



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  
 1 aqueous trip blank  
 Data package: WV0573

**Method 8260B**

Samples Collected: (Client IDs)

MY05SS68(0-0.5)FD	MY05SS68A(0-0.5)FD	MY05SS68EB	MY05SS68TB
EB-Equipment Rinsate Blank		FD- Field Duplicate Samples	
TB-Trip Blank			

Dear Mr. Rendall:

A Tier II data validation was performed on the volatiles (VOAs) analytical data for 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 8260B. Soil samples were processed following US EPA SW-846 method 5035 and aqueous samples were processed following US EPA SW-846 method 5030.

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
- Laboratory and Field Blank Analyses

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- 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 (NA)
  - Tentatively Identified Compounds \*

\* - All Criteria met

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

Attachments:

Table I                      Recommendation Summary Table- summarizes validation recommendations:  
8260B.

Table II                     Overall Evaluation of Data- summarizes site DQOs and potential usability issues: 8260B.

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)*.

The positive acetone results are qualified as estimated (J) for all soil samples in this data package due to initial calibration RRF results. The results are ultimately qualified as non-detected estimated (UJ) due to blank contamination. The 2-butanone results are rejected (R) due to initial calibration RRF results; the laboratory reported the results as non-detected (U).

The positive acetone results are qualified as estimated (J) for all aqueous samples in this data package due to initial calibration RRF results.

The positive acetone results are qualified as estimated (J) for all soil samples in this data package due to continuing calibration RRF. The results are ultimately qualified as non-detected estimated (UJ) due to blank contamination. The 2-butanone results are rejected (R) due to continuing calibration RRF; the laboratory reported the results as non-detected (U). The chloroethane results

are qualified as non-detected estimated (UJ) due to continuing calibration %D; the laboratory reported the results as non-detected (U).

The positive acetone results are qualified as estimated (J) for all aqueous samples in this data package due to continuing calibration RRF. The 2-butanone results are rejected (R) due to continuing calibration RRF; the laboratory reported the results as non-detected (U). The bromomethane results are qualified as non-detected estimated (UJ) due to continuing calibration %D; the laboratory reported the results as non-detected (U).

The acetone results in samples MY05SS68(0-0.5), MY05SS68A(0-0.5), and MY05SS68A(0-0.5)RA are qualified as non-detected (U) at the reported concentrations due to contamination detected in the field blanks.

All results for MY05SS68(0-0.5), MY05SS68A(0-0.5), and MY05SS68A(0-0.5)RA are qualified as estimated (J positives, UJ non-detects) due to the potential for low bias indicated by the surrogate recoveries.

The acetone results for sample MY05SS68(0-0.5) and its field duplicate MY05SS68A(0-0.5) and MY05SS68A(0-0.5)RA are qualified as estimated (J) due to the potential for high bias indicated by the MS/MSD recoveries. The laboratory reported the results of all other affected compounds as non-detected (U). Non-detected results are not qualified due to the potential for high bias.

The 1,1,2,2-tetrachloroethane recovery for both the MS and MSD are 0%. The 1,1,2,2-tetrachloroethane results for sample MY05SS68(0-0.5) and its field duplicate MY05SS68A(0-0.5) and MY05SS68A(0-0.5)RA are rejected (R); the laboratory reported the results as non-detected.

All MS/MSD RPD results are above the acceptance criteria for precision ( $\leq 30\%$ ). All results for sample MY05SS68(0-0.5) and its field duplicate MY05SS68A(0-0.5) and MY05SS68A(0-0.5)RA are qualified as estimated (J positives, UJ non-detects) due to failure of MS/MSD to meet precision acceptance criteria.

The acetone results for all aqueous and soil samples were reported by the laboratory as positive results and are qualified as estimated (J) due to the potential for high bias indicated by the LCS recoveries.

Results were reported to the laboratory PQL 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).

### **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 samples were properly preserved. All reported samples were analyzed within holding times.

### Instrument Performance Check (Tuning)

All tuning criteria were met.

### Initial Calibration

There were 2 initial calibration curves performed on the 2 instruments used for this data package. 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 did not exceed 0.05. The laboratory calibrated some of the compounds from a first order linear regression and some from a 2<sup>nd</sup> order polynomial. All correlation coefficient exceed 0.99. The laboratory analyzed 6 point standard curves. The low point of the calibration curve is at the laboratory's practical quantitation limit (PQL).

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.

