

January 6, 2004

Mr. John Rendall
Maine Yankee
321 Old Ferry Road
Wiscasset, Maine 04578

RE: Project No.: Maine Yankee Soil/sediment Samples
Lab Name: Katahdin Analytical Services, Westbrook, Maine
Site Name: Maine Yankee Nuclear Power Plant, Wiscasset Maine
Samples Collected: 11/26/03
3 soil/sediment samples
1 aqueous equipment blank sample
Data package: MY145

Method 8270C

Samples Collected: (Client IDs)

MY05TP220A(0-0.5)	MY05TP222A(0-0.5) FD	MY05TP223A(0-0.5) FD	MY05TP220A (EB)
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EB-Equipment Rinsate Blank
FD- Field Duplicate Samples

Dear Mr. Rendall:

A Tier II data validation was performed on the semi-volatiles (SVOAs) analytical data for 3 soil/sediment samples and 1 aqueous field blank sample 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/sediment samples were processed following 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

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- Continuing Calibrations
 - 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 acid SVOA results for aqueous equipment blank sample MY05TP220A(EB) are reported as rejected (R). The surrogate recoveries for acid surrogates 2-fluorophenol, phenol-D6, and 2,4,6-tribromophenol-D14 are less than 10%. The laboratory reported all equipment blank sample MY05TP220A(EB) results as non-detected. The laboratory noted that insufficient sample was provided for re-extraction.

Based upon the initial calibration, the 2,4-dinitrophenol results for soil samples MY05TP220A(0-0.5), MY05TP222A(0-0.5) and MY05TP223A(0-0.5) are reported as non-detected estimated (UJ).

Based upon the initial calibration, the diethylphthalate results for soil samples MY05TP220A(0-0.5), MY05TP222A(0-0.5) and MY05TP223A(0-0.5) and aqueous sample MY05TP220A(EB) are reported as non-detected estimated (UJ).

Based upon the continuing calibration % differences, the 2,4-dinitrophenol, 4-nitrophenol, diethylphthalate, 4-nitroaniline and 3,3'-dichlorobenzidine results for soil samples MY05TP220A(0-0.5), MY05TP222A(0-0.5) and MY05TP223A(0-0.5) are reported as non-detected estimated (UJ).

Based upon the continuing calibration % differences, the diethylphthalate, 4-nitroaniline and 3,3'-dichlorobenzidine results for aqueous sample MY05TP220A(EB) are reported as non-detected estimated (UJ).

Soil samples MY05TP222A(0-0.5) and MY05TP223A(0-0.5) are a field duplicate pair. All QAPP precision acceptance criteria are met. No results are qualified based upon the field duplicate pair precision.

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 naphthalene, dibenzofuran, acenaphthene and dibenzo(a,h)anthracene results for soil sample MY05TP220A(0-0.5) are reported as estimated (J).

The anthracene, benzo(k)fluoranthene and benzo(g,h,i)perylene results for soil sample MY05TP222A(0-0.5) are reported as estimated (J).

The fluorene, acenaphthene and carbazole results for soil sample MY05TP223A(0-0.5) are reported as estimated (J).

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

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 temperature was 1.0° 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 samples were prepared and analyzed within holding time criteria. All sample preservation requirements for SVOA were met.

Instrument Performance Check (Tuning)

All tuning criteria were met.

Initial Calibration

One initial calibration curve was 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). All RRFs exceed 0.05.

The following table summarizes initial calibration % RSDs that exceed 30% and the linear correlation coefficient exceed is less than 0.990. Several compounds were calibrated from linear or quadratic equations.

Compound	% RSD
2,4-Dinitrophenol	51.98%
Diethylphthalate	56.66%

The 2,4-dinitrophenol results for soil samples MY05TP220A(0-0.5), MY05TP222A(0-0.5) and MY05TP223A(0-0.5) are reported as non-detected estimated (UJ).

The diethylphthalate results for soil samples MY05TP220A(0-0.5), MY05TP222A(0-0.5) and MY05TP223A(0-0.5) and aqueous sample MY05TP220A(EB) are reported as non-detected estimated (UJ).

Continuing Calibration

One continuing calibration was analyzed with this data package. All minimum RRF criteria for SPCC and %D for CCC compounds were met. The concentration of the continuing calibration standard was 50 ug/mL.

All RRF for target compounds were >0.05. Target compound results that exceed 25% difference are summarized below.

Compound	% Difference
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295 Lower Flying Point Road ☐ Freeport ME 04032
Phone: (207) 865-1256 ☎ Fax: (207) 865-1116 ☒ Electronic Mail: tlewis1260@aol.com

Diethylphthalate	-49.45
3,3-Dichlorobenzidine	-32.85

The diethylphthalate and 3,3'-dichlorobenzidine results for soil samples MY05TP220A(0-0.5), MY05TP222A(0-0.5) and MY05TP223A(0-0.5) are reported as non-detected estimated (UJ).

The diethylphthalate and 3,3'-dichlorobenzidine results aqueous sample MY05TP220A(EB) are reported as non-detected estimated (UJ).

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).

MY05TP220A(EB) is the field equipment blank reported in this data package. No contamination is reported in the field equipment blank. All acid compound results for MY05TP220A(EB) are reported as rejected (R) due to acid surrogate results.

No data were qualified due to laboratory or field 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 MY05TP220A(EB) are reported as rejected (R). The surrogate recoveries for acid surrogates 2-fluorophenol, phenol-D6, and 2,4,6-tribromophenol-D14 are 0%, 0% and 7% respectively.

