



March 14, 2005

Mr. Stephen Evans
 Maine Yankee
 321 Old Ferry Road
 Wiscasset, Maine 04578

RE: Project No.: Maine Yankee Soil Samples
 Lab Name: Katahdin Analytical Services, Westbrook, Maine
 Site Name: Maine Yankee Nuclear Power Plant, Wiscasset Maine
 Samples Collected: 2/8/05
 2 soil samples
 1 aqueous equipment rinsate blank
 Data package: WV0573

Method 8270C

Samples Collected: (Client IDs)

MY05SS68(0-0.5)FD	MY05SS68A(0-0.5)FD	MY05SS68EB	MY05SS68RE EB
EB-Equipment Rinsate Blank		RE = Re-Extraction	
FD- Field Duplicate Samples			

Dear Mr. Evans:

A Tier II data validation was performed on the semi-volatiles (SVOAs) analytical data for the samples collected at the Maine Yankee Nuclear Power Plant, Wiscasset Maine. The laboratory, Katahdin Analytical Services, Westbrook Maine, prepared and analyzed the samples in accordance with US EPA SW-846 method 8270C. Soil samples were processed following US EPA SW-846 method 3550 (sonication). Aqueous samples were processed following US EPA SW-846 method 3520 (liquid-liquid extraction).

The data validation was conducted in accordance with *Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses (12/96)* and the *QAPP for Maine Yankee Decommissioning Project (rev01)*, and in conjunction with the individual methods and the laboratory established criteria. The following items were validated:

- Overall Evaluation of Data and Potential Usability Issues
- Data Completeness *
- Chain of Custody Documents *
- Sample Log-in Documents *
- Preservation and Technical Holding Times
- Instrument Performance Check (Tuning)*
- Initial Calibrations
- Continuing Calibrations

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- Laboratory and Field Blank Analyses
 - System Monitoring Compounds (Surrogate Recoveries)
 - Internal Standards *
 - Matrix Spike/Matrix Spike Duplicate Results
 - Field Duplicate Results *
 - Laboratory Control Samples (blank spikes)/Sensitivity Check
 - PE Samples/Accuracy Check (NA)
 - Target Compound Identification (NA)
 - Compound Quantitation and Reported Quantitation Limits *
 - Tentatively Identified Compounds (NA)

* - All Criteria met

The following information was used to generate the Data Validation Memorandum:

Attachments:

Table I Recommendation Summary Table- summarizes validation recommendations:
8270C.

Table II Overall Evaluation of Data- summarizes site DQOs and potential usability issues: 8270C.

Data summary tables to be provided in an electronic format.

Overall Evaluation of Data and Potential Usability Issues

Data Use- To determine the nature and extent of potential contamination, to identify any potential contaminant source areas requiring further evaluation, to support any remedial activities that may be necessary to minimize potential risk to human health and environment.

Accuracy and precision acceptance criteria are specified in the *QAPP for Maine Yankee Decommissioning Project, (rev 01)*.

All samples were initially prepared and analyzed within holding time criteria. The equipment blank sample MY05SS68RE(EB) was re-extracted outside holding time, 20 days after sample collection. All results for the re-extracted aliquot are reported as estimated (J positives, UJ non-detects) due to holding time exceedence. There is the potential for low bias; false negatives are possible.

The 4-chlorophenyl-phenyl ether, 4,6-dinitro-2-methylphenol, and benzo(k)fluoranthene results for equipment rinsate blank sample MY05SS68(EB) are qualified as non-detected estimated (UJ) due to initial calibration curve %RSD; the laboratory reported the results as non-detected (U).

The 1,2-dichlorobenzene, 2-methylphenol, hexachloroethane, 2-methylnaphthalene, acenaphthylene, 3-nitroaniline, 4-nitrophenol, 2,4-dinitrotoluene, 4-nitroaniline, and

dibenzo(a,h)anthracene results for equipment rinsate blank sample MY05SS68RE(EB) are qualified as non-detected estimated (UJ) due to continuing calibration %D; the laboratory reported the results as non-detected (U).

