

YANKEE ATOMIC ELECTRIC COMPANY

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April 13, 2010
BYR 2010-012

Dave Howland
Department of Environmental Protection
Western Regional Office
436 Dwight Street
Springfield, MA 01103

Subject: Post-Closure Maintenance and Monitoring Report

This letter serves as the Post-Closure Maintenance and Monitoring Report that documents the results of the monitoring required by the Massachusetts Department of Environmental Protection (DEP), as documented in the "Filed" Deed Notices for the Southeast Construction Fill Area (SCFA) and the Beneficial Use Determination (BUD) Area and the SCFA Closure Certification Report Financial Assurance Mechanism review. This report documents the results of the following post-closure monitoring:

- Groundwater Monitoring (Documented in Attachment 1)
- Surface Water Monitoring (Documented in Attachment 1)
- Soil Stability Monitoring – Settlement, Cracks and Erosion and Vegetative Cover (Documented in Attachment 2)
- Southeast construction Fill Area (SCFA) Financial Assurance Mechanism (FAM) Review (Documented in Attachment 3)

Should you require additional information please contact me at 413-424-5261 Extension 303.

Sincerely,

YANKEE ATOMIC ELECTRIC CO

Robert Mitchell
ISFSI Manager

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CAN Business Office
Public Repository at the Greenfield Community College
Franklin Regional Council of Governments (FRCOG)

April 13, 2010
BYR 2010-012

Attachment 1

Post-Closure Groundwater and Surface Water Monitoring

**POST CLOSURE GROUNDWATER AND SURFACE WATER
MONITORING REPORT, SPRING 2010**

YANKEE NUCLEAR POWER STATION

Prepared for:

Yankee Atomic Electric Company
Yankee Nuclear Power Station
49 Yankee Road
Rowe, Massachusetts

Prepared by:

MACTEC Engineering and Consulting, Inc.
511 Congress Street
Portland, Maine 04101

April 2010

Project No. 3617087152



**Post Closure Groundwater and Surface Water
Monitoring Report, Spring 2010
Yankee Nuclear Power Station**

Prepared for:

**Yankee Atomic Electric Company
Yankee Nuclear Power Station
49 Yankee Road
Rowe, Massachusetts**

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April 14, 2010

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1.0 INTRODUCTION

MACTEC Engineering and Consulting, Inc. (MACTEC) has been contracted by Yankee Nuclear Power Station (YNPS) to conduct the Post Closure Groundwater and Surface Water Monitoring Program at their site, located at 49 Yankee Road in Rowe, Massachusetts.

YNPS completed its decommissioning in 2007, under the oversight of the Nuclear Regulatory Commission (NRC). However, as part of the closure process, ongoing groundwater and surface water monitoring is still required under the Massachusetts Department of Environmental Protection (MassDEP). This work is to demonstrate that the groundwater is in compliance with the Massachusetts Contingency Plan (MCP) and for post closure monitoring of the Beneficial Use Determination (BUD) Area and the Southeast Construction Fill Area (SCFA). This report presents the findings from samples collected in March 2010 in support of the site closure requirements under the MCP.

2.0 BACKGROUND

Through the site closure process, a comprehensive investigation was conducted to characterize environmental conditions and to develop the conceptual site model, not only to identify source areas and impacted media, but to also describe the fate and transport of both chemicals and radionuclides in soils, groundwater, and surface water. These findings have been published in numerous reports and have achieved the appropriate regulatory approvals. The conceptual site model for groundwater at YNPS was published in the Final Groundwater Conditions Report, submitted to the NRC on February 15, 2007 (YNPS, 2007).

As part of the decommissioning project, 81 groundwater monitoring wells were installed to characterize the hydrogeology, and groundwater quality. Currently there are 58 wells that remain on site. Of these wells, 12 groundwater monitoring wells were sampled in March 2010 to demonstrate compliance with the MCP and to support post closure monitoring.

3.0 SCOPE OF WORK

Groundwater monitoring for closure under the License Termination Plan (LTP) has been completed. However, groundwater and surface water monitoring is still required to reach closure under the MassDEP and to support post closure monitoring. In keeping with this goal this program was completed in accordance with the MassDEP-approved Groundwater Monitoring Plan to Support Closure under the MCP (ERM, 2007) as well as the Phase II - Comprehensive Site Assessment Report (MassDEP, April 08, 2009).

The sampling program included the sampling of 12 groundwater monitoring wells and nine surface water sample locations. The sampling program is summarized in Table 1. The sampling locations are shown on Figure 1. All groundwater samples were collected in accordance with Low Stress (Low Flow) Purging and Sampling guidance (USEPA, 1996a) and in accordance with the Health and Safety Plan (MACTEC, 2006). Field data records are presented in Appendix A, and a summary of the field data parameters is presented in Table 2.

The radiochemistry data were validated in accordance with Site procedure RP-05, Rev. 3 (YNPS, 2009). Chemical analytical data were validated in accordance with EPA Region 1, New England Validation Guidelines (USEPA, 1989 and 1996b). A summary of the data validation findings and tabulated validated data are provided in Appendix B-1 (radiological), B-2 (chemical), and B-3 (validation checklists).

4.0 FINDINGS

Groundwater samples were submitted for both radiological and chemical parameters. The results and findings from the sampling events are presented in the following subsections.

4.1 RADIOLOGICAL PARAMETERS

Radionuclides in groundwater are compared to the United States Environmental Protection Agency's (USEPA's) Maximum Contaminant Level (MCL). In addition to these criteria, data are also evaluated over time to assess if trends are decreasing, stable, or increasing. Consistent with evaluations presented in previous Annual Post Closure Groundwater and Surface Water

Monitoring Reports, a change of 15 percent over previous sampling events has been used to identify trends.

Groundwater samples were collected from 10 monitoring wells and seven surface water locations for analysis of radionuclides. Consistent with previous events, tritium was the only radionuclide positively identified in groundwater. The tritium results from the March 2010 sampling event are presented on Table 3 with previous data to demonstrate that there continues to be a generally downward and/or stable trend in tritium concentrations. Radionuclides were not detected in any of the surface water locations sampled during this event.

Consistent with historical results, the highest concentration of tritium was detected at MW-107C at 20,100 picocuries per liter (pCi/L), with the next highest detection reported at monitoring well MW-107F (8,940 pCi/L). The MCL for tritium is 20,000 pCi/L. As shown on Table 3, these detections are consistent with the conceptual site model; tritium remains elevated at a few locations; however, the concentrations are generally trending downward. .

4.2 CHEMICAL PARAMETERS

Groundwater chemical data are evaluated using the GW-1 groundwater standards (310 CMR 40.0974(2)) (MassDEP, 2008). For the analyses where GW-1 standards are not published, data are compared to Massachusetts MCLs or Massachusetts Secondary MCLs (SMCLs) (MassDEP, 2007). Surface water chemical data are evaluated using USEPA Ambient Water Quality Criteria (AWQC) (USEPA, 2002). For the analyses where AWQC are not published, data are compared to Massachusetts MCLs or SMCLs (MassDEP, 2007).

Former Industrial Area. One monitoring well (MW-101A) is sampled for only arsenic as part of the monitoring program and is located in the Former Industrial Area. Arsenic was not detected at MW-101A. A summary of arsenic data from monitoring well MW-101A, including previous sampling events, is presented on Table 4.

Former Southeast Construction Fill Area. Samples were collected from three groundwater monitoring wells (CFW-1, CFW-5, and CFW-6) and five surface water locations (SW-1 through SW-5) to assess the potential environmental impacts from the Former SCFA. A summary of the sampling program is presented in Table 1.

No volatile organic compounds (VOCs) were detected in any of the groundwater or surface water samples. Several metals and other naturally occurring compounds were detected in both groundwater and surface water samples; however the concentrations are consistent with background and historic data. Only iron and manganese were detected at concentrations that exceed the SMCLs. SMCLs are used to assess the aesthetic qualities of drinking water and are not health-based standards; concentrations that exceed SMCLs are not necessarily indicative of potential health risks.

A summary of the groundwater data for wells downgradient of the SCFA is presented on Table 5. A summary of the surface water data for locations associated with the SCFA is presented in Table 6.

Sherman Spring. Sampling was completed at the Sherman Spring surface water location (SP-1) and samples were analyzed for VOCs and total Resource Conservation and Recovery Act (RCRA) 8 metals plus thallium. Barium was detected well below applicable criteria. All other results were reported as not detected. Validated data is included in Appendix B-2.

Sherman Reservoir. Sampling was completed at the Sherman Reservoir surface water location (SW-011) and samples were analyzed for dissolved RCRA 8 metals. Barium was detected below applicable criteria. All other results were reported as not detected. Validated data is included in Appendix B-2.

Background Location. Background sampling was completed at the location where the Deerfield River enters the Sherman Reservoir (SW-408) and samples were analyzed for dissolved RCRA 8 metals. Barium was detected below applicable criteria. All other results were reported as not detected. Validated data is included in Appendix B-2.

5.0 CONCLUSIONS

The results from the March 2010 groundwater sampling event were consistent with the approved conceptual site model. No additional sampling is warranted at this time. In accordance with the Post Closure Groundwater and Surface Water Monitoring Plan, the next groundwater sampling event is scheduled for March 2012.

Based on the data collected during the March 2010 sampling event, tritium continues to be the only site related radionuclide impacting groundwater and/or surface water at YNPS. Tritium concentrations continue to be stable or decreasing across the site, with the highest concentration reported at MW-107C at an activity of 20,100 pCi/L compared to the MCL of 20,000 pCi/L.

Arsenic was not detected at MW-101A. In accordance with the Groundwater Monitoring Plan, samples must be collected from MW-101A annually for four consecutive years or until there are two consecutive rounds of data that are below the GW-1 standard of 0.01 milligrams per liter (mg/L). Based on the data presented in Table 4, sampling may be discontinued at MW-101A.

6.0 RECOMMENDATIONS

As the groundwater monitoring program is progressing, wells that are no longer part of the active network may also be abandoned at this time. Following the March 2010 sampling event, there are 51 monitoring wells that are no longer sampled and ready for abandonment. This action is recommended to eliminate the conduit for storm water runoff to potentially reach the water table.

7.0 ACRONYMS

AWQC	Ambient Water Quality Criteria
BUD	Beneficial Use Determination
LTP	License Termination Plan
MACTEC	MACTEC Engineering and Consulting Services, Inc.
MassDEP	Massachusetts Department of Environmental Protection
MCL	Maximum Contaminant Level
MCP	Massachusetts Contingency Plan
mg/L	milligrams per liter
NRC	Nuclear Regulatory Commission
pCi/L	picocuries per liter
RCRA	Resource Conservation and Recovery Act
SCFA	Southeast Construction Fill Area
SMCL	Secondary Maximum Concentration Limit
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
YNPS	Yankee Nuclear Power Station

8.0 REFERENCES

- ERM 2007. Groundwater Monitoring Plan to Support Closure under the Massachusetts Contingency Plan, Yankee Nuclear Power Station, Site Closure Project, Rowe, Massachusetts, June 2007.
- MACTEC, 2006. Health and Safety Plan, Yankee Nuclear Power Station, Rowe, Massachusetts, April 2006.
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- MassDEP, 2008. Massachusetts Contingency Plan, 310 CMR 40.000. February 14, 2008.
- MassDEP, 2009. Phase II – Comprehensive Site Assessment Report, April 8, 2009.
- USEPA, 1989. “Region I, Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses;” Hazardous Site Evaluation Division; February, 1989.
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- USEPA, 1996b. “Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Parts I and II,” Quality Assurance Unit Staff; Office of Environmental Measurement and Evaluation; December, 1996.
- USEPA. 2002. Nationally Recommended Water Quality Criteria: 2002. Office of Water, Science and Technology. Doc. No. EPA-822-R-02-047
- YNPS, 2009. Groundwater Monitoring Program, RP-05, Rev. 3, ISFSI Radiation Protection, June 16, 2009.
- YNPS, 2007. Final Groundwater Conditions Report, Yankee Nuclear Power Station, Rowe, Massachusetts, February 15, 2007.