Internal Standards

All internal standard retention time and area count acceptance criteria were met.

No data were qualified due to internal standard results.

Matrix Spike/Matrix Spike Duplicate Results

Soil sample MY05TP220A(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. MS/MSD recoveries and % 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 MY05TP220A(EB) was the only aqueous sample reported.

Field/Laboratory Duplicates

No aqueous field duplicate results were reported. The only aqueous sample in this data package is the equipment rinsate blank MY05TP220A(EB).

One set of field duplicates was reported in this data package MY05TP222A(0-0.5) and MY05TP223A(0-0.5). All positive results met the $\leq 50\%$ RPD acceptance criteria or were reported below 2X the SQL. All acceptance criteria were met. No data were qualified due to the field duplicate results.

Laboratory Control Sample Results

One LCS was reported for the soil/sediment samples. No LCSD was reported, however an MS/MSD was analyzed for soil/sediment 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 with the aqueous equipment rinsate blank sample. All LCS/LCSD recoveries were within the method acceptance criteria. The LCS/LCSD % RPDs for phenol, 2-chlorophenol and 4-chloro-3-methylphenol exceed 50%. These compound results are reported as rejected (R) in aqueous sample MY05TP220A(EB) due to the surrogate recoveries. 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 acenaphthene, naphthalene, dibenzofuran and dibenzo(a,h)anthracene results for soil sample MY05TP220A(0-0.5) are reported as estimated (J).

The anthracene, benzo(k)fluoranthene and benzo(g,h,i)perylene results for soil sample MY05TP222A(0-0.5) are reported as estimated (J).

The acenaphthene, fluorene and carbazole results for soil sample MY05TP223A(0-0.5) are reported as estimated (J).

No MDL study was submitted. The lowest standard for the initial calibration curves for both soil/sediment 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.

Please contact Kestrel at (207) 865-1256 if you have any questions regarding this information.

Sincerely,
Kestrel Environmental Technologies, Inc.

Timothy Lewis
Validator

Attachments:

Table I: Validation Recommendation Summaries Worksheet

Table II: Overall Evaluation of Data for 8270C

Maine Yankee Samples
MY145

Table I - Method 8270C Semi-Volatiles Recommendation Summary

Sample ID	Matrix	Qualifier
MY05TP220A(0-0.5)	Soil/sediment	J ¹ , J ² , J ³ , J ⁵
MY05TP222A(0-0.5)	Soil/sediment	J ¹ , J ² , J ³ , J ⁶
MY05TP223A(0-0.5)	Soil/sediment	J ¹ , J ² , J ³ , J ⁷
MY05TP220A(EB)	Aqueous	R ¹ , J ² , J ⁴

- A Accept all data.
- R¹ Reject all acid SVOA compounds. The acid surrogate recoveries are less than 10%.
- J¹ Report the 2,4-dinitrophenol result as non-detected estimated (UJ) based upon the initial calibration % RSDs.
- J² Report the diethylphthalate result as non-detected estimated (UJ) based upon the initial calibration %RSDs.
- J³ Report the diethylphthalate and 3,3'-dichlorobenzidine results as non-detected estimated (UJ) based upon the continuing calibration % differences.
- J⁴ Report the diethylphthalate and 3,3'-dichlorobenzidine results as non-detected estimated (UJ) based upon the continuing calibration % differences.
- J⁵ Report the naphthalene, dibenzofuran, acenaphthene and dibenzo(a,h)anthracene results as estimated (J), results are between the MDL and the PQL.
- J⁶ Report the anthracene, benzo(k)fluoranthene and benzo(g,h,i)perylene results as estimated (J), results are between the MDL and the PQL.
- J⁷ Report the acenaphthene, carbazole and fluorene results as estimated (J), results are between the MDL and the PQL.

TABLE II

EPA NE-Data Validation Worksheet
Overall Evaluation of Data

MY145 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 ¹			Accept all results.
		R ¹			Reject all acid SVOA compounds. The acid surrogate recoveries are less than 10%.
	Aqueous samples prepared by 3520, analyzed by 8270C.	J ¹			Report the 2,4-dinitrophenol result, for soils, as non-detected estimated based upon the initial calibration % RSDs.
		J ²			Report all diethylphthalate result as non-detected estimated (UJ) based upon the initial calibration % RSDs.
		J ³			Report the diethylphthalate and 3,3'-dichlorobenzidine results, for all soil samples, as non-detected estimated (UJ) based upon the continuing calibration % differences.

TABLE II (continued)

EPA NE-Data Validation Worksheet
Overall Evaluation of Data

MY145 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 ⁴			Report the diethylphthalate and 3,3'-dichlorobenzidine results, for equipment blank sample MY05TP220A(EB) as non-detected estimated (UJ) based upon the continuing calibration % differences.
	Aqueous samples prepared by 3520, analyzed by 8270C.	J ⁵			Report the acenaphthene and dibenzo(a,h)anthracene results for MY05TP220A(0-0.5) as results as estimated (J); results are between the MDL and the PQL.
		J ⁶			Report the anthracene, naphthalene, dibenzofuran, benzo(k)fluoranthene and benzo(g,h,i)perylene results for MY05TP222A(0-0.5) as estimated (J), results are between the MDL and the PQL.
		J ⁷			Report the acenaphthene, carbazole and fluorene results for MY05TP223A(0-0.5) as estimated (J), results are between the MDL and the PQL.

Validator: _____

Date: _____