SW-846 Reporting Requirements

In the absence of client specified reporting criteria, the reporting requirements outlined below shall be used for hard-copy data reports from the laboratory. They are divided into mandatory requirements for all printed data reports, and optional requirements. Optional reporting requirements are those that may be required by a specific project, depending upon the needs of the project. The following elements are required: cover sheet, table of contents, case narrative, analytical results, sample management records, and Quality Assessment/Quality Control (QA/QC) information. Information for third-party review may be required depending on project-specific requirements or the method being used.

1. Cover Sheet. The cover sheet shall specify the following information:

   - Title of report (i.e., test report, test certificate);
   - Name and location of laboratory (to include a point of contact, phone and facsimile numbers, and e-mail address);
   - Name and location of any subcontractor laboratories, and appropriate test method performed;
   - Unique identification of the report (such as serial number);
   - Client name and address;
   - Project name and site location;
   - Statement of data authenticity and official signature and title of person authorizing report release; and
   - Amendments to previously released reports that clearly identify the serial number for the previous report and state the reason(s) for reissuance of the report
   - Total number of pages.

2. Table of Contents. Laboratory data packages shall be organized in a format that allows for easy identification and retrieval of information. An index or table of contents shall be included for this purpose.

3. Case Narrative. A case narrative shall be included in each report. The purpose of the case narrative is to:

   - Describe any abnormalities and deviations that may affect the analytical results;
   - Summarize any issues in the data package that need to be highlighted for the data user to help them assess the usability of the data; and
   - Provide a summary of samples included in the report with the methods employed in order to assist the user in interpretation.

The case narrative shall provide:

   - A table(s) summarizing samples received, providing a correlation between field sample numbers and laboratory sample numbers, and identifying which analytical, preparation, and clean-up methods were performed. If multiple laboratories performed analyses, the name and location of each laboratory should be associated with each sample;
   - A list of samples that were received but not analyzed;
   - Date of samples received;
   - Disposition of samples received;
   - Sample preservation or condition at receipt;
   - A description of extractions or analyses that are performed out of holding times;
   - A definition of all data qualifiers or flags used;

- Identification of deviations of any calibration standards or QC sample results from appropriate acceptance limits and a discussion of the associated corrective actions taken by the laboratory;
- Identification of samples and analytes for which manual integration was necessary; and
- Appropriate notation of any other factors that could affect the sample results (e.g., air bubbles in volatile organic compounds (VOC) sample vials, excess headspace in soil VOC containers, the presence of multiple phases, sample temperature or pH excursions, container type or volume, etc.).

4. Analytical Results. The results for each sample shall contain the following information at a minimum: (Information need not be repeated if noted elsewhere in the data package.)

- Project name and site location;
- Field sample ID number as written on custody form;
- Laboratory sample ID number;
- Matrix (soil, water, oil, air, etc.);
- Date and time sample collected;
- Date and time sample prepared;
- Date and time sample analyzed;
- Method numbers for all preparation, cleanup, and analysis procedures employed;
- Analyte or parameter with the Chemical Abstracts Service (CAS) Registry Number if available. Sample aliquot analyzed;
- Final extract volume;
- Identification of analytes in which manual integration occurred, including the cause and justification;
- Analytical results with correct number of significant figures;
- Detection Limit, Limit of Detection, and Limit of Quantitation associated with sample results and adjusted for sample-specific factors (e.g., aliquot size, dilution/concentration factors, and moisture content);
- Any data qualifiers assigned;
- Concentration units;
- Dilution factors;
- All multiple sample runs shall be reported (dilutions, out hold time, etc.);
- Percent moisture or percent solids (all soils are to be reported on a dry weight basis); and
- Post-digestion spikes (PDS) recovery.

The following information is optional but may be required site-specifically:

- Statements of the estimated uncertainty of test results.

5. Sample Management Records. These types of records include the documentation accompanying the samples:

- Chain-of-custody records;
- Shipping documents;
- Records generated by the laboratory which detail the condition of the samples upon receipt at the laboratory (e.g., sample cooler receipt forms, cooler temperature, and sample pH.);
- Telephone conversation or e-mail records associated with actions taken or quality issues; and
- Records of sample compositing done by the laboratory.

6. QA/QC Information. The minimum laboratory internal QC data package shall include:

- Method blank results;
- Percent recoveries for Laboratory Control Sample **(**LCS), Laboratory Control Sample; Duplicates (LCSD), Matrix spike (MS), and material safety data (MSD);
- MSD and/or MD Relative percent differences (RPD);
- Surrogate percent recoveries;
- Tracer recoveries;
- Spike concentrations for LCS, MS, surrogates, etc.;
- QC acceptance criteria for LCS, MS, surrogates, etc.;
- In-house LCS control limits, if they exceed DoD limits (see Appendix G section G.7);
- Serial dilutions (SD) percent difference; and
- Batch numbers (preparation, analysis, and clean-up).

7. Information for Third-Party Review. The information listed below is required if third-party (from outside the laboratory) data validation or verification is to be performed. This information is therefore optional and is generally needed if the project requires a third-party data review:

- Calibration data from the initial calibration curve;
- Initial calibration verification (ICV);
- Continuing calibration verification(s) (CCV);
- Performance standards analyzed in conjunction with the test method (e.g., tuning standards, degradation check standards, etc.);
- Internal standard area(s) and retention (or relative retention) time(s);
- Preparation, analysis, and other batch numbers;
- Raw data (e.g., chromatograms, mass spectrum results, including before and after snapshots for manual integrations);
- Method blank (MB) results;
- LCS recoveries (includes spike target concentration levels, measured spike concentration, and calculated recoveries, and acceptance limits;
- MS**, if applicable** (includes spike target concentration levels, measured spike concentration, and calculated recoveries, and acceptance limits);
- RPD of required duplicates (e.g., MSD and/or MD);
- Surrogate recoveries (includes spike target concentration levels, measured spike concentration, and calculated recoveries, and acceptance limits);
- Tracer recoveries (includes spike target concentration levels, measured spike concentration, and calculated recoveries, and acceptance limits);
- SD, if applicable;
- Supporting documentation (e.g., run logs, sample preparation logs, standard preparation logs, and standard certifications); and
- Calculations.

In addition, the data package for third-party review may include summary forms of detection limit and quantitation limit studies and the precision and bias associated with the quantitation limit.

The data validation guidelines for performance-based methods established in other Department of Defense/Department of Energy guidance on data review or data validation (e.g., USACE EM 200-1-10) or project-specific guidelines may all have distinct reporting formats. The appropriate validation guidelines should be consulted to determine what type of data package is required.

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