Figures

Tables

Table 1
Groundwater and Surface Water Monitoring Program Summary
March 2010

Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts

				<i>Analyte Method</i>	<i>VOC - (8260 with TICs)</i>	<i>Metals List 1 - (6010/7470)</i>	<i>Metals List 2 - (6010/7470)</i>	<i>RCRA 8 Metals - (6010/7470)</i>	<i>Arsenic - (6010)</i>	<i>Cyanide - (9010)</i>	<i>Nitrate/Chloride/Sulfate - (9050), TDS - (SM2540C), Alkalinity - (310.0)</i>	<i>COD - (SM 5220C)</i>	<i>Gamma Isotopic - (Gamma Spec)</i>	<i>Strontium-90 - (GPC, LSC)</i>	<i>Tritium - (LSC)</i>
				Fraction	T	T	T	D	T	T	T	T	T	T	T
				Bottle Size	40	500	500	500	500	1	500	250	2	2	500
				Bottle Size Units	mL	mL	mL	mL	mL	Liter	mL	mL	Liter	Liter	mL
				Bottle Material	Glass Vial	Poly	Poly	Poly	Poly	Poly	Poly	Amber Glass	Poly	Poly	Poly
				Preservative	HCl	HNO3	HNO3	HNO3	HNO3	NaOH	4 Deg C	H2SO4	HNO3	HNO3	None
				Lab ID	NEL	NEL	NEL	NEL	NEL	NEL	NEL	NEL	GEL	GEL	GEL
Media	Loc Name	Field Sample ID	QC Code												
GW	CFW-1	CFW-1	FS	X	X					X	X	X			
GW	CFW-5	CFW-5	FS	X	X					X	X	X			
GW	CFW-5	CFW-5DUP	FD	X	X					X	X	X			
GW	CFW-5	CFW-5MS	MS	X	X					X	X	X			
GW	CFW-5	CFW-5MSD	MSD	X	X					X	X	X			
GW	CFW-6	CFW-6	FS	X	X					X	X	X			
GW	MW-101A	MW-101A	FS						X						
GW	MW-102D	MW-102D	FS										X	X	X
GW	MW-104A	MW-104A	FS										X	X	X
GW	MW-104A	MW-104ADUP	FD										X	X	X
GW	MW-104A	MW-104AMS	MS										X	X	X
GW	MW-104A	MW-104AMSD	MSD										X	X	X
GW	MW-105B	MW-105B	FS										X	X	X
GW	MW-106A	MW-106A	FS										X	X	X
GW	MW-107C	MW-107C	FS										X	X	X
GW	MW-107D	MW-107D	FS										X	X	X
GW	MW-107E	MW-107E	FS										X	X	X
GW	MW-107F	MW-107F	FS										X	X	X
SW	Monroe Dam	Monroe Dam	FS										X	X	X
SW	SP-1	SP-1	FS	X		X							X	X	X
SW	SW-1	SW-1	FS	X	X					X	X	X			
SW	SW-2	SW-2	FS	X	X					X	X	X			
SW	SW-3	SW-3	FS	X	X					X	X	X			
SW	SW-4	SW-4	FS	X	X					X	X	X			
SW	SW-5	SW-5	FS	X	X					X	X	X			
SW	SW-011	SW-011	FS					X					X	X	X
SW	SW-408	SW-408	FS					X					X	X	X
QC	EB-003	EB-003	EB										X	X	X
QC	TB-005	TB-005	TB	X											
QC	TB-006	TB-006	TB	X											
TOTAL				14	11	1	2	1	11	11	11	16	16	16	

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Table 1
Groundwater and Surface Water Monitoring Program Summary
March 2010

Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
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Rowe, Massachusetts

Notes:

Metals List 1 - RCRA 8 plus copper, iron, manganese, zinc, calcium, sodium

Metals List 2 - RCRA 8 plus thallium

¹ = Gamma isotopic includes: Co-60, Cs-134, Cs-137, Nb-94, Sb-125, Eu-152, Eu-154, Eu-155, Ag-108m

4 Deg C 4 Degrees Celsius

COD chemical oxygen demand

D Dissolved

EB Equipment Blank

FD Field Duplicate

FS Field Sample

GEL General Engineering Laboratories

GPC Gross Proportional Counter

GW Groundwater Sample

H2SO4 Sulfuric Acid

HCl Hydrochloric Acid

HNO3 Nitric Acid

LSC Liquid Scintillation Counter

mL milliliter

MS Matrix Spike

MSD Matrix Spike Duplicate

NaOH Sodium Hydroxide

NEL Northeast Laboratories

QC Quality Control

RCRA Resource Conservation and Recovery Act

SW Surface Water Sample

T Total

TB Trip Blank

TDS Total Dissolved Solids

TICs Tentatively Identified Compounds

VOC volatile organic compound

X indicates parameter scheduled for analysis.

**Table 2
Field Parameter Measurements**

**Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
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Rowe, Massachusetts**

	Parameter Units	Conductivity μSiemens/cm	DO mg/L	Eh mv	pH S.U.	Temperature Deg C	Turbidity NTUs
Field Sample ID	Sample Date						
CFW-1	3/3/2010	95	11.0	220	5.0	6	28.9
CFW-5	3/2/2010	440	<0.1	-78	6.0	5	2.2
CFW-6	3/2/2010	172	11.1	35	6.0	5	0.8
Monroe Dam	3/3/2010	35	12.2	150	6.3	2	3.1
MW-101A	3/3/2010	785	1.0	29	10.2	6	3.0
MW-102D	3/4/2010	182	5.9	-37	6.7	7	4.4
MW-104A	3/2/2010	402	<0.1	120	6.0	9	1.1
MW-105B	3/4/2010	534	<0.1	-200	6.8	8	2.0
MW-106A	3/4/2010	319	<0.1	90	5.8	7	2.4
MW-107C	3/4/2010	355	4.2	-68	6.5	8	2.6
MW-107D	3/2/2010	344	4.1	-120	6.7	8	3.8
MW-107E	3/3/2010	199	3.8	-110	6.8	7	1.0
MW-107F	3/3/2010	233	<0.1	-98	7.0	8	2.4
SP-1	3/3/2010	344	17.5	180	5.9	6	4.4
SW-1	3/3/2010	28	10.7	260	4.8	2	1.1
SW-2	3/3/2010	27	15.0	91	6.3	1	4.1
SW-3	3/3/2010	28	17.1	40	6.5	1	3.7
SW-4	3/2/2010	28	13.9	51	6.5	1	3.4
SW-5	3/2/2010	22	12.5	91	6.4	1	1.3
SW-011	3/3/2010	37	9.2	150	7.8	1	2.1
SW-408	3/3/2010	35	12.6	150	6.4	2	2.9

Notes:

Deg C - Degrees Celsius

DO - dissolved oxygen

Eh - oxidation/reduction potential

μSiemens/cm - microseimens per centimeter

mg/L - milligrams per liter

mv - millivolts

NTUs - Nephlemetric Units

S.U. - Standard Units

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**Table 3
Summary of Tritium Analytical Data and Trend Analysis**

**Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts**

Location	Aug-03 pCi/L	Sep-03 pCi/L	Nov-03 pCi/L	Mar-04 pCi/L	May-04 pCi/L	Dec-06 pCi/L	Mar-07 pCi/L	Mar-08 pCi/L	Mar-09 pCi/L	Mar-10 pCi/L	Trend Analysis*
CFW-5	-		-		-	-	392	-	-		
CFW-6	-		-		-	581	4000/4210	-	2440		
MW-102D						6530	8580	1590	-	-	Decrease
MW-104A						2850	3100/2930	1850	831/900	967/774	Decrease
MW-105B	4850		5220	4890	4530	2900	3440	4710	3490	3890	Stable
MW-106A						3010	- /2850	846	484	530	Stable
MW-107C		48000	45780	8880	39020	29100	30900	25700	21300	20100	Stable
MW-107D		9150	9710	5940	10910	9310	9440	9380	8210	7280	Stable
MW-107E						5700	6420	5060 / 5160	4650	5470	Stable
MW-107F						9210	9220	9890	8150	8940	Stable
Monroe Dam									-	-	Not Applicable
SP-1	-		-	210	890	1100	452	-	-	244	Stable
SW-011									-	-	Not Applicable
SW-408									-	-	Not Applicable

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* Trend analysis is based on a concentration change of greater than 15% from previous four events.

967/774 - shows sample and duplicate sample

"-" signifies concentration less than minimum detectable activity

pCi/L - picocuries per liter

Table 4
Summary of Arsenic Data at Monitoring Well MW-101A

Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts

Location	Sample Date	Sample ID	QC Code	Units	Arsenic*
MW-101A	6/28/2006	208/MW101A-062806	FS	MG/L	<i>0.0141</i>
	9/14/2006	MW-101A-091406	FS	MG/L	<i>0.0161</i>
	12/14/2006	MW-101A-121406	FS	MG/L	<i>0.012</i>
	3/14/2007	MW-101A-031407	FS	MG/L	0.0092
	3/26/2008	MW-101A	FS	MG/L	<i>0.01 J</i>
	3/10/2009	MW-101A	FS	MG/L	-
	3/3/2010	MW-101A	FS	MG/L	-

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Notes:

* GW-1 Standard for Arsenic is 0.01 mg/L (310 CMR 40.0974(2); effective 2/14/2008)

"-" indicates analyte not detected.

Bold Italics indicates an exceedance of the GW-1 standard.

FS - Field Sample

MG/L - milligrams per liter

J - estimated value

Table 5
Summary of Chemical Data From SCFA Monitoring Wells
Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts

Analysis	Parameter	Location	CFW-1	CFW-1	CFW-1	CFW-1	CFW-1	CFW-1	CFW-1	CFW-1
		Sample Date	8/7/2003	8/18/2004	8/19/2005	8/25/2005	9/18/2006	9/19/2006	3/15/2007	3/16/2007
		Sample ID	CFW-1-080703	CFW-1-081804	CFW-1-081905	CFW-1-082505	CFW-1-091806	CFW-1-091906	CFW-1-031507	CFW-1-031607
		QC Code	FS	FS	FS	FS	FS	FS	FS	FS
		MCP Criteria								
VOCS	4-Methyl-2-pentanone	350	-	-	0.0014 J	-	-	-	-	
	Acetone	6.3	R	-	-	R	-	-	-	
	Chloromethane	1000	-	0.00069 J	0.0007 J	-	-	-	-	
	Naphthalene	0.14	-	-	-	-	-	-	-	
Metals	Toluene	1000	-	0.00043 J	-	-	-	-	-	
	Arsenic	0.01	-	-	-	-	-	-	-	
	Barium	2	0.017	0.014	0.012	-	0.0451	-	0.0138	
	Cadmium	0.005	-	-	-	-	-	-	0.0005 J	
	Calcium	NA	-	-	-	-	-	-	1.83	
	Chromium	0.1	-	-	-	-	0.0036 J	-	-	
	Copper	1	-	-	-	-	0.0091	-	0.0026 J	
	Iron	0.3*	1.8	1.2 J	0.706 J	-	10.7	-	1.98	
	Lead	0.015	-	-	-	-	0.0056 J	-	0.0041 J	
	Manganese	0.05*	0.047	0.11	0.0533	-	0.305	-	0.12	
	Mercury	0.002	-	-	-	-	-	-	-	
	Nickel	0.1	-	-	-	-	0.0073	-	-	
	Selenium	0.05	-	-	-	-	-	-	-	
	Silver	0.1	-	-	-	-	-	-	0.0013 J	
	Sodium	20	-	-	-	-	-	-	1.28	
	Zinc	5	-	-	-	-	-	-	0.0126	
	Cyanide	Cyanide, Total	0.2	-	-	-	-	-	-	-
	Wet Chemistry	Alkalinity, Total	NA	6	5.1	7	-	5	7.14	-
		Chemical Oxygen Demand	NA	-	-	-	-	14.4	-	17.8
		Chloride	250*	-	-	-	-	-	0.67 J	-
Nitrate as N		10	-	-	-	-	0.08 J	-	-	
Sulfate		250*	4.4 J	4.9	3.81 J	-	3.7	3.32	-	
	Total Dissolved Solids	500*	-	4	22	13	29	12	-	

Notes:

All results in milligrams per liter (mg/L)

Bold Italics indicates an exceedance of applicable criteria.

