

Summary of Changes: ISM02.2 to ISM02.3

The following Summary of Changes highlights the major modifications implemented in SOW ISM02.3 compared to SOW ISM02.2.

This is a high-level summary and is not intended to be a complete or comprehensive listing of every modification. Interested parties are strongly encouraged to read the complete SOW ISM02.3 and familiarize themselves with all of the requirements.

Global

- The following EPA staff title has been updated throughout the document wherever applicable:
EPA Regional Laboratory Contracting Officer Representative (EPA Regional Laboratory COR) has been replaced with EPA Regional Contract Laboratory Program Contracting Officer's Representative (EPA Regional CLP COR).
- References to "ISM02.2" have been updated to "ISM02.3".

Exhibit A

- **Section 5.4.4.5** – The temperature requirements of the shipping container have been updated to: If a temperature indicator bottle is not present in the shipping container, and the temperature of the shipping container is not less than or equal to 6°C, the Contractor shall note the issue, and the method used to determine the temperature, in the SDG Narrative and proceed with analysis of the samples.

Exhibit B

- **Section 1.1, Table 1, Item F** – Deliverables for Proficiency Testing (PT) Audits are not to be distributed to QATS. All deliverables are to be delivered only to the Sample Management Office (SMO).
- **Section 1.1, Table 1, Item I** – The statement "Submit within 60 days after contract award" under the Delivery Schedule for the Quality Assurance Project Plan (QAPP) has been replaced with "Submit within XX⁴ days after contract award" to indicate that the number of days will be provided in the associated laboratory contract document and will also be provided at the time of sample scheduling by the SMO Contractor.
- **New Section 2.4.5.8** – The Contractor shall report the pH value for soil/sediment samples in the SDG Narrative, if the measurement is requested.
- **Section 3.3.7.1, Table 5** – The labeling requirement for the Toxicity Characteristic Leaching Procedure/Synthetic Precipitation Leaching Procedure (TCLP/SPLP) leachate samples has been updated. The EPA Sample Number for these samples is to be reported without the "E" suffix in both the hardcopy data package and Staged Electronic Data Deliverable (SEDD).

Exhibit D – Introduction

- **Section 3.0** – The location of an electronic version of Methods for Chemical Analysis of Water and Wastes (EPA/600/4-79/020) has been updated to EPA's National Service Center for Environmental Publications (NSCEP) website at <http://www2.epa.gov/nscep> (search on EPA Manual 600479020).

Exhibit D – General

- **Section 4.1 through Section 4.1.3** – The following instructions related to pH determination have been added under the Interferences section:

4.1 pH Determination

4.1.1 Samples with very low or very high pH may give incorrect readings on the meter. For samples with a true pH >10, the measured pH may be incorrectly low. This error can be minimized by using a low-sodium-error electrode. Strong acid solutions with a pH <1 may give incorrectly high pH measurements.

4.1.2 Coatings of oily material or particulate matter can impair electrode response. These coatings can generally be removed by gentle wiping or detergent washing followed by rinsing with reagent water. Treatment with 10% HCl may be necessary to remove some films.

4.1.3 Temperature changes can affect measurements. This can be minimized by use of instruments with temperature compensation. The temperature of the sample can change the sample pH. The temperature at which the pH measurements are carried out shall be noted.

- **Section 6.2 through Section 6.2.6** – The following equipment and supplies requirements, related to pH determinations, have been added:

6.2 pH Determinations

6.2.1 pH meter with reference electrode accurate to ± 0.05 pH units. The pH meter/probe should be equipped with a means of temperature compensation either manually or automatically.

6.2.2 pH paper, wide-range or narrow-range pH paper strip.

6.2.3 Magnetic stirrer with fluoropolymer-coated stir bar.

6.2.4 Beakers – Preferably polyethylene or polytetrafluoroethylene (PTFE).

6.2.5 Various volumetric flasks and pipettes (Class A).

6.2.6 Thermometer that covers the range of the sample temperature with a minimum accuracy of $\pm 1^\circ\text{C}$.

- **Section 7.1.8** – The following standards requirements, related to pH determination, have been added:

Standard Buffers for pH meter calibration. At a minimum, two standard buffer solutions are required to bracket the expected pH of the samples. The solutions shall be separated by at least three pH units.

- **Section 9.1** – The following requirements for pH meter calibration have been added:

9.1 pH Meter Calibration

Because of the differences between various makes and models of satisfactory instruments, no detailed operating instructions can be provided. Instead, the analyst should follow the instructions provided by the manufacturer of the particular instrument. Each instrument

and electrode shall be calibrated at a minimum of two points that bracket the expected pH of the samples. These two points shall be separated by at least three pH units.

Adjust the meter until the readings are within ± 0.05 pH units of the buffer solution value.

- **Section 10.1.2 through Section 10.1.2.2.4** – The following requirements for the determination of pH for aqueous/water and soil/sediment samples have been added:

10.1.2 pH Determinations

10.1.2.1 Aqueous/Water pH Determination

The determination of pH is required for all aqueous/water samples at the time of the receipt at the laboratory or prior to sample preparation. The Contractor shall follow the procedures based on the EPA SW-846 Method 9041A, Revision 1, July 1992 (pH paper) or the EPA SW-846 Method 9040C, Revision 3, November 2004 [electrometric method (i.e., pH meter and electronic hand-held pen)].

10.1.2.1.1 pH Measurement by pH Paper

Place one or two drops of sample on the pH paper and record the pH for the sample.

10.1.2.1.2 pH Measurement by Electrometric Method

10.1.2.1.2.1 Transfer a sufficient volume of sample to a beaker to cover the sensing elements of the electrode(s) and to give adequate clearance for the magnetic stirring bar. The sample shall not be diluted.