The 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, and bis(2-ethylhexyl)phthalate results for equipment rinsate blank sample MY05SS68(EB) are qualified as estimated (J positives, UJ non-detects) due to continuing calibration %D. The laboratory reported bis(2-ethylhexyl)phthalate as a positive result and all other results as non-detected (U).

The butylbenzylphthalate, bis(2-ethylhexyl)phthalate, and di-n-octylphthalate results for sample MY05SS68(0-0.5) are qualified as non-detected estimated (UJ) due to continuing calibration %D; the laboratory reported the results as non-detected (U).

All acid SVOA results for aqueous equipment blank sample MY05SS68(EB) are qualified as rejected (R). The surrogate recoveries for acid surrogates 2-fluorophenol, phenol-D6, and 2,4,6-tribromophenol-D14 are all 0%. All surrogate recoveries for the re-extracted equipment blank sample MY05SS68RE (EB) are within acceptance criteria.

Results were reported to the laboratory's PQLs and adjusted for sample mass, total solids and dilution factors. Positive results may be reported to the MDL. Positive results between the PQL and the MDL are qualified estimated (J).

No MDL study was submitted. The lowest standard for the initial calibration curves for both soil and aqueous samples are ~10 ug/mL. This concentration is at or below the PQLs.

No additional sample results are qualified due to QC results reviewed for this data package.

Chain of Custody Documents

The sampling chain of custody documents were properly signed and dated. Internal custody documents were not submitted. Review of internal custody documents is not part of a Tier II validation for this project.

The laboratory provided sample pick-up. Custody seals were not present.

Sample Log-in Documents

Laboratory Sample Receipt Condition Reports (SRCR) indicate that all samples were received in good condition. The cooler temperatures were 2.9° C and 4.9° C.

There were no additional deviations indicated on the SRCRs. The validation memo is consistent with the laboratory data package sample IDs.

Preservation and Technical Holding Times

All sample preservation requirements for SVOA were met. All samples were initially prepared and analyzed within holding time criteria. The equipment blank sample MY05SS68RE(EB) was re-extracted outside holding time, 20 days after sample collection. All results for the re-extracted aliquot are reported as estimated (J positives, UJ non-detects) due to holding time exceedence. There is the potential for low bias; false negatives are possible.

Instrument Performance Check (Tuning)

All tuning criteria were met.

Initial Calibration

Three initial calibration curves were analyzed for this data package. All minimum RRF criteria for SPCC and %RSD for CCC compounds were met. The laboratory analyzed 6 point standard curves. The low standard for the curve is at ~10 ug/mL, equivalent to many of the reported method PQLs (Practical Quantitation Limit).

There were 3 initial calibration curves performed on the 2 instruments used for this data package. The laboratory analyzed 6 point standard curves. The low standard for the curve is at 10 ug/mL, equivalent to many of the reported method PQLs (Practical Quantitation Limit). All minimum RRF criteria for SPCC and %RSD for CCC compounds were met. All %RSD for target compounds were less than 30%. All reported RRFs exceeded 0.05. The laboratory calibrated some of the compounds from a first order linear regression and some from a 2nd order polynomial. All correlation coefficient did not exceed 0.990. Where the correlation coefficient did not exceed 0.990, the laboratory calibrated results from the average RRF model.

The following table summarizes results that do not meet acceptance criteria for initial calibration. It is recommended to estimate (J) all positive results and to reject (R) all non-detected results for samples associated with compounds with RRF less than 0.05. It is recommended to estimate all results (J positive, UJ negative) samples associated with compounds with %RSD greater than 30% and RRF greater than 0.05.

Date of ICAL	File ID	Compound	%RSD 30%	RRF 0.05	Field Samples Affected
1/11/05	U9833	4-chlorophenyl-phenyl ether	35.9		MY05SS68 EB
		4,6-dinitro-2-methylphenol	37.9		
		benzo(k)fluoranthene	30.5		

The 4-chlorophenyl-phenyl ether, 4,6-dinitro-2-methylphenol, and benzo(k)fluoranthene results for equipment rinsate blank sample MY05SS68(EB) are qualified as non-detected estimated (UJ); the laboratory reported the results as non-detected (U).