Applicable criteria is the MCP GW-1 standard (310 CMR 40.0974(2); effective 2/14/2008) and, if not available, the Maximum Contaminant Level or Secondary Maximum Contaminant Level (SMCL) (MADEP, 2007)

* indicates SMCL; not a health-based standard

FD - Field Duplicate

FS - Field Sample

J - estimated value

NA - Not Available

QC - Quality Control

R - data rejected during validation; unusable

VOCS - volatile organic compounds

"-" indicates analyte not detected

Table 5
Summary of Chemical Data From SCFA Monitoring Wells
Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts

Analysis	Parameter	Location	CFW-1	CFW-1	CFW-1	CFW-5	CFW-5	CFW-5	CFW-5	CFW-5	
		Sample Date	3/25/2008	3/11/2009	3/3/2010	8/5/2003	8/18/2004	8/17/2005	9/13/2006	3/8/2007	
		Sample ID	CFW-1	CFW-1	CFW-1	CFW-5-080503	CFW-5-081804	CFW-5-081705	CFW-5-091306	CFW-5-030807	
		QC Code	FS	FS	FS	FS	FS	FS	FS	FS	
		MCP Criteria									
VOCS	4-Methyl-2-pentanone	350	-	-	-	-	-	0.0006 J	-	-	
	Acetone	6.3	0.0027	-	-	-	-	-	R	-	
	Chloromethane	1000	-	-	-	-	0.00069 J	0.0009 J	-	-	
	Naphthalene	0.14	-	-	-	-	-	-	-	-	
	Toluene	1000	-	-	-	-	-	-	-	-	
	Metals	Arsenic	0.01	-	-	-	-	-	-	-	0.0063
		Barium	2	-	-	-	0.043	0.061	0.0612	0.0638	0.0537
		Cadmium	0.005	-	-	-	-	-	-	-	-
		Calcium	NA	1.5	1.7	1.3	-	-	-	-	29.1
		Chromium	0.1	-	-	-	-	-	-	-	-
Copper		1	-	-	-	-	-	-	-	-	
Iron		0.3*	5.8 J	3.6 J	5.7	38	67	89.2	75.1	70.6	
Lead		0.015	-	-	-	R	-	-	0.0036 J	-	
Manganese		0.05*	0.15	0.14	0.20	3.5	4.4	4.16 J	4.62	4.28	
Mercury		0.002	-	-	-	-	-	-	-	-	
Nickel	0.1	-	-	-	-	-	-	0.0129	-		
Selenium	0.05	-	-	-	-	-	-	0.007 J	-		
Silver	0.1	-	-	-	-	-	-	-	-		
Sodium	20	0.94	-	0.81	-	-	-	-	-	3.71	
Zinc	5	-	-	-	-	-	-	-	-	-	
Cyanide	Cyanide, Total	0.2	-	-	-	-	-	-	-	0.0176	
Wet Chemistry	Alkalinity, Total	NA	3.4	3.4 J	4.6	87	93	101	130	127	
	Chemical Oxygen Demand	NA	-	-	-	26	32	27.3	36.9	51.9	
	Chloride	250*	-	-	-	-	2.7	1.91	15.5 J	9.12	
	Nitrate as N	10	-	-	-	-	-	-	-	0.04 J	
	Sulfate	250*	3.2	3.3	2.6	1.2	1.2	0.58 J	-	0.44 J	
Total Dissolved Solids	500*	46	1.0	-	120	200	111	170	170		

Notes:

All results in milligrams per liter (mg/L)

Bold Italics indicates an exceedance of applicable criteria.

Applicable criteria is the MCP GW-1 standard (310 CMR 40.0974(2); effective 2/14/2008) and, if not available, the Maximum Contaminant Level or Secondary Maximum Contaminant Level (SMCL) (MADEP, 2007)

* indicates SMCL; not a health-based standard

FD - Field Duplicate

FS - Field Sample

J - estimated value

NA - Not Available

QC - Quality Control

R - data rejected during validation; unusable

VOCS - volatile organic compounds

"-" indicates analyte not detected

Table 5
Summary of Chemical Data From SCFA Monitoring Wells
Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts

Analysis	Parameter	Location	CFW-5	CFW-5	CFW-5	CFW-5	CFW-5	CFW-5	CFW-6	CFW-6	CFW-6
		Sample Date	3/26/2008	3/26/2008	3/10/2009	3/10/2009	3/2/2010	3/2/2010	8/11/2003	8/18/2004	8/24/2005
		Sample ID	CFW-5	CFW-5 DUP	CFW-5	CFW-5 DUP	CFW-5	CFW-5 DUP	CFW-6-081103	CFW-6-081804	FD001-082405
		QC Code	FS	FD	FS	FD	FS	FD	FS	FS	FD
		MCP Criteria									
VOCs	4-Methyl-2-pentanone	350	-	-	-	-	-	-	-	-	0.0009 J
	Acetone	6.3	-	-	-	-	-	-	-	-	-
	Chloromethane	1000	-	-	-	-	-	-	-	-	-
	Naphthalene	0.14	-	-	-	-	-	-	-	-	-
	Toluene	1000	-	-	-	-	-	-	-	-	-
Metals	Arsenic	0.01	-	-	-	-	-	-	-	-	-
	Barium	2	-	-	0.051	0.052	0.053	0.053	0.069	0.077	0.0641
	Cadmium	0.005	-	-	-	-	-	-	-	-	-
	Calcium	NA	16	15	28	28	28	27	-	-	-
	Chromium	0.1	-	-	-	-	-	-	-	-	-
	Copper	1	-	-	-	-	-	-	-	-	-
	Iron	0.3*	32 J	31 J	65 J	63 J	70	71	67	51 J	71.5
	Lead	0.015	-	-	-	-	-	-	-	-	-
	Manganese	0.05*	1.9	1.8	3.7	3.7	3.8	3.7	8.8	6.9	7.65
	Mercury	0.002	-	-	-	-	-	-	-	-	-
	Nickel	0.1	-	-	-	-	-	-	-	-	-
	Selenium	0.05	-	-	-	-	0.021 J	0.022 J	-	-	-
	Silver	0.1	-	-	0.017	0.018	-	-	-	-	-
	Sodium	20	1.8	1.6	-	-	2.9	2.9	-	-	-
	Zinc	5	-	-	-	-	-	-	-	-	-
Cyanide	Cyanide, Total	0.2	-	-	0.012	0.012	-	-	-	-	-
Wet Chemistry	Alkalinity, Total	NA	69	63	130 J	170 J	110	140	100	110	136
	Chemical Oxygen Demand	NA	18	17	35	30	29	26	38	33	30.1
	Chloride	250*	2.3	2.2	4.8	4.2	5.1 J	5.0 J	-	2.3	9.12
	Nitrate as N	10	-	-	-	-	-	-	-	-	-
	Sulfate	250*	2.3	2.3	-	-	-	-	-	-	-
	Total Dissolved Solids	500*	110 J	100 J	110	150	130	140	180	200	204

Notes:

All results in milligrams per liter (mg/L)
Bold Italics indicates an exceedance of applicable criteria.

Applicable criteria is the MCP GW-1 standard (310 CMR 40.0974(2); effective 2/14/2008) and, if not available, the Maximum Contaminant Level or Secondary Maximum Contaminant Level (SMCL) (MADEP, 2007)

* indicates SMCL; not a health-based standard

FD - Field Duplicate

FS - Field Sample

J - estimated value

NA - Not Available

QC - Quality Control

R - data rejected during validation; unusable

VOCs - volatile organic compounds

"-" indicates analyte not detected

Table 5
Summary of Chemical Data From SCFA Monitoring Wells
Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts

Analysis	Parameter	Location	CFW-6	CFW-6	CFW-6							
		Sample Date	8/24/2005	4/19/2006	9/13/2006	9/13/2006	3/8/2007	3/8/2007	3/8/2007	3/25/2008	3/10/2009	3/2/2010
		Sample ID	CFW-6-082405	CFW-6-042006	CFW-6-091306	FD001-091306	CFW-6-030807	FD007-030807	FD007-030807	CFW-6	CFW-6	CFW-6
		QC Code	FS	FS	FS	FD	FS	FD	FS	FS	FS	
	MCP Criteria											
VOCs	4-Methyl-2-pentanone	350	0.0008 J	-	-	-	-	-	-	-	-	
	Acetone	6.3	0.008 J	0.0026 J	R	R	-	-	-	-	-	
	Chloromethane	1000	-	-	-	-	-	-	-	-	-	
	Naphthalene	0.14	-	-	-	-	-	-	-	-	-	
	Toluene	1000	-	-	-	-	-	-	-	-	-	
Metals	Arsenic	0.01	-	-	-	-	0.0054 J	0.0049 J	-	-	-	
	Barium	2	0.0629	-	0.0544	0.0592	0.0612	0.0592	-	-	-	
	Cadmium	0.005	-	-	-	-	0.0005 J	0.0002 J	-	-	-	
	Calcium	NA	-	-	-	-	25.5	25.4	7.4	14	14	
	Chromium	0.1	-	-	0.0024 J	0.0027 J	0.0022 J	0.0028 J	-	-	-	
	Copper	1	-	-	-	-	-	-	-	-	-	
	Iron	0.3*	71	-	64.6	68.1	56.8	58.8	0.57 J	39 J	20	
	Lead	0.015	-	-	0.0031 J	0.003 J	0.0029 J	-	-	-	-	
	Manganese	0.05*	7.54	-	6.69	7.2	6.74	6.8	0.2	3.6	2.9	
	Mercury	0.002	-	-	0.00018 J	-	0.00006 J	-	-	-	-	
	Nickel	0.1	-	-	0.0098	0.01	-	-	-	-	-	
	Selenium	0.05	-	-	0.0091 J	0.0101 J	-	-	-	-	-	
	Silver	0.1	-	-	-	-	-	-	0.013	-	-	
	Sodium	20	-	-	-	-	1.56	1.52	1.3	-	2.7	
	Zinc	5	-	-	0.0134	-	-	0.0056	-	-	-	
Cyanide	Cyanide, Total	0.2	0.0127	-	-	-	-	-	-	-	-	
Wet Chemistry	Alkalinity, Total	NA	116	-	108	131	100	128	17	100 J	71	
	Chemical Oxygen Demand	NA	31.8	-	35.1	36.4	26.3	51.9	27	23	12	
	Chloride	250*	7.79	-	14.7 J	16.1 J	12.5	11.8	-	3.2	2.7 J	
	Nitrate as N	10	-	-	0.04 J	-	0.04 J	0.04 J	-	-	-	
	Sulfate	250*	-	-	-	-	0.7 J	0.68 J	4.7	5.8	4.3 J	
	Total Dissolved Solids	500*	214	-	147	172	189	181	33	77	89 J	

Prepared/Date: MGVS 03/29/10

Checked/Date: JRY 04/07/10

Notes:

All results in milligrams per liter (mg/L)

Bold Italics indicates an exceedance of applicable criteria.

