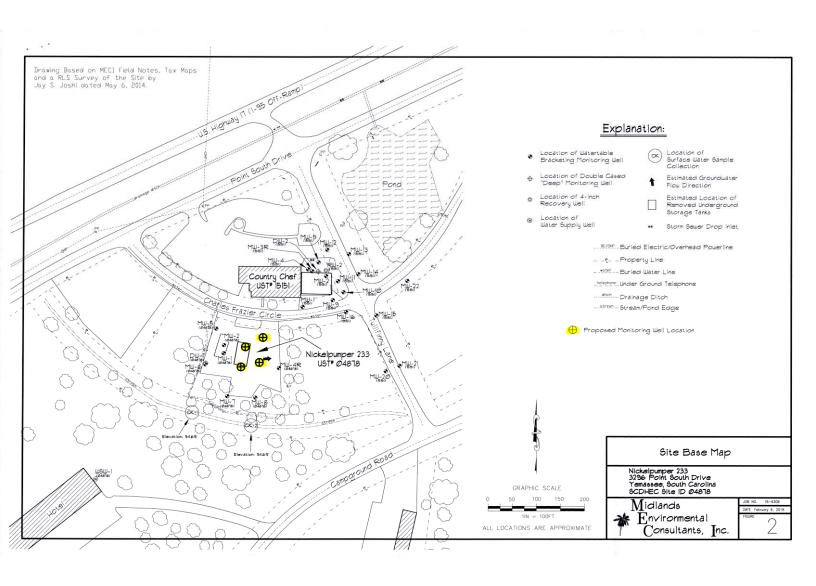
Nickelpumper 233

Takkelpuliper 233	 -		_		
UST Permit #: 04878	Cost A	greement #:	Cost Proposal	_	
ITEM	QUANTITY	UNIT	UNIT PRICE	1.31	TOTAL
1. Plan Preparation		1			IOIAL
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			¥1.00	▎▕ႃ	φυ.υι
A1. Comprehensive Survey		each	\$1,000.00	1 1	\$0.00
4. Mob/Demob	<u> </u>		V.(000.00	<u> </u>	40.00
A1. Equipment	1 1	each	\$1,100.00	i .	\$1,100.00
B1. Personnel	3	each	\$325.00		\$975.00
5. Soil Borings (Not for screening)			7020.00		4515.00
A1. Soil Borings (hand auger)		per foot	\$1.00		\$0.00
6. Soil Borings (Not for Screening)		<u> </u>	- + 1.00	,	Ψ0.00
AA. Standard	i	per foot	\$2.00	1.2	\$0.00
9. Well installation (per foot)		<u> </u>		··. 	Ψ0.00
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	1	per foot	\$35.00		\$0.00
DD. Rock Drilling		per foot	\$10.00		\$0.00 \$0.00
HH. Recovery Well (4" diameter)	1	per foot	\$34.00]	\$0.00 \$0.00
K. Re-develop Existing Well		per foot	\$0.50		\$0.00
10. Groundwater Sample Collection / Gauge De	epth to Water	or Product	40.00	· .	\$0.00
includes gauge depth to water and product, pl	nturbidity, spec	ific conductivity a	ind dissolved		
oxygen if sampled is collected	1				
A1. Groundwater Purge	J	per well/receptor	\$20.00		\$0.00
E1. Gauge Well only		per well	\$1.00		\$0.00 \$0.00
F1. Sample Below Product	1	per well	\$1.00		\$0.00
G1. Passive Diffusion Bag		each	\$20.00		\$0.00
I. Groundwater (low flow purge)	1 1	per well/receptor	\$35.00		\$0.00
11. Laboratory Analyses-Groundwater		per memorphis.	400.00	· : -	
A2. BTEXNM+Oxyg's+1,2 DCA+Eth(8260B)	\$7	per sample	\$36.00	•	\$0.00
AA1. Lead, Filtered	1 1	per sample	\$12.00		\$0.00 \$0.00
	7 2818	per sample	\$1.00	. `	\$0.00 \$0.00
E1. Lead	ሣ <i>' - </i>	per sample	\$1.00 \$12.00	: :	\$0.00 \$0.00
	1	per sample	\$12.00 \$21.00	`.'*•	
G1. 8 RCRA Metals	SION	per sample	\$1.00 \$1.00		\$0.00 \$0.00
H1. TPH (9070)		per sample	\$1.00 \$1.00	* 1	\$0.00
1. Analyses-Drinking Water	; 	_ por sumpre	<u> </u>		\$0.00
L. BTEXNM+1,2 DCA (524.2)		per sample	\$50.00		\$0.00
M. 7-OXYGENATES & ETHANOL (8260B)	1	per sample	\$35.00		·
N. EDB (504.1)	1 [per sample	630.00		\$0.00
O. RCRA METALS (200.8)		per sample per sample		*.	\$0.00
	L	hei sailible	\$20.00		\$0.00

11. Analyses-Soil	Τ		 	1	. 1
Q1. BTEXNM+Oxyg's+1,2 DCA+Eth(8260B)		per sample	\$22.00	1 .	\$0.00
R1. PAH's		per sample	\$1.00	1 .	\$0.00
S1. 8 RCRA Metals		per sample	\$1.00		\$0.00
U1. TPH-DRO (3550C/8015C)		per sample	\$1.00	t : .	\$0.00
W1. Grain size/hydrometer		per sample	\$125.00		\$0.00
X1. Total Organic Carbon	ļ	per sample	\$125.00		\$0.00
12. Aquifer Characterization		per autipie	\$1.00	┨ .	
B1. Slug Test		per test	\$50.00		\$0.00
16. A1. Subsequent Survey	1	each	\$400.00	• • • •	\$400.00
17. Disposal (gallons or tons)*	 		\$400.00	1 .	Ψ 100.00
AA. Wastewater	100	gallon	\$1.25	١.	\$125.00
BB. Free Product	""	gallon	\$0.10	:	\$0.00
C1. Soil Treatment/Disposal	1 1	ton	\$50.00		\$50.00
D1. Drilling fluids	•	gallon	\$0.10		\$0.00
18. Miscellaneous		30	40.10	1	Ψ0.00
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	ļ. '	\$0.00
Abandonment (per foot) Not Part of Screening				ٔ ا	'
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
20. Tier I Assessment (Use DHEC 3665 form)		standard	\$4,369.00		\$0.00
21. IGWA (Use DHEC 3666 form)	GT \	standard	\$980.00		\$0.00
25 Wall Panels				,	
A1. Additional Copies of the Report Delivered	7 7513	each	\$1.00		\$0.00
B1. Repair 2x2 MW pad	EBO7 2513	each	\$1.00	. 1:	\$0.00
CI. Repair 4x4 MIVV pag		·/ ^^^h	\$1.00	• •;	\$0.00
F1. Replace well cover bolts	DINE	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	4	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

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BRYAN SHANE PG MIDLANDS ENVIRONMENTAL CONSULTANTS PO BOX 854 LEXINGTON SC 29071-0854

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.

1 1 G

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

Jeffing & Mandall

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 "asbuilt" 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 twentyfour (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

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Assessment & Unregulated Petroleum Section

UST Management Division

Bureau of Land and Waste Management

Approved Cost Agreement

56052

Facility: 04878 NICKELPUMPER 233

BUTLERKH PO Number:

Task / Description Categories	<u>Item</u> <u>Description</u>	Qty / Pct	Unit Price	<u>Amount</u>
01 FLAN				
	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

Document Receipt Information

Hard Copy	СБ	Email
Date Received	H-16	-18
Permit Number	Ed Me	1878 under 1401
Project Manager Name of Contractor	mi	CI
UST Certification Numb	oer	
Docket Number	8 Tech	
Scanned		

MW Installation

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,

enior Scientist

Midlands Environmental Consultants, Inc.

Bryan T. Shane, P.G. Principal Geologist

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NOTE: ITEMS LISTED WITH AN ** BESIDE IT WERE NOT NEEDED AS A PART OF THIS SCOPE OF WORK

1.0 INTRODUCTION

Α	 Owner/Operator Info 	rmation			
	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 Informatio	n			
	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 Lab	oraton			
L	Name:	N/A			
	Certification #:				
	Address:	N/A 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-

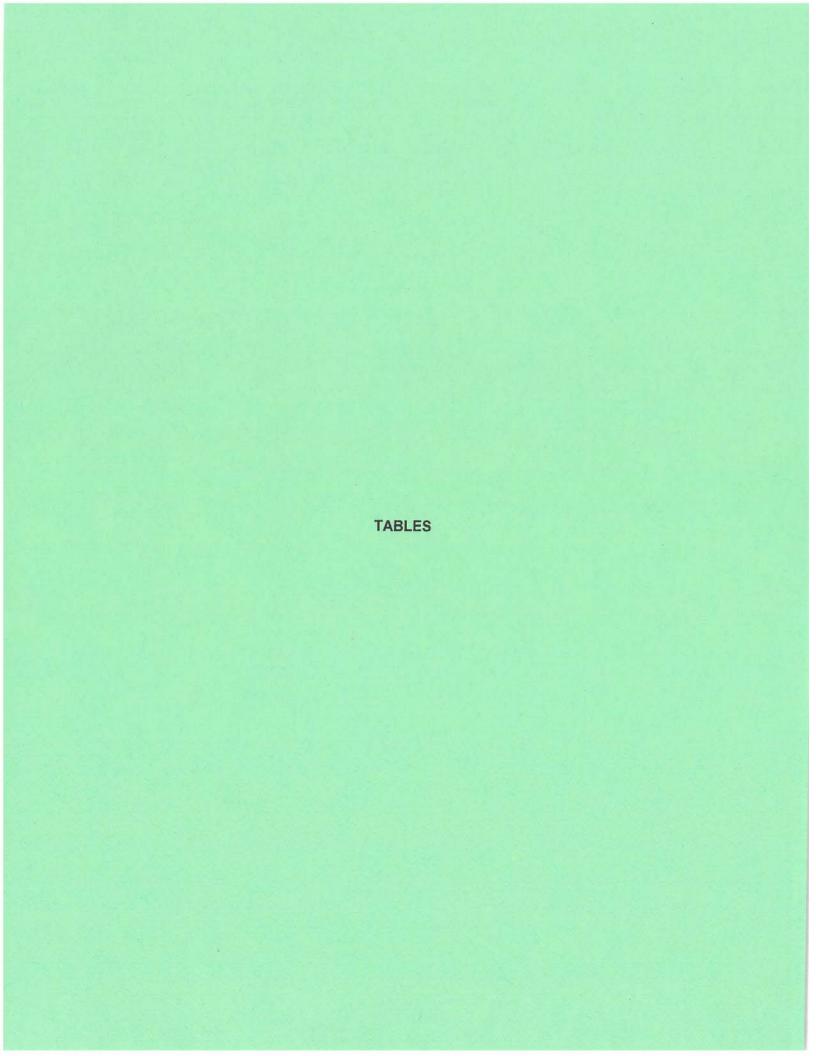


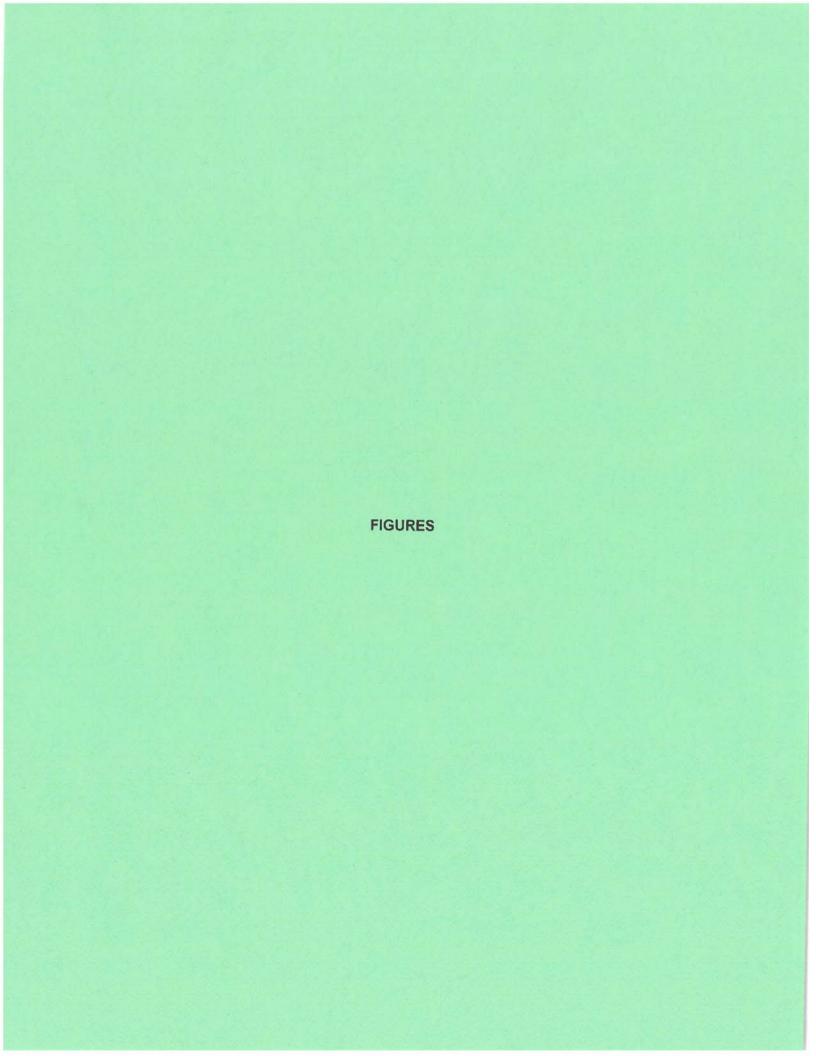
TABLE 2 POTENTIOMETRIC DATA NICKELPUMPER 233 APRIL 5, 2018 GAUGING EVENT YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 18-6308 SCDHEC SITE ID NUMBER 04878

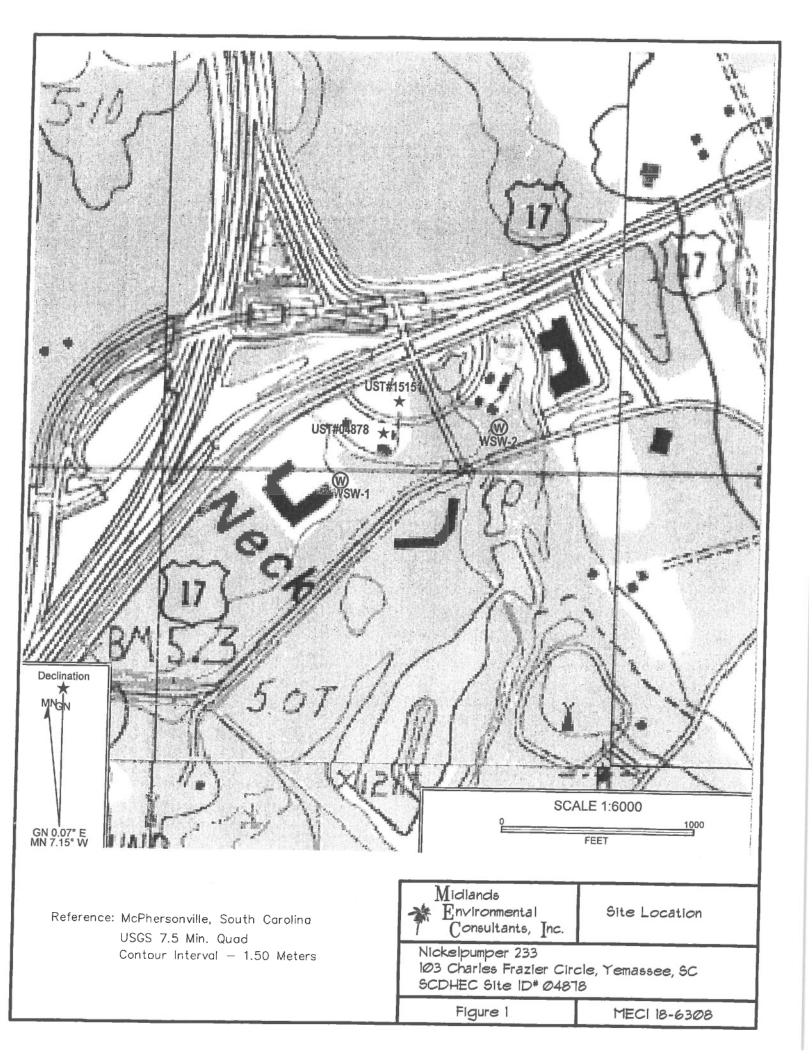
Well	Gauge	Screened	Depth to	Well-head	Groundwater
Number	Date	Interval	Water (feet)	Elevation	Elevation
04878-MW01	4/5/2018	2.5-12.5	NM	100.56	NM
04878-MW02	4/5/2018	2.0-12.0	NM	100.57	NM
04878-MW03	4/5/2018	2.0-12.0	NM	NL	NM
04878-MW03R	4/5/2018	2.0-12.0	2.76	100.27	97.51
04878-MW04	4/5/2018	2.0-12.0	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 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
				002	1,4141

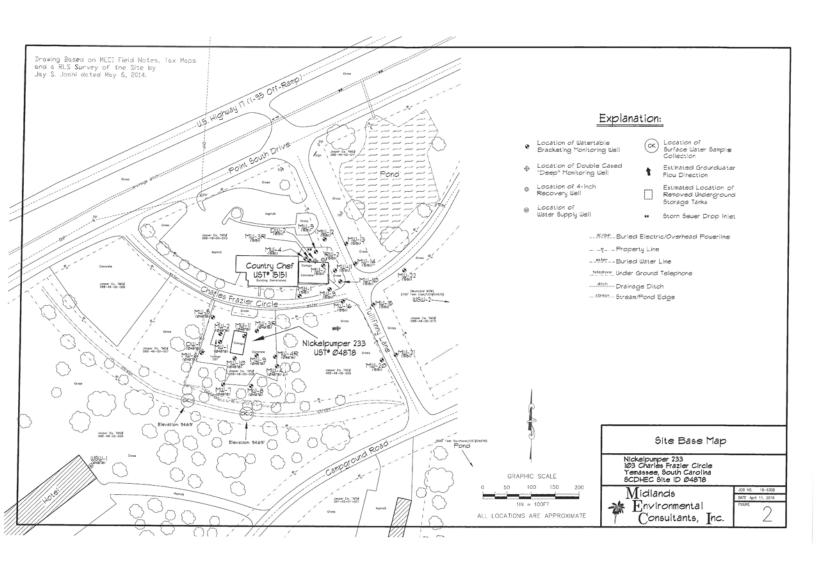
Notes:

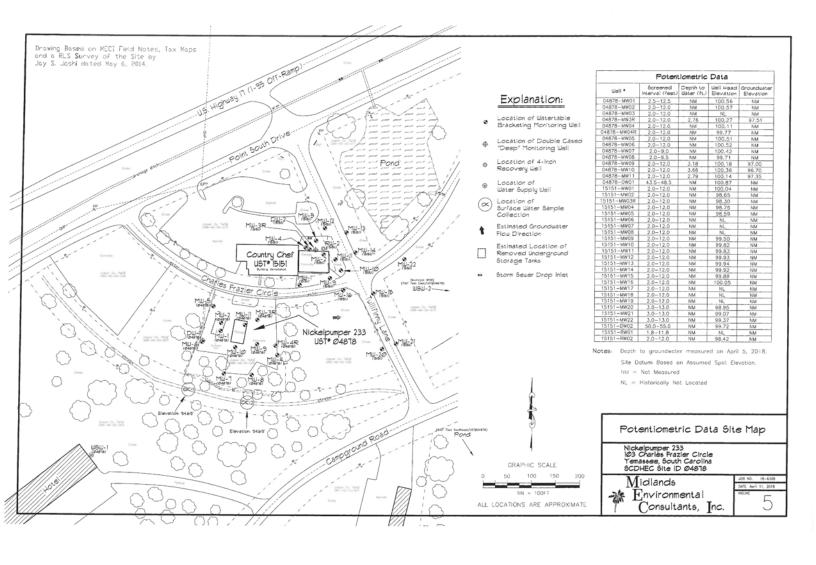
- 1. Elevations based on assumed site datum.
- 2. Groundwater depths were measured from the top of the PVC riser pipe.
- 3. Groundwater levels measured on 4/5/2018.

- 4. NL = Not Located
- 5. NM = Not Measured









APPENDIX A:

SITE SURVEY (Not Applicable)

APPENDIX B:

SAMPLING LOGS, LABORATORY DATA SHEETS, & CHAIN-OF-CUSTODY FORMS (Not Applicable)

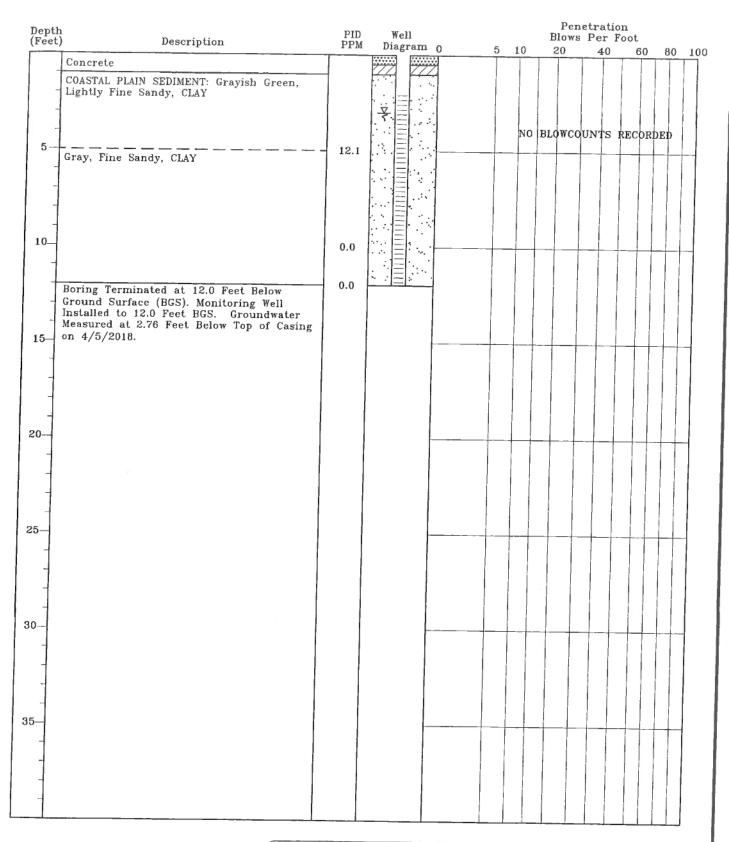
APPENDIX C:

TAX MAP

(Not Applicable)

APPENDIX D:
SOIL BORING/FIELD SCREENING LOGS & 1903 FORMS
(Not Applicable)

APPENDIX E: WELL COMPLETION LOGS & 1903 FORMS



TEST BORING RECORD Nickelpumper 233 Yemassee, South Carolina SCDHEC Site ID# 04878 MECI Project Number 18-6308

Boring Number:	Ø4878-MW3R	
Date Drilled:	3/28/2018	
Drilled By:	EDPS, LLC.	
Logged By:	T. Elder	

Prepared By:

Midlands

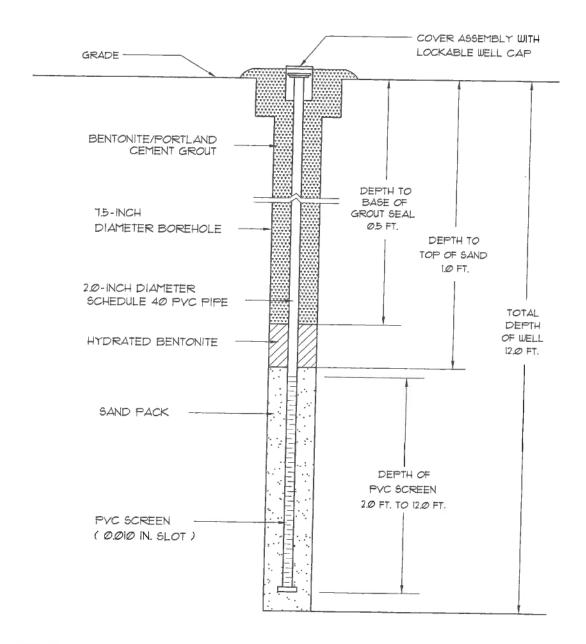
Environmental

Consultants, Inc.

231 Dooley Road
Lexington, South Carolina 22013
(803) 808-2043 fax: 808-2048

MONITORING WELL INSTALLATION RECORD

Nickelpumper 233 Yemassee, South Carolina SCDHEC Site ID# 04878 MECI Project Number 18-6308

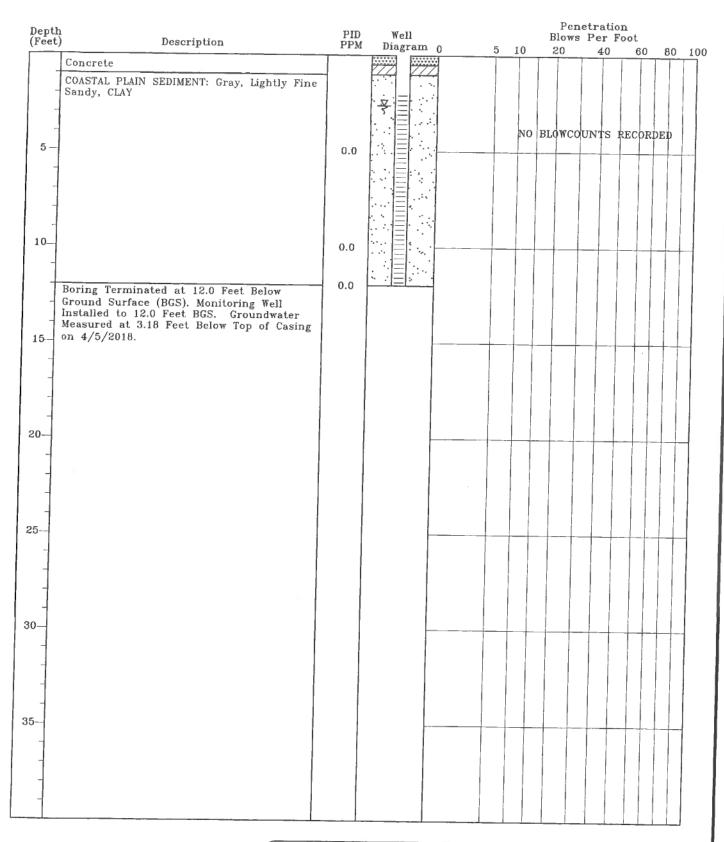


Well Number:	Ø4878-MW3R
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Driller: T. Bolyard	S.C. I.D.*: B01846
Logged By:	T. Elder

Prepared By:

Midlands
Environmental
Consultants, Inc.

231 Dooley Road Lexington, South Carolina 29013 (803) 808-2043 Fax: 808-2048



TEST BORING RECORD Nickelpumper 233 Yemassee, South Carolina SCDHEC Site ID# 04878 MECI Project Number 18-6308

Boring Number:	04878-MW9 3/28/2018	
Date Drilled:		
Drilled By:	EDPS, LLC.	
Logged By:	T. Elder	

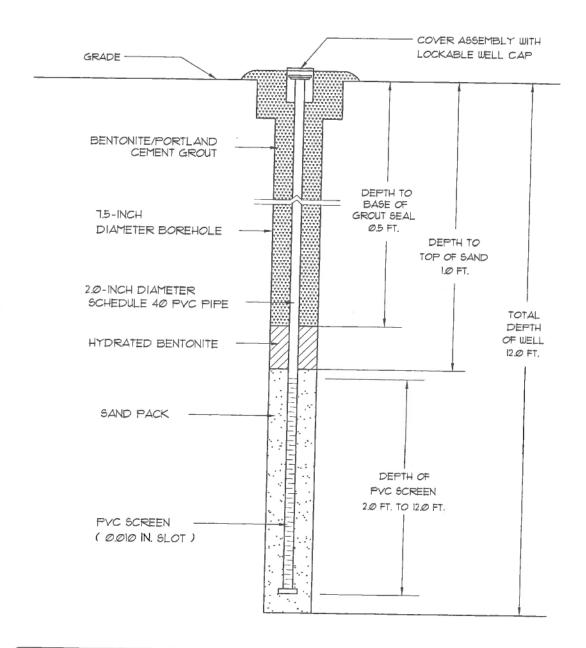
Prepared By:

Midlands
Environmental
Consultants, Inc.

231 Dooley Road Lexington, South Carolina 29013 (803) 808-2043 fax: 808-2048

MONITORING WELL INSTALLATION RECORD

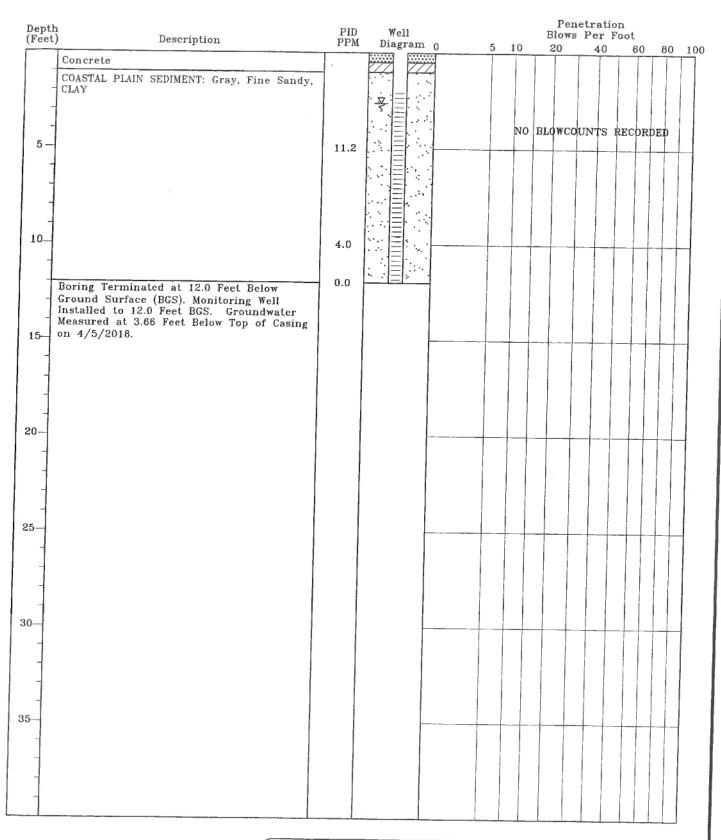
Nickelpumper 233 Yemassee, South Carolina SCDHEC Site ID# 04878 MECI Project Number 18-6308



Well Number:	04878-MW09
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Driller: T. Bolyard	S.C. I.D.*: BØ1846
Logged By:	T. Elder

Midlands
Finvironmental
Consultants, Inc.

231 Dooley Road Lexington, South Carolina 23:013 (803) 808-2043 Fax: 808-2048



TEST BORING RECORD Nickelpumper 233 Yemassee, South Carolina SCDHEC Site ID# 04878 MECI Project Number 18-6308

Boring Number:	04878-MWI0
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Logged By:	T. Elder

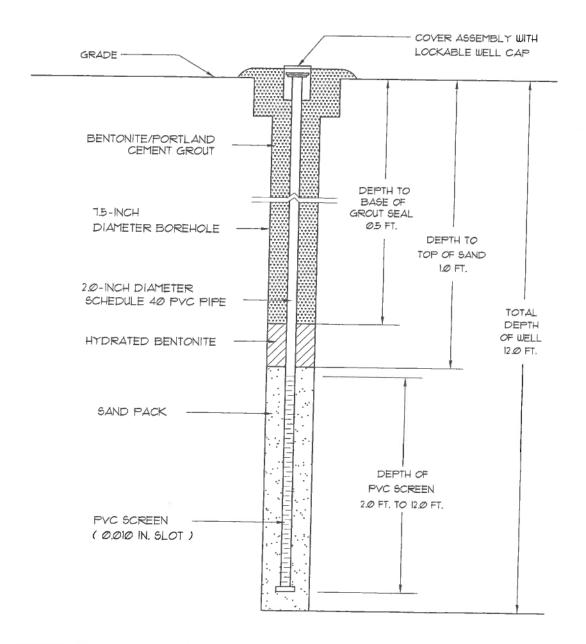
Prepared By:

Midlands
Environmental
Consultants, Inc.

231 Dooley Road Lexington, South Carolina 29013 (803) 808-2043 fax: 808-2048

MONITORING WELL INSTALLATION RECORD

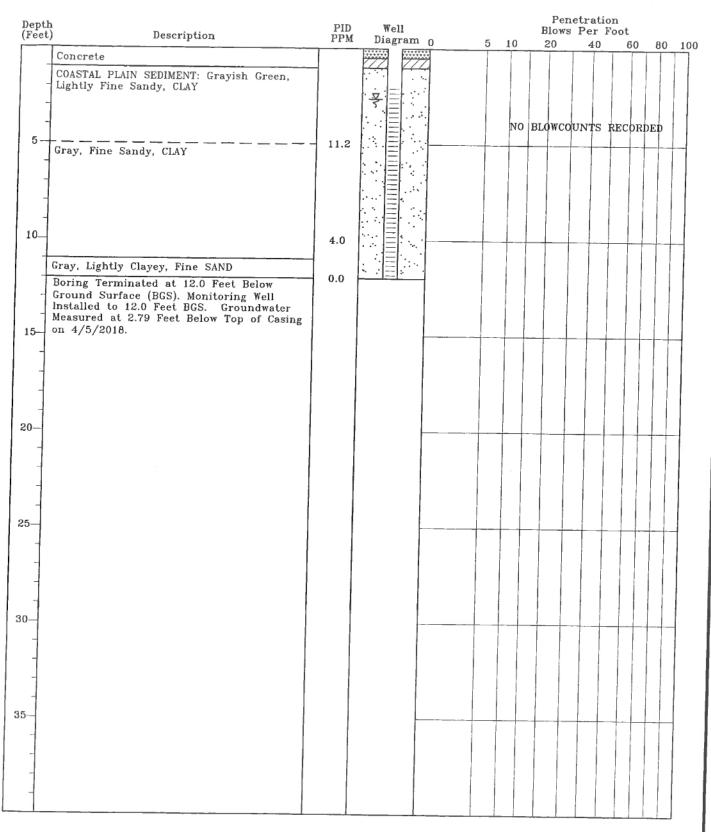
Nickelpumper 233 Yemassee, South Carolina SCDHEC Site ID# 04878 MECI Project Number 18-6308



Well Number:	04878-MW10
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Driller: T. Bolyard	S.C. I.D.*: B01846
Logged By:	T. Elder

Midlands
Environmental
Consultants, Inc.

231 Dooley Road Lexington, South Carolina 29073 (803) 808-2043 Fax: 808-2048



TEST BORING RECORD Nickelpumper 233 Yemassee, South Carolina SCDHEC Site ID# 04878 MECI Project Number 18-6308

Boring Number:	04878-MWII 3/28/2018	
Date Drilled:		
Drilled By:	EDPS, LLC.	
Logged By:	T. Elder	_

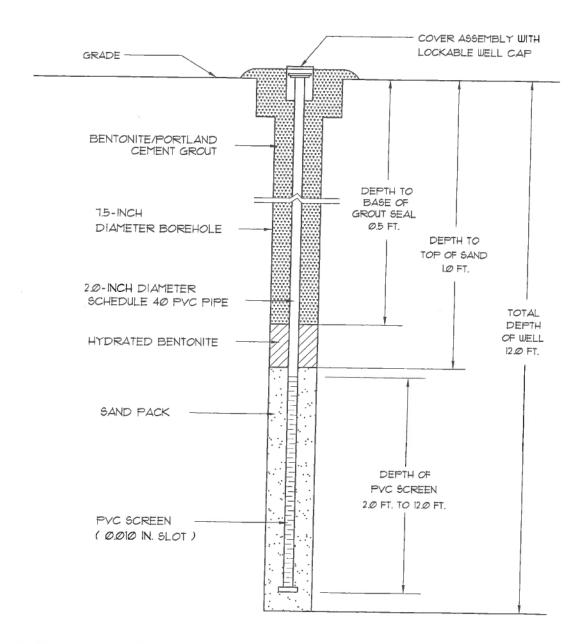
Prepared By:

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:	Ø4878-MWII
Date Drilled:	3/28/2018
Drilled By:	EDPS, LLC.
Driller: T. Bolyard	S.C. I.D.*: BØ1846
Logged By:	T. Elder

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

TROSECTE TROSPER			1, 30, 100, 100, 100, 100, 100, 100, 100						
1. WELL OWNER INFORMATION: Name: SCDHEC			7. PERMIT NUMBER: UMW-26888						
(last)	(first)	8. USE:						
Address: 2600 Bull Street			T Beethold						
City: Columbia State:	CC 7:	20021 1700	Flocess						
ony. Columbia state.	SC Zip:	29021-1708	Air Conditioning ☐ Emergency ☐ Test Well ☐ Monitor Well ☐ Replacement						
Telephone: Work:	Home:		9. WELL DEPTH (completed) Date Started: 3/28/2018	K					
2. LOCATION OF WELL:	COUNTY								
Name: Nickelpumper 233	ooom jasj	ber	ft. Date Completed: 3/28/2018						
Street Address: 102 Cl 1 F			10. CASING: ☑ Threaded ☐ Welded						
Street Address: 103 Charles Fr	azier Circle		Diam.: Height: Above /Below						
City: Yemassee	Zip: 29945	-0000	Type: PVC Galvanized Surface	_ ft.					
Latitude: Longitu			2.0 Steel Other Weight Weight It depth Drive Shoe? Yes No	./ft.					
Latitude: Longitu	ide:		in. to 2.0 ft. depth Drive Shoe? Yes No						
2 DUDUIC OVERTILIAND			in. toft. depth						
	PUBLIC SYST		11. SCREEN:						
04878	MW-3	R	Type: Schedule 40 PVC Diam.: 2 Inch						
4. ABANDONMENT: Yes	☑ No		Slot/Gauge: 0.010 Length: 10.0 Set Between: 2.0 ft. and 12.0 ft. NOTE: MULTIPLE SCREENS						
Grouted Depth: from	_ ft. to	ft.	ft. and ft. USE SECOND SHEET Sieve Analysis						
	*Thickness	Depth to	Individual in the (picase eliciose) [] No						
Formation Description	of	Bottom of	12. STATIC WATER LEVEL 2.76 ft. below land surface after 24 ho	ours					
	Stratum	Stratum	13. PUMPING LEVEL Below Land Surface.						
Concrete	0.5	0.5	ft. after hrs. Pumping G.P.M.						
	+		Pumping Test: Yes (please enclose) No						
Grayish Green, Sandy, CLAY	4.5	5.0	Yield:						
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			14. WATER QUALITY						
Gray, Sandy, CLAY	7.0	12.0	Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No						
	7.0	12.0	Please enclose lab results.						
			15. ARTIFICIAL FILTER (filter pack) ☑ Yes □ No						
			Installed from 12.0 ft. to 1.0	A					
	1	}	Effective size 1.43 Uniformity Coefficient 1.30	"					
			16. WELL GROUTED? ☑ Yes ☐ No						
			□ Neat Cement □ Bentonite ☑ Bentonite/Cement □ Other	ĺ					
			Depth: From 0.5 ft. to 0.0	_					
			17 NEADERT COURSE OF POSSES - COURSE	ι.					
			17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft direction Type						
			Well Disinfected ☐ Yes ☐ No Type: Amount:	- [
		ŀ							
			18. PUMP: Date installed: Not installed Not installed	- 1					
	1 1	- 1	Mil. Name: Model No.:	-					
			H.P Volts Length of drop pipe ft. Capacity gpm TYPE: Submersible						
	1 1	- 1	Distriction Continued	- 1					
			40 NUTL and Towns Date 1						
		- 1	19. WELL DRILLER: Tommy Bolyard CERT. NO.: 01846						
			Address: (Print) Level: A B C D (circle one)					
	1 1		17538 Greenhill Road	1					
*Indicate Water Bearing Zones			Charlotte. NC 28278 Telephone No.: 704-607-7529 Fax No.: 803-548-2233	- 1					
Ü] [Telephone No.: 7()4-6()7-7529 Fax No.: 803-548-2233 20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under						
(Use a 2nd sheet if needed)			my direction and this report is true to the best of my knowledge and belief.						
5. REMARKS:			, and the report is true to the best of thy knowledge and belief.						
MW-3R			16 0-						
*Bentonite seal from 1.0' to 0.5'			Variable about	1					
Soul Holl 1.0 to 0.5		- 1	Signed: Date: 4/11/2018						
			Wellstriller						
6. TYPE: Mud Rotary Jetted	☑ Bo		If D Level Driller, provide supervising differ's name:						
□ Dug □ Air Rota	ary 🗆 Dr	iven							
☐ Cable tool ☐ Other		- [

Mahec	Well Development Data Verification Form Underground Storage Tank Management Division									
Facility Nam	ne: N	ickelpumpe		Site I				5/2018		
Drilling Compan		EDPS, LL					Date: 4/3	5/2018		
Field Personne						Driller: Tommy Bolyard Driller Certification Number: B 01846				
Weather Conditions: Sunny Temp. (°F): 65										
Well Development Method										
Surge Bl			mersible Pu		X	А	ir Lifting:			
	**Bailing	can be combine			ds, but not utilized	d alone for deve	lopment			
			Qua	llity Assura	ince					
pH Meter: Conductivity Meter: Temperature Meter: Turbiditiy Meter: Serial no. 15E101481 Serial no. 15E101481 Serial no. 14H103098 Serial No. 201301174 pH-4.0 X Standard X NTU 0.0 X pH-7.0 X NTU 1.0 X pH-10.0 X NTU 1.0 X NTU 1.0 X										
Drilling Method										
Hollow Stem Augers:	<u>X</u>	So	lid Flight Au	igers:	_		Direct Push	:		
Air Rotary: Mud Rotary:						Sonic:				
Monitoring Well ID#:	MW-3R W	ell Casing I	Diameter (in)	: 2		Boreho	le 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		
oH(s.u)*:		6.71	6.63	6.60	6.49	6.53	6.56	6.58		
Specific Conductivity (mr	mhos/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		
Curbidity (NTU)*:		101.0	391.1	210.6	81.90	37.06	18.16	9.01		
Physical Characteristics (c	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 T	OC):	2.76	8.19	11.01	9.17	7.23	9.46	9.67		
Cumulative Gallons Remo	oved:	0.00	1.00	2.00	3.00	7.00	12.00	15.00		
*Development is comple	eted once groun	dwater turbid	ity is ≤10 NT	U and all para	meters are ± 10	1%				
Detailed Description of Well The monitoring well was developerated until all water was eafter 15.0 gallons were remove	reloped using a	Mini-Mons							d	

Driller Signature:

Date: 4/10/2018



Water Well Record **Bureau of Water**

PROMOTE PROTECT PROSPER		26001	Sull Street, Columbia, SC 29201-1708; (803) 898-4300
1. WELL OWNER INFORMATION:			7. PERMIT NUMBER:
Name: SCDHEC			UMW-26888
(last)	(1	first)	8. USE:
Address: 2600 Bull Street			☐ Residential ☐ Public Supply ☐ Process
City: Columbia State: S	C Zip: 2	29021-1708	
Telephone: Work:	Home:		9. WELL DEPTH (completed) Date Started: 3/28/2018
2. LOCATION OF WELL:	COUNTY: Jacr		
Name: Nickelpumper 233	Just	701	12.0 ft. Date Completed: 3/28/2018 10. CASING: ☑ Threaded □ Welded
Street Address: 103 Charles Fra	zier Circle		Diam.: Height: Above /Below
City: Yemassee	Zip: 29945	-0000	Type: PVC Galvanized Surfaceft.
	23343	-0000	
Latitude: Longitud	de:		2.0 in. to 2.0 ft. depth in. to ft. depth lb./ft.
3. PUBLIC SYSTEM NAME: F	UBLIC SYSTE	EM NUMBER	11. SCREEN:
04878	MW-9)	Type: Schedule 40 PVC Diam.: 2 Inch
4. ABANDONMENT: Yes	l No		Slot/Gauge: 0.010 Length: 10.0
1			Set Between: 2.0 ft. and 12.0 ft. NOTE: MULTIPLE SCREENS
Grouted Depth: from	ft. to	ft.	ft. andft. USE SECOND SHEET Sieve Analysis □ Yes (please enclose) □ No
	*Thickness		12. STATIC WATER LEVEL 3.18 ft. below land surface after 24 hours
Formation Description	of	Bottom of	
	Stratum	Stratum	13. PUMPING LEVEL Below Land Surface.
Concrete	0.5	0.5	ft. afterhrs. PumpingG,P.M. Pumping Test: ☐ Yes (please enclose) ☐ No
Gray, Sandy, CLAY	11.5	12.0	Yield:
Gray, Sainty, CLA i	11.5	12.0	14. WATER QUALITY
			Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
			Please enclose lab results.
			15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
	-		Installed from 12.0 ft. to 1.0 ft.
			Effective size 1.43 Uniformity Coefficient 1.30
	-		16. WELL GROUTED? ☑ Yes ☐ No
	1 1		□ Neat Cement □ Bentonite ☑ Bentonite/Cement □ Other
			Depth: From <u>0.5</u> ft. to <u>0.0</u> 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
			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
*Indicate Water Bearing Zones		Į.	Telephone No.: 704-607-7529 Fax No.: 803-548-2233
(Use a 2nd sheet if needed)		- 1	20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under
5. REMARKS:			my direction and this report is true to the best of my knowledge and belief.
MW-9			16 0-
*Bentonite seal from 1.0' to 0.5'		- 1	Vinnell abol
Zentonic scar nom 1.0 to 0.5			Signed:
G. TYPE: ☐ Mud Rotary ☐ Jetted			view miler
6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Dug ☐ Air Rota	ry □ Dr		If D Level Driller, provide supervising differ's name;
☐ Cable tool ☐ Other	, L D	14611	

6,

Vidhec	Well Development Data Verification Form Underground Storage Tank Management Division							
Facility Name: N	ickelpumpe		Site				4/5/2018	
Drilling Company:	EDPS, LL		_	er: Tommy		Date:	4/3/2018	
	y Bolyard / T			er Certification		B 018	246	
Weather Conditions: Sunny						_ D 010	540	
a production of the production of the control of th		NYZ NY		or a transfer for the property of				
Sugar Diagle	0.1		evelopment					
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								
pH Meter: Conductivity Meter: Temperature Meter: Turbiditiy Meter: Serial no. 15E101481 Serial no. 14H103098 Serial No. 201301174 pH-4.0 X Standard X NTU 0.0 X pH-7.0 X NTU 1.0 X pH-10.0 X NTU10.0 X								
		Dri	illing Meth	od				
Hollow Stem Augers: X Air Rotary:	So	lid Flight Au		-		Direct Pu		
		Mud Rotary				Sonic:		
Monitoring Well ID#: MW-9 W	ell Casing D	iameter (in)	: 2		Boreho	ole Diamete	er (in): 7.5	
Depth to Ground Water (DGW):			Screen I	ength (ft): 1	0_	Slot Size	e (in): 0.010	
Total Well Depth (TWD):			Screen Inte	erval: <u>2.0</u> ft.	to 12.0 ft.			
Length of Water Column (TWD-DGW):			Type of Dr	illing Fluid Use	ed:N/A	- 1		
Total Gallons of Water Removed:	13.00_gals		Drilling F	luids Recovere	ed:N/A			
lime:	11:40	11:41	11:43	11:49	11:59	12:08		
H(s.u)*:	6.11	6.07	6.09	6.10	6.13	6.12		
pecific Conductivity (mmhos/cm):	81.7	80.1	83.2	86.0	87.1	87.9		
Vater Temperature (°C)*:	19.3	19.7	19.6	19.6	19.7	19.8		
urbidity (NTU)*:	59.1	410.8	213.7	91.33	46.00	8.11		
hysical Characteristics (color/odor):	Clear/ No Odor	Cloudy/ No Odor	Cloudy/ No Odor	Clear/ No Odor	Clear/ No Odor	Clear/ 1 Odor	No	
Pepth to Water (ft from TOC):	3.18	7.33	11.87	9.59	10.76	N/A		
umulative Gallons Removed:	0.00	1.00	2.00	5.00	10.00	13.00		
*Development is completed once groun	dwater turbid	ity is ≤10 NT	U and all para	imeters are ± 10)%			
etailed Description of Well Developmen								
The monitoring well was developed using a	IVIIII-Monso	oon well pun	np. The subn	nersible pump	was placed	nside the w	vater column and	
perated until all water was evacuated. The fter 13.0 gallons were removed.	well was all	owed to rech	narge before	development o	continued. D	evelopment	t was complete	
15.0 ganons were removed.								
		The Secretary West	FORST PRESENT	O Xan il Personal di Personal	CONTRACTOR STREET			

Driller Signature:

Date: 4/10/2018



Water Well Record Bureau of Water

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

PROMOTE PROTECT PROSPER				-1700, (003) 030-4	300		
1. WELL OWNER INFORMATION: Name: SCDHEC			7. PERMIT NUMBER:	UMW-26888			
(last)	(f	irst)	8. USE:				
Address: 2600 Bull Street					_		
				ublic Supply	☐ Process		
City: Columbia State:	SC Zip: 2	29021-1708	☐ Irrigation ☐ Ai	r Conditioning	Emergency		
			☐ Test Well ☑ M		☐ Replacement		
Telephone: Work:	Home:		9. WELL DEPTH (completed)	Date Started: 3/28/2018	8		
2. LOCATION OF WELL:	COUNTY: Tast	er	12.0 ft.	2/20/20	110		
Name: Nickelpumper 233	Just	701	10. CASING: ☑ Threaded ☐ Welded	Date Completed: 3/28/20	718		
Street Address: 102 Ct. 1 F							
Street Address: 103 Charles Fr	azier Circle		Diam.:				
City: Yemassee	Zip: 29945.	-0000	Type: 🛭 PVC 🔲 Galvanized				
			Steel Other	Weight	lb./ft.		
Latitude: Longitu	ıde:		2.0 in. to 2.0 ft. depth	Drive Shoe?	□ No		
			in. toft. depth				
3. PUBLIC SYSTEM NAME:	PUBLIC SYSTE	M NUMBER	11. SCREEN:				
04878	MW-1		Type: Schedule 40 PVC	Diam. 2 Inch			
A ADAMPONIMENTS OF Y			Slot/Gauge: 0.010	Length: 10.0			
4. ABANDONMENT: Yes	☑ No		Set Between: 2.0 ft. and 12.		TIPLE SCREENS		
			ft. and				
Grouted Depth: from	_ ft. to	ft.	Sieve Analysis Yes (please enclo		NO SHEET		
	*Thickness						
Formation Description	of	Bottom of	12. STATIC WATER LEVEL 3.66	ft. below land s	surface after 24 hours		
	Stratum	Stratum	13. PUMPING LEVEL Below Land Surface.				
Concrete	0.5	0.5	ft. after	hrs. Pumping	GPM		
Concrete	0.5	0.5	Pumping Test: Yes (please enclos	e) 🗆 No	O.r .IVI.		
6 6 1 6 1 1			Yield:				
Gray, Sandy, CLAY	11.5	12.0					
			14. WATER QUALITY				
1			Chemical Analysis ☐ Yes ☐ No	Bacterial Analysis 🔲 Yes	□ No		
	-		Please enclose lab results.				
			15. ARTIFICIAL FILTER (filter pack) Ye	s 🗆 No			
			installed from 12.0		ft		
1			Effective size 1.43	Uniformity Coefficient 1.3	0		
	1			,			
			16. WELL GROUTED? Yes No				
	1 1		□ Neat Cement □ Bentonite ☑ Ben	ntonite/Cement Other _			
	1		Depth: From 0.5	ft. to <u>U.U</u>	ft.		
			17. NEAREST SOURCE OF POSSIBLE CON	TAMINATION:ft_	direction		
	+		Туре				
		i	Well Disinfected ☐ Yes ☐ No Type:	Amount:			
	1 1	- 1	18. PUMP: Date installed: Mfr. Name:	Not in	stalled		
				of drop pipe ft. Capac	ity gpm		
		- 1		(shallow)	.		
				iprocating			
	1	I	19. WELL DRILLER: Tommy Bolyard	CERT. NO.: 0184	46		
	 		Address: (Print)	Level: A B C	D (circle one)		
		- 1	17538 Greenhill Road		<i>'</i>		
*1-1			Charlotte, NC 28278				
*Indicate Water Bearing Zones		L	Telephone No.: 704-607-7529	Fax No.: 803-54	8-2233		
(Llos o Ond short 'S			20. WATER WELL DRILLER'S CERTIFICATION	N: This well was drilled under	r		
(Use a 2nd sheet if needed)			my direction and this report is true to the				
5. REMARKS:		- 1		_			
MW-10		- 1	16 0-	(/)	1		
*Bentonite seal from 1.0' to 0.5'		1	U brondt.	1 ahl			
		- 1	Signed:	Date Date	4/11/2018		
			Well-triller	The state of the s			
6. TYPE: ☐ Mud Rotary ☐ Jetted	☑ Bo	red	If D Level Driller, provide supervising drille	urle name:			
☐ Dug ☐ Air Rota	ary 🗆 Dr	iven	2 2010 Diller, provide supervising diffe	a s name:			
☐ Cable tool ☐ Other		- 1			1		

Modhec	Well Development Data Verification Form Underground Storage Tank Management Division									
Facility Name:	Vickelpumpe		Site							
Drilling Company:						Date: 4/	5/2018			
	EDPS, LI		Drill							
Weather Conditions: Sunny	Jimei Certification Null				1 Number:	B 0184	6_			
Wedner Conditions. Sunity	remp.	(°F):65								
	Well Development Method									
Surge Block: Submersible Pump: X Air Lifting:										
**Bailing	**Bailing can be combined with any of the above methods, but not utilized alone for development Quality Assurance									
TTW .			TROSULI	mee						
pH Meter: Condu Serial no. 15E101481 Serial no.	ctivity Meter 15E101		Serial no	Cemperature M 14H10309		G:-121	Turbiditiy			
pH=4.0 X Standard	X	401	Serial no	. 14010305	<u>'8</u> _	Serial N NTU 0)1174		
pH-7.0 X pH-10.0 X						NTU 1	.0 X			
pit 10.0 A						NTU10.	.0 X			
Hollow Stom A V			illing Meth	<u>od</u>						
Hollow Stem Augers: X Air Rotary:	Sc	lid Flight Au	-	_		Direct Push	n:			
Sonic;										
	Vell Casing I	, ,	: 2		Boreho	ole Diameter	(in): 7.5	_		
Depth to Ground Water (DGW)			Screen I	ength (ft):1)	Slot Size (in): _0.010	_		
Total Well Depth (TWD)			Screen Inte	erval:2.0_ ft.	to <u>12.0</u> ft.					
Length of Water Column (TWD-DGW)				lling Fluid Use						
Total Gallons of Water Removed	18.00gals		Drilling F	luids Recovere	d: <u>N/A</u>					
Γime:	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			
Furbidity (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 groun		ity is ≤10 NT	U and all para	meters are ± 10	%					
etailed Description of Well Developmen	nt Process:									
he monitoring well was developed using a Mini-Monsoon well pump. The submersible pump was placed inside the water column and										
pperated until all water was evacuated. The	well was al	lowed to rech	arge before	development c	ontinued. D	evelopment w	as complete			
after 18.0 gallons were removed.										
	Diego let to		NOTANIES EN ESTA	GELO DES ENTRE PRODUCTION DE	CONTRACTOR DESIGNA	SUT-HELD DUTCH SURVEYOR				

Driller Signature:

Date: 4/10/2018



Water Well Record Bureau of Water

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

UMW-26888 Public Supply
Public Supply
Air Conditioning
Air Conditioning
Air Conditioning
Monitor Well
Date Completed: 3/28/2018
Height: Above /Below
11.
Weight ————————————————————————————————————
Drive Shoe? ☐ Yes ☐ No
Diam.; 2 Inch
Length: 10.0
0
.U
ose) No
ft. below land surface after 24 hours
II. below land surface after 24 hours
. hrs. PumpingG.P.M.
e) □ No
Bacterial Analysis
es □ No
ft. to 1.0 ft.
Uniformity Coefficient 1.30
entonite/Cement Other
ft. to <u>0.0</u> ft.
NTAMINATION: ft direction
Amount:
Not installed
Model No.:
th of drop pipe ft. Capacity gpm
(shallow)
ciprocating
CERT. NO.: 01846
Level: A B C D (circle one)
Fax No.: 803-548-2233
ON: This well was drilled under best of my knowledge and belief.
best of my knowledge and belief.
1 46/
Date: 4/11/2018
C 21 P P P P P P P P P P P P P P P P P P
1
er's name:
er'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): Well Development Method Surge Block: Submersible Pump: Air Lifting: **Bailing can be combined with any of the above methods, but not utilized alone for development **Quality Assurance** pH Meter: Conductivity Meter: Temperature Meter: Turbiditiy Meter: Serial no. 15E101481 Serial no. 15E101481 Serial no. 14H103098 Serial No. 201301174 pH = 4.0Х Standard X NTU 0.0 Χ pH-7.0 NTU 1.0 Х pH-10.0 NTU10.0 X **Drilling Method** Hollow Stem Augers: \mathbf{X} Solid Flight Augers: Direct Push: Air Rotary: Mud Rotary: Sonic: Monitoring Well ID#: MW-11 Well Casing Diameter (in): 2 Borehole Diameter (in): 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 Cloudy/ Cloudy/ Cloudy/ Clear/ Slight Clear/ Clear/ Physical Characteristics (color/odor): Clear/ Clear/ Slight Odor Slight Odor Slight Odor Odor Slight Odor Slight Odor Slight Odor 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



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.
- 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.
- Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
- 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.