Continuing Calibration

There were 4 continuing calibrations, two for the aqueous samples and two for the soil samples. All minimum RRF criteria for SPCC and %RSD for CCC compounds were met. The % D for all target compounds for the continuing calibration for the soil and aqueous samples were not within the 25% acceptance criteria. All reported RRFs did exceed 0.05.

The following table summarizes results that do not meet acceptance criteria for continuing calibration. It is recommended to estimate (J) all positive results and to reject (R) all non-detected results for samples associated with compounds with RRF less than 0.05. It is recommended to estimate all results (J positive, UJ negative) samples associated with compounds with %D greater than 25%.

Date of CCAL	File ID	Compound	%D 25%	RRF 0.05	Field Samples Affected
3/2/05	U0295	1,2-dichlorobenzene	36.79		MY05SS68RE EB
		2-methylphenol	28.06		
		hexachloroethane	33.36		
		2-methylnaphthalene	60.43		
		acenaphthylene	31.24		
		3-nitroaniline	33.11		
		4-nitrophenol	38.47		
		2,4-dinitrotoluene	25.02		
		4-nitroaniline	35.97		
		dibenzo(a,h)anthracene	30.42		
2/18/05	X7257	2-nitroaniline	37.42		MY05SS68 EB
		3-nitroaniline	35.29		
		4-nitroaniline	40.31		
		bis(2-ethylhexyl)phthalate	29.23		
2/24/05	X7301	butylbenzylphthalate	26.23		MY05SS68(0-0.5)
		bis(2-ethylhexyl)phthalate	30.08		
		di-n-octylphthalate	38.88		

The 1,2-dichlorobenzene, 2-methylphenol, hexachloroethane, 2-methylnaphthalene, acenaphthylene, 3-nitroaniline, 4-nitrophenol, 2,4-dinitrotoluene, 4-nitroaniline, and dibenzo(a,h)anthracene results for equipment rinsate blank sample MY05SS68RE(EB) are qualified as non-detected estimated (UJ); the laboratory reported the results as non-detected (U).

The 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, and bis(2-ethylhexyl)phthalate results for equipment rinsate blank sample MY05SS68(EB) are qualified as estimated (J positives, UJ non-detects). The laboratory reported bis(2-ethylhexyl)phthalate as a positive result and all other results as non-detected (U).

The butylbenzylphthalate, bis(2-ethylhexyl)phthalate, and di-n-octylphthalate results for sample MY05SS68(0-0.5) are qualified as non-detected estimated (UJ); the laboratory reported the results as non-detected (U).

Laboratory and Field Blank Analyses

All soil extraction blank results are reported as non-detected (U). All aqueous extraction blank results are reported as non-detected (U). No data were qualified due to laboratory blank contamination.

Bis(2-ethylhexyl)phthalate was detected in field equipment blank MY05SS68(EB) at 8 ug/L. No bis(2-ethylhexyl)phthalate was detected in the associated field samples. No field sample results are qualified due to equipment blank contamination.

System Monitoring Compounds (Surrogate Recoveries)

All surrogate recoveries for soil samples are within the method acceptance criteria. No soil results are qualified based upon soil surrogate results.

All acid SVOA results for aqueous equipment blank sample MY05SS68(EB) are qualified as rejected (R). The surrogate recoveries for acid surrogates 2-fluorophenol, phenol-D6, and 2,4,6-tribromophenol-D14 are all 0%. All surrogate recoveries for the re-extracted equipment blank sample MY05SS68RE (EB) are within acceptance criteria.

Internal Standards

All internal standard retention time and area count acceptance criteria are met for the field samples. The crysene-d₁₂ and perylene-d₁₂ are above acceptance criteria for the QC samples MY05SS68 MS and MSD. Data are not qualified based on internal standard results for QC samples.

No field sample data were qualified due to internal standard results.

