July 17, 2000
Amended August 4, 2000
FREQUENTLY ASKED QUESTIONS PERTAINING TO THREE DRINKING WATER FORMS, THREE RCRA FORMS, AND ONE LAND APPLICATION FORM

- **1) Why are the Forms necessary?**
  These forms are to assist the regulated community in determining what is expected of them in organizing and presenting analytical data to SCDHEC. They ensure that each facility is being treated fairly in that we are reviewing the same type data from each of them. These forms do not request any additional information to that which is required to be reported by the S.C. Certified Laboratory to every customer. Commercial Laboratories are certified to conduct certain analyses. For example, the certified laboratories may be certified for RCRA TCLP Metals but not necessarily the TCLP Volatiles or TCLP Semi-Volatiles. In this scenario, the laboratory certified for TCLP Metals but not the others would subcontract the TCLP Volatiles and Semi-Volatiles to another laboratory.
  There are seven Forms and one set of Instructions. Three (3) forms are applicable to RCRA TCLP, R.261-.270: 1) TCLP Metals, DHEC Form 3657; 2) TCLP Volatiles, DHEC Form 3658; and, 3) TCLP Semi-Volatile, DHEC Form 3659. Three (3) forms are applicable to the "Maximum Contaminates in Drinking Water Regulations" R.61-58.5: 1) Inorganic DHEC Form 3660; 2) Volatile DHEC Form 3661; and, 3) Semi-Volatile DHEC Form 3662. Finally, Land Application SCDHEC Form of 7-16-00 completes the current seven forms. These forms are used for the reporting of any analytical data to SCDHEC for regulatory purposes

- **2) How many and what type samples is necessary for each waste stream in order to provide an accurate waste status determination to SCDHEC?**
  Generally, three (3) discrete samples are the minimum required for each waste stream and are referenced by SW-846, Chapter Nine (Statistical Sampling). Facility personnel (or consultants) determine the proper number of samples for representative sampling. Additional references for the appropriate number and kind of samples are per SW-846, Chapter Nine. Protocol for sampling is per SW-846.

- **3) How much analytical data is required to accompany the forms?** All the analytical data, deemed necessary for: 1) a correct hazardous waste determination per RCRA (R.261-.270 Regulations); and, 2) all data that proves suspect contaminated soils are not subject to contaminate the groundwater (R.61-58.5). The generator and/or their consultants usually define the analytical data analyzed for a proper waste status determination. But the SCDHEC may suggest additional

testing in excess of that analytical data suggested by the facility/consultant. The generator always has the burden of proving all-analytical data is sufficient to provide an accurate waste status determination for every waste stream generated. In addition, those suspect chemical compounds (such as dioxins) of a special nature (but may not listed per the regulations) are to be submitted with the forms. If in doubt, contact your SCDHEC Project (Facility) Engineer. The Facility Engineer will converse with the Hydro Geological and Waste Assessment Sections of the BLWM to determine whether the Generator should conduct any additional analytical testing (i.e. other than RCRA Metals, Volatiles, Semi-Volatiles and/or drinking Water R.61-58.5 Inorganic, Volatile and Semi-Volatile Compounds).

- **4) Should a Chain of Custody be used whenever the primary laboratory uses a subcontracted Laboratory?**
  Yes. Whenever a subcontracted laboratory is used and the samples transferred, then a chain of custody must be documented to include all pertinent information.

- **5) Do the Forms include out-of-state laboratories and must the Office of Environmental Laboratory Certification certify them similar to the presently certified South Carolina Laboratories?**
  Yes! These out of state or in-state Laboratories must be certified by the Office of Environmental Laboratory Certification for the analytical methods performed for the customer.

- **6) Can the QC located on the bottom portion of the forms be documented on another piece of paper, and then attached to the form?**
  Yes, when deemed by the Generator or laboratory that more space is needed than the forms provide to document the Quality Assurance. However, the same format and traceability is to be used i.e., the form presents the order in which the data is to be presented and all QA data is traceable to the original facility sample ID.

- **7) Must all eight items on the QC Checklist (paragraph 10 of the instructions) be sent in with the Summary Forms?**
  No! Usually the three (3) QC Checklist items per paragraph 10 of the Instructions. However, a facility or laboratory may be asked by SCDHEC to submit any or all checklist items (8 items) depending upon whether the QC reviewed seems sufficient. However, laboratories or facilities usually submit the analytical data for all eight (8) items per the QC Checklist.

- **8) What is the definition of the eight items documented per the QC Checklist?**
  See paragraph 11 for an outline and paragraph 12 in the instructions for the specific definitions as to the meaning of the items per the QC Checklist.