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. Colemai Senior Scientist



Richland County LF 1047 Highway Church Road Elgin, SC, 29045 Ph: (803) 788-3054

Original Ticket# 1592319

MIDLANDSENVIRON MIDLANDS ENVIRONMENT

Volume

Customer Name MIDLANDSENVIRON MIDLANDS ENVI Carrier Vehicle# 1

Ticket Date

03/30/2018

Payment Type Credit Account

Manual Ticket# Hauling Ticket#

Route

State Waste Code Manifest Ø

Destination

P0

Profile

VA2718 (SOIL FROM UST ASSESSMENT)

Generator

126-MIDLANDSENVIRONMENTAL MIDLANDS ENVIRONMENTAL

Time Scale ScaleMaster Gross 16900 lb In 03/30/2018 11:14:33 Inbound #2 KENNY1 Tare 9300 15 Out 03/30/2018 11:29:52 Outbound KENNY1 Net 7600 1b Tons 3.80

Container

Billing #

Gen EPA ID

0000469

Driver

Check#

Comments

Pro	duct	LD%	Qty	UOM	Rate	Fee	Amount	Origin
1 2 3 4	SOIL-Cont. Soil - FUEL-Fuel Surcharg EVF-P-Standard Env RCR-P-Regulatory C	100 100	3.80	Tons % % %				32-LEXINGT 32-LEXINGT 32-LEXINGT 32-LEXINGT

Total Fees Total Ticket

403WM

SPECIAL WASTE MANIFEST

WASTE ID NUMBER	
VA2718	
	Richland Landfill
EXPIRATION DATE	1047 Highway Church Road
DATE	Elgin, SC 29045
November 17, 2019	
	Special Waste Phone: 803-744-3345 Fax: 866-904-7194
	Prepared by: Sandra Reeves
GENERATOR OF WASTE:	
SECTION OF WASTE:	MIDLANDS ENV, CONSULTANTS, INC VARIOUS
CUSTOMER: MIDLANDS ENV. CO	ACCOUNT NUMBER:
LOCATION OF WASTE:	NSULTANTS, INC. 820-469
CITY: Lexington	COUNTY: Lexination
	COUNTY: LEXIFICION
PHONE NUMBER: 803-808-2043	CONTACT:
FAX NUMBER: 803-808-2048	LYNN SHANE
PAX NUMBER: 803-808-2048	
GENERATOR'S SIGNATURE B	3/2-1/2
	DATE: 3/30/18
RANSPORTER OF WASTE: MECT	
I I	
ATE: 3/30/18	TRUCK NUMBER:
WEDIG OVER	TRUCK NUMBER:
IVER'S SIGNATURE	
**** TO BE COMPLETED BY F	DICHT AM LANGUE
POSAL SITE: RICHLAND LANDFIL	LL ELGIN SC
CRIPTION OF WASTE: SOIL FROM UST ASSE	ESSMENT
ET NUMBER: 1592319	
	TONNAGE;
IVED BY:	

10% Nicklepumper 233 10% Coastal Mart 76% 80% Stanco/Haimon Oil APPENDIX H:
LOCAL ZONING REGULATIONS
(Not Applicable)

APPENDIX I:

FATE AND TRANSPORT MODELING

(Not Applicable)

APPENDIX J:
ACCESS AGREEMENTS

UST	at the second se
FER 2 8 2014	ρ.
RICHARD CARLSON	BE NO COST TO THE PROPERTY AW & ALL WORK PERFORMES
RIGHT OF ENTRY - UST Permit # 04878 ON THE	FROMERTY L
If you are the Property Owner or are the authorized represent former or existing underground storage tanks at the time this form.	ntative for that person, but did not own the the release was reported, please complete
I, letter Accion certify that identified below or serve as the authorized representative South Carolina Department of Health and Environment selected by SCDHEC, to enter this property at reasonabl corrective action activities, as required. The contractor will UST owner or operator for only the required environmentation to the contractor will be from the SUPERB pay the contractor. I understand that SCDHEC will notify to their initiation and will promptly provide to me a summar	e times only to conduct assessment and ill be designated as the contractor for the ronmental site rehabilitation activities. Account and I will have no obligation to me of all activities that are necessary prior by of the data upon request.
Name of Facility VACANT PROP.	
Street Address of Facility 3296 Point Sou	
Town, City, District, Suburb YEMA SSEE Soo	TH CAROLINA
Name of nearest intersecting street, road, highway, alley	TAXMAR# 088-48-00-008
Is this facility within the city limits? (yes or no) I Day?	KNOW
Is this facility serviced by a public water or sewer utility? (ye please provide the name of a person we can contact that can septic tank lines Name, phone number	es or no) 100 mr Kum, if no, assist in the location of private water and
Were underground storage tanks previously removed from, if yes, please provide the name of a perso- location of the former underground storage tank excavation, Phone number	the ground at this facility? (yes or no) on we can contact that can assist in the
Is the property currently leased or rented to someone? (yes their name and phone number the pending assessment activities. If vehicles or other monitoring wells, they should be moved before SCDHEC's c	ontractor arrives at the site.
NAME of property owner (Please Print):	AR LSON
Phone Number (home)	(work) (323)222-3007 1
Current Mailing Address 1928 pt MAIN ST	· LOSANGENES CA. 90031
Signature of Property Owner:	
Witness Eter Batolders	USA
Date: FeB. 22 , 2014 N	Month Year 13 feeh
UST Division/ SMB	CATTA

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		
	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
	If free-product is present, has the thickness been provided?			X
2.5	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
.7	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)	Х		
38	Has the site base map been provided with all required elements? (Figure 2)	Х		
39	Have the CoC site maps been provided? (Figures 3, 4)			X
40	Has the site potentiometric map been provided? (Figure 5)	Х		
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)			Х
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
	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)	Х		
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)	х		





MAY 1 5 2018

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

Site Specific Work Plan Requests Re:

> 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 email 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,

For:

Ashleigh Thrash, Hydrogeologist

Corrective Action & Quality Assurance 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 29201 Telephone: 803-898-2544

MEMORANDUM

TO: Midlands Environmental C	onsultants, Inc
FROM: Kathryn H. Butler	
RE: Site Specific Work Plan I	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

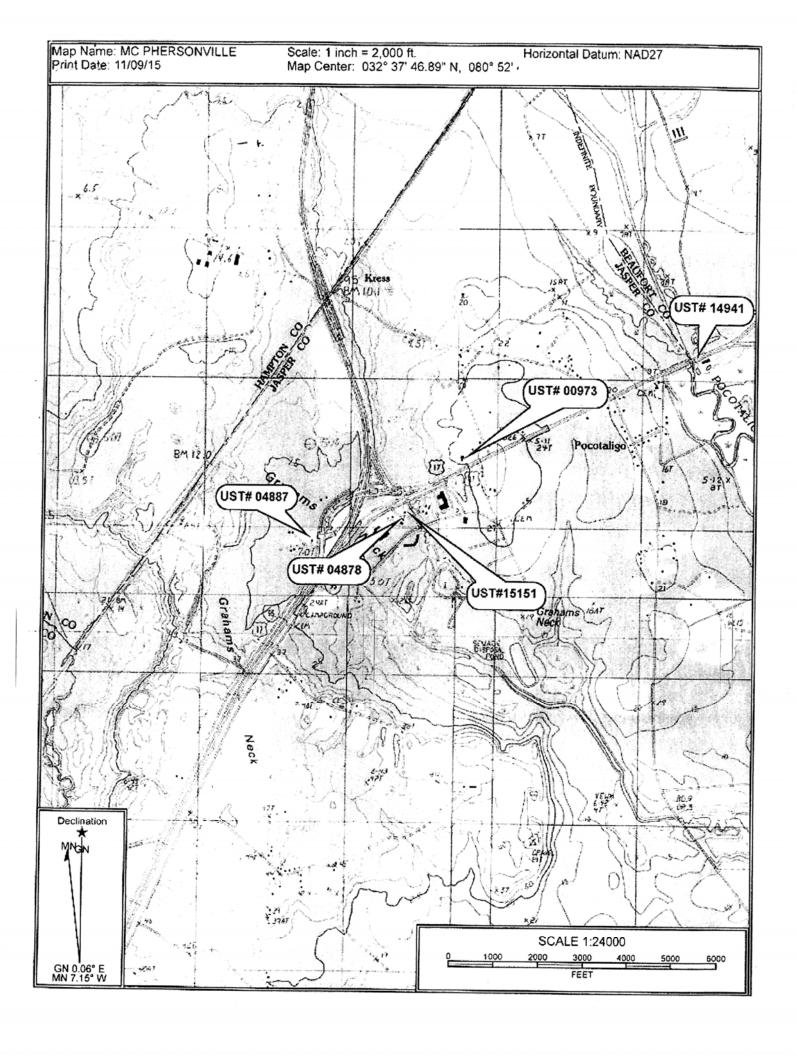


TABLE 2 POTENTIOMETRIC DATA NICKELPUMPER 233 APRIL 5, 2018 GAUGING EVENT YEMASSEE, SOUTH CAROLINA MECI PROJECT NUMBER 18-6308 SCDHEC SITE ID NUMBER 04878

Well	Gauge	Screened	Depth to	Well-head	Groundwater
Number	Date	Interval	Water (feet)	Elevation	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	0 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 NL	NM
15151-MW19	4/5/2018	2.0-12.0	NM	NL 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 NL	NM
15151-RW02	4/5/2018	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 4/5/2018.

^{4.} NL = Not Located

^{5.} NM = Not Measured

Information for N-04878 Facility: NICKELPUMPER 233 3296 POINT SOUTH DR Phone YEMASSEE SC 29945 ress **County** Jasper **District** Beaufort EQC Office Retail Sales Last Inspection 07/17/17 egory_ Trans. of Ownership 01/23/07 k Owner CARLSON, RICHARD 1920 N MAIN ST Financial Responsibility Financial Mechanism ress LOS ANGELES CA 90031-3217 Phone 951-659-0063 **Expiration Date** rator None 28 July 2012 iress **Phone** d Owner CARLSON, RICHARD 1920 N MAIN ST Iress LOS ANGELES CA 90031-3217 **Phone** 951-659-0063 3 Billable ks 3 Aband. 0 Other 0 <u>ID</u> Training Date Compliance Operator(s) nificant? Ν Memo Date: 03/02/01 03-02-01--site has not changed since last inspection. There is no store building. Parking lot is concrete. There are two dispenser Memo: 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 nificant? Υ 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. nificant? Ν Memo Date: 09/28/01 The Citgo/Country Chef station in front of this site is #15151. Memo: nificant? Υ Memo Date: 05/02/05 Memo: w ater 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

No. 1 Reported 05/16/0 NFA	2 <u>Status</u> Confirmed - Active <u>Product</u> Fin. Type With SUPERB Cos RBCA/Score	Petroleum	Compliance Made	Y
NIA	Fin. Type With SUPERB Cos RBCA/Score	2BB 965	Compliance Met	N

nificant?

Memo:

Ν

Memo Date: 08/05/09

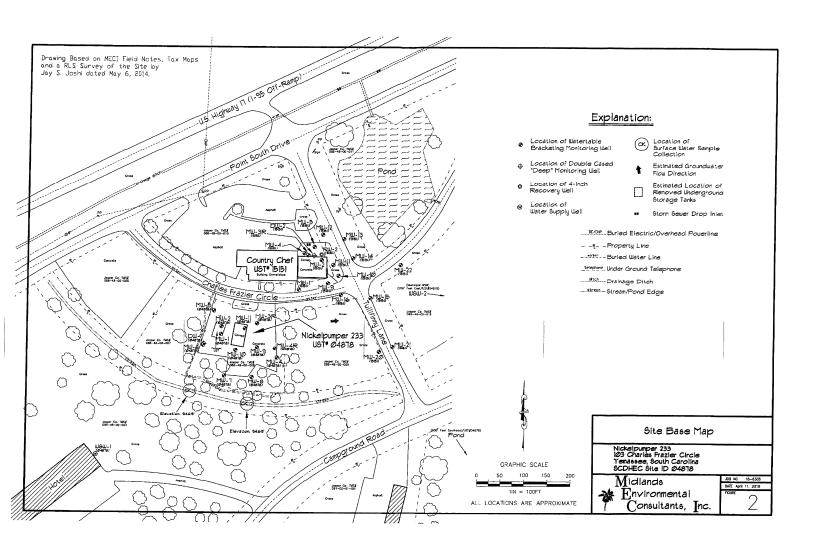
this plume is co-mingled with the plume for Site #15151which is in corrective action. Also, an enforcement action is pending for tank abandonment and closure.

nificant?	N <u>Memo Date</u>	e: 02/24/01					
Memo:	PER NANCY L IN L CLAIMS A GAINST OWNERSHIP I BURNT DOWN AN ENFORCEMENT FO visited this site on present. The i	THEM. (KM 5/13/9 Di DR FEES AND TAN	94) STATUS. DMO TANKS A JKS TOU OVER 12 nks have about on	3-23- ARE STILL THEI i e i	95 TC TO DISTRI 7-10-99 RE. DMO MON	CT FOR SITE VISIT TO FIND PER 4-25-95 VISIT BY JIM F 9-28-95 TH THS. DMO vo inches of fluid in them. T	PEURFOY SITE IS IIS SITE IS IN 01-02-97 I
	this site in respons to have a bit more 1" to 3" of fluid. No dispense	checked all 3 fluid present (5-6 o strong product i	3 tanks again. Tw inches) i	odor froi	ut 2-3 in. of fluid now . RSM		as unregistered. Ti he third tank seems All tanks have b/w
<u>nificant?</u>	N Memo Date	<u>:</u> 04/22/03					
Memo:	Tier I directive, per Savannah, GA 314						
nificant?	N Memo Date	: 11/20/02			······································		
Memo:	This facility is local						
		5/28/02 Emer. I 1/09/03 Abate. Transfe Source	Met erred	Superb Quent De Project Ma Responsi	eterm. Dt Inager BUTI	Compliance Fin Res Mec LER KATHYRN H LSON RICHARD	Met Dt 06/27/02 hanism
king	SCRRCA.	ORR - Watersupph	, w alla < 1000 foo	t downgrada		ED This last	
	SCRBCA: 2	zbb - watersupply	/ w ells < 1000 fee	t dow ngrade		FP Thick: Unknow n	
lyticals	Contaminant	ug/L	RBSL Score	SSTL's		Other Contaminants	ug/L SSTL's
	Benzene	4580	5 916	66817		1,2 DCA (MW-1(<)	5 20
	Toluene	5240	1000 5			EDB (ND)	.02
	Ethylbenzene	1280	700 2			GW SAMPLED	
	Xylene		10000			10/16/17	_
	Naphthalene MTBE	487	25 19			LEAD (NT)	0
	IVII DE	899 <u>Total Sco</u>	40 22	-		TAA (MW-1) TBA (MW-1)	7690 5460
eceptor Tty	me.					,	
		NATE 0		Vater Flow:	SE		
V Depth:			<u>Seepage \</u>	elocity:	3.18		
· ocpui.	4.5	ان 					

May 14, 2018

1 Const. Class N Tank Const. Mat. SL Pipe Const. Mat. SL	/02
Notify 12/11/85 Capacity 6,000 Tank Cont. Meth. SW Pipe Cont. Meth. SW Piping Type PR	/02
Variance	/02
Compl. 12/29/14 C Status OUT Age @ Notif. 10 Dist. to Well 101	/02
Spill Det. Left Gal. O Owner @ ABD CAS No. Chem. Pipe Leak Det. Pipe Leak Det.	/02
Aband. Method Under Dispenser Cont. N Drop Tube N Tank Leak Det. Pipe Leak Det.	/02
Under Dispenser Cont. N Drop Tube N Tank Leak Det. Pipe Leak Det. Pipe Const. Mat. SL ank No. 2 Const. Class N Tank Const. Mat. SL Pipe Const. Mat. SL Operate T Status TOS Tank Protect. CP Pipe Protect. CP Notify 12/11/85 Capacity 8.000 Tank Cont. Meth. SW Pipe Cont. Meth. SW Variance Product GN Overfill Type BFVV Ver Piping Type PR Compl. 12/29/14 C Status OUT Age @ Notif. 10 Dist. to Well 101 Spill Det. Left Gal. 0 Owner @ ABD Last Use 05/15	
Under Dispenser Cont. N Drop Tube N Tank Leak Det. Pipe Leak Det. Pipe Const. Mat. SL ank No. 2 Const. Class N Tank Const. Mat. SL Pipe Const. Mat. SL Operate T Status TOS Tank Protect. CP Pipe Protect. CP Notify 12/11/85 Capacity 8.000 Tank Cont. Meth. SW Pipe Cont. Meth. SW Variance Product GN Overfill Type BFVV Ver Piping Type PR Compl. 12/29/14 C Status OUT Age @ Notif. 10 Dist. to Well 101 Spill Det. Left Gal. 0 Owner @ ABD Last Use 05/15	
Operate T Status TOS Tank Protect. CP Pipe Protect. CP Notify 12/11/85 Capacity 8,000 Tank Cont. Meth. SW Pipe Cont. Meth. SW Variance Product GN Overfill Type BFVV Ver Piping Type PR Compl. 12/29/14 C Status OUT Age @ Notif. 10 Dist. to Well 101 Spill Det. Left Gal. 0 Owner @ ABD Last Use 05/15	
Notify 12/11/85 Capacity 8,000 Tank Cont. Meth. SW Pipe Cont. Meth. SW Variance Product GN Overfill Type BFVV Ver Piping Type PR Compl. 12/29/14 C Status OUT Age @ Notif. 10 Dist. to Well 101 Spill Det. Left Gal. 0 Owner @ ABD	
Variance Product GN Overfill Type BFVV Ver Piping Type PR Compl. 12/29/14 C Status OUT Age @ Notif. 10 Dist. to Well 101 Spill Det. Left Gal. 0 Owner @ ABD Last Use 05/15	
Compl. 12/29/14 C Status OUT Age @ Notif. 10 Dist. to Well 101 Spill Det. Left Gal. 0 Owner @ ABD Last Use 05/15	
Spill Det. Left Gal. 0 Owner @ ABD Last Use 05/15	
	/02
Aband. <u>Method</u> <u>CAS No.</u> <u>Chem.</u>	
Under Dispenser Cont. N Drop Tube N Tank Leak Det. Pipe Leak Det.	
Ink No. 3 Const. Class N Tank Const. Mat. SL Pipe Const. Mat. SL	
Operate T Status TOS Tank Protect. CP Pipe Protect. CP	
Notify 12/11/85 Capacity 10,000 Tank Cont. Meth. SW Pipe Cont. Meth. SW	
Variance Product GN Overfill Type BFVV Ver Piping Type PR	
Compl. 12/29/14 C Status OUT Age @ Notif. 10 Dist. to Well 101	
Spill Det. Left Gal. 0 Owner @ ABD Last Use 05/15	,
Aband. Method CAS No. Chem.	U2
Under Dispenser Cont. N Drop Tube N Tank Leak Det. Pipe Leak Det.	02

UST
RICHARD CARLSON PROCEEDS THERE WILL BE NO COST TO THE PROPERTY DUNER FOR AM & ALL WORK PERFORMES
PICHTOF ENTEND OCHER FOR AM & ALL WORK PERFORMES
RIGHT OF ENTRY - USF Termit # 04878 ON THE PROPERTY FOR BLYANT. If you are the Property Owner or are the authorized representative for that person, but did not own the
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, Letaro Accisor, 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 YEMN SSEE SOUTH CAROLINA
Name of nearest intersecting street, road, highway, alley TAXMAPH 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) 1000 , 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)
Is the property currently leased or rented to someone? (yes or no) \nearrow , 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): CHARD CAR LSON
Phone Number (home) (work) (323) 222 - 3 007
Current Mailing Address 1920 MAIN ST. LOS ANGELES CA. 90031 Signature of Property Owner:
Witness Eter BAttolder
Date: FeB. 22, 2014 Month Year 73 feeh
UST Division/ SMB



May 23, 2018

Midlands Environmental Consultants, Inc.

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

CATALY Y P MAY 2 3 2018 POGRAM



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

John Coleman Sphior Scientist



Site-Specific Work Plan for Approved ACQAP Underground Storage Tank Management Division

To: Ms. Kathryn H. Butler From: Jeff L. Coleman Contractor: Midlands Environmental Consultants, Inc.		DHEC Project Manager) htractor Project Manager)								
Facility Name: Nickelpumper 233 UST Permit #: 04878										
Facility Address: 3296 Point South Drive, Yemassee, SC										
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									
☐ Tier I ☐ Monitoring Well Installa	tion Other									
Analyses (Please check all that apply)										
Groundwater/Surface Water:										
☑ BTEXNMDCA (8260B) ☐ Lead	☐ BOD									
	A Metals	☐ Ethanol								
☑ EDB (8011) □ TPH	☐ Sulfate	☐ Dissolved Iron								
☐ PAH (8270D) ☐ pH	☐ Other									
Drinking Water Supply Wells:										
	(200.8 245.1 or 245.2))								
	Metals (200.8)									
Soil:		_								
☐ BTEXNM ☐ Lead ☐ RCRA Metals	TPH-DRO (3550B/8015B)	☐ Grain Size								
PAH Oil & Grease (9	071) TPH-GRO (5030B/8015B)	□ тос								
Air:										
Sample Collection (Estimate the number of sample		lected.)								
	r Supply WellsAir	2 Field Blank								
13 Monitoring Wells3 Surf	ace Water2 Duplicate	2Trip Blank								
Field Screening Methodology Estimate number and total completed depth for each	h noint and include their proposed locations	on the attached man								
# of shallow points proposed:										
# of deep points proposed:	Estimated Footage:	feet per point								
Field Screening Methodology:		co. po. po								
										
Permanent Monitoring Wells										
Estimate number and total completed depth for each										
# of shallow wells:	Estimated Footage:	feet per point								
# of deep wells:	Estimated Footage:	teet per point								
# of recovery wells:Comments, if warranted:	Estimated Footage:	teet per point								
Comments, ii wananteu.										
										
										

Implementation Schedule (Number of calendar days from approval) Field Work Start-Up: 222018 # of Copies Provided to Property Owners: 0	UST Permit #: 04878 Facility Name: Nickelpumper 233	_
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 Orilling Fluids: Gallons Additional Details For This Scope of Work For example, list wells to be sampled, wells to be abandoned/repaired, well pads/botts/caps to replace, details of AFVR event, etc. Alt monitoring wells will be sampled during the sampling event. Investigation and be sampled during the sampling event. More of the sampling wells will be purged prior to sample collection. Moritoring well and surface water samples will be analyzed for BTEXMM, 8-DXY, 12-DCA (82568), and EDB (804.1) Compliance With Annual Contractor Quality Assurance Plan (ACQAP) Yes Laboratory as indicated in ACQAP? (Yes/No) Name of Laboratory Director: Name of Laboratory Director: Name of Laboratory Director: Name of Laboratory Director: Name of Laboratory Director: Name of Laboratory Director: Name of Well Driller: SCLLR Certification Number: Name of Laboratory 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 Location of brightings Previous soil sampling locations Location of all present and former ASTs and USTs Proposed soil boring locations Location of all potential receptors		
Pump Test:		<u> </u>
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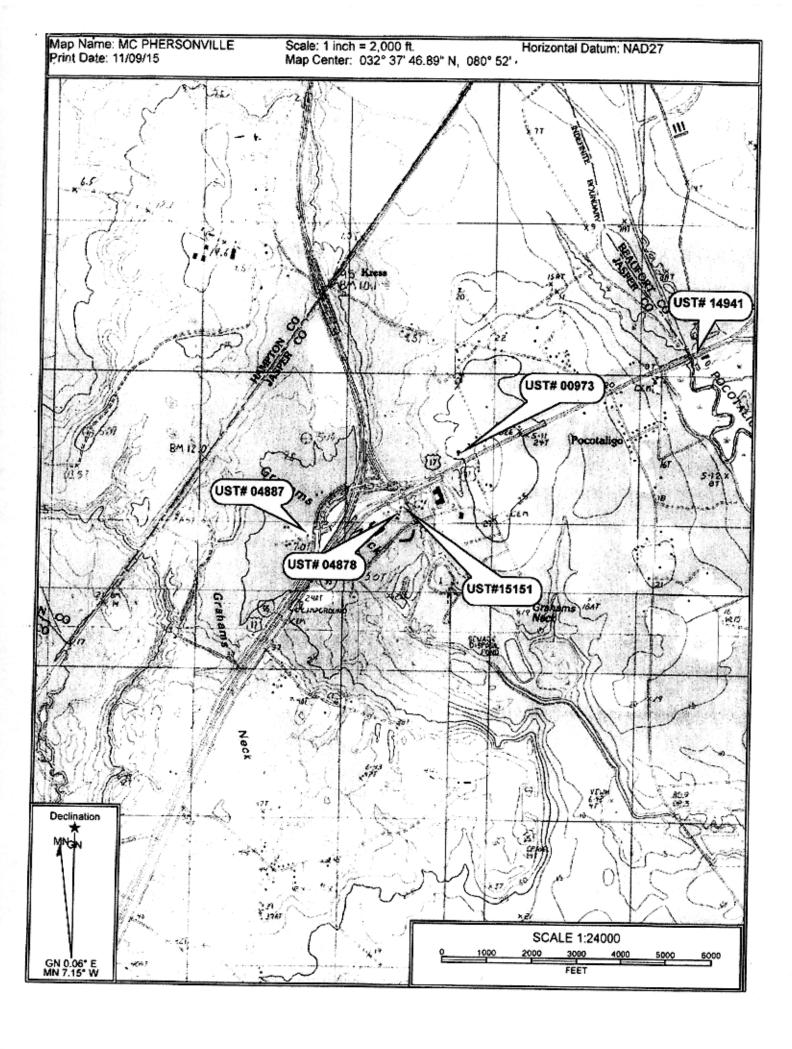
ASSESSMENT COMPONENT COST AGREEMENT SOUTH CAROLINA

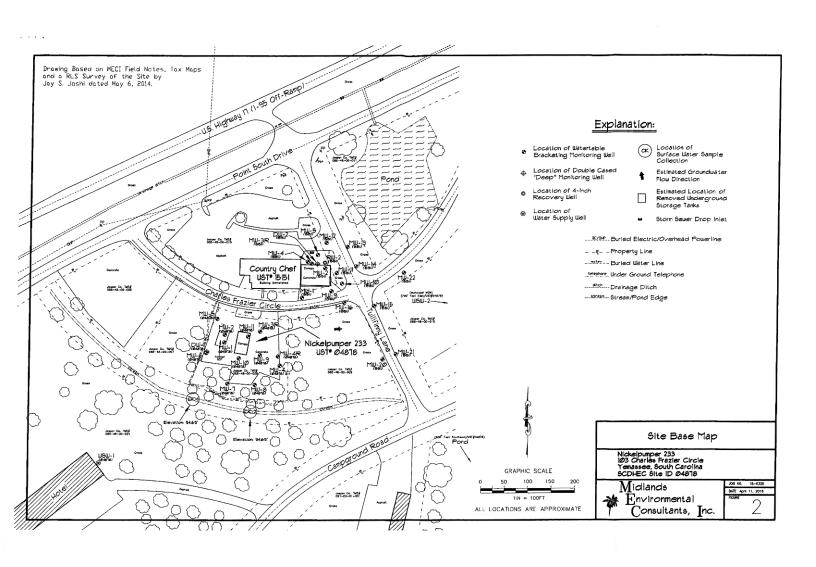
Department of Health and Environmental Control
Underground Storage Tank Management Division
State Underground Petroleum Environmental Response Bank Account
CONTRACT PO NUMBER 4600559329

Facility Name: Nickelpumper 233

UST Permit #: <u>04878</u>	Cost A	greement #:	Proposal	
ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. Plan*	1			
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 1	each	\$1.00	\$1.00
10. Groundwater Sample Collection / Gauge Dep	th to Water o	r Product (Each	1)	
A1. Groundwater Purge	1 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	1	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 contain	er(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	1	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







MR BRYAN SHANE PG MIDLANDS ENVIRONMENTAL CONSULTANTS PO BOX 854 LEXINGTON SC 29071

JUN 1 5 2018

UST 31 CKETIE CKETIE

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)

S.C. Department of Health and Environmental Control

2600 Bull Street, Columbia, SC 29201

(803) 898-3432

www.scdhec.gov

Approved Cost Agreement

Facility: 04878 NICKELPUMPER 233

BUTLERKH PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	<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	R 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 Amo	unt	895.00

57351

Approved Cost Agreement

Facility: 04878 NICKELPUMPER 233

BUTLERKH PO Number:

57350

Task / Description Categories	<u>Item</u> <u>Description</u>	Qty / Pct	Unit Price	<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			<u> </u>		
	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





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)
									Ana	alyte Sam	pled		
MW-1	X						х	X	Х	X			
MW-2					X								
MW-3						Х							
MW-3R					Х								
MW-4		Х					х	х	Х	X			
MW-4R					х								
MW-5	X						х	Х	х	Х			
MW-6	X						X	Х	х	Х			
MW-7		Х					Х	Х	х	Х			
MW-8		X					Х	Х	Х	Х			
MW-9		Х					Х	Х	X	Х			

Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes

MTBE=Methyl tertiary butyl ether

1,2 DCA = 1,2 Dicloroethane 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)
	L.								Ana	lyte Sam	pled		
MW-10		X					х	Х	X	Х			
MW-11	X						Х	Х	х	X			
DW-1	X						Х	Х	Х	X			
CK-1		Х					Х	х	х	X			
CK-2		Х					Х	X	Х	Х			† — —
CK-3		Х					Х	х	х	Х			†
CK-4		Х				-	Х	х	х	Х			
DUP-1(MW-1)							Х	Х	х	Х			
Field Blank							Х	Х	х	Х			
Trip Blank							х		х	х			
WSW-1						х							
WSW-2					X								

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,

1,2 DCA = 1,2 Dicloroethane EDB = Ethylene Dibromide

Midlands Environmental Consultants, Inc.

Attachments:

Project Biologist

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	х		
2	Is UST Owner/Operator name, address, & phone number provided?			Х
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?	х		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			Х
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	х		
7	Has the facility history been summarized?	Х		
8	Has the regional geology and hydrogeology been described?			Х
9	Are the receptor survey results provided as required?			Х
10	Has current use of the site and adjacent land been described?			Х
11	Has the site-specific geology and hydrogeology been described?			Х
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?			Х
15	Has the field screening methodology and procedure been detailed?			Х
16	Has the monitoring well installation and development dates been provided?			Х
17	Has the method of well development been detailed?			Х
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?			Х
20	Has the groundwater sampling methodology been detailed? See MECI SOP	Х		-
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	Х		
22	Has the purging methodology been detailed? See MECI SOP	Х		
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	х		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	х		
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?			Х
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)			х
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)			х
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)	Х		
38	Has the site base map been provided with all required elements? (Figure 2)	Х		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)			X
40	Has the site potentiometric map been provided? (Figure 5)			Х
41	Have the geologic cross-sections been provided? (Figure 6)			х
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)			Х
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	Х		
45	Is the laboratory performing the analyses properly certified?	х		
46	Has the tax map been included with all necessary elements? (Appendix C)			Х
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	Х		
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?	х		

Site Activity Summary

UST Permit #:

04878

Facility Name:

Nickelpumper 233

Jasper

County: 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
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	Υ	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	Υ	7/20/18	12:30	43.5-48.5	***	2.40	***	2.97	16.00	No Odor
CK-1	Υ	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

Jasper

County: 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	Υ	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
						-				
		-								
						Ì				
									0.00	TOTAL GALLONS PURGED

Midlands Environmental Consultants, Inc. Field Personnel: Sampling Date(s): 7/2018						Monitoring Well Purge									
						Job Name: Nicke pumper 233 Job Number: 18-6448 And Sampling Data Calibration Data for Successful Yes broth: Conductivity: Conductity: Conductivity: Conductivity: Conductivity: Conductivity: Condu							Yes	o (Please Ci No No	rcle)
Sampling Case#:	1'										Dissolved	l Öxygen:	res' Calibrated Eve	No	QA Manager
Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp. (°C)	DO (mg/l)	Turbidity (NTU)		epth to (fee		Well Depth (feet)	Water Height		Purged	Notes
MW-1	Initial 1st 2nd 3rd 4th 5th Sampling	11:50 11:31 11:34 11:34 11:35	6.07 5.94 5.95 5.89 5.88	74,4 78,7 16,7 16,1	26.5	2.60 2.53 2.50 2.48	17.5°C		231	mariy	2.5 12.5	*(feet)	1.66 8.30	8,50	Oder Dup
MW-Z	Initial 1st 2nd 3rd 4th 5th Sampling	<u>S</u>	Ke w	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	der Littre	mater man	110.)				2.0				
MW-3	Initial 1st 2nd 3rd 4th 5th			Not		ate					20				
MW-3R	Initial 1st 2nd 3rd 4th 5th Sampling	DN'	5 - 5 A	WV-	er w	nter					7.0				
= (Depth of Well) - (Dep ne Well Volume =x.047	oth to Water = for 1" wells *	Water Height x .163 for 2" v Casing 1" 2" 4"	Gallons 0.047 0.163 0.653 1.469	6 for 4" wells,	, 1.469 for 6"	**= One Well wells	Volume x 5 =	Gallons Pu	rged (calc	:ulated)		Sampling Case# Case #1 Case #2 Case #3	Ph/Conductance SN 15H101448 15E101481 17E100512	00 SN 17E101302 14H103098 17E103488	

Midlar	ds						Moni	torin	g W	ell P	urge				
Cons	onmenta sultants,	Inc.					And	l Sar	nplir	ıg D	ata				
Field Personnel:	JP	ĽΓ _β				lab Mari	Mr has				Calib	ration Data	for:		
Sampling Date(s):	7/20	118			-	Job Name:	11×~/	PUCH	Kec 7	N5	Calibration	n Successfu	Pages of N	(Please Ci	rcle)
	-				- '	Job Number:	10	TTO	0		Conductiv	vity:	YES	No No	-
Sampling Case#:					_						Dissolved Turbidity:	Conductivity	Yes) Calibrated Ever	No 3 Months by	- - -
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	4th	234	387	727	30.8	1:23	37,05		1,51			11, 12		(,)	Oder
	5th Sampling	640	7.85	10.4	30.6	241	45.54						9.32		
	initial	סביוו	5.75	3,051	25.7	7.15	19.50			·					
1116	1st 2nd	(:52	5.71	124.0	15.5	ZVIZ	73.67						1.70		No.
MM-6	3rd	136	260	1707	经来	2,07	2907		154		2-12	10.46	1.10	8.5	Oder
		1158	3.64	115.3	25:1	202	47.53						× C 2	0-3	~ 104°
	5th Sampling	N:00	5.63	1102	25,10	201	4762					Ì	8,52		
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	t	6"	0.653 1.469												

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1 4.0	4th	2.53	\$50 \$5.48	143.7	28.5	29.2 (18 24.5) 30.0 (1.15) 26.79 30.0 (1.17) 34.30 30.0 (1.17) 34.30 30.0 (1.17) 34.30 30.0 (1.17) 34.31 21 (2.97) 25.02 30.0 (1.10) 43.5 2.8 (2.85) 54.12 240 43.5 48.5 46.10 7.51	(CCAP.							
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	_	.103 101 2 W	ens, or - x .66	for 4" wells,	1.469 for 6" \	velis			- 200 (0010	aidted,				DO SN	Turbidity
	F		Gallons									Case #2	15E101481	14H103098	201301174
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	ļ	4"	0.653												
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Cons	sultants.	Inc.					And	d Sar	<u>nplir</u>	g Da	ata				
Field Personnel:	onmenta sultants,	PP					11 ho	1 -		2 70		oration Data	for		
	7/2					Job Name:	Nicke	pun	Pec 2	55	Calibratio	n Successfu	IP Yes or N	n (Please Ci	rolo)
Sampling Date(s):	1/20	18				Job Number	120/	744	X	-			res	No	icie)
Sampling Case#:	' /								<u> </u>		Conductive Dissolved	vity:	Yes	No	_
Dampling Case#.											Turbidity:	Conductivity	Yes Calibrated Eve	No	-
Well No.	Purge	Sample	pH(I)	cond(i)	Temp.	DO	Turbidity							y a Months by	QA Manager
	Volume	Time			(°C)	(mg/l)	(NTU)		epth to (fee			Water Height		Purged	Notes
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ne Well Volume =x.047	ior i wells - x	.163 for 2" w	relis, or * x .60	6 for 4" wells,	1.469 for 6" v	wells		Juliona Fu	i Aan (caici	ulated)	ŀ	Case #1	Ph/Conductance SN 15H101448	DO SN	Turbidity
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	F	2"	0.047 0.163								. [Case #3	17E100512	17E103488	201510251
	E	4"	0.163												
		6"	1.469												



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 Informa	ation:		Section C Invoice Information:			Page: 1 of Z
Company: S(Y) HEC (1ST	Donort Toy A 1	nrash		Attention:		1	2240879
Address: 2600 Bull Steet	Сору То:	110(3)		Company Name:		REGULATORY AG	
(Jumpia SC 7970)				Address:			
Email to: Thrus pan adopc scan	Purchase Order No.:	100047/51Z		Pace Quote		1 /	GROUND WATER DRINKING WATER RCRA OTHER
Phone: 598-060 Fex: -894-0673	Project Name:	Rel Dymper 233	,	Reference:		,	RCRA OTHER
Requested Due Date/TAT:	Project Number:	04878/ PAFE	(AS735)	Manager: (arter	*	Site Location STATE:	SC Jasper
	451	CIOIOI PIRT	Cri) / 52]		Requested	Analysis Filtered (Y	
Section D Matrix (Codes € ਨ			F	Z Z	Asianysis i intered (1	
Required Client Information MATRIX Drinking Wat	- O - L	COLLECTED	10	Preservatives	14		enced at Buck
Water Waste Water	WT B B	COMPOSITE COMPOSI			2000		
Product Soil/Solid	SI 6 K	START END/GRA	" "		1333		
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(A-Z, 0-9 / ,-) Air Sample IDs MUST BE UNIQUE Tissue	AR TS COD LY			NIV PG	THE SECOND	1	Chlorine
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# WE	10 3 MATRIX COD		SAMPLE TEMP	# OF CONTAINERS Unpreserved H-2SO ₄ HNC3 HNC3 HNC3 HNC3 NaO4 NaS-SO ₅ Methanol Other	Analys		Page Project No / Lab I D
- 1MV.)-1	20	DATE TIME DATE		/	3 8		The state of the s
2 () - 2	WIL	1/10/18	11:35	6 6	XXXX		Color
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4 (MIN)-BIK							Jample Sample
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6 1110-42		HEGID			14111A		1 Yo Odor
7 MW-S	WIG	7/20/8	7:40	6 6			No sample
8 WW - 6	WG	Molfe	17:00		MAAM		No Cor
9 MW-7	111	11	115				1 100
10 MW - 8			11:20				THE STOP
11 1110-9			1.40				1000000
12 MW-10	WIG	7/2015	1:49	6 6	XXXX		Sight Oder
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	4			(10) (10) (10)	DATE Signed -	1-1-	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 accept	ing Pace's NET 30 day agreemen		of SAMPLER:	Carpenty2	(MM/DD/YY):	7/20/18 -	
- July Will Woods	a and other oo day paymen	The same and agreeing to late charges of	n 1.5% per month	tor any invoices not paid within 30 days.		1 (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.

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Address: 2000 Kull Diep	Copy To:		1 .				Cor	npany l	Name:							REG	ULATOR	Y AGEN	ICY	- Lone 6		501		
(dambia 56, 2960)							Add	ress:									NPDES		COLUMN TO A SEC.	WATER	3 .	DRINKI	NG WATE	D
Email To: throsphanta aners dict	Purchase (r No.: 4	6004	7251	3		Quote								~	UST	┌ RC			-	OTHER	IO WATE	
Phone: 898-060 Fex: 3-545-0673	Project Na		Vicke	lamper	733		Pace	Project ager:	1	10	ict.	Pr				Site	Location		1		_	• • • • • • • • • • • • • • • • • • • •	Street.	1000
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Waste Water Product	ww P	valid codes to left)	9	COMPOSITE START	COMPO END/G		1						4	2	9									
SAMPLE ID Soil/Solid	SL	see vs	(G=GRAB			OLL	1 ,,						-	38	g					Residual Chlorine (Y/N)			*	
(A-Z, 0-9 / ,-) Air	OL WP		1 1			A P	事						st	SUR SUR	7=	-				ne (å			
Sample IDs MUST BE UNIQUE Tissue Other	AR TS OT	gos	<u> </u>			TEMP	ΙŽ	B					S Te	Z	MX					hlori				
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						E of SAMPLER:	-	17	1. V	01	The same	_		DATE S		7/7	elo	-	Temp in	eceiv	Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact	-
*Important Note: By signing this form you are accepting	Pace's NET	T 30 da	ay payment te				for an	v invoice	C K	11	240	7		MM/DE		40	410						San	- 4
							o. an	, anvoice	о поцра	ru Withi	ii su day	ys.					•		F-A	LL-Q-02	20rev.0	7, 15-May-	2007	



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.

A total of 51.50 gallons were treated on July 20, 2018 at the referenced site.

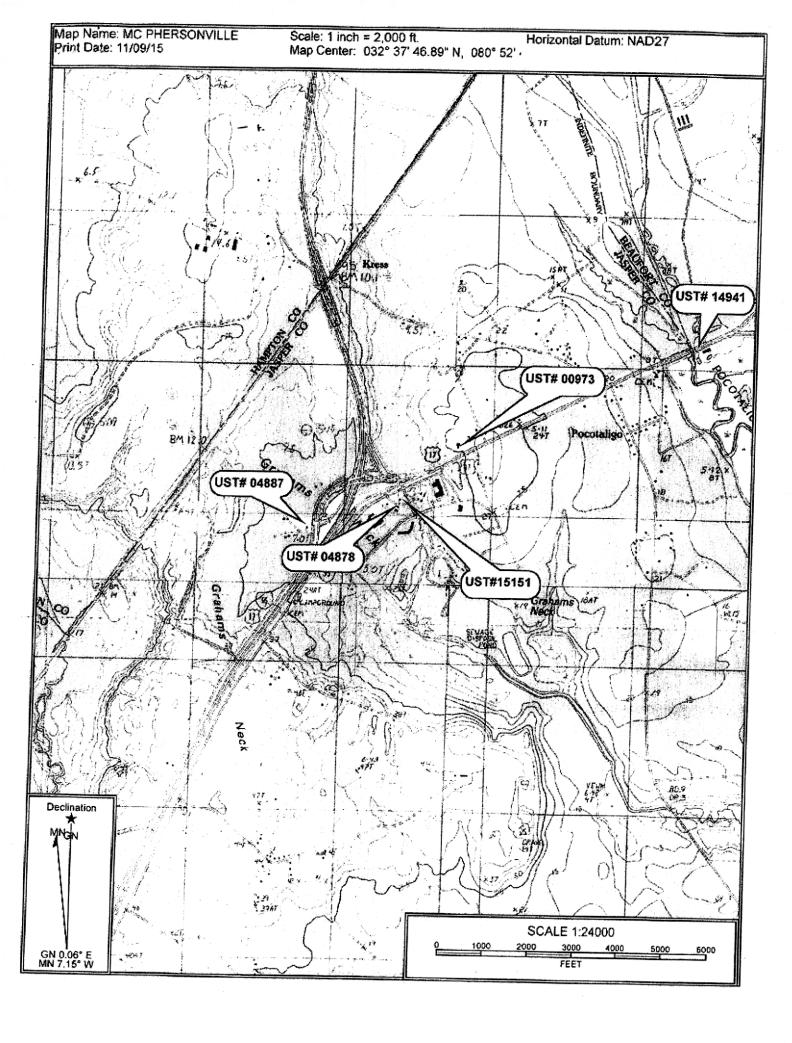
Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

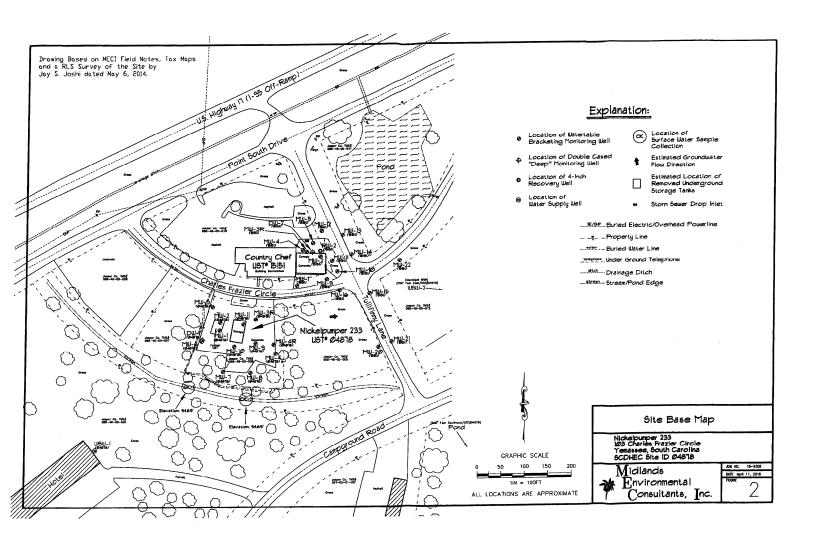
Should you have any questions or comments, please contact the undersigned.

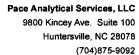
Sincerely,

Midlands Environmental Consultants, Inc.

Keyle V. Pudney/ Project Biologist









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 trey.carter@pacelabs.com (704)875-9092 Project Manager

The Ch

Enclosures







CERTIFICATIONS

Project:

NICKELPUMPER 233 04878/57351

Pace Project No.:

92392816

Charlotte Certification IDs

9800 Kincey 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



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



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
2392816007	MW-9	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
2392816008	MW-10	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
2392816009	MW-11	EPA 8011	SEM	2	PASI-C
		EPA 8260B	SAS	20	PASI-C
2392816010	DW-1	EPA 8011	SEM	2	PASI-C
	and the second of the second o	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	СК-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



SUMMARY OF DETECTION

Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
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	M 1
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
2392816003	MW-5					
EPA 8260B	tert-Butyl Alcohol	58.7J	ug/L	100	07/26/18 21:36	
2392816005	MW-7					
EPA 8260B	tert-Butyl Alcohol	57.9J	ug/L	100	07/26/18 22:12	
2392816008	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	
2392816009	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		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	
2392816015	DUP 1					
EPA 8260B	tert-Amyl Alcohol	5160	ug/L		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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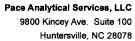
SUMMARY OF DETECTION

Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Lab Sample ID	Client Sample ID					
Method	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	



(704)875-9092



PROJECT NARRATIVE

Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Method: EPA 8011

Description: 8011 GCS EDB and DBCP

Client: Date: SCDHEC 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)

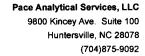
Matrix Spikes:

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:





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:



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





Project:

NICKELPUMPER 233 04878/57351

Pace Project No.:

92392816

Method: Description: 8260 MSV

EPA 8260B SCDHEC

Client: 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





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-Amy! Alcohol
 - tert-Butyl Alcohol

This data package has been reviewed for quality and completeness and is approved for release.



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: MW-1	Lab ID:	92392816001	Collected	: 07/20/18	3 11:35	Received: 07/	21/18 08:30 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 06:19	106-93-4	
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 8	260B						
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	M 1
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		-
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	



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: MW-4	Lab ID:	92392816002	Collected	d: 07/20/18	11:25	Received: 07/	21/18 08:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepai	ration Metho	od: EPA	A 8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 06:37	106-93-4	
1-Chloro-2-bromopropane (S)	108	%	60-140		1	07/26/18 09:44	07/27/18 06:37	301-79-56	
8260 MSV	Analytica	Method: EPA 8	260B						
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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/28/18 17:28	75-65-0	
ert-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	
Kylene (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	



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: MW-5	Lab ID:	92392816003	Collected	1: 07/20/18	3 12:40	Received: 07/	21/18 08:30 Ma	atrix: Water	
Description	Dogulto	Lleite	Report	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Parameters	Results	Units	Limit -	MDL	UF	Prepared	- Analyzed	CAS NO.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA	3011 Prepar	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 06:55	106-93-4	
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	3260B						
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			. ==				07/00/40 04 00	100.00.1	
4-Bromofluorobenzene (S)	99	%	70-130		1		07/26/18 21:36		
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		07/26/18 21:36		
Toluene-d8 (S)	102	%	70-130		1		07/26/18 21:36	2037-26-5	



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: MW-6	Lab ID:	92392816004	Collected	l: 07/20/18	3 12:00	Received: 07/	21/18 08:30 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	3011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 13:52	106-93-4	
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 8	3260B						
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 21:54	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/26/18 21:54	75-65-0	
ert-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	
n&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	



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: MW-7	Lab ID:	92392816005	Collected:	07/20/18	3 11:15	Received: 07/	21/18 08:30 Ma	atrix: Water	
			Report					2424	
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical I	Method: EPA 8	3011 Preparat	tion Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 15:01	106-93-4	
1-Chloro-2-bromopropane (S)	103	%	60-140		1	07/26/18 09:44	07/27/18 15:01	301-79-56	
3260 MSV	Analytical	Method: EPA 8	3260B						
ert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 22:12	75-85-4	
ert-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	
ert-Butyl Aicohol	57.9J	ug/L	100	57.7	1		07/26/18 22:12	75-65-0	
ert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/26/18 22:12	762-75-4	
,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		
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		07/26/18 22:12		
Toluene-d8 (S)	102	%	70-130		1		07/26/18 22:12	2037-26-5	



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Date: 07/30/2018 04:27 PM

Sample: MW-8	Lab ID:	92392816006	Collected	l: 07/20/18	11:20	Received: 07/	21/18 08:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Metho	od: EPA	A 8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 15:19	106-93-4	
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 8	260B						
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	



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Date: 07/30/2018 04:27 PM

Sample: MW-9	Lab ID:	92392816007	Collected:	07/20/18	11:40	Received: 07/	21/18 08:30 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	3011 Prepara	tion Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 15:38	106-93-4	
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 8	3260B						
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/27/18 16:17	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/27/18 16:17	75-65-0	
ert-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 - · · .	1	•	07/27/18 16:17		
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		07/27/18 16:17		
Toluene-d8 (S)	104	%	70-130		1		07/27/18 16:17	2037-26-5	

(704)875-9092



ANALYTICAL RESULTS

Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: MW-10	Lab ID:	92392816008	Collected	07/20/18	3 11:45	Received: 07/	21/18 08:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	3011 Prepara	ition Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 15:57	106-93-4	
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 8	3260B						
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	
ert-Butyl Alcohol	319J	ug/L	500	288	5		07/27/18 18:39	75-65-0	
ert-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	



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: MW-11	Lab ID:	92392816009	Collected	I: 07/20/18	8 12:55	Received: 07/	21/18 08:30 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	3011 Prepar	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 16:16	106-93-4	
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 8	3260B						
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	
ert-Butyl Alcohol	756J	ug/L	1250	721	12.5		07/27/18 18:57	75-65-0	
ert-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-Bromofluorobenzenė (S)	99	%	70-130		12.5	•	07/27/18 18:57		
1,2-Dichloroethane-d4 (S)	94	%	70-130		12.5		07/27/18 18:57		
Toluene-d8 (S)	104	%	70-130		12.5		07/27/18 18:57	2037-26-5	



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: DW-1	Lab ID:	92392816010	Collected	: 07/20/18	3 12:30	Received: 07/	21/18 08:30 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 16:34	106-93-4	
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 8	260B						
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 22:47	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/26/18 22:47	75-65-0	
ert-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	
Kylene (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	



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 Ma	ıtrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ition Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 16:54	106-93-4	
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 8	3260B						
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		
Toluene-d8 (S)	104	%	70-130		1		07/26/18 18:23		



Project:

NICKELPUMPER 233 04878/57351

Date: 07/30/2018 04:27 PM

Pace Project No.: 92392816

Sample: CK-2	Lab ID:	92392816012	Collecte	d: 07/20/18	3 13:05	Received: 07/	21/18 08:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepa	ation Metho	od: EPA	A 8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 17:12	106-93-4	
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 8	260B						
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		07/26/18 18:40	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	3.6	1		07/26/18 18:40	75-65-0	
ert-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									
1-Bromofluorobenzene (S)	103	%	70-130		1		07/26/18 18:40		
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	



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: CK-3	Lab ID:	92392816013	Collected	I: 07/20/18	3 13:10	Received: 07/	21/18 08:30 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 17:31	106-93-4	
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 8	3260B						
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	
ert-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						10.00			
4-Bromofluorobenzene (S)	. 99	%	70-130		1	,	07/26/18 18:57		
1,2-Dichloroethane-d4 (S)	116	%	70-130		1		07/26/18 18:57		
Toluene-d8 (S)	104	%	70-130		1		07/26/18 18:57	2037-26-5	



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Sample: CK-4 Parameters	Lab ID:	92392816014	Collected	: 07/20/18	3 13:15	Received: 07/	21/18 08:30 Ma	atrix: Water	
			Report					0.0.0	
	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.020	1	07/26/18 09:44	07/27/18 17:51	106-93-4	
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								
ert-Amyl Alcohol	ND	ug/L	100	50.0	1		07/26/18 19:13	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	3.6	1		07/26/18 19:13	75-65-0	
ert-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	
Kylene (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	



ANALYTICAL RESULTS

Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Date: 07/30/2018 04:27 PM

Sample: DUP 1	Lab ID:	92392816015	Collected	I: 07/20/18	3 11:35	Received: 07/	21/18 08:30 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 18:09	106-93-4	
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 8	260B						
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		
1,2-Dichloroethane-d4 (S)	99	%	70-130		20		07/27/18 19:15		
Toluene-d8 (S)	100	%	70-130		20		07/27/18 19:15	2037-26-5	



ANALYTICAL RESULTS

Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Date: 07/30/2018 04:27 PM

Sample: FIELD BLANK	Lab ID:	92392816016	6 Collected	d: 07/20/18	3 13:20	Received: 07/	21/18 08:30 Ma	atrix: Water	
D	D #-	1.1-14-	Report	AAD!	55	D	A 1 1	04041-	0 -1
Parameters	Results -	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA	8011 Prepai	ration Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.019	1	07/26/18 09:44	07/27/18 10:58	106-93-4	
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						
ert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/26/18 19:50	75-85-4	
ert-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- 4 3-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/26/18 19:50	624-95-3	
ert-Butyl Alcohol	57.7J	ug/L	100	57.7	1		07/26/18 19:50	75-65-0	
ert-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	
Kylene (Totai)	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				2.4° 1 ca					
I-Bromofluorobenzene (S)	98	%	70-130	3-10 g	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	



ANALYTICAL RESULTS

Project:

NICKELPUMPER 233 04878/57351

Date: 07/30/2018 04:27 PM

Sample: TRIP BLANK	Lab ID:	92392816017	Collected:	07/20/18	3 13:22	Received: 07	7/21/18 08:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical	Method: EPA 8	260B						
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		
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		07/26/18 20:08		
Toluene-d8 (S)	102	%	70-130		1		07/26/18 20:08	2037-26-5	



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:

Date: 07/30/2018 04:27 PM

92392816011, 92392816012, 92392816013, 92392816014

		Blank	Reporting			
Parameter	Units	Result	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	
ert-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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	
enzene	ug/L	50	57.3	115	70-130	
iisopropyl ether	ug/L	50	63.7	127	70-130	
hanol	ug/L	2000	2390	120	70-130	
nyl-tert-butyl ether	ug/L	100	125	125	70-130	
nylbenzene	ug/L	50	51.7	103	70-130	
p-Xylene	ug/L	100	105	105	70-130	
thyl-tert-butyl ether	ug/L	50	62.3	125	70-130	
phthalene	ug/L	50	49.8	100	70-130	
(ylene	ug/L	50	53.1	106	70-130	
t-Amyl Alcohol	ug/L	1000	1120	112	70-130	
t-Amylmethyl ether	ug/L	100	114	114	70-130	
t-Butyl Alcohol	ug/L	500	577	115	70-130	
t-Butyl Formate	ug/L	400	501	125	70-130	
luene	ug/L	50	50.0	100	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.



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Date: 07/30/2018 04:27 PM

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)	%	100	130	104	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	TE: 23331	34		2333135							
			MS	MSD								
	9	2392816012	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
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			

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.



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

Date: 07/30/2018 04:27 PM

Associated Lab Samples: 92392816003, 92392816004, 92392816005, 92392816006, 92392816010, 92392816016, 92392816017

. .		Blank	Reporting			
Parameter	Units	Result	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	ئىمىن ى د	07/ 2 6/18 19:32	

LABORATORY CONTROL SAMPLE:	2332857					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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 2	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 2	2g
tert-Amylmethyl ether	ug/L	100	109	109	70-130	
tert-Butyl Alcohol	ug/L	500	466	93	70-130 2	2g
tert-Butyl Formate	ug/L	400	401	100	70-130	
Toluene	ug/L	50	50.8	102	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.



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Date: 07/30/2018 04:27 PM

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	DUPLICATI	E: 233285	58		2332859							
			MS	MSD								
	923	92781004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
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			

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.



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:

Date: 07/30/2018 04:27 PM

92392816001, 92392816007, 92392816008, 92392816009, 92392816015

		Blank	Reporting			
Parameter	Units	Result	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	er i de recebbe	07/27/18 15:06	

LABORATORY CONTROL SAMPLE:	2334382					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
						- Guainoro
1,2-Dichloroethane	ug/L	50	53.4	107	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	948	95	70-130 2	g
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 2	g
tert-Amylmethyl ether	ug/L	100	112	112	70-130	
tert-Butyl Alcohol	ug/L	500	417	83	70-130 2	g
tert-Butyl Formate	ug/L	400	405	101	70-130	
Toluene	ug/L	50	52.2	104	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.



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Date: 07/30/2018 04:27 PM

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:	23343			2334384							
			MS	MSD								
		316001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units R	esult	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
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	М1
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	-	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			

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.



Project:

NICKELPUMPER 233 04878/57351

Pace Project No.:

92392816

QC Batch:

421733

Analysis Method:

EPA 8260B

QC Batch Method: Associated Lab Samples:

EPA 8260B

Analysis Description:

8260 MSV SC

METHOD BLANK: 2335062

Matrix: Water

Associated Lab Samples:

Date: 07/30/2018 04:27 PM

92392816002

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	on, contract

ABORATORY CONTROL SAMPLE:	2335063					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
-Dichloroethane	ug/L	50	53.9	108	70-130	
Dimethyl-1-Butanol	ug/L	1000	952	95	70-130	2g
ene	ug/L	50	58.2	116	70-130	
propyl ether	ug/L	50	48.6	97	70-130	
nol	ug/L	2000	2290	114	70-130	
tert-butyl ether	ug/L	100	94.9	95	70-130	
benzene	ug/L	50	52.9	106	70-130	
Kylene	ug/L	100	108	108	70-130	
d-tert-butyl ether	ug/L	50	47.6	95	70-130	
thalene	ug/L	50	53.2	106	70-130	
ene	ug/L	50	54.4	109	70-130	
myl Alcohol	ug/L	1000	983	98	70-130	2g
mylmethyl ether	ug/L	100	110	110	70-130	•
utyl Alcohol	ug/L	500	403	81	70-130	2g
utyl Formate	ug/L	400	408	102	70-130	J
ene	ug/L	50	51.7	103	70-130	

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Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Date: 07/30/2018 04:27 PM

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 MS MSD 92393080004 Spike Spike MS MSD MS MSD MS MSD % Rec Max	LABORATORY CONTROL SAMPLE Parameter	: 2335063 Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers		
4-Bromofluorobenzene (S)	Xylene (Total)	ug/L			108	70-13	-		
MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2335064 2335065 MS MSD 92393080004 Spike Spike MS MSD MS MSD % Rec Max		· ·					_		
MS MSD 92393080004 Spike Spike MS MSD MS MSD % Rec Max	Toluene-d8 (S)	%			98	70-13	0 ·		
92393080004 Spike Spike MS MSD MS MSD % Rec Max	MATRIX SPIKE & MATRIX SPIKE D	UPLICATE: 2335	064	23350	065		··· » <u>-</u>		
	Parameter I	92393080004 Units Result		Spike MS				_	Qual

MATRIX SPIKE & MATRIX SPIKE	DUPLIC	AIE: 233506		1400	2335065							
Parameter	Units	92393080004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	
1,2-Dichloroethane	ug/L	ND 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		
tert-Butyl Formate	ug/L	N D	3200	- 3200	. 2190	2160	68	67	70-130	1	30	₽5 ·
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			

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.



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

Associated Lab Samples:

Date: 07/30/2018 04:27 PM

Matrix: Water

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		23	332782						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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 SPIK	E DUPLIC	CATE:	233278	33		2332784			•			
Parameter	Units	9239281 Res		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	Max RPD RPD	Qual
1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane (S)	ug/L* %		ND -	.24	24	0.31	0.32	127 126	750 126	60-140		et g

SAMPLE DUPLICATE: 2332785						
		92392816004	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		2	<u> </u>
1-Chloro-2-bromopropane (S)	%	116	109	8		

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.



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:

Date: 07/30/2018 04:27 PM

92392816016

METHOD BLANK: 2332786

92392816016

Matrix: Water

Associated Lab Samples:

Blank Reporting Qualifiers Parameter Units Result Limit MDL Analyzed ND 0.020 0.020 07/27/18 09:59 1,2-Dibromoethane (EDB) ug/L 07/27/18 09:59 1-Chloro-2-bromopropane (S) 116 60-140 %

LABORATORY CONTROL SAMPLE & LCSD: 2332787 2332788 LCS LCSD LCS LCSD % Rec Max Spike RPD Qualifiers % Rec % Rec Limits **RPD** Conc. Result Result Parameter Units 125 60-140 22 20 R1 1,2-Dibromoethane (EDB) ug/L .25 0.24 0.30 97 1-Chloro-2-bromopropane (S) % 102 135 60-140

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2332789 2332790 MS MSD 92392816016 Spike Spike MS MSD MS MSD % Rec Max RPD RPD Qual Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits 60-140 ND .24 .24 0.27 0.27 113 113 1 20 1,2-Dibromoethane (EDB) ug/L 117 117 60-140 1-Chloro-2-bromopropane % (S)

SAMPLE DUPLICATE: 2332791		92393099010	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND 117	ND 405	6	20)
1-Chloro-2-bromopropane (S)	%	117	125	0		

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.





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.

RPD value was outside control limits.