Applicable criteria is the MCP GW-1 standard (310 CMR 40.0974(2); effective 2/14/2008) and, if not available, the Maximum Contaminant Level or Secondary Maximum Contaminant Level (SMCL) (MADEP, 2007)

* indicates SMCL; not a health-based standard

FD - Field Duplicate

FS - Field Sample

J - estimated value

NA - Not Available

QC - Quality Control

R - data rejected during validation; unusable

VOCs - volatile organic compounds

"-" indicates analyte not detected

Table 6
Summary of Chemical Data for SCFA Surface Water Locations

Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts

Analysis	Parameter	Loc Name	SW-1	SW-1	SW-1	SW-2
		Field Sample Date	3/25/2008	3/11/2009	3/3/2010	3/25/2008
		Field Sample ID	SW-1	SW-1	SW-1	SW-2
		QC Code	FS	FS	FS	FS
		Screening Values				
VOCs	Target Compounds		-	-	-	-
Metals	Calcium	NA	2.5	2.2	2.6	2.3
Metals	Iron	1	0.016 J	0.064 J	0.032	0.021 J
Metals	Manganese	0.05*	-	-	-	-
Metals	Sodium	20*	1.1	-	0.78	1.1
Cyanide	Cyanide, Total	0.0052	-	-	-	-
Wet Chemistry	Alkalinity, Total	20	1.9	2.3	5.4	1.1
Wet Chemistry	Sulfate	250*	5	4.2	5.5	5
Wet Chemistry	Total Dissolved Solids	250*	21	5.0	19 J	54

Notes:

All results in milligrams per liter (mg/L)

Screening value is the USEPA Ambient Water Quality Criteria

(AWQC) and, if not available, the Maximum Contaminant

Level or Secondary Maximum Contaminant Level (MADEP, 2007)

* indicates criteria is from the Secondary Maximum

Contaminant Level; not a health-based standard

FS - Field Sample

J - estimated value

NA - Not Available

QC - Quality Control

VOCs - volatile organic compounds

"-" indicates analyte not detected

Table 6
Summary of Chemical Data for SCFA Surface Water Locations

Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts

Analysis	Parameter	Loc Name	SW-2	SW-2	SW-3	SW-3
		Field Sample Date	3/10/2009	3/3/2010	3/25/2008	3/10/2009
		Field Sample ID	SW-2	SW-2	SW-3	SW-3
		QC Code	FS	FS	FS	FS
Screening Values						
VOCs	Target Compounds		-	-	-	-
Metals	Calcium	NA	2.1	2.5	2.2	2.0
Metals	Iron	1	0.063 J	0.037	0.029 J	0.061 J
Metals	Manganese	0.05*	-	-	-	-
Metals	Sodium	20*	-	0.80	1.1	-
Cyanide	Cyanide, Total	0.0052	-	-	-	-
Wet Chemistry	Alkalinity, Total	20	2.1	5.4	-	1.7
Wet Chemistry	Sulfate	250*	5.4	5.5	5.9	5.3
Wet Chemistry	Total Dissolved Solids	250*	16	19 J	8	26

Notes:

All results in milligrams per liter (mg/L)

Screening value is the USEPA Ambient Water Quality Criteria (AWQC) and, if not available, the Maximum Contaminant Level or Secondary Maximum Contaminant Level (MADEP, 2007)

* indicates criteria is from the Secondary Maximum Contaminant Level; not a health-based standard

FS - Field Sample

J - estimated value

NA - Not Available

QC - Quality Control

VOCs - volatile organic compounds

"-" indicates analyte not detected

Table 6
Summary of Chemical Data for SCFA Surface Water Locations

Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts

Analysis	Parameter	Loc Name	SW-3	SW-4	SW-4	SW-4
		Field Sample Date	3/3/2010	3/25/2008	3/10/2009	3/2/2010
		Field Sample ID	SW-3	SW-4	SW-4	SW-4
		QC Code	FS	FS	FS	FS
		Screening Values				
VOCs	Target Compounds		-	-	-	-
Metals	Calcium	NA	2.4	2.6	2.2	2.4
Metals	Iron	1	0.50	1.1 J	0.55 J	0.90
Metals	Manganese	0.05*	0.074	0.14	0.076	0.13
Metals	Sodium	20*	0.60	1.1	-	0.65
Cyanide	Cyanide, Total	0.0052	-	-	-	-
Wet Chemistry	Alkalinity, Total	20	5.6	3.5	2.9	6.5
Wet Chemistry	Sulfate	250*	4.8	5.1	5.2	4.8 J
Wet Chemistry	Total Dissolved Solids	250*	13 J	19	35	11 J

Notes:

All results in milligrams per liter (mg/L)

Screening value is the USEPA Ambient Water Quality Criteria

(AWQC) and, if not available, the Maximum Contaminant

Level or Secondary Maximum Contaminant Level (MADEP, 2007)

* indicates criteria is from the Secondary Maximum

Contaminant Level; not a health-based standard

FS - Field Sample

J - estimated value

NA - Not Available

QC - Quality Control

VOCs - volatile organic compounds

"-" indicates analyte not detected

Table 6
Summary of Chemical Data for SCFA Surface Water Locations

Post Closure Groundwater and Surface Water Monitoring Report Spring 2010
Yankee Nuclear Power Station
Rowe, Massachusetts

Analysis	Parameter	Loc Name	SW-5	SW-5	SW-5
		Field Sample Date	3/25/2008	3/10/2009	3/2/2010
		Field Sample ID	SW-5	SW-5	SW-5
		QC Code	FS	FS	FS
		Screening Values			
VOCs	Target Compounds		-	-	-
Metals	Calcium	NA	2.3	2.2	2.0
Metals	Iron	1	0.26 J	0.48 J	0.27
Metals	Manganese	0.05*	0.04	0.071	0.044
Metals	Sodium	20*	1	-	0.60
Cyanide	Cyanide, Total	0.0052	-	-	-
Wet Chemistry	Alkalinity, Total	20	1.5	2.7	4.3
Wet Chemistry	Sulfate	250*	5	5.3	4.2 J
Wet Chemistry	Total Dissolved Solids	250*	31	3.0	4.0 J

Notes:

All results in milligrams per liter (mg/L)
 Screening value is the USEPA Ambient Water Quality Criteria
 (AWQC) and, if not available, the Maximum Contaminant
 Level or Secondary Maximum Contaminant Level (MADEP, 2007)

* indicates criteria is from the Secondary Maximum
 Contaminant Level; not a health-based standard

FS - Field Sample

J - estimated value

NA - Not Available

QC - Quality Control

VOCs - volatile organic compounds

"-" indicates analyte not detected

Prepared/Date: MGV 03/29/10

Checked/Date: JRY 04/07/10

APPENDIX A

FIELD DATA RECORDS – MARCH 2010

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location CFW1 Well Designation CFW1
 Sampling Team RENE AUBE Sample Period MARCH 2010
 Date 3/3/10 Time 0950 (SAMPLE)

START @ 0915 END @ 1020

Measuring Point <u>TOR</u>	Depth to Mid Screen <u> </u> (ft)
Well Depth (from measuring point) (D) <u> </u>	Diameter of Well <u>2.0</u> (in)
Depth to water (DTW) <u> </u>	<u>9.12</u> (ft)
Length of Water Column (LWC) <u> </u>	<u>3.37</u> (ft)
Volume of Water in Well (VW) <u>5.75</u> (ft) (LWC=D-DTW)	
	<u>0.92</u> gal Conversion Factor, <u>16</u>
Volume of Purge (VTP) (VTP = VW x 3) <u>2.76</u> (gal)	

At Time of Measurements:

Color FAINT CLOUDY Odor NONE
 Total volume purged DRY Duration of purging N/A
 Purging method GEOPUMP Did well go dry? YES
 Weather conditions FULL OVERCAST, COLD, LITE SNOW.

Pump Serial Number 5008-40
 Water Quality Monitor Serial Number M015-05
 Analyses Requested VOC, CO₂, CN, metals nitrate, chloride, sulfate, TDS, alkalinity

Previous Final Readings: pH 5.87 Cond 641.3 Turb 22.8 DO 15.12 Temp 3.34 ORP 198 DTW 2.83
 Flow 100 ³H

WATER QUALITY PARAMETERS

Form 2

Sample Round		MARCH 2010						CFW1
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
5	WELL WAS PURGED DRY ON 3/1/10. RECORD							
10	ONE SET FIELD DATA!							
15	4.97	.095	28.9	10.95	6.1	215	3.37	
20	COLLECT SAMPLES							
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								

0945
0950

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location CFW5 Well Designation CFW5
 Sampling Team RENE AUBE Sample Period MARCH 2010
 Date 3/2/10 Time 1051 (SAMPLE)

<u>START @ 0915</u>		<u>END @ 1220</u>	
Measuring Point <u>TOR</u>	Depth to Mid Screen _____ (ft)	Diameter of Well <u>2.0</u> (in)	
Well Depth (from measuring point) (D) _____		<u>8.32</u> (ft)	
Depth to water (DTW) _____		<u>4.80</u> (ft)	
Length of Water Column (LWC) _____	<u>3.52</u> (ft) (LWC=D-DTW)		
Volume of Water in Well (VW) _____	<u>5632</u> gal	Conversion Factor <u>.16</u>	
Volume of Purge (VTP) (VTP = VW x 3) _____	<u>1.6896</u> (gal)		

At Time of Measurements:

Color <u>CLEAR</u>	Odor <u>NONE</u>
Total volume purged <u>4.2484 GAL</u>	Duration of purging <u>86 MIN</u>
Purging method <u>GEOPUMP</u>	Did well go dry? <u>NO</u>
Weather conditions <u>SUNNY, COLD, CALM</u>	

Pump Serial Number <u>5008-40</u>
Water Quality Monitor Serial Number <u>M015-05</u>
Analyses Requested <u>VOC, COD, CN, nitrate, chloride, sulfate, metals, TDS, alkalinity</u>

Previous Final Readings: pH 7.37 Cond 0.47 Turb 0.57 DO 4.37 Temp 3.83 ORP -63 DTW 5.11
 Flow 250 ³H CMOA

WATER QUALITY PARAMETERS

Form 2

Sample Round		MARCH 2010						CFW5	
Current Readings									
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments	
0	+/- 0.1 std. unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv			
0935	BEGIN PURSUE							RATE	
0940	5	5.55	.488	76.4	0.00	4.2	11	5.15 190	
0945	10	5.48	.482	55.7	0.00	4.3	12	5.13 190	
0950	15	5.43	.477	42.0	0.00	4.4	-8	5.12 190	
0955	20	5.41	.462	33.8	0.00	4.4	-16	5.11 190	
1000	25	5.41	.458	26.5	0.00	4.4	-21	5.11 190	
1005	30	5.43	.459	17.4	0.00	4.5	-25	5.11 190	
1010	35	5.48	.457	12.9	0.00	4.6	-31	5.11 190	
1015	40	5.58	.455	9.04	0.00	4.6	-41	5.11 190	
1020	45	5.69	.453	6.29	0.00	4.7	-50	5.11 190	
1025	50	5.79	.451	4.88	0.00	4.7	-58	5.11 190	
1030	55	5.86	.446	3.40	0.00	4.6	-64	5.11 190	
1035	60	5.91	.446	2.79	0.00	4.6	-69	5.11 190	
1040	65	5.94	.442	2.27	0.00	4.6	-76	5.11 190	
1045	70	5.95	.441	2.25	0.00	4.5	-76	5.11 190	
1050	75	5.96	.440	2.23	0.00	4.5	-78	5.11 190	
1051	80	COLLECT SAMPLES, DUP, MS, MSD.							
	85								
	90								
	95								
	100								
	105								
	110								
	115								
	120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location CFW-6 - SCFA Well Designation CFW-6
 Sampling Team M. van Noordennen Sample Period March 2010
 Date 3-2-10 Time 0915 - 1020

Measuring Point <u>TOR</u>	Depth to Mid Screen <u>—</u> (ft)
Well Depth (from measuring point) (D) <u>8.37</u> (ft)	Diameter of Well <u>2.0</u> (in)
Depth to water (DTW) <u>5.74</u> (ft)	
Length of Water Column (LWC) <u>2.63</u> (ft) (LWC=D-DTW)	
Volume of Water in Well (VW) <u>0.42</u> gal	Conversion Factor <u>0.16</u>
Volume of Purge (VTP) (VTP = VW x 3) <u>1.26</u> (gal)	

At Time of Measurements:

Color <u>Clear, slight yellow tint</u>	Odor <u>Slight organic</u>
Total volume purged <u>1.66 gal</u>	Duration of purging <u>42 min.</u>
Purging method <u>Low-Flow, Geopump</u>	Did well go dry? <u>No</u>
Weather conditions <u>Sunny, 35°F</u>	