10.1.2.1.2.2 If the sample temperature differs by more than 2°C from the temperature of the buffer solutions used to standardize the meter, the measured pH values must be corrected.

10.1.2.1.2.3 After rinsing and gently wiping the electrode(s) if necessary, immerse the electrode(s) in the sample beaker and stir at a constant rate to provide homogeneity and suspension of solids. The rate of stirring should minimize the air transfer rate at the air/water interface. Record the sample pH and the temperature. Repeat measurements on successive volumes of sample until values differ by less than 0.1 pH units.

10.1.2.2 Soil/Sediment pH Determination

The determination of pH for soil/sediment samples is not required as a routine procedure to be completed at the laboratory. However, if requested at the time of scheduling, the Contractor shall follow the procedures based on the EPA SW-846 Method 9045D, Revision 4, November 2004 to determine the pH by electrometric method (i.e., pH meter or electronic hand-held pen).

10.1.2.2.1 Transfer 20 g of well-mixed sample to a 50 mL beaker, add 20 mL of reagent water, cover, and continuously stir the suspension for 1 hour. Additional water may be added if the soils are hygroscopic or contain large amounts of salts.

10.1.2.2.2 Let the soil suspension stand for at least 1 hour to allow most of the suspended clays to settle. Difficult samples may be filtered or centrifuged to separate the aqueous layer for pH determination. If the supernatant is biphasic, decant the oily phase and measure the pH of the aqueous phase.

10.1.2.2.3 Measure and record the pH for the sample.

10.1.2.2.4 Measure and record the temperature for the sample. If the sample temperature differs by more than 2°C from the temperature of the buffer solutions used to standardize the meter, the measured pH values must be corrected.

- **Section 16.0** – EPA SW-846 Method 9040C, Revision 3, November 2004; EPA SW-846 Method 9041A, Revision 1, July 1992; and EPA SW-846 Method 9045D, Revision 4, November 2004, have been included in the list of method references.

Exhibit D – ICP-AES

- **Section 16.3** – EPA SW-846 Test Method 6010C, Revision 3, February 2007, has been updated to EPA SW-846 Test Method 6010D, Revision 4, July 2014.

Exhibit D – ICP-MS

- **Section 16.2** – EPA SW-846 Method 6020A, third Edition, 1986, Update IV-A, 1998, has been updated to EPA SW-46 Method 6020B, Revision 2, July 2014.

Exhibit D – Mercury

- **Section 16.2** – The version date of EPA SW-846 Method 7471B has been updated from January 1998 to February 2007.

Exhibit E

- **Section 3.3.1** – The Contractor is required to submit their QAPP to the EPA CO within the number of days provided in the associated laboratory contract document and not within 60 days of contract award.

Exhibit G

- The definitions for Analytical Sequence, Calibration Standards, Contract Required Quantitation Limit (CRQL), Date, EPA Regional Laboratory Contracting Officer Representative (Regional Laboratory COR) [now EPA Regional CLP Contracting Officer's Representative (Regional CLP COR)], Laboratory Control Sample (LCS), and Matrix Effect have been updated. The definition for EPA Regional CLP Lead has been removed.

Exhibit H

- **Section 2.1** – The web address for information on the Staged Electronic Data Deliverable (SEDD) has been updated to <http://www2.epa.gov/clp/staged-electronic-data-deliverable-sedd>.
- **Section 3.1.13** – The Handling node has been added to the list of nodes that may contain one or more Characteristic nodes.
- **Section 4.1.5** – The description of "HandlingBatch" has been updated to include samples subjected to SPLP extraction.
- **Section 7, Tables 1, 2, and 3** – In the Instructions for the QCType element under the SamplePlusMethod node, "Method_Blank" has been replaced with "Leachate_Extraction_Blank" for Leachate Extraction Blank (LEB) samples.

- **Section 7, Table 1** – The Instructions for the CharacteristicType element under the Characteristic node have been updated to include requirements for reporting the "pH" and "Temperature", measured for the TCLP or SPLP leachates, under the Handling node.
- **Section 7, Tables 1, 2, and 3** – The Instructions for reporting the pH to the nearest tenth in the CharacteristicValue element under the Characteristic node have been updated to include soil/sediment samples.
- **Section 7, Tables 1, 2, and 3** – The Instructions to report "Derived" for Hardness in the AnalyteType element under the Analyte node have been removed. Hardness data is to be reported only under the SamplePlusMethod/Analysis/AnalyteGroup node.
- **Appendix A, Section 1.0** – The format requirement for the Microsoft® Excel file name of the Method Detection Limit (MDL) study data deliverable has been updated and the associated NOTE has been removed. The file name format is required to be "MDL_#.xls", where "#" can be any naming convention selected by the Contractor.
- **Appendix A, Table A-1** – The MDL study data deliverable table has been updated to include a "Required" field that identifies the columns that are always required to be populated in the deliverable spreadsheet.
- **Appendix A, Table A-1** – The MDL study data deliverable table has been updated to include a "Level" and a "Matrix" row (and associated Instructions) before the "InstrumentID" row.
- **Appendix A, Table A-1** – The "SOW" and "ClientMethodCode" column names, in the MDL study data deliverable table, have been changed to "MethodSource" and "PreparationMethod", respectively. In addition, the "ClientMethodType" column name has been changed to "Method" and the associated Instructions have been updated.
- **Appendix A, Table A-1** – The Instructions for the "AnalyzedDate##" column have been updated to include the required Date format.
- **Appendix A, Table A-1** – The Instructions for the "ConcentrationAcceptable" row in the MDL study data deliverable table have been updated to: Enter "Y" if the concentration of the analyte in the MDL standards was less than or equal to 10 times the calculated MDL for that analyte. Otherwise enter "N".