

# U. S. Department of Energy



## Consolidated Audit Program Treatment, Storage and Disposal Facilities

### Checklist 2 Sampling and Analytical Data Quality

Revision 1.4  
October, 2009

Audit ID:

Date:

Audit ID: \_\_\_\_\_ TSDF: \_\_\_\_\_ Auditor: \_\_\_\_\_

Prepared by: Todd Hardt

Approved by: 

Jorge Ferrer, DOECAP Manager

**Areas Reviewed During Audit:**

**Sample Collection:**

- \_\_\_ Sampling Collection Safety
- \_\_\_ Sampling Techniques

**Laboratory Operations:**

- \_\_\_ Onsite Laboratory Analytical Quality Control
- \_\_\_ Sample Control and Custody

**Data Review and Verification:**

- \_\_\_ Review and Verification Program

A = Acceptable

NA = Not Applicable

F = Finding

O = Observation

**Access to all referenced regulations are available at the following URL:**

- <https://doecap.oro.doe.gov>
- <http://www.epa.gov/epaoswer/hazwaste/test/index.htm>

**NOTE:**

- When audit findings are written against *site-specific documents* (i.e., SOPs, QA Plans, licenses, permits, etc.), a *copy* of the *pertinent requirement text* from that document *must* be attached to this checklist for retention in DOECAP files.

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Item Number	Lines of Inquiry	Status	Response/Comment
<b>1.0</b>	<b>Sampling for Regulatory Analysis:</b>		
1.1	Samples are collected in a way that ensures that samples are fully representative of the sampled waste and that there is maximum protection from inadvertent cross-contamination.  <i>EPA SW-846 – Chapter Nine</i>		
1.2	Sampling SOPs exist that are well written and can be understood and implemented by the technician?  <i>EPA SW-846 Chapter Nine, Section 9.2.2.5</i>		
1.3	Sampling technician training programs are in place to ensure that sampling is performed in a consistent and representative manner?  <i>EPA SW-846 Chapter One, Section 2.7</i>		
1.4	Records are protected from damage or loss and are readily retrievable.  <i>NQA-1 Requirement 17</i>		
1.5	Samples collected for shipment to analytical laboratories are appropriately containerized, preserved, and packaged  <i>EPA SW-846 Chapter Nine</i>		

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1.6	For samples collected and sent to the analytical laboratory, sample custody is maintained and documented at all times from collection to disposition or return from the outside laboratory.  <i>EPA SW-846 Chapter Nine, Section 9.2.2.7</i>		
1.7	For samples collected and sent to the analytical laboratory, sampling documentation is complete and of sufficient detail to permit reconstruction of the sampling event.  <i>EPA SW-846 Chapter Nine, Section 9.2.2.7</i>		
1.8	For samples collected and sent to the analytical laboratory, records are independently reviewed to provide early detection and corrective action of sampling problems and concerns?  <i>EPA SW-846 Chapter One, Section 2.7.4</i>		
1.9	For samples and standards requiring temperature preservation, the temperature in refrigerators and freezers is monitored and documented daily using a calibrated temperature measuring device.  <i>EPA SW-846 Chapter One and NQA-1, Requirement 12</i>		

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<b>2.0</b>	<b>Data Review and Verification:</b>		
2.1	In-house laboratory data are reviewed by an independent chemist to ensure that data are of suitable quality for use. <i>EPA SW-846 Chapter One, Sections 4.3.8 and 4.4.6</i>		
2.2	Offsite independent laboratory data are verified to ensure that data are of acceptable quality before being released to the customer. <i>EPA SW-846 Chapter One</i>		
2.3	Data review and verification processes are described in written procedures. <i>EPA SW-846 Chapter One, Section 4.3.8</i>		
2.4	Controlled data review checklists are used for verification of analytical data. <i>EPA SW-846 Chapter One</i>		
2.5	Data review and verification results are well documented and maintained. <i>EPA SW-846 Chapter One</i>		

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<b>3.0</b>	<b>Onsite Analytical Laboratory Operations:</b>		
3.1	In-house laboratory SOPs are available for each laboratory method. <i>EPA SW-846 Chapter One, Section 4.3</i>		
3.2	Subsamples taken for analysis are representative of the entire sample that is in the sample container (i.e. sample homogenization may be required before subsampling). <i>EPA SW-846 Chapter Nine, Section 9.2.4</i>		
3.3	Quality control samples (e.g., blanks, Laboratory Control Standards) are matrix matched to the extent possible to that of the samples being analyzed. <i>EPA SW-846 Chapter One</i>		
3.4	Instruments are calibrated over the entire range for which results are quantified. <i>EPA SW-846 Chapter One</i>		
3.5	Instrument calibration standards are traceable to a certified source and documentation is maintained that demonstrates this. <i>EPA SW-846 Chapter One</i>		
3.6	Instrument calibration standards are within expiration dates OR have been recertified. <i>EPA SW-846 Chapter One and NQA-1 Requirement 8</i>		

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3.7	Instrument calibration is independently verified using a standard from a different source. <i>EPA SW-846 Chapter One</i>		
3.8	Method Detection Limits are established for each analyte, for each method, and each instrument configuration. Refer to site SOPs for MDLs. <i>EPA SW-846 Chapter One</i>		
3.9	Reporting limits are established for each analyte. <i>EPA SW-846 Chapter One, Section 4.3.4</i>		
3.10	Reporting limits are sufficiently above the Method Detection Limit to ensure the quantitative accuracy of the result. <i>EPA SW-846 Chapter One</i>		
3.11	Method blanks are analyzed with each sample batch. <i>EPA SW-846 Chapter One, Section 4.4.3</i>		
3.12	Matrix spikes are analyzed with each batch for metals and organic analysis methods. <i>EPA SW-846 Chapter One, Section 4.4.3</i>		
3.13	Duplicates are analyzed with each analytical batch of similar matrices. <i>EPA SW-846 Chapter One, Section 4.4.3</i>		

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3.14	Control limits are set for precision and accuracy and actions are defined for out of control events. <i>EPA SW-846 Chapter One, Section 4.4.2</i>		
3.15	Radiological counting standards are reverified at a routine frequency. <i>Site QA Plan</i>		
3.16	Radiological efficiency calibrations exist for all applicable sample counting geometries. <i>Site QA Plan</i>		
3.17	De-ionized water sources are routinely checked to ensure they meet ASTM requirements for Type II waters or in the case of organic analyses, an interferant is not observed at the MDL of the compounds of interest. <i>EPA SW-846 Chapter One</i>		
3.18	Analytical balances are checked daily or before use (whichever is greater) and these checks are compared to established acceptance criteria. Balance checks must bracket the intended range of usage. <i>ASTM E 898 and D 5522</i>		
3.19	Type 1 or equivalent check weights are re-verified at least every five years. <i>ASTM E 617</i>		

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3.20	Balances are recertified at least annually by an outside vendor or from an independent third party. <i>ASTM E 4753</i>		
3.21	The TCLP method is performed in STRICT accordance with EPA Method 1311. <i>40 CFR 261.24</i>		
3.22	Analytical logbooks follow good log keeping practice. <i>EPA SW-846 Chapter On, Section 4.6</i>		
3.23	Sample analysis logs indicate the identification and traceability of all standards, tracers, and surrogates that are added to the sample. <i>EPA SW-846 Chapter One, Section 4.6</i>		

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