Pump Serial Number <u>5008-39</u>
Water Quality Monitor Serial Number <u>Horiba U-22 mois-09, HACH 2100F MOD 20</u>
Analyses Requested <u>VOC, COD, CN, metals, Nitrate, Chloride, Sulfate, TDS, Alkalinity</u>

Previous Final Readings: pH 6.00 Cond 0.15 Turb 1.48 DO 0.00 Temp 4.4 ORP -44 DTW 6.43
 Flow 150 ³H 2440

WATER QUALITY PARAMETERS

Form 2

CFW-6

Sample Round <i>March 2010</i>									
Current Readings									
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments	
<i>32.10</i> 0920	<i>+/- 0.1</i> std.unit	<i>+/- 3%</i>	<i>+/- 10%</i> NA <10NTU	<i>+/- 10%</i>	<i>+/- 1 E</i>	<i>+/- 10 mv</i>	<i>5.74</i>	<i>Page @ 150 mL/min</i>	
0925	<i>5.79</i>	<i>0.171</i>	<i>22.2</i>	<i>9.47</i>	<i>5.9</i>	<i>98</i>	<i>6.98</i>	↓	
0930	<i>5.86</i>	<i>0.124</i>	<i>11.9</i>	<i>12.45</i>	<i>4.6</i>	<i>53</i>	<i>6.97</i>		
0935	<i>5.90</i>	<i>0.143</i>	<i>5.45</i>	<i>12.14</i>	<i>4.5</i>	<i>45</i>	<i>6.92</i>		
0940	<i>5.93</i>	<i>0.157</i>	<i>1.79</i>	<i>11.92</i>	<i>4.4</i>	<i>42</i>	<i>6.90</i>		
0945	<i>5.98</i>	<i>0.166</i>	<i>0.98</i>	<i>11.74</i>	<i>4.5</i>	<i>37</i>	<i>6.88</i>		
0950	<i>5.98</i>	<i>0.171</i>	<i>0.79</i>	<i>11.30</i>	<i>4.5</i>	<i>35</i>	<i>6.90</i>		
0955	<i>5.99</i>	<i>0.172</i>	<i>1.10</i>	<i>10.90</i>	<i>4.6</i>	<i>37</i>	<i>6.93</i>		
1000	<i>5.99</i>	<i>0.172</i>	<i>0.83</i>	<i>11.09</i>	<i>4.7</i>	<i>35</i>	<i>6.94</i>		
1002	<i>45 min</i> <i>32.10</i>	<i>Collect samples</i>							
1020	<i>50 min</i> <i>32.10</i>	<i>Sampling complete. Well secure</i>							
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									
105									
110									
115									
120									

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location Montee Dam Well Designation Montee Dam
Sampling Team M. van Noordennen Sample Period March 2010
Date 3-3-10 Time 1110 - 1125

Measuring Point _____	Depth to Mid Screen _____ (ft)
Well Depth (from measuring point) (D) _____	Diameter of Well _____ (in)
Depth to water (DTW) _____	_____ (ft)
Length of Water Column (LWC) _____	_____ (ft) (LWC=D-DTW)
Volume of Water in Well (VW) _____	_____ gal Conversion Factor _____
Volume of Purge (VTP) (VTP = VW x 3) _____	_____ (gal)

At Time of Measurements:

Color <u>clear</u>	Odor <u>None</u>
Total volume purged <u>N/A</u>	Duration of purging <u>N/A</u>
Purging method <u>N/A</u>	Did well go dry? <u>N/A</u>
Weather conditions <u>snowy, 35°F</u>	

Pump Serial Number <u>N/A</u>
Water Quality Monitor Serial Number <u>Hanna 4.22 mai5-09, HACH 2100P mo24-20</u>
Analyses Requested <u>8 spec, Sr-90, H-3</u>

Previous Final Readings: pH 4.82 Condo 0.016 Turb 5.9 DO 10.71 Temp 2.1 ORP 288 DTW —
Flow — ³H <MDA

WATER QUALITY PARAMETERS

Form 2

Monitor Dam

Sample Round <i>March 2010</i>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
<i>3-3-10</i> 5	<i>1125</i> 6.31	<i>0.035</i>	<i>3.10</i>	<i>12.18</i>	<i>2.0</i>	<i>15.2</i>	<i>N/A</i>	
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location MW101A Well Designation MW101A
Sampling Team RENE AUBE Sample Period MARCH 2010
Date 3/3/10 Time 1145 (SAMPLE)

<u>START @ 1115</u>		<u>END @ 1200</u>	
Measuring Point <u>TOR</u>	Depth to Mid Screen <u>—</u>	(ft)	
Well Depth (from measuring point) (D) <u>24.11</u>	Diameter of Well <u>2.0</u>	(in)	
Depth to water (DTW) <u>13.52</u>	(ft)		
Length of Water Column (LWC) <u>10.59</u>	(ft) (LWC=D-DTW)		
Volume of Water in Well (VW) <u>1.6944</u>	gal	Conversion	Factor <u>.16</u>
Volume of Purge (VTP) (VTP = VW x 3) <u>5.0832</u>	(gal)		

At Time of Measurements:

Color <u>CLEAR</u>	Odor <u>NONE</u>
Total volume purged <u>DRY</u>	Duration of purging <u>N/A</u>
Purging method <u>GEO PUMP</u>	Did well go dry? <u>YES</u>
Weather conditions <u>FULL OVERCAST, COLD, LITE SNOW.</u>	

Pump Serial Number <u>5008-40</u>
Water Quality Monitor Serial Number <u>M015-05</u>
Analyses Requested <u>Arsenic</u>

Previous Final Readings: pH 11.48 Cond 1.02 Turb 6.20 DO 4.17 Temp 6.91 ORP -139 DTW 13.87

Flow 100 ³H —

WATER QUALITY PARAMETERS

Form 2

Sample Round		MARCH 2010							MO MW101A
Current Readings									
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments	
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv			
5	WELL WAS PURGED DRY ON 3/1/10. RECORD								
10	ONE SET FIELD DATA!								
15	10.22	1.785	2.95	0.99	5.6	29	13.52		
20	COLLECT SAMPLES								
25									
30									
35									
40									
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									
105									
110									
115									
120									

1140
1145

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location MW-1020 Well Designation MW-1020
 Sampling Team M-vanNaardennen Sample Period March 2010
 Date 3-1-10, 3-4-10 Time 1120-1150

Measuring Point <u>TOR</u>	Depth to Mid Screen <u>—</u> (ft)
Well Depth (from measuring point) (D) <u>22.55</u> (ft)	Diameter of Well <u>2.0</u> (in)
Depth to water (DTW) <u>16.91</u> (ft)	
Length of Water Column (LWC) <u>5.64</u> (ft) (LWC=D-DTW)	
Volume of Water in Well (VW) <u>0.90</u> gal	Conversion Factor <u>0.16</u>
Volume of Purge (VTP) (VTP = VW x 3) <u>2.7</u> (gal)	

At Time of Measurements:

Color <u>Slightly yellow</u>	Odor <u>Slight organic</u>
Total volume purged <u>N/A</u>	Duration of purging <u>N/A</u>
Purging method <u>Purged day</u>	Did well go dry? <u>Yes</u>
Weather conditions <u>Sunny, 35°F</u>	

Pump Serial Number Geopump 5008-39
 Water Quality Monitor Serial Number Horiba U-22 m015-09, HACH 2100P m024.20
 Analyses Requested 8-spec, Sr-90, H-3

Previous Final Readings: pH 8.41 Condo 329 Turb 4.55 DO 9.29 Temp 5.73 ORP 61 DTW 16.98
 Flow 100 ³H < m0A

WATER QUALITY PARAMETERS

Form 2

mw-1020

Sample Round <u>March 2010</u>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
3-4-10 5	1120 6.68	0.182	4.40	5.87	6.8	-3.7	16.91	Well was purged
10	1150	Sampling Complete			—————		—————	dry on 3-1-10
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location MW104A Well Designation MW104A
Sampling Team RENE AUBE Sample Period MARCH 2010
Date 3/2/10 Time 1536 (SAMPLE)

<u>START @ 1430</u>		<u>END @ 1730</u>	
Measuring Point <u>TOR</u>	Depth to Mid Screen _____ (ft)	Diameter of Well <u>2.0</u>	(in)
Well Depth (from measuring point) (D)		<u>27.81</u>	(ft)
Depth to water (DTW)		<u>21.12</u>	(ft)
Length of Water Column (LWC)	<u>6.69</u>	(ft) (LWC=D-DTW)	
Volume of Water in Well (VW)	<u>1.0704</u>	gal	Conversion Factor <u>.16</u>
Volume of Purge (VTP) (VTP = VW x 3)	<u>3.2112</u>	(gal)	

At Time of Measurements:

Color <u>CLEAR</u>	Odor <u>NONE</u>
Total volume purged <u>1.872 GAL</u>	Duration of purging <u>36 MIN</u>
Purging method <u>GEO PUMP</u>	Did well go dry? <u>NO</u>
Weather conditions <u>SUNNY, COLD, CALM</u>	

Pump Serial Number <u>5008-40</u>
Water Quality Monitor Serial Number <u>M015-05</u>
Analyses Requested <u>8 spec. Sr-90, H-3</u>

Previous Final Readings: pH 7.98 Cond 0.549 Turb 0.15 DO 3.69 Temp 8.64 ORP 140 DTW 21.05
Flow 250 ³H 831

WATER QUALITY PARAMETERS

Form 2

Sample Round		MARCH 2010						MW104A	
Current Readings									
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments	
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		Purge @ 200 mL/min	
1500 1505	BEGIN PURGE								
5	6.06	.407	5.04	0.00	9.2	109	21.15		
1510	6.06	.405	3.20	0.00	9.2	111	21.15		
1515	6.06	.403	2.22	0.00	9.2	112	21.15		
1520	6.04	.402	1.39	0.00	9.1	118	21.15		
1525	6.01	.402	1.10	0.00	9.1	119	21.15		
1530	6.01	.402	1.11	0.00	9.1	119	21.15		
1535	6.01	.402	1.08	0.00	9.2	119	21.15		
1536	COLLECT SAMPLES, DUP, MS, MSD.								
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									
105									
110									
115									
120									

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location MW105B Well Designation MW105B
Sampling Team RENE AUBE Sample Period MARCH 2010
Date 3/4/10 Time 1131 (SAMPLE)

<u>START @ 0845</u>		<u>END @ 1230</u>	
Measuring Point <u>TOR</u>	Depth to Mid Screen <u> </u> (ft)	Diameter of Well <u>2.0</u> (in)	
Well Depth (from measuring point) (D) <u> </u>		<u>75.49</u> (ft)	
Depth to water (DTW) <u> </u>		<u>24.14</u> (ft)	
Length of Water Column (LWC) <u> </u>	<u>51.35</u> (ft) (LWC=D-DTW)		
Volume of Water in Well (VW) <u> </u>	<u>8.216</u> gal	Conversion Factor <u>.16</u>	
Volume of Purge (VTP) (VTP = VW x 3) <u> </u>	<u>24.648</u> (gal)		

At Time of Measurements:

Color <u>CLEAR</u>	Odor <u>NONE</u>
Total volume purged <u>3.926</u>	Duration of purging <u>151 MIN</u>
Purging method <u>BLADDER PUMP</u>	Did well go dry? <u>NO</u>
Weather conditions <u>SUNNY, COLD, CALM</u>	

Pump Serial Number <u>S05102</u>
Water Quality Monitor Serial Number <u>M015-05</u>
Analyses Requested <u>8 spec, Sr-90, H-3</u>

Previous Final Readings: pH 7.61 Cond 0.62 Turb 5.6 DO 0.00 Temp 8.9 ORP -189 DTW 28.97
Flow 100 ³H 3490