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

R1

Date: 07/30/2018 04:27 PM

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
Е	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.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

NICKELPUMPER 233 04878/57351

Pace Project No.: 92392816

Date: 07/30/2018 04:27 PM

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
2392816016	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		

Pace Analytical	Sample Condit			CUR)		Page 1 of 2	
/ Taco Avialytical		cument -CS-033-			Pac	e Carolinas Quality	Office
La contraction and the contraction of the contracti	T-Con		NEV.OU				
boratory receiving samples: Asheville Eden	Greenwood		Hun	tersvi		Raleigh 🗌	Mechanicsville[
Sample Condition Client Name: 50	DHEC				LIO#	: 92392	2816
Upon Receipt M - 11			P	raject	MOH		1
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rrter:	USPS Other:		EJCIE	nt	9239281	6	
	<u> </u>	_	~		923020.		200-10
ody Seal Present? Yes No Se	als Intact?	Yes	No		Date/Initi	als Person Examining	Contents: # [-2]
ing Material: Bubble Wrap	/ Bubble Bags [None	. 🗌 0t	her		Blotogical Tissu	e Grazen?
mometer:	,*	/	Vet □81		None	Yes No	∆N/A
IR Gun ID: 92T040	Type of Ice	: P	vet 🗀	ue	Fleore	/	
er Temp (°C): 2 Correction Fac	tor: Add/Subtract	(°C)	+0.4		chand h	e above freezing to	6°C
er Temp Corrected (°C):				- 1	Samples of has begun	ut of temp criteria. Sa	mples on ice, cooling process
A Regulated Soll (N/A, water sample) amples originate in a quarantine zone within the L Yes No	Inited States: CA, N	NY, or SC	(check map	is)? (Did samples orig including Hawaii	and Puerto Rico)?	ource (internationally, Yes No
						Comments/Discrep	pancy: /
Chain of Custody Present?	Ves	□No	□N/A	1.			
Samples Arrived within Hold Time?	Yes	□No	□n/A	2.			
Short Hold Time Analysis (<72 hr.)?	Tyes	ZNo	□N/A	3.			
Rush Turn Around Time Requested?	□Yes /	No	□N/A	4.			
Sufficient Volume?	Øves	□No	□N/A	5.			
Correct Containers Used?	Ølyes	□No	□N/A	6.			
-Pace Containers Used?	ZYes	□No	□N/A				
Containers Intact?	⊠ves	□No	□N/A	7.			
Dissolved analysis: Samples Field Filtered?	□Yes	□No	12N/A	8.		1.2	
Sample Labels Match COC?	Ç X Yes	□No	□N/A	9.			
Indiadas Para Principal No. Inches la Marcha	WIT						
-Includes Date/Time/ID/Analysis Matrix:		_	-	1.0			
Headspace in VOA Vials (>5-6mm)? Trip Blank Present?	☐Yes ☑Yes	⊠No □No	□N/A □N/A	10,			
- 1	/						
Trip Blank Custody Seals Present? OMMENTS/SAMPLE DISCREPANCY	∏Yes	ZiNo	□N/A	4		Field Dat	# Required? Yes No
According to the state of the s				Lo	t ID of split co	ntainers:	
ENT NOTIFICATION/RESOLUTION							
erson contacted:			Date/T	ime:			
						. 7/z4/i	K
Project Manager SCURF Review:					_ Date	: 7/24/1 7/24/1	
Project Manager SRF Review:	E				Date	= 7/24/1	8

Document Name:

Document Revised: February 7, 2018

Page 1 of 2

Pace Analytical*

Document Name: Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06 Document Revised: February 7, 2018 Page 1 of 2

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

Projec WO#: 92392816

PM: RWC

Due Date: 07/30/18

CLIENT: 92-SCDHEC

ltem#	BP4U-125 mL Plastic Unpreserved (N/A) (CI-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 ml Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP45-125 mL Plastic H25O4 (pH < 2) (CF)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-12S ml. Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (G-)	WGFU-Wide-mouthed Glass Jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 ml. Amber Unpreserved (N/A) (CI-)	AG15-1 liter Amber H2SO4 (pH < 2)	AG35-250 ml. Amber H2SO4 (pH < 2)	AG3A[DG3A]-250 ml. Amber NH4Cl (N/A)[Cl-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na252O3 (N/A)	VG9U-40 mLVOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vieb 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)		8P3A-250 ml. Plastic (NH2)25O4 (9.3-9.7)	AGOU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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144		erved samples	justment Log for Pres	pH Ad		
Lot #	Amount of Preservative added	Time preservation adjusted	Date preservation adjusted	pH upon receipt	Type of Preservative	Sample 1D
i						

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.06

Document Revised: February 7, 2018 Page 1 of 2

> 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.

Project: WO#: 92392816

PM: RNC

CLIENT: 92-SCDHEC

: 07/30/18

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

_									in the second						P	g)										-		
ltem#	BP4U-125 mL Plastic Unpreserved (N/A) (CI-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	8P4S-125 mL Plastic H25O4 (pH < 2) (CI-)	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) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG15-1 liter Amber H2SO4 (pH < 2)	AG35-250 mL Amber H2504 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Ci (N/A)(CI-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na252O3 (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 mt. Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A - lab)		BP3A-250 mL Plastic (NH2)2504 (9.3-9.7)	AG0L-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scindllation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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	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 #						
and the National States												

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.

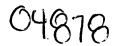
Pace Analytical*	CHAIN- The Chain-of-C	OF-CUSTODY / Analytical I Custody is a LEGAL DOCUMENT. All relevant field	Request Document ids must be completed accurately.	44 of 45
www.pacelates.com Section A Section Required Client Information: Require	ed Project Information:	Section C Invoice Information: Attention:		2240879
Company: SCONECUST Report To	A 1 n(a>n	Company Name:	REGULATORY AGE	
Address: 2660 Bull Steet Copy To	30	Address		ROUND WATER C DRINKING WATER
Columbia SC 29201	se Order No.: [[]. [YOL.7.7512	Pace Quote		CRA F OTHER
THUS TAME OFFICE OCHO	TOUTOUT	Pace Project Manager: T. Carter		21 1
Phones and Due Date (TAT:	MUKEL Values 233		Site Location STATE:	30 Jasper
Requested Due Date/TAT:	Number UST 04878/ PACEC	H37821	Requested Analysis Filtered (Y/	(N)
			Ina	
Section D Matrix Codes Required Client Information MATRIX / CODE	COLLECTED COMPOSITE COMPOSITE ENGGRAR START ENGGRAR	Preservatives		
Orinking Water DW Water WT	V 8 0 COMPOSITE COMPOSITE	SAMPLE TEMP AT COLLECTION SAMPLE TEMP AT COLLECTION HOServed HySO4 HCI HNO3 HCI MACH Na ₂ S ₂ O ₃ Methanol Other		
Waste Water WW Product P	START SNOORAR	JE JE JE JE JE JE JE JE JE JE JE JE JE J		(k) (chlorine (3/1/2) (chlorin
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(A-Z, 0-9 /) Air AR Sample IDs MUST BE UNIQUE Tissue TS		TAIN TAIN		1 923928/G
Other OT	f	NO Sen T		1 3 7 0 0 0
# #	WATTRIX OF THE PATE	SAMPLE TEMP AT CC SAMPLE TEMP AT CC Unpreserved H-SO ₄ HNO ₃ HCI NaOH Na ₂ S ₂ O ₃ Methanof Other	F LANGE	Page Project No./ Lab I.D.
E	The state of the s			CXAC 80/
1 MW-1	MLQ 1/10/18/1	35 6 6		NoSample
2 MW &				Ma Samole
3 MW-5				No Samor
4 10-34	WIG Plade	125 6 6	MXXX	No Odor 802
5 1 1 1 2 2	100			No Sample
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a Min - Co		7:00 1 1		No Clar 004
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" WD-9	don	1:40		Sight Oder 008
12 MW- 10	WIG 1/80/8	DATE TIME ACCEPTE	D BY / AFFILIATION DATE TIM	ME SAMPLE CONDITIONS
ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	1500		3024 Y N Y
	Worker	17:00 Jaroz	Usace FU-180-	2004/
	- 1 - 7	, , ,		
	SAMPLER NAME AND	D SIGNATURE		mp in °C elived on ce (YM) Usatody led Cooler (YM)
ORIGI	NAL PRINT Name	of SAMPLER: COUN CON 14495	()	Temp in "C Custody Custody Sasked Code (Y/N) Samiples Intac
	SIGNATURE	OF SAMPLER: CHEROLOGIC	DATE Signed 7 70 18	San San Tan
"Important Note: By signing this form you are accepting Pace	ce's NET 30 day payment terms and agreeing to late charges of	of 1.5% per month for any invoices not paid within 30 days.	1-1	F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical*		STODY / Analytical Request Doc LEGAL DOCUMENT. All relevant fields must be completed	acourately. 5
Section A Section Required Client Information: Require		Section C	Page: Z of Z e
Company: SCHEC, UST Report T	To: A Throsh	Attention:	2240877
Address: 2600 Rwl Street Copy To		Company Name:	REGULATORY AGENCY
(2970)		Address:	NPDES [GROUND WATER DRINKING WATER
Email To: Thros har ahea & ahea Purchase	e Order No.: 4 (C) 47512	Pace Quote Reference:	UST F RCRA T OTHER
283-898-060 7893-848-0673 Project h	MICKEMUMDER DOS	Manager: T. (arter	Site Location STATE: SC Juspan
1 100	1000 04878/PACE (AST851		state: transfer of the state of the s
Section D Matrix Codes			nalysis Filtered (Y/N)
Required Client Information MATRIX / CODE	(MAN) COLLECTED	Preservatives >	we so 1 mills 25 - 11 %
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(A-Z, 0-9 f,-) Wipe WP Air AR Sample IDs MUST BE UNIQUE Tissue TS Other OT		# OF CONTAINERS Unpreserved H ₂ SO ₄ HNO ₃ HNO ₃ HNO NaOH Na ₂ S ₂ O ₃ Methanol Other FAMINES FAMINES COUSE FAMINES FAMINE	Pace Project No./ Lab I.D.
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· Trip Blank	NI G IIII SILL.	S MAN	11206 18 0//
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amples Infact (Y/N)

SAMPLER NAME AND SIGNATURE

ORIGINAL





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 Kincey Ave. STE 100, Huntersville, NC 28078 (w/ Memo) 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: 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



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.

1/1/

February 20, 2019

Senior Scientist



Site-Specific Work Plan for Approved ACQAP Underground Storage Tank Management Division

From: _leff L. Coteman	To: Ms. Kathryn H. Butler		(8	ODLICO Design Manager
Contractor: Midlands Environmental Consultants, Inc. UST Contractor Certification Number: 009 Facility Name: Nicklebumper 233				
Facility Address: 329 Point South Drive, Yenassee, SC 29945 Responsible Party: Richard Carison RP Address: 1292 N Main Street, Los Angeles, CA 90031 Property Owner (if different): SAA Property Owner (if different): SAA Property Owner Address: SAA Current Use of Property: Vacant Property Scope of Work (Please check all that apply) GIGWA		ntal Consultants, Inc. UST Con		Altacioi Project Manager,
Facility Address: 3298 Point South Drive, Yemassee, SC 29945 Responsible Party: Richard Cartson 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) GIGWA			UST Permit #:	04878
RP Address: 1920 Main Street, Los Angeles, CA 90031 Property Owner (if different): SAA Property Owner (if different): SAA Current Use of Property: Vecant Property Scope of Work (Please check all that apply) Groundwater Sumpling GAC Groundwater Sampling GAC Groundwater Sumpling GAC Groundwater Sumpling GAC Groundwater Sumpling GAC Groundwater Sumpling GAC Groundwater Sumpling GAC Groundwater Sumpling GAC Groundwater Sumpling GAC Groundwater Sumpling GAC Groundwater Sumpling GAC Gac Gac Gac Gac Gac Gac Gac Gac Gac Gac				
Property Owner (if different): SAA Property Owner Address: SAA Current Use of Property: Vacant Property Scope of Work (Please check all that apply) Groundwater Sampling			Phone: 951-6	59-0063
Property Owner Address: SAA Vacant Property				
Current Use of Property: Vacant Property				
Scope of Work (Please check all that apply) IGWA Tier II				
Groundwater Sampling				
Tier I	l —	* * * * *		
Analyses (Please check all that apply) Groundwater/Surface Water: BTEXNMDCA (8260B)				
Analyses (Please check all that apply) Groundwater/Surface Water: BTEXNMDCA (8260B)	∐ Tier I ☐ Mo	nitoring Well Installation	☐ Other	
BTEXNMDCA (8260B)		nat apply)		
Oxygenates (8260B)				
EDB (8011)			☐ BOD	
PAH (8270D)			■ Nitrate	Ethanol
PAH (8270D)	_ ` '			☐ Dissolved Iron
BTEXNMDCA (524.2)	· · · · · · · · · · · · · · · · · · ·	☐ pH	□ Other	
Oxygenates & Ethanol (8260B)		- · · · · · · · · · · · · · · · · · · ·		
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	Comments, if warranted:			root por point
	IEC 0653 (00)0040)			

UST Permit #: 04878 Facility Name: Nickelpumper 233	
Implementation Schedule (Number of calendar days from approval)	
Field Work Start-Up: 2/20/2019 Field Work Con	npletion: 3/20/2019
Report Submittal: 4/20/2019 # of Copies Pro	vided to Property Owners: 0
Aquifer Characterization	
Pump Test: Slug Test: (Check one and provide explanation belo	w for abains)
Old rest. (Check one and provide explanation belo	w for choice)
Investigation Desired Wests Discussed	
Investigation Derived Waste Disposal Soil: Tons Purge Waster am	0.00
Soil: Tons Purge Water: 100 Drilling Fluids: Gallons Free-Phase Produ	.0 Gallons uct: Gallons
	uct: 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. Historica	lly, 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 (8260	
-Water supply well samples will be analyzed for BTEXNM, 1,2-DCA (524.2), 8-OXY's (6260B), and	I EDB (504.1).
Compliance With Annual Contractor Quality Assurance Plan (ACQAP)	
Yes Laboratory as indicated in ACQAP? (Yes/No) If no, indicate la	boratory information below.
Name of Laboratory:	
SCDHEC Certification Number:	
Name of Laboratory Director:	
	er information below.
Name of Well Driller:	
SCLLR Certification Number:	
None Other variations from ACQAP. Please describe below.	
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.
Prepare a site base map. This map must be accurately scaled, but must include the following:	does not need to be surveyed. The map
North Arrow Proposed monitoring well locat	ione
Trepresentation to the following with local	iddress, UST permit number, and bar scale
Location of buildings Streets or highways (indicate na	ames and numbers)
Previous soil sampling locations Location of all present and form	per ASTs and USTs
Previous monitoring well locations Location of all potential receptor	rs
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 JUNIT **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 \$2.60

each

each

each

\$15.00

\$10.00

\$0.00

\$0.00

\$0.00

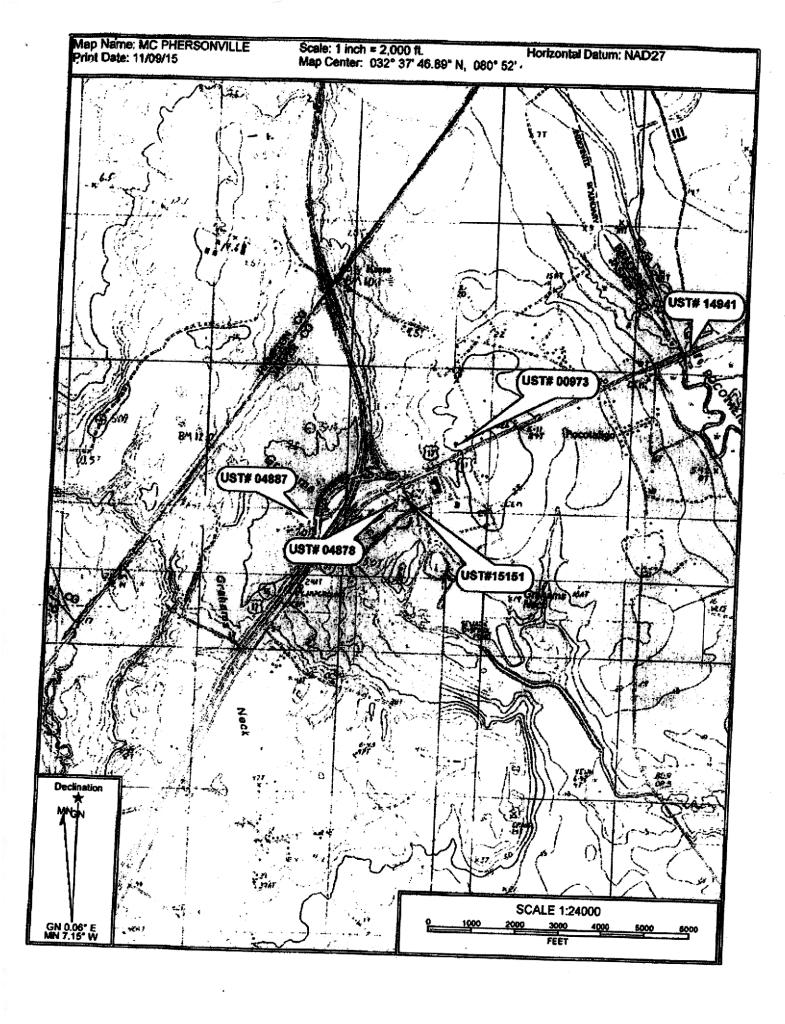
\$643.00

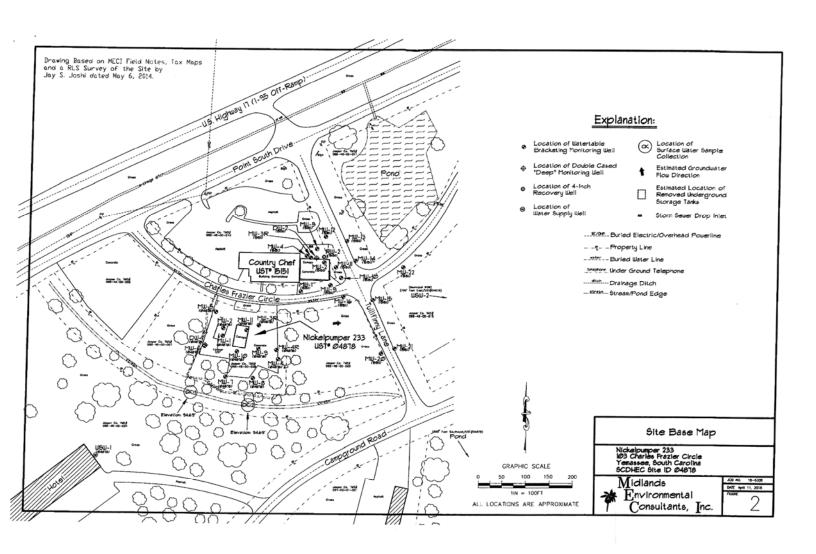
G. Replace locking well cap & lock

K1. Replace Missing Well ID Plate

TOTAL

^{*}The appropriate mobilization cost can be added to complete these tasks, as necessary







MR BRYAN SHANE PG MIDLANDS ENVIRONMENTAL CONSULTANTS PO BOX 854 LEXINGTON SC 29071

MAR 1 5 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 Kincey Ave, Ste 100, Huntersville, NC, 28078 (w/ CA)

Technical File (w/ Enc)

Approved Cost Agreement

Facility: 04878 NICKELPUMPER 233

BUTLERKH PO Number:

March 14, 2019

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	<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 Amo	unt	1,118.00

58977

Approved Cost Agreement

58976

PO Number:

Facility: 04878 NICKELPUMPER 233 BUTLERKH

Task / Description Categories	Item Description	Qty / Pct	Unit Price	<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 RECONNAISSAINCE	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)
									Ana	lyte Sam	pled		
MW-1		X					X	Х	X	Х			
MW-2		X					Х	Х	х	X			
MW-3						Х							
MW-3R		Х					Х	Х	х	Х			
MW-4		X					Х	Х	Х	x			
MW-4R						Х							
MW-5		X					Х	x	x	Х			
MW-6		Х					х	Х	х	х			
MW-7		х					х	Х	x	X			
MW-8		Х					х	х	х	X			
MW-9		Х					Х	х	X	X			

Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes

MTBE=Methyl tertiary butyl ether 1,2 DCA = 1,2 Dicloroethane

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)
									Ana	lyte Sam	pled	-	
MW-10		Х					Х	Х	Х	Х			
MW-11		Х					х	Х	х	Х			
DW-1	Х						Х	Х	х	Х			
CK-1		Х					Х	Х	Х	Х			
CK-2		Х					Х	х	X	Х			
CK-3		X					Х	Х	Х	X			
CK-4					Χ.								
DUP-1(MW-8)							Х	х	Х	Х			
Field Blank							Х	Х	Х	Х			
Trip Blank							Х		Х	Х			
WSW-1						Х							
WSW-2					Х								

Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes
MTBE=Methyl tertiary butyl ether
1,2 DCA = 1,2 Dicloroethane

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.

Attachments:

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	х		
2	Is UST Owner/Operator name, address, & phone number provided?			Х
3	Is name, address, & phone number of current property owner provided?			Х
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	х		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			Х
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	х		
7	Has the facility history been summarized?	Х		
8	Has the regional geology and hydrogeology been described?			Х
9	Are the receptor survey results provided as required?			Х
10	Has current use of the site and adjacent land been described?			х
11	Has the site-specific geology and hydrogeology been described?			Х
12	Has the primary soil type been described?			Х
13	Have field screening results been described?			х
14	Has a description of the soil sample collection and preservation been detailed?			Х
15	Has the field screening methodology and procedure been detailed?			· X
16	Has the monitoring well installation and development dates been provided?			Х
17	Has the method of well development been detailed?			Х
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	х		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	х		
22	Has the purging methodology been detailed? See MECI SOP	Х		
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	х		
25	Does the report include a brief discussion of the assessment done and the results?			Х
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)			х
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			Х
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			Х
31	Have recommendations for further action been provided and explained?			Х
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			Х
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)			х
34	Has the current and historical laboratory data been provided in tabular format?			Х
35	Have the aquifer characteristics been provided and summarized on the appropriate form?		1	X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			Х
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)			Х
40	Has the site potentiometric map been provided? (Figure 5)	-		Х
41	Have the geologic cross-sections been provided? (Figure 6)			Х
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			х
43	Has the site survey been provided and include all necessary elements? (Appendix A)			х
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	Х		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			Х
47	Have the soil boring/field screening logs been provided? (Appendix D)			Х
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			Х
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			Х
50	Have the disposal manifests been provided? See attached	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			х
52	Has all fate and transport modeling been provided? (Appendix I)			Х
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			х
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	х		

Site Activity Summary

UST Permit #: 04878

Facility Name: Nickelpumper 233

County: Jasper

Field Personnel: K. Jacobs; W. Morris



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	Υ	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

Jasper

Facility Name:

Nickelpumper 233

County:

Field Personnel:

K. Jacobs; W. Morris



231 Dooley Road, Lexington, SC 29073 (803) 808-2043 fax: 808-2048

										10037 00012043 Tax: 000-2048
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

Midla Envi Cor Field Personnel: Campling Date(s):	ronment roultant	ial s, Inc.	M			. Joh Nam	And	itoring W d Sampli Upmper	no T)ata				
Sampling Date(s): Sampling Case#: Well No.					_		er: 19 - (<u> </u>	Dissolve	ivity:	(es)	No (Please No No	
	Purge Volume Initial		pH(i)	cond(i)	Temp (°C)	(mg/l)	Turbidity (NTU)	Depth to (fe	et): final H ₂ :	Well David	Water Heigh	Calibrated E	No very 3 Months	by QA Manager
MM 1	2nd 3rd 4th 5th							2.69		2.5		-	actual	
MN/ 7	Sampling Initial 1st	94/65 14:25	5.66	282.	21.4	7000 23-7	38.41			12.5				Odla
Mr I	3rd 4th 5th Sampling							2.21 2884		2-12	_	_		125
nv 3	Initial 1st 2nd				DNE									090
_	3rd 4th 5th Sampling									2-12				
w 3 R	Initial 1st 2nd 3rd	2: 40	5.00	84.1	21.1	4.97	18.62							
epth of Wein - (D	4th 5th Sampling							3.04		2-12	-		_	Odor
epth of Well) - (Deptr Vell Volume ≈x.047 fo	or 1" wells • x	.163 for 2" we	Gallons	for 4" wells,	1,469 for 6" v	**= One Well \ vells	/olume x 5 = Gall	ons Purged (calcul	ated)	<u> </u> E	_Case #	h/Conductance SN 15H101448	Do sn	Turbidity
		2" 4" 6"	0.047 0.163 0.653 1.469							E	Case #2	15E101481 17E100512	17E101302 14H103098 17E103488	201301183

Midla Env Col Field Personnet: Sampling Date(s):	ronmer	ital ts, Inc.	%				Mo A	nitor	ing \	Well	Purge				
Field Personnel:	11/-	d- W	M			lob N	///	nd Sa	шр	ung	<u>Data</u>				
	4/2	6/19				OOD IVAN	ne: Nr. /	Con	1901	255	Calibra	libration Da	ta for	No (Please	
Sampling Case#:		{				Job Numb	рег: <u>/ 9 л</u>	681	6		Conduc	HVIIV'		No (Please No	Circle)
Well No.	Purge	Sampl									Dissolv	ad Ówasa.	Ves S	No No	
	Volum	Time	Pinn	cond(i	.	-0	Turbidi	tv	David d		- urbiait	y: Conductivit	y Calibrated E	very 3 Months	by QA Manager
	Initial	12:3	04,4	756	7 A.9		(NTU)	produc	Depth to	(feet): i ₂ 0 final i	AAAII Deb	Mater Heigh		ons Purged	
Auto CA	1st 2nd					1.56	42.8	4			120 (feet)	*(feet)	**calc.	actual	Notes
MV 4	3rd	+		-			-	4					1		
	4th			 				7	4.6		2-17		-		No
	5th Sampling						-		1.4	9	1	_		_	1
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	1st 2nd	-		 	·	DNI	0,00	-	+	.+					
Mr 4R	2nd 3rd	 	-			1011	1:10	ture:	s ten	ken					+
	4th	 	+				di	y an	ارماورا	gerze.	2-12				
	5th			 	 -			§ , P	16					_	
	Sampling Initial	10.25	71			+	 	1		}					
	1st	15:32	प. यह	61.0	23.9	5.18	22.67			 					
NW 3	2nd				 	-									
	3rd 4th	 				+	ļ				2-12				
	5th		 				 		7.04		- X	' <u> </u>			No
	Sampling Initial					+				1				_	1 -
, . t	1st	14:11	<u>८</u> ०प	43.9	18.8	4.1	2201				1 1				Odor
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1 m 0	3rd 4th										.	1			
E	5th							ļ	1.73		2-12	_	`		No
	Sampling								- 1		- 12		_		A 1
epth of Well) - (Depth Well Volume =x.047 fo	to Water = V	Vater Height													Oppos
epin of Well) - (Depth Well Volume =x.047 fo	· · wells · x	.163 for 2" W	ells, or * x .66	for 4" wells,	1.469 for 6"	**= One Well \ wells	/olume x 5 = (allons Pur	ged (calci	ulated)	<u> </u>				
	F	Casing 1"	Gallons								Ŀ	Sampling Case# P	15H101448	DO SN	Turbidity
	ļ	2"	0.047 0.163								7	Case #2	15E101481	17E101302 14H103098	204004
	E	4" 6"	0.653 1.469									Jase #3	17E100512	17E103488	201301174

*	Env	ironmer	ntal ts, Inc.					Mon	itoring V	Vel	l Purgo				
Field Per	(0	nsultan: ما	ts, Inc.					An	d Sampl	ing	Det				
, loid Fel	sonnel:	1	2- MW	,			lah M	Ac. le	J	THE S	Data				
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Sampling	Case#		1				Job Numb	er:_/4~6	916		pH:	on Success	ful? Yes or	No (Please (Circle)
										_	Conduct	ivity:	Yes	No No	′
We	il No.	Purge		pH(i)	2074	 					Turbidity	d Oxygen:	Yes	No	
		Volum			cond(i		- 50	Turbidity	Depth to (footh.	1	- Senductivity	Calibrated Ev	No very 3 Months b	y QA Manage
		Initial 1st	12:25	6.21	4.32	18.6	1(1)	(NTU)	product initial H		Well Depth If H ₂ 0 (feet)	Water Heigh		ns Purged	
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		ļ.	4" 6"	0.163 0.653										14H103098 2	201301174

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reisonnei:	NJ	4 MV	<u> </u>				Nacl		TIT IN T	<u>mg 1</u>					
Sampling Date(s):	4/26	119				Job Nam	ne: Nrcke	PAM	001-	233	<u>Cal</u> Calibrat	ibration Da	ta for :		
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											Conduct	'iVitv	Sec	No No	_
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	4th 6th				 	 	-		物				7.23	Ury	NI-
	Sampling	14:20				 	 		4.15	•	43.5	44.35		(a)	No
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	F	2" 4"	0.163								 	Case #2	15E101481	14H 103098 12	01201100
	H	6"	0.653 1.469								<u>-</u>		17E100512	17E103488 2	01510251

Midla Finvi Cor	ronment, isultants	al Inc.	M				<u>An</u>	d Sa	mnli	no D	Purge ata				
Sampling Date(s): Sampling Case#: Well No.	4/26	19			- -	Job Name	er: 14 - 0	den	MAU	<i>231</i> -	Calibrati pH: Conduct Dissolve	ivity: (ta for ful? Yes or Yes Yes	No	
	Volume	Sample Time	pH(i)	cond(i)	Temp.	DO	Turbidity	T	Depth to (fe	-41-	urbidity	. Conductivity	Calibrated Ev	ery 3 Months	by QA Manage
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ן ייעי	3rd 4th	M	2	8(0)	12:	20	Nec					ĺ			
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epth of Well) - (Depth Well Volume = x 047 for	to Water = Wa	ter Height	———L		I										
sptn of Well) - (Depth Vell Volume ≃x.047 fo	" Wells * x.1	63 for 2" we	ells, or * x .66	for 4" wells, 1	.469 for 6" w	*= One Well ∨ ∋lis	olume x 5 = Ga	llons Pur	jed (calcul	ated)					
	F-	Casing 1"	Gallons 0.047			,				•	Ë	Odse #1	15H101448	DO SN 17E101302	Turbidity
	F	2" 4"	0.163 0.653									Oase #2	15E101481	14H103098 T	201301183 201301174
		6"	1.469											17E103488	201510251

Env.	inds ironment, nsultants	Inc.	÷			Job Name: Job Number	Mon An	itori d Sa	ng V mpl	Vell I	Purge ata				
mpling Date(s): mpling Case#: Well No.	9/20	Sample	pH(i)			Job Number	19-6	8/4	may.	<i>[]]</i> -	Dissolve	ivity:	ful? (Yes or	No (Please No No No	
	Volume	Time	p. 1(1)	cond(i)	Temp.	DO (****	Turbidity		Depth to (f	eet);	Wall Danel	Tar.		No /ery 3 Months	by QA Manage
	1st					(mg/i)	(NTU)	product	initial H	O final H ₂ 0	(feet)	Water Heigh	t Gallo	ns Purged	Note
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rth of Well) - (Dept ell Volume =x.047 f	weils x .1	asing (is, or * x .66 f	or 4" wells, 1.	469 for 6" we	'= One Well Vo	lume x 5 = Ga	llons Purg	ed (calcı	lated)		Sampling Case# Case #1 Case #2	Ph/Conductance SN 15H101448	DO SN 17E101302	Turbidity
			0.163 0.653 1.469								E	Oase #2	15E101481 17E100512	14H103098 17E103488	

F nvir	onment,	al_					Mon	<u> Itori</u>	ng	Wel	l P	lirge				
ield Personnel:	uitants	K 5,	. 4.				Δn	$\alpha \sim \alpha$		**	_					
ampling Date(s):		4-20	19		-	Job Name:	Niel	kel ou	A 0		٦,	Ca	libration D	ata for		
ampling Case#:		1-2				Job Number:		-081	0		3 /	pH:	tion Succe	Data for : ssful? Yes o Yes Yes	or No (Pleas	e Circle)
Well No.	Purge	Sample	pH(i)	T	-							Dissolv	ed Oxygen	Yes Yes	No No	
1 00 1	Volume Initial	Time	Ph(I)	cond(i)	Temp.	DO	Turbidity		Depth to	(feet):		Wall Da	J. Conduction	ity Calibrated	Every 3 Month	is by QA Manage
man-1	1st	Pas	3:61,			(mg/l)	(NTU)	product	initial	H₂O finai	_	(feet)	th Water Hei	ght Gal **calc.	lons Purged	Notes
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-	3rd 4th													1		
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eport To: P Pn	clumbic.	CC 525	Email To:		^ 1		- AN - Y	23.4		3	200	3			15.25	167			
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ору То:			Site Colle	ction Info/	Addrage.	Dr.			(C) a	mmoni	um hyd	oxide,	(D) TSP		npreserv	ed, (O) O	ther	li ta si	
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h L 9	EW	6	V1/15/N	11:30				6	2							9-700 1025.00		+ 100)))(
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Report To: R. Dung	1	/ /	Email To:	nyo	NJL	er Si	. ol 2V	••	Prese	rvative	ypes: (1) nitric a	cid, (2)	sulfuri	c acid, (3) hydroch	loric acid, (4)	sodium hydroxide, (5) zinc acetate,
Сору То:				ction Info/	Address:	5. De	1	(c)	meth amm	ionium h	sodium ydroxide	e, (D) TS	P, (U) U	nprese	rved, (O)	e, (9) hex Other _	ane, (A) asco	rbic acid, (B) ammonium sulfate, —
Customer Project Name/Number:	233		State:	County/C	ity: Ti	me Zone Co			1	182		Ana	yses				PR CHEST	ample Receipt Checklist:
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				laterial Use	ed:				L	ab Trac	dng#:		2	35	503	184	6.7	Temp Blank Received: Y N NA Therm ID#:
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Re: Treat

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.

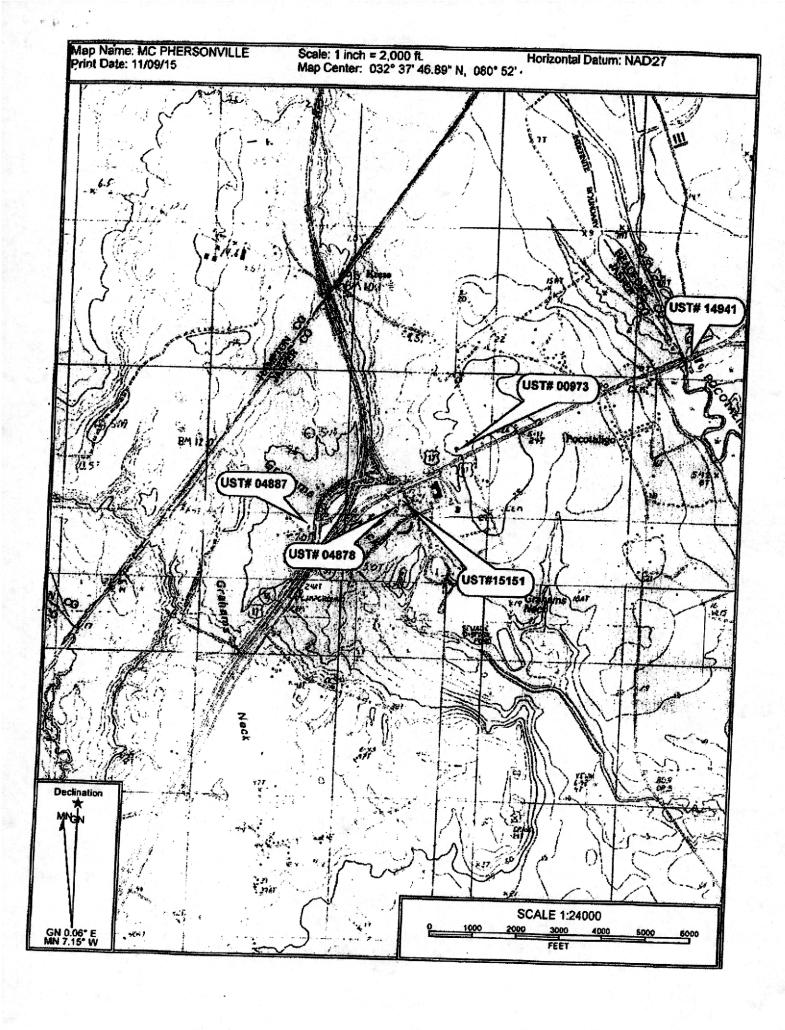
Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

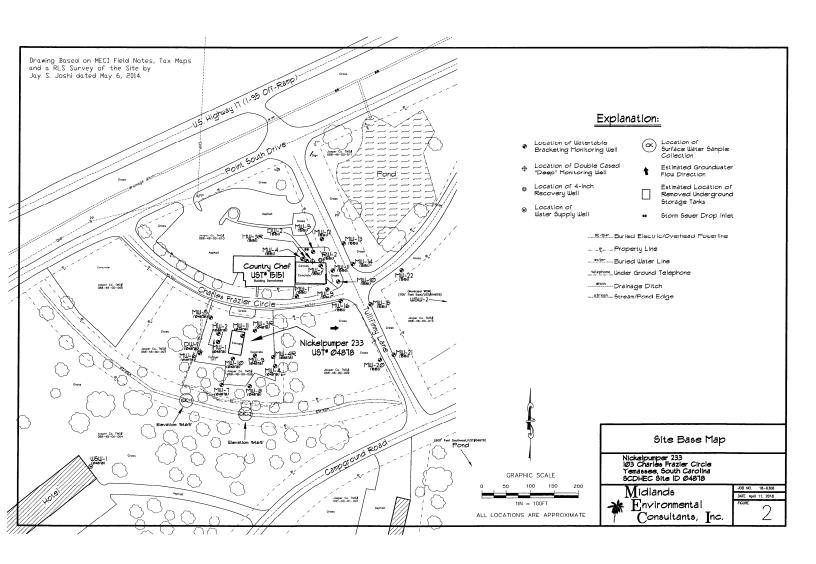
Should you have any questions or comments, please contact the undersigned.

Sincerely,

Midlands Environmental Consultants, Inc.

Staff Hydrogeologist









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







CERTIFICATIONS

Project:

Nickel Pumper 233 04878/58977

Pace Project No.:

92427153

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078 Louisiana/NELAP Certification # LA170028 North Carolina Drinking Water Certification #: 37706 North Carolina Field Services Certification #: 5342

North Carolina Heid Services Certification #: 5.

North Carolina Wastewater Certification #: 12

South Carolina Certification #: 99006001 Florida/NELAP Certification #: E87627 Kentucky UST Certification #: 84 Virginia/VELAP Certification #: 460221



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	
2427153008	8 WM	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	ТВ	Water	04/26/19 14:40	04/29/19 09:50	



SAMPLE ANALYTE COUNT

Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

92427153001 MW 1 92427153002 MW 2 92427153003 MW 3R 92427153004 MW 4 92427153005 MW 5	EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B	BAJ NSCQ BAJ NSCQ BAJ NSCQ BAJ NSCQ BAJ NSCQ	2 20 2 20 2 20 2 20 2 20 2	PASI-C PASI-C PASI-C PASI-C PASI-C PASI-C PASI-C PASI-C PASI-C PASI-C PASI-C
92427153003 MW 3R 92427153004 MW 4	EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B	BAJ NSCQ BAJ GAW BAJ NSCQ BAJ NSCQ BAJ	2 20 2 20 2 20 2 20 2 20 2	PASI-C PASI-C PASI-C PASI-C PASI-C PASI-C PASI-C PASI-C
92427153003 MW 3R 92427153004 MW 4	EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B	NSCQ BAJ GAW BAJ NSCQ BAJ NSCQ BAJ	20 2 20 2 20 2 20 2	PASI-C PASI-C PASI-C PASI-C PASI-C PASI-C
92427153004 MW 4	EPA 8011 EPA 8260B EPA 8260B EPA 8011 EPA 8260B EPA 8260B EPA 8260B EPA 8011 EPA 8260B	BAJ GAW BAJ NSCQ BAJ NSCQ BAJ	2 20 2 20 2 20 2 20 2	PASI-C PASI-C PASI-C PASI-C PASI-C
92427153004 MW 4	EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B	GAW BAJ NSCQ BAJ NSCQ BAJ NSCQ	20 2 20 2 20 2 20 2	PASI-C PASI-C PASI-C PASI-C
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	EPA 8260B EPA 8011 EPA 8260B EPA 8011 EPA 8260B	NSCQ BAJ NSCQ BAJ NSCQ	20 2 20 2	PASI-C PASI-C PASI-C
92427153005 MW 5	EPA 8011 EPA 8260B EPA 8011 EPA 8260B	BAJ NSCQ BAJ NSCQ	2 20 2	PASI-C PASI-C
92427153005 MW 5	EPA 8260B EPA 8011 EPA 8260B	NSCQ BAJ NSCQ	20 2	PASI-C
	EPA 8011 EPA 8260B	BAJ NSCQ	2	
	EPA 8260B	NSCQ	- -	PASI-C
92427153006 MW 6			20	
	EPA 8011	DAI	20	PASI-C
92427153007 MW 7		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

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, LLC.



SUMMARY OF DETECTION

Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2427153001	MW 1					
EPA 8260B	Benzene	1970	ug/L	250	05/07/19 05:15	M1,R1
PA 8260B	Ethylbenzene	1340	ug/L	250	05/07/19 05:15	M1,R1
PA 8260B	Methyl-tert-butyl ether	256	ug/L	250	05/07/19 05:15	M1
PA 8260B	Naphthalene	497	ug/L	250	05/07/19 05:15	M1
PA 8260B	Toluene	6900	ug/L	250	05/07/19 05:15	M1,R1
PA 8260B	Xylene (Total)	5490	ug/L	250	05/07/19 05:15	MS,RS
PA 8260B	m&p-Xylene	4050	ug/L	500	05/07/19 05:15	M1,R1
PA 8260B	o-Xylene	1440	ug/L	250	05/07/19 05:15	M1,R1
2427153002	MW 2					
PA 8260B	Benzene	93.5	ug/L	10.0	05/07/19 01:53	
PA 8260B	Ethylbenzene	153	ug/L	10.0	05/07/19 01:53	
PA 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	
PA 8260B	Xylene (Total)	518	ug/L	10.0	05/07/19 01:53	
PA 8260B	m&p-Xylene	455	ug/L	20.0	05/07/19 01:53	
PA 8260B	o-Xylene	62.2	ug/L	10.0	05/07/19 01:53	
2427153003	MW 3R					
PA 8260B	Ethylbenzene	558	ug/L	25.0	05/05/19 19:37	
PA 8260B	Naphthalene	644	ug/L	25.0	05/05/19 19:37	
PA 8260B	Xylene (Total)	623	ug/L	25.0	05/05/19 19:37	
PA 8260B	m&p-Xylene	534	ug/L	50.0	05/05/19 19:37	
PA 8260B	o-Xylene	88.6	ug/L	25.0	05/05/19 19:37	
2427153010	MW 10					
PA 8260B	Benzene	56.3	ug/L	25.0	05/07/19 02:48	
PA 8260B	Ethylbenzene	601	ug/L	25.0	05/07/19 02:48	
PA 8260B	Naphthalene	381	ug/L	25.0	05/07/19 02:48	
PA 8260B	Toluene	14.8J	ug/L	25.0	05/07/19 02:48	
PA 8260B	Xylene (Total)	984	ug/L	25.0	05/07/19 02:48	
PA 8260B	m&p-Xylene	850	ug/L	50.0	05/07/19 02:48	
PA 8260B	o-Xylene	133	ug/L	25.0	05/07/19 02:48	
2427153011	MW 11					
PA 8260B	Benzene	190	ug/L	62.5	05/05/19 09:27	
PA 8260B	Ethylbenzene	1760	ug/L	62.5	05/05/19 09:27	M1
PA 8260B	Naphthalene	839	ug/L	62.5	05/05/19 09:27	M1
PA 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
PA 8260B	m&p-Xylene	3880	ug/L	125	05/05/19 09:27	M1
PA 8260B	o-Xylene	1450	ug/L	62.5	05/05/19 09:27	M1
2427153015	CK 3					
PA 8260B	Toluene	4.3J	ug/L	5.0	05/05/19 03:00	





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.

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.

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:





PROJECT NARRATIVE

Project:

Nickel Pumper 233 04878/58977

Pace Project No.:

92427153

Method:

EPA 8260B Description: 8260 MSV **SCDHEC**

Client: 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.

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

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





PROJECT NARRATIVE

Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Method:

EPA 8260B

Client:

Description: 8260 MSV **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.



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 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL.	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ition Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.011	1	05/03/19 08:27	05/05/19 15:55	106-93-4	
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 8	260B						
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	
ert-Butyl Alcohol	ND	ug/L	5000	4550	50		05/07/19 05:15	75-65-0	
ert-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
n&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 50				
Toluene-d8 (S)	101	% :: '	70-130		50 50		05/07/19 05:15		



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: MW 2	Lab ID:	9242715300	2 Collected	i: 04/26/19	9 14:25	Received: 04/	29/19 09:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA	8011 Prepar	ation Meth	od: EPA	A 8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 16:14	106-93-4	
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	
ert-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 Surrogates	62.2	ug/L	10.0	4.1	2		05/07/19 01:53	95-47-6	
4-Bromofluorobenzene (S)	99	%	70-130	5.7 1.20	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	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: MW 3R	Lab ID:	92427153003	Collected	1: 04/26/19	9 12:40	Received: 04/	29/19 09:50 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND .	ug/L	0.019	0.011	1	05/03/19 08:27	05/05/19 16:32	106-93-4	
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 8	260B						
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	
ert-Butyl Alcohol	ND	ug/L	500	455	5		05/05/19 19:37	75-65-0	
ert-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	
Kylene (Total)	623	ug/L	25.0	25.0	5		05/05/19 19:37	1330-20-7	
n&p-Xylene	534	ug/L	50.0	20.6	5		05/05/19 19:37	179601-23-1	
o-Xylene Suggested	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		
Toluene-d8 (S)	76	%	70-130		5		05/05/19 19:37		



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Date: 05/07/2019 04:50 PM

Sample: MW 4	Lab ID:	92427153004	Collected	: 04/26/19	9 12:30	Received: 04/	29/19 09:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 16:51	106-93-4	
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 8	260B						
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	9 .	1		05/05/19 02:23		
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		05/05/19 02:23		
Toluene-d8 (S)	103	%	70-130		1		05/05/19 02:23	2037-26-5	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: MW 5	Lab ID:	9242715300	5 Collected	I: 04/26/19	9 12:55	Received: 04/	29/19 09:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
3011 GCS EDB and DBCP	Analytical	Method: EPA	8011 Prepar	ation Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.011	1	05/03/19 08:27	05/05/19 17:09	106-93-4	
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						
ert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 02:42	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 02:42	75-65-0	
ert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 02:42	762-75 -4	
,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	
loluene	ND	ug/L	5.0	2.0	1		05/05/19 02:42	108-88-3	
(ylene (Total)	ND	ug/L	5.0	5.0	1		05/05/19 02:42	1330-20-7	
n&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 02:42	179601-23-1	
-Xylene Surrogates	ND	ug/L	5.0	2.0	1		05/05/19 02:42	95-47-6	
1-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	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: MW 6	Lab ID:	92427153006	Collected	1: 04/26/1	9 14:11	Received: 04/	29/19 09:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Meth	od: EP/	A 8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.011	1	05/03/19 08:27	05/05/19 17:27	106-93-4	
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 8	3260B						
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 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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 04:14	75-65-0	
ert-Butyl Formate	ND	ug/L	50.0	24.1	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	
Kylene (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	
-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 04:14	95-47-6	
Surrogates	. 464	0/	70.400				05/05/40 04:44	400.00.4	
4-Bromofluorobenzene (S)	101	%	70-130	ia i] .		05/05/19 04:14		
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		05/05/19 04:14		
Toluene-d8 (S)	103	%	70-130		1		05/05/19 04:14	2037-26-5	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

							atrix: Water	
		Report						
Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical	Method: EPA	3011 Prepar	ation Metho	od: EPA	8011			
ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 17:46	106-93-4	
104	%	60-140		1	05/03/19 08:27	05/05/19 17:46	301-79-56	
Analytical	Method: EPA	3260B						
ND.	ug/L	100	65.6	1		05/07/19 01:16	75-85-4	
ND	-	10.0	3.0	1		05/07/19 01:16	994-05-8	
ND		5.0	1.7	1 :		05/07/19 01:16	71-43-2	
ND		100	53.9	1 .		05/07/19 01:16	624-95-3	
ND	-	100	91.0	1		05/07/19 01:16	75-65-0	
ND	ug/L	50.0	24.1	1		05/07/19 01:16	762-75-4	
ND	ug/L	5.0	2.1	1		05/07/19 01:16	107-06-2	
ND	ug/L	5.0	3.5	1		05/07/19 01:16	108-20-3	
ND	ug/L	200	144	1		05/07/19 01:16	64-17-5	
ND.	ug/L	5.0	1.8	1		05/07/19 01:16	100-41-4	
ND	ug/L	10.0	8.5	1		05/07/19 01:16	637-92-3	
ND		5.0	3.1	1		05/07/19 01:16	1634-04-4	
ND	ug/L	5.0	2.1	1		05/07/19 01:16	91-20-3	
ND	ug/L	5.0	2.0	1		05/07/19 01:16	108-88-3	
ND		5.0	5.0	1		05/07/19 01:16	1330-20-7	
.: ND		10.0	4.1	1		05/07/19 01:16	179601-23-1	
ND	ug/L	5.0	2.0	1		05/07/19 01:16	95-47-6	
404		70 420		4		0E/07/10 04:46	460.004	
				1				
93 104	% %	70-130 70-130		1.		05/07/19 01:16		
	Analytical ND 104 Analytical ND ND ND ND ND ND ND ND ND ND ND ND ND	Analytical Method: EPA & ND ug/L 104	Results	Results	Results Units Limit MDL DF Analytical Method: EPA 8011 Preparation Method: EPA ND ug/L 0.020 0.011 1 104 % 60-140 1 Analytical Method: EPA 8260B Analytical Method: EPA 8260B ND ug/L 100 65.6 1 ND ug/L 10.0 3.0 1 ND ug/L 10.0 3.0 1 ND ug/L 5.0 1.7 1 ND ug/L 100 53.9 1 ND ug/L 100 91.0 1 ND ug/L 5.0 24.1 1 ND ug/L 5.0 2.1 1 ND ug/L 5.0 3.5 1 ND ug/L 5.0 3.5 1 ND ug/L 5.0 3.1 1 ND ug/L 5.0 2.1 1	Results	Results	Results



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Date: 05/07/2019 04:50 PM

Sample: MW 8	Lab ID:	92427153008	Collected	l: 04/26/19	9 12:20	Received: 04/	29/19 09:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Meth	od: EPA	8011			
,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 18:04	106-93-4	
-Chloro-2-bromopropane (S)	105	. · . %	60-140		1	05/03/19 08:27	05/05/19 18:04	301-79-56	
3260 MSV	Analytical	Method: EPA 8	260B						
ert-Amyl Alcohol	ND	ug/L	100	65.6	1.		05/05/19 04:32	75-85-4	
ert-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-Dimethyl-1-Butanol	ND	ug/L	100	53.9	· 1		05/05/19 04:32	624-95-3	
ert-Butyl Alcohol	ND	ug/L	100	91.0	- 1		05/05/19 04:32	75-65-0	
ert-Butyl Formate	ND	ug/L	50.0	24.1	1		05/05/19 04:32	762-75-4	
.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 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	
laphthalene	ND	ug/L	5.0	2.1	1		05/05/19 04:32	91-20-3	
l'oluene	ND	ug/L	5.0	2.0	1		05/05/19 04:32	108-88-3	
(ylene (Total)	: ND	ug/L	5.0	5.0	1		05/05/19 04:32	1330-20-7	
n&p-Xylene	ND.	ug/L	10.0	4.1	:1:		05/05/19 04:32	179601-23-1	
-Xylene	ND	ug/L	5.0	2.0	1		05/05/19 04:32	95-47-6	
Surrogates								i ku su wilai	
l-Bromofluorobenzene (S)	104	%	70-130	***	1 1		05/05/19 04:32		
1,2-Dichloroethane-d4 (S)	101	%	70-130		1.		05/05/19 04:32		
Toluene-d8 (S)	101	%	70-130		1 .		05/05/19 04:32	2037-26-5	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: MW 9	Lab ID:	92427153009	Collected	l: 04/26/19	9 12:35	Received: 04/	/29/19 09:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 18:22	106-93-4	
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 8	3260B						
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 S <i>urrogates</i>	ND	ug/L	5.0	2.0	1		05/05/19 03:19	95-47-6	
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	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Date: 05/07/2019 04:50 PM

Sample: MW 10 Parameters	Lab ID:	92427153010	Collected	: 04/26/19 12:50		Received: 04/	29/19 09:50 Ma	latrix: Water	
	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND .	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 18:41	106-93-4	
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 8	260B						
ert-Amyl Alcohol	ND	ug/L	500	328	5		05/07/19 02:48	75-85-4	
ert-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-Dimethyl-1-Butanol	. ND	ug/L	500	270	- 5		05/07/19 02:48	624-95-3	
ert-Butyl Alcohol	ND	ug/L	500	455	5		05/07/19 02:48	75-65-0	
ert-Butyl Formate	ND	ug/L	250	120	5		05/07/19 02:48	762-75-4	
.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	
thanol	. 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	
laphthalene	381	ug/L	25.0	10.4	5		05/07/19 02:48	91-20-3	
oluene	14.8J	ug/L	25.0	10.0	5		05/07/19 02:48	108-88-3	
(ylene (Total)	984	ug/L	25.0	25.0	5		05/07/19 02:48	1330-20-7	
n&p-Xylene	850	ug/L	50.0	20.6	5		05/07/19 02:48	179601-23-1	
-Xylene Surrogates	133	ug/L	25.0	10.2	5		05/07/19 02:48	95-47-6	
l-Bromofluorobenzene (S)	96	%	70-130	* 1.1.	. 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	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: MW 11	Lab ID:	92427153011	Collected	1: 04/26/1	9 12:45	Received: 04/	29/19 09:50 Ma	latrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA	8011 Prepar	ation Meth	od: EPA	N 8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 18:59	106-93-4	
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	and the second
1,2-Dichloroethane-d4 (S)	98	%	70-130		12.5		05/05/19 09:27		
Toluene-d8 (S)	105	%	70-130		12.5		05/05/19 09:27	2037-26-5	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Date: 05/07/2019 04:50 PM

Sample: DW 1 Parameters	Lab ID: 92427153012		Collected: 04/26/19 13:30			Received: 04/29/19 09:50 Matrix: Water			
	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ition Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	05/03/19 08:27	05/05/19 19:18	106-93-4	
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 8	260B						
ert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 03:37	75-85-4	
ert-Amylmethyl ether	ND	ug/L	10.0	3.0	11:		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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 03:37	75-65-0	
ert-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	
Kylene (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		n de la la la la la la la la la la la la la							
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	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: CK 1	Lab ID:	92427153013	Collected	1: 04/26/19	9 12:25	Received: 04/	29/19 09:50 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	05/06/19 12:34	05/07/19 15:12	106-93-4	
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 8	260B						
ert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 02:05	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1 .		05/05/19 02:05	75-65-0	
ert-Butyi Formate	ND	ug/L	50.0	24.1	1		05/05/19 02:05	762-75-4	
I,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	
(Total)	ND	ug/L	5.0	5.0	1		05/05/19 02:05	1330-20-7	
n&p-Xylene	ND	ug/L	10.0	4.1	1		05/05/19 02:05	179601-23-1	
-Xylene	· ND	ug/L	5.0	2.0	1 .		05/05/19 02:05	95-47-6	
Surrogates									
I-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	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: CK 2	Lab ID:	92427153014	Collected:	04/26/1	9 12:30	Received: 04/	29/19 09:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.011	1	05/06/19 12:34	05/07/19 15:32	106-93-4	
1-Chloro-2-bromopropane (S)	97	%	60-140		1 1	05/06/19 12:34	05/07/19 15:32	301-79-56	
8260 MSV	Analytical	Method: EPA 8	3260B						
ert-Amyl Alcohol	ND	ug/L	100	65.6	1		05/05/19 03:55	75-85-4	
ert-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	
ert-Butyl Alcohol	ND :	ug/L	100	91.0	1		05/05/19 03:55	75-65-0	
ert-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	
(ylene (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	
p-Xylene Surrogates	ND.	ug/L	5.0	2.0	i: 1 ::		05/05/19 03:55	95-47-6	
4-Bromofluorobenzene (S)	104	%	70-130		1	11	05/05/19 03:55	460-00-4	
1,2-Dichloroethane-d4 (S)	101	% %	70-130		1		05/05/19 03:55		
Toluene-d8 (S)	101	% · · · · ·	70-130		1		05/05/19 03:55		



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 Ma	ıtrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Metho	d: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	05/06/19 12:34	05/07/19 15:52	106-93-4	
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 8	260B						
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		
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	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: DUP 1	Lab ID:	92427153016	Collected	I: 04/26/19	12:20	Received: 04/	29/19 09:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	3011 Prepar	ation Meth	od: EPA	X 8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.011	1	05/06/19 12:34	05/06/19 19:55	106-93-4	
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 8	3260B						
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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		05/05/19 04:51	75-65-0	
ert-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 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	1 .
o-Xylene S <i>urrogates</i>	ND	ug/L	5.0	2.0	<u>.</u> 1		05/05/19 04:51	95-47-6	
4-Bromofluorobenzene (S)	103	%	70-130		1 -	and the second	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	

(704)875-9092



ANALYTICAL RESULTS

Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: FB	Lab ID	92427153017	7 Collected	1: 04/26/19	14:40	Received: 04/	29/19 09:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
T drumeters						Troparca	- Tridiy200		
8011 GCS EDB and DBCP	Analytica	al Method: EPA	8011 Prepar	ation Metho	d: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.011	. 1	05/06/19 12:34	05/06/19 20:15	106-93-4	
1-Chloro-2-bromopropane (S)	99	%	60-140		1	05/06/19 12:34	05/06/19 20:15	301-79-56	
8260 MSV	Analytica	al 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	
Kylene (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	



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Sample: TB	Lab ID:	92427153018	Collected	1: 04/26/19	9 14:40	Received: 04	/29/19 09:50 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8260 MSV	Analytical	Method: EPA 8	260B						
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 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	



Project:

Nickel Pumper 233 04878/58977

92427153003

Pace Project No.:

92427153

QC Batch:

473112

Analysis Method:

EPA 8260B

QC Batch Method:

EPA 8260B

Analysis Description:

8260 MSV SC

Associated Lab Samples:

METHOD BLANK: 2566122

Matrix: Water

Associated Lab Samples:

Date: 05/07/2019 04:50 PM

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	i: 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	
n&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	
-Xylene	ug/L	· · · ND	5.0	2.0	05/05/19 11:09	
ert-Amyl Alcohol	ug/L	ND	100	65.6	05/05/19 11:09	
ert-Amylmethyl ether	ug/L	ND	10.0	3.0	05/05/19 11:09	
ert-Butyl Alcohol	ug/L	ND	100	91.0	05/05/19 11:09	
ert-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	
(ylene (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						
		Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
1,2-Dichloroethane	ug/L	50	50.3	101	70-130		- Samuel
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		

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.



Project:

Nickel Pumper 233 04878/58977

Pace Project No.:

Date: 05/07/2019 04:50 PM

92427153

LABORATORY CONTROL SAMPLE:	2566123	Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% 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 S	PIKE DUPLIC	ATE: 2567	391		2567392	:						
			MS	MSD								
	9	2427153003	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
1,2-Dichloroethane	ug/L	ND	100	100	98.7	97.4	99	97	70-130	1	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	2000	2000	2050	1890	103	95	70-130	8	30	
Benzene	ug/L	ND	100	100	115	115	107	108	70-130	0	30	
Diisopropyl ether	ug/L	ND	100	100	108	104	108	104	70-130	3	30	
Ethanol	ug/L	ND	4000	4000	4090	3850	102	96	70-130	6	30	
Ethyl-tert-butyl ether	ug/L	ND	200	200	200	195	100	98	70-130	2	30	
Ethylbenzene	ug/L	558	100	100	670	660	112	101	70-130	: 2	30	
m&p-Xylene	ug/L	534	200	200	738	727	102	96	70-130	2	30	
Methyl-tert-butyl ether	ug/L	ND	100	100	110	107	110	107	70-130	3	30	
Naphthalene	ug/L	644	100	100	754	732	110	: 88	70-130	. 3	30	
o-Xylene	ug/L	88.6	100	100	202	200	114	. 112	70-130	1	30	
tert-Amyl Alcohol	ug/L	ND	2000	2000	2130	1990	106	100	70-130	7	30	
tert-Amylmethyl ether	ug/L	ND	200	200	220	216	110	108	70-130	2	30	
tert-Butyl Alcohol	ug/L	ND	1000	1000	1010	946	101	95	70-130	6	30	
tert-Butyl Formate	ug/L	. ND	800	800	781	728	98	91	70-130	7	30	
Toluene	ug/L	ND	100	100	109	110	107	108	70-130	- 1	30	
Xylene (Total)	ug/L	623	300	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			

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.



