U. S. Department of Energy

Consolidated Audit Program
Treatment, Storage and Disposal Facilities

Checklist 2
Sampling and Analytical Data Quality

Revision 1.2
November 30, 2007

Audit ID:	**Date:**

Audit ID: _____ TSDF: _____ Auditor: _____

Prepared by: Todd Hardt Approved by: Carolyne Thomas

Areas Reviewed During Audit:

Sample Collection:

____Sampling Collection Safety

____Sampling Techniques

Data Review and Validation:

____Review and Validation Program

Laboratory Operations:

____Onsite Laboratory Analytical Quality Control

____Sample Control and Custody

____Sample Residuals and Analytical Waste

____Laboratory Chemical Hygiene and Radiological Protections

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/main.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
1.0	**Sampling for Regulatory Analysis**		
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. *EPA SW-846 – Chapter Nine*		
1.2	Sampling SOPs exist that are well written and can be understood and implemented by the technician? *EPA SW-846 Chapter Nine*		
1.3	Sampling technician training programs are in place to ensure that sampling is performed in a consistent and representative manner? *EPA SW-846 Chapter Nine*		
1.4	Records are protected from damage or loss and are readily retrievable. *NQA-1 Requirement 17*		
1.5	Samples collected for shipment to analytical laboratories are appropriately containerized, preserved, and packaged *EPA SW-846 Chapter Nine*		

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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 receipt in the laboratory *EPA SW-846 Chapter Nine*		
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. *EPA SW-846 Chapter Nine*		
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? *EPA SW-846 Chapter Nine*		

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Item Number	Lines of Inquiry	Status	Response/Comment
2.0	**Onsite Analytical Laboratory Operations**		
2.1	***Quality Control***		
2.1.1	In-house SOPs are available for each laboratory method. *EPA SW-846 Chapter One*		
2.1.2	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). *EPA SW-846 Chapter One*		
2.1.3	Quality control samples (e.g., blanks, Laboratory Control Standards) are matrix matched to the extent possible to that of the samples being analyzed. *EPA SW-846 Chapter One*		
2.1.4	Instruments are calibrated over the entire range for which results are quantified. *EPA SW-846 Chapter One*		
2.1.5	Instrument calibration standards are traceable to a certified source and documentation is maintained that demonstrates this. *EPA SW-846 Chapter One*		
2.1.6	Instrument calibration standards are within expiration dates OR have been recertified. *EPA SW-846 Chapter One*		

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2.1.7	Instrument calibration is independently verified using a standard from a different source. *EPA SW-846 Chapter One*		
2.1.8	Method Detection limits are established for each analyte, for each method, and each instrument configuration. *EPA SW-846 Chapter One*		
2.1.9	Reporting limits are established for each analyte. *EPA SW-846 Chapter One*		
2.1.10	Reporting limits are sufficiently above the Method Detection Limit to ensure the quantitative accuracy of the result. *EPA SW-846 Chapter One*		
2.1.11	Method blanks are analyzed with each sample batch. *EPA SW-846 Chapter One*		
2.1.12	Matrix spikes are analyzed with each batch for metals and organic analysis methods. *EPA SW-846 Chapter One*		
2.1.13	Duplicates are analyzed with each analytical batch. *EPA SW-846 Chapter One*		

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2.1.14	Control limits are set for precision and accuracy and actions are defined for out of control events. *EPA SW-846 Chapter One*		
2.1.15	Radiological counting standards are recertified at a routine frequency. *Site QA Plan*		
2.1.16	Radiological efficiency calibrations exist for all applicable sample counting geometries. *Site QA Plan*		
2.1.17	De-ionized water sources are routinely checked to ensure they meet ASTM requirements for Type II waters. *EPA SW-846 Chapter One*		
2.1.18	Analytical balances are checked daily or before use (whichever is greater) and these checks are compared to written acceptance criteria. Balance checks must cover range of usage. *EPA SW-846 Chapter One*		
2.1.19	Class S check weights are recertified at least annually. *EPA SW-846 Chapter One*		
2.1.20	Balances are recertified at least annually. *EPA SW-846 Chapter One*		

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2.1.21	The TCLP method is performed in STRICT accordance with EPA Method 1311. *40 CFR 261.24*		
2.1.22	Analytical logbooks follow good log keeping practice. *EPA SW-846 Chapter One*		
2.1.23	Sample analysis logs indicate the identity of all standards, tracers, and surrogates that are added to the sample. *EPA SW-846 Chapter One*		
2.1.24	Independent review is performed for all lab data before they are released to the customer. *EPA SW-846 Chapter One*		
2.2	***Sample Control and Custody***		
2.2.1	Sample custody is maintained while in the laboratory area. *EPA SW-846 Chapter Nine*		
2.2.2	Temperature is monitored in refrigerators and freezers used to preserve samples and standards *EPA SW-846 Chapter One*		

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2.3	***Sample Residuals and Analytical Waste***		
2.3.1	Waste accumulation is in accordance with RCRA requirement? • Labeling (40 CFR 262.31 and 49 CFR 172) • No more than 55 gallons (40 CF R262.34(c)(1)) • At or near point of generation (40 CFR 262.34(c)(1)) • Closed container if waste is liquid (40 CFR 265.173(a))		
2.3.2	Waste accumulation of PCB wastes meets TSCA requirements? • Temporary storage not to exceed 30 days (40 CFR 761.65(c)(1)) • Proper labels (40 CFR 761.40) • Inventory records (40 CFR 761.65 and 180)		
2.3.3	Waste accumulation meets NRC requirements. Radioactive Materials License		
2.3.4	Samples are tracked until final disposal using a system which ensures that old samples are purged from storage in a reasonable period of time after they are no longer needed for archival purposes? NOTE: This applies to samples analyzed in-house and those sent to offsite commercial laboratories. *40 CFR 261.4(d)*		

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3.0	**Data Review and Validation**		
3.1	In-house laboratory data are reviewed by an independent chemist to ensure that data are of suitable quality for use. *EPA SW-846 Chapter One*		
3.2	Offsite independent laboratory data are verified and validated to ensure that data are of acceptable quality. *EPA SW-846 Chapter One*		
3.3	Data review and validation processes are described in written procedures. *EPA SW-846 Chapter One*		
3.4	Data review and validation results are well documented. *EPA SW-846 Chapter One*		

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