WATER QUALITY PARAMETERS

Form 2

Sample Round		MARCH 2010						MW105B	
Current Readings									
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments	
0900	BEGIN PURGE	+/- 0.1 std. unit	+/- 3%	+/- 10% NA <10NTU	+/- 10%	+/- 1 E	+/- 10 mv	Purge @ 100 mL/min	
0905	5	5.64	.500	28.7	5.03	7.7	151	24.92	
0910	10	5.71	.509	20.2	2.64	7.0	135	25.43	
0915	15	5.83	.524	24.4	0.97	6.6	43	25.88	
0920	20	5.97	.534	29.7	0.00	6.7	-21	26.22	
0925	25	6.16	.536	26.3	0.00	6.7	-71	26.58	
0930	30	6.30	.533	20.5	0.00	6.7	-89	26.84	
0935	35	6.47	.522	17.1	0.00	6.6	-101	27.03	
0940	40	6.59	.503	11.0	0.00	6.9	-109	27.28	
0945	45	6.65	.491	9.15	0.00	6.9	-119	27.48	
0950	50	6.67	.488	6.76	0.00	6.9	-131	27.60	
0955	55	6.69	.490	5.38	0.00	6.9	-141	27.79	
1000	60	6.69	.491	4.19	0.00	7.0	-149	27.87	
1005	65	6.70	.498	3.77	0.00	7.0	-162	28.00	
1010	70	6.71	.502	3.15	0.00	7.2	-166	28.10	
1015	75	6.72	.506	3.02	0.00	7.1	-169	28.19	
1020	80	6.72	.509	2.86	0.00	7.3	-172	28.26	
1025	85	6.72	.511	2.42	0.00	7.3	-175	28.34	
1030	90	6.72	.516	2.01	0.00	7.3	-180	28.41	
1035	95	6.72	.522	2.00	0.00	7.3	-184	28.47	
1040	100	6.72	.525	2.04	0.00	7.2	-187	28.53	
1045	105	6.73	.526	2.01	0.00	7.2	-189	28.58	
1050	110	6.74	.529	2.02	0.00	7.3	-190	28.61	
1055	115	6.76	.529	2.02	0.00	7.4	-191	28.65	
1100	120	6.75	.530	2.01	0.00	7.4	-192	28.68	

WATER QUALITY PARAMETERS

Form 2

Sample Round		Current Readings							Comments
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)		
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		Purge @ 100 mL/min	
1105 5	6.74	.531	2.02	0.00	7.4	-193	28.70		
1110 10	6.75	.532	2.00	0.00	7.5	-193	28.72		
1115 15	6.76	.533	2.00	0.00	7.6	-193	28.73		
1120 20	6.77	.534	2.01	0.00	7.7	-194	28.74		
1125 25	6.77	.535	2.00	0.00	7.8	-194	28.74		
1130 30	6.77	.534	2.01	0.00	7.8	-195	28.74		
1131 35	COLLECT SAMPLES								
40									
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									
105									
110									
115									
120									

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location MW106A Well Designation MW106A
Sampling Team RENE AUBE Sample Period MARCH 2010
Date 3/4/10 Time 1411 (SAMPLE)

<u>START @ 1300</u>		<u>END @ 1455</u>	
Measuring Point <u>TOP</u>	Depth to Mid Screen _____ (ft)	Diameter of Well <u>2.0</u> (in)	
Well Depth (from measuring point) (D) _____	<u>21.88</u> (ft)	Depth to water (DTW) _____	<u>6.24</u> (ft)
Length of Water Column (LWC) _____	<u>15.64</u> (ft) (LWC=D-DTW)	Volume of Water in Well (VW) _____	<u>2.5024</u> gal
Volume of Purge (VTP) (VTP = VW x 3) _____	<u>7.5072</u> (gal)	Conversion Factor, <u>16</u>	

At Time of Measurements:

Color <u>CLEAR</u>	Odor <u>NONE</u>
Total volume purged <u>1,586</u>	Duration of purging <u>61 MIN</u>
Purging method <u>GEOPUMP</u>	Did well go dry? <u>NO</u>
Weather conditions <u>SUNNY, COLD, CALM</u>	

Pump Serial Number <u>5008-40</u>
Water Quality Monitor Serial Number <u>M015-05</u>
Analyses Requested <u>8 spec, Sr-90, H-3</u>

Previous Final Readings: pH 7.02 Cond 0.170 Turb 0.44 DO 5.29 Temp 6.33 ORP 170 DTW 6.86
Flow 100 ³H 484

WATER QUALITY PARAMETERS

Form 2

Sample Round		Current Readings						DTW (feet)	Comments
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)			
1310	BEGIN PURGE	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/- 10%	+/- 1 E	+/- 10 mv		Purge @ 100 mL/min
1315	5	5.94	.327	6.74	1.53	7.3	26	7.19	
1320	10	5.84	.323	6.55	0.03	7.1	36	7.25	
1325	15	5.82	.323	7.10	0.05	7.1	40	7.30	
1330	20	5.80	.323	4.92	0.00	6.9	48	7.37	
1335	25	5.79	.323	3.87	0.00	6.9	52	7.44	
1340	30	5.80	.322	3.03	0.00	7.0	58	7.49	
1345	35	5.79	.321	2.39	0.00	7.0	67	7.53	
1350	40	5.79	.320	2.39	0.00	7.0	74	7.57	
1355	45	5.79	.319	2.40	0.00	7.0	79	7.60	
1400	50	5.79	.319	2.38	0.00	7.0	83	7.61	
1405	55	5.80	.320	2.39	0.00	7.0	87	7.61	
1410	60	5.79	.319	2.40	0.00	7.0	90	7.61	
1411	65	COLLECT SAMPLES							
	70								
	75								
	80								
	85								
	90								
	95								
	100								
	105								
	110								
	115								
	120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location MW-107C Well Designation MW-107C
Sampling Team M. van Noordennen Sample Period March 2010
Date 3-4-10 Time 0835-

Measuring Point <u>TOR</u>	Depth to Mid Screen <u>—</u> (ft)
Well Depth (from measuring point) (D) <u>4280</u> (ft)	Diameter of Well <u>2.0</u> (in)
Depth to water (DTW) <u>2382</u> (ft)	
Length of Water Column (LWC) <u>18.98</u> (ft) (LWC=D-DTW)	
Volume of Water in Well (VW) <u>56 304</u> gal	Conversion Factor <u>0.16</u>
Volume of Purge (VTP) (VTP = VW x 3) <u>9.12</u> (gal)	

At Time of Measurements:	
Color <u>clear</u>	Odor <u>None</u>
Total volume purged <u>3.88 gal</u>	Duration of purging <u>147 min</u>
Purging method <u>Low-Flow bladder</u>	Did well go dry? <u>No</u>
Weather conditions <u>Sunny, breezy, 35°F</u>	

Pump Serial Number <u>Bladder 5051-03</u>
Water Quality Monitor Serial Number <u>Horiba U-22 m015-09, HACH 2100F m024-20</u>
Analyses Requested <u>K-spec, Sr-90, H-3</u>

Previous Final Readings: pH 8.18 Cond 0.492 Turb 6.61 DO 1.77 Temp 7.60 ORP 110 DTW 29.93
Flow 100 ³H 21,300

WATER QUALITY PARAMETERS

Form 2

MW-107C

Sample Round		Current Readings							
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments	
3-4-10 0840	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv	23.82	Parse at 100 mL/min	
0845	6.07	0.344	12.4	8.47	2.1	12	25.51		
0850	6.15	0.343	12.6	7.71	2.2	12	25.97		
0855	6.21	0.342	7.97	7.22	2.3	-3	26.53		
0900	6.24	0.341	6.05	6.80	2.4	-18	27.00		
0905	6.27	0.342	6.01	6.49	2.5	-31	27.40		
0910	6.29	0.348	6.23	6.27	2.3	-37	27.71		
0915	6.31	0.352	5.62	6.00	2.3	-41	27.98		
0920	6.34	0.354	4.82	5.77	2.4	-46	28.20		
0925	6.34	0.356	4.36	5.48	2.4	-52	28.40		
0930	6.35	0.355	4.40	5.40	2.4	-56	28.55		
0935	6.37	0.356	4.27	5.26	2.4	-58	28.71		
0940	6.38	0.357	3.60	5.10	2.6	-59	28.83		
0945	6.39	0.357	4.03	5.02	2.5	-59	28.94		
0950	6.39	0.357	3.73	4.93	2.5	-60	29.03		
0955	6.40	0.357	4.31	4.88	2.3	-61	29.12		
1000	6.41	0.357	4.98	4.73	2.7	-62	29.20		
1005	6.42	0.356	4.31	4.69	2.6	-63	29.25		
1010	6.43	0.355	4.28	4.63	2.5	-64	29.31		
1015	6.43	0.355	4.48	4.61	2.4	-65	29.36		
1020	6.44	0.355	3.81	4.54	2.5	-65	29.43		
1025	6.45	0.355	4.01	4.49	2.5	-67	29.49		
1030	6.45	0.355	3.77	4.43	2.6	-67	29.53		
1035	6.45	0.356	3.13	4.41	2.4	-67	29.57		
1040	6.45	0.355	2.98	4.36	2.5	-68	29.60	↓	

MW-107C

Sample Round <i>March 2010</i>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		Purge at 100 mL/min
1045	125	6.46	0.355	2.74	4.29	7.8	-68	29.63
1050	130	6.47	0.354	3.01	4.28	7.7	-68	29.66
1055	135	6.48	0.355	2.86	4.23	7.7	-68	29.69
1100	140	6.47	0.355	2.54	4.24	7.6	-68	29.71
1105	145	6.47	0.355	2.61	4.24	7.8	-68	29.70
1107	150	Well stable	Collect	Sample	—	—	—	
1205	155	Sampling complete.	Well	Secure	—	—	—	

3-4-10

GROUND WATER SAMPLING FIELD LOG
Form 1

Sample Location MW-107D Well Designation MW-107D
Sampling Team M. van Noordennen Sample Period March 2010
Date 3-2-10 Time 1435 - 1720

Measuring Point <u>TOR</u>	Depth to Mid Screen <u>—</u> (ft)
Well Depth (from measuring point) (D)	Diameter of Well <u>2.0</u> (in)
Depth to water (DTW)	<u>91.50</u> (ft)
Length of Water Column (LWC)	<u>42.70</u> (ft)
Volume of Water in Well (VW)	<u>48.8</u> (ft) (LWC=D-DTW)
	<u>7.81</u> gal Conversion Factor <u>0.16</u>
Volume of Purge (VTP) (VTP = VW x 3)	<u>23.43</u> (gal)

At Time of Measurements:	
Color <u>Clear</u>	Odor <u>Slight organic</u>
Total volume purged <u>1.90 gal</u>	Duration of purging <u>22 min.</u>
Purging method <u>Bladder - Low flow</u>	Did well go dry? <u>No</u>
Weather conditions <u>cloudy, 35°F</u>	

Pump Serial Number <u>5051-03</u>
Water Quality Monitor Serial Number <u>Horiba U-22 M015-09, HACH 2100P M024-20</u>
Analyses Requested <u>f-spec, Sr-90, H-3</u>

Previous Final Readings: pH 7.58 Cond 0.35 Turb 1.7 DO 0.00 Temp 8.3 ORP -166 DTW 45.68
Flow 100 ³H 8210

WATER QUALITY PARAMETERS

Form 2

MW-107 D

Sample Round <u>March 2010</u>									
Current Readings									
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments	
3:210 150)	0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/- 10%	+/- 1 E	+/- 10 mv	42.70 Purge at 100 mL/min	
1512	5	6.40	0.304	6.85	6.85	8.3	43	44.05	
1517	10	6.53	0.306	8.25	6.10	8.1	-44	44.06	
1522	15	6.59	0.299	12.7	5.38	7.8	-53	44.43	
1527	20	6.64	0.296	10.9	4.84	8.2	-61	44.87	
1532	25	6.67	0.295	14.2	4.57	8.3	-77	45.17	
1537	30	6.69	0.296	12.5	4.43	8.3	-89	45.45	
1542	35	6.70	0.302	11.7	4.35	8.2	-100	45.51	
1547	40	6.70	0.307	11.6	4.26	8.2	-107	45.61	
1552	45	6.70	0.315	7.27	4.18	8.3	-116	45.78	
1557	50	6.70	0.325	8.29	4.13	8.3	-122	45.92	
1602	55	6.70	0.333	6.73	4.09	8.3	-122	45.97	
1607	60	6.69	0.337	4.79	4.07	8.2	-122	46.05	
1612	65	6.68	0.342	6.37	4.06	8.0	-122	46.11	
1617	70	6.68	0.344	3.81	4.05	7.8	-123	46.07	
1619	75 75	collect sample)		_____					
1720	80 80	Sampling complete -		Well secure _____					
	85								
	90								
	95								
	100								
	105								
	110								
	115								
	120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location MW-107E Well Designation MW-107E
 Sampling Team M. van Naardennen Sample Period March 2010
 Date 3-3-10 Time 1450-1710