Date of ICAL	File ID	Compound	%RSD 30%	RRF 0.05	Field Samples Affected
2/11/05	Z5242MY	acetone		0.040	All aqueous samples
2/11/05	S4166MY	acetone		0.036	All soil samples
		2-butanone		0.044	

The positive acetone results are qualified as estimated (J) for all soil samples in this data package. The results are ultimately qualified as non-detected estimated (UJ) due to blank contamination. The 2-butanone results are rejected (R); the laboratory reported the results as non-detected (U).

The positive acetone results are qualified as estimated (J) for all aqueous samples in this data package.

### Continuing Calibration

There were 2 continuing calibrations, one of the aqueous samples and one 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 not exceeded 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
2/14/05	S4182MY	chloroethane	61.85		All soil samples
		acetone		0.040	
		2-butanone		0.049	
2/15/05	Z5275MY	bromomethane	39.04		All aqueous samples
		acetone		0.036	
		2-butanone		0.046	

The positive acetone results are qualified as estimated (J) for all soil samples in this data package. The results are ultimately qualified as non-detected estimated (UJ) due to blank contamination. The 2-butanone results are rejected (R); the laboratory reported the results as non-detected (U). The chloroethane results are qualified as non-detected estimated (UJ); the laboratory reported the results as non-detected (U).

The positive acetone results are qualified as estimated (J) for all aqueous samples in this data package. The 2-butanone results are rejected (R); the laboratory reported the results as non-detected (U). The bromomethane results are qualified as non-detected estimated (UJ); the laboratory reported the results as non-detected (U).

**Laboratory and Field Blank Analyses**

No target or TIC compounds were reported as detected for either the aqueous or soil laboratory method blanks.

For all methods reviewed here, the maximum concentration of the contaminants detected in the laboratory and field blanks, their action levels, and the associated samples are summarized below. No TIC compounds were detected. Results below the blank action level are qualified as non-detected (U).

Compound	Type of Blank	Max. Conc. (units)	Action Level (units)	Samples Affected
Acetone	MY05SS68(EB)	7 ug/L	70 ug/L	MY05SS68(0-0.5),

Acetone	MY05SS68(TB)	6 ug/L	60 ug/L	MY05SS68A(0-0.5), MY05SS68A(0-0.5) RA
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The acetone results in samples MY05SS68(0-0.5) (21ug/L), MY05SS68A(0-0.5) (19ug/L), and MY05SS68A(0-0.5)RA (28ug/L) are qualified as non-detected (U) at the reported concentrations due to contamination detected in the field blanks.

**System Monitoring Compounds (Surrogate Recoveries)**

All surrogate recoveries for aqueous samples were within the QAPP acceptance limits. Multiple surrogate recoveries for soil samples were below QAPP acceptance limits. All results for MY05SS68(0-0.5), MY05SS68A(0-0.5), and MY05SS68A(0-0.5)RA are qualified as estimated (J positives, UJ non-detects) due to the potential for low bias indicated by the surrogate recoveries. False negatives are possible. The MS and MSD recoveries are also below acceptance criteria, but no field sample results are qualified due to QC sample surrogate results. All other surrogate recoveries meet acceptance criteria. No other data are qualified due to surrogate recoveries.

Acceptance criteria	DBF		DCA		TOL		BFB	
	Water 75-129	Soil 73-170	Water 65-135	Soil 73-159	Water 82-120	Soil 63-151	Water 69-125	Soil 42-124
Sample Number/Matrix	%Recovery		%Recovery		%Recovery		%Recovery	
MY05SS68(0-0.5)	61							
MY05SS68A(0-0.5)	37							
MY05SS68A(0-0.5)RA	16							
MY05SS68(0-0.5)MS	10							
MY05SS68(0-0.5)MSD	6							

**Internal Standards**

All internal standard results meet the retention times and the area count acceptance criteria. No data are qualified due to internal standard results.

**Matrix Spike/Matrix Spike Duplicate Results**

MY05SS68(0-0.5) is the MS/MSD reported for this data package. Recoveries and RPDs were reported for all the target compounds. The QAPP require that only the 5 CLP spiking compounds be reported. All MS/MSD results were evaluated for this review.

The MS and MSD recoveries for acetone (184%/185%), 2-butanone (173%/183%), 1,2-dichloroethane (189%/176%), tetrachloroethene (168%/150%) and the MS recovery 1,1-dichloroethene (134%) are above the acceptance criteria (70-130%). The acetone results for sample MY05SS68(0-0.5) and its field duplicate MY05SS68A(0-0.5) and MY05SS68A(0-0.5)RA are qualified as estimated (J) due to the potential for high bias indicated by the MS/MSD recoveries. The laboratory reported the results of all other affected compounds as non-detected (U). Non-detected results are not qualified due to the potential for high bias.