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

Date: 05/07/2019 04:50 PM

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	e e e e e e e e e e e e e e e e e e e

ABORATORY CONTROL SAMPLE:	2566573					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	50.3	101	70-130	
3-Dimethyl-1-Butanol	ug/L	1000	1100	110	70-130	
enzene	ug/L	50	52.4	105	70-130	
iisopropyl ether	ug/L	50	55.9	112	70-130	
thanol	ug/L	2000	2000	100	70-130	
thyl-tert-butyl ether	ug/L	100	107	107	70-130	
thylbenzene	ug/L	50	50.7	101	70-130	
n&p-Xylene	ug/L	100	101	101	70-130	
lethyl-tert-butyl ether	ug/L	50	58.4	117	70-130	
laphthalene	ug/L	50	52.2	104	70-130	
-Xylene	ug/L	50	49.7	99	70-130	
ert-Amyl Alcohol	ug/L	1000	1110	111	70-130	
ert-Amylmethyl ether	ug/L	100	110	110	70-130	
ert-Butyl Alcohol	ug/L	500	531	106	70-130	
ert-Butyl Formate	ug/L	400	457	114	70-130	
l'oluene	ug/L	50	49.7	99	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.



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Date: 05/07/2019 04:50 PM

LABORATORY CONTROL SAMP	PLE: 2566573	Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% 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 DUP	LICATE: 2566	574		2566575						
			MS	MSD							
		92427153011	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD Qu
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		



Project:

Nickel Pumper 233 04878/58977

Pace Project No.:

92427153

QC Batch:

473206

Analysis Method:

EPA 8260B

QC Batch Method:

Analysis Description:

EPA 8260B

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:

Date: 05/07/2019 04:50 PM

92427153004, 92427153005, 92427153006, 92427153008, 92427153009, 92427153012, 92427153013,

92427153014, 92427153015, 92427153016, 92427153017, 92427153018

		Blank	Reporting			
Parameter	Units	Result	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 III	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 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 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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	

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.



Project:

Nickel Pumper 233 04878/58977

Pace Project No.:

Date: 05/07/2019 04:50 PM

92427153

LABORATORY CONTROL SAMPLE:	2566663	0-11	100	100	0/ D		
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 SP	IKE DUPLIC	CATE: 2567	321		2567322							
			MS	MSD								
	9	2427153016	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
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			



Project:

Nickel Pumper 233 04878/58977

Pace Project No.:

92427153

QC Batch:

473421

Analysis Method:

EPA 8260B

QC Batch Method:

Analysis Description:

EPA 8260B

8260 MSV SC

Associated Lab Samples:

92427153001, 92427153002, 92427153007, 92427153010

METHOD BLANK: 2567585

Matrix: Water

Associated Lab Samples:

Date: 05/07/2019 04:50 PM

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	

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.



Project:

Nickel Pumper 233 04878/58977

Pace Project No.: 92427153

Date: 05/07/2019 04:50 PM

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 SP	IKE DUPLI	ICATE: 2568	800		2568009						
			MS	MSD							
		92427153001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD Qua
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,R
m&p-Xylene	ug/L	4050	2000	2000	5830	8210	89	208	70-130	34	30 M1,R
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,R
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,R
1,2-Dichloroethane-d4 (S)	%						100	98	70-130		
4-Bromofluorobenzene (S)	%						95	98	70-130		
Toluene-d8 (S)	%						100	98	70-130		



Project:

Nickel Pumper 233 04878/58977

Pace Project No.:

92427153

QC Batch:

473057

Analysis Method:

EPA 8011

QC Batch Method: EPA

EPA 8011 Analysis Description:

GCS 8011 EDB DBCP

Associated Lab Samples: 92

92427153001, 92427153002, 92427153003, 92427153004, 92427153005, 92427153006, 92427153007,

92427153008, 92427153009, 92427153010, 92427153011, 92427153012

METHOD BLANK: 2565816

Matrix: Water

Associated Lab Samples:

Date: 05/07/2019 04:50 PM

92427153001, 92427153002, 92427153003, 92427153004, 92427153005, 92427153006, 92427153007,

92427153008, 92427153009, 92427153010, 92427153011, 92427153012

Blank Reporting Parameter Result Limit MDL Units Qualifiers Analyzed 1,2-Dibromoethane (EDB) ug/L ND 0.020 0.011 05/05/19 11:37 1-Chioro-2-bromopropane (S) % 104 60-140 05/05/19 11:37

LABORATORY CONTROL SAMPLE & LCSD: 2565817 2565818 Spike LÇS LCSD LCS LCSD % Rec Max Parameter Units Conc. Result Result % Rec % Rec Limits **RPD RPD** Qualifiers 1,2-Dibromoethane (EDB) 20 ug/L 0.25 0.26 0.25 105 103 60-140 2 1-Chloro-2-bromopropane (S) 60-140 % 106 104

2565820 MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2565821 MS MSD 92427147013 Spike Spike MS MSD MS MSD % Rec Max Parameter Conc. Units Result Conc. Result Result % Rec % Rec Limits **RPD** RPD Qual ND 1,2-Dibromoethane (EDB) ug/L 0.24 0.24 0.26 0.26 108 109 60-140 2 20 1-Chloro-2-bromopropane % 109 109 60-140

SAMPLE DUPLICATE: 2565819 92427147012 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers ug/L 1,2-Dibromoethane (EDB) ND ND 20 104 1-Chloro-2-bromopropane (S) % 107



Project:

Nickel Pumper 233 04878/58977

Pace Project No.:

.. 1

92427153

QC Batch:

473425

Analysis Method:

EPA 8011

QC Batch Method:

EPA 8011

Analysis Description:

Matrix: Water

GCS 8011 EDB DBCP

Associated Lab Samples:

92427153013, 92427153014, 92427153015

METHOD BLANK: 2567622

Associated Lab Samples:

92427153013, 92427153014, 92427153015

		Blank	Reporting			
Parameter	Units	Result	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 & LCS	SD: 2567623		2	567624				:		
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane (S)	ug/L %	0.25	0.25	0.28	100 98	113 113	60-140 60-140	12	20	

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	ATE: 2567	626		2567627						
			MS	MSD							
	92	427147004	Spike	Spike	MS	MSD	MS	MSD	% Rec	Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD 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	%						97	98	60-140		
(S)											

SAMPLE DUPLICATE: 2567625		92427147003	Dup		Max		
Parameter	Units	Result	Result	RPD	RPD	Qualifiers	
1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane (S)	ug/L %	ND 104	ND 99		20		



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:

METHOD BLANK: 2567635

Matrix: Water

Associated Lab Samples:

92427153016, 92427153017

92427153016, 92427153017

Blank Reporting

Result

Limit

MDL Analyzed Qualifiers

1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane (S)

Parameter

Parameter

Units ug/L %

ND 98

0.020 60-140

05/06/19 18:55 0.011 05/06/19 18:55

LABORATORY CONTROL SAMPLE & LCSD:

2567636

2567637 Spike LCS Result Conc. 0.25 0.24

LCSD LCS Result 0.25

LCSD % Rec % Rec % Rec Limits 99

Max **RPD RPD**

Qualifiers

Qual

1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane (S) ug/L %

Result

%

0.048

Units

94 95

97

0.30

60-140 60-140

20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

2567639

2567640

0.28

MSD

97

103

% Rec

Max

1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane

Parameter

Parameter

MS 92427503002 Spike Conc.

MSD Spike Conc.

96

0.24

MS MSD Result Result

MS % Rec

% Rec Limits 101 60-140

103

20

RPD RPD 20

(S)

SAMPLE DUPLICATE:

1,2-Dibromoethane (EDB)

1-Chloro-2-bromopropane (S)

2567638

Units

ug/L

92427503001 Units Result ND ug/L

0.24

Dup Result ND

95

RPD

RPD Qualifiers

60-140

Max

Date: 05/07/2019 04:50 PM

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, without the written consent of Pace Analytical Services, LLC.





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

Date: 05/07/2019 04:50 PM

Analyte concentration exceeded the calibration range. The reported result is estimat	eded the calibration range. The reported result is estimated.	E Analyte concentration exceeded the
--	---	--------------------------------------

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.



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		and the second
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	ТВ	EPA 8260B	473206		

Pace Analytical Company: SC DHE C			is a LEGAL		cal Requ			nt			LAB US		Affix W-	WO# :	924 	12	7153 		Page 40 of 42
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04878

NOV 0 1 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

lat Ward

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 Co	onsultants, In	<u>c</u>	
FROM:	Read Miner			
RE:	Site Specific Work Plan Re	equest		
Facility Name:	Nickelpumper 233			
Permit Number:	<u>04878</u>	MECI CA#:	<u>60605</u>	PACE CA #: 60604
County:	<u>Jasper</u>			
Work To B	e Completed: <u>Submit SSW</u>	P for compre	nensive sampl	ling, monitoring wells and creek
Total Number of	Monitoring Well Samples:			18
	Analysis Being Requested:	A2. BTEXNN 8011	1+Oxyg's+1,2	DCA+Eth(8260B); F1. EDB by EPA
Total Number of	Water Supply Well Samples:			
	Analysis Being Requested:		I+1,2 DCA (52 3260B); N.	24.2); M. 7-OXYGENATES & EDB (504.1)

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.

Project Biologist

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: 0	09
Facility Name: Nickelpumper 233	UST Permi	it #: 04878
Facility Address: 3296 Point South Drive, Yemassee, SC 2	29945	
Responsible Party: Richard Carlson	Phone: 95	51-659-0063
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	
☐ Tier I ☐ Monitoring Well Installar	tion	
Analyses (Please check all that apply)		
Groundwater/Surface Water:		
☑ BTEXNMDCA (8260B) ☐ Lead	☐ BOD	Methane
	A Metals	☐ Ethanol
☑ EDB (8011) ☐ TPH	☐ Sulfate	☐ Dissolved Iron
☐ PAH (8270D) ☐ pH	Other	
Drinking Water Supply Wells:		
	(200.8 245.1 or 245.2)	504.1)
terminal to the second of the	Metals (200.8)	
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☐ BTEXNM ☐ Lead ☐ RCRA Metals	TPH-DRO (3550B/8015	
PAH Oil & Grease (9)	071) TPH-GRO (5030B/8015	5B) ☐ TOC
Air:		
☐ BTEXN		
Sample Collection (Estimate the number of sample	es of each matrix that are expected to be	e collected.)
	r Supply WellsAir	1 Field Blank
14 Monitoring Wells4 Surf	ace Water1 Duplicate	1Trip Blank
Field Screening Methodology		
Estimate number and total completed depth for each	h noint, and include their proposed locati	one on the attached man
# of shallow points proposed:		•
# of deep points proposed:		
Field Screening Methodology:		
Permanent Monitoring Wells		
Estimate number and total completed depth for each	• •	•
# of shallow wells:		
# of deep wells:		
# of recovery wells:	Estimated Footage:	feet per point
Comments, if warranted:		
	100000000000000000000000000000000000000	- Tal 2 - Will

UST Permit #: 04878 F	acility Name:	Nickelpumper 233	
Implementation Schedule (Number of Field Work Start-Up: 11/12/2019 Report Submittal: 1442/2020	calendar days	5 11114 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Aquifer Characterization Pump Test: ☐ Slug Test: ☐ (Check	one and provi	de explanation below for choice)	
			
Investigation Derived Waste Disposal Soil:	_ Tons	Purge Water: 50.0	Gallons
Drilling Fluids:	Gallons	Free-Phase Product:	Gallons
event, etcDuring the initial site visit, monitoring well MW-3, MV	ells to be aband V-4R MW-6, MW-1 overed under piles alyzed for BTEXNI		en located. it
Compliance With Annual Contractor Q	vality Assum	man Plan (ACOAP)	
Yes Laboratory as indicated in ACQAP? Name of Laboratory: SCDHEC Certification Number:	(Yes/No)	If no, indicate laboratory information below.	
N/A Well Driller as indicated in ACQAP? Name of Well Driller: SCLLR Certification Number:		If no, indicate driller information below.	
None Other variations from ACQAP. Plea	se describe be	elow.	
Attachments 1. Attach a copy of the relevant port	ion of the USG	SS topographic map showing the site location.	
must include the following. North Arrow Location of property lines Location of buildings Previous soil sampling locations Previous monitoring well locations Proposed soil boring locations	Proposed r Legend wit Streets or h Location of Location of	curately scaled, but does not need to be surveyed. The monitoring well locations high facility name and address, UST permit number, and highways (indicate names and numbers) fall present and former ASTs and USTs fall potential receptors	·
 Assessment Component Cost Agr 	reement, SCD	HEC Form D-3664	



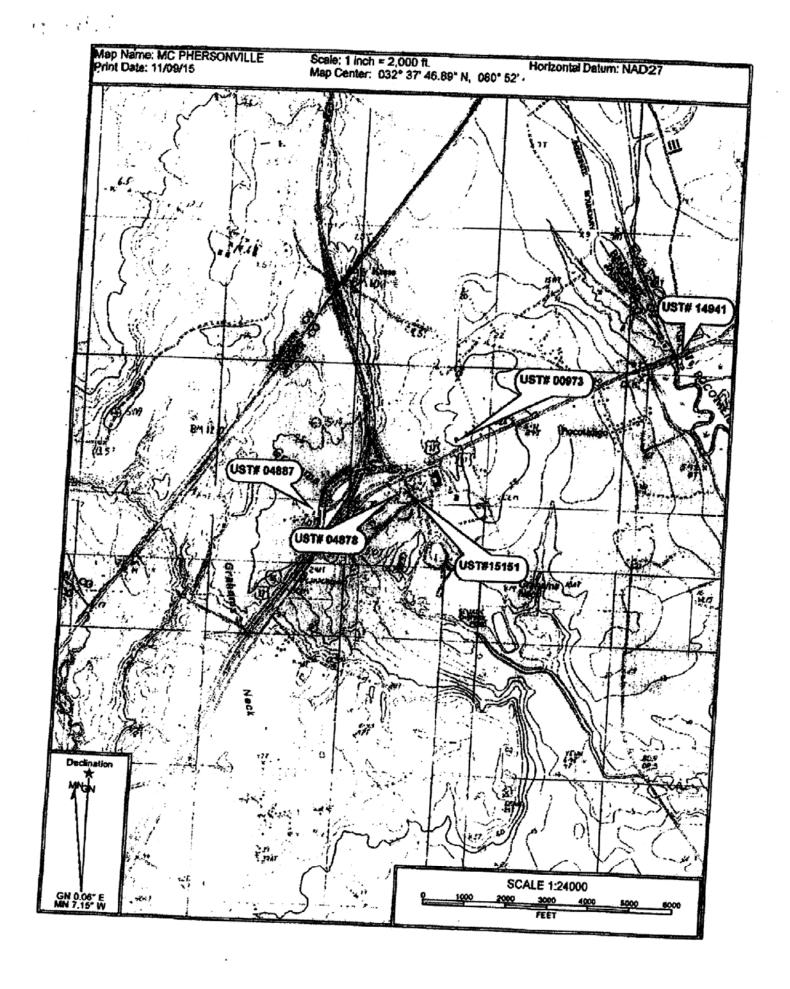
ASSESSMENT COMPONENT COST AGREEMENT SOUTH CAROLINA

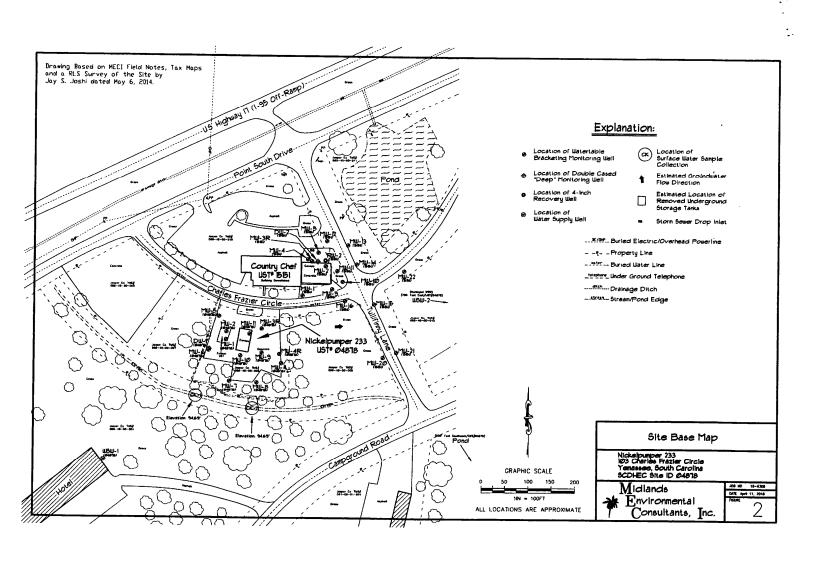
Department of Health and Environmental Control
Underground Storage Tank Management Division
State Underground Petroleum Environmental Response Bank Account
CONTRACT PO NUMBER 4600559329

Facility Name: Nickelpumper 233

UST Permit #: 04878	Cost A	greement #:	Proposal	<u></u>	
ITEM	QUANTITY	UNIT	UNIT PRICE	Τ:	TOTAL
1. Plan*			OMITTAGE		TOTAL
A1. Site Specific Work Plan	1 1	each	\$1.00	,	\$1.00
B1. Tax Map		each	\$1.00	<i>'</i> .	\$0.00
C1. QAPP Appendix B		each	\$1.00		\$0.00
2. A1. Receptor Survey		each	\$1.00	7, 7 %	\$0.00
4. Mob/Demob				Car Sel	\$5.55
B1. Personnel	1	each	\$1.00		\$1.00
10. Groundwater Sample Collection / Gauge Dep	th to Water				V 55
A1. Groundwater Purge	1 1	per well	\$36.50		\$36.50
B1. Air or Vapors		samples	\$1.00	100	\$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 1	each	\$1.00		\$1.00
17. Disposal* (gallons or tons)					
AA. Disposal/Water	50	gallons	\$1.00	٠,	\$50.00
BB. Free Product	ĺ	gallons	\$0.05		\$0.00
Note: Rate includes costs or rental of suitable contain	ner(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









MR BRYAN SHANE PG MIDLANDS ENVIRONMENTAL CONSULTANTS PO BOX 854 LEXINGTON SC 29071 DEC 2 3 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

zachup Luffett

Enc: Approved Cost Agreement (both CAs)

Cc: Angela Baioni, Pace Analytical Services, 9800 Kincey Ave, STE 100, Huntersville, NC, 28078 (w/ CA)

Technical File (w/ Enc)

Approved Cost Agreement

60605

Facility: 04878 NICKELPUMPER 233

GRIFFIZA PO Number:

Task / Description Categories	Item Description	Qty / Pct	Unit Price	<u>Amount</u>
01 PLAN				
	A1 SITE SPECIFIC WORK PLAN	1.0000	\$1.000	1.00
04 MOB/DEMOB			<u> </u>	
	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:

Task / Description Categories	Item Description	Qty / Pct	Unit Price	Amount
11 ANALYSES				_
GW GROUND	WATER A2 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	21.0000	\$21.000	441.00
	F1 EDB BY 8011	20.0000	\$18.000	360.00



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	Х						Х	Х	х	х				
MW-2	X						Х	Х	х	Х		-		
MW-3						Х			İ				-	
MW-3R	Х						х	х	х	х				
MW-4		Х					х	х	х	х			-	
MW-4R		Х					х	х	х	х				
MW-5	х						х	х	х	х				
MW-6		X					x	х	х	х				
MW-7		Х					х	х	х	х				
MW-8		х					х	х	х	х				
MW-9	X						x	х	х	х			···	

Notes: BTEX = Benzene, Toluene, Ethylbenzene, & Total Xylenes

MTBE=Methyl tertiary butyl ether 1,2 DCA = 1,2 Dicloroethane

EDB = Ethylene Dibromide

Sample ID	Purge	No Purge	Gauge Only	Low-Flow Sampling	Not Sampled	Not Located	BTEX, Naphthalenc, 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)
									Ana	lyte Sam	pled		
MW-10		Х					х	Х	х	х			
MW-11	Х						х	х	х	х			
DW-1	Х						х	х	х	Х			
CK-1		Х					х	х	х	х			
CK-2		Х					х	х	х	Х			-
CK-3		Х					х	х	х	х			
CK-4		Х			_		х	x	x	х			
DUP-1(MW-10)							x	х	х	х		-	
Field Blank							х	х	х	х		-	
Trip Blank							х		х	х			
WSW-1			\neg	\neg		х			- 1				
WSW-2		T			х			· -					-
Notes: BTEX = Benzen MTBE=Methyl 1,2 DCA = 1,2 D EDB = Ethylene	tertiary bicloroet	butyl et hane	lbenzen her	e, & Tol	al Xyle	nes		<u> </u>	<u>-</u> -		L.		

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.

Kyle V. Pudney Project Biologist

Attachments:

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	х		
2	Is UST Owner/Operator name, address, & phone number provided?			х
3	Is name, address, & phone number of current property owner provided?			Х
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	х		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			х
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	х		
7	Has the facility history been summarized?	х		
8	Has the regional geology and hydrogeology been described?			х
9	Are the receptor survey results provided as required?			Х
10	Has current use of the site and adjacent land been described?			х
11	Has the site-specific geology and hydrogeology been described?			х
12	Has the primary soil type been described?			х
13	Have field screening results been described?			Х
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			Х
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			х
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	х		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	х		
22	Has the purging methodology been detailed? See MECI SOP	х		··· <u> </u>
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	х		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	х		-
25	Does the report include a brief discussion of the assessment done and the results?			х
26	Does the report include a brief discussion of the aquifer evaluation and results?			Х
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)			х
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			х
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			х
31	Have recommendations for further action been provided and explained?			х
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			х
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)			х
34	Has the current and historical laboratory data been provided in tabular format?			х
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			х
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			х
37	Has the topographic map been provided with all required elements? (Figure 1)	х		
38	Has the site base map been provided with all required elements? (Figure 2)	х		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)			х
40	Has the site potentiometric map been provided? (Figure 5)			х
41	Have the geologic cross-sections been provided? (Figure 6)			х
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			х
43	Has the site survey been provided and include all necessary elements? (Appendix A)			х
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	х		
45	Is the laboratory performing the analyses properly certified?	х		
46	Has the tax map been included with all necessary elements? (Appendix C)			х
47	Have the soil boring/field screening logs been provided? (Appendix D)			х
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			х
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			х
50	Have the disposal manifests been provided? See attached	х	, ,	
51	Has a copy of the local zoning regulations been provided? (Appendix H)		-	Х
52	Has all fate and transport modeling been provided? (Appendix I)			х
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			х
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	х		

Site Activity Summary

UST Permit #:

04878

Facility Name:

Nickelpumper 233

County:

Jasper

Field Personnel:

R. Grosslight, B. Powers



231 Dooley Road, Lexington, SC 29013 (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
MVV-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



231 Dooley Road, Lexington, SC 29013 (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

帝 Envi	ronna.	-									
Cor Field Personnel;	ronmental nsultants, Inc.				Mon	itoring We	1 0				
(E(S):	1/10/2020		_	lah si	An	d Sampling	Data		7.1 00	to)
ampling Case#:	2		_	job Nampi	e: <u>Wiche</u> er: <u>19-71</u>		_	alibration o	$\mathcal{L}_{\mathcal{X}}$		·
Well No.	Purge Sample		_		1-11	41	PH: Condu	Ctivie	Yes of	No (Please	Circle
	Volume Time	pH(i) con	remp.	00	Turbidity		Dissolv Turbidi	ed Oxygen:		No No	
Mu-1	2na 12:09	7.32 82	4 17.1 6 17.1	(mg/l)	(NTU)	Product initial H ₂ O final	Well Dep	th Water Hein	ty Calibrated E	No Yery 3 Months	19DENEM AD VO
•	ard 4th		16.7	1.67	E1.32		Z-5	(1001)	Gallo	ns Purged	Notes
	Sampling 1216	2.44 07				6	12.5	100	1.73		oder
nn-2	111 12:23	7.44 87.		1,62	27.84			0,00	0 12	12	
E	3rd 4th	10%	17.4	1:67	25.43		2	<u> </u>	8.63		
-	Sampling 12:33					0		۱ م	1.70		oder
-3	initial 1at	7.54 104,1	7.6	1.54	28.16	1.6	15	0.		2	
	2nd 3rd	4/1				1-	-		8.48		
-	4th sth	1	POSS	6/2	De	Maxed	2				
,	Initial 10 20	7.49 122.1					12				·
n-3R	2nd 3: 18 7	49 125.2	17.0	2.08	394	+	.				
	4(n) 6(n)				13.81		2				
of Well) - (Depth to	Water = Water Height	52 127. 2	179	\equiv		12	12	0	1.76	_	No
10f 1	TOF 2" Wells	, or * x .66 for 4" well	3, 1,469 m. a.	One Well Vol	6.13	1 - 1		0.	8.79	2	oda
	2 0	allons 1.047		is voi	^{ume} x 5 ≈ Gallon	E Purged (calculated)					
	7 0	.853 .469						Case #2	15H101448 15E101481	90 gw 17E101302 2	Turbingly
	-						-	A 200 B3		14H103098 2 17E103488 2	01301183

ield Personnel: ampling Date(s): ampling Cases:	ironmer Posultan RG 1/10/ 2	ts. Inc.			_	. Job N	ame: Nich.	litoring V	ug Data				
Well No.	Purge	Sample		_		Jop Wn!	mber: 19-7	141	PH: Conc	Calibration Daration Successible Civity:	Yes or	No (Please	Circle
Mu-4	Volume Initial 1st 2nd 3rg 4th	Time M:0 &	1 2.1(1)	90.	Temp. (°C)	DC (mg/	rurbiditu	Product Initial H ₁ O	Disso Turbio that H ₂ 0 (fee	dity: Conductivit ppth Water Heigh (feet)	Yes v Calibrated Ev	NO NO NO NO Pry 3 Months Purged actual	Dy QA Manager Notes
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11-11-12/					¥∕] Yes	[] No		1	\mathbf{v}_{i}	l							US	DA - Headspace Acceptable Y N NA SDA Regulated Soils Y N NA
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Pace Analytical*					•	cal Req				T	···		AB USE	ONLY-	Affix	Work				Here or Lis mber Here	t Pace Workorder Number or
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Customer Remarks / Special Condit	tions / Possible	Hazard	s:	Type of Ice	e Used:	Wet	Blue D	гу М	one		SH	IORT I	HOLDS F	RESEN	IT (<7	2 hou	irs):	Y N	N/A		Lab Sample Temperature Info:
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Pace Analytical*			ISTODY y is a LEGAL					nt			LAB	USE	NLY-	Affix	Work	order, M1	Login JL Log	Label -in Nu	Here or List Imber Here	t Pace Workorder Number or
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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.

A total of 27.00 gallons were treated on January 10, 2020 at the referenced site.

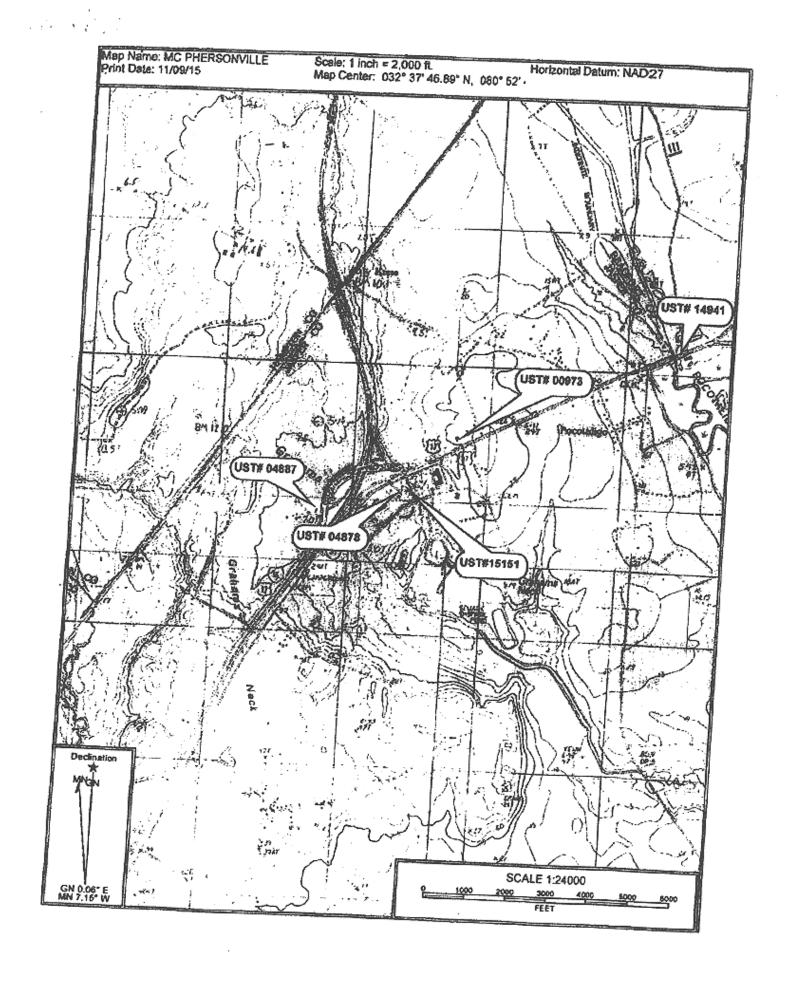
Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

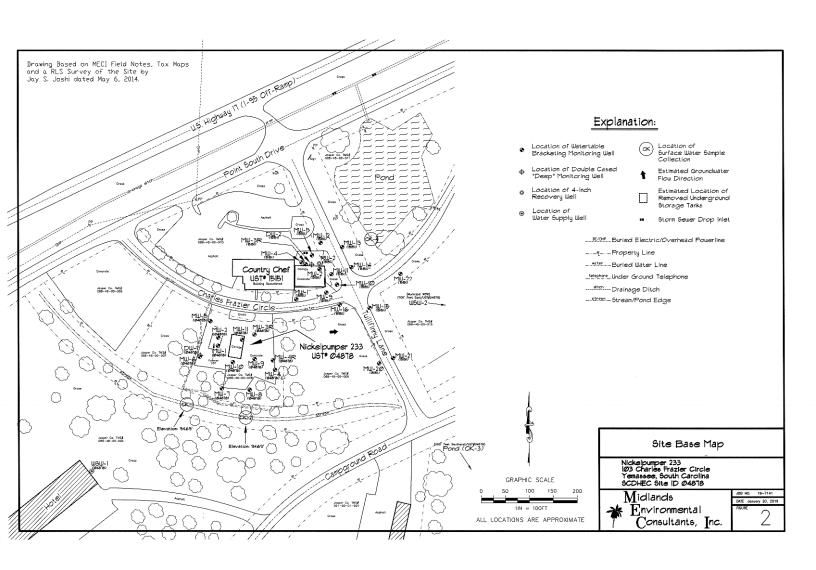
Should you have any questions or comments, please contact the undersigned.

Sincerely,

Midlands Environmental Consultants, Inc.

Kyle V. Pudney Project Biologist









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.

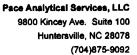
Sincerely,

angela M. Baioni

Angela Baioni angela.baioni@pacelabs.com (704)875-9092 Project Manager

Endosures







CERTIFICATIONS

Project:

Nickel Pumper 233 04878/60604

Pace Project No.:

92460409

Pace Analytical Services Charlotte

9800 Kincey 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:

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	8 WM	Water	01/10/20 11:53	01/10/20 16:45
92460409010	e wm	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	ТВ	Water	01/10/20 08:00	01/10/20 16:45



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 8200B	CL -	- 20	FASI-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	CK4		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

2.11



SUMMARY OF DETECTION

Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Lab Sample ID	Client Sample ID					
Method	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	
2460409002	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	
2460409005	MW 4R					
EPA 8260D	Naphthalene	2.7J	ug/L	5.0	01/15/20 17:56	
2460409011	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-8230D	- Naphthalene	337	ug/L	20.0	01/15/20 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	
2460409012	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	

REPORT OF LABORATORY ANALYSIS



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.

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.

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:



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:

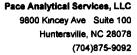
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

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





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.



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 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 02:49	106-93-4	
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 8	3260D						
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	
ert-Butyl Alcohol	ND	ug/L	4000	3640	40		01/16/20 09:05	75-65-0	
ert-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	-							*-1	٠.
4-Bromofluorobenzene (S)	100	%	70-130	•	40		01/16/20 09:05		•
1,2-Dichloroethane-d4 (S)	94	%	70-130		40		01/16/20 09:05		
Toluene-d8 (S)	98	%	70-130		40		01/16/20 09:05	2037-26-5	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: MW 2	Lab ID:	92460409002	Collected	d: 01/10/20	12:33	Received: 01/	10/20 16:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qu
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ration Metho	d: EP/	A 8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 03:49	106-93-4	
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 8	260D						
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	30	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	21	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		74		01/15/20 20:38		
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		01/15/20 20:38		
Toluene-d8 (S)	99	%	70-130		1		01/15/20 20:38	2037-26-5	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: MW 3R	Lab ID:	92460409003	Collected	I: 01/10/20	13:26	Received: 01/	10/20 16:45 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 04:01	106-93-4	
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 8	3260D						
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 18:14	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 18 14	75-65-0	v 2
ert-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- 9 2-3	
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	
Kylene (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		
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		
1,2-Dichloroethane-d4 (S)	91	%	70-130		1		01/15/20 18:14		
Toluene-d8 (S)	101	%	70-130		1		01/15/20 18:14	2037-26-5	



Project:

23 cm - 1

Date: 01/17/2020 04:38 PM

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 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 04:25	106-93-4	
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 8	260B						
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	50	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	ИD	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 -4 1- 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		
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		01/14/20 22 13		
Toluene-d8 (S)	113	%	70-130		1		01/14/20 22:13	2037-26-5	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Parameters R 8011 GCS EDB and DBCP 1,2-Dibromoethane (EDB) Surrogates 1-Chloro-2-bromopropane (S) tert-Amyl Alcohol tert-Amylmethyl ether Benzene 3,3-Dimethyl-1-Butanol tert-Butyl Alcohol tert-Butyl Formate 1,2-Dichloroethane	Results	Units	Report Limit						
1,2-Dibromoethane (EDB) Surrogates 1-Chloro-2-bromopropane (S) tert-Amyl Alcohol tert-Amylmethyl ether Benzene 3,3-Dimethyl-1-Butanol tert-Butyl Alcohol tert-Butyl Formate	A 1 1			MDL	DF	Prepared	Analyzed	CAS No.	Qua
Surrogates 1-Chloro-2-bromopropane (S) ert-Amyl Alcohol tert-Amylmethyl ether Benzene 3,3-Dimethyl-1-Butanol tert-Butyl Alcohol tert-Butyl Formate	Analytical	Method: EPA 8	011 Prepar	ation Meth	od: EPA	8011			
tert-Amyl Alcohol tert-Amylmethyl ether Benzene 3,3-Dimethyl-1-Butanol tert-Butyl Alcohol tert-Butyl Formate	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 05:01	106-93-4	
tert-Amylmethyl ether Benzene 3,3-Dimethyl-1-Butanol tert-Butyl Alcohol tert-Butyl Formate	92	%	60-140		1	01/15/20 07:56	01/16/20 05:01	301-79-56	
tert-Amylmethyl ether Benzene 3,3-Dimethyl-1-Butanol tert-Butyl Alcohol tert-Butyl Formate	Analytical	Method: EPA 8	260D						
Benzene 3,3-Dimethyl-1-Butanol tert-Butyl Alcohol tert-Butyl Formate	ND	ug/L	100	65.6	1		01/15/20 17:56	75-85-4	
3,3-Dimethyl-1-Butanol tert-Butyl Alcohol tert-Butyl Formate	ИD	ug/L	10.0	3.0	1		01/15/20 17:56	994-05-8	
ert-Butyl Alcohol ert-Butyl Formate	ND	ug/L	5.0	1.7	1		01/15/20 17:56	71-43-2	
ert-Butyl Formate	ND	ug/L	100	53.9	1		01/15/20 17:56	624-95-3	
	ND	ug/L	100	91.0	1		01/15/20 17:56	75-65-0	v2
1.2-Dichloroethane	ND	ug/L	50.0	24.1	1		01/15/20 17:56	762-75-4	
-,	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	
Kylene (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	
p-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 17:56	95-47-6	
Surrogates	00	- 0/	70 400 ~				04/47/00:47.60	400.00.4	· ·
4-Bromofluorobenzene (S)	98	· %	70-130		11		01/15/2017:56		
1,2-Dichloroethane-d4 (S) Toluene-d8 (S)	94 101	% %	70-130 70-130		1		01/15/20 17:56 01/15/20 17:56		



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 M	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 05:13	106-93-4	
1-Chloro-2-bromopropane (S)	89	%	60-140		1	01/15/20 07:56	01/16/20 05:13	301-79-56	
	Analytica	Method: EPA 8	260D						
tert-Amyi 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	v 2
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	35	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		
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		01/15/20 17:38		
Toluene-d8 (S)	101	%	70-130		1		01/15/20 17:38	2037-26-5	



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 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
3011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	0.011	1	01/15/20 07:56	01/16/20 05:24	106-93-4	
1-Chloro-2-bromopropane (S)	86	%	60-140		1	01/15/20 07:56	01/16/20 05:24	301-79-56	
3260 MSV	Analytical	Method: EPA 8	260B						
ert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 02:27	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 02:27	75-65-0	
ert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 02:27	762-75-4	L1
,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	
(ylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 02:27	1330-20-7	
n&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 02:27	179601-23-1	
-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 02:27	95-47-6	
Surrogates									
I-Bromofluorobenzene (S)	107	%	70-130	• • • •	1	-	01/15/20 02:27		
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	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: MW 7	Lab ID:	92460409008	Collected	i: 01/10/20	11:46	Received: 01/	10/20 16:45 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
3011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 05:36	106-93-4	
1-Chloro-2-bromopropane (S)	91	%	60-140		1	01/15/20 07:56	01/16/20 05:36	301-79-56	
3260 MSV	Analytical	Method: EPA 8	260B						
ert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 02:45	75-85 -4	
ert-Amylmethyl ether	ND	ug/L	10.0	3.0	1		01/15/20 02:45	994-05-8	
Benzene	ND	υg/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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 02:45	75-65-0	
ert-Butyl Formate	ND	ug/L	50.0	24.1	1		01/15/20 02:45	762-75-4	L1
,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	35	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	18	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	
l'oluene	ND	ug/L	5.0	2.0	1		01/15/20 02:45	108-88-3	
(Yolene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 02:45	1330-20-7	
n&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 02:45	179601-23-1	
p-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 02:45	95-47-6	
Surrogates									
FBromofluorobenzene (S) 🍈 "	108	%	70-130		Ť	• •	01/15/20 02:45		
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		01/15/20 02:45		
Toluene-d8 (S)	107	%	70-130		1		01/15/20 02:45	2037-26-5	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: MW 8	Lab ID:	92460409009	Collected	I: 01/10/20	11:53	Received: 01/	10/20 16:45 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 05:48	106-93-4	
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 8	260B						
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 03:02	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 03:02	75-65-0	
ert-Butyl Formate	ND	ug/L	50.0	24 .1	1		01/15/20 03:02	762-75-4	L1
I,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		
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		01/15/20 03:02		
Toluene-d8 (S)	104	%	70-130		1		01/15/20 03:02	2037-26-5	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Date: 01/17/2020 04:38 PM

Sample: MW 9	Lab ID:	92460409010	Collected	d: 01/10/20	11:50	Received: 01/	/10/20 16:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Metho	od: EPA	A 8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 06:00	106-93-4	
1-Chloro-2-bromopropane (S)	89	%	60-140		1	01/15/20 07:56	01/16/20 06:00	301-79-56	
	Analytica	Method: EPA 8	260D						
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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 17:20	75-65-0	v2
ert-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-Bromotiuorobenzene (S)	99	%	70-130		7		01/15/20 17:20		•
1,2-Dichloroethane-d4 (S)	93	%	70-130		1		01/15/20 17:20		
Toluene-d8 (S)	99	%	70-130		1		01/15/20 17.20	2037-26-5	

REPORT OF LABORATORY ANALYSIS " -



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: MW 10 Parameters	Lab ID:	92460409011	Collected	01/10/20 12:00		Received: 01/	10/20 16:45 Ma	Matrix: Water	
	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
3011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 06:12	106-93-4	
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 8	260D						
ert-Amyl Alcohol	ND	ug/L	400	262	4		01/16/20 05:43	75-85-4	
ert-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-Dimethyl-1-Butanol	ND	ug/L	400	216	4		01/16/20 05:43	624-95-3	
ert-Butyl Alcohol	ND	ug/L	400	364	4		01/16/20 05:43	75-65-0	
ert-Butyl Formate	ND	ug/L	200	96 4	4		01/16/20 05:43	762-75-4	
,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 Toluene	18.5J	ug/L	20.0	8.0	4		01/16/20 05:43	108-88-3	
Kylene (Total)	853	ug/L	20.0	20.0	4		01/16/20 05:43	1330-20-7	
n&p-Xylene	714	ug/L	40.0	16.4	4		01/16/20 05:43	179601-23-1	
p-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		
1,2-Dichloroethane-d4 (S)	94	%	70-130		4		01/16/20 05:43		
Toluene-d8 (S)	102	%	70-130		4		01/16/20 05:43	2037-26-5	



Project:

A CONTRACT OF THE CONTRACT

Date: 01/17/2020 04:38 PM

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 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytica	Method: EPA 8	011 Prepara	ition Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 06:24	106-93-4	
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 8	260D						
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	204	10		01/16/20 08:10	95-47-6	
Surrogates								_	. .
4-Bromofluorobenzene (S)	94	%	70-130		10		01/16/20 08:10		
1,2-Dichloroethane-d4 (S)	91	%	70-130		10		01/16/20 08:10		
Toluene-d8 (S)	100	%	70-130		10		01/16/20 08:10	2037-26-5	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Date: 01/17/2020 04:38 PM

Sample: DW 1	Lab ID:	92460409013	Collected	d: 01/10/20	11:32	Received: 01/	10/20 16:45 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepa	ration Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 06:36	106-93-4	
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 8	260B						
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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 03:19	75-65-0	
ert-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	
Kylene (Total)	ND	ug/L	50	5.0	1		01/15/20 03:19	1330-20-7	
n&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 03:19	179601-23-1	
p-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 03:19	95-47-6	
Surrogates			_						1
-Bromofluorobenzene (S)	107	%	70-130		11 1		01/15/20 03:19		
1,2-Dichloroethane-d4 (S)	107	%	70-130		1		01/15/20 03:19		
Toluene-d8 (S)	106	%	70-130		1		01/15/20 03:19	2037-26-5	



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 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF_	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytica	Method: EPA 8	011 Prepar	ation Methe	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.012	1	01/15/20 07:56	01/16/20 06:48	106-93-4	
1-Chloro-2-bromopropane (S)	88	%	60-140		1	01/15/20 07:56	01/16/20 06:48	301-79-56	
8260 MSV	Analytica	l Method: EPA 8	3260B						
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	50	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-Bromoffuorobenzene (5)	101 ··· 1	%	70-130		1	~. <i>r</i>	01/14/20 22:31		
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		01/14/20 22:31		
Toluene-d8 (S)	110	%	70-130		1		01/14/20 22:31	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Land Contract



Project:

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Date: 01/17/2020 04:38 PM

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: CK 2	Lab ID:	92460409015	Collected	1: 01/10/20	13:40	Received: 01/	10/20 16:45 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepar	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0 021	0.012	1	01/15/20 07:56	01/16/20 07:00	106-93-4	
1-Chloro-2-bromopropane (S)	90	%	60-140		1	01/15/20 07:56	01/16/20 07:00	301-79-56	
B260 MSV	Analytical	Method: EPA 8	3260B						
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/14/20 22:49	75-85-4	
ert-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	
ert-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	21	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-Bromofluorobenzenė (S)	101	%	70-130	,	`~1 ~		01/14/20 22:49		
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	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Date: 01/17/2020 04:38 PM

Sample: CK 3	Lab ID:	92460409016	Collected	: 01/10/20	13:35	Received: 01/	10/20 16:45 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No	Qua
raianicicis		Office .				- Toparco	- Tildiy200		
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	3011 Prepara	ation Meth	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 07:12	106-93-4	
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 8	3260B						
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/14/20 23:08	75-85- 4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/14/20 23:08	75-65-0	
ert-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	18	1		01/14/20 23:08	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	85	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-Bromofluoroberizene (S) " " " " " " " " " " " " " " " " " " "	102	%	70-130		1	της n .,n	01/14/20123:08		• •
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		01/14/20 23:08		
Toluene-d8 (S)	102	%	70-130		1		01/14/20 23.08	2037-26-5	



Project:

Color Strain

Date: 01/17/2020 04:38 PM

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 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	ation Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.021	0.012	1	01/15/20 07:56	01/16/20 07:24	106-93-4	
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 8	260B						
tert-Amyl Alcohol	ND	ug/L	100	65.6	1		01/15/20 03:37	75-85 -4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 03:37	75-65-0	
ert-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	
(ylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 03:37	1330-20-7	
n&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 03:37	179601-23-1	
o-Xylene Surrogates	ND	ug/L	5.0	2.0	1		01/15/20 03:37	95-47-6	
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	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Date: 01/17/2020 04:38 PM

Sample: DUP	Lab ID:	92460409018	Collected:	01/10/20	12:00	Received: 01/	10/20 16:45 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	011 Prepara	tion Methe	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 07:36	106-93-4	
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	3260D						
tert-Amyl Alcohol	ND	ug/L	400	262	4		01/16/20 06:20	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	400	364	4		01/16/20 06:20	75-65-0	
ert-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		
1,2-Dichloroethane-d4 (S)	93	%	70-130		4		01/16/20 06:20		
Toluene-d8 (S)	104	%	70-130		4		01/16/20 06:20	2037-26-5	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Date: 01/17/2020 04:38 PM

Sample: FB	Lab ID:	92460409019	Collecte	d: 01/10/20	13:50	Received: 01/	10/20 16:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	3011 Prepar	ration Metho	od: EPA	8011			
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	0.011	1	01/15/20 07:56	01/16/20 07:48	106-93-4	
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	3260B						
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-Dimethyt-1-Butanol	ND	ug/L	100	53.9	1		01/15/20 07:40	624-95-3	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		01/15/20 07:40	75-65-0	
ert-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	21	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	
Kylene (Total)	ND	ug/L	5.0	5.0	1		01/15/20 07:40	1330-20-7	
n&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,	-	-							
I-Bromofluorobenzene (S)	·· / 101	%	70-130		· 1 ·	Managara Ayri	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	



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Sample: TB	Lab ID:	92460409020	Collected:	01/10/20	00:80	Received: 01	I/10/20 16:45 M	latrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8260 MSV	Analytical	Method: EPA 8	260B						
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		
Benzene	ND	ug/L	5.0	1.7	1		01/15/20 07:58	3 71 -4 3-2	
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	3 762-75 -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	3 108-20-3	
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	3 100-41-4	
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	3 1634-04-4	
Naphthalene	ND	ug/L	5.0	2.1	1		01/15/20 07:58	3 91-20-3	
Toluene	ND	ug/L	5.0	2.0	1		01/15/20 07:58	3 108-88-3	
Xylene (Total)	ND	ug/L	50	5.0	1		01/15/20 07:58	3 1330-20-7	
m&p-Xylene	ND	ug/L	10.0	4.1	1		01/15/20 07:58	3 179601-23-1	
o-Xylene	ND	ug/L	5.0	2.0	1		01/15/20 07:58	3 95-47 <i>-</i> 6	
Surrogates		-							
4-Bromofluorobenzene (S)	100	%	70-130		1		01/15/20 07:58		
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		01/15/20 07:58		
Toluene-d8 (S)	101	%	70-130		1		01/15/20 07:58	3 2037-26-5	

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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:

Date: 01/17/2020 04:38 PM

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 d3 (6)	%	. 101	70-130		01/45/20 14:39~	*

ABORATORY CONTROL SAMPLE:	2780559					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
,2-Dichloroethane	ug/L	50	45.9	92	70-130	
3-Dimethyl-1-Butanol	ug/L	1000	1050	105	70-130	
nzene	ug/L	50	50.8	102	70-130	
isopropyl ether	ug/L	50	47.4	95	70-130	
nanol	ug/L	2000	2150	108	70-130	
nyl-tert-butyl ether	ug/L	100	91.8	92	70-130	
nylbenzene	ug/L	50	49.8	100	70-130	
p-Xylene	ug/L	100	101	101	70-130	
thyl-tert-butyl ether	ug/L	50	47.8	96	70-130	
phthalene	ug/L	50	58.0	116	70-130	
(ylene	ug/L	50	49.8	100	70-130	
-Amyl Alcohol	ug/L	1000	1020	102	70-130	
-Amylmethyl ether	ug/L	100	101	101	70-130	
-Butyl Alcohol	ug/L	500	392	78	70-130 v	3
-Butyl Formate	ug/L	400	410	102	70-130	
uene	ug/L	50	48.3	97	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



Project:

Nickel Pumper 233 04878/60604

Pace Project No.:

Date: 01/17/2020 04:38 PM

92460409

LABORATORY CONTROL SAMPLE:	2780559	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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 SP	IKE DUPL	ICATE: 2780	560		2780561							
			MS	MSD								
		92460374003	Spike	Spike	MS	MŞD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
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	3 9 -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	500	פא .	ND	0	e	10-170		30	.IK,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			



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

Date: 01/17/2020 04:38 PM

Associated Lab Samples: 92460409001, 92460409011, 92460409012, 92460409018

		Blank	Reporting			
Parameter	Units	Result	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	
thylbenzene	ug/L	ND	5.0	1.8	01/16/20 03:54	
n&p-Xylene	ug/L	ND	10.0	4.1	01/16/20 03:54	
lethyl-tert-butyl ether	ug/L	ND	5.0	3.1	01/16/20 03:54	
laphthalene	ug/L	ND	5.0	2.1	01/16/20 03:54	
-Xylene	ug/L	ND	5.0	2.0	01/16/20 03:54	
ert-Armyl Alcohol	ug/L	ND	100	65.6	01/16/20 03:54	
ert-Amylmethyl ether	ug/L	ND	10.0	3.0	01/16/20 03:54	
ert-Butyl Alcohol	ug/L	ND	100	91.0	01/16/20 03:54	
ert-Butyl Formate	ug/L	ND	50.0	24 .1	01/16/20 03:54	
oluene	ug/L	ND	5.0	2.0	01/16/20 03:54	
(ylene (Total)	ug/L	ND	5.0	5.0	01/16/20 03:54	
,2-Dichloroethane-d4 (S)	%	96	70-130		01/16/20 03:54	
-Bromofluorobenzene (S)	%	100	70-130		01/16/20 03:54	
foluenc-d8-(S)	· %	100	70-130	·	01/46/20 03:54	معونه ولا دها

BORATORY CONTROL SAMPLE:	2780588			•		
		Spik e	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
2-Dichloroethane	ug/L	50	45.9	92	70-130	
3-Dimethyl-1-Butanol	ug/L	1000	967	97	70-130	
nzene	ug/L	50	49.0	98	70-130	
sopropyl ether	ug/L	50	52.0	104	70-130	
anol	ug/L	2000	1910	96	70-130	
yl-tert-butyl ether	ug/L	100	94.5	94	70-130	
ylbenzene	ug/L	50	48.7	97	70-130	
o-Xylene	ug/L	100	97.1	97	70-130	
hyl-tert-butyl ether	ug/L	50	49.4	99	70-130	
hthalene	ug/L	50	48.1	96	70-130	
/lene	ug/L	50	48.8	98	70-130	
Amyl Alcohol	ug/L	1000	923	92	70-130	
-Amylmethyl ether	ug/L	100	97.9	98	70-130	
Butyl Alcohol	ug/L	500	450	90	70-130	
Butyl Formate	ug/L	400	434	109	70-130	
uene .	ug/L	50	47.0	94	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



Project:

22.2,..

Date: 01/17/2020 04:38 PM

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

LABORATORY CONTROL SAMPLE:	2780588	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Xylene (Total)	ug/L	150	146	97	70-130	
,2-Dichloroethane-d4 (S)	%			100	70-130	
-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SF	IKE DUPL	ICATE: 2780	589		2780590							
December	l leite	92460360002	MS Spike	MSD Spike	MS	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Parameter	Units	Result	Conc.	Conc.	Result							- Quai
1,2-Dichloroethane	ug/L	ND	4000	4000	3930	4110	98	103	70-137	5		
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/Ŀ	. NO	32000	32000	24000	32900	75	103	10-170	31	. 30,	Ritt.
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			



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

Date: 01/17/2020 04:38 PM

Associated Lab Samples: 92460409019, 92460409020

Associated Lab Camples. 9	2400408018, 82400408020					
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	_	ND	100	53.9	01/15/20 02:47	
_ ·	ug/L					
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	50	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		-01/4/5/20 02:47-	and the second of

ABORATORY CONTROL SAMPLE	2779428					
		Spik e	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Dichloroethane	ug/L	50	54.9	110	70-130	
methyi-1-Butanol	ug/L	1000	1200	120	70-130	
ne	ug/L	50	59.2	118	70-130	
opyl ether	ug/L	50	61.3	123	70-130	
ol	ug/L	2000	2260	113	70-130	
ert-butyl ether	ug/L	100	113	113	70-130	
enzene	ug/L	50	57.5	115	70-130	
ylene	ug/L	100	114	114	70-130	
-tert-butyl ether	ug/L	50	59.5	119	70-130	
alene	ug/L	50	59.9	120	70-130	
ne	ug/L	50	57.2	114	70-130	
myl Alcohol	ug/L	1000	1160	116	70-130	
nylmethyl ether	ug/L	100	121	121	70-130	
tyl Alcohol	ug/L	500	561	112	70-130	
tyl Formate	ug/L	400	515	129	70-130	
ne	ug/L	50	58.2	116	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



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

LABORATORY CONTROL SAMPLE:	2779428	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Xylene (Total)	ug/L	150	171	114	70-130	
1,2-Dichloroethane-d4 (S)	_5 %			100	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SP	IKE DUPLI	CATE: 2779	429		2779430							
			MS	MSD				4400	0/ Daa		Max	
	,	92460357002	Spike	Spike	MS	MSD	MS	MSD	% Rec	000	RPD	امداما
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	 -	Qual
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		
tert-Amylmethyl ether	ug/L	ND	40	40	44.5	47.2	111	118	70-130			
tert-Butyl Alcohol	· ug/L	ND	200	200	263	294	131	147			30	
tert Buty! Formate	ug/L	- ~ ND	460	- 160	116	100	. 72	. 63			30	P5
Toluene	ug/L	ND	20	20	22.2	23.8	111	119	70-130		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			



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: METHOD BLANK: 2779459

92460409004, 92460409014, 92460409015, 92460409016

Associated Lab Samples:

Date: 01/17/2020 04:38 PM

92460409004 92460409014 92460409015 92460409016

Associated Lab Samples. 92400409	100 4 , 92400409014	Blank	Reporting			
Parameter	Units	Result	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	П	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)	- %-i i		79-130	-	04/14/20 16:07	e alian a managara da magan e i a gama a

ABORATORY CONTROL SAMPLE	2779460					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
2-Dichloroethane	ug/L	50	48.9	98	70-130	
-Dimethyl-1-Butanol	ug/L	1000	1040	104	70-130	
zene	ug/L	50	51.6	103	70-130	
opropyl ether	ug/L	50	53.6	107	70-130	
anol	ug/L	2000	2000	100	70-130	
/l-tert-butyl ether	ug/L	100	98.9	99	70-130	
ylbenzene	ug/L	50	51.0	102	70-130	
-Xylene	ug/L	100	104	104	70-130	
yl-tert-butyl ether	ug/L	50	52.6	105	70-130	
hthalene	ug/L	50	52.1	104	70-130	
lene	ug/L	50	51.3	103	70-130	
Amyl Alcohol	ug/L	1000	997	100	70-130	
-Amylmethyl ether	ug/L	100	103	103	70-130	
-Butyl Alcohol	ug/L	500	486	97	70-130	
-Butyl Formate	ug/L	400	424	106	70-130	
uene	ug/L	50	49.6	99	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



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

LABORATORY CONTROL SAMPLE:	2779460	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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 SF	IKE DUPL	ICATE: 27794	61		2779462							
			MS	MSD								
		92460409004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
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	МD	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	
	· -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			



Project:

Nickel Pumper 233 04878/60604

Pace Project No.:

92460409

QC Batch:

519307

QC Batch Method:

Analysis Method:

EPA 8260B

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		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	50	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)	%	··· 404	70-130	· .	01/14/20 23:47	

LABORATORY CONTROL SAMPLE:	2779474					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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-Arnyl 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 L	.1
Toluene	ug/L	50	55.1	110	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



Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

LABORATORY CONTROL SAMPLE: Parameter	2779474 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 SF	PIKE DUPLK	CATE: 2779	475		2779476	i						
			MS	MSD								
	٤	2460402008	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
1,2-Dichloroethane	ug/L	ND	20	20	17.2	17.3	86	87	70-130	1	30	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	400	404	397	101	99	70-130	2	30	
Benzene	ug/L	ND	20	20	19.4	19.7	97	99	70-130	2	30	
Diisopropyl ether	ug/L	ND	20	20	17.4	17.7	87	88	70-130	1	30	
Ethanol	ug/L	ND	800	800	772	797	97	100	70-130	3	30	
Ethyl-tert-butyl ether	ug/L	ND	40	40	33.7	33.9	84	85	70-130	1	30	
Ethylbenzene	ug/L	ND	20	20	18.7	19.7	94	99	70-130	5		
m&p-Xylene	ug/L	ND	40	40	37.6	39.4	94	99	70-130	5		
Methyl-tert-butyl ether	ug/L	ND	20	20	17.6	17.7	88	88	70-130	0		
Naphthalene	ug/L	ND	20	20	19.8	19.6	99	98	70-130	1	30	
o-Xylene	ug/L	ND	20	20	18.5	19.2	92	96	70-130	4	30	
tert-Amyl Alcohol	ug/L	ND	400	400	404	379	101	95	70-130	6	30	
tert-Amylmethyl ether	ug/L	ND	40	40	37.0	37.4	93	94	70-130	1	30	
tert-Butyl Alcohol	ug/L	ND	200	200	187	185	93	92	70-130	1	30	
tert-Bully Formate	ບ່ອ/L	ND	160	. 160	53.4	48.61	· · 33	30	- 70-130	·	30	MO
Toluene	ug/L	ND	20	20	19.0	19.2	95	96	70-130	1	30	
Xylene (Total)	ug/L	ND	60	60	56.1	58.7	93	98	70-130	4	30	
1,2-Dichloroethane-d4 (S)	%						98	95	70-130			
4-Bromofluorobenzene (S)	%						101	102	70-130			
Toluene-d8 (S)	%						99	99	70-130			



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:

METHOD BLANK: 2779854

Matrix: Water

Associated Lab Samples:

92460409001

92460409001

Parameter Units

Blank Result Reporting Limit

MDL Analyzed Qualifiers

1,2-Dibromoethane (EDB) 1-Chloro-2-bromopropane (S) ug/L %

ND 0.020 127 60-140

01/15/20 21:50 0.011 01/15/20 21:50

LABORATORY CONTROL SAMPLE & LCSD:

2779855 Spike

2779856 LCS LCSD Result

LCSD LCS % Rec Limits % Rec % Rec

Max RPD **RPD**

Qualifiers

1,2-Dibromoethane (EDB) 1-Chioro-2-bromopropane (S)

Parameter

ug/L %

Units

Result

Units

ug/L

%

Result 0.25 0.25 0.23

MSD

96

100 92 95 100

60-140 8 60-140

20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

2779858

2779859

% Rec

Max

Parameter 1,2-Dibromoethane (EDB)

1-Chloro-2-bromopropane

92460402018 Spike Spike Conc. Conc. ND 0.26 0.26

MS

Conc.