Measuring Point <u>TOR</u>	Depth to Mid Screen <u>—</u> (ft)
Well Depth (from measuring point) (D) <u>59.90</u> (ft)	Diameter of Well <u>2.0</u> (in)
Depth to water (DTW) <u>27.62</u> (ft)	
Length of Water Column (LWC) <u>32.28</u> (ft) (LWC=D-DTW)	
Volume of Water in Well (VW) <u>5.16</u> gal	Conversion Factor <u>0.16</u>
Volume of Purge (VTP) (VTP = VW x 3) <u>15.48</u> (gal)	

At Time of Measurements:

Color <u>clear</u>	Odor <u>Slight organic</u>
Total volume purged <u>1.90 gal</u>	Duration of purging <u>22 min</u>
Purging method <u>Low Flow bladder</u>	Did well go dry? <u>No</u>
Weather conditions <u>Sunny, windy, 35°F</u>	

Pump Serial Number <u>Bladder 5051-03</u>
Water Quality Monitor Serial Number <u>Horba 4-22 Meis-09, HACH 2100P Me24-20</u>
Analyses Requested <u>8 spec, Sr-90, H-3</u>

Previous Final Readings: pH 8.02 Cond 0.202 Turb 2.34 DO 0.00 Temp 27 ORP -201 DTW 28.44
 Flow 100 ³H 4650

WATER QUALITY PARAMETERS

Form 2

MW-107E

Sample Round <u>March 2010</u>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
33:10 1500	+/- 0.1 std. unit	+/- 3%	+/- 10% NA <10NTU	+/- 10%	+/- 1 E	+/- 10 mv	27.62	Flush at 100 mL/min
1505	6.36	0.197	10.3	6.70	7.1	114	28.17	
1510	6.43	0.199	6.02	4.69	7.7	25	28.36	
1515	6.46	0.200	5.85	4.26	7.5	-26	28.35	
1520	6.53	0.199	7.19	4.05	7.5	-54	28.47	
1525	6.58	0.199	3.62	3.96	7.6	-72	28.52	
1530	6.61	0.199	2.95	3.91	7.6	-80	28.52	
1535	6.63	0.199	3.76	3.90	7.4	-88	28.55	
1540	6.66	0.200	2.72	3.91	7.2	-93	28.55	
1545	6.68	0.200	1.68	3.89	7.0	-98	28.55	
1550	6.70	0.199	1.55	3.87	6.9	-103	28.57	
1555	6.72	0.199	1.32	3.86	6.8	-107	28.57	
1600	6.74	0.199	1.07	3.84	6.7	-109	28.61	
1605	6.75	0.199	1.43	3.82	6.8	-111	28.61	
1610	6.77	0.199	1.03	3.80	6.6	-113	28.61	↓
1612 75 min	Collect samples							
80 min	Sampling complete			Well secure				
85								
90								
95								
100								
105								
110								
115								
120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location MW107F Well Designation MW107F
 Sampling Team RENE AUBE Sample Period MARCH 2010
 Date 3/3/10 Time 1641 (SAMPLE)

<u>START @ 1440</u>		<u>END @ 1745</u>	
Measuring Point <u>TOR</u>	Depth to Mid Screen _____ (ft)	Diameter of Well <u>2.0</u> (in)	
Well Depth (from measuring point) (D) _____		<u>56.61</u> (ft)	
Depth to water (DTW) _____		<u>27.98</u> (ft)	
Length of Water Column (LWC) _____	<u>28.63</u> (ft) (LWC=D-DTW)		
Volume of Water in Well (VW) _____	<u>4.5808</u> gal	Conversion Factor <u>.16</u>	
Volume of Purge (VTP) (VTP = VW x 3) _____	<u>13.7424</u> (gal)		

At Time of Measurements:

Color CLEAR Odor NONE

Total volume purged 2.496 Duration of purging 96 MIN

Purging method ~~GEO PUMP~~ BLADDER PUMP Did well go dry? NO

Weather conditions FULL OVERCAST, COLD, SNOWING LIGHTLY.

Pump Serial Number ~~500840~~ 505102

Water Quality Monitor Serial Number M015-05

Analyses Requested Y-spec, Sr-90, H-3

Previous Final Readings: pH 7.95 Cond 0.232 Turb 1.54 DO 0.00 Temp 8.5 ORP -197 DTW 28.14
 Flow 100³H 8/50

WATER QUALITY PARAMETERS

Form 2

Sample Round		MARCH 2010		MW107F		Current Readings			
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments	
1505	BEGIN PURGE	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/- 10%	+/- 1 E	+/- 10 mv		Purge @ 100 mL/min
1510	5	7.00	.205	9.33	4.81	7.0	181	28.20	
1515	10	7.00	.207	7.87	3.98	7.3	172	28.36	
1520	15	6.99	.213	7.19	0.88	7.9	159	28.46	
1525	20	7.00	.215	6.57	0.00	8.3	134	28.50	
1530	25	6.99	.218	5.89	0.00	8.3	75	28.53	
1535	30	6.98	.219	5.14	0.00	8.2	35	28.55	
1540	35	6.99	.219	4.02	0.00	8.2	3	28.57	
1545	40	6.98	.220	3.17	0.00	8.2	-22	28.59	
1550	45	6.99	.221	2.95	0.00	8.1	-40	28.61	
1555	50	6.99	.223	2.86	0.00	8.0	-50	28.62	
1600	55	6.98	.225	2.66	0.00	8.1	-61	28.63	
1605	60	6.97	.227	2.54	0.00	8.0	-70	28.64	
1610	65	6.97	.229	2.51	0.00	8.0	-75	28.65	
1615	70	6.97	.230	2.47	0.00	7.9	-79	28.66	
1620	75	6.97	.231	2.40	0.00	7.9	-85	28.67	
1625	80	6.96	.232	2.38	0.00	7.9	-89	28.68	
1630	85	6.95	.232	2.35	0.00	7.9	-92	28.69	
1635	90	6.96	.233	2.36	0.00	7.8	-95	28.69	
1640	95	6.95	.233	2.35	0.00	7.8	-98	28.69	
1641	100	COLLECT SAMPLES							
	105								
	110								
	115								
	120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location SP-1 Well Designation SP-1

Sampling Team M. van Noordennen Sample Period March 2010

Date 3-3-10 Time 0830-0840

Measuring Point _____	Depth to Mid Screen _____ (ft)
Well Depth (from measuring point) (D) _____	Diameter of Well _____ (in)
Depth to water (DTW) _____	_____ (ft)
Length of Water Column (LWC) _____	_____ (ft) (LWC=D-DTW)
Volume of Water in Well (VW) _____	_____ gal Conversion Factor _____
Volume of Purge (VTP) (VTP = VW x 3) _____	_____ (gal)

N
A

At Time of Measurements:

Color <u>clear</u>	Odor <u>None</u>
Total volume purged <u>N/A</u>	Duration of purging <u>N/A</u>
Purging method <u>N/A</u>	Did well go dry? <u>N/A</u>
Weather conditions <u>snowy, 35°F</u>	

Pump Serial Number <u>N/A</u>
Water Quality Monitor Serial Number <u>Hanba 4-22 MAIS-09, HACH 2100P MA24-20</u>
Analyses Requested <u>VOC, metals, 8-spec, Sr-90, H-3</u>

Previous Final Readings: pH 5.20 Cond 0.26 Turb 28.6 DO 11.03 Temp 4.4 ORP 236 DTW —
Flow — ³H < MDA

WATER QUALITY PARAMETERS

Form 2

SP-1

Sample Round <i>March 2010</i>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
<i>3.3.10</i> 5 0840	<i>5.87</i>	<i>0.344</i>	<i>4.44</i>	<i>17.49</i>	<i>62</i>	<i>182</i>	<i>N/A</i>	
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location SW-1 Well Designation SW-1
Sampling Team M. van Noordennen Sample Period March 2010
Date 3-3-10 Time 0945-1010

Measuring Point _____	Depth to Mid Screen _____ (ft)
Well Depth (from measuring point) (D) _____ (ft)	Diameter of Well _____ (in)
Depth to water (DTW) _____ (ft)	
Length of Water Column (LWC) <u>N/A</u> _____ (ft) (LWC=D-DTW)	
Volume of Water in Well (VW) _____ gal	Conversion Factor _____
Volume of Purge (VTP) (VTP = VW x 3) _____ (gal)	

At Time of Measurements:	
Color <u>clear</u>	Odor <u>slight organ. z</u>
Total volume purged <u>N/A</u>	Duration of purging <u>N/A</u>
Purging method <u>N/A</u>	Did well go dry? <u>N/A</u>
Weather conditions <u>Snowy, 35°C</u>	

Pump Serial Number <u>N/A</u>
Water Quality Monitor Serial Number <u>Horiba U-22 mai5-09, HACH 2100P mo24-20</u>
Analyses Requested <u>VOC, CN, SO₄, NO₃, Cl, TDS, alkalinity, CO₂, metals</u>

Previous Final Readings: pH 5.2 Cond 0.27 Turb 1.92 DO 13.13 Temp 1.33 ORP 232 DTW —
Flow — ³H —

WATER QUALITY PARAMETERS

Form 2

SW-1

Sample Round <i>March 2010</i>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
<i>33.10</i> 5	<i>1010</i> 4.77	<i>0.028</i>	<i>1.10</i>	<i>10.72</i>	<i>1.5</i>	<i>261</i>	<i>N/A</i>	
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location SW-2 Well Designation SW-2
Sampling Team M. van Naardennen Sample Period March 2010
Date 3-3-10 Time 0920-0945

Measuring Point _____	Depth to Mid Screen _____ (ft)
Well Depth (from measuring point) (D) _____ (ft)	Diameter of Well _____ (in)
Depth to water (DTW) _____ (ft)	
Length of Water Column (LWC) _____ (ft) (LWC=D-DTW)	
Volume of Water in Well (VW) _____ gal	Conversion Factor _____
Volume of Purge (VTP) (VTP = VW x 3) _____ (gal)	

At Time of Measurements:

Color <u>Clear</u>	Odor <u>slight organic</u>
Total volume purged <u>N/A</u>	Duration of purging <u>N/A</u>
Purging method <u>N/A</u>	Did well go dry? <u>N/A</u>
Weather conditions <u>Snowy, 35°F</u>	

Pump Serial Number <u>N/A</u>
Water Quality Monitor Serial Number <u>Horiba U-22 MO15-09, HACH 2100P MO24-20</u>
Analyses Requested <u>VOC, CN, NO₃, SO₄, CF, TDS, alkalinity, COD, metals</u>

Previous Final Readings: pH 7.46 Cond 0.028 Turb 1.24 DO 2.52 Temp 14.3 ORP 52 DTW -
Flow - ³H -

WATER QUALITY PARAMETERS

Form 2

SW-2

Sample Round <i>March 2010</i>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
3-3-10 5 0745	6.33	0.027	4.12	15.02	1.1	91	N/A	
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location SW-3 Well Designation SW-3
Sampling Team M. van Noordennen Sample Period March 2010
Date 3-3-10 Time 0850 - 0920

Measuring Point _____	Depth to Mid Screen _____ (ft)
Well Depth (from measuring point) (D) _____ (ft)	Diameter of Well _____ (in)
Depth to water (DTW) _____ (ft)	
Length of Water Column (LWC) <u>N</u> _____ (ft) (LWC=D-DTW)	
Volume of Water in Well (VW) <u>A</u> _____ gal	Conversion Factor _____
Volume of Purge (VTP) (VTP = VW x 3) _____ (gal)	