- **9) What are the important items to document pertaining to a Chain of Custody other than the sample and analysis information?**
  1) The facility name, sample ID number, samplers' name; 2) The sample description, type of sample (i.e. grab, composite); sample date and the time the samples were collected also the time the samples were placed on ice, after collection; 3) Atmospheric climatic conditions at the time of collection are optional (applicable if the atmospheric conditions could effect the integrity of the samples; 4) The condition of the sample at receipt, receipt date, receipt time & receipt temperature (normally 4 deg. Centigrade) documented when the samples were received at the laboratory; 5) What analysis is required by the facility for the samples in question; 6) document whether ice was present upon receipt of the samples by the receiving laboratory; 7) when samples are transferred to another laboratory, assure the chain of custody documents the transfer of samples also, the laboratory data received by the contract laboratory from the subcontract laboratory must be documented on the subcontracted laboratory stationary; 8) mistakes must be documented by one line drawn through the mistake and the correct information must be signed by the QA official at the laboratory; and, 9) the GPS numbers depicting the suspect area and the sample locations (of the contaminated site or the landfill for classification or the sludge lagoon or the remediation areas, etc.). Note: a space (s) may be used on the chain of custody to document a yes or no answer whether the GPS was used for this sample event. Additionally, the Office of Laboratory certification will publish a list of suggested criteria that supplements / defines a proper chain of custody in the next newsletter.

- **10) What is the sequence the data should be submitted to SCDHEC?**
  The sequence in which the data should be submitted to SCDHEC are as follows: 1) Type Data, 2) Company Name, 3) Subject / Project, 4) Waste Stream 1, sample 1; and, 5) Waste Stream 1, Sample 2., etc.

- **11) Must each QC sheet, sent to SCDHEC, be labeled to provide traceability to the original facility sample number and description?**
  Yes, for example the dated, discrete sample taken to determine the waste status determination of waste stream 2, sample 1 for the facility.

- **12) The analytical data on the forms may be submitted electronically?**
  Yes, but a hard copy of the data on the forms should also be submitted with a "floppy Disk" containing the electronic version of the data on the forms.

- **13) Does the QA on the forms relate to the analytical methods?**
  Yes, for example the method 8260B refers to methods 3500 and 8000 of SW-846. Also, don't forget to review Chapter One of SW-846.

- **14) What is the definition of the word "Records" documented in items 4-8 under the QC Checklist, paragraph 10?**

Refer to paragraph 12 “Analytical Records to be Submitted for Review” for a list and definitions of the items contained in a “Record”, such as the “TCLP Zero Headspace Extraction Records”.

- **15) What is the difference between the two terms QC and QA?**
  None! Quality Control was the term used in earlier programs that represented the Quality Assurance Program of a corporation or laboratory. Hence, the words are intermingled in documentation, as QC became synonymous with QA. However, EPA may document that the QC is the tool(s) that provides the Quality Assurance (QA) for a program area.

- **16) Why does the laboratory place the letter “A” (acceptable) in front of the Metals TCLP Bottle Extraction Number?**
  Because the laboratory documented a decision (affixed adjacent to the Bottle Extraction Number) that the applicable paper trail and the TCLP Blank is acceptable per SW-846.

- **17) Why does the laboratory place the letter “A” (acceptable) adjacent to the Digestion Batch Number (DBN)?**
  Because the laboratory documented a decision (affixed adjacent to the DBN) that the paper trail and the following items are acceptable per SW-846: 1) Digestion Blank, 2) LCS, 3) Matrix Spike, 4) Matrix Spike Duplicate, and 5) Unspiked Duplicate.

- **18) Why does the Laboratory affix the letter “A” (acceptable) adjacent to The Semi-violatile Extraction Batch Number (SVEBN)?** Because the laboratory documents a decision that the paper trail and the following items associated with the SVEBN are acceptable per SW-846: 1) Extraction Blank, 2) Laboratory Control Sample (LCS), 3) Matrix Spike (MS), 4) Matrix Spike Duplicate (MSD), 5) Unspiked Duplicate, if used, and 6) Surrogate Recoveries. Refer to paragraph 11 for an outline (in sequence) of these aforementioned items, and paragraph 12 for the meaning of the word “Records” found in the QC text.

- **19) Can alphabetical letters be used in cells where the analytical data concentration for an analyte is placed? For example, Below Detection Level (BDL) or an estimated value “J” is sometimes used to indicate that a low concentration is detected for the analyte.**
  No! Whenever the concentration of an analyte is theoretically quantified lower than the smallest concentration used in the standard calibration curve, then report the lowest concentration of that standard used in the calibration curve, not BLD, etc. Also, if an analyte is not analyzed place a zero for the concentration of that analyte.