The 1,1,2,2-tetrachloroethane recovery for both the MS and MSD are 0%. The 1,1,2,2-tetrachloroethane results for sample MY05SS68(0-0.5) and its field duplicate MY05SS68A(0-0.5) and MY05SS68A(0-0.5)RA are rejected (R); the laboratory reported the results as non-detected.

All MS/MSD RPD results are above the acceptance criteria for precision ( $\leq 30\%$ ). All results for sample MY05SS68(0-0.5) and its field duplicate MY05SS68A(0-0.5) and MY05SS68A(0-0.5)RA are qualified as estimated (J positives, UJ non-detects) due to failure of MS/MSD to meet precision acceptance criteria.

No aqueous MS/MSD was reported. The trip blank and the equipment rinsate blank are the only aqueous samples reported in this data package.

#### **Field/Laboratory Duplicates**

Samples MY05SS68(0-0.5)/MY05SS68A(0-0.5) are reported as the field duplicates for this data package. The laboratory reported all results for target compounds met the acceptance criteria for field duplicate precision. All results, except acetone and methylene chloride, were reported by the laboratory as non-detected (U). No data are qualified due to field duplicate results.

No laboratory duplicate sample was analyzed.

#### **Laboratory Control Sample Results**

One aqueous LCS and one soil LCS were reported. The QAPP requires that the 5 CLP spiking compounds be reported. The laboratory reported recoveries and RPD for all target compounds. All results for the 5 CLP spiking compounds did not meet acceptance criteria. The acetone (135%) and 2-butanone (151%) recoveries for the aqueous LCS were above acceptance criteria (70-130%). The acetone (158%), 2-butanone (166%), and 2-hexanone (157%) recoveries for the soil LCS were above acceptance criteria (70-130%). The acetone results for all aqueous and soil samples were reported by the laboratory as positive results and are qualified as estimated (J) due to the potential for high bias indicated by the LCS recoveries. No other soil or aqueous results are qualified based upon the CLP LCS results. All other associated results were reported by the laboratory as non-detected (U) and are not qualified.

No LCSD were reported. Precision for aqueous samples could not be evaluated. Precision for soil samples was evaluated from MS/MSD and field duplicate results.

**PE/Accuracy Check**

Performance evaluation results were not submitted. The LCSs are from an independent, referenced source.

**Compound Quantitation and Reported Quantitation Limits**

Results were reported to the laboratory PQL and adjusted for sample mass/volume, 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).

The following results are qualified as estimated (J); the reported concentrations were between the MDL and the PQL.

- Methylene chloride for sample MY05SS68(0-0.5), MY05SS68A(0-0.5), and MY05SS68A(0-0.5)RA.

Positive results that exceed the calibration range are qualified as estimated (J). No reported results exceeded the calibration range.

No MDL study was submitted; laboratory fortified blanks were used to determine sensitivity. All criteria were met. Additionally, the lowest standard for the initial calibration curves for aqueous samples is 1 ug/L respectively. This concentration is near or below the PQLs.

**Tentatively Identified Compounds**

A library search was conducted by the laboratory for each of the samples. No positive TIC results were reported.

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

Sincerely,  
Kestrel Environmental Technologies, Inc.



Deborah Smith  
Validator

Attachments:  
Table I: Validation Recommendation Summaries Worksheet  
Table II: Overall Evaluation of Data for 8260B

Maine Yankee Samples  
WV0573

**Table 1-Method 8260B Volatiles Recommendation Summary**

Sample ID	Matrix	Qualifier
MY05SS68(0-0.5) FD	Soil	R <sup>1</sup> R <sup>2</sup> A <sup>1</sup> J <sup>1</sup> J <sup>3</sup> J <sup>5</sup> J <sup>6</sup> J <sup>7</sup> J <sup>8</sup> J <sup>9</sup>
MY05SS68A(0-0.5) FD	Soil	R <sup>1</sup> R <sup>2</sup> A <sup>1</sup> J <sup>1</sup> J <sup>3</sup> J <sup>5</sup> J <sup>6</sup> J <sup>7</sup> J <sup>8</sup> J <sup>9</sup>
MY05SS68A(0-0.5) RA FD	Soil	R <sup>1</sup> R <sup>2</sup> A <sup>1</sup> J <sup>1</sup> J <sup>3</sup> J <sup>5</sup> J <sup>6</sup> J <sup>7</sup> J <sup>8</sup> J <sup>9</sup>
MY05SS68(TB)	Aqueous	R <sup>3</sup> J <sup>2</sup> J <sup>4</sup> J <sup>8</sup>
MY05SS68(EB)	Aqueous	R <sup>3</sup> J <sup>2</sup> J <sup>4</sup> J <sup>8</sup>