Matrix Spike/Matrix Spike Duplicate Results

Soil sample MY05SS68(0-0.5) was analyzed as a MS/MSD pair. The laboratory reported the CLP short list of compounds as addressed in the QAPP for SVOA analysis. The MS/MSD recoveries for phenol and 2,4-dinitrotoluene are above acceptance criteria, indicating the potential for high bias. The laboratory reported the phenol and 2,4-dinitrotoluene results for sample MY05SS68(0-0.5) as non-detected (U). No field sample results are qualified due to the MS/MSD recoveries. All MS/MSD RPDs are within QAPP acceptance criteria. No results are qualified based upon the soil MS/MSD results.

No aqueous MS/MSD pair was analyzed. Equipment rinsate blank sample MY05SS68(EB) was the only aqueous sample reported.

Field/Laboratory Duplicates

One set of field duplicates was reported in this data package MY05SS68(0-0.5) and MY05SS68A(0-0.5). The laboratory reported all results as non-detected (U). All acceptance criteria were met. No data were qualified due to the field duplicate results.

No aqueous field duplicate results were reported. The only aqueous sample in this data package is the equipment rinsate blank MY05SS68(EB).

Laboratory Control Sample Results

One LCS was reported for the soil samples. No LCSD was reported, however an MS/MSD was analyzed for soil samples. All LCS acceptance criteria were met for percent recovery. No data were qualified due to the soil LCS recoveries.

One LCS/LCSD pair was reported in association with the aqueous equipment rinsate blank sample MY05SS68RE(EB) and one LCS was reported with the aqueous equipment rinsate blank sample MY05SS68(EB). All recoveries were not within the method acceptance criteria. For the aqueous equipment rinsate blank sample MY05SS68RE(EB), the % recovery for the LCSD for 4-chloro-3-methylphenol and the recoveries for the LCS/LCSD for 2,4-dinitrotoluene were above acceptance criteria, indicating the potential for high bias. The laboratory reported all associated sample results as non-detected (U). No sample results were qualified due to the potential for high bias indicated by the LCS and LCSD results.

The laboratory did not report the LCS recoveries for 4-nitrophenol and 4-chloro-3-methylphenol associated with the aqueous equipment rinsate blank sample MY05SS68(EB). The 4-nitrophenol and 4-chloro-3-methylphenol results for aqueous equipment rinsate blank sample MY05SS68(EB) were qualified as rejected (R) due to surrogate recoveries. No additional qualifiers were assigned due to missing LCS recovery information.

The LCS/LCSD RPDs were all within the acceptance criteria of $\leq 50\%$. No data were qualified due to the aqueous LCS/LCSD results.

PE/Accuracy Check

Performance evaluation results were not submitted. The LCS/LCSDs were from an independent, referenced source.

Compound Quantitation and Reported Quantitation Limits

Results were reported to the laboratory's PQLs and adjusted for sample mass, total solids, and dilution factors. Positive results may be reported to the MDL. Positive results between the PQL and the MDL are qualified estimated (J). Results that exceed the calibration range of the instrument are qualified as estimated (J).

The following results were qualified as estimated (J) due to reported concentrations between the PQL and the MDL:

- Bis(2-ethylhexyl)phthalate for aqueous equipment blank MY05SSEB(0-0.5).

No MDL study was submitted. The lowest standard for the initial calibration curves for both soil and aqueous samples are ~10 ug/mL. This concentration is at or below the PQLs.

Tentatively Identified Compounds

Library searches were not reported with this data package.

No additional sample results are qualified due to QC results reviewed for this data package.

Please contact Kestrel Environmental Technologies, Inc. with any questions regarding this information.

Sincerely,
Kestrel Environmental Technologies, Inc.



Deborah L. Smith
Validator

Attachments:

Table I: Validation Recommendation Summaries Worksheet

Table II: Overall Evaluation of Data for 8270C

Maine Yankee Samples
WV0573

Table I - Method 8270C Semi-Volatiles Recommendation Summary

Sample ID	Matrix	Qualifier
MY05SS68(0-0.5)FD	Soil	J ⁵
MY05SS68A(0-0.5)FD	Soil	A
MY05SS68EB	Aqueous	R ¹ J ² J ⁴ J ⁶
MY05SS68RE EB	Aqueous	J ¹ J ³