MS Result

0.24

MSD MS % Rec Result 0.25

MSD % Rec

94

96

92

95

Limits **RPD**

60-140

60-140

RPD Qual 20 3

(S)

SAMPLE DUPLICATE: 2779857

1,2-Dibromoethane (EDB)

1-Chloro-2-bromopropane (S)

Units

ug/L

%

92460402017 Result ND

Dup Result ND

104

Max RPD **RPD**

Qualifiers

20

Parameter

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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.



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:

Date: 01/17/2020 04:38 PM

92460409002, 92460409003, 92460409004, 92460409005, 92460409006, 92460409007, 92460409008, 92460409009, 92460409010, 92460409011, 92460409012, 92460409013, 92460409014, 92460409015,

92460409016, 92460409017, 92460409018, 92460409019

Riank

Reporting

Parameter	Units	Result	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	

LABORATORY CONTROL SAMPLE & LCSC	2779861		27	779862						
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualiflers
1,2-Dibromoethane (EDB) 1-Çhloro-2-bromopropane (S)	ug/L %	0.25	0.23	0.22	91 91	91 92	60-140 60-140	1	20	

MATRIX SPIKE & MATRIX SPIK	(E DUPI	LICATE: 2779	864		277986	5						
Parameter	Units	92460409004 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) 1-Chloro-2-bromopropane (S)	⁴ug/L %	ND	0.26	0.26	0.26	C.26	97	98	60-140 60-140	1	20-	

SAMPLE DUPLICATE: 2779863						
		92460409003	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		2	0
1-Chioro-2-bromopropane (S)	%	100	97			



QUALIFIERS

Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 9

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.

associated samples may have low bias.

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

v3

Date: 01/17/2020 04:38 PM

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

ΙK	The recalculated concentration of the calibration standard(s) did not meet method acceptance criteria; this result should
L1	be considered an estimated value. Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
MO	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.
M1 P5 R1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may rachieved in sample matrix spikes. RPD value was outside control limits. The continuing calibration verification was below the method acceptance limit. The analyte was not detected in the

REPORT OF LABORATORY ANALYSIS

The continuing calibration verification was below the method acceptance limit. Any detection for the analyte in the



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

Nickel Pumper 233 04878/60604

Pace Project No.: 92460409

Date: 01/17/2020 04:38 PM

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
2460409004	MW 4	EPA 8011	519420	EPA 8011	519574
2460409005	MW 4R	EPA 8011	519420	EPA 8011	519574
2460409006	MW 5	EPA 8011	519420	EPA 8011	519574
2460409007	MW 6	EPA 8011	519420	EPA 8011	519574
2460409008	MW 7	EPA 8011	519420	EPA 8011	519574
2460409009	MW 8	EPA 8011	519420	EPA 8011	519574
2460409010	MW 9	EPA 8011	519 4 20	EPA 8011	519574
2460409011	MW 10	EPA 8011	519 4 20	EPA 8011	519574
2460409012	MW 11	EPA 8011	519 4 20	EPA 8011	519574
2460409013	DW 1	EPA 8011	519 4 20	EPA 8011	519574
2460409014	CK 1	EPA 8011	519420	EPA 8011	519574
2460409015	CK 2	EPA 8011	519 4 20	EPA 8011	519574
2460409016	CK 3	EPA 8011	519420	EPA 8011	519574
2460409017	CK 4	EPA 8011	519420	EPA 8011	519574
2460409018	DUP	EPA 8011	519 4 20	EPA 8011	519574
2460409019	FB	EPA 8011	519 4 20	EPA 8011	519574
2460409004	MW 4	EPA 8260B	519304		
2460409007	MW 6	EPA 8260B	519307		
2460409008	MW 7	EPA 8260B	519307		
2460409009	MW 8	EPA 8260B	519307		
2460409013	DW 1	EPA 8260B	519307		
2460409014	CK 1	EPA 8260B	519304	a far same a second	.u
2460409015	CK 2	EPA 8260B	519304		
2460409016	CK 3	EPA 8260B	519304		
2460409017	CK4	EPA 8260B	519307		
92460409019	FB	EPA 8260B	519296		
92460409020	TB	EPA 8260B	519296		

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ustomer Sample ID	Matrix *	Comp / Grab	Compos	ted (or site Start)	<u> </u>	osite End	Res Cl	# of Ctns	3 100										LAB :	USE ONLY: Sample # / Comments:			
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Document Name: Sample Condition Upon Receipt(SCUR)

Document No.: F-CAR-CS-033-Rev.06 Document Revised: February 7, 2018 Page 1 of 2

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#: 92460409

PH: AMB

Due Date: 81/17/20

CLIENT: 92-SCDHEC

1641

	flerns	BP4L-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mt Plastic Unpreserved (N/A)	BF2U-500 mt. Plastic Unpreserved (N/A)	8P1U-1 liter Plastic Unpreserved (N/A)	#P45-125.mL Plastic H2SO4 (pH < 2) (G-)	BP3N-250 mL plactic HNO3 (pH < 2)	8P4Z-125 ml Plattic ZN Acetate & NaOH (>9)	BP4C-125 ml Plastic NaOH (pH > 12) (Ch.)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 fiter Amber Unpreserved (N/A) (CF)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG15-1 Rer Amber H2504 (pH < 2)	A635-250 mL Amber H2504 (pH < 2)	AGSANDG3A}-250 mt Amber NH4CI (N/A)(CI-)	GGBH 40 mL VOA HCI (N/A)	VG9T-40 mt VOA Na25203 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mt VOA H3PO4 (N/A)	VOAK (6 Vials per Hit)-5035 lik (N/A)	V/GK (3 white per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SPZT-250 mt Sterile Plestic (N/A - lab)		BP3A-250 ml Plastic (NH2)2504 (9.3-9.7)	AGDU:100 mt. Amber Unpreserved vials (N/A)	VSGU-20 mt Schrillation vials (N/A)	DG9U-40 mt. Amber Unpreserved vials (N/A)	
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Sample ID Type of Preservat	tive pH upon receipt	Date preservation adjusted	Time presention 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 No.: F-CAR-CS-033-Rev.06 Document Revised: February 7, 2018 Page 1 of 2

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, Caliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

Project #

Due Date: 01/17/20

CLIENT: 92-SCOHEC

16#2

t	1	BP4U-125 ml Plastic Unpreserved (N/A) [Cl-)	BP3U-250 mt Plastic Unpreserved (N/A)	BFZU-500 mL Plastic Unpreserved (N/A)	8P1U-1 liter Plastic Unpreserved (N/A)	DP45-125 mL Plastic H2SO4 (pH < 2) (CI-)	BP3N-250 mL plastic HivO3 (pH < 2)	8P4Z-125 mt. Plastic ZN Acetate & NaOH (>9)	BP4C-125 ml Plastic NaOH (pH > 12) (Ci-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 fiter Amber Unpreserved (N/A) (CL)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (C-)	AG15-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2504 (pH < 2)	AG3A(DG3A)-250 mL Amber NHACI (N/A)(CI-)	DESH 40 mL VOA HCI (N/A)	VG9T-40 mt VOA Na25203 (N/A)	VG9U-40 mt VOA Unp (N/A)	DG9P-40 mt VOA H3PO4 (N/A)	VOAK (6 visit per tit)-5035 lit (N/A)	V/GR (3 viets per hitt)-VPH/Gas ltt (N/A)	SPST-125 mt Sterile Plastic (WA - lab)	SPZT-250 mL Sterile Plastic (N/A lab)		BP3A-250 mL Plastic (NH2)25C4 (9.3-9.7)	AGOU-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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Sample ID Type of Praservative pH upon receipt Date preservation adjusted Time preservative adjusted Amount of Preservative added			بكلام حسد	Justmont Log for Pro-	enued Samples	•
	Sample ID	Type of Praservative	pH upan receipt	Date preservation adjusted		 Lot #
				·		

vir there is a discrepancy affecting North Cerolina compliance samples, a copy of this form will be ent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

-----Page 47 of 47





64878

JUL 2 8 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 Kincey 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 San	npling Contractor
FROM:	Arthur Brown	
RE:	Site Specific Work Plan Rec	<u>quest</u>
Facility Name:	Nickelpumper 233	Contractor CA# 64203
Permit Number:	<u>4878</u>	PACE CA #: 65830
County:	Jasper	RBCA CLASS: <u>1D</u>
List Monitoring W Shallow Intermediate Deep	/ells to be Sampled MW-1, MW-2, MW-3, MW-4R, MW-5, MW DW-1	Purging Method Purge All 7-6, MW-7, MW-8
WSW Points to be Sample Below P Additional Poten	WSW-1 roduct tiometric Maps Requested -	BE ON MAP PROVIDED) MAP PROVIDED CONTACT INFO w TAX MAP INFO) See Below (Note: Shallow & Deep Included) O (Only for CoCs >RBSL or SSTL)
Total G	Froundwater Sample Points:	. 13
	Analysis Being Requested:	K . BTEXNM+Oxyg's+1,2 DCA+Eth(8260B), K7. EDB by EPA 8011
Tota	l Water Supply Well Points:	1
	Analysis Being Requested:	K14. BTEXNM+1,2 DCA (524.2), K15. 7-OXYGENATES & ETHANOL (8260B), K16. EDB (504.1)



Arthur

August 8, 2022

RECEIVED

AUG 0 8 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

/



Site-Specific Work Plan for Approved ACQAP Underground Storage Tank Management Division

To: Mr. Arthur Brown From: Jeff L. Coleman			CDHEC Project Manager)
Contractor: Midlands Environmental Consu	ultants, Inc. UST Contra	(Con actor Certification Number: 009	ntractor Project Manager)
Facility Name: Nickelpumper 233		UST Permit #:	04878
Facility Address: 103 Charles Frazier Circle			
Responsible Party: Clifton Ricardo Smith		Phone: 843-25	8-0669
RP Address: 76 Bell Haven Way Ridgeland	J, SC 29936		
Property Owner (if different): SAA			
Property Owner Address: SAA			
Current Use of Property: Vacant Property	ty		
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	
Oxygenates (8260D)	8 RCRA Metals	□ Nitrate	☐ Ethanol
☑ EDB (8011)	☐ TPH	Sulfate	☐ Dissolved Iron
☐ PAH (8270E)	☐ pH	☐ Other	
Drinking Water Supply Wells:			
BTEXNMDCA (524.2)	Mecury (200.8 245.	, _ `	1)
✓ Oxygenates & Ethanol (8260D)	RCRA Metals (200.	.8)	
Soil:			
	CRA Metals	TPH-DRO (3550B/8015B)	☐ Grain Size
	& Grease (9071)	☐ TPH-GRO (5030B/8015B)	☐ TOC
Air:			
BTEXN			
Sample Collection (Estimate the num		-	llected.)
Soil	1 Water Supply We		2 Field Blank
9 Monitoring Wells	3 Surface Water	2 Duplicate	2 Trip Blank
Field Corporation Mothodology			
Field Screening Methodology	t it for each maint and	to the transport of the patients	
Estimate number and total completed d			
# of doop points proposed:	ESUI	mated Footage:	feet per point
# of deep points proposed:	ESUI	mated Footage:	feet per point
Field Screening Methodology:			
Permanent Monitoring Wells			
Estimate number and total completed d	depth for each well, and ir	nclude their proposed locations o	n the attached map.
# of shallow wells:			
# of deep wells:	Estimated	Footage:	feet per point
# of recovery wells:	Estimated	Footage:	feet per point
Comments, if warranted:		<u> </u>	

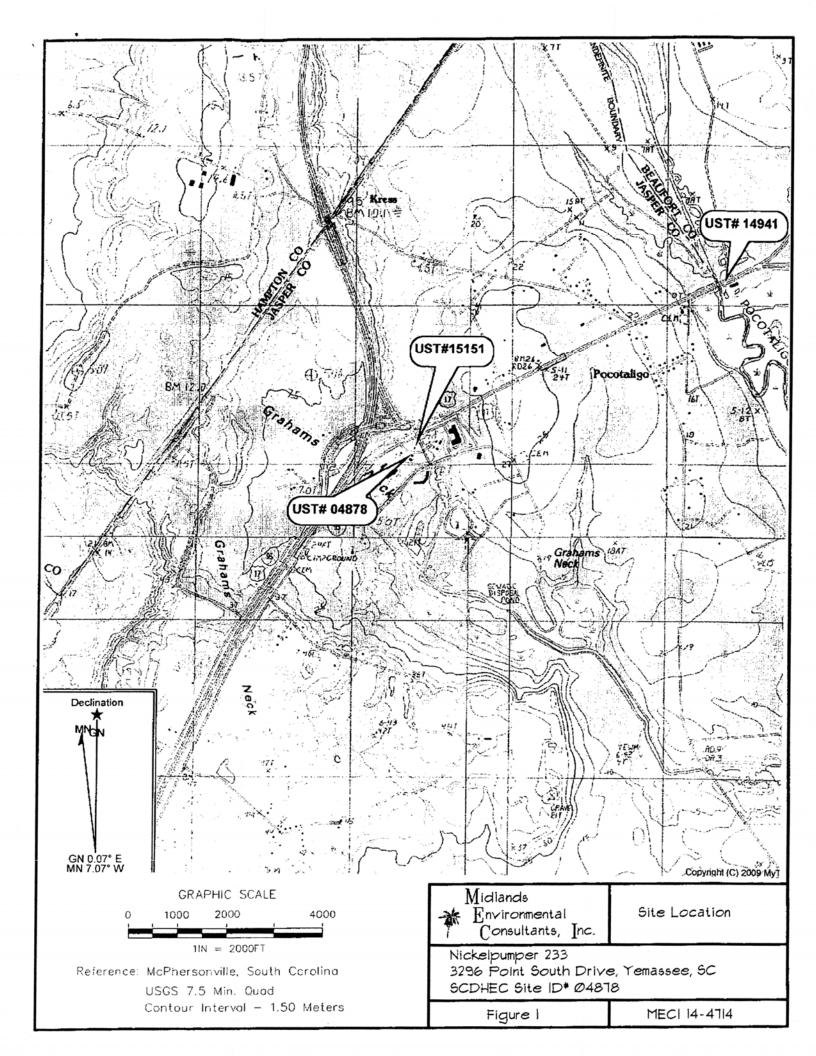
UST Permit #: 04878 Facili	ity Name: Nickelpumper 233
Implementation Schedule (Number of cale	
Field Work Start-Up: 8/8/2022	
Report Submittal: 10/8/2022	# of Copies Provided to Property Owners:
Aquifer Characterization Pump Test: ☐ Slug Test: ☐ (Check one	and provide explanation below for choice)
Investigation Derived Waste Disposal Soil: Tor Drilling Fluids: Gai	- Callette
Drilling Fluids: Ga	Illons Free-Phase Product: Gallons
event, etc. -During the initial site visit, monitoring well MW-4R was una goods. Monitoring well MW-4 was able to be located. If MV located during the site visit. Five bolts are needed to prope	be abandoned/repaired, well pads/bolts/caps to replace, details of AFVR able to be located. It appears that the site has been used for illegal dumping of trash and houshold W-4R is located during the sampling event, it will be sampled accordingly. All other wells were early secure MW-2, MW-5, and MW-8. All wells will be purged prior to sample collection. Itions and one water supply well during sampling activities. Water supply well WSW-1 has been with a bailer. Oxys, and EDB by appropriate methods.
Compliance With Annual Contractor Qualit Laboratory as indicated in ACQAP? (Yes Name of Laboratory: SCDHEC Certification Number: Name of Laboratory Director:	s/No) If no, indicate laboratory information below.
Well Driller as indicated in ACQAP? (Yes	,
SCLLR Certification Number:	
Other variations from ACQAP. Please d	escribe below.
Attachments 1. Attach a copy of the relevant portion of	of the USGS topographic map showing the site location.
Prepare a site base map. This map memory must include the following: North Arrow Location of property lines Location of buildings Previous soil sampling locations Previous monitoring well locations Proposed soil boring locations	Proposed monitoring well locations egend with facility name and address, UST permit number, and bar scale treets or highways (indicate names and numbers) ocation of all present and former ASTs and USTs ocation of all potential receptors
 Assessment Component Cost Agreem 	nent, SCDHEC Form D-3664

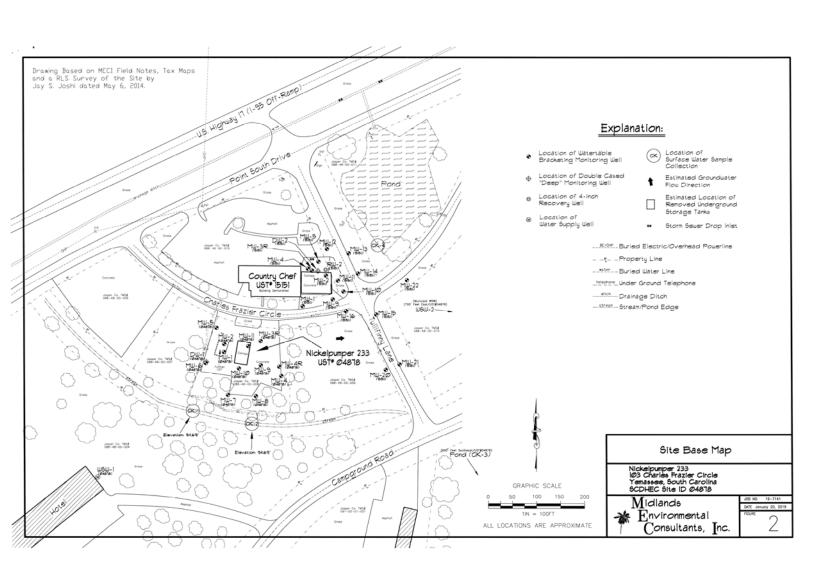


ASSESSMENT COMPONENT COST AGREEMENT SOUTH CAROLINA

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	Cos	t 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 / Gau	ge Depth to \	Nater or Product (Ea		7.00
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
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			7.000	\$1,347.00
6. Report Preparation/Project Coordination		Percent of Subtotal	0%	3, 34
TOTAL				\$1,347.00







SEP 2 3 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 Kincey 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

September 21, 2022

Task / Description Categories	Item Description	Qty / Pct	Unit Price	<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

1,347.00

Total Amount

Approved Cost Agreement

65830

Facility: 04878 NICKELPUMPER 233

BROWNAJ

PO Number: 907254-33

Task / Description Categories	Item_Description_	Qty / Pct	Unit Price	Amount
K ANALYSES				
DW DRINKING WATER	14 BTEXNM+1,2 DCA (524.2) WSW 15 OXYGENATES & ETHANOL 8260B WSW 16 EDB (504.1) WSW	4.0000 4.0000 3.0000	\$44.350 \$21.120 \$23.230	177.40 84.48 69.69
GW GROUNDWATER	1 BTEXNM+OXYGS+1,2-DCA+ETH-8260B 7 EDB BY EPA 8011	15.0000 14.0000	\$27.450 \$23.230	411.75 325.22
		Total Amo	unt	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:



231 Dooley Road, Lexington, SC 29013 (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 Bryan Tushane, P.G. Principal Geologist

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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# 088-48-00-008Address76 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 Dat	te:	5/16/2002						
Estimated (Quantity of Release:	N/A						
Other Relea	ases at Facility:	N/A						
Release Rai	nking:	1D						
Current Sit	e 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)
									Ana	alyte Samj	pled		
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)
									Ana	alyte Samj	pled		
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 Pocotaligo 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:

Compound	RBSL (ug/l)	Wells Above RBSL						
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-

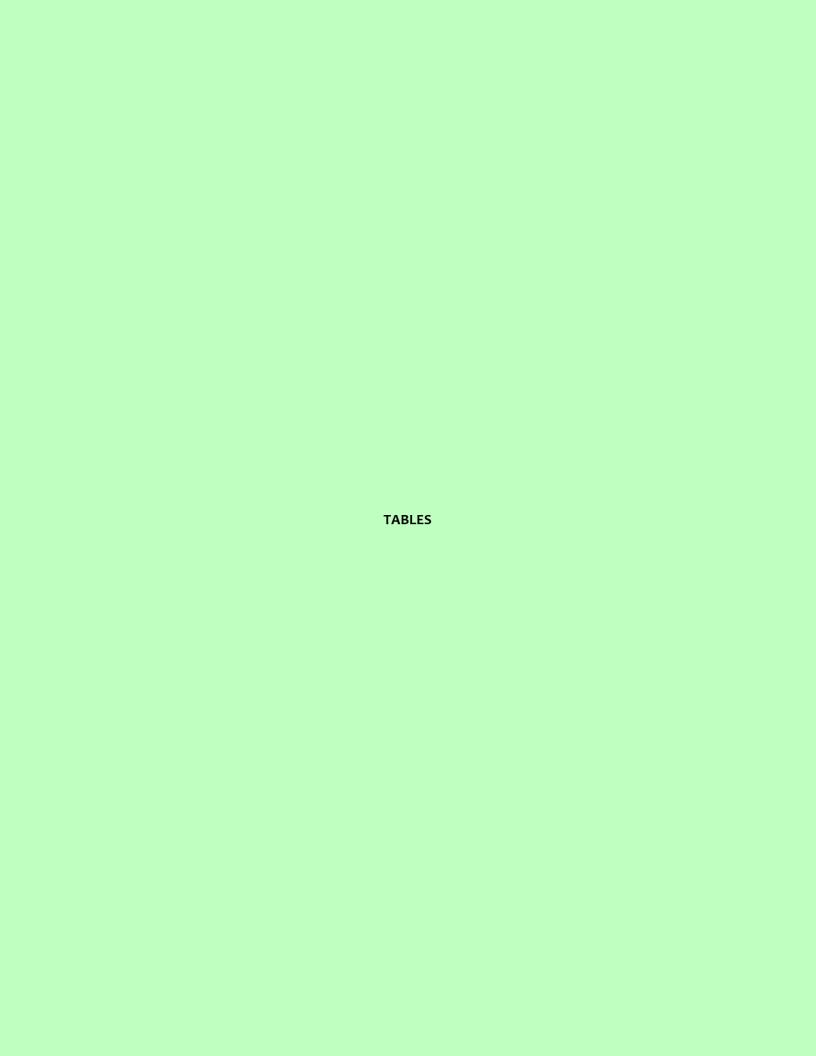


Table # 1
Summary of Analytical Results - Water Samples
NICKELPUMPER 233
Facility ID# 04878

Analytica	l 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	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
ТВ	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
	ina RBSL for	0.05	5	N/A	5	150	10000	47	700	40	25	1000	10000	N/A	N/A	240	128	1400	N/A
Ground South Carolina for Grou	Action Levels	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

Analytica	l 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	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
	ina RBSL for dwater	0.05	5	5	700	40	25	1000	10000	N/A	N/A	N/A	150	10000	47	240	128	1400	N/A
	a Action Levels Indwater	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)

<u>Table 2</u> <u>Site Activity Summary</u>

 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	Intial 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	Υ	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	Υ	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)
	Ž.	dinire .		E3	24	<u> </u>	- N			-	56.00	TOTAL GALLONS PURGED

<u>Table 2</u> <u>Site Activity Summary</u>

 UST Permit #:
 04878

 Facility Name:
 Nickelpumper 233

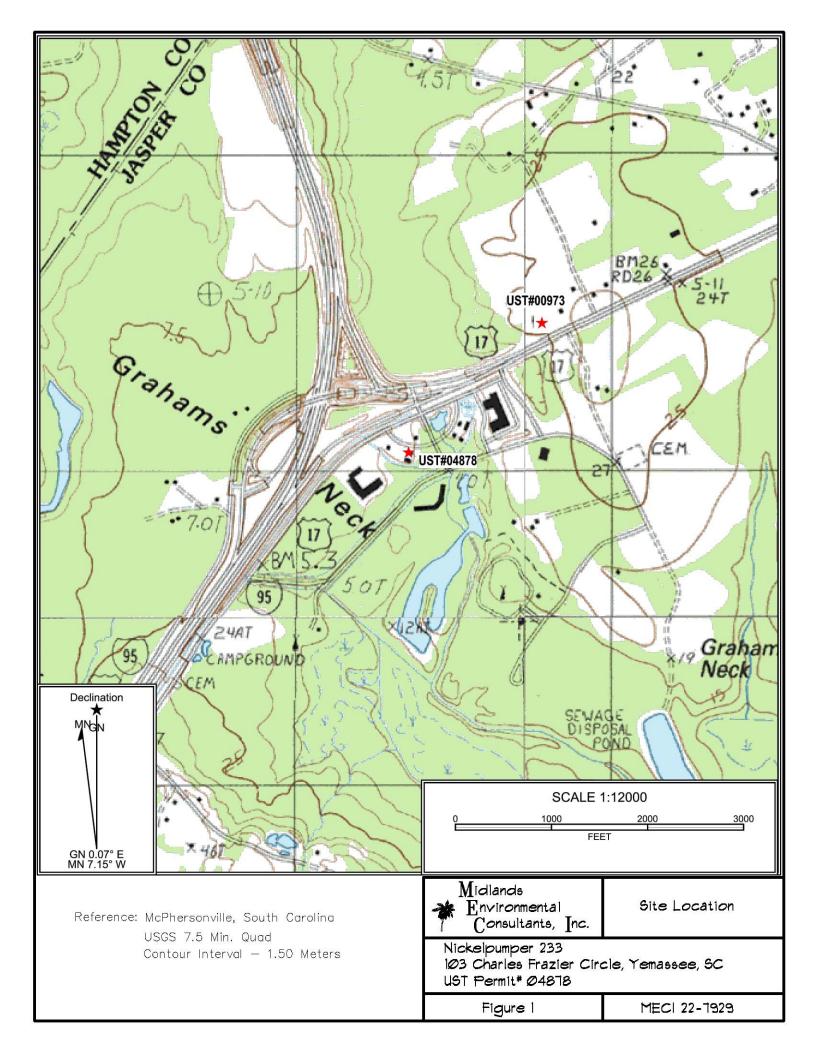
 County:
 Jasper

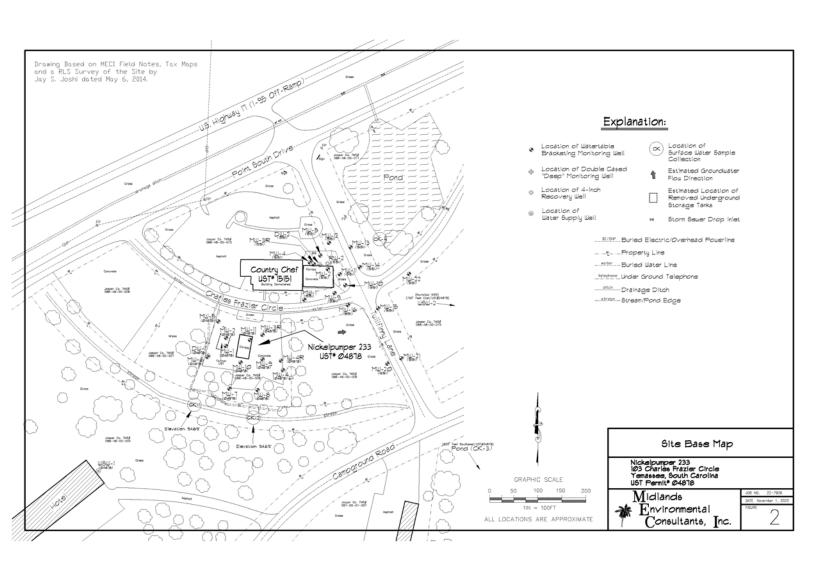
 Field Personnel:
 J. Canavan, S. Sprott, H. Sloan

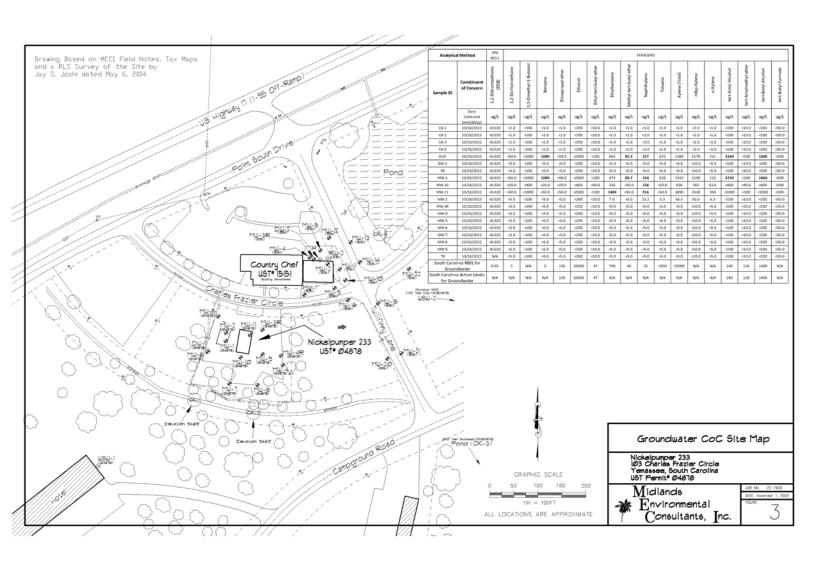


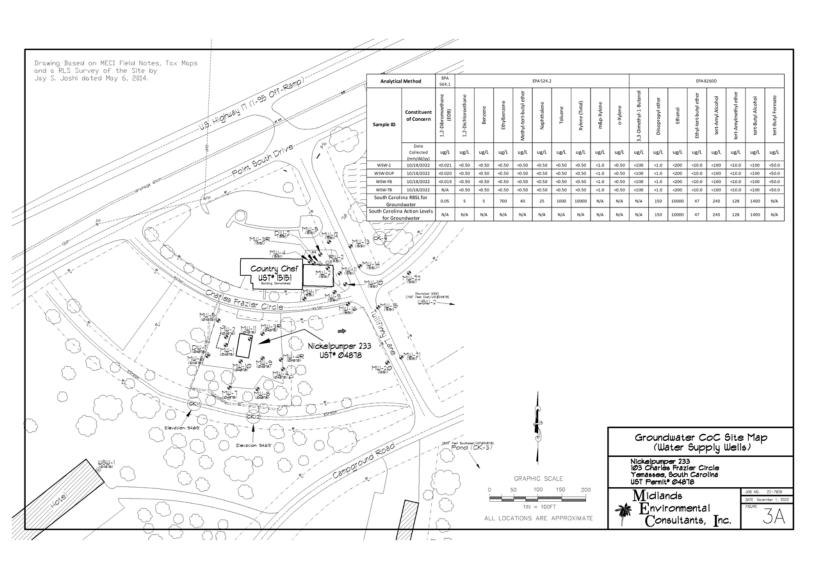
Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	TOC Elevation	Groundwater Elevation	Intial Dissolved Oxygen (mg/L)	# Gals. Purged	Comments
CK-2	Υ	10/18/22	10:21	***	***	***	***	***	***	***	***	Collected from Creek (32.629473, -80.878641)
CK-3	Y	10/18/22	13:04	***	***	***	***	***	***	***	***	Collected from Pond behind Knights Inn (32.629041, -80.877184)
CK-4	Υ	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	Υ	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	Υ	10/18/22	8:00	***	***	***	***	***	***	***	***	Trip Blank
s v		1.0%	9	in		ile se	in and an analysis of the same		21	2 -	0.00	TOTAL GALLONS PURGED

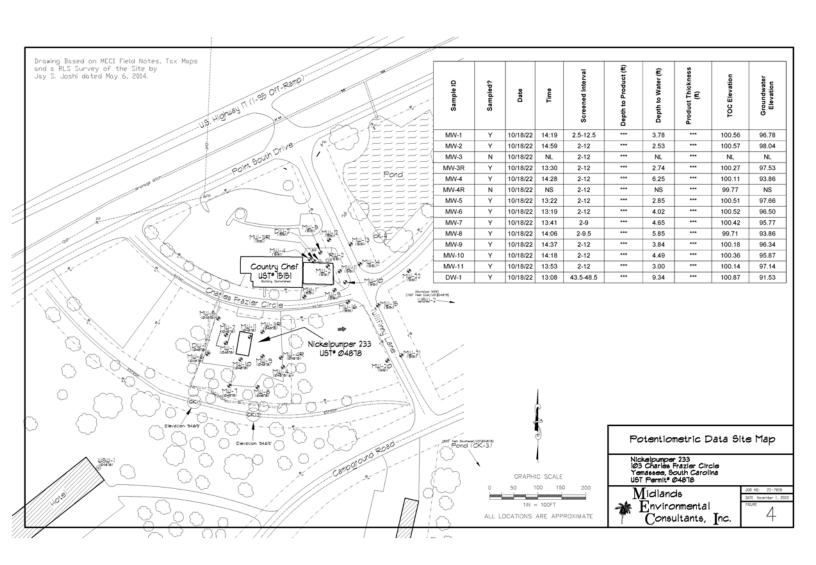












APPENDIX A: SAMPLING LOGS, LABORATORY DATA SHEETS, & CHAIN-OF-CUSTODY FORMS

Media							Moni	4	_ XX/	.II D					
Midland Enviro	onmenta	11_					Moni	d San							
1 Cons	ultants,		rl e									matian Data			
Field Personnel:		155,			_	Job Name:	Nichel	epom	pero	133	Calibratio	n Successfu	Yes or No	n (Please Cir	role)
Sampling Date(s):	15	18/	77		_		22				ph: Conductiv	rity:	Yes Yes	No No	-
Sampling Case#:	_ +	=2		(/C-2/2	_						Dissolved	Oxygen: (Yes Calibrated Ever	No	QA Manager
Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp.	DO (mg/l)	Turbidity (NTU)		epth to (fee			Water Height	Gallons	Purged	Notes
	Initial	11:53	6.37	98-3	21,2	1.30	16:70	product	IIIIIai ri ₂ O	IIIIai H ₂ U	(leet)	*(feet)	**calc.	actual	
	1st	(1:55	6.41	97.1	21.5	1.38	23.40						1.42		001
/a. 1	2nd	11-59	6.30	94,2	21.7	1.41	29.75		6		2.5	070	1000	Dryl	and i
MW-1	3rd	12:03	6.43	98.3	21.5	1.50	38.51	j	3.18	6.03	_	8.72		Dry C	replaced
0 1	4th 5th		-											45	cos (100)
itak 1	Sampling	14:19	110	200	2	1 77 79					12.5		100		n. 1
	Initial	1209	6.50	796	23.2	1.43	17.58								ogoc
	1st	12:11	6.51	1681	23.4	2.02	1894				1100		1 001	no	1
	2nd	12:13	6.53	1793	23 K	2.07	2013		53	605	2		1.59	Dry	odor odded obolks replaced
	3rd	12:15	6.55	172.4	23.7	2117	37.09	1/2	151	6		9.47			added
MW-3	4th				-	0	7. 9. 1					10		S	21 1/0
	5th										12		7.71		2001
	Sampling	14:59	6.48	175.1	23,4	2.03	19.21				10		C - 1 1		ranocec
	Initial														_ L
	1st										2				NOL
	2nd														Located
MW-3	3rd										100				replaced
	4th 5th										12				replacer
	Sampling					-					1 100				by 3r
	Initial	10:39	6-22	1932	22.6	11. 7.7	1/ 0//								7 31
1	1st	10:42	6.31	19914	33.8	2.45	21.09				2		100	0 0	
	2nd	10:43	6.25	1962	92-5	2.3	26.72		174	11 10	0	1	1.50	Dige	NA
100/ 20	3rd	10:45	6.37	193.1	02.7	2.36	25.57		2-11	4.63	_	926		C) -
MM-36	_ 4th					-	33.74				17			9,	oder
	6th										10		759		
	Sampling	13:30	6.40	199.3	23.1	2.15	30,15						101		
*= (Depth of Well) - (Dep One Well Volume =x.047	th to Water = for 1" wells *	Water Height x .163 for 2" t	t wells, or * x .	66 for 4" wells	s, 1.469 for 6"	**= One Well wells	I Volume x 5 =	Gallons Pu	rged (calc	culated)		Sampling Case# Case #1	Ph/Conductance SN 15H101448	DO SN 17E101302	Turbidity 201301183
		Casing	Gallons]								Case #2 Case #3	15E101481 17E100512	14H103098 17E103488	201301174
		1"	0.047	-							'	3444 110	112100012	(/E103400	201510251
i Baomeo		4" 6"	0.653 1.469												

Midlan	ds						Moni	torii	ıg W	ell P	urge				
Environe Cons	onmenta ultants	al Tnc							nplii						
Field Personnel:	50	,55,	H-5			lab Nassa	Niclel				Calil	bration Data	a for:		
Sampling Date(s):	10	1	72				22	•		,27	Calibration pH: Conduction	1	Yes or N	No	ircle) -
Sampling Case#:		1			_					•0	Dissolved	d Óxygen: {	Yes Yes Calibrated Eve	No No	- OA Managar
Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp.	DO	Turbidity		Depth to (fee	1	Well Depth	Water Height		Purged	Notes
	Initial	11:41	6.51	80.6	70,7	(mg/l)	(NTU)	product	initial H₂O	final H₂0	(feet)	*(feet)	**calc.	actual	Notes
	1st	11:43	6.42	81.4	20.4	2.60	21.20				7		0.7	_	
	2nd	11:45	6.53	363	203	9-63	37.53		1 2-		2		,93	Dog	NO
Mw-4	3rd	11:47	6.59	32-6	2011	2-65	34,91		6-25	7.11	-	5.75		0	· F
	4th										12		10	2	oder,
1	5th Sampling	11.01.25	6.90	2	0.00	0 21					12		4.68	2	landere 6
	Initial	14:28	6.49	Blis	20.3	2.45	3008						1000	5	belloop
	1st					-									
	2nd					+					2				obstructed
MW-4R	3rd								obs		1000				Distraciq.
11/	4th														e
	5th										112				2.20
	Sampling				1000						0.0				added 2 bat
	Initial	1027	6.95	688	24.9	3.19	15.41	777					^		Stides Che
	1st	10:29	6.70	671	24,5	3:15	25.46				マ		1.49	0-0	
	2nd 3rd	10:32	6.73	67.3	24.5	3.06	34.15		DEA	4.93	5	010	1-11	Dige	1 9
Mn-5	4th	19:55	6.61	660	24.4	3.05	30.21		2.85	1.75		9,15		TER	
\$100 m	5th					-					12		7.95	080	odov.
	Sampling	13:22	6.63	69.9	2413	3.17	15.93			540	COX		(1)	5	added
	Initial	0:24	7.22	106	794	3.07	15.49)	bolt
(0)	1st	10-27	7.25	11913	2013	3.16	29,09				7		130	0 0	
	2nd	10:29	727	17.9	205	3.45	23,47		4.02	100	3	712	100	1)rge	NO
MW-6	3rd	0:31	7.29	113-3	204	3.12	26.19		1.00	01	_	7.18			10
	4th										12	67	010	9	odor
	5th Sampling	19.10	710	1 2 65 27							10		6.50		
		13:14	7.15	117.9	21.3	3.20	20.15								
*= (Depth of Well) - (Dep One Well Volume =x.047	th to Water = for 1" wells *	Water Height	valle or * v	SS for A" walla	1 480 f 0	**= One Wel	Volume x 5 = 1	Gallons P	urged (calc	ulated)		Sampling Case#	Ph/Conductance SN	DO SN	Turbidity
				_	1.409 101 0	wells						Case #1 Case #2	15H101448 15E101481	17E101302	201301183
		Casing 1"	Gallons 0.047	7								Case #3	17E100512	14H103098 17E103488	201301174
		2"	0.163												1=5.0.0001
		4" 6"	0.653												
		0	1.469												

Midlan	de						Moni	torir	ια IX	all D	II WOO				
Enviro	onmenta	a l													
T Cons	ultants	Inc.	rt r							ng Da					
Field Personnel:		155,	H)		_	Job Name	Nichel	epom	pera	233	Calibratic	oration Data	ul? Yes or N	o (Please Ci	rolo)
Sampling Date(s):	15	101	75				22				pH:		Yes	No	rcie)
Sampling Case#:	-1	FZ			-	OOD (VAIIIDE)		7 1		-	Conduction	vity: d Oxygen: (Yes /	No No	-
		10			-						Turbidity:	Conductivity	Calibrated Eve	ry 3 Months by	QA Manager
Well No.	Purge	Sample	pH(i)	cond(i)	Temp.	DO	Turbidity		Depth to (fee	et):	Well Depth	Water Height	Gallons	Purged	
	Volume	Time	6.32	70.7	(°C)	(mg/l)	(NTU)	product	initial H ₂ O	final H ₂ 0	(feet)	*(feet)	**calc.	actual	Notes
	1st	11:04	6.35	71.4	20,2	1.48	20 35	-							
	2nd	11:06	6.33	76-6	20.4	1.42	29.76				2		.70	Dra D	
MW-7	3rd	11:09	6.37	71.8	29.9	1:39	39.53	1		117	_	4.35		11/6	Solow
	4th						1113		4.65	617	9	(0)	7 1-1	2.5	Ods
	5th	127111	7.110	700		. (]	4.65		1 7		3.54	9	added ?
	Sampling	13:41	6.09	70,2	20,3	1150	2010				100		3		b=145
	1st	12:11	6.03	1241	20.9	1.35	16-71						C 0		
6	2nd	12:16	6,11	125.3	214	1.38	26.71		Come.		2		,59	0 0	MO
MW-8	3rd	12:18	6.08	123.4	OKP	1.35	35,04			6.28	0	3.65		Dryc	dan
	4th					11.72	270/		5.85	6-06	-	1,000			0
	5th								フ・8フ		90		2.97	- (added 2
	Sampling	14:06	6,13	147.4	21.3	1.38	21.98				1.2				bolts
	Initial 1st	12-17	6.22	130.4	23:1	2.71	20,15								W - C - S
	2nd	12:19	6.15	131.3	235	2.64	21:13				1		1.33	00	NO
MW-9	3rd	12:23	6.28	139.2	231	2.78	23.75		3.84	5.55	2	8.16	1000	1)rgw	
1 100 - 1	4th	10 30	0 (1575	die 0	ورد	27.15		1		0			,	odor
	5th										10		6.65	4	
	Sampling	14:37	6.37	139.1	21.7	2-12	20,09				12		0,01	L	
	Initial	11-19	6.66	119.3	20,7	2.27	14.01								
	1st 2nd	11:31	6.63	1125	21.9	0-44	20153				2		1.22	2	
Mw-10.	3rd	11:29	667	119.2	2115	7.93	31108		499	7.18	_	7.51	(00	Drye	1
(0)	4th	11.01	10.01	113.6	21.6	221	25.45		(.11	100	11	lest		11	odor
	5th										110		117	9	
	Sampling	14:18	6.50	114.7	21.5	2,25	2005						6000	(
*= (Depth of Well) - (Dep	th to Water =	Water Height				** 0 11/1	Volume x 5 =	Gallono Di	read (sel	and stands					
One Well Volume =x.047	for 1" wells *	x .163 for 2" v	wells, or * x .	66 for 4" wells	, 1.469 for 6"	wells	volunie x 5 =	Gallolls Pt	irgeu (cai	curated)		Sampling Case# Case #1	Ph/Conductance SN 15H101448	17E101302	Turbidity 201301183
	1	Casing	Gallons	1								Case #2	15E101481	14H103098	201301174
	1	1" 2"	0.047								ı	Case #3	17E100512	17E103488	201510251
		4"	0.163 0.653	1											
		6"	1.469												

24							N/L ·		***	11.70					
Midland	ds onmenta	er.					Moni								
Cons	ultants,	Inc.					And	d San	<u>nplir</u>	ig Da	<u>ata</u>				
Field Personnel:	50	,55,	HJ			Joh Name:	Niclel	enm	nero	256	Calibratio	ration Data	for:	/DI 01	
Sampling Date(s):	10	11 7	77		7	Job Number:		,			pH:	/	Yes or No	O (Please Cii No	cle)
		1.71			-	Job Number:	_ d d	170	-7_		Conductive Dissolved	/ity:	Yes /	No No	
Sampling Case#:	+-	FZ_			-						Turbidity:	Conductivity	Calibrated Ever		QA Manager
Well No.	Purge	Sample	pH(i)	cond(i)	Temp.	DO	Turbidity	0	epth to (fee	t);	Well Depth	Water Height	Gallons	Purged	
	Volume	Time	C 0 6		(°C)	(mg/l)	(NTU)		initial H ₂ O		(feet)	*(feet)	**calc.	actual	Notes
	Initial 1st	10:48	6.26	1107	23.2	2.57	15.40						1111		
	2nd	10:53	6.29	119.8	2314	2.17	19,35		7 - 0		7	000	1.46	Dige	- 1.4
40	3rd	10-56	6.23	112.1	22-8	2.13	34.16	-	3.00	701	_	7,00		Dige	Sligh.
Mw- 11	4th	1 7 7 0	0 - 7	1190	70.0	111	71116				12		ARR	110	Sight
	5th			1.00 m	7.00						12		THE STATE OF THE S	913	000
	Sampling	13:53	6.27	112-9	22.7	2573	14.92						4.40	- CE.	1
	Initial	16:01	4.05	126.2	19.3	4.72	15.49		100					Drge	No
	2nd		0.	1800					924	10-0	435	1	6.38		
DW-1	3rd	157-17	6.81	18113	1717	7110	211-13		101	1593	().)	39.16	0 / 0	13	odor
ν	4th					-					-	370.00	010		000
	5th				18152 Dis						485		31,91		
	Sampling	13:02	6.84	1333	19.5	4,20	17.53				10,2				
CK-I	700000	10.16	Sem	ned 1	woin C	reek		32 /							
CKT		10-10	-	1				23.6	295	08, -	80.87	9025			
	3rd														
C1. 0	4th	10:31	(- lad	IN OWO	00011									
CK-2	5th	100	Sew	PIER	40 241	Cocca		32.	629	472	00 6	- mcus			
	Sampling									13,	80.8	18641			
CK-3	2000000	() () ()	Cashir	led I	am 1	pond		22							
CFS		1500	2001		1			29.8	0940	541-	80.8	77184			
	3rd														
-14 11	4th	ident	Cair	nled J	100m	object	on nani	1 2	2.63	0650	1 -80	7777			
CK-9	5th	11.00	90	17.	-VULL 1	1.10/0	P				7 . 7	1153	6		
	Sampling												100 m		
*= (Depth of Well) - (Dep One Well Volume =x 047	th to Water =	Water Height	i walle er * v 6	C for 411 11-	4 400 (**= One Well	Volume x 5 =	Gallons Pu	urged (cale	culated)		Sampling Case#	Ph/Conductance SN	DO SN	Turbidity
7.017	ioi i wella	x.163 101 2 1	wells, or x.e	ob for 4" Wells	s, 1.469 for 6	wells							15H101448	17E101302 14H103098	201301183
		Casing	Gallons									Case #3	17E100512	17E103488	201301174 201510251
	1st		10.00												
			1.403	<u> </u>											

Mídland	ds						Moni	torin	g W	ell P	urge				7.0
Enviro	onmenta ultants	Too						d San	F-50 // 50 // 50						
Field Personnel:	TICATILS.	155,	1-1								Calib	oration Data	for:		
rieid reisonnei:		1		75 77 7		Job Name:				155	Calibratio	n Successfu	yes or N	o (Please Cir	cle)
Sampling Date(s):	15	18/	75			lob Number:	22	-792	-9		pH: Conductiv	vitv: /	Yes /	No No	-
 Sampling Case#:	+	F7_							A 101		Dissolved	Oxygen:	Yes /	No	<u></u>
											Turbidity:	Conductivity	Calibrated Eve	ry 3 Months by	QA Manager
Well No.	Purge Volume	Sample Time	pH(i)	cond(i)	Temp.	DO (mg/l)	Turbidity (NTU)		epth to (fee		The second second	Water Height	A PROPERTY.	Purged	Notes
Duo	Initial	10.			10/	(mg/r)	(N10)	product	initial H ₂ O	final H ₂ 0	(feet)	*(feet)	**calc.	actual	
DUP	1st	Mw-	14:	(")											
	2nd														
-0	3rd	14.41													
F B	4th 5th	190-50												ľ	
	Sampling														
	Initial	0.0													
TB	1st	8:00													
	2nd										1				
GAC	3rd	10:20			- 12-12 - 13-12										
GAL	4th	19/10													
	5th														
	Sampling		-												
WSW-1	1st	13:72	f.	11			1111	0			00079	41		- 1	
	2nd	17.20	Countil	59 Fren	pre	with	1 bed	En 3	262	1171	80.279	()	131961	Point Sout	(Dr)
USFB	3rd	3	17:2	,								/	0	1	
	4th		3 3			11.5									
WEST R	5th														
0 1 D	Sampling	()29	0			- 100		_							
WSW DUP	Initial	- WSW	1-13	12											
, , , , , , , , , , , , , , , , , , ,	1st 2nd					- 2									l i
	3rd														
	4th														
	5th														
	Sampling														1
*= (Depth of Well) - (Dep	th to Water =	Water Height				**= One Well	Volume x 5 =	Gallons Pu	rged (calc	ulated)		Sampling Case#	Ph/Conductance SN	DO SN	Turbidity
One Well Volume =x.047	for 1" wells *	x .163 for 2" v	vells, or * x .6	6 for 4" wells,	1.469 for 6"	wells				***************************************		Case #1	15H101448	17E101302	201301183
		Casing	Gallons									Case #2 Case #3	15E101481 17E100512	14H103098 17E103488	201301174
		2"	0.047									Ouse ire	172 1003 12	17 103400	201510251
		4"	0.653												
		6"	1.469												





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.





9800 Kincey Ave. Suite 100 Huntersville, NC 28078 (704)875-9092

CERTIFICATIONS

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Pace Analytical Services Charlotte

South Carolina Laboratory ID: 99006 South Carolina Certification #: 99006001

9800 Kincey Ave. Ste 100, Huntersville, NC 28078 South Carolina Drinking Water Cert. #: 99006003

North Carolina Drinking Water Certification #: 37706 Florida/NELAP Certification #: E87627 North Carolina Field Services Certification #: 5342 Kentucky UST Certification #: 84

North Carolina Wastewater Certification #: 12 Louisiana DoH Drinking Water #: LA029

South Carolina Laboratory ID: 99006 Virginia/VELAP Certification #: 460221



SAMPLE ANALYTE COUNT

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

PASSION	Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
PASI-000002 MW-2	92632106001	MW-1	EPA 8011	— НН	2	PASI-C
PA 8280D CL 20			EPA 8260D	SAS	20	PASI-C
2632106003 MW-3R EPA 8011 HH 2 PASI-C 2632106004 MW-4 EPA 8011 HH 2 PASI-C 2632106005 MW-5 EPA 8020D CL 20 PASI-C 2632106005 MW-5 EPA 8011 HH 2 PASI-C 2632106006 MW-6 EPA 8260D CL 20 PASI-C 2632106007 MW-7 EPA 8011 HH 2 PASI-C 2632106007 MW-7 EPA 8011 HH 2 PASI-C 2632106008 MW-8 EPA 8011 HH 2 PASI-C 2632106009 MW-9 EPA 8260D CL 20 PASI-C 2632106009 MW-9 EPA 8260D CL 20 PASI-C 2632106010 MW-10 EPA 8260D CL 20 PASI-C 2632106011 MW-11 EPA 8260D JJK 20 PASI-C 2632106011 MW-11 EPA 8260D JJK 20	92632106002	MW-2	EPA 8011	НН	2	PASI-C
EPA 8260D			EPA 8260D	CL	20	PASI-C
2632106004 MW-4 EPA 8011 HH 2 PASI-C 2632106005 MW-5 EPA 8011 HH 2 PASI-C 2632106006 MW-6 EPA 8011 HH 2 PASI-C 2632106006 MW-6 EPA 8011 HH 2 PASI-C 2632106007 MW-7 EPA 8011 HH 2 PASI-C 2632106008 MW-8 EPA 8011 HH 2 PASI-C 2632106009 MW-9 EPA 8011 HH 2 PASI-C 2632106010 MW-9 EPA 8011 HH 2 PASI-C 2632106010 MW-10 EPA 8011 HH 2 PASI-C 2632106011 MW-10 EPA 8011 HH 2 PASI-C 2632106011 MW-11 EPA 8011 HH 2 PASI-C 2632106012 DW-1 EPA 8011 HH 2 PASI-C 2632106012 DW-1 EPA 8001 HH 2 PASI-C <td>92632106003</td> <td>MW-3R</td> <td>EPA 8011</td> <td>НН</td> <td>2</td> <td>PASI-C</td>	92632106003	MW-3R	EPA 8011	НН	2	PASI-C
EPA 8260D CL 20			EPA 8260D	CL	20	PASI-C
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EPA 8260D JJK 20 PASI-C 2632106011 MW-11 EPA 8011 HH 2 PASI-C 2632106012 DW-1 EPA 8011 HH 2 PASI-C 2632106013 CK-1 EPA 8011 HH 2 PASI-C 2632106014 CK-2 EPA 8011 HH 2 PASI-C 2632106015 CK-3 EPA 8011 HH 2 PASI-C 2632106016 CK-4 EPA 8011 HH 2 PASI-C 2632106016 CK-4 EPA 8011 HH 2 PASI-C 2632106017 DUP EPA 8011 HH 2 PASI-C 2632106018 FB EPA 8011 HH 2 PASI-C 2632106018 FB EPA 8011 HH 2 PASI-C 2632106018 FB EPA 8011 HH 2 PASI-C 2632106018 PASI-C 2632106018 FB EPA 8011 HH 2 PASI-C 2632106018 PASI-C 2632106018 FB EPA 8011 HH 2 PASI-C 2632106018 PASI-C			EPA 8260D	CL	20	PASI-C
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2632106018 FB EPA 8011 HH 2 PASI-C EPA 8260D CL 20 PASI-C	92632106017	DUP	EPA 8011	НН	2	PASI-C
EPA 8260D CL 20 PASI-C			EPA 8260D	SAS	20	PASI-C
	92632106018	FB	EPA 8011	НН	2	PASI-C
2632106019 TB EPA 8260D CL 20 PASI-C			EPA 8260D	CL	20	PASI-C
	92632106019	тв	EPA 8260D	CL	20	PASI-C



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SAMPLE ANALYTE COUNT

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Lab ID Sample ID Method Analysts Reported Laboratory

PASI-C = Pace Analytical Services - Charlotte



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	
2632106010	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	
2632106011	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	
2632106017	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	



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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:

(704)875-9092



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:



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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.



ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-1	Lab ID: 926	32106001	Collected: 10/18/2	2 14:19	Received: 10)/19/22 12:45 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EP/	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 21:59	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l Services -	Charlotte					
tert-Amyl Alcohol	3250	ug/L	1000	10		10/26/22 09:36	75-85-4	
ert-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	
n&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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-2	Lab ID: 926	32106002	Collected: 10/18/2	2 14:59	Received: 10)/19/22 12:45 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	11 Preparation Meth	nod: EP/	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 22:09	106-93-4	
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 Meth	nod: EPA 82	60D					
	Pace Analytica	l 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	
n&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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-3R	Lab ID: 926	32106003	Collected: 10/18/2	2 13:30	Received: 10	/19/22 12:45 N	/latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	11 Preparation Meth	nod: EPA	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 22:20	106-93-4	
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 Meth	nod: EPA 82	60D					
	Pace Analytica	l 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	
p-Xylene	ND	ug/L	5.0	1		10/21/22 05:33	95-47-6	
Surrogates		ū						
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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-4	Lab ID: 926	32106004	Collected: 10/18/2	2 14:28	Received: 10	/19/22 12:45 N	/latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EPA	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 22:31	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-5	Lab ID: 926	32106005	Collected: 10/18/2	2 13:22	Received: 10)/19/22 12:45 N	//atrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EP/	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 22:41	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	
n&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		
1,2-Dichloroethane-d4 (S)	96	%	70-130	1		10/21/22 06:10		
Toluene-d8 (S)	102	%	70-130	1		10/21/22 06:10	2037-26-5	

(704)875-9092



ANALYTICAL RESULTS

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-6	Lab ID: 926	32106006	Collected: 10/18/2	2 13:19	Received: 10	/19/22 12:45 N	/latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EPA	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	1	10/21/22 11:27	10/21/22 22:52	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-7	Lab ID: 926	32106007	Collected: 10/18/2	2 13:41	Received: 10	/19/22 12:45 N	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EPA	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 23:03	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	
p-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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-8	Lab ID: 926	32106008	Collected: 10/18/2	2 14:06	Received: 10)/19/22 12:45 N	/latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EP/	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 23:13	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l Services -	Charlotte					
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 07:05	75-85-4	
ert-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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-9	Lab ID: 926	32106009	Collected: 10/18/2	2 14:37	Received: 10	/19/22 12:45 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EP/	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 23:24	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-10	Lab ID: 926	32106010	Collected: 10/18/2	2 14:18	Received: 10)/19/22 12:45 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	11 Preparation Meth	nod: EPA	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 23:35	106-93-4	
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 Meth	nod: EPA 82	60D					
	Pace Analytica	l 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	
n&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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: MW-11	Lab ID: 926	32106011	Collected: 10/18/2	2 13:53	Received: 10	/19/22 12:45 N	/latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EPA	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 23:46	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: DW-1	Lab ID: 926	32106012	Collected: 10/18/2	2 13:08	Received: 10	/19/22 12:45 N	/latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	od: EPA	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 15:46	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: CK-1	Lab ID: 926	32106013	Collected: 10/18/2	2 10:16	Received: 10	/19/22 12:45 N	/latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EPA	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 15:57	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: CK-2	Lab ID: 926	32106014	Collected: 10/18/2	2 10:21	Received: 10)/19/22 12:45 N	//atrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EP/	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 16:07	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: CK-3	Lab ID: 926	32106015	Collected: 10/18/2	2 13:04	Received: 10)/19/22 12:45 N	/latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EPA	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 16:18	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	
n&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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: CK-4	Lab ID: 926	32106016	Collected: 10/18/2	2 14:06	Received: 10	/19/22 12:45 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EP/	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 16:29	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: DUP	Lab ID: 926	32106017	Collected: 10/18/2	22 00:00	Received: 10)/19/22 12:45 N	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EPA	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/21/22 11:27	10/21/22 16:40	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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	
n&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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: FB	Lab ID: 926	32106018	Collected: 10/18/2	2 14:41	Received: 10	/19/22 12:45 N	/latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical Meth	nod: EPA 80	011 Preparation Meth	nod: EP/	A 8011			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	1	10/21/22 11:27	10/21/22 16:50	106-93-4	
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 Meth	nod: EPA 82	260D					
	Pace Analytica	l 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		ū						
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	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

Sample: TB	Lab ID: 926	32106019	Collected: 10/18/2	22 08:00	Received:	10/19/22 12:45	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260 MSV	Analytical Met	hod: EPA 82	60D					
	Pace Analytica	al Services -	Charlotte					
tert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 03:4:	3 75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	1		10/21/22 03:4:	3 994-05-8	
Benzene	ND	ug/L	5.0	1		10/21/22 03:4:	3 71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	1		10/21/22 03:4	3 624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 03:4:	3 75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 03:4:	3 762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1		10/21/22 03:4:	3 107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1		10/21/22 03:4:	3 108-20-3	
Ethanol	ND	ug/L	200	1		10/21/22 03:4	3 64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		10/21/22 03:4:	3 100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 03:4:	3 637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/21/22 03:4:	3 1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/21/22 03:4:	3 91-20-3	
Toluene	ND	ug/L	5.0	1		10/21/22 03:4:	3 108-88-3	
Xylene (Total)	ND	ug/L	5.0	1		10/21/22 03:4:	3 1330-20-7	
m&p-Xylene	ND	ug/L	10.0	1		10/21/22 03:4:	3 179601-23-1	
o-Xylene	ND	ug/L	5.0	1		10/21/22 03:4	3 95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	99	%	70-130	1		10/21/22 03:4:		
1,2-Dichloroethane-d4 (S)	105	%	70-130	1		10/21/22 03:4		
Toluene-d8 (S)	101	%	70-130	1		10/21/22 03:4:	3 2037-26-5	



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

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
					Qualificis
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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	

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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

LABORATORY CONTROL SAMPLE: 3809702 Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Toluene 50 51.0 70-130 ug/L 102 150 108 70-130 Xylene (Total) ug/L 162 1,2-Dichloroethane-d4 (S) 70-130 % 111 % 4-Bromofluorobenzene (S) 102 70-130 Toluene-d8 (S) % 100 70-130

MATRIX SPIKE & MATRIX SPIR	KE DUPLICAT	E: 38097	03		3809704						
			MS	MSD							
	926	32106015	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qua
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	1	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	
ert-Amyl Alcohol	ug/L	ND	400	400	404	ND	101	0	54-153	- 1	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	
ert-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		

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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

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

		Blank	Reporting		
Parameter	Units	Result	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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

LABORATORY CONTROL SAMPL	E: 3809312					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
- arameter			- TCSuit	70 TCC	Lillius	Qualificis
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						
		92632104005	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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					
		92632106007	Dup		
Parameter	Units	Result	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		

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.