- A Accept all results.
- R<sup>1</sup> Reject all non-detects for 1,1,2,2-tetrachloroethane due to MS/MSD recoveries of 0%.
- R<sup>2</sup> Reject all non-detects for 2-butanone due to initial and continuing calibration RRF <0.05.
- R<sup>3</sup> Reject all non-detects for 2-butanone due to continuing calibration RRF <0.05.
- A<sup>1</sup> Report all positive acetone results below the blank action levels as non-detected (U) at their reported concentrations due to contamination in the corresponding laboratory method blanks. False positive results are possible.
- J<sup>1</sup> Report all positive results for acetone as estimated (J) due to initial and continuing calibration RRF <0.05. The results were ultimately qualified as non-detected estimated (UJ) due to blank contamination.
- J<sup>2</sup> Report all positive results for acetone as estimated (J) due to initial and continuing calibration RRF <0.05.
- J<sup>3</sup> Report chloroethane results as non-detected estimated (UJ) due to continuing calibration %D results that are outside acceptance criteria.
- J<sup>4</sup> Report bromomethane results as non-detected estimated (UJ) due to continuing calibration %D results that are outside acceptance criteria.
- J<sup>5</sup> Report all results as estimated (J positives, UJ non-detects) due to surrogate recoveries that are below acceptance criteria
- J<sup>6</sup> Report the acetone results as estimated (J) due to the potential for high bias indicated by the MS/MSD recoveries.
- J<sup>7</sup> Report all results as estimated (J positives, UJ non-detects) due to RPD results for the MS/MSD that are outside acceptance criteria for precision.

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- J<sup>8</sup> Report the acetone results as estimated (J) due to the potential for high bias indicated by the LCS recoveries.
- J<sup>9</sup> Report the methylene chloride results as estimated (J); the reported concentrations are between the MDL and the PQL.

TABLE II

EPA NE-Data Validation Worksheet  
 Overall Evaluation of Data

WV0573 Katahdin Analytical Services

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 samples prepared by 5035, analyzed by 8260B.	R <sup>1</sup>		*not assessed	Reject all non-detects for 1,1,2,2-tetrachloroethane due to MS/MSD recoveries of 0%.
		R <sup>2</sup>			Reject all non-detects for 2-butanone due to initial and continuing calibration RRF <0.05.
	Aqueous samples prepared by 5030, analyzed by 8260B.	R <sup>3</sup>			Reject all non-detects for 2-butanone due to continuing calibration RRF <0.05.
		A <sup>1</sup>			Report all positive acetone results below the blank action levels as non-detected (U) at their reported concentrations due to contamination in the corresponding laboratory method blanks. False positive results are possible.
	J <sup>1</sup>		Report all positive results for acetone as estimated (J) due to initial and continuing calibration RRF <0.05. The results were ultimately qualified as non-detected estimated (UJ) due to blank contamination.		
	J <sup>2</sup>		Report all positive results for acetone as estimated (J) due to initial and continuing calibration RRF <0.05.		
	J <sup>3</sup>		Report chloroethane results as non-detected estimated (UJ) due to continuing calibration %D results that are outside acceptance criteria.		
J <sup>4</sup>		Report bromomethane results as non-detected estimated (UJ) due to continuing calibration %D results that are outside acceptance criteria.			

TABLE II (continued)

EPA NE-Data Validation Worksheet  
 Overall Evaluation of Data

WV0573 Katahdin Analytical Services

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 samples prepared by 5035, analyzed by 8260B.  Aqueous samples prepared by 5030, analyzed by 8260B.	J <sup>5</sup>		*not assessed	Report all results as estimated (J positives, UJ non-detects) due to surrogate recoveries that are below acceptance criteria
		J <sup>6</sup>			Report the acetone results as estimated (J) due to the potential for high bias indicated by the MS/MSD recoveries.
		J <sup>7</sup>			Report all results as estimated (J positives, UJ non-detects) due to RPD results for the MS/MSD that are outside acceptance criteria for precision.
		J <sup>8</sup>			Report the acetone results as estimated (J) due to the potential for high bias indicated by the LCS recoveries.
		J <sup>9</sup>			Report the methylene chloride results as estimated (J); the reported concentrations are between the MDL and the PQL.

Validator: \_\_\_\_\_

Date: \_\_\_\_\_