- A Accept all data.
- R¹ Reject all acid SVOA compounds. The acid surrogate recoveries are 0%.
- J¹ Report all results as estimated (J positives, UJ non-detects) due to holding time exceedence.
- J² Report the 4-chlorophenyl-phenyl ether, 4,6-dinitro-2-methylphenol, and benzo(k)fluoranthene result as non-detected estimated (UJ) based upon the initial calibration % RSDs. The laboratory reported the results as non-detected (U).
- J³ Report the 1,2-dichlorobenzene, 2-methylphenol, hexachloroethane, 2-methylnaphthalene, acenaphthylene, 3-nitroaniline, 4-nitrophenol, 2,4-dinitrotoluene, 4-nitroaniline, and dibenzo(a,h)anthracene results as non-detected estimated (UJ) based upon the continuing calibration %D. The laboratory reported the results as non-detected (U).
- J⁴ Report the 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, and bis(2-ethylhexyl)phthalate results as estimated (J positives, UJ non-detects) based upon the continuing calibration %Ds. The laboratory reported bis(2-ethylhexyl)phthalate as a positive result and all other results as non-detected (U).
- J⁵ Report the butylbenzylphthalate, bis(2-ethylhexyl)phthalate, and di-n-octylphthalate results as non-detected estimated (UJ) based upon the continuing calibration %D. The laboratory reported the results as non-detected (U).
- J⁶ Report the bis(2-ethylhexyl)phthalate result as estimated (J); the result is between the MDL and the PQL.

TABLE II

EPA NE-Data Validation Worksheet
 Overall Evaluation of Data

WV0573 Katahdin Analytical Services

8270C					
DQOs	Sampling/ Analytical	Measurement Error		Sampling Variability	Potential Usability Issues
		Analytical	Sampling		
To determine the nature and extent of potential contamination, to identify any potential contaminant source areas requiring further evaluation, to support any remedial activities that may be necessary to minimize potential risk to human health and environment.	Soil/ sediment samples prepared by 3550, analyzed by 8270C.	A			Accept all data.
		R ¹			Reject all acid SVOA compounds. The acid surrogate recoveries are 0%.
	Aqueous samples prepared by 3520, analyzed by 8270C.	J ¹			Report all results as estimated (J positives, UJ non-detects) due to holding time exceedence.
		J ²			Report the 4-chlorophenyl-phenyl ether, 4,6-dinitro-2-methylphenol, and benzo(k)fluoranthene result as non-detected estimated (UJ) based upon the initial calibration % RSDs.
		J ³			Report the 1,2-dichlorobenzene, 2-methylphenol, hexachloroethane, 2-methylnaphthalene, acenaphthylene, 3-nitroaniline, 4-nitrophenol, 2,4-dinitrotoluene, 4-nitroaniline, and dibenzo(a,h)anthracene results as non-detected estimated (UJ) based upon the continuing calibration %D.
		J ⁴			Report the 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, and bis(2-ethylhexyl)phthalate results as estimated (J positives, UJ non-detects) based upon the continuing calibration %Ds. The laboratory reported bis(2-ethylhexyl)phthalate as a positive result and all other results as non-detected.

TABLE II (continued)

EPA NE-Data Validation Worksheet
 Overall Evaluation of Data

WV0573 Katahdin Analytical Services

8270C					
DQOs	Sampling/ Analytical	Measurement Error		Sampling Variability	Potential Usability Issues
		Analytical	Sampling		
To determine the nature and extent of potential contamination, to identify any potential contaminant source areas requiring further evaluation, to support any remedial activities that may be necessary to minimize potential risk to human health and environment.	Soil/ sediment samples prepared by 3550, analyzed by 8270C.	J ⁵			Report the butylbenzylphthalate, bis(2-ethylhexyl)phthalate, and di-n-octylphthalate results as non-detected estimated (UJ) based upon the continuing calibration %D. The laboratory reported the results as non-detected (U).
	Aqueous samples prepared by 3520, analyzed by 8270C.	J ⁶			Report the bis(2-ethylhexyl)phthalate result as estimated (J); the result is between the MDL and the PQL.

Validator: _____

Date: _____