- **20) Sample Qualifications:**
  Should the person collecting samples for a Facility/Consultant/Laboratory/Entity be qualified to collect samples? If so what are the sampler qualifications?

Yes, each sampler must have completed the recommended EPA Sample Collectors Requirements (i.e. 40 hour EPA Sample Course & OSHA Courses, Blood Borne Pathogens, Yearly Medical Evaluation {may be optional as to the facility management}, etc.) the prospective sampler should them complete an apprenticeship. 08/01/00 BHM

- **21) TCLP Bottle Extraction:**
  We require the analytical laboratory to document: the room temperature, start time, finish time (eastern standard time), total hours required per method & actual hours rotated per the analysis, speed of rotation and number ID of bottles used in extraction of samples. 08/02/00 BHM

- **22) Calibration Standards:**
  We require the minimum and maximum concentration of calibration standards, the number of standards, and the type of analytical equipment used for the analysis per analytical method (i.e. 8260b) 08/04/00 BHM

- **23) Will these forms be placed on the South Carolina Web Site?**
  Yes, in July 2000 all seven (7) forms will be available for use from our state web site.

- **24) Should a QA Method Batch Report be submitted to SCDHEC that summarizes the Analyte Concentration, and how that concentration compares with the actual Percent Recoveries of all Analyte Concentrations? If so, what is a suggested format for the form?**

  YES! Please see and review the attached Form "FAQ 001 Rev 08/20/00" as a guide for the type format we suggest. Then follow the below wording with the Form. The Forms may contain some general modifications induced by the laboratory and / or consultant to accommodate each laboratory situation.

  The referenced form FAQ 001 is basically constructed as a supplement to the Summary Form R.61-58.8 Inorganic Compounds (SCDHEC Form Number DHEC 3660). But this Form should also be sufficient for SW-846 Method 8260, 8270, etc. with exception pertaining to the surrogates and a few other items.

  The information on the Form should contain (reading from left to right across one-half page of the full page): The main subject which is the Analyte Concentration as it pertains to each of the Analytes (chemical compound of interest). The aforementioned should then be correlated with each QA parameter necessary to defend the results for that analyte. For example: First list the QA parameters which are related to the analytes Arsenic, Barium, etc. These are: 1) Reportable Detection Limit (RDL); 2) Method Detection Level (MDL); 3) Blank, 4) Laboratory Control Sample (LCS), 5) Laboratory Control Sample Duplicate (LCSD), 6) Matrix Spike and Matrix Spike Duplicate (MS / MSD); and, 7) Other.

Item 24) Continued

- The second half of the page should contain the Percent Recovery for each of the above. The Percent Recovery documents the QA parameters and these defend all the analytical results. The Recoveries are for the same QA parameters as mentioned above. 1) LCS; 2) LCSD; 3) MS; 4) MSD; 5) Average MS / MSD; 6) Recovery Limits for the MS / MSD; 7) Relative Percent Difference (%RPD); and, 8) Relative Percent Difference Limits (RPD Limits). Finally there is a column to denote any Flags. Flags are simply notes as to describe whether the QA data is acceptable for each analyte and / or QA Parameter. Note that the RDL, Blank and the MDL are not included in the recovery, as they were not spiked.

- **ITEM 25) Should a "Cross-Reference" for the Quality Assurance related to the SCDHEC Summary Forms be attached as follows: LABORATORY ID, FACILITY ID, TC EXTR. BATCH #, DIGESTION BATCH #, ANALYSIS BATCH #. CLOCK ID #, and COMMENTS? If so, what should the form contain / and in what format should they be presented?**

  YES! Please review the attached Form (FAQ 002 Rev 08/20/00) "Cross-reference Report for QA and Analytes" There is not enough room on the Summary Forms to allow complete cross-references as those used in the laboratories. Therefore to ensure that we can easily trace everything without reviewing a great deal of paper the Cross-Reference Form was created. This Form will allow the Clock ID # to be traceable to the Facility Sample ID Number. This will supplement the Traceability provided on the Summary Forms (I.e. represented is the Industrial Inorganic TCLP R.61-58.5 Form # 3660) to all Batch Numbers used in the Laboratory. Therefore when a Laboratory documents that the LSC, MS and MSD are acceptable, we can quickly trace all appropriate records with two pieces of paper (Items 24 & 25). If all the records are documented and acceptable, then an acceptable review of all the analytical work will be quickly accomplished.

  With incomplete documentation, delays can be expected in the review process as the Forms & Documentation will be returned to the submitter for review and corrective action to prevent a reoccurrence of the reason for incompleteness.