(704)875-9092



QUALITY CONTROL DATA

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

SAMPLE DUPLICATE: 3809313					
		92632106007	Dup		
Parameter	Units	Result	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		

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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

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

		Blank	Reporting		
Parameter	Units	Result	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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2-Dichloroethane	ug/L		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	

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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

LABORATORY CONTROL SAMPLE: 3809321 Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Toluene 50 70-130 ug/L 46.9 94 150 99 70-130 Xylene (Total) ug/L 148 1,2-Dichloroethane-d4 (S) 70-130 % 104 % 4-Bromofluorobenzene (S) 102 70-130 Toluene-d8 (S) % 98 70-130

MATRIX SPIKE & MATRIX SPIR	KE DUPLICAT	E: 38093	22		3809323						
			MS	MSD							
	926	32124002	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qua
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		

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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

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

7.330ciated Lab Gampies. 9203	2 1000 10, 32032 1000 11				
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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	

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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

LABORATORY CONTROL SAMPLE: 3809327 Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Toluene 50 70-130 ug/L 52.6 105 150 106 70-130 Xylene (Total) ug/L 159 1,2-Dichloroethane-d4 (S) 70-130 % 99 % 4-Bromofluorobenzene (S) 101 70-130 Toluene-d8 (S) % 101 70-130

MATRIX SPIKE & MATRIX SPIR	KE DUPLICAT	E: 38093	28		3809329						
			MS	MSD							
	926	31403026	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2-Dichloroethane	ug/L	ND	250	250	293	289	117	116	70-137		
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		

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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

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		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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	

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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

LABORATORY CONTROL SAMPLE: 3813914 Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Toluene 50 70-130 ug/L 44.3 89 150 96 70-130 Xylene (Total) ug/L 144 1,2-Dichloroethane-d4 (S) 93 % 70-130 4-Bromofluorobenzene (S) % 101 70-130 Toluene-d8 (S) % 98 70-130

MATRIX SPIKE & MATRIX SPIR	KE DUPLICAT	E: 38139	15		3813916						
			MS	MSD							
	926	32104002	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
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	
ert-Amyl Alcohol	ug/L	ND	160000	160000	164000	165000	103	103	54-153	1	
ert-Amylmethyl ether	ug/L	ND	16000	16000	16900	17200	105	107	69-139	2	
ert-Butyl Alcohol	ug/L	ND	80000	80000	69700	72500	87	91	43-188	4	
ert-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		

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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

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	Result	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	•	38	310087		•				
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	DUPLICAT	E: 38100	89		3810090						
			MS	MSD							
	926	32104010	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% 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					
		92632104009	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		
1-Chloro-2-bromopropane (S)	%	108	107		

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.



Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

QC Batch: 731877 Analysis Method:

QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP

Laboratory: Pace Analytical Services - Charlotte

EPA 8011

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

Blank Reporting Parameter Units Result Limit Analyzed Qualifiers 1,2-Dibromoethane (EDB) ND 0.020 10/21/22 15:14 ug/L 1-Chloro-2-bromopropane (S) % 107 60-140 10/21/22 15:14

LABORATORY CONTROL SAMPLE & LCSD: 3810094 3810095 Spike LCS LCSD LCS LCSD % Rec Max Parameter Units Conc. Result % Rec % Rec Limits RPD RPD Qualifiers Result 1.2-Dibromoethane (EDB) ug/L 0.25 0.24 0.23 98 94 60-140 20 1-Chloro-2-bromopropane (S) % 101 97 60-140

3810098 MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3810097 MS MSD 92630941010 Spike Spike MS MSD MS MSD % Rec Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits **RPD** Qual 1,2-Dibromoethane (EDB) ug/L ND 0.25 0.25 0.24 0.22 95 89 60-140 1-Chloro-2-bromopropane (S) 87 82 60-140 %

SAMPLE DUPLICATE: 3810096

Date: 10/27/2022 08:50 AM

		92630941001	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		
1-Chloro-2-bromopropane (S)	%	94	99		

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.



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

Date: 10/27/2022 08:50 AM

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.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NICKEL PUMPER 233 04878

Pace Project No.: 92632106

Date: 10/27/2022 08:50 AM

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
2632106016	CK-4	EPA 8011	731877	EPA 8011	731961
2632106017	DUP	EPA 8011	731877	EPA 8011	731961
2632106018	FB	EPA 8011	731877	EPA 8011	731961
2632106013	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		
2632106004	MW-4	EPA 8260D	731722		
2632106005	MW-5	EPA 8260D	731722		
2632106006	MW-6	EPA 8260D	731722		
2632106007	MW-7	EPA 8260D	731720		
92632106008	MW-8	EPA 8260D	731720		
2632106009	MW-9	EPA 8260D	731720		
2632106010	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	ТВ	EPA 8260D	731720		

	Relinquished by/Company: (Signature)	Relinquished by Campany (Signature)		Relinquished by/Company: (Signature)				Customer Remarks / Special Conditions / Possible Hazards:	mw-9	2 - MW- 8	MWLT	MW-6	3 Wis	3 MINN	1000 - C	NW-38	~ W - D	MW-		Customer Sample ID	* 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)	[] Hold:	Sample Disposal: [] Dispose as appropriate [] Return	collected by (signature):	Shown Sprott	Email:		Customer Project Name/Number:	Copy To:	Report To: R. DUINA	Address: Sull st.	Company: $SCDH \in C$	Pace Analytical	
		е)		ef				ons / Possible Haz	< -	tu.				1	T I	i da	N -	GW	6	Matrix *	x below): Drinkin), Wipe (WP), Air	[] 2 Day [Exp	S	Turnaround Date Required:	Quote #:	049	Site/Facility ID #:	222		ign et 1	0.0	T	CHAIN-(
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	200	A Company	5	Rec	ple(s) scre	on bole	ial Used:	1	:37	06	14:5	:19	こんら	2	4.28	30	65:	1 - July	Time	(or Start)	Water (GV say (B), V] 5 Day A	nage edt	a/\ of at	ionts de li			County/City:	n Info/Ad	MADE		nation:	nalytic CUMENT	
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y. (Signature)	V. (Signature)	Company: (Signature)	No. of the last of	le le	Y N (NA)	od '	15	Dry None	5	(171	.lio	9	1 11	9	4	V.	9	Di Yo	Res # of Ctns	JT)	1 S.	plicable): lo	d on Ice:	lomi III ar	lo min	q [3	Collected:		V000			Document Sevent fields	
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Strange of the	10 2 3 3	Date/Time	M/M.	PEDEX UPS	- i		Lab Tracking #:	SHORT HOLDS PRESENT (<72 hours):		51		oo qe	71	A.J	16) (16)	d ali	3 1 1 1) 1 191 1111	gy gy tu: le		amp amp o uc	o 80	Mer em e em e em e em e em e em e em e em	inti pop not not ired	olion e. sa nos	bular bular s and	de di Unit Unit Oction	ika Ka	62 S	(C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other	Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxi	Container		LAB USE C	
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			JSE ONLY	Pace Courier	21			NHA NHIN				, ,	2/0		200	200	- 1	0		Lab S	Sulfide Lead Ace	Sampl pH St	Samples Residua Cl Stri	VOA -	Corre	Custody Collecto	Custo	Lab Pro	er	drochloric acid, (4	Lab Pro		MO#: 92632106	
Non Conformance(s):	Trip Blank Received:		Comments	Cooler 1 C	Cooler 1 Th	Therm ID#	Temp Blan	I ah Samnie T				1000	0101	CAOA	200	Odor	,),	4245	LAB USE ONLY: Lab Sample # / Co	ide Present Acetate Stri	Sample pH Accepta pH Strips:	Samples in Holdir Residual Chlorine Cl Strips:	VOA - Headspace / USDA Regulated So	Correct Bottles Sufficient Volume	Custody Signature Collector Signate Bottles Intact	ody Seals Pr	Lab Profile/Line: Lab Sample Recei	orbic acid, (B) am) sodium hydroxi	Lab Project Manager:		106	
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ure)	S)	yre)	1		tions / Possible H	€ as		€.			115	F11	10	有	6W	51	Matrix *	ox below): Drinkii L), Wipe (WP), A	[] 2 Day [(Ex	Rush: [] Same Day	Care	Turnaround Da	Purchase Order #:	Site/Facility ID #:	233						Chain-o	CHAIN-
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Date/Time:	Day6/Time:	Date/Time:	Radchem sample(s	Packing Material Used:	Type of Ice Used:	N 8:0	h:h)	-	14:06	13:04	10:21	10:16	13:08	13:5	8 (:41 86/81/01	Date Time	Collected (or Composite Start)	DW), Ground Wate sue (TS), Bioassay ([] 4 Day [] 5 Day irges Apply)] Next Day	s bn		erria Pol		SC / Josper	State: County	Site Collection Info/Address:	Email To:		Billing Information:	is a LEGAL DOCUMI	STODY Analy
Received by/Company: (Signature)	Received by/	Received by Compagn	Radchem sample(s) screened (<500 cpm):	Bubble	Wet Blue Dry	0			0.5	4	ien	9-0	337		911	Date Time	Composite End	er (GW), Wastewater (W B), Vapor (V), Other (OT)	Analysis:	Field Filtered (if applicable): [] Yes [] No	[] Yes [] No	Immediately Packed on Ice	DW PWS ID #:	Compliance Monitoring?	or []PT[]MT[]CT	33	Just.X	7			Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields	CHAIN-OF-CUSTODY Analytical Request Document
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TX7 Date/Time: 1245	10/20/20 10/19/20	Mary 1800	d via: JPS		SHORT HOLDS PRESENT (<72 hours):	X	X	4	DY.	in in	101: 0 111: 12:) (EC	a) paj	2 2) 19(X A A THE LA	A.E	TEX DI	B. 80 m. vin otuon (atc	OSIO mat me s ne s hy si	dt ni eign haei	A,6	wys Gli	289 289 Mulli 190	Dec D Li ela Li ela Li ela Li ela	nnes mesan	Analyses	(6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide (D) TOP (1) I Ingreserved (D) Other	** Preservative Types: (1) nitric ac	Container Preservative Type **	AL.		LAB USE ONLY-
		Table #:	Client Courier Pace Courier	2621453	(<72 hours): Y N (N/A)	(6)				10				110	210	A STATE	9011 1903 7516		ayta at a	76.0		10	101	0.000	Alan Mari Mari	/ses	(II) I preserved (O) Other	cid, (2) sulfuric acid, (3) hydrochlo	vative Type **	SCIENT: 9Z-SCUMEC	PM: TMC	WO#: 92632106
Non Conform YES /	Trip Blank Received:	NLY Comments:		Therm ID#:	Lab Sample T	10		9V 60	· A		1	LDC -	No Oder	5 1:9k+ 0 dor	ofor		Sample # /	Lead Acetate Strips:	Sample pH Acceptable pH Strips: Sulfide Present		VOA - Headspace Acce USDA Regulated Soils Samples in Holding T	ples Received	Correct Bottles	Signature or Signature	Lab Sample Receipt Custody Seals Pres	Lab Profile/Line:	ne, (A) ascorbic acid, (B) amm	ric acid. (4) sodium hydroxide	Lab Project Manager:	•	Due Date: 10/26/22	32106
mance(s): Page: 2	Received: (Y N NA OH TSP Other		Cooler 1 Therm Corr. Factor: -0*1 oC Cooler 1 Corrected Temp: 1.2 oC	Therm ID#: (N/ NA Cooler 1 Temp Upon Receipt: 1.3 oC	Info:	(7)9	840	L10 8	210	015	110 HO	013	012	110	010	NOG			ore A N(N9)	esent Y	ptable GN		ZZZ		Checklist:		onium sulfate,	. (5) zinc acetate		Page 4	/ 22	٦ 46

Pace Mentacinan

Effective Date: 05/12/202205/12/2022

*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

Project #

WO#: 92632106

PM: TMC

Due Date: 10/26/22

CLIENT: 92-SCDHEC

**Bottom half of box is to list number of bottles

***Check all unpreserved Nitrates for chlorine

tem#	BP4U-125 mL Plastic Unpreserved (N/A) (CI-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP45-125 mL Plastic H2SO4 (pH < 2) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic 2N Acetate & NaOH (>9)	BP48-125 mL Plastic NaOH (pH > 12) (CI-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG15-1 liter Amber H2SO4 (pH < 2)	AG35-250 mL Amber H2SO4 (pH < 2)	DG94-250 mL Amber NH4Cl (N/A)(CI-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unpreserved (N/A)	DG9V-40 mL VOA H3PO4 (N/A)	DG95-40 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) (CI-)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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		pH Ac	ljustment Log for Pres	erved 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.

race		· · · · · · · · · · · · · · · · · · ·	
WESTER TRAFFS			
	Effective Date: 05/12/202205/12/2022		

*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

Project #

**Bottom half of box is to list number of bottles

***Check all unpreserved Nitrates for chlorine

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (CI-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP45-125 mL Plastic H2SO4 (pH < 2) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP42-125 mL Plastic ZN Acetate & NaOH (>9)	BP48-125 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) (CI-)	AG15-1 liter Amber H2SO4 (pH < 2)	AG35-250 mL Amber H2SO4 (pH < 2)	DG94-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL vOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unpreserved (N/A)	DG9V-40 mL VOA H3PO4 (N/A)	DG95-40 mL VOA H2SO4 (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)		BP3R-250 mL Plastic (NH2)25O4 (9.3-9.7)	AGOU-100 mL Amber Unpreserved (N/A) (CI-)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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		pH Ac	ljustment Log for Pres	erved 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.





9800 Kincey Ave. Suite 100 Huntersville, NC 28078 (704)875-9092

CERTIFICATIONS

Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Pace Analytical Services Charlotte

South Carolina Laboratory ID: 99006 South Carolina Certification #: 99006001

9800 Kincey Ave. Ste 100, Huntersville, NC 28078 South Carolina Drinking Water Cert. #: 99006003

North Carolina Drinking Water Certification #: 37706 Florida/NELAP Certification #: E87627 North Carolina Field Services Certification #: 5342 Kentucky UST Certification #: 84

North Carolina Wastewater Certification #: 12 Louisiana DoH Drinking Water #: LA029

South Carolina Laboratory ID: 99006 Virginia/VELAP Certification #: 460221

(704)875-9092



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	— — нн	2	PASI-C
		EPA 524.2	LMB	11	PASI-C
		EPA 8260D	JJK	11	PASI-C
92632102002	WSW-DUP	EPA 504.1	НН	2	PASI-C
		EPA 524.2	LMB	11	PASI-C
		EPA 8260D	JJK	11	PASI-C
92632102003	WSW-FB	EPA 504.1	НН	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



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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:



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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:



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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.



Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Date: 10/26/2022 03:07 PM

Sample: WSW-1	Lab ID: 926	32102001	Collected: 10/18/2	2 13:22	Received: 10)/19/22 08:00	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
504 GCS EDB and DBCP	Analytical Meth	nod: EPA 50	04.1 Preparation Met	hod: EP	A 504.1			
	Pace Analytica	l Services -	Charlotte					
,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.021	1	10/24/22 11:22	10/24/22 20:06	106-93-4	
-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 Meth	nod: EPA 52	24.2					
	Pace Analytica	l Services -	Charlotte					
Benzene	ND	ug/L	0.50	1		10/20/22 23:25	71-43-2	
,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	
l'oluene	ND	ug/L	0.50	1		10/20/22 23:25	108-88-3	
(ylene (Total)	ND	ug/L	0.50	1		10/20/22 23:25	1330-20-7	
n&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								
,2-Dichlorobenzene-d4 (S)	92	%	70-130	1		10/20/22 23:25	2199-69-1	
I-Bromofluorobenzene (S)	92	%	70-130	1		10/20/22 23:25	460-00-4	
2260 MSV Low Level SC	Analytical Meth	nod: EPA 82	260D					
	Pace Analytica	l Services -	Charlotte					
ert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 17:17	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 17:17	75-65-0	
ert-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		
I-Bromofluorobenzene (S)	102	%	70-130	1		10/21/22 17:17	460-00-4	
,2-Dichloroethane-d4 (S)	106	%	70-130	1		10/21/22 17:17		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	100	70	10-130			10121122 11.11	17000-07-0	



Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Date: 10/26/2022 03:07 PM

Sample: WSW-DUP	Lab ID: 926	32102002	Collected: 10/18/2	2 00:00	Received: 10	/19/22 08:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua			
504 GCS EDB and DBCP	Analytical Metl	nod: EPA 50	04.1 Preparation Met	hod: EP	A 504.1						
	Pace Analytica	l Services -	Charlotte								
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.020	1	10/24/22 11:22	10/24/22 20:27	7 106-93-4				
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 Metl	nod: EPA 52	24.2								
	Pace Analytical Services - Charlotte										
Benzene	ND	ug/L	0.50	1		10/20/22 23:52	2 71-43-2				
1,2-Dichloroethane	ND	ug/L	0.50	1		10/20/22 23:52	2 107-06-2				
Ethylbenzene	ND	ug/L	0.50	1		10/20/22 23:52	2 100-41-4				
Methyl-tert-butyl ether	ND	ug/L	0.50	1		10/20/22 23:52	2 1634-04-4				
Naphthalene	ND	ug/L	0.50	1		10/20/22 23:52	2 91-20-3				
Toluene	ND	ug/L	0.50	1		10/20/22 23:52	2 108-88-3				
Kylene (Total)	ND	ug/L	0.50	1		10/20/22 23:52	2 1330-20-7				
m&p-Xylene	ND	ug/L	1.0	1			2 179601-23-1				
o-Xylene	ND	ug/L	0.50	1		10/20/22 23:52	2 95-47-6				
Surrogates		3-									
1,2-Dichlorobenzene-d4 (S)	96	%	70-130	1		10/20/22 23:52	2 2199-69-1				
4-Bromofluorobenzene (S)	97	%	70-130	1		10/20/22 23:52	2 460-00-4				
3260 MSV Low Level SC	Analytical Metl	nod: EPA 82	260D								
	Pace Analytica	l Services -	Charlotte								
ert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 17:36	5 75-85-4				
ert-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				
ert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 17:36	75-65-0				
ert-Butyl Formate	ND	ug/L	50.0	1		10/21/22 17:36					
Diisopropyl ether	ND	ug/L	1.0	1		10/21/22 17:36					
Ethanol	ND	ug/L	200	1		10/21/22 17:36					
Ethyl-tert-butyl ether	ND	ug/L	10.0	1		10/21/22 17:36					
Surrogates		~g, _	10.0	•							
1-Bromofluorobenzene (S)	100	%	70-130	1		10/21/22 17:36	6 460-00-4				
1,2-Dichloroethane-d4 (S)	106	%	70-130	1		10/21/22 17:36					
.,	.50	70	, 5 100	•		. 5/2 . / 22 . / . 00					



Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Date: 10/26/2022 03:07 PM

Sample: WSW-FB	Lab ID: 926	32102003	Collected: 10/18/2	2 13:31	Received: 10)/19/22 08:00 N	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
504 GCS EDB and DBCP	Analytical Meth	od: EPA 50	04.1 Preparation Met	hod: EP	A 504.1			
	Pace Analytica	l Services -	Charlotte					
1,2-Dibromoethane (EDB) Surrogates	ND	ug/L	0.019	1	10/24/22 11:22	10/24/22 20:59	106-93-4	
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 Meth	od: EPA 52	24.2					
	Pace Analytica	l 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	
Kylene (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	
3260 MSV Low Level SC	Analytical Meth	od: EPA 82	260D					
	Pace Analytica	l Services -	Charlotte					
ert-Amyl Alcohol	ND	ug/L	100	1		10/21/22 03:07	75-85-4	
ert-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	
ert-Butyl Alcohol	ND	ug/L	100	1		10/21/22 03:07	75-65-0	
ert-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		
Surrogates		0/	70.400			40/04/00 00 07	400.00.4	
4-Bromofluorobenzene (S)	96	%	70-130	1		10/21/22 03:07		
1,2-Dichloroethane-d4 (S)	102	%	70-130	1		10/21/22 03:07		
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

Date: 10/26/2022 03:07 PM

Sample: WSW-TB	Lab ID: 926	32102004	Collected: 10/18/2	2 08:00	Received:	10/19/22 08:00 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
524.2 MSV SC List	Analytical Metl	nod: EPA 52	24.2					
	Pace Analytica	l 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		
4-Bromofluorobenzene (S)	92	%	70-130	1		10/20/22 22:59	460-00-4	
8260 MSV Low Level SC	Analytical Metl	nod: EPA 82	260D					
	Pace Analytica	l 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	



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

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND 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

Date: 10/26/2022 03:07 PM

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L		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	

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.



Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Date: 10/26/2022 03:07 PM

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 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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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 SP	IKE DUPLICAT	E: 38097	03		3809704					
	926	632106015	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD Qua
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

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.



Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Date: 10/26/2022 03:07 PM

MATRIX SPIKE & MATRIX SPIK	E DUPLICAT	E: 38097	03		3809704						
	026	632106015	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
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		

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.



Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Date: 10/26/2022 03:07 PM

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		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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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						
		92632065013	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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.



Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Date: 10/26/2022 03:07 PM

MATRIX SPIKE SAMPLE:	3810830						
Parameter	Units	92632065013 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
- arameter				- TOSUIT	70 TCC	Limits	Qualificis
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					
		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		

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.



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

Blank Reporting Qualifiers Parameter Units Result Limit Analyzed 1,2-Dibromoethane (EDB) ND 0.020 10/24/22 19:34 ug/L 10/24/22 19:34 1-Chloro-2-bromopropane (S) % 109 70-130

LABORATORY CONTROL SAMPLE & LCSD: 3811649 3811650 Spike LCS LCSD LCS LCSD % Rec Max Parameter Units Conc. Result Result % Rec % Rec Limits RPD RPD Qualifiers 1.2-Dibromoethane (EDB) 0.25 94 97 2 ug/L 0.23 0.24 70-130 20 1-Chloro-2-bromopropane (S) % 111 112 70-130

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3811652 3811653 MS MSD 92632102002 Spike Spike MS MSD MS MSD % Rec Parameter Units Result Conc. Conc. Result Result % 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

Date: 10/26/2022 03:07 PM

		92632102001	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		
1-Chloro-2-bromopropane (S)	%	113	111		

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.



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

Date: 10/26/2022 03:07 PM

М1

Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

(704)875-9092



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 04878 NICKELPUMPER 233

Pace Project No.: 92632102

Date: 10/26/2022 03:07 PM

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		

Relinguished by/Company: (Signature)	Relinquished by/Company: (Signature)		Customer Remarks / Special Conditions / Possible Hazards:					ESW-TB	WSWIFRR	MOW-DUP	W5W-	Customer Sample ID		* 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)	[] Dispose as appropriate [] Return [] Archive:	Sample Disposal:	Collected By (signature):	Shawn Sprott		1	Customer Project Name/Number	Conv To: R. Dann	Address: 7600 Bull St	Company: SCDHEC	Pace Analytical*	3
(re)) A		ions / Possible Haz	23 b			ils.	111	13	lu. Is.	DW	Matrix *	0	x below): Drinking L), Wipe (WP), Air I	[] Same Day [] 2 Day [] 3 Da (Expedite (Rush:	Turnaround Date Required:	Purchase Order #: Quote #:	Site/Facility ID #:	200	13-	alai alar	00.1	ļ	Chain-of-C	CHAIN-O
Date/Time: Date/Time:	Radch Date/Time:	Packi				my	04.	-	10		G 10/18/2	Grab Comp Date	Comp / C	Water (DW), (AR), Tissue (T	iame Day [] Next Day [] 3 Day [] 4 Day [(Expedite Charges Apply)	- 1	Required:	H.J.	(6	Sale.	Ctato C	Email 10:	1	Billin	Custody is a LE	F-CUSTO
17.12	nem sample(s) s	Packing Material Used:	Type of Ice Used: (an ac	lo r	ek og		× ;	13:31	-	_	Composite Start) Date Time	Collected (or	Ground Water S), Bioassay (B)	ext Day Day []5 Day ply)		A A	io ts to tr	moli moli	1 Jasper	Comercial miles	site Collection left (Address	115	Billing Information:	GAL DOCUMEN	DY Analyti
Received by/Company: (Signature)	Radchem sample(s) screened (<500 cpm)	ole baca	Wet Blue Dry		.,		ien.	1:0	X	546	O.F.	Date Time	Composite End	(GW), Wastewater (W), Vapor (V), Other (OT	[] Yes [] No Analysis:	tered	Immediately Packed on Ice	DW PWS ID #: DW Location Code:	Compliance Monitoring? [] Yes [] No	() PT[] MT[] CT		hec.s			Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields	CHAIN-OF-CUSTODY Analytical Request Document
(Signature)	Y N NA		ry None					x .	9 -	P.	4 ×	Cl Ctns	Res) w),	n oun	icable):	on Ice:	lijeai lijezs	ing?	I] CI [] EI	sali	0.90			ent fields	cument
Date/Time: Date/Time: Date/Time: Date/Time:	Samples received via: FEDEX UPS Date/Time:	Lab Tracking #:	SHORT HOLDS I		10/11/2 (84)	W 36	ioi	×	×	*	×	AS A efur	TIA(STO fixe	the Cl	nl uu	notic (3) (3)	inozs bulbi	lasje 1 i o	sant respi) ammonium nydroxid	* Preservative Types: (3 % 60	9=		Į.
1245	Client		SHORT HOLDS PRESENT (<72 hours):	g i or	1000	V no	25 1	il		10	2)1 10)	dier A si	a bi	no 2	aylans	5.9		21 32 i	Ireia)	dise.P	Analyses	1) nitric acid, (2) sulfur 1 bisulfate, (8) sodium	201	2632102		76: 井口
Table #: Acctnum: Template: Prelogin: PM: PM:	Courier Hace Courier	2621480	s): Y N (N/A)	3								(15)				767				2201	erved, (O) OtherL	ic acid, (3) hydrochloric thiosulfate, (9) hexane				JO#: 92632102
Frip Blank HCL M Non Confor		Temp Blar Therm ID# Cooler 1 T	Lab Sample T					50	00	00	0	82673	Lab Sample # / Comments:	Lead Acetate Strips:	Cl Strips: Sample pH Accepta pH Strips: Sulfide Present	Samples in Holdin Residual Chlorine	VOA - Headspace Acce USDA Regulated Scils		Custody Signature Collector Signature Bottles Intact	Lab Sample Receipt Custody Seals Prese	Lab Profile/Line:	** 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)				3
Non Conformancels: Page:	Cooler 1 Therm Corr. Factor:	k Received: Received: Property of the control of	Temperature Info:	10	30 8		713		521	1	2	102	cmments:	50 0 t	ble Y N	g Time (Y)N Present YN	ptable ON	N N N N N N N N N N N N N N N N N N N	s Present N	igt Checklist:		ide, (5) zinc acetate, imonium sulfate,		LY		der Number or
NA NA	1.20C	NA NA													EB (B) & &	NA AN	NA NA	Ā				Page 2	20 of 2	21

/-Pace

Effective Date: 05/12/202205/12/2022

*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 bottles

***Check all unpreserved Nitrates for chlorine

WO#:92632102

Project PM: TMC

Due Date: 10/26/22

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)	BP45-125 mL Plastic H2SO4 (pH < 2) (CI-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP42-125 mL Plastic 2N Acetate & NaOH (>9)	BP48-125 mL Plastic NaOH (pH > 12) (CI-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (CI-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (CI-)	AG15-1 liter Amber H2SO4 (pH < 2)	AG35-250 mL Amber H2SO4 (pH < 2)	DG94-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCI (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unpreserved (N/A)	DG9V-40 mL VOA H3PO4 (N/A)	DG95-40 mL VOA H2SO4 (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)		BP3R-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AGOU-100 mL Amber Unpreserved (N/A) (CI-)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1																4	3							/				
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		pH Ac	ljustment Log for Pres	erved Samples		
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #
and the second s						
		-				

Mote: 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





9800 Kincey Ave. Suite 100 Huntersville, NC 28078 (704)875-9092

CERTIFICATIONS

Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

Pace Analytical Services Charlotte

South Carolina Laboratory ID: 99006 South Carolina Certification #: 99006001

9800 Kincey Ave. Ste 100, Huntersville, NC 28078 South Carolina Drinking Water Cert. #: 99006003

North Carolina Drinking Water Certification #: 37706 Florida/NELAP Certification #: E87627 North Carolina Field Services Certification #: 5342 Kentucky UST Certification #: 84

North Carolina Wastewater Certification #: 12 Louisiana DoH Drinking Water #: LA029

South Carolina Laboratory ID: 99006 Virginia/VELAP Certification #: 460221



Pace Analytical www.pacelabs.com

9800 Kincey Ave. Suite 100 Huntersville, NC 28078 (704)875-9092

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





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



Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

Date: 10/24/2022 09:11 AM

Sample: GAC	Lab ID:	92632136001	Collected	: 10/18/22	2 14:38	Received: 10/	20/22 08:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
8011 GCS EDB and DBCP	Analytical	Method: EPA 8	3011 Prepara	ation Metho	od: EPA	8011			
	Pace Anal	ytical 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	
,	A	M-45-4, EDA (2200						
8260 MSV	•	Method: EPA 8							
	Pace Anal	ytical 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	
3enzene	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	
ert-Butyl Alcohol	ND	ug/L	100	91.0	1		10/21/22 04:56	75-65-0	
ert-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		
Toluene-d8 (S)	102	%	70-130		1		10/21/22 04:56	2037-26-5	



Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

Date: 10/24/2022 09:11 AM

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

		Blank	Reporting			
Parameter	Units	Result	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	
ert-Amyl Alcohol	ug/L	ND	100	65.6	10/21/22 02:30	
ert-Amylmethyl ether	ug/L	ND	10.0	3.0	10/21/22 02:30	
ert-Butyl Alcohol	ug/L	ND	100	91.0	10/21/22 02:30	
ert-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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	
thyl-tert-butyl ether	ug/L	100	98.9	99	70-130	
thylbenzene	ug/L	50	48.2	96	70-130	
n&p-Xylene	ug/L	100	98.5	98	70-130	
lethyl-tert-butyl ether	ug/L	50	53.4	107	70-130	
laphthalene	ug/L	50	56.9	114	70-130	
-Xylene	ug/L	50	48.9	98	70-130	
ert-Amyl Alcohol	ug/L	1000	1030	103	70-130	
ert-Amylmethyl ether	ug/L	100	102	102	70-130	
ert-Butyl Alcohol	ug/L	500	516	103	70-130	
ert-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.



Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

Date: 10/24/2022 09:11 AM

LABORATORY CONTROL SAMPLE:	3809312					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
- arameter	Office	COIIC.	result	70 TCC	Lillits	Qualificis
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						
		92632104005	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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						
		92632106007	Dup		Max	
Parameter	Units	Result	Result	RPD	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	

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.



Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

Date: 10/24/2022 09:11 AM

SAMPLE DUPLICATE: 3809313						
		92632106007	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
tert-Amyl Alcohol	ug/L	ND 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			

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.



Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

QC Batch: 731880

QC Batch Method: EPA 8011

Analysis 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

Blank Reporting

Units Limit MDL Qualifiers Parameter Result Analyzed 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 Spike LCS LCSD LCS LCSD % Rec Max Parameter Units Conc. Result Result % Rec % Rec Limits RPD RPD Qualifiers 1.2-Dibromoethane (EDB) 0.25 0.22 4 ug/L 0.21 85 88 60-140 20 1-Chloro-2-bromopropane (S) % 88 90 60-140

3810108 MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3810107 MS MSD 92630941017 Spike Spike MS MSD MS MSD % Rec Max RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits **RPD** Qual 1,2-Dibromoethane (EDB) ug/L ND 0.25 0.25 0.21 0.32 85 129 60-140 20 R1 1-Chloro-2-bromopropane % 81 60-140 115

Date: 10/24/2022 09:11 AM

(S)

SAMPLE DUPLICATE: 3810106

		92630941016	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	0
1-Chloro-2-bromopropane (S)	%	90	89			

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.



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

Date: 10/24/2022 09:11 AM

R1 RPD value was outside control limits.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NICKELPUMPER 233 04878

Pace Project No.: 92632136

Date: 10/24/2022 09:11 AM

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		

Relinquished by/Company: (Signature)	Relinquished by/Company;(Signature))	Sign of	Customer Remarks / Special Conditions / Possible Hazards:					Jan.				C DC	customer sample in	Customer Sample ID	Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)	* Matrix Codes (Insert in Matrix h	[] Archive:	Sample Disposal: [] Dispose as appropriate [] Return	Burger	nature):	Collected By (print):	Phone: I	Customer Project Name/Number:	Copy Io:	Report To: B. Shane	Address: Dogley Rd	Company: MECI	Pace Analytical	7
ture)	ture)			litions / Possible Haz	100	568			16			(N N	MININ	1716	OL), Wipe (WP), Air	(expe	[] 2 Day	Rush:	7 TO	Turnaround Date Required:	Purchase Order #: Quote #:	Site/Facility ID #:	DEC 233			60 10 10	7	Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields	
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Date/Time:	Date/Time: 10/19/2 2 8	Radchem sample(s) screened (<500 cpm):	Packing Material Used:	Type of Ice Used:		2.11		14	ąк	5.4	93		10/10/22 1	Composite Start)	Collected (or	ssue (TS), Bio	(Expedite Charges Apply)	_	[] Next Day	s br	d:	91.1.		State: C	ollect	Email To:		Billing Information:	Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields	O TO TO
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Received by/Company: (Signature)	Received	creened (<	9	Wet	rte		ara esta	181	la re			Taya S	Date		Compo	Vapor (V)	GW/ Wast	Analysis:	Field Filte	[]Yes	Immediat	DW PWS ID #: DW Location Code:	Complian [] Yes		8	steenecine			- Comple	
ved by/Company: (Signature)		500 cpm):		Blue C							71		IIme	# # # # # # # # # # # # # # # # # # #	Composite End	Other (O	towater (M	φIJ	Field Filtered (if applicable): [] Yes	ON[]	Immediately Packed on Ice:	ID #: ion Code:	Compliance Monitoring?	Time Zone Collected: [] PT[] MT[] CT		et			te all relev	
ny: (Signat	W. (Signature)	۲ N		Dry No			-11	5 - 10	1007	Ax	J la	Y	Belle	2	Res	Τ)	W)	оц	licable):	be	on Ice:	ga ia	ring?	ollected:	2.4	e.Ju	، دار		ent fields	
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p Blank Reco	Comments	Cooler 1 T	Temp Blan Therm ID# Cooler 1 T	ample T									00	7			7.	ta	lorine	ted So		tles	Signature or Signatu Intact	Recei	0.	hydroxide , (B) amm		-		. 1
ce(s	a ink	Cooler 1 Therm Corr. Factor: Cooler 1 Corrected Temp:	Temp Blank Received: YOUTherm ID# 27 70 Cooler 1 Temp Upon Receipt:	Lab Sample Temperature Info		l W	er fen	di i			01	4	500	100	/ Comments:		 	ble s	Present	lls Time	on Ice	шрі	s Present re Present	pt Checklist: esent/Intact	161	, (5) zinc a onium sulf	4,000	LY	raer number or	N
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APPENDIX B:

TAX MAP



Address

76 BELL HAVEN WAY

RIDGELAND SC

29936

Date

n/a

Price

8/27/2021 \$12000 n/a

0

Reason Qual

Q

n/a

088-48-00-Parcel ID

800

Alternate 088-48-00-008

Sec/Twp/Rng n/a Class Rural commercial Property (vacant land)

Address Acreage 0.72

05 District

Brief OFF FRONTAGE RD **Tax Description**

(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



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 CUILL BE NO COST TO THE PROPERTY
RICHARD CARLSON DUNER FOR ANY & ALL WORK PERFORMES
RIGHT OF ENTRY - UST Permit # 04878 ON THE STEAR THE
RIGHT OF ENTRY - USF Permit # 04878 ON THE PROPERTY JERLETTER 1/27/14 JOHN BEYANT. 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 LICHARD ARISON certify that I am the legal owner of the property
I, CHARO (ACLSON), 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 FOINT SOUTH DR. VACANT POP. Town, City, District, Suburb YEMA SSEE SOUTH CAROLINA
Town, City, District, Suburb YEMA SSEE SOUTH GAROLINA
Name of nearest intersecting street, road, highway, alley TAXMAPH 088-48-00-008
Is this facility within the city limits? (yes or no) I Dan't Know
Is this facility serviced by a public water or sewer utility? (yes or no) (Dowt 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 Phone number
Is the property currently leased or rented to someone? (yes or no) _ NO _, if yes, please provide
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): CAR LSON
Phone Number (home) (work) (323) 222 - 3 007
Current Mailing Address / 920 MAIN ST. LOS ANGELES (A. 9003) Signature of Property Owner:
Signature of Property Owner:
Witness Flor BARtoldes
Date: FeB. 22, 2014 Month Year 0 13 feet
Dayrear
LIST Division/ SMB

UST

APPENDIX E: DATA VERIFICATION CHECKLIST

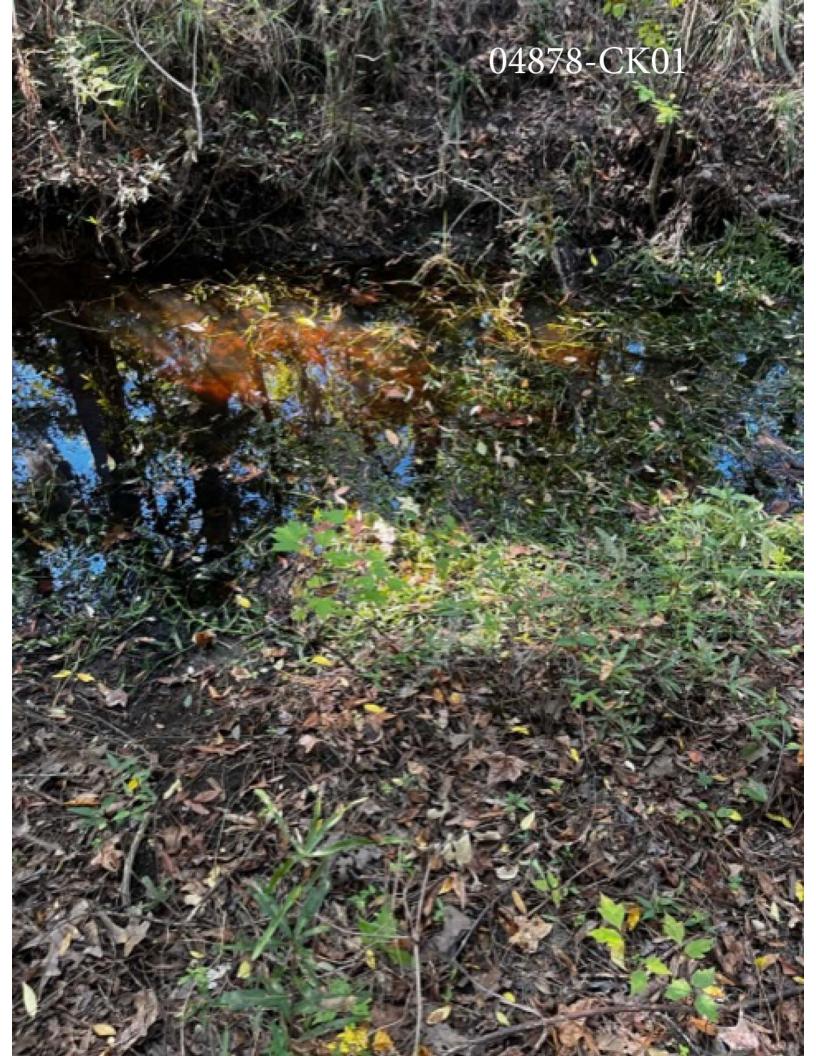
Contractor Checklist

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

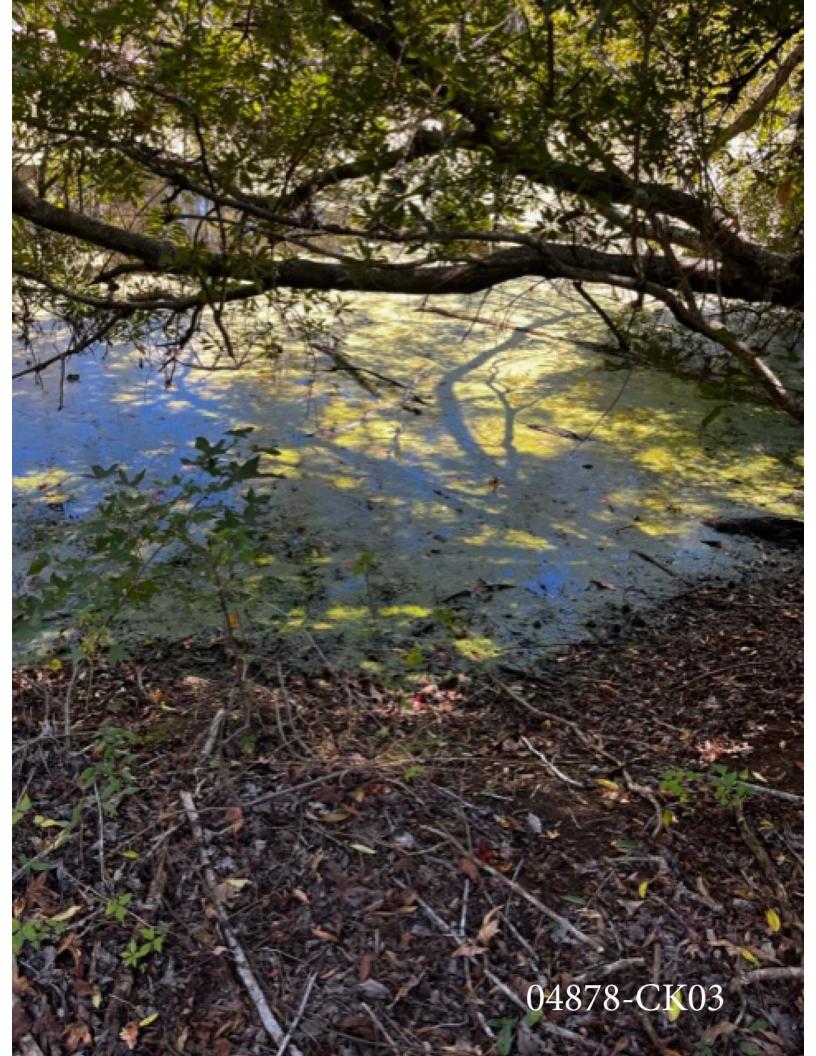
Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further 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













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 rehabilit	ation work for the referenced release	e 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 44-2-120(A) of the SUPERB Act and Section IV(A) of the S.C. DHEC SI					
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 rannual gross income from a business entity.	material interest of sources of income	e which exceed five percent of			
FAMILIAL RELATIONSHIP: A connection or association by family or Family or relatives include: father, mother, son, daughter, brother, sister, mother-in-law, son-in-law, daughter-in-law, stepfather, stepmother, stepgrandparent, grandchild, great-grandchild, step-grandparent, step-great	, uncle, aunt, first cousin, nephew, ni son, stepdaughter, stepbrother, step	ece, husband, wife, father-in-law, sister, half brother, half sister,			
3. PAYMENT					
A. The first \$25,000.00 in eligible site rehabilitation costs for releases applicable SUPERB deductible per Section 44-2-40(D) of the SUPE notarized statement from the contractor verifying payment.					
B. For eligible costs exceeding the \$25,000.00 deductible, you can pa (front and back) or a notarized statement from the contractor verify payment issued directly from the SUPERB Account to the contractor	ing payment, be compensated from t				
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 payr contractor.	nent be made directly to the	O/O Initial:			
C. If the release qualifies under amnesty (reported prior to July 1, 199 contractor and be compensated from the SUPERB Account, or have contractor. (Check one.)					
For eligible costs, I request that payment be made to me after	I have paid the contractor.	O/O Initial:			
– OR	- 1				
For eligible costs, I request that payment be made directly to the	he contractor.	O/O Initial:			
NOTE: As required by the SUPERB Act, all costs must receive prior fine	ancial approval from DHEC regardle	ss of payment option.			
4. UST OWNER/OPERATOR OR PARTY RESPONSIBLE FOR ABO	OVE REFERENCED RELEASE				
Signature:	Date Signed:				
Printed Name:	Telephone Number: ()				
Affiliation (if applicable):	Email Address:				



AUG 3 0 2023

CLIFTON RICARDO SMITH 1544 RED DAM RD HARDEEVILLE SC 29927

Re:

Site Specific Work Plan Request for Groundwater Sampling

Nickelpumper 233, 3296 Point South Drive, Yemassee, SC

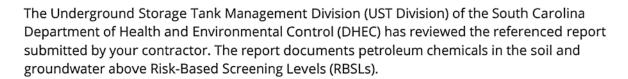
UST Permit #04878

Release reported May 16, 2002

Monitoring Report received November 4, 2022

Jasper County

Dear Mr. Smith:



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,

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 rehabili	tation work for the referenced releas	e 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 44-2-120(A) of the SUPERB Act and Section IV(A) of the S.C. DHEC S	ed Site Rehabilitation Contractor per UPERB Site Rehabilitation and Fund	Section d 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 annual gross income from a business entity.	material interest of sources of incom	e which exceed five percent of			
FAMILIAL RELATIONSHIP: A connection or association by family or Family or relatives include: father, mother, son, daughter, brother, sister mother-in-law, son-in-law, daughter-in-law, stepfather, stepmother, step grandparent, grandchild, great-grandchild, step-grandparent, step-great	, uncle, aunt, first cousin, nephew, n son, stepdaughter, stepbrother, step	iece, husband, wife, father-in-law, sister, half brother, half sister.			
3. PAYMENT					
A. The first \$25,000.00 in eligible site rehabilitation costs for releases applicable SUPERB deductible per Section 44-2-40(D) of the SUP notarized statement from the contractor verifying payment.	reported subsequent to July 1, 1993 ERB Act, upon submittal of the cance	will be applied against the eled check (front and back) or a			
B. For eligible costs exceeding the \$25,000.00 deductible, you can pa (front and back) or a notarized statement from the contractor verify payment issued directly from the SUPERB Account to the contractor	ing payment, be compensated from	nittal of the canceled check the SUPERB Account, or have			
For eligible costs exceeding the deductible, I request that payr paid the contractor.	nent be made to me after I have	O/O Initial:			
– OR	_				
For eligible costs exceeding the deductible, I request that payr contractor.	nent be made directly to the	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	ne contractor.	O/O Initial:			
NOTE: As required by the SUPERB Act, all costs must receive prior fine		ss of payment option.			
4. UST OWNER/OPERATOR OR PARTY RESPONSIBLE FOR ABO	OVE REFERENCED RELEASE				
Signature:	Date Signed:				
Printed Name:	Telephone Number: ()				
Affiliation (if applicable):	Email Address:				



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

MAY 0 4 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

00 47 00 47



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

MAY 0 4 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, Suphanie Briney

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)

Promoting and protecting the health of the public and the environment. APR 1 1 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:

2 . . . /

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 <u>virgin petroleum</u> 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 <u>must be</u> included as an appendix to the final report. <u>Please note</u>, 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)



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 34342

Facility: 04878 NICKELPUMPER 233

BRINEYSM PO Number:

Task / Description Categories	Item Description	Qty / Pct	Unit Price	<u>Amount</u>
10 SAMPLE COLLECTION			,	
1	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 exp	iration da	te of the	Inspecti	on V	Varrant	t.						

SWORN AND SUBSCRIBED TO BY:

Mark Berenbrok, Environmental Control Officer

South Carolina Department of Health

and Environmental Control

This 4 day of /pell 2005

Notary Public

My commission expires 399-2009

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 💪 o

of //////2200

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
- 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



Columbia, SC 29201-1708

BUREAU OF LAND AND WASTE MANAGEMENT UNDERGROUND STORAGE TANK PROGRAM

Phone (803) 896-6240 Fax (803) 896-6245

AUG 0 42003

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,

M. W. K. Jehattak 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

Umar Khattak - Re: Nickelpumper 233-UST#04878

From: Mark K. Berenbrok Khattak, Umar To:

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 >>>

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 , 987 912-596-0987 left message 7/31/03



OFFICE OF GENERAL COUN

TEL::(803)898-3349 FAX:(803)898-3367

APR 1 8 2003

April 17, 2003

UNDERGROUND STORAGE TANK PROGRAM

#04878

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

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,

Administrative Specialist for

Etta R. Williams **DHEC Staff Attorney**

/cah

Enclosure as stated

Mark Berenbrok, UST Program cc:

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STATE OF SOUTH CAROLINA) COUNTY OF JASPER	FOR THE FOURTEENTH JUDICIAL CIRCUIT
South Carolina Department of Health) and Environmental Control	CA No.: 02-CP-27-202
Plaintiff,	PR 15
-vs-	CONSENT AGREEMENT FOR ORDER FOR SUMMARY JUDGMENT
Sunstar, Inc.	D. E.
Defendant.	

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

Page 1 of 3

APR 17 2003

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

#2 PnB 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: 2003.

AT: JASPER, SOUTH CAROLINA

I SO MOVE AND CONSENT:

Etta R Williams
ETTA R. WILLIAMS
ATTORNEY FOR THE PLAINTIFF
COLUMBIA, SOUTH CAROLINA
DATED: March 8 , 2003.

I SO CONSENT:

S:\Share\LEGAL\ALL\MATTERS\10107\SUNSTARConsentAgreeforOrdforSummJ.doc



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 0 62003

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_Tierl-Directive/5/5/2003



Monitoring Well Installation Approval Form

2600 Bull Street Columbia, SC 29201-1708

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:

Un. W. M. Mharak

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



UNDERGROUND STORE GE 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 n 8 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 <u>virgin petroleum</u> 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 <u>must be</u> included as an appendix to the final report. <u>Please note, transportation of waste oil contaminated soil must receive preapproval from the Division of Waste Assessment & Emergency Response.</u>

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 #.
- 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 2 3 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, w. w. matter 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



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:

M. W. M. Whattak

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



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) 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.

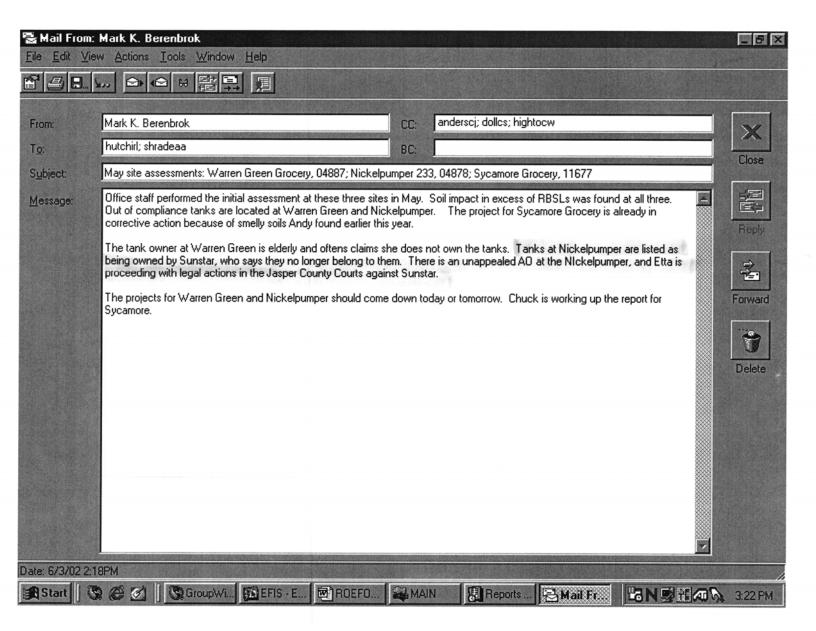
A written inventory of activities performed pursuant to this Inspection Warrant shall be made to the Jasper County Magistrate whose name is affixed below. A copy of such inventory shall be made available to the owner of the premises so inspected if demand is made for a copy thereof.

Presiding Magistrate

his 8 day of Defit 2

. South Carolina

04878-10**:D**OC



PROJECT TRANSFER CHECKLIST

Site Name/Full ID # Nic	sel pumper 279 / # 048 /8
Release # For US	# $1-3$ Release Report Date $5-15-02$
Free Product Reported? Ye	/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) / #NPOH878-01 Water (ug/l) / #
Benzene	7.38
Toluene	78.0
Ethylbenzene	23.0
Xylenes	
Naphthalene	13.9
Benzo(a)anthracene	<u> </u>
Benzo(b)flouranthene	
Benzo(k)flouranthene	
Chrysene	
Dibenz(a,h)anthracene	
MTBE (water only)	
Other	_
	REGULATORY INFORMATION
1. All USTs Registered?	Yes / No / NA 2. Regulatory PM Beren brok
3. All Applicable Annua	Fees Paid? Yes / No / NA
4. Financial responsibilit	Certification Received? Yes / No / NA Type
5. Site In Substantial Co.	pliance? Yes / No / NA
	ceived? Yes / No/ NA Dated
7. UST Status (account f	rall USTs in database) * No abotement as of 6-12-02. Program is trying to get access tly Closed to empty tanks
USTs Permane	tly Closed Date Closed to empty tanks
USTs CIU & l	assed TT Date Tested
USTs TOU &	Emptied Date Emptied



and Environmental Control

OFFICE OF GENERAL COUNSEL 2600 Bull Street, Columbia, South Carolina 29201 Telephone (803) 898-3349 Fax (803) 898-3367

August 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.

Page 2 PUCCINI

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. William

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

South Caro'i-c Department of Health and Environmental Control
Divi of Underground Storage Tank Mana ant
2600 Bull Street, Columbia, S.C. 29201

ADMINISTRATIVE ORDER

NUMBER 95-0581-UST EFFECTIVE DATE: APR 1 4 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. Sunsor Inc. owns underground storage tanks as defined in the State Underground Petroleum Environmental Response Bang (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:

Columbia, South Carolina

By:

Stanley L. Clark, Director

Division of Underground Storage Tank Management

Date:

Approval:

ttorney for the Department

Date:

DEB/SLC/smy 04878.ao

DHEC/UST/031098

Montal 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. , 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:______Year

04878-09:DOC



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

and Environmental Control

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 F	Results For S	oil 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			
ТРН					
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			

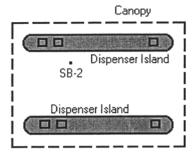
^{*}SCDHEC RBSL levels for sandy soil. Values in bold text exceed SCDHEC RBSLs.

Appendix Two

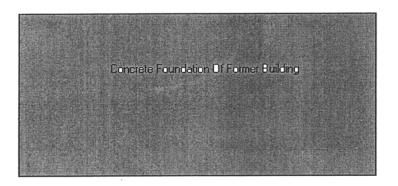
Site Map

North

Unnamed Road



Tank 2 • SB-1



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

Project:

Project Name: VARIOUS Sampler: BERENBROK, MARK Lab Number: 02-A80985 Sample ID: NP04878-01 Sample Type: Soil

Site ID:

Date Collected: 5/15/02 Time Collected: 12:20 Date Received: 5/17/02 Time Received: 9:00

Page: 1

			Report	Dil	•	Analysis			
malyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAME	ETERS*								
% Dry Weight	77.8	%		1	5/21/02		D. Harris	CLP	890
ORGANIC PARAMETERS*									
Naphthalene	2.21	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	
Acenaphthene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
unthracene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
luoranthene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	
luorene	ND	mg/kg	0.066	1 /	5/21/02	14:30	Jeanmarie	8270C	
yrene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	
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
ibenzo(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
cenaphthylene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
Senzo(g,h,i)perylene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
henanthrene	ND	mg/kg	0.066	1	5/21/02	14:30	Jeanmarie	8270C	7
VOLATILE ORGANICS*									
Senzene	7.38	mg/kg	0.119	50	5/19/02	7:00	J.Gott	8260B	858
thylbenzene	23.0	mg/kg	1.19	500	5/20/02	11:49	J.Gott	8260B	50
Maphthalene	13.9	mg/kg	2.98	500	5/20/02	11:49	J.Gott	8260B	50
oluene	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	Time	Analyst	Method	Batch
Xylenes (Total)	136.	mg/kg	1.19	500	5/20/02	11:49	J.Gott	8260B	50
ample Extraction Data				,	·				
Wt/Vol									
arameter Extracted	Extract Vol	Date	Time	Analyst	Method				
BNA's 29.6 g	m 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		% Rec	overy	Targ	et Range				
VOA Surr 1,2-DCA-d4			3.		6 145.				
VOA Surr Toluene-d8			0.		1 137.				
VOA Surr, 4-BFB			3.		2 141.				
VOA Surr, DBFM	,		66. 2.		9 134. 5 126.				
BNA Surr-Nitrobenzene-d5			2.		2 119.				
BNA Surr-2-Fluorobiphenyl			1.		5 147.				

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.

			F	AX CHAIN				RECEIV
Test/America	Division/Labo	ratory Na	me:	COLUMB	1 A —	is this work be	Tusing the proper analytical me eing conducted for regulatory bliance Monitoring	ethods,
Client Name DH	EC/US	TPF	ogramo	lient#: 220	2			Underground S
Address: 260		7 27			Project	Name:	arious	Tank Program
	Umb 10		292	01		roject #:		-
	oma,	<u>Zeb</u>			Site/Loca		1 1	State:
Telephone Number: 503 -			Fax:				erenbrok, M	
Sampler Name: (Print Name)	enbrok	\sqrt{M}	Jark				noma, Debr	
Sampler Signature	4					Quote #:	PO#:	
TAT Standard 285 086			Preservation & # o	of Containers	1 1	Analyze For:	: 	QC Deliverables
TAT Standard 285 086 Rush (surcharges may apply)	او	Drinking Water S - Soil/Solid Specify Other			.	'		None
1 1	Composite	inking S - So pecify		1	. _			Level 2 (Batch QC)
Date Needed: 5 3 02		' ' ' ' ' ' '		/3<		//		Level 3
Fax Results: Y N Depoision of the Sample ID	Firme Sampled 3 = Grab, C =	e DW indwate stewate			II	/ /		Level 4 Other:
Sar	Time Sample G = Grab, C Field Fittered	Sludge N - Groun W - Waste		Wethanol Yone Other (Specify)	\$ 89			
SAMPLE ID	Time G = Field	SL-S	HO ₃ HCI NaOH H ₂ SO ₄	Metha None Other				REMARKS
	1045 G	5			/			80984
NPO4878-01 5/15/0	21220 G	15	-	111/				80985
NP04878-02 7/19/12	G	Z	111					0.00
11677-01 5/19/	0Z 6	15	++++	++++	\leftarrow			80986
	1010	+-+	-	- - -			 	
 		\vdash	++++	++++		 	 	
		\vdash	+++	++++		 	 	
-		\Box						
Special Instructions: Fed Ext	£ 8281	2570	20610				LABORATORY COMMEN	
			. /				Rec Lab Temp:	2.0
Relinquished By:			Received By:	Del	S 16 02		Custody Seals: Y N	I NA .
Relinquished By:	5 H 22 H	245	Received By:	In Steff	2-17-2 Date: 13-2	Time: 9:00	Bottles Supplied by TestAr	nezica: Y N
Relinquished By:	Date: Tir	ne:	Received By:		Date:	Time:	Method of Shipment:	

TENERAL FRANCES OF A SELECTION OF THE SERVICE A SELECTION OF THE SERVICE AS THE S

COOLER RECEIPT FORM

	EC#285088	
	5-17.7	
Co	pler Received On: 518 - And Opened On: 518 200 Dy: Marvin Flumkoefer	
	5-12-2 Marchely	
	(Signature)	
1.	Temperature of Cooler when opened Z. O Degrees Celuins	
	-()	
2	Wen custody scals on outside of cooler?	
	i. If yes, how many, what hind and where:	
3.	Were custody seals on containers and intact?	
ú.	Were the seals intact, signed, and dated correctly?	
э,	Were custody papers inside cooler?	
٥,	Were custody papers properly filled out (ink, signed, etc)?	
	Did you sign the custody papers in the appropriate place?	
¥.	What kind of packing material used? Eubblewrap Peznuts Vermiculite Other None.	
9.	Was sufficient ice used (if appropriate)?	
10.	Did all bottles arrive in good condition(unbroken)?	
11.	Were all bottle labels complete (#,date,signed,pres,etc)?(YES)NO	
12.	Did all bottle labels and tags agree with custody papers?	÷
13.	Were correct bottles used for the analysis requested?YESNO	
	<i>→</i>	
14,	at their town that feeting	
	b. Was there any observable head space present in any VOA visi?	
15.	Was sufficient amount of sample sent in each bottle?	
	Were correct preservatives used?	
	Was residual chlorine present?	
12	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.

		Page l
Sample Identification	Lab Number	Collection Date
WG04887-01	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:

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 Report Date: 5/23/02

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 Sp	oike 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 Sp	oike 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 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 1.39 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 37. 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 1.29 7.46 42. 7 Benzo(a)pyrene mg/kg 1.39 1.25 10.61 40. 7 Benzo(a)pyrene mg/kg 1.39 1.25 7.69 39. 7 Benzo(b)fluoranthene mg/kg 1.35 1.32 2.25 45. 7 Benzo(k)fluoranthene mg/kg 1.35 1.32 9.39 39. 7 Chrysene mg/kg 1.35 1.32 9.39 39. 7 Chrysene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene mg/kg 1.35 1.22 10.12 45. 7 Acenaphthylene mg/kg 1.35 1.22 10.12 45. 7 Benzo(g,h,i)perylene 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 1.29 7.46 39. 7 Benzo(g,h,i)perylene mg/kg 1.35 1.22 10.12 48. 7 Phenanthrene mg/kg 1.39 1.29 7.46 39. 7 Benzo(g,h,i)perylene mg/kg 1.35 1.22 10.12 48. 7 Phenanthrene mg/kg 1.39 1.29 7.46 39. 7 Benzo(g,h,i)perylene mg/kg 1.39 1.29 7.46 39. 7 Benzo(g,h,i)perylene mg/kg 1.39 1.25 10.61 41. 7							
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 1.39 1.29 7.46 43. 7 Fluorene mg/kg 1.45 1.35 7.14 37. 7 Flyrene 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 1.39 1.29 7.46 42. 7 Benzo(b)fluoranthene mg/kg 1.35 1.32 2.25 45. 7 Benzo(k)fluoranthene mg/kg 1.35 1.32 9.39 39. 7 Chrysene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,ch)anthracene mg/kg 1.35 1.22 10.12 45. 7 Acenaphthylene mg/kg 1.35 1.22 10.12 45. 7 Benzo(g,h,i)perylene mg/kg 1.35 1.22 10.12 48. 7 Phenanthrene 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 1.29 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	Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
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 1.39 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 1.25 10.61 40. 7 Benzo(b)fluoranthene mg/kg 1.35 1.32 2.25 45. 7 Benzo(b)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 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene 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 1.39 1.29 7.46 39. 7 Benzo(g,h,i)perylene mg/kg 1.39 1.29 1.16 10.61 44. 7 Phenanthrene mg/kg 1.39 1.29 1.46 39. 7 Benzo(g,h,i)perylene mg/kg 1.39 1.29 1.16 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							
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 1.39 1.29 7.46 43. 7 Fluorene mg/kg 1.45 1.35 7.14 37. 7 Fyrene 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 1.32 9.39 39. 7 Chrysene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene 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 1.39 1.29 7.46 39. 7 Phenanthrene mg/kg 1.35 1.22 10.12 48. 7 Phenanthrene mg/kg 1.35 1.22 10.12 48. 7 Phenanthrene mg/kg 1.39 1.29 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	**UST PARAMETERS**						
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 1.39 1.29 7.46 43. 7 Fluorene mg/kg 1.45 1.35 7.14 37. 7 Fyrene 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 1.32 9.39 39. 7 Chrysene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene 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 1.39 1.29 7.46 39. 7 Phenanthrene mg/kg 1.35 1.22 10.12 48. 7 Phenanthrene mg/kg 1.35 1.22 10.12 48. 7 Phenanthrene mg/kg 1.39 1.29 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							
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 1.45 1.32 9.39 39. 7 Chrysene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene mg/kg 1.35 1.25 7.69 39. 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 45. 7 Acenaphthylene mg/kg 1.39 1.29 7.46 39. 7 Benzo(g,h,i)perylene mg/kg 1.39 1.25 10.61 41. 7 Matrix Spike Duplicate Matrix Spike Duplicate **VOA PARAMETERS** Benzene mg/kg 0.0504 0.0502 0.40 30. 8587 Toluene mg/kg 0.0474 0.0477 0.63 32. 8587	Naphthalene	mg/kg	1.16	1.09	6.22	41.	7
Fluorene 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 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene mg/kg 1.35 1.25 7.69 39. 7 Dibenzo(a,h)anthracene 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 45. 7 Phenanthrene mg/kg 1.39 1.29 7.46 39. 7 Benzo(g,h,i)perylene mg/kg 1.39 1.29 10.61 41. 7 Matrix Spike Duplicate **VOA PARAMETERS** Benzene mg/kg 0.0504 0.0502 0.40 30. 8587 Toluene mg/kg 0.0474 0.0477 0.63 32. 8587	Acenaphthene	mg/kg	1.39	1.29	7.46	38.	
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(b)fluoranthene 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 45. 7 Matrix Spike Duplicate 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	Anthracene	mg/kg	1.39	1.29	7.46	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	Fluoranthene	mg/kg	1.39	1.29	7.46	43.	
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 45. 7 Benzo(g,h,i)perylene mg/kg 1.35 1.22 10.12 48. 7 Phenanthrene mg/kg 1.39 1.29 7.46 39. 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	Fluorene	mg/kg	1.45	1.35	7.14	37.	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	Pyrene	mg/kg	1.42	1.32	7.30	43.	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 1.35 1.22 10.12 48. 7 Phenanthrene mg/kg 1.39 1.25 10.61 41. 7 Matrix Spike Duplicate **VOA PARAMETERS** Benzene mg/kg 0.0504 0.0502 0.40 30. 8587 Toluene mg/kg 0.0474 0.0477 0.63 32. 8587	Benzo(a)anthracene	mg/kg	1.39	1.25	10.61	40.	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	Benzo(a)pyrene	mg/kg	1.39	1.29	7.46	42.	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	Benzo(b)fluoranthene	mg/kg	1.35	1.32	2.25	45.	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	Benzo(k)fluoranthene	mg/kg	1.45	1.32	9.39	39.	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	Chrysene	mg/kg	1.35	1.25	7.69	39.	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 **VOA PARAMETERS** Benzene mg/kg 0.0504 0.0502 0.40 30. 8587 Toluene mg/kg 0.0474 0.0477 0.63 32. 8587	Dibenzo(a,h)anthracene	mg/kg	1.29	1.16	10.61	44.	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 **VOA PARAMETERS** Benzene mg/kg 0.0504 0.0502 0.40 30. 8587 Toluene mg/kg 0.0474 0.0477 0.63 32. 8587	Indeno(1,2,3-cd)pyrene	mg/kg	1.35	1.22	10.12	45.	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	Acenaphthylene	mg/kg	1.39	1.29	7.46	39.	7
Matrix Spike Duplicate Analyte	Benzo(g,h,i)perylene	mg/kg	1.35	1.22	10.12	48.	7
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	Phenanthrene	mg/kg	1.39	1.25	10.61	41.	7
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		,					
VOA PARAMETERS Benzene mg/kg 0.0504 0.0502 0.40 30. 8587 Toluene mg/kg 0.0474 0.0477 0.63 32. 8587		Matrix Spike D	uplicate				
VOA PARAMETERS Benzene mg/kg 0.0504 0.0502 0.40 30. 8587 Toluene mg/kg 0.0474 0.0477 0.63 32. 8587	Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
Benzene mg/kg 0.0504 0.0502 0.40 30. 8587 Toluene mg/kg 0.0474 0.0477 0.63 32. 8587							
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 0.0474 0.0477 0.63 32. 8587	**VOA PARAMETERS**						
Toluene mg/kg 0.0474 0.0477 0.63 32. 8587	Benzene	mg/kg	0.0504	0.0502	0.40	30.	8587
				0.0477	0.63	32.	8587
		0 0		0.0498	1.79	32.	50



PROJECT QUALITY CONTROL DATA Project Number: Page: 3

Laboratory Control Data

				0/ 5		0.0.0.0
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

				9/ D	m p	O. C. Patak
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 QUALITY CONTROL DATA

Project Number: Page: 4

Laboratory Control Date	Laboratory	Control	Data
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	V	17al And	land Val	% December Tox	get Range Q.C. Batch
Analyte			ilyzed val	-	rget kange Q.C. batch
Toluene		0.0500	0.0502		79 - 126 50
	0 0	0.150	0.149		77 - 123 50
Xylenes (Total)	mg/kg	0.150	0.149	77	7 - 125
	Blank Data				
			,		
Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
++HCM DADAMEMEDOC++					
UST PARAMETERS	< 0.165	mg/kg	7	5/21/02	11:11
Naphthalene	< 0.165	mg/kg	7	5/21/02	11:11
Acenaphthene 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				
	Plank Value	Unita	O C Potch	Data Analysis	Time Analyzed
Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Illie Analyzed
AAVOA DADANTTERSAL					
VOA PARAMETERS					
Para a sur's	0.0000	m / / l - ~	9597	5/18/02	16:19
Benzene	< 0.0020	mg/kg	8587	5/18/02	10.17



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		
if yes, indicate depth and rocation on the site map.			
B. Were any petroleum odors detected in the excavation, soil borings, trenches, or monitoring wells?	X		
If yes, indicate location on site map and describe the odor (strong, Mild, etc.)			
C. Was water present in the UST excavation, soil borings, or trenches?	1	X	
If yes, how far below land surface (indicate location and depth)?			
D. Did contaminated soils remain stockpiled on site after closure?		X	
If yes, indicate the stockpile location on the site map.			
Name of DHEC representative authorizing soil removal:			
E. Was a petroleum sheen or free product detected on any excavation or boring waters?		x	
If yes, indicate location and thickness.			

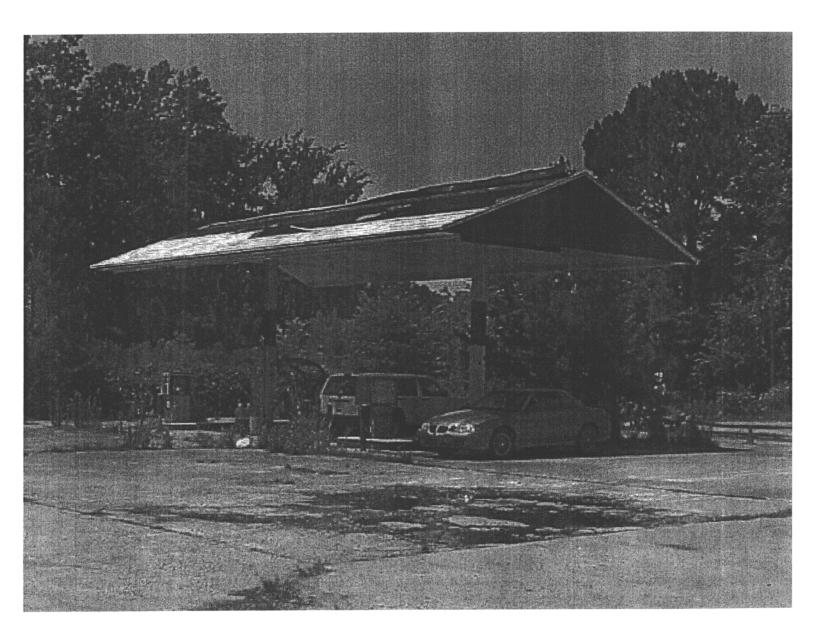
Appendix Eight

Receptors

		Yes	No
A.	Are there any lakes, ponds, streams, or wetlands located within 1000 feet of the UST system?	X	
	If yes, indicate type of receptor, distance, and direction on site map.		
B.	Are there any public, private, or irrigation water supply wells within 1000 feet of the UST system?		x
	If yes, indicate type of well, distance, and direction on site map.		
C.	Are there any underground structures (e.g., basements) located within 100 feet of the UST system?		x
	If yes, indicate the type of structure, distance, and direction on site map.		
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?	NA	NA
	If yes, indicate the type of utility, distance, and direction on the site map.		
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?		X
	If yes, indicate the area of contaminated soil on the site map.		

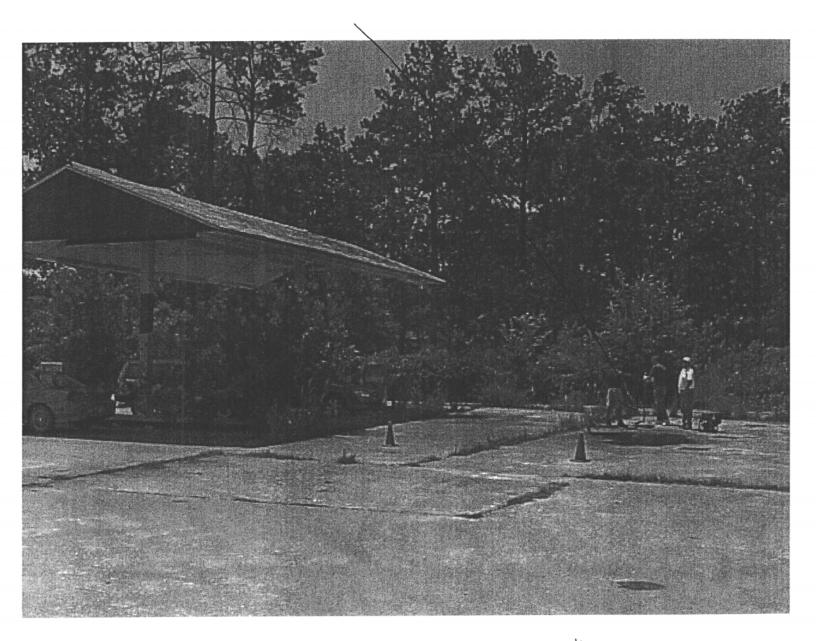
Appendix Nine

Photographs



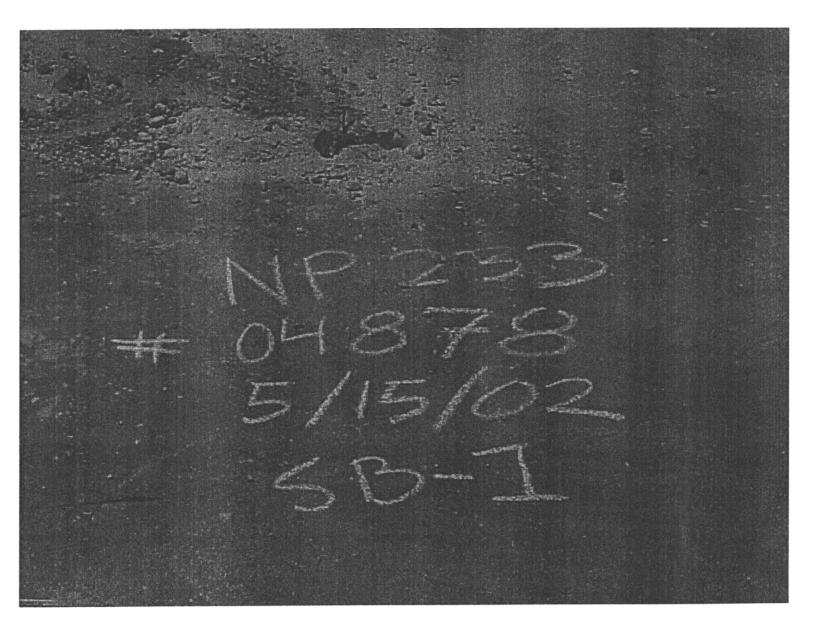
Nickel pumper #233 UST Permit #04878 5-15-02 photograph

SB-I location



Nickelpumper #233 UST Permit # 04878 5-15-02 photograph

5B-1



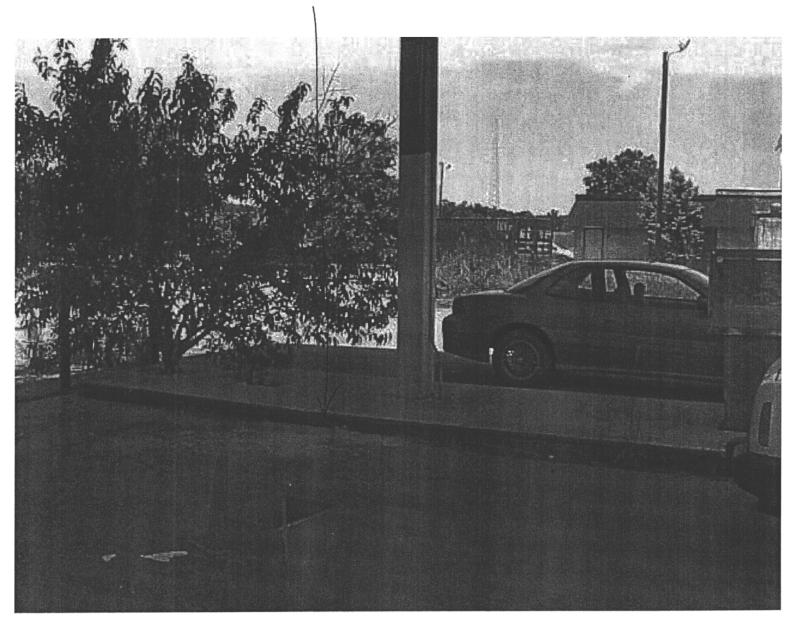
Nickelpumper #233 UST Permit #04878 5-15-02 photograph

5B-2 location



Nickelpumper# 233 UST Permit # 04878. 5-15-02 photograph

SB-2 location



Nickelpumper #233 UST Permit #04878 5-15-02 photograph



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,

Project Coordinator

RECEIVED

JAN 0 9 2003

UNDERGROUND STORAGE TANK PROGRAM

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 Car	olina 28205	
Phone Number: (704) 563-1663		
Well Driller: Terry D. Kennedy	Cert. #:	В 01693
Address: 4913 Albemarle Road, Suite 101, Charlotte, North Care	olina 28205	
Phone Number: (704) 563-1663		
Receptor and Site Data Please place a check in the appropriate answer block for each qu	estion:	
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-s	ite ~50' north of	UST basin;
swamp/pond ~327' north/northeast of site.		
		-

	Water Assessment	Report	SCDHEC U	ST Permit #:	04878	
Page 2						
Were any water	wells within a 25	0 foot radius samp	oled?	Yes	X	No
Is there a public	water supply line	e in the area?	X	Yes _		No
Is the current uresidential or in		and surrounding	properties com	mercial, residen	itial, agric	ultural or
Site: Comme	erical	Adjace	ent Properties:	Vacant/Comme	erical	
Soil and Boring Primary Soil Ty	g/ Monitoring We /pe: Sand	ell Data				
Well Installation	n Method and Dat	e: Hollow stem	auger on 12/17	/02		
Development M	Iethod: Disposa	ble polyethylene b	ailer			
Soil Sample Ob	tained at: 4.5-5	.0 f	eet.			
		Soil Analytical	Data (mg/kg)			
Boring #: MW-	1					
Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Tot	tal Lead
4.29	54.4	15	91.6	9.05		7.3
			Get Este Williams		112112020	
Benzo(a)- anthracene	Benzo(b)- fluoranthene	Benzo(k)- fluoranthene	Chrysene	Dibenzo(a,h) anthracene	OI	al PAHs
<0.066	<0.066	<0.066	<0.066	<0.066	<	<0.33
		Ground W	ater Data			
Depth to Ground						
	ampling Method:	Disposable polye	ethylene bailer			
Date Sampled:	12/17/02					
Free Product Th	ickness: Sheen					
Equilibrated Val	lues *					
Temperature (C	°):		pH (s.u.):			
Dissolved Oxyg			fic Conductance	,		
* Sheen- n	o readings; bailed	l 9 gallons for deve	elopment; baile	d 5 gallons prior	to sampli	ng.

SCDHEC UST Permit #:

04878

Page 3

Ground Water Analytical Data (μ 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)-	Benzo(b)-	Benzo(k)-	Chrysene	Dibenzo(a,h)-	Total	Total
anthracene	fluoranthene	fluoranthene		anthracene	PAHs	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 prov Name:	-	OHEC	6. PERMIT NUMBER: UMW-16621
(last) (f	irst)		
City: Dillon State: SC Zi	p:		7. USE: Residential Public Supply Process
Telephone: Work: Hor	me:		□ Irrigation □ Air Conditioning □ Emergency □ Test Well 9 Monitor Well □ Replacement
LOCATION OF WELL: Name: Nicklepumper #233			8. WELL DEPTH (completed) Date Started: 12/17/02
Street Address: 3296 Point South Drive			12.5 Feet Date Completed: 12/17/02
City: Point South Zip: SC COUNTY: Jasper			9. □ Mud Rotary □ Jetted
Latitude: 032º 37' 47.1" N Longitude: 0	80° 52' 44.4 \	N	10. CASING: Threaded □ Welded Height: Above/Below
3. SYSTEM NAME: SYSTEM	NUMBER:	:	Type: XX PVC Galvanized Surface 0 ft. Steel Other Steel Indicate Using Surface Of the Steel Using Steel Surface Of the Steel Using Steel Surface Of the Steel Using Steel Other Steel Other Using Steel Other Steel Other Other Using Steel Other Oth
Nicklepumper #233	MW-1		0 in. to 2.5 ft. depth Drive Shoe? □ Yes No
4. CUTTING SAMPLES: Yes		∭ No	11. SCREEN
Geophysical Logs:	enclose)	D No	Type: PVC Diam.: 2" Slot/Gauge: 10 Length: 10
Formation Description:	Thickness of Stratum	Depth to Bottom of	Set Between: 2.5 ft. and 12.5 ft. ft. andft. ft.
		Stratum	Sieve Analysis Yes (please enclose) <u>No</u>
Light brown fine sand; moist	3'	3'	12. STATIC WATER LEVELft. below land surface after 24 hours
Light brown clay; wet; strong petroleum odor	9.5+	12.5+	13. PUMPING LEVEL Below Land Surface.
			ft. afterhrs. PumpingG.P.M. Pumping Test: □ Yes (please enclose)
,			Yield:
PID 471 ppm-v @ 4.5-5'		-	14. WATER QUALITY Chemical Analysis □ Yes □ No Bacterial Analysis □ Yes □ No Please enclose lab results.
			15. ARTIFICIAL FILTER (filter pack) Yes Do Installed from 1 ft. to 12.5 ft. Effective size #2 Uniformity Coefficient
			16. WELL GROUTED? Yes □ No Neat Cement □ Sand Cement □ Concrete □ Other Depth: From 0 ft. to 0.5 ft.
·			17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
		-	5ftWdirection Type well disinfected □ Yes Type:
		-	upon completion
			18. PUMP: Date installed: Not installed Mfr. Name: Model No.:
			H.PVoltsLength of drop pipeft. Capacitygpm TYPE: Submersible Jet (shallow) Turbine
			□ Jet (deep) □ Reciprocating □ Centrifugal
			19. WELL DRILLER: Terry Kennedy CERT. NO. B 01693
Indicate Water Bearing Zones (Use a 2 nd sheet if needed)			Address: 4913 Albemarle Road, Suite 101, Charlotte, NC 28205
5. REMARKS: Bentonite seal from 0.5'-1.0'			Telephone No.: 704-563-1663
			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: Authorized Representative Date: 12/17 (0 2

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

			•						
	102			Facility Name:	Nicklepumper #	233			
Field Personnel:	L, HK			Site ID #	04878		Monitorin	g Well #	MW-1
General Weather Conditions:	CLEAR COOL			Well Diameter (D):	.167		feet	
Ambient Air Temperature:	ity Assurance	_c		Conversion fac	tor (C): 3.14 X (D/	2)2 for a 2 inch for a 4 inch			
pH Meter serial no. pH=4.0 pH=7.0 pH=10.0	Conductivity Meter serial no. Standard Standard Standard			Total Well Dept Length of the w 1 casing volum 3 casing volum	d Water (DGW)	4.59			feet feet feet feet me)
				Total volume of	Water Purged fo	r Post Samplin	g		gals
Relinquished by Date/Time	Received by	Date/Time		*If free product	is present over 1	/8 inch, sampli	ng will not		Total Purged
		Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (ga	llons)	0.25							
Time (military)		1147	-						1200,45:55
pH (s.u.)									
Specific Cond. (umhos/cm)				-					
Water Temperature (degrees C)								
Turbidity (subjective: clear, sli	ghtly cloudy, cloudy)								
Dissolved Oxygen (mg/l)									
PID readings, if required									
Remarks: SHOW - NO	READINGS BALL	ED 5	GALL	ONS PR BALL	10R 705.	AMPLIN LOWS F	G OR E	EVELGIM	ent

APPENDIX C Laboratory Data FROM

Test/America

ANALYTICAL REPORT

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

Project:

Project Name: NICKLE PUMPER 233 #04878

Sampler: TERRY KENNEDY

Lab Number: 02-A208053

Sample ID: MW-1 Sample Type: Soil

Site ID:

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	Yuglast,	Method	Batch
		•••••				110		Mechod	
GENERAL CHEMISTRY PARAMET	ers.								
Dry Weight	77.7	*		1	12/21/02	13;35	K. Keller	CLP	8692
ORGANIC PARAMETERS.									
enzo(a)anthracene	ND	mg/kg	0.066	1	12/22/02	23,16	M.Schott	8270C	1600
denzo(b) fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
cnzo(k) fluoranthene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
chrysene	ЙИ	mg/kg	0.066	1	12/22/02	23:16	M. Schott	8270C	1600
pibenzo(a,h)anthracene	ND	mg/kg	0.066	1	12/22/02	23:16	M.Schott	8270C	1600
VOLATILE ORGANICS.									
enzene	4.29	mg/kg	0.794	500	12/20/02	22122	CHollingsw	8260B	341
thylbenzene	15	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
aphthalene	9.05	mg/kg	1.98	500	12/20/02	22:22	CHollings₩	8260B	341
oluenc	54.4	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
ylenes (Total)	91.6	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
·. Netals•									•
ead	7.3	mg/kg	0.99	1	12/23/02	16:43	C. Martin	6010B	2072

FROM

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



ANALYTICAL REPORT

Laboratory Number: 02-A208053

Sample ID: MW-1

Project: Page 2

Sample Extraction Data

	Wt/Vol					
Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method
		•••••				
BNA' \$	30.0 g	m 1.0 ml	12/21/02		M. Cauthen	3550
Volatile Organic	a 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-dB	119.	79 130.
VOA Surr, 4-BFB	102.	62 155.
VOA SUIT, DBFM	108.	74 127.
BNA Surr-Nitrobenzena-d5	78,	34. 105.
BNA Surr-2-Fluorobiphenyl	80.	36 100.
BNA Surr-Terphonyl-d14	81 .	45 108.

LABORATORY COMMENTS:

ND - Not detected at the report limit.

- B Analyte was detected in the method blank.
- J . Ratimated 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.

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

FROM

Test/America

ANALYTICAL REPORT

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

Project:

Project Name: NICKLE PUMPER 233 #04878

Sampler: TERRY KENNEDY

Lab Number: 02-A208054

Sample ID: MW-1 Sample Type: Water

Site ID:

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) anthracens	ND	ug/L	10.0	1.0	1.2/23/02	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
oluene	16200	ug/L	500.	500.	12/27/02	23:25	C. Wani	9260B	5272
thylbenzene	3600	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
ylenes (Total)	18700	ug/L	50.0	50.0	12/24/02	14:35	C. Wani	8260B	5269
ethyl-t-butyl ether	18000	ug/L	500.	500.	12/27/02	23;25	C. Wani	8260B	5272
aphthalene	ND	ug/L	250.	50.0	12/24/02	14:35	C. Wani	8260B	5269
VOLATILE ORGANICS by GC+									
thylene Dibromide	0.27	ug/L	0.02	1.0	12/21/02	15:50	Carmichael	8011	193
METALS*									
ead	33.0	ug/L	3.0	1.0	12/20/02	10:46	C.Johnson	6010B	8676

Sample report continued . . .

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

Test/America

ANALYTICAL REPORT

Laboratory Number: 02-A208054

Sample ID: MW-1

Project: Page 2

Sample Extraction Data

Wt/Vol

Parameter

Extracted Extract Vol Date Time

Analyst

Method ------

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.
RNA Surr-Nitrobenzene-d5	73.	40 127.
BNA Surr-2-Fluorobiphenyl	68.	42 113.
BNA Surr-Terphenyl-d14	40,	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.



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:

and A. mil

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



GEOLOGICAL RESOURCES 2110

JOHN BROWN

4913 ALBEMARLE RD

CHARLOTTE, NC 28205

Project:

Project Name: NICKLE PUMPER 233 #04878

Sampler: TERRY KENNEDY

Lab Number: 02-A208053

Sample ID: MW-1 Sample Type: Soil

Site ID:

Date Collected: 12/17/02

Time Collected: 9:55
Date Received: 12/18/02

Time Received: 9:00

Page: 1

			Don out	D:1	analusis.	analusi s			
		*****	Report	Dil	Analysis	Time	Analyst	Method	Batch
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batti
GENERAL CHEMISTRY PARAME	TERS*								
d Dry Weight	77.7	8		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*									
senzene	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
aphthalene	9.05	mg/kg	1.98	500	12/20/02	22:22	CHollingsw	8260B	341
Coluene	54.4	mg/kg	0.794	500	12/20/02	22:22	CHollingsw	8260B	341
ylenes (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 . . .



Laboratory Number: 02-A208053

Sample ID: MW-1

Project: Page 2

Sample Extraction Data

	Wt/Vol					
Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method
BNA's	30.0 gm	1.0 ml	12/21/02		M. Cauthen	3550
Volatile Organic	s 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.



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

Project:

Project Name: NICKLE PUMPER 233 #04878

Sampler: TERRY KENNEDY

Lab Number: 02-A208054

Sample ID: MW-1 Sample Type: Water

Site ID:

Date Collected: 12/17/02 Time Collected: 12:00 Date Received: 12/18/02

Time Received: 9:00

Page: 1

	D. s. l.		Report	Dil	Analysis Date	Analysis Time	Analyst	Method	Batch	
Analyte	Result	Units	Limit	Factor	Date		Analyst			
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	
nead	33.0	ug/L	3.0	1.0	12/20/02	10:40	C. OOIIIISOII	OOTOD	0070	

Sample report continued . . .



Laboratory Number: 02-A208054

Sample ID: MW-1

Project: Page 2

Sample Extraction Data

Wt/Vol

Extracted Extract Vol Date Time Analyst Parameter

Method

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.

End of Sample Report.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

 $^{{\}tt E}$ = Estimated Value above the calibration limit of the instrument.

^{# =} Recovery outside Laboratory historical or method prescribed limits.



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.

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 S	pike 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 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 Spik	e Recovery						
Note: If Blank is refere	nced as the sam	ple spiked, i	nsufficient	volume was re	ceived for	MS/MSD analysi	s for that I	method
and the method requ	uirements for M	MS/MSD analysi	s 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 Spik	e Recovery						
Note: If Blank is referen	nced as the sam	ple spiked, in	sufficient	volume was red	ceived for	MS/MSD analysi	s for that n	nethod
and the method requ								
Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
MISC PARAMETERS	/3		0.0000	0.00000	100	40 - 140	193	02-A208120
Ethylene Dibromide	mg/l	< 0.00002	0.00029	0.00029	100	40 - 140	193	02 A200120
	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		

Test America

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 D	plicate				
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 Number:

Project Name: NICKLE PUMPER 233 #04878

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Laboratory Receipt Date: 12/18/02

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. B	atch
METALS							
Lead	mg/l	0.0520	0.0510	1.94	20	8676	5
Lead	mg/kg	91.0	91.5	0.55	20	2072	2
5.							
	Matrix Spike Du	uplicate					
Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Ba	atch
MISC PARAMETERS							
Ethylene Dibromide	mg/l	0.00029	0.00031	6.67	50	193	
	Laboratory Contr	rol Data					
Analyte	units	Known Val.	Analyzed Val			t Range	Q.C. Batch
)		
UST PARAMETERS							
Benzo(a)anthracene	mg/kg	1.67	1.62	97	42 -		1600
Benzo(b)fluoranthene	mg/kg	1.67	1.52	91	40 -		1600
Benzo(k)fluoranthene	mg/kg	1.67	1.75	105	42 -		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 -		2677
Benzo(k)fluoranthene	mg/l	0.0500	0.0430	86	46 -	134	2677
Chrysene	mg/l	0.0500	0.0490	98	48 -		2677
Dibenzo(a,h)anthracene	mg/l	0.0500	0.0290	58	31 -	149	2677

Test/merica

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/1 .	0.0500	0.0494	99	78 - 127	5269
i	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 Number:

Project Name: NICKLE PUMPER 233 #04878

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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 Cont	rol 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 Cali	fication				
Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
METALS						
	Laboratory Cont	rol 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 Number:

Project Name: NICKLE PUMPER 233 #04878

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Laboratory Receipt Date: 12/18/02

Blank Data

Analyte	Blank Value Ur	its Q.C. Batch	Date Analyzed	Time Analyzed
MISC PARAMETERS				
Ethylene Dibromide	< 0.00002 mg	/1 193	12/21/02	13:59
# = Value outside Laboratory historic	cal or method pres	cribed QC limits.		

End of Report for Project 313818



Project Number:

Project Name: NICKLE PUMPER 233 #04878

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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
	Plank Paka				
	Blank Data				
*********	Dlank Walus	Units	O C Patch	Date Analyzed	Time Analyzed
Analyte	Blank Value	onics	-	Date Mnaryzed	
METALS					
Lead	< 0.0022	mg/l	8676	12/20/02	10:46
Lead	< 0.39	mg/kg	2072	12/23/02	16:43



Project Number:

Project Name: NICKLE PUMPER 233 #04878

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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	mq/l	5269	12/24/02	11:51
Benzene		mg/l	5269	12/24/02	0:25
	< 0.0005		341	12/23/02	14:49
Benzene	< 0.0003	mg/kg mg/l	5269	12/24/02	11:51
Ethylbenzene	< 0.0003			12/25/02	0:25
Ethylbenzene	< 0.0003	mg/l	5269		14:49
Ethylbenzene	< 0.0005	mg/kg	341	12/20/02 12/24/02	11:51
Naphthalene	< 0.00120		5269	12/25/02	0:25
Naphthalene	< 0.00120	•	5269		14:49
Naphthalene	0.00120	3, 3	341	12/20/02	
Toluene	< 0.0006	mg/l	5272	12/27/02	16:04 9:15
Toluene	< 0.0006	mg/l	5272	12/28/02	
Toluene	< 0.0008	mg/kg	341	12/20/02	14:49

Test/Ameri	ORATED												j-					work b		nducted	for reg	ytical me gulatory		es?
Client Name	GROLD	GICA	اً ک	Œ	OSEC	eş	5		c	lien	t #:		MIL)										
Address:	<u>4913</u>	ALE	EN	AR	LE	20) ;	57	E	10	9/				1	Projec	t Name:	NIC	KLE	PUL	IPET	22	33	地4878
City/State/Zip Code:	CHH	RLO	77	E	NC	-	2	82	0	5						P	roject#:							
Project Manager:	JOHN	JH	25	S	9										Sit	e/Loca	ation ID:	Poin	57 5	DUTH	ŕ		State:	SC
Telephone Number:							F	ax:	70	4	56	63	1662	2		Re	port To:	Jo	427,	HE	22			\$\infty\$
Sampler Name: (Print Name)	1472		-		NED	7											oice To:							
Sampler Signature:	Il z	_KL	7.12	100	9/												Quote #:	420	4217	2/90	7	PO#:		
					Matrix	Pre	serva	tion	8#0	of Co	ntai	ners					Analy	ze For		Talk of Miles Wall			and the second	
TAT Standard Rush (surcharges may apply) Date Needed: 12/24/02 Fax Results: Y N SAMPLE ID MW-	pate Sampled		G G = Grab, C = Composite	Field Filtered	SL - Shudge DW - Drinking Water GW - Grounbweter S - Soll/Solid WWW - Wastewater Specify Other	HINO3	- FG	NeOH	H ₂ SO ₄	Methanol	None (S)	Other (Specify) SELETIE	X X X X X X X X X X X X X X X X X X X	100 SPEX 1003.	XX CXX	X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	3/11/2						QC Deliverables None Level 2 (Betch QC) Level 3 Level 4 Other: REMARKS
·											,*										130			
Relinquished By:		Date:	ka-	Time			eive					¹ ul	led Ca Run I	D	oate:	or s	Time:		F Custo	nit Lab Rec Lab	Temp: Temp):	N	/A a: Y N
Relinquished By:			Time: Receive				æive	d By	y:					D	Date: Time:			Method of Shipment:						

Test/America				is this work b	vaing one proper analytical methods, vaing conducted for regulatory purposes? pliance Monitoring
Client Name Gara	akac k	ENRE	€5 Client#:	Comp	District Worthorng
			20 STE 101	Project Name: Nu	KLEPUMPER 233 #04878
City/State/Zip Code: CHA	RUTT	E. NO	ZSZOS	Project#:	
Project Manager: 10Hx				Site/Location ID:POIN	37 SOV774 State: SC
Telephone Number: 704 5			Fex: 704563-1662	Report To: Jo	HN HESS
Sampler Name: (Print Name)			7	Invoice To:	
Sampler Signature 1	Kein	way		Quote #: 420	4217199 PO#
T=0=		Wali x		Analyze For	
TAT Standard 3/38/8 Rush (surcharges may apply) Date Needed: 12/24/02 Fax Results: (Y) N SAMPLE ID MW-1 20% 053 NW-1 70% 054 12/11/12	O SA Time Sampled O SA Time Sampled O SA Time Sampled	Field Filtered SL Shuge DW- Drinking Water SW- Groundwater S- SolfSolf WW- Wastewater Specify Other	HINO, HINO, HISO, HISO, Helthand Whenen When	ENTER OF XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	OC Deliverables None Level 2 (Batch OC) Level 3 Level 4 Other: REMARKS
Special instructions:					L 4 7 9 9 4 7 9 9 4 9 9 9 9 9 9 9 9 9 9 9
					LABORATORY COMMENTS: Init Lab Temp:
1		16			Rec Lab Temp:
Relinedished by CLMV	12/17/02	Time:	Received By: Ma All	Date 2-18-2 Time: 9:00	,
Relinquished By:	Date:	Time:	Received By:	Date: Time:	Custody Seals: Y N N/A Bottles Supplied by Test America: Y N
Relinquished By:	Date:	Time:	Received By:	Date: Time:	Method of Shipment:

TESTAMERICA, INC.-NASHVILLE

COOLER RECEIPT FORM

Clie	ent: Crewlogged Resources BC#	313818	
Cool	oler Received On: 12/18/02 And Opened On: 12/18/02 By: MARVID	BLUMHOEFER	
	(Signature)		
1. T	Temperature of Cooler when opened / 5 Degrees Celsius		
2. V	Were custody seals on outside of cooler?	YES NO N/A	1
	a. If yes, how many, what kind and where:	1	_
	b. Were the seals intact, signed, and dated correctly?	YES NO N/A	A
3. V	Were custody seals on containers and intact?	NO YES N/A	1
4. V	Were custody papers inside cooler?	YES NO N/A	
5. V	Were custody papers properly filled out (ink,signed,etc)?	YES NO N/A	
6. I	Did you sign the custody papers in the appropriate place?	YES NO N/A	
7. V	What kind of packing material used? Bubblewrap Peanuts Vermicu	ilite Other None	e
8. V	Was sufficient ice used (if appropriate)?	YES NO N/A	1
9.	Did all bottles arrive in good condition(unbroken)?	YES NO N/A	A
10.	Were all bottle labels complete (#,date,signed,pres,etc)?	YES NO N/A	1
11.	Did all bottle labels and tags agree with custody papers?	YES NO N/A	,
12.	Were correct bottles used for the analysis requested?		
13.	a. Were VOA vials received?	YES NO N/A	1
	b. Was there any observable head space present in any VOA vial?	NO YES N/A	L
14.	Was sufficient amount of sample sent in each bottle?	(YES NO N/A	
15.	Were correct preservatives used? If not, record standard ID of preservative used here	(YES NO N/A	A _
16. 17.	Was residual chlorine present?		1
	See attached for resolution		

SAMPLE NONCONFORMANCE/COC REVISION FORM

Test/America

Nashville Division

313818

ACCT NO. ZILO

DATE RECEIVED 12.18.2

COMPANY Geologic Rogerces

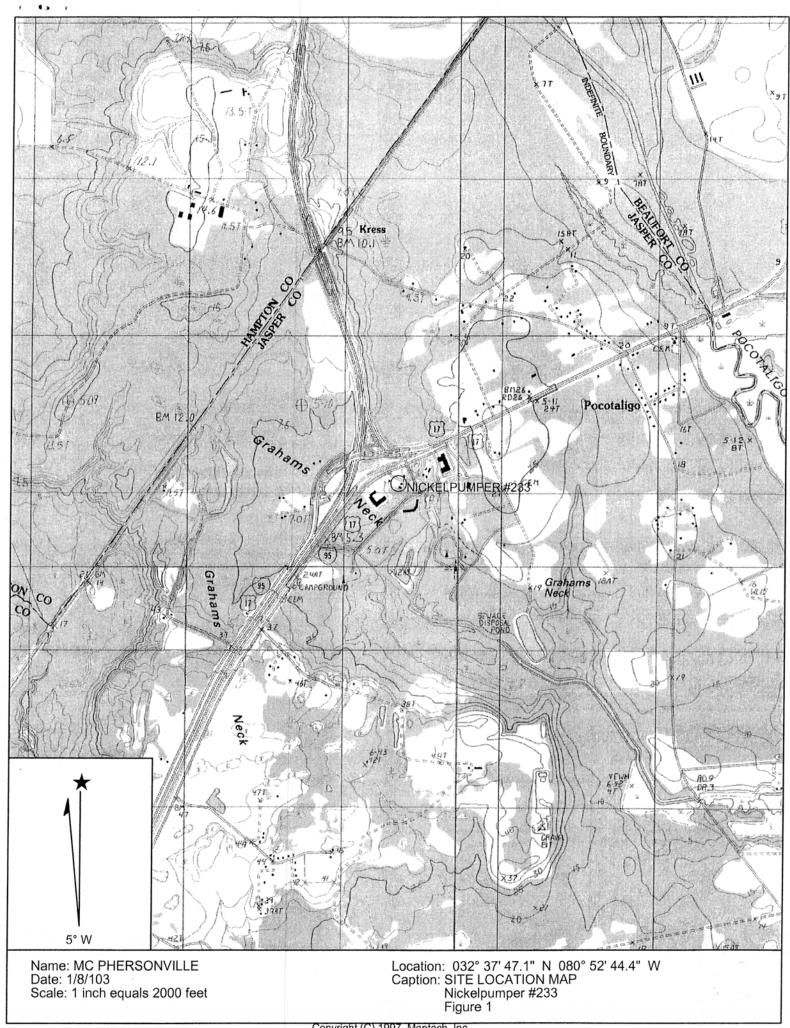
Relinquished by: MnB	Date/Time:	Received by:	Date/Time		
17-18-2 16:00	796	H /2/18/02	1600		
Relinquished by:	Date/Time:	Received by: MOB	Date/Time:		
ASH 19-18-05/1	700	12-18-2 17:00			
Relinquished by:	Date/Time:	Received by:	Date/Time:		
PROBLEM(S):					
FOC/TOC?		METALS LIST?			
TPH METHOD?		TCLP WHAT?			
EDB METHOD?		HERB LIST- LONG OR SI	HORT?		
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: OCOB M	lothed				
RESOLUTION: S	011				
CONTACTED	DATE/TIME	EMAIL LEFT MESSAGE			
Charles abaniss	12-18-02/1600				

SAMPLE NONCONFORMANCE/COC REVISION FORM

Test/Ameri	ca		
Nashville Division	2/22	7/10	
DATE RECEIVED:	3/02	ACCT NO.:	3
SDG NUMBER:3(3818	<u> </u>	COMPANY NAME: GR	
Relinquished by:	Date/Time:	Received by:	Date/Time
A) A 12-3	0.02/15	50	
Relinquished by:	Date/Time:	Received by: MAB	Date/Time:
		12.20,0	76:30
Relinquished by:	Date/Time:	Received by:	Date/Time:
NONCONFORMANCE ISSUE(S	<u>5):</u>		
OIL & GREASE METHOD?		METALS LIST?	
TPH METHOD?		TCLP WHAT?	
EDB METHOD?		HERB LIST- LONG OR SHOR	Γ?
NEED LIST OF COMPOUNDS?		RUN SOILS BY 8260 INSTEA	D OF 8021?
TEMPERATURE UPON RECEIPT?		SATURDAY DELIVERY MARKI	ED?
ICE OR NO ICE??		SAMPLES TO BE SUBCONTRA	ACTED?
NO COC - PLEASE FAX		NO ANALYSIS REQUESTED?	
DOCUMENTATION LEVEL?		OUT OF HOLDING TIME TI	EST:
Λ .	. 0		
OTHER: Ad	d Pb t	0 02A-2	0000
RESOLUTION:	EAX Da	om TA-CLT Si	640
1200	The free	m) /// CET 31	ic Cir.
PERSON CONTACTED	DATE/TIME	VIA E-MAIL or VOICEMAIL	NOTES AND/OR COMMENTS:

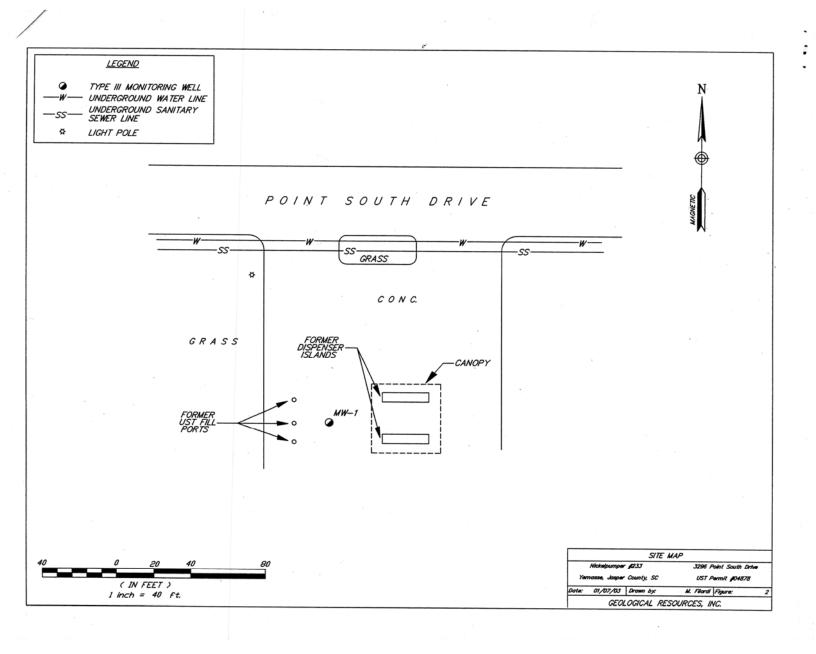
-			

APPENDIX D Topographic Map



Copyright (C) 1997. Maptech. Inc.

APPENDIX E Site Base Map



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	No1	45	5/	
P.O. No.				
Job No.	0.)	2, "	18	7

NON-HAZARDOUS SPECIAL WASTE

Section I.	GENERATO	R (Generator completes all of	Section I)		,
GENERATOR LOCATION		WORK CONT			
NAME ALL TO THE TENTH OF THE TE	Jun 161 H 733	Bill To (If differen	ent from information	at left)	
ORIGINATING ADDRESS	18 Mill Broth is all	NAME	1. (10	al b-	aline, 1/x
MAILING ADDRESS		ADDRESS	7/3/4//	cmily le	Kurd
CITY	ST ATEZIP	city 1/200	elcile:	ST ATE	ZIP
PHONE NO.	and the second s	PHONE NO.	704 5	23.11.6	3
CONTACT NAME		CONTACT NAM	MESI CILL	V 1 - 1716	(17)
DES. OF WASTE:	11,000 - 100700		1		
Section II. INV	OICE INFORMATION		GALLONS	.,,,,,,	Units Quantity
	DESCRIPTION		L Q	UANTITY	LINE TOTAL
WATER, OIL & COOLANT F	PUMPED FROM TANKS OR DRUMS				
2. OFF SPEC LIGHT OIL, WAT	TER & GAS PUMPED FROM TANKS OR DRUMS				
3. 55 GALLON DRUMS REMO	OVED - SOLID			4	
4. 55 GALLON DRUMS REMO	OVED - LIQUID		14	*	
5.	Name of the second seco		1	-	
6.					
7.					
B. 3.					
ARRIVAL TIME:					
10. DEPARTURE TIME:					
nazardous waste subject to the L a hazardous waste as defined by	ped, and is in proper condition for transportation accounted Disposal Restrictions, I certify and warrant that the 40 CFR Part 261.	he waste has been treated i	n accordance with th	ne requirements of 40 (CFR Part 268 and is no longe
Section III.	· · · · · · · · · · · · · · · · · · ·	RTER (Generator complete a-d, er II complete h-n)		e-di	Shipment Date
Dection III.		er II complete h-n)			A 2011
	HAZ~MAT		IHAN	ISPORTER II	
TRA P O BOX	NSPORTATION AND DISPOSAL 37392 • CHARLOTTE, N.C. 28237	e. Name	G12 10 11		
1.0.00	107072 - CHARLOTTE, N.C. 20237	f. Address	7/0 1-11	PINGULL	ROOM
Driver Name / Title		- 1	MULCELL	VIC	
. Driver Name / Title		g. Driver Name /	Title Soft	Litt	
. Phone No	c. Truck No	h. Phone No.	04563116	i. Truck l	No
lazardous Waste Transporter Pe PA NCR 000003186	ermits	j. Transporter II P	ermit Nos.		
PA NCD048461370))	
			10 /		177367
Driver Signature	Shippent Date	Driver Signature	1		Shipment Date
Section IV.	FACILITY INFORMATION A	IND CERTIFICA	ATE OF DIS	POSAL	
Site Name:	Haz Mat Transportation & Discussion				
	Haz-Mat Transportation & Disposal, Inc			704-332-560	
Physical Address:	210 Dalton Avenue	b. Maii	ng Address:	P.O. Box 373	
	Charlotte, N.C. 28237			Charlotte, N.	C. 28237
Discrepancy Indication Space					

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.

SIGNATURE OF FACILITY AGENT

DATE



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,

Project Coordinator

BECHAED

MAY 0 2 2005

UNDERGROUND STORAGE

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



MAY 0 2 2005

UNDERGROUND STORAGE TANK PROGRAM

April 28, 2005

Nicole M. Long

Staff Scientist

John Hess, H., P.C.

rcense No. 11/0

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

<u>No</u>

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 Aguifer System and the Surficial Aguifer System. The Surficial Aguifer 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 thickness 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'

Doronoic. DD-5	Sumpling Dut	0. 0 1/11/03	Bumpre Bepun 115	
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	<0.00243	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	<0.0853	< 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 of 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	<1.04	<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 x 10⁻⁵ to 6.98 x 10⁻⁵ feet/minute (3.47 x 10⁻² to 0.10 feet/day)

Hydraulic Gradient: 0.02 feet/foot

Effective Porosity: 0.23

Estimated Seepage Velocity: 3.02 x 10⁻³ to 8.70 x 10⁻² feet/day (1.10 to 3.18 feet/year)

Additional Comments: N/A

III. TIER I EVALUATION Current Land Use

A.

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	Path Select Evalu (Yes	ed for ation	Exposure Point or Reason for Non-Selection	Data Requirements (IF Pathway Selected)
Air	Inhalation Explosion Hazard	Yes Yes	<u>No</u> <u>No</u>	Utilities do not intersect contaminant plume.	None
Ground Water	Ingestion Dermal Contact Volatile Inhalation	Yes Yes Yes	No No 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	Yes Yes Yes	No No 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 Yes Yes Yes	No No No No	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 Yes Yes Yes	No No No No	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

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	Path Select Evalu (Yes	ed for lation	Exposure Point or Reason for Non- Selection	Data Requirements (IF Pathway Selected)
Air	Inhalation Explosion Hazard	Yes Yes	No No	Utilities do not intersect contaminant plume.	None
Ground Water	Ingestion Dermal Contact Volatile Inhalation	Yes Yes Yes	No No 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	Yes Yes Yes	No No 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 Yes Yes Yes	No No No No	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 Yes Yes Yes	No No No No	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

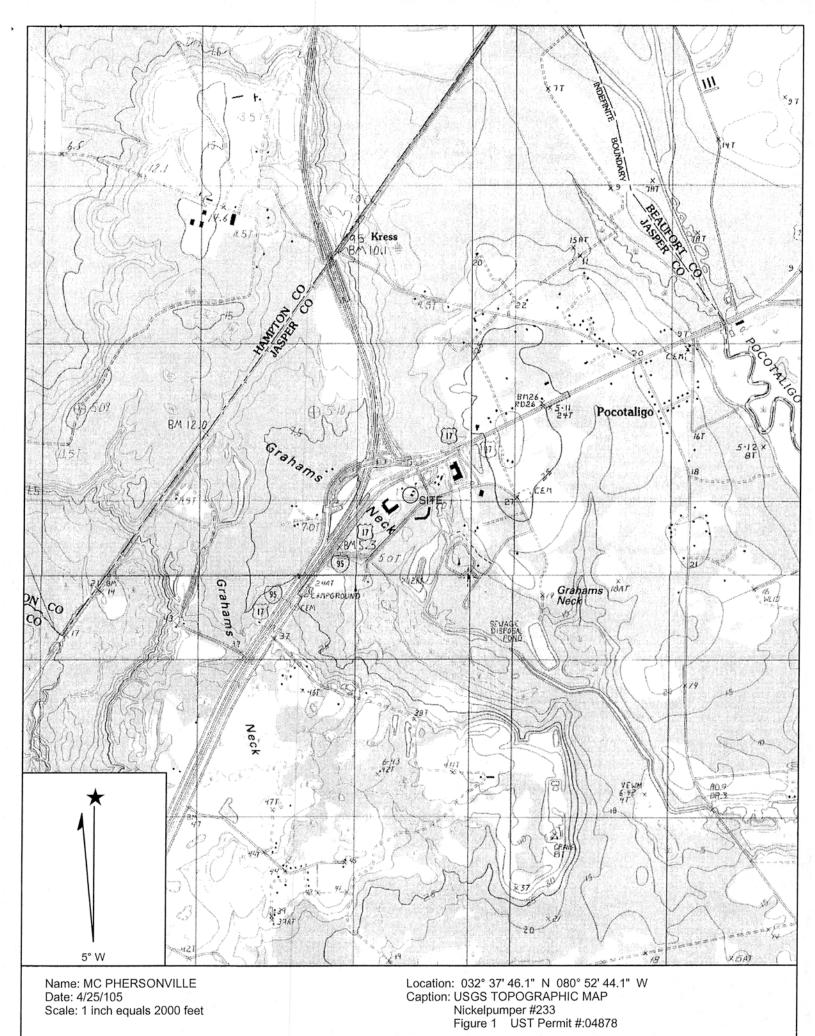
Appendix E: Certificate of Disposal

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

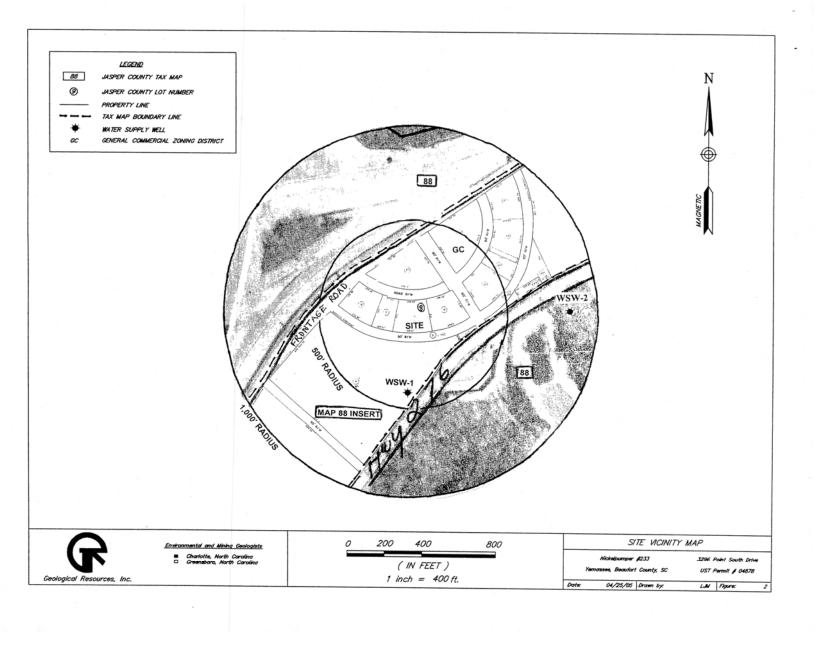
Appendix G: Summary of Adjacent Property Owner Information

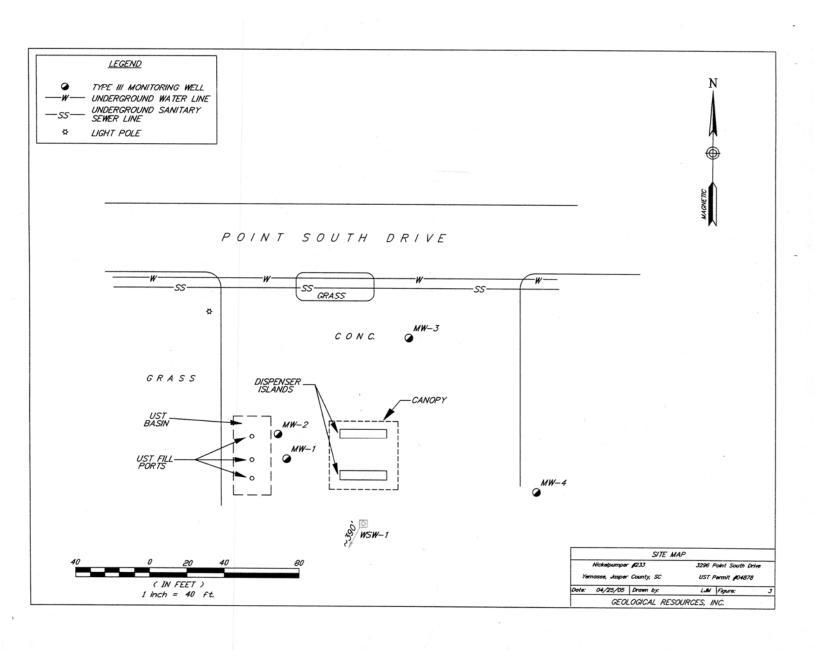
Appendix H: Summary of Water Supply Well Owner Information

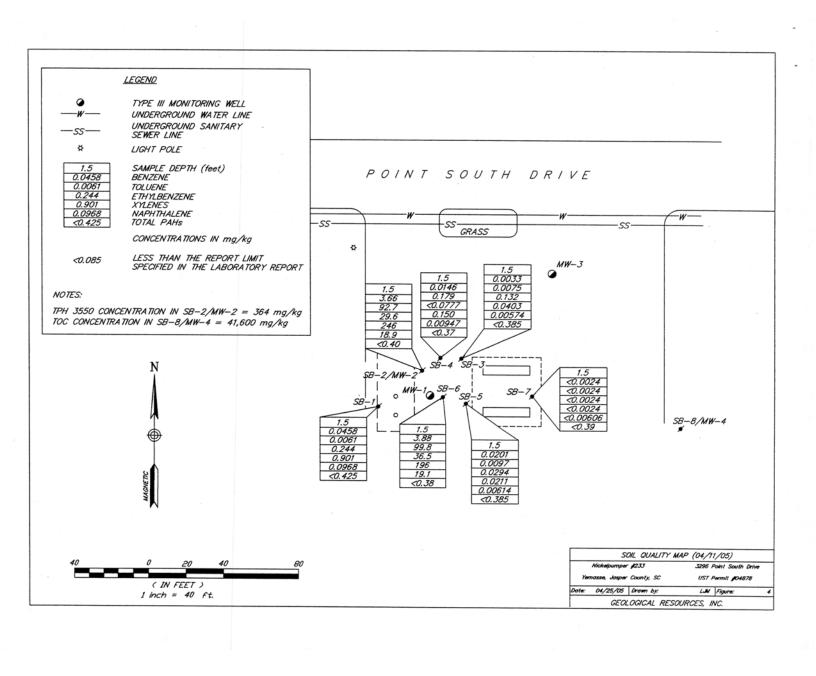
FIGURES

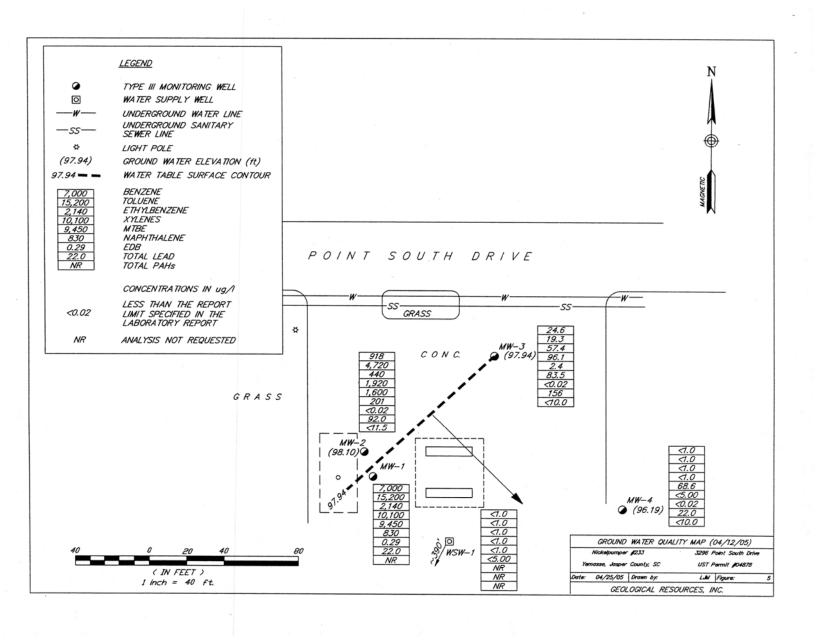


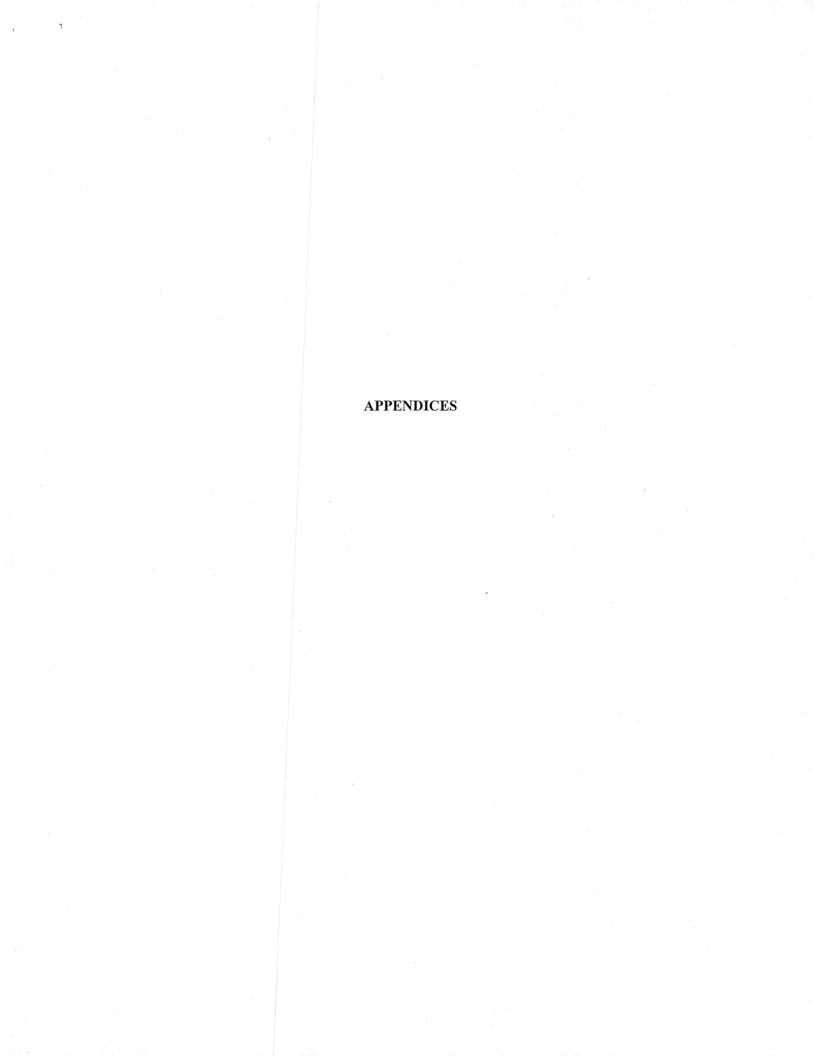
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APPENDIX A
Well Construction Records



Water Well Record Bureau of Water

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

WELL OWNER INFORMATION:	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Name: SUNSTAIN JUX.	7. PERMIT NUMBER:
(last) (first)	0mw 19130
Address: 93 lele ford avenue	8. USE:
01-2-3	☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergence:
City: Richmond Hill State: GA Zip: 31324	Fig. Tool Wall:
•	Li Nepiacement
Telephone: Work: ONY NOWN Home: 2. LOCATION OF WELL: COUNTY: JASSEY	
Name: 1 10 k 10 2	Date Completed: UNIOS
Name: DICKLE DIMIDER # 233	10. CASING: A Inreaded Li Welded
Day to the land	Diam.: Height: Above Below
city: temospee, SC Zip: 29945	Surface
1	13
Lalllude: Longllude: 32° 37' 46.1" N 80° 52' 44.1" W	In lofl. depth Drive Shoe? ☐ Yes DVo
3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:	11. SCREEN:
Nickle Amper#233 MW-2	Type: SCh 40 Dlam: 2"
4. ABANDONMENT: Yes No	Slot/Gauge: (), 0 Length:
i visitis di les Xivo	Set Between: ft. and ft. NOTE: MULTIPLE SCREENS
Grouted Depth: from the	ft. andft. USE SECOND SHEET
Grouted Depth: fromft. toft. *Thickness Depth to *	Sieve Analysis 🔲 Yes (please enclose) No
Formation Description of Bottom of	12. STATIC WATER LEVEL 19 ft. below land surface after 24 hours
Stratum Stratum	13. PUMPING LEVEL Below Land Surface.
Corcupon Brown 1003e	ft. after hrs. Pumping G.P.M.
fine sutisand wet 0 10	Pumping Test: Tyes (please enclose) XNo,,
@ ~3 Strong	Yleld:
	14. WATER QUALITY
Restroleum Odor	Chemical Analysis XYes □No Bacterial Analysis □ Yes XNo
	Please enclose lab results.
geenish gray from 10 12-	15. ARTIFICIAL FILTER (filter pack) Yes I No
	Installed from ft. lo (2 ft. Effective size H= 2 Uniformity Coefficient
fine Sandy Clay	
	16. WELL GROUTED? Yes INO
Wet. Strong Petroleum	Neat Cement Bentonite Bentonite/Cement Other
	Depth: From ft. to ft.
Odor 1	7. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft direction
	Type
Y	Well Disinfected ☐ Yes XNo Type: Amount:
1	8. PUMP: Date Installed: Not Installed III
	Mfr. Name:Model No.:
My	H.P Volts Length of drop pipe ft. Capacity gpm TYPE: Submersible Jet (shallow) Turbine
	☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal
11	
	Address (Print) But + Brown CERT. NO.: 1695
d	Address: (Print) Burt Brown Address: (Print) Burt Brown Level: A B C D (circle one)
	harlote, nc 28227
ndicate Water Bearing Zones	Telephone No.: 704 - 845 - 400 7 Fax No.: 7048454012
(Use a 2nd sheet If needed)). WATER WELL DRILLER'S CERTIFICATION: This well was drilled under
REMARKS:	my direction and this report is true to the best of my knowledge and belief.
entonite 0.5-1-	
2 reprocess 1	9/8 offer
NW-2	gned: N. Drust Daves Date: 411105
	Well Driller
	D Level Driller, provide supervising driller's name:
☐ Dug ☐ Air Rotary ☐ Driven	
Cable tool A Other Curred	
The state of the s	



Water Well Record Bureau of Water

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

1 WELL OWNED INFORMATION			7					
1. WELL OWNER INFORMATION:	_		7. PERMIT NUMBER:					
Name: Sonstau INC			UMW 19130					
Address: Cont. I. C. (last)	(1	irst)	8. USE:					
Address: 9366 Ford a	Weni	Ce.	☐ Residential ☐ Public Supply ☐ Process					
City: Dur base and Listher C	5 A 71	2	☐ Irrigation ☐ Air Conditioning ☐ Emergency					
City: Richmond Haple: Co) / Zip:	31324	☐ Test Well ☐ Replacement					
Telephone: Work: 1 No V 10 m	Uama:		9. WELL DEPTH (completed) Date Started: \[\frac{11105}{1105} \]					
2. LOCATION OF WELL:	none:							
Name: O	YOUNIA: OF	tsper	Date Completed: 411105					
Trainie. VIICVIO	5 1 to 7 x	- 2	10. CASING: M Threaded Welded					
Street Address: 3206 Pol	Mtson	That	Dlam.: Helght: Above Below					
Street Address: 3206 POL City: Yemassee, 50	Zip: 299	45	Type: A PVC LI Galvanized Surface					
			Steel Other Weight					
Latitude: Longitud	e:		in. lo fl. depth Drive Shoe?					
Latitude: Longitud 32°37′461″N 80°57	2' 44.1"	vV .	ft. depth					
3. PUBLIC SYSTEM NAME: PI	UBLIC SYSTE	M NUMBER	11. SCREEN:					
			Type: Slot/Gauge: O. O. Length:					
Nickle Pumper #23	2 111	W-5	Slot/Gauge: C. O.L Length: 101					
4. ABANDONMENT: Yes	No.							
Grouted Depth: from	ft. to	ft.	ft. andft. USE SECOND SHEET Sieve Analysis ☐ Yes (please enclose) 1 No					
	*Thickness	Depth to '						
Formation Description	of	Bollom of	12. STATIC WATER LEVEL L. S.C. ft. below land surface after 24 hours					
	Stratum	Stratum	13. PUMPING LEVEL Below Land Surface.					
Corangion lorown 1005		0	ft. after hrs. Pumping G.P.M.					
a. 1001.1000 1003		8-	Pumping Test: ☐ Yes (please enclose) ☐XNo.,					
		·	Yleld:					
Ame Sity Sand			14. WATER QUALITY					
0			Chemical Analysis ⊠Yes □No Bacterial Analysis □ Yes অ∀No					
Weter 3 Strong	.		Please enclose lab results.					
Desiraleunicodor		•	15. ARTIFICIAL FILTER (filter pack) Yes I No Installed from 1 ft. to 12 ft.					
2 CALCON CONTRACTOR			Installed from ft. to ft.					
Decens ide Co.	87	12-1	Effective size #2 Uniformity Coefficient					
oreenish gray	0	12	16. WELL GROUTED?					
U. U. CO		.	Neat Cement Bentonite Bentonile/Cement Other					
firm fine Sanas			Neat Cement Bentonite Bentonite/Cement Other Depth: From ft. to ft.					
n.'	\$	-						
Llay, wet, Strong			17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft direction					
			Type					
Destroleron ador		-	Well Disinfected ☐ Yes No Type: Amount:					
3.110.00			18. PUMP: Date Installed: Not Installed					
		1	Mfr. Name: Model No.:					
			H.P Volts Length of drop pipe ft. Capacity gpm					
			TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine					
		-	☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal					
			18. WELL DRILLER: BUT + BYOWN CERT. NO.: 1(095					
			Address: (Print) 19. WELL DRILLER: BOC + BYOWN CERT. NO.: [LOGS Level: A B C D (circle one)]					
			2201-Ecmun Dant QN. dr & DDD (Circle one)					
			Address: (Print) 2301 - F Crown Pant W. dr. A D D (circle one)					
ndicate Water Bearing Zones			CIRCLIOTIC, VIC AXAD					
		-	Telephone No.: 704 -845 - 4017 Fax No.: 704 -845 - 4017 20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under					
(Use a 2nd sheet If needed)								
REMARKS:		and the state of t	my direction and this report is true to the best of my knowledge and belief.					
constant to								
ENGUL TITLE			910 11					
11.73 0.2-1			Signed: A. Durt Proces					
100-5	-		Well Driller					
TYPE: Mud Rotary Jetted	☐ Bor	he						
D Dug Air Rotary			If D Level Driller, provide supervising driller's name:					
		Veil .						
☐ Cable tool ☐ Other	weer	1.09						
	——————————————————————————————————————	- I -						



Water Well Record Bureau of Water

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

1 MELL OWNED WEDDING							
1. WELL OWNER INFORMATION:	7. PERMIT NUMBER:						
Name: SUNStan INC.	UMW 19130						
(first)	8. USE:						
Address: 9366 Ford avenue	T. Postdocital						
1 · · · · · · · · · · · · · · · · · · ·	T Industria						
City: Richmond Hillstate: CeA zip: 31324	☐ Irrigation ☐ Air Conditioning ☐ Emergency						
	☐ Test Well ☐ Replacement						
Telephone: Work: WY WY Home: 2. LOCATION OF WELL: COUNTY: JACKY	9. WELL DEPTH (completed) Date Started: 411105						
2. LOCATION OF WELL: COUNTY: \ACOPY	Date Completed: 4 1105						
Name: NICKLE Pomper #233	10. CASING: Threaded						
Street Address: Z 2 G/a Dry on + South D-	1 - '``						
Street Address: 3294 Pount South Dr.	Diam.: Helght: Above Below						
City: Yemandee, SC ZIP: 29945	Type: TY PVC C Galvanized Surface						
	Steel Olher Weight						
Lalitude: Longitude:	In. lo fl. depth Drive Shoe? Tyes No						
Latitude: Longitude: 32° 37′ 46.1″N 85° 52′ 44.1″W	in. toft. depth						
3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:							
	11. SCREEN: Type: Sch 40 Dlam.:						
Dickle Domper #233 MW-4	Slot/Gauge: Length: LO'						
4. ABANDONMENT: Yes No							
Grouted Depth: fromft. toft.	ft. use second sheet						
*Thickness Depth to *	Sieve Analysis 🔲 Yes (please enclose) 🔯 No						
Formation Description of Bottom of	12. STATIC WATER LEVEL 3.30 ft. below land surface after 24 hours						
Stratum Stratum	13. PUMPING LEVEL Below Land Surface.						
	1						
Corayion Drown loose 0- 8-	Pumping Test: Yes (please enclose) No, Yield:						
Corcos Toront Took C	Violate						
0.614.6	Yleld:						
ane Sity Sand,	14. WATER QUALITY						
	Chemical Analysis ♥ Yes □No Bacterial Analysis □ Yes ▼ No						
wet@ -3 Strong	Please enclose lab results.						
	AE ADVICIONAL ENTED (EL						
Detroleum odor	15. ARTIFICIAL FILTER (filter pack) Yes No No Installed from It. to Control It. to It. t						
CHOCOSTACCOY	Installed from the ft. to the ft.						
2000 100 100 100 100 100 100 100 100 100	Effective size Uniformity Coefficient						
oransingray fum 5 12	16. WELL GROUTED? Yes D No						
	Neat Cement Bentonite Bentonite/Cement Dother						
fine Sandy Clay	Depth: From						
Wet, Strong Petroleyn	17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft direction						
of the particular to	Type						
odor -	Well Disinfected Tyes No Type: Amount:						
	18. PUMP: Date Installed: Not Installed						
	18. PUMP: Date installed: Not installed Model No.:						
	H.P Volts Length of drop pipe ft. Capacity gpm						
M.							
	TYPE: Submersible Jet (shallow) Turbine						
	☐ Jet (deep) ☐ Reclprocating ☐ Centrifugal						
	18. WELL DRILLER: BUT & Brown CERT. NO.: (1095						
	Address: (Print) Address: (Print) Crown Pounter. D. Level: A B C D (circle one)						
	3301 + Chown form review.						
	Charlotte, NC 28227						
ndicate Water Bearing Zones	Telephone No.: 704 8454070 Fax No.: 7048454012						
	20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under						
(Use a 2nd sheet If needed)	my direction and this report is true to the best of my knowledge and belief.						
DEMADICS.	my diseason and this report is true to the best of my knowledge and belief.						
sontenite 0.5-17	Land Control of the C						
sentoner 0,5 1	910 10						
	Signed: A. Burthour Date: 4/11/05						
NW-4	Signed: Date: CILICS						
	went Drine						
	f D Level Driller, provide supervising driller's name:						
☐ Dug ☐ Alr Rotary ☐ Driven .							
Cable tool Cher Circa Co							
1 agerra							

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

	100		1	Facility Name:	Nickle Pumper #	233						
Field Personnel: BBIKP			1	Site ID #		Monitoring Well #						
General Weather Conditions:	(lady			Well Diameter	(D):	2	- /	_feet				
Ambient Air Temperature:	72-	_c		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								
Quality	Assurance					101 4 4 111011	Well 0 - 0					
pH=4.0 pH=7.0	Conductivity Meter serial no. Standard Standard Standard			* Free Product Thickness: Depth to Ground Water (DGW) Total Well Depth (TWD) Length of the water column (LWC = TWD-DGW) 1 casing volume (CV = LWC X C) =				7.00 feet (2.00 feet (10.00 feet				
Chain of Custon	iv			3 casing volun	ne 3 X CV =	4.89	gals (sta	ndard purge volu	me)			
Relinquished by Date/Time Received by Date/Time				Total volume of Water Purged Before Sampling Total volume of Water Purged for Post Sampling 3.25* *If free product is present over 1/8 inch, sampling will not be required.					gals gals Total Purged			
			•					7				
		Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol	. Post Sampling	Sample			
Cumulative Volume Purged (gall	ons)	0.25	1075	3.25	1							
Time (military)		1601	1603	1608					1610			
pH (s.u.)		4.7	4.5	4.3					1-(
Specific Cond. (umhos/cm)		0.07	0.07	70.08				1				
Water Temperature (degrees C)		20	20	20								
Turbidity (subjective: clear, sligh	ntly cloudy, cloudy)	& lad	udord	cloudy								
Dissolved Oxygen (mg/l)		1.0/	4.1	4.1								
PID readings, if required												
Remarks:								-				
	8											

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			Facility Name:	Nickle Pumper	#233			
Field Personnel: 13 wt Cen			Site ID # 04878			Monitoring Well #		14-2
General Weather Conditions:			Well Diameter	(D):	0	167	feet	
Ambient Air Temperature: Quality Assurance		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						
pH Meter serial no. pH=4.0 Standard pH=7.0 Standard pH=10.0 Standard Standard Chain of Custody	Conductivity Meter serial no. Standard Standard Standard				c = twd-dgv	feet feet feet feet foot feet feet feet		
Relinquished by Date/Time Received by	Date/Time		Total volume of Water Purged Before Sampling Total volume of Water Purged for Post Sampling gals 200 gals 7otal Purged Free product is present over 1/8 inch, sampling will not be required.					
Cumulative Volume Purged (gallons)	Initial O125	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Time (military)	1547	1040						1500
pH (s.u.)	4.5	4.6						1000
Specific Cond. (umhos/cm)	0.15	0.16						
Water Temperature (degrees C)	19	20	4					
Turbidity (subjective: clear, slightly cloudy, cloudy)	douale	douby						
Dissolved Oxygen (mg/l)	10/7	5,3						
PID readings, if required								
Remarks: bailed	ossen	etially	dry of	ter 20	o galle	us re	moved	

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):			Facility Name:	Nickle Pumper	#233		V 1	
Field Personnel: BBILP			Site ID #	04878		Monitoring	g Well #	nw-3
General Weather Conditions:			Well Diameter ((D):		211	feet	
Ambient Air Temperature:	с		Conversion fac	ctor (C): 3.14 X (D	/2)2 for a 2 incl for a 4 inch			
pH Meter serial no. pH=4.0 standard pH=7.0 Standard pH=10.0 Standard Standa			Total Well Dept Length of the v 1 casing volum 3 casing volum Total volume o	nd Water (DGW) th (TWD) vater column (LW	elefore Sampling	gals (stang	375	feet feet feet feet me) gals gals Total Purged
		-					A	
	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.	5th Vol.	Post Sampling	Sample
Cumulative Volume Purged (gallons)	0.25	2,00	3.75					
Time (military)	1521	1524	1527					1529
pH (s.u.)	4,4	4,3	4,4					
Specific Cond. (umhos/cm)	117	,27	117					
Water Temperature (degrees C)	19	19	19					
Turbidity (subjective: clear, slightly cloudy, cloudy	of Clare-1	douder	dours			- 3		
Dissolved Oxygen (mg/l)	7.2	21	416					
PID readings, if required								
Remarks:								
		_						

200

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): H (1/2/0)			Facility Name:	Nickle Pumper	#233			
Field Personnel: LP BB			Site ID #	04878		Monitoring We	ell#	MW-4
General Weather Conditions:			Well Diameter	(D):	<i>></i> '	feet		
Ambient Air Temperature: 7 7 Quality Assurance	_c		Conversion fa	ctor (C): 3.14 X (E		n well C = 0.163 well C = 0.652		
pH Meter serial no. pH=4.0 serial no. pH=7.0 Standard pH=10.0 Standard Standard			Total Well Dep Length of the	nd Water (DGW) oth (TWD) water column (LV) me (CV = LWC X C	c) =		8-64 10	feet feet feet feet
Chain of Custody Relinquished by Date/Time Received by	Date/Time		Total volume of	of Water Purged E of Water Purged f tis present over	or Post Samplin	ng	Z.25 .75	ume) _ gals _ gals _ Total Purged
1								
Cumulative Volume Purged (gallons)	Initial	1st Vol.	2nd Vol.	3rd Vol.	4th Vol.		st Sampling	g Sample
Time (military)	1500	1505					509	1508
pH (s.u.)	5,4	5,0					1,8	
Specific Cond. (umhos/cm)	1,14	,14					13	
Water Temperature (degrees C)	17	i7					17,	
Turbidity (subjective: clear, slightly cloudy, cloudy)	Scloudy	Cloudy	4	111			loudy	
Dissolved Oxygen (mg/l)	27	65	13	ilel		3	518	
PID readings, if required Remarks:			7	1)(11/21			
reinars.					100	1,25		

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):		1	Facility Name:	Nickle Pumper	#233			
Field Personnel: VD, BB	*		Site ID #	04878		Monitorin	g Well #	WSW-1
General Weather Conditions:COOd 4			Well Diameter	(D):			feet	
Ambient Air Temperature:	_c		Conversion fa	ctor (C): 3.14 X (D		ch well C = 0		
Quality Assurance	Date/Time		Total Well Dep Length of the 1 casing volur 3 casing volur Total volume	ond Water (DGW) oth (TWD) water column (LV) me (CV = LWC X C	e) = 	gals (star	ndard purge volu	feet feet feet feet gels gals Total Purged
]	*If free produc	t is present over	1/8 inch, samp	ling will no	t 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)	17							
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

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Sample Type: Soil

Site ID:

Date Collected: 4/11/05 Time Collected: 9:53

Date Received: 4/13/05

Time Received: 8:00

			Report	Dil	Analysis	Analysis	3		
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batc
*GENERAL CHEMISTRY PARA									
% Dry Weight	79.1	8		1.0	4/14/05		A. Runnels	CLP	882
ORGANIC PARAMETERS									
Benzo(a) anthracene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	101
Benzo(b) fluoranthene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	101
Benzo(k)fluoranthene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	101
Chrysene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	101
Dibenzo(a,h)anthracene	ND	mg/kg	0.085	1.0	4/15/05	20:37	M.Schott	8270C	101
VOLATILE ORGANICS									
Benzene	0.0458	mg/kg	0.0020	1.0	4/15/05	19:44	J. Adams	8260B	220
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

Wt /Vol

	MC / VOI					
Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method
BNA's	30.0 g	m 1.0 ml	4/14/05		J. Davis	3550
Volatile Organ			4/11/05	9:53	N. Noman	5035

% Recovery Target Range Surrogate



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.



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ANALYTICAL REPORT

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

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Site ID:

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

Time Received: 8:00

			Report	Dil	Analysis	Analysis				
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method		Batch
GENERAL CHEMISTRY PARAMET	TERS								7	
% Dry Weight	84.1	g.		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

	Wt/Vol					
Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method
BNA's	29.8 g	m 1.0 ml	4/14/05		J. Davis	3550
EPH/DRO	25.0 g	m 1.0 ml	4/14/05		J. Davis	3550
Volatile Organic	s 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.



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ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110

JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Sample Type: Soil

Site ID:

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

Time Received: 8:00

			Report	Dil	Analysis	Analysis			
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAMETE	RS					*			
% Dry Weight	85.9	8		1.0	4/14/05		A. Runnels	CLP	882
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	101
Benzo(b) fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	101
Benzo(k) fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	21:18	M.Schott	8270C	101
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

	Wt/Vol							
rameter	Extracted	Extract	Vol	Date	Time	Analyst	Method	
BNA's	30.2 9	m 1.0	ml	4/14/05		J. Davis	3550	
Volatile Organics	7.10 9	5.0	ml	4/11/05	11:11	N. Noman	5035	



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.



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ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110

JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Sample Type: Soil

Site ID:

Date Collected: 4/11/05 Time Collected: 11:26

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

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

Sample Extraction Data

	Wt/Vol					
Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method
BNA's	30.5 g	m 1.0 ml	4/14/05		J. Davis	3550
Volatile Organio	cs 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.



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ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110

JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Sample Type: Soil

Site ID:

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

Analyte	Result	Units	Report	Dil Factor	Analysis Date	Analysis Time	Analyst	Method		Batc
GENERAL CHEMISTRY PARAMET	'ERS								7	
% Dry Weight	87.0	8		1.0	4/14/05		A. Runnels	CLP		882
ORGANIC PARAMETERS										
Benzo(a) anthracene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C		101
Benzo(b) fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C		101
Benzo(k) fluoranthene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C		101
Chrysene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C		101
Dibenzo(a,h)anthracene	ND	mg/kg	0.077	1.0	4/15/05	23:14	M.Schott	8270C		101
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

	Wt	/Vol								
Parameter	Ext	racte	d I	Extrac	t Vol	Date	Time	Analyst	Method	
BNA's		29.8	αm	1.0	m l	4/14/05		J. Davis	3550	
Volatile Organics	5	7.02	-	5.0		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.



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ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110

JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Sample Type: Soil

Site ID:

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

Time Received: 8:00

			Report	Dil	Analysis	Analysis			
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batch
GENERAL CHEMISTRY PARAME	TERS								A
% Dry Weight	88.6	8		1.0	4/14/05		A. Runnels	CLP	882
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	101
Benzo(b) fluoranthene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	101
Benzo(k)fluoranthene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	101
Chrysene	ND	mg/kg	0.076	1.0	4/15/05	23:35	M.Schott	8270C	101
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									
FAL (11-1									

	Wt/Vol						
Parameter	Extracted	Extract Vol	Date	Time	Analyst	Method	
BNA's	29.8 g	m 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.

 ${\tt E}$ = 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.



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ANALYTICAL REPORT

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

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Site ID:

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 PARAME	TERS								
% Dry Weight	86.2	8		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

rameter	Extracted	Extract Vol	Date Time	Analyst	Method	
BNA's	29.7 gi	m 1.0 ml	4/14/05	J. Davis	3550	
Volatile Organic	s 4.79 g	5.0 ml	4/11/05 14:20	N. Noman	5035	



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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

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

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

Sample Type: Soil

Site ID:

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

Time Received: 8:00

			Report	Dil	Analysis	Analysis			
Analyte	Result	Units	Limit	Factor	Date	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:

 ${\tt ND}$ = Not detected at the report limit.

- B = Analyte was detected in the method blank.
- J = Estimated Value below Report Limit.
- ${\tt E}={\tt Estimated}$ 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 '517	52
Benzo(b) fluoranthene	mg/kg	< 0.066	1.58	1.67	95	30 137.	1011 '517	52
Benzo(k)fluoranthene	mg/kg	< 0.066	1.52	1.67	91	28 142.	1011 '517	52
Chrysene	mg/kg	< 0.066	1.48	1.67	89	33 137.	1011 '517	52
Dibenzo(a,h)anthracene	mg/kg	< 0.066	1.62	1.67	97	19 149.	1011 '517	52
VOA PARAMETERS								
Benzene	mg/kg	< 0.0008	0.0451	0.0500	90	53 - 136	2206 blan	k
Benzene	mg/kg	< 0.0008	0.0451	0.0500	90	53 - 136	2223 blan	k
Toluene	mg/kg	< 0.0005	0.0452	0.0500	90	43 - 139	2206 blan	k

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
45						
UST PARAMETERS		N				1
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



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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.



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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
Sample Identification	Lab Number	COTTECTION 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

Page 2 Lab Number 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.

Roxanne & Connor

Report Approved By:

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 Manage Mark Hollingsworth, Director of Project

Laboratory Certification Number: 84009

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COOLER RECEIPT FORM

BC#



Client Name: CFI
Cooler Received/Opened On: 4/13/05 Accessioned By: Mark Beas
_/M. WY
Log-in Personnel Signature
1. Temperature of Cooler when triaged: Degrees Celsius
2. Were custody seals on outside of cooler?
a. If yes, how many and where:
3. Were custody seals on containers ?
4. Were the seals intact, signed, and dated correctly? YESNONA
5. Were custody papers inside cooler?
6. Were custody papers properly filled out (ink, signed, etc)?
7. Did you sign the custody papers in the appropriate place?
8. What kind of packing material used? Bubblewrap Peanuts Vermiculite Other None
9. Cooling process: (ce) Ice-pack Ice (direct contact) Dry ice Other None
10. Did all containers arrive in good condition (unbroken)?
11. Were all container labels complete (#, date, signed, pres., etc)?
12. Did all container labels and tags agree with custody papers?
13. Were correct containers used for the analysis requested?
14. a. Were VOA vials received?
b. Was there any observable head space present in any VOA vial?
15. Was sufficient amount of sample sent in each container?
16. Were correct preservatives used?
If not, record standard ID of preservative used here
17. Was residual chlorine present?
18. Indicate the Airbill Tracking Number (last 4 digits for Fedex only) and Name of Courier below:
UPS Velocity DHL Route Off-street Fedex Misc.
19. If a Non-Conformance exists, see attached or comments below:

412553 Test/America To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes? Compliance Monitoring 230+F Crown Point ExecD Project Name: City/State/Zip Code: Cherclotte NC 28227 Project #: State: 54 Yamassce Fax: (704) 845-4017 Shawn Jude Ken Promienta Timento Matrix Preservation & # of Containe TAT Standard QC Deliverables Rush (surcharges may apply) None G = Grab, C = Composite Level 2 Date Needed: (Batch QC) Level 3 Date Sampled Fax Results: Y N Level 4 ield Filtered Other: _ 2504 SAMPLE ID REMARKS 23 51746 SB-2/15 1029 6 5 33 555 48 2323 1176 G 49 1323 G 50 1350 6 51 1420 6 5 52 4/105 1521 G 3 51753

> LABORATORY COMMENTS: Init Lab Temp:

> > Rec Lab Temp: 0.0

Method of Shipment:

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

Special Instructions:

Relinquished By:

Relinquished By:

SCSL

4/12/05 Date:

1600

Time:

Time:



COOLER RECEIPT FORM

BC#



Client Name: GRF	412501
Cooler Received/Opened On: 04/13/05 Acc	essioned By:Benjamin C.Wright
	A C. WIIght
•	Log-in Personnel Signature
1. Temperature of Cooler when triaged: /-	
1. Temperature of Cooler when triaged: //	_Degrees Celsius
2. Were custody seals on outside of cooler?	YESNONA
a. If yes, how many and where:	
3. Were custody seals on containers ?	Croyesna
4. Were the seals intact, signed, and dated correctly?	
5. Were custody papers inside cooler?	
6. Were custody papers properly filled out (ink, signed,	etc)?NONA
7. Did you sign the custody papers in the appropriate pl	ace?YES)NONA
8. What kind of packing material used Bubblewrap P	eanuts Vermiculite Other None
9. Cooling process: Ice Ice-pack Ice (direct co	ontact) Dry ice Other None
10. Did all containers arrive in good condition (unbroke	n)?
11. Were all container labels complete (#, date, signed, pa	
12. Did all container labels and tags agree with custody p	
13. Were correct containers used for the analysis request	
14. a. Were VOA vials received?	VESNONA
b. Was there any observable head space present in a	
15. Was sufficient amount of sample sent in each contained	er?YESNONA
16. Were correct preservatives used?	XESNONA
If not, record standard ID of preservative used he	ere
17. Was residual chlorine present?	NOYES NA
18. Indicate the Airbill Tracking Number (last 4 digits for	Fedex only) and Name of Courier below:
Fed-Ex UPS Velocity DHL	Route Off-street Misc.
19 If a Non-Conformance exists see attached as comments	. belease

TestAmen	PORATION	2—								16	10			is this	work b Comp	eing co diance l	nducte Monitor	d for reg ing		ethods, purpose	ıs?	
12501 Client Name Address:		-L)!-F	Cre	-wx	B		_	lient#	_	$\frac{\times}{1}$		_	Projec	Name	N	ick	e F	Z ()	101			
City/state/Zip Code:		arlo.	112	N		28		7		_		-	P	oject#	-11		9-1	MIN	<u> </u>			
Project Manager:	5h	WH.	Tud									- Si		tion ID:	U	emo	</th <th>,</th> <th></th> <th>State:</th> <th><u>5</u>C</th> <th></th>	,		State:	<u>5</u> C	
Telephone Number:	Doy	1845-	40	10		Fax	1/7	by)	84	5-401	12	-		port To:		hau			1	_ State	70	
Sampler Name: (Print Name)	Ken	Pini	7	a								-		pice To:		arti é			_			
Sampler Signature:		D	Inh	,		- 1						- B		luote #:		042			927			
	1	7 100		Matrix	Pres	ervatio	8 # cf	Cont	ainecs	_	\rightarrow	8	- //ද	Anah	ze For		, , ,		PU#:			
TAT Standard Rush (surcharges may apply) Date Needed: Fax Results: Y N SAMPLE ID MW-1 MW-2 MW-3 MW-4 WGW-1	9/12/65	1555 1529 1508 1539	G = Grab, C = Composite Field Filtered	S GW - Granibwater S - Soll Soll Www. Wastewater S - Soll Soll WW - Wastewater Specify Other	HNO,	HOW NO IN IN IN	H;50,	Methanol Mathanol		XXXXX	XXXX BOS AND S	XXX West X	X	OZZ STY XXXX	12 X X X	NXX MAKE THE PROPERTY OF THE P	1 35ap				11 12 13	9 12 9(C) 13
Special Instructions: SCSL Relinquished By: Am Vinitation		H/12/or Date:	S //			ived B	EM) m	1	X		4// Date:	येड	Time:	26	R Custo	nit Lab dec Lab	Temp: Temp: is: Y	N	S: N/A merica:	YN	
Relinquished By:		Date:	Tim	ie:	Rece	eived E	1	2	Ź			4/3 Date?	05	Example:	9	Metho	d of Sh	ipment	E .			



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ANALYTICAL REPORT

GEOLOGICAL RESOURCES 2110 JOHN BROWN

2301 CROWN POINT EXEC.DR, STE F

CHARLOTTE, NC 28227

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

Lab Number: 05-A51509

Sample ID: WSW-1 Sample Type: Water

Site ID:

78. - 121.

78. - 126.

79. - 122.

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

			Report	Dil	Analysis	Analys	is		
Analyte	Result	Units	Limit	Factor	Date	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	, e Ç	% R	ecovery	Targ	get Range				
VOA Surr 1,2-DCA-d4			95.		70 130.				

LABORATORY COMMENTS:

VOA Surr Toluene-d8 VOA Surr, 4-BFB

VOA Surr, DBFM

ND = Not detected at the report limit.

B = Analyte was detected in the method blank.

J = Estimated Value below Report Limit.

 ${\tt E}$ = Estimated Value above the calibration limit of the instrument.

104.

122.

96.

= Recovery outside Laboratory historical or method prescribed limits.



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ANALYTICAL REPORT

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

1E, NC 2022/

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

Lab Number: 05-A51510

Sample ID: MW-1 Sample Type: Water

Site ID:

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

			Report	Dil	Analysis	Analys	is		
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	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 GO	*								
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.



ANALYTICAL REPORT

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

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

Lab Number: 05-A51511

Sample ID: MW-2 Sample Type: Water

Site ID:

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

			D	n/ 1					
			Report	Dil	Analysis				
Analyte	Result	Units	Limit	Factor	Date	Time	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 PARAMET	ERS								
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

70. - 130.

Sample Extraction Data

Wt/Vol

Parameter Ext	racted Ex	tract Vol	Date	Time	Analyst	Method
BNA's	875. ml	1.0 ml	4/14/05		J. Davi	s 3510/625
Surrogate			% Re	covery	1	arget 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-Nitrobenzen	e-d5			61.		- 31 112.
BNA Surr-2-Fluorobip	henyl			56.		33 101.
BNA Surr-Terphenyl-d	14			61.		31 111.
Surr., 1,3-DCB				95.0		83 134.

LABORATORY COMMENTS:

Surr - Acetylene

ND = Not detected at the report limit.

- B = Analyte was detected in the method blank.
- J = Estimated Value below Report Limit.
- ${\tt E}$ = Estimated Value above the calibration limit of the instrument.
- # = Recovery outside Laboratory historical or method prescribed limits.

98.0

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

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



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ANALYTICAL REPORT

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

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

Lab Number: 05-A51512

Sample ID: MW-3 Sample Type: Water

Site ID:

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

			Report	Dil	Analysis	Analys	is		
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batch
						,			
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	uġ/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		5522
Benzo(k) fluoranthene	ND	ug/l	2.0	1.0	4/16/05	9:00	U. Burroug		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		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 PARAMETE	ERS								
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		R.Street	7421	2813
*MTCCELL AMEQUIC CUENT CORV.									
MISCELLANEOUS CHEMISTRY	ND	mm /2	0.10	1 0	4/13/05	14.10	C. David	2056	01.40
Nitrate-N as N	ND	mg/l	0.10	1.0	4/13/05		G. Baun	9056	8149
Sulfate	9.50	mg/l	1.00	1.0	4/13/05	14:10	G. Baun	9056	8149



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ANALYTICAL REPORT

Laboratory Number: 05-A51512

Sample ID: MW-3

3510/625

Page 2

J. Davis

Sample Extraction Data

4/14/05

Wt/Vol

1000 ml 1.0 ml

BNA's

Parameter Extracted Extract Vol Date Time Analyst Method

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

 ${\tt E}$ = 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

Project:

Project Name: NICKEL PUMPER

Sampler: KEN PIMIENTA

Lab Number: 05-A51513

Sample ID: MW-4 Sample Type: Water

Site ID:

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

			Report	Dil	Analysis	Analys	is		
Analyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS									
Benzo(a)anthracene	ND	uġ/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 PARAMET	ERS								
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



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ANALYTICAL REPORT

Laboratory Number: 05-A51513

Sample ID: MW-4

Page 2

Sample Extraction Data

Wt/Vol

Extracted Extract Vol Date Time Analyst Method

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.
- ${\tt E}={\tt Estimated}$ 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.



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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



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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
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



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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
						4
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



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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	<pre>% Recovery</pre>	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 Val	ue Units	Q.C. Batch	Date Analyzed	Time Analyzed
UST PARAMETERS					
Benzo(a)anthracene	< 0.00	008 mg/l	5522	4/15/05	22:33
Benzo(b) fluoranthene	< 0.00	006 mg/l	5522	4/15/05	22:33
Benzo(k) fluoranthene	< 0.00	005 mg/l	5522	4/15/05	22:33
Chrysene	< 0.00	004 mg/l	5522	4/15/05	22:33
Dibenzo(a,h)anthracene	< 0.00	006 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/1	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.



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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

Page 2 Lab Number 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: Ital a dage

Report Date: 4/20/05

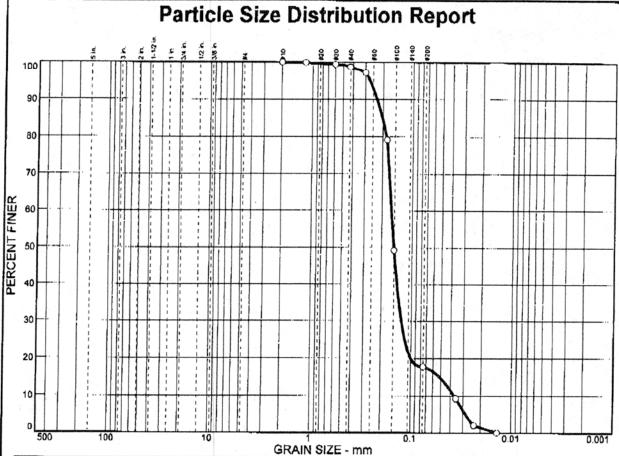
Johnny A. Mitchell, Laboratory Director Michael H. Dunn, M.S., Technical Director Pamela A. Langford, Senior Project Manager Eric S. Smith, QA/QC Director Sandra McMillin, Technical Services

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

Laboratory Certification Number: 84009

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APPENDIX D Slug Test Data



% COBBLES	CORRIES % GRAVEL			% SAND	% FINES		
W COBBLES	CRS.	FINE	CRS.	MÉDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.3	80.9	17.8	0.0

SIEVE		PERCENT	SPEC.* PERCENT	PASS? (X=NO)
	#10 #16 #30 #40 #50 #80 #100 #200	100.0 99.9 99.4 98.7 97.2 79.2 49.3 17.8		(X=160)
			7	

	Soil Description	
Tan poorly grad medium sand	led fine Silty SAND (S)	M) with trace
PL= NT	Atterberg Limits LL= NT	PI= NT
D ₈₅ = 0.202 D ₃₀ = 0.125 C _u = 4.39	Coefficients D ₆₀ = 0.161 D ₁₅ = 0.0512 C _C = 2.64	D ₅₀ = 0.151 D ₁₀ = 0.0367
JSCS= SM	Classification AASHTO)= A-2-4(0)
Nickel Pumper N	Remarks 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

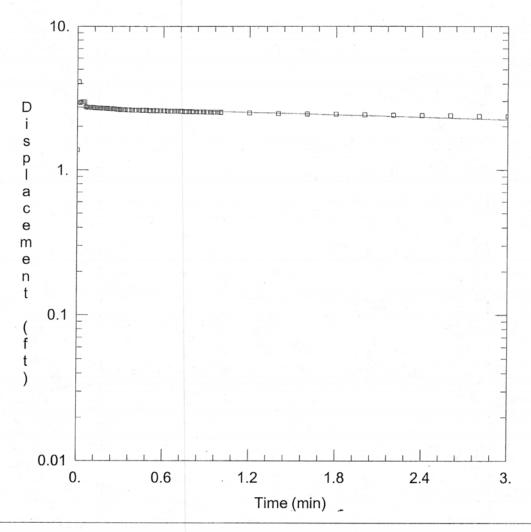
Project No: OB03-119T

Figure



Summary of Slug Test Division of Underground Storage Tank Management

Site Data					
UST Permit #: 04878	County: Jasper				
Facility Name: <u>Nickel Pumpe</u>			,		
Slug Data					
See Appendix Table level logs, etc. (complete as appropriate)].	Figure for a list of all data measurements. [water				
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 te	sted.		M .		
COMPLETE A SECOND SHEET IF MORE T	HAN FOUR WELL	S ARE TESTED		ſ	
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 Annendiy Table	Figure				
See Appendix Table	Figure _	tor	calculations (comp	olete as appropriate).	
The method for aquifer calculations was	Souwer-Rica	- Unconfin	ed (i.e. Bouv	ver-Rice, Cooper, etc.).	
Calculated values by well were as follows:					
Slug Test Conducted in Well(s) Number	er Mw-3		A 1 4 6 1 1		
Hydraulic Conductivity (K)	10000	1/min 2.41x	W-4		
Thickness of the aquifer used to calculate hydra	ulic conductivity wa	as 10, 41	and 8.55	feet.	
The aquifer is confined	semi-confin	edw	ater table (check as	appropriate).	
The estimated seepage velocity is 3.18					
a hydraulic conductivity of 6.97×10^{-5} to 2	41×105 ft/min	a hydraulic gradier	nt of	, and	
a porosity of 23 percent for					
percention_	THE SEAS	soli (list ty	ype i.e., siity sand ,d	play, 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 Wellbore Radius: 0.208 ft

Screen Length: 10. ft

Gravel Pack Porosity: 0.045

Casing Radius: 0.083 ft Well Skin Radius: 0.208 ft

Total Well Penetration Depth: 10.41 ft

SOLUTION

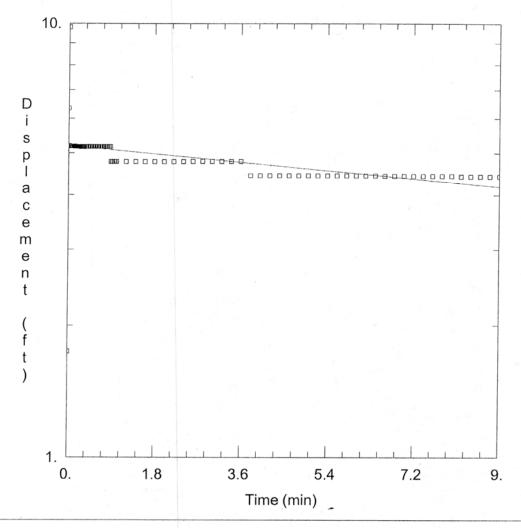
Aquifer Model: Unconfined

K = 6.975E-05 ft/min

Solution Method: Bouwer-Rice

y0 = 2.718 ft

	111				
	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	0.33 261
	0.02	2.93	0.18	2,67	0,35 260
→	0.03	2,97	0.19	2,67	6.36 2.60
	1004	7.97	0.26	2,66	5.38 2.59
	0.05	297	0.2/	2.66	0.40 2.59
	0.06	2,73	0.27	2,65	0.4/ 2.59
	0.07	2.71	0.23	2.65	0.43 7.59
	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 4
	air	2,70	0,27	2,62	0:50 7.57
	0.12	2,69	0.58	2,62	0.51 2.57
	0.13	2.69	0, 29	262	0,53
	0.14	2,68	0.30	2.61	0.15
	0.15	268	0.31	2,61	0.56 5-56
cont'd.	O.SP	256	0-83	2.52	200 2.41
- Control of the Cont	0,60		0.85		270 7.39
	0.61	<u> </u>	0.86		7.40 238
	0.63	2.55	0.88	1	. 2.60 237
	0.65		0,90	251	280 235
	0.66		0.91		3,00 2.34
	0.68		0.93		
	0.70	4	0.95		Sat. Thick = 12-1,59 = 10.41
	0.72	2.54	. 0.96		Juit. Disp. = 2,97-1,59 = 1,38
	0.73		0,98	V	K = 6.97×10 ⁻⁵ ft/min
	0.75	2.53	1.00	250	V= 6.06 × 10-6 ft/min
	0-76		(,20	2,48	= 8.73×10 ⁻³ ft/day
	0,78		1,40	2,46	= 3.18 ft/year
	0.80	U	7,60	2.44	
	0.81	6.52	1.80	7.43	
. 11	1				



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

Gravel Pack Porosity: 0.045

Total Well Penetration Depth: 8.55 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.414E-05 ft/miny0 = 5.206 ft

	Test	- # 18	Ref#	; 3,45	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./6		0.29 5.18	0,48
-	0.04	5.19	0.17		0.30 5.17	0.50
-	0,05	5,19	0.18	18.7% a	0.31 5.18	0.51
	0.06	5,19	0.19		0.32 5.17	O. S3
	0.07	5,19	0,20		0.33 5.17	0.55
- Tadhedleis	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	and the second second second second	0,38 5.18	0,60
-	0.[]	5.19	0,24		0,40 5,18	0.61
-	0.12	5,19	0.25	V	0.41 5.18	0.63
- Contraction						

0.65 5.18	090 4.78 -	280 4.79	5.80 4,44
0.66	0,91	3.00 (6.00
0.68	0.93	3,20	6,20
070	6.95	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
	2.20	5.20	8,20 4.42
	2.40 \$	5.40	8.40
0,88 4,78	260 4.79	5.60 V	8,60 1
			6.80
			9.00 1
	0.66 0.68 0.70 0.71 0.73 5.75 0.76 0.78 0.80 0.81 0.63	0.66	0.66

Mw-4		
Sat. Thick. = $12-3.45$ Juit. Disp. = $5.20-3.4$ $K = 2.41 \times 10^{-5}$ ft/n $V = 2.09 \times 10^{-6}$ ft/m = 3.02×10^{-3} ft/c	45 = 1,75 nin	
= 1.10 ft/year	3.007	
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		1.47
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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	c. 4	107	-
P.O. No				-

Job No.

NON-HAZARDOUS SPECIAL WASTE

	HOIT III LEXINE				1 1/1		Section of the
Section I.		TOR (Generator complete all of S					Attach
GENERATOR LOCATION THE STOREST	ng Bobby Tones, hode lite Mickel Rum	Bucks Work CON Bill To (If dif	TRACTED BY ferent from informa	ation at left)			
or indirection of the contract	bovenience Plus	ADDRESS_	A Anna h	C. C. 18	,	r cr	91.
VIAIEING ABBITEGG	STATE ZIP		1"				
	STATE ZIF	PHONE NO.	The second second				
PHONE NO	. 5 : 61		NAME		111(14-		
		CONTACT	V IIVIL	TT			
DES. OF WASTE:			**	- <u> No.</u>	Type	Jnits (L L L Quantity
Section II. INVOICE IN	JEORMATION		GALLONS		RUMS		Language Ald
DESCRIPT		STATE OF THE PROPERTY OF THE P		ANTITY	, i o iii o noi	II LINE	E TOTAL
	PUMPED FROM TANKS, DRUMS OR AF	FVR	40	1			
	R GAS PUMPED FROM TANKS OR DRU						
3. SOLUBLE OILS OR COOLANTS F							
4. SEDIMENT OR SOLIDS VACUUME							
5. 55-GALLON DRUM REMOVED - S		-	as H	(1)	Nicke	Puny	26/
6. 55-GALLON DRUM REMOVED - L	LIQUID			(1)	W	17	
7.		. 7	No.	0		,	100
8.					4.24		
9.							
0. ARRIVAL TIME:	DEPARTURE TIME:	*				1	
azardous waste subject to the Land Disp hazardous waste as defined by 40 CFR Par	Ken Honcette	the waste has been treated in	ions; AND, if the w	vaste is a tri	eatment residing the set of 40 CF	O U i	nd is no longer
Generator Authorized Age	ent Name	Jan MM	Asignature			Shipme	ent Date
Section III. TRANSF	PORTER	RANSPORTER (Generator complete a c ransporter II complete h-n)	l, Transporter I complete e	P	建物學和自然		
HAZ~ TRANSPORTATION P.O. BOX 37392 • CHA	N AND DISPOSAL	e. Name	1. 3/16-1			pali in	
Driver Name/Title		Driver Neme / Tit	la Mico	10 110	In man	7	
Phone No.	c. Truck No	g. Driver Name/Tit	7.4	i.	Truck No. —		
azardous Waste Transporter Permits PA NCR 000003186 PA NCD048461370		j. Transporter II Pe	rmit Nos.				
Driver Signature	Shipment Date	Driver Signature	anterior de la composição de la composição de la composição de la composição de la composição de la composição	Tiluta		Shipme	nt Date
Section IV. FAC	CILITY INFORMATION A		E OF DISPO	OSAL			
		A Comment of the Control of the Cont	7		2-5600		
ito i varrio.	sportation & Disposal, Inc.	a. Phone N		704-332 P.O. Box			
hysical Address: 210 Dalton Av Charlotte, N.C		b. Mailing	Audress:		e, N.C. 2823	37	
Di di di di di di di di di di di di di di							

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

10

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.
- 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

No are 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

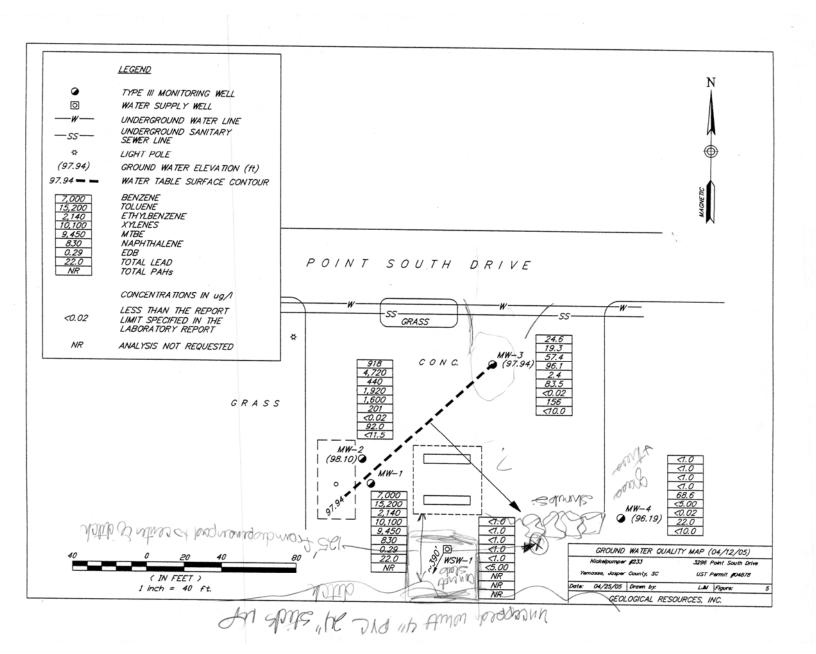
Subject:

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:

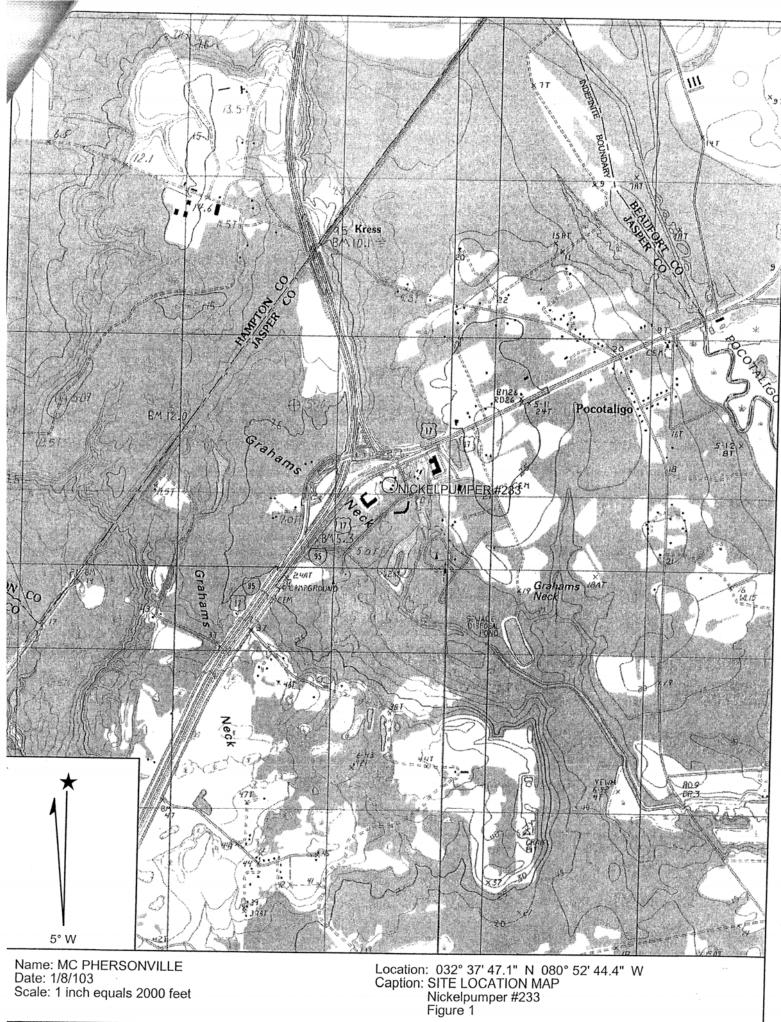
brineysm



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'



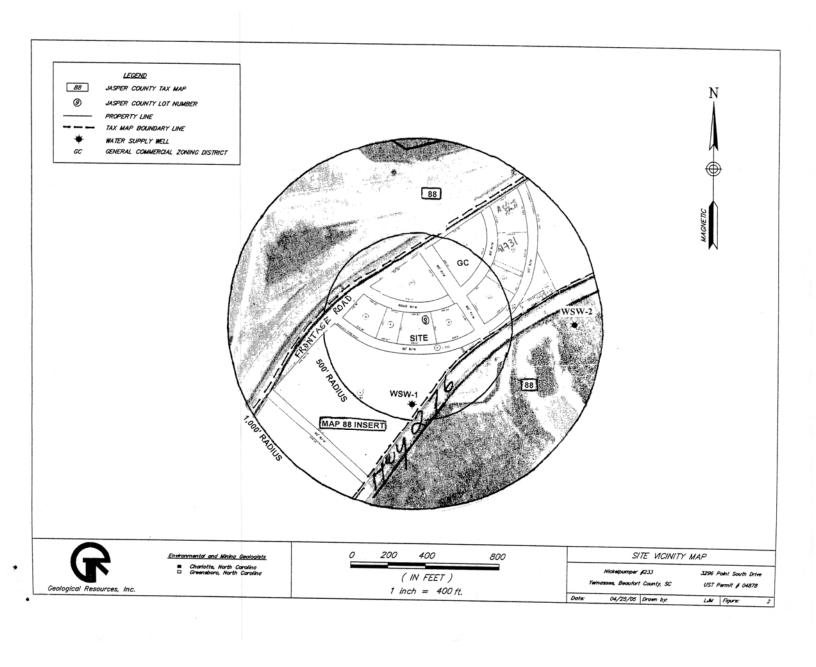
Copyright (C) 1997, Maptech, Inc.

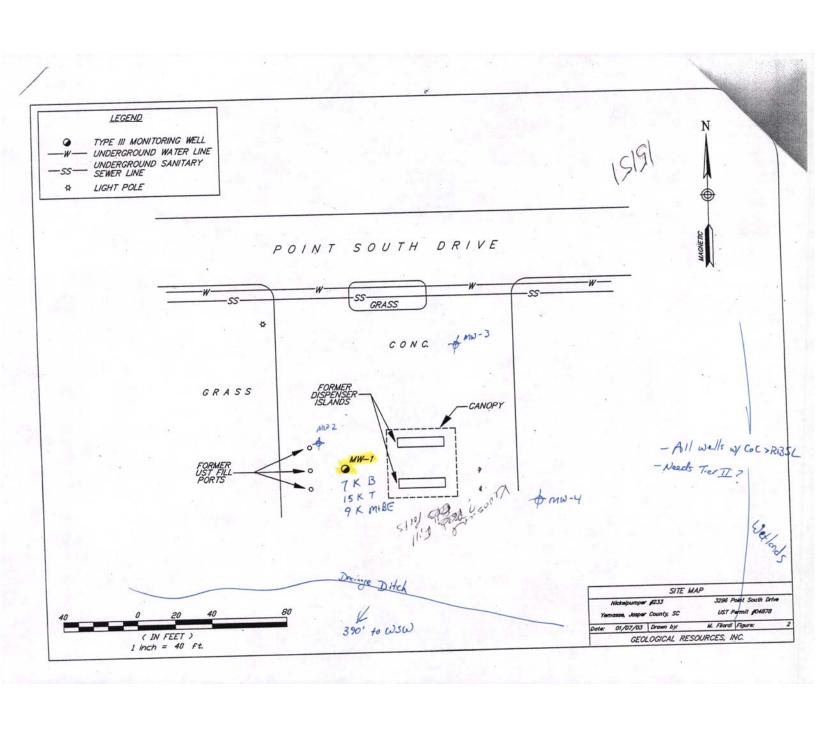
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WSW-2	091-00-03-11	Thomas Darrell Johnson Jr. & Wanda J. Johnson	P.O. Box 1125 Hardeeville, South Carolina 29927







-Tape this Front page to the pole
On-site.

- I have to be there. ORI scheduled
for next Tusday 4/11/05

Monday 4/11/05

10:00





Campground 10 thistipmy 10th - left at knights Inn hompground Rd. The part of the political of the many of the political of