At Time of Measurements:

Color <u>clear</u>	Odor <u>slight organic</u>
Total volume purged <u>N/A</u>	Duration of purging <u>N/A</u>
Purging method <u>N/A</u>	Did well go dry? <u>N/A</u>
Weather conditions <u>snowy, 35°F</u>	

Pump Serial Number N/A
 Water Quality Monitor Serial Number Horba U-22 MO15-09, HACH 2100P MO24-20
 Analyses Requested VOC, CN, SO₄, NO₃, Cl, TDS, Alkalinity, COD, metals

Previous Final Readings: pH 5.22 Condo 0.29 Turbo 3.3 DO 15.26 Temp 0.76 ORP 223 DTW -
Flow - ³H -

WATER QUALITY PARAMETERS
Form 2

SW-3

Sample Round <i>March 2010</i>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
<i>3-3-10</i> 8 0920	<i>6.45</i>	<i>0.028</i>	<i>3.69</i>	<i>12.13</i>	<i>0.9</i>	<i>40</i>	<i>N/A</i>	
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location SW-4 - SCFA Well Designation SW-4
Sampling Team M. van Noordennen Sample Period March 2010
Date 3-2-10 Time 0955-1005

Measuring Point <u>1</u>	Depth to Mid Screen _____ (ft)
Well Depth (from measuring point) (D) _____ (ft)	Diameter of Well _____ (in)
Depth to water (DTW) _____ (ft)	
Length of Water Column (LWC) <u>N/A</u> _____ (ft) (LWC=D-DTW)	
Volume of Water in Well (VW) _____ gal	Conversion Factor _____
Volume of Purge (VTP) (VTP = VW x 3) _____ (gal)	

May 3-10

At Time of Measurements:

Color <u>clear</u>	Odor <u>slight organic</u>
Total volume purged <u>N/A</u>	Duration of purging <u>N/A</u>
Purging method <u>N/A</u>	Did well go dry? <u>N/A</u>
Weather conditions <u>Sunny, 35°F</u>	

Pump Serial Number N/A

Water Quality Monitor Serial Number Horiba U-22 M015-09, HACH 2100P M024-20

Analyses Requested VOC, COD, CN, metals, Nitrate, Chloride, Sulfate, TDS, alkalinity

Previous Final Readings: pH 6.09 Cond 0.035 Turb 1.01 DO 10.99 Temp 2.0 ORP 16 DTW -
Flow - ³H -

WATER QUALITY PARAMETERS

Form 2

SW-4

Sample Round <i>March 2010</i>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
3-2-0 5 ⁰⁰ (95)	6.45	0.028	3.41	13.85	1.0	51	N/A	collect samples
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location SW-5 SCFA Well Designation SW-5
Sampling Team M. van Noordennen Sample Period March 2010
Date 3-2-10 Time 1020-1050

Measuring Point _____	Depth to Mid Screen _____ (ft)
Well Depth (from measuring point) (D) _____ (ft)	Diameter of Well _____ (in)
Depth to water (DTW) _____ (ft)	
Length of Water Column (LWC) _____ (ft) (LWC=D-DTW)	
Volume of Water in Well (VW) _____ gal	Conversion Factor _____
Volume of Purge (VTP) (VTP = VW x 3) _____ (gal)	

QMJ 3-2-10

At Time of Measurements:

Color <u>Clear</u>	Odor <u>Slight organic</u>
Total volume purged <u>N/A</u>	Duration of purging <u>N/A</u>
Purging method <u>N/A</u>	Did well go dry? <u>N/A</u>
Weather conditions <u>Sunny, 35°F</u>	

Pump Serial Number N/A

Water Quality Monitor Serial Number Hociba 0-22 MO15-09, HRCH 2100P MO24-20

Analyses Requested VOC, COD, CN, metals, nitrate, chloride, sulfate, TDS, alkalinity

Previous Final Readings: pH 5.63 Condo 0.031 Turb 0.98 DO 10.82 Temp 1.6 ORP 161 DTW -
Flow - ³H -

WATER QUALITY PARAMETERS

Form 2

SW-5

Sample Round *march 2010*

Current Readings

3-2-10

Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
<i>5</i>	<i>6.42</i>	<i>0.022</i>	<i>1.31</i>	<i>12.54</i>	<i>0.9</i>	<i>91</i>	<i>N/A</i>	<i>collect samples</i>
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115								
120								

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location SW011 Well Designation SW011
Sampling Team RENE AUBE Sample Period MARCH 2010
Date 3/3/10 Time 1230 (SAMPLE)

★ SURFACE WATER SAMPLE ★

Depth to Mid Screen N/A (ft)
Measuring Point NA Diameter of Well NA (in)
Well Depth (from measuring point) (D) NA (ft)
Depth to water (DTW) NA (ft)
Length of Water Column (LWC) NA (ft) (LWC=D-DTW)
Volume of Water in Well (VW) NA gal Conversion Factor NA
Volume of Purge (VTP) (VTP = VW x 3) NA (gal)

At Time of Measurements:

Color CLEAR Odor NONE
Total volume purged NA Duration of purging NA
Purging method GEO PUMP Did well go dry? NA
Weather conditions FULL OVERCAST, COLD, LITE SNOW.

Pump Serial Number 5008-40
Water Quality Monitor Serial Number M015-05
Analyses Requested γ spec, Sr-90, H-3, metals

Previous Final Readings: pH 6.77 Condo 0.050 Turb 2.44 DO 12.35 Temp 0.46 ORP 183 DTW —
Flow — ³H CMDA

WATER QUALITY PARAMETERS

Form 2

Sample Round <i>MARCH 2010</i> <i>SW011</i>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
5	<i>SURFACE WATER SAMPLE, RECORD</i>							
10	<i>ONE SET FIELD DATA:</i>							
15	<i>7.76</i>	<i>.037</i>	<i>2.10</i>	<i>9.22</i>	<i>1.1</i>	<i>153</i>	<i>0.00</i>	
20	<i>COLLECT SAMPLES.</i>							
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115								
120								

1225
1230

GROUND WATER SAMPLING FIELD LOG

Form 1

Sample Location SW-408 Well Designation SW-408
Sampling Team M. Van Nardennon Sample Period March 2010
Date 3-3-10 Time 1140-1200

Measuring Point _____	Depth to Mid Screen _____ (ft)
Well Depth (from measuring point) (D) _____	Diameter of Well _____ (in)
Depth to water (DTW) _____	_____ (ft)
Length of Water Column (LWC) _____	_____ (ft) (LWC=D-DTW)
Volume of Water in Well (VW) _____	_____ gal Conversion Factor _____
Volume of Purge (VTP) (VTP = VW x 3) _____	_____ (gal)

At Time of Measurements:	
Color <u>Clear</u>	Odor <u>None</u>
Total volume purged <u>N/A</u>	Duration of purging <u>N/A</u>
Purging method <u>N/A</u>	Did well go dry? <u>N/A</u>
Weather conditions <u>Snowy, 35°F</u>	

Pump Serial Number <u>N/A</u>
Water Quality Monitor Serial Number <u>Horiba 422 MA15-09, HACH 2100P MA24-20</u>
Analyses Requested <u>Metals, Y-spec, Sr-90, H-3</u>

Previous Final Readings: pH 4.71 Cond 0019 Turb 10.6 DO 10.2 Temp 3.2 ORP 289 DTW -
Flow - ³H <MDA

WATER QUALITY PARAMETERS

Form 2

30-408

Sample Round <i>March 2010</i>								
Current Readings								
Time (min)	pH	Cond mS/cm	Turb (NTU)	D.O (mg/L)	Temp (°C)	ORP (mv)	DTW (feet)	Comments
0	+/- 0.1 std.unit	+/- 3%	+/- 10% NA <10NTU	+/-10%	+/- 1 E	+/-10 mv		
3-3-10 5	1200 6.36	0.035	2.93	12.56	1.6	154	N/A	
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APPENDIX B

ANALYTICAL DATA – MARCH 2010

APPENDIX B-1

RADIOLOGICAL DATA-MARCH 2010

APPENDIX B-1
Radiological Data - March 2010

Yankee Nuclear Power Station

Sample Delivery Group			3Y-YR-003			3Y-YR-003			3Y-YR-003			3Y-YR-003			3Y-YR-003		
Lab Sample Id			248811001			248811002			248811003			248811004			248811005		
Location			MW-102D			MW-104A			MW-104A			MW-105B			MW-106A		
Sample Date			3/4/2010			3/2/2010			3/2/2010			3/4/2010			3/4/2010		
Sample ID			MW-102D			MW-104A			MW-104ADUP			MW-105B			MW-106A		
Qc Code			FS			FS			FD			FS			FS		
Analysis	Parameter	Units	Result	Qualifier	Uncertainty	Result	Qualifier	Uncertainty	Result	Qualifier	Uncertainty	Result	Qualifier	Uncertainty	Result	Qualifier	Uncertainty
EPA 901.1	Antimony-125	pCi/L	-3.77	U	5.68	-0.657	U	4.56	-4.11	U	6.11	-0.566	U	5.62	0.825	U	5.42
EPA 901.1	Cesium-134	pCi/L	-0.61	U	2.49	1.65	U	2.02	-0.343	U	3.46	-0.0093	U	2.58	-1.68	U	2.35
EPA 901.1	Cesium-137	pCi/L	-0.217	U	2.38	0.219	U	1.97	0.12	U	2.43	-4.16	U	2.77	-0.595	U	1.89
EPA 901.1	Cobalt-60	pCi/L	0.33	U	2.24	-0.964	U	1.99	-0.027	U	2.27	1.18	U	2.42	-0.861	U	1.99
EPA 901.1	Europium-152	pCi/L	-5.95	U	6.23	1.79	U	4.99	-1.46	U	7.09	0.206	U	5.97	-1.92	U	5.6
EPA 901.1	Europium-154	pCi/L	-0.0912	U	5.59	-3.69	U	4.85	-1.27	U	6.14	-3.06	U	6.54	4.53	U	5.7
EPA 901.1	Europium-155	pCi/L	-6.98	U	9	-8.7	U	6.49	-9.89	U	9.36	-0.547	U	8.37	2.48	U	6.62
EPA 901.1	Niobium-94	pCi/L	-0.367	U	1.98	0.218	U	1.6	1.44	U	1.87	3.31	U	2.04	0.412	U	1.57
EPA 901.1	Silver-108	pCi/L	-0.486	U	1.82	-0.034	U	1.55	0.175	U	2.08	-0.904	U	1.79	-0.584	U	1.76
EPA 905.0 Modified	Strontium-90	pCi/L	0.679	U	0.943	0.47	U	0.941	-0.813	U	0.709	0.504	U	0.96	0.468	U	0.917
EPA 906.0 Modified	Tritium	pCi/L	101	U	104	967		261	774		224	3890		820	530		180
Notes:																	
FS = Field Sample																	
FD = Field Duplicate																	
EB = Equipment Blank																	
pCi/L = Picocuries per liter																	
U = Not detected																	

**APPENDIX B-1
Radiological Data - March 2010**

Yankee Nuclear Power Station

Sample Delivery Group		3Y-YR-003			3Y-YR-003			3Y-YR-003			3Y-YR-003			3Y-YR-003			
Lab Sample Id		248811006			248811007			248811008			248811009			248811010			
Location		MW-107C			MW-107D			MW-107E			MW-107F			Monroe Dam			
Sample Date		3/4/2010			3/2/2010			3/3/2010			3/3/2010			3/3/2010			
Sample ID		MW-107C			MW-107D			MW-107E			MW-107F			Monroe Dam			
Qc Code		FS			FS			FS			FS			FS			
Analysis	Parameter	Units	Result	Qualifier	Uncertainty	Result	Qualifier	Uncertainty	Result	Qualifier	Uncertainty	Result	Qualifier	Uncertainty	Result	Qualifier	Uncertainty
EPA 901.1	Antimony-125	pCi/L	3.57	U	4.52	-2.54	U	5.82	-1.44	U	4.99	-3.21	U	4.6	1.05	U	5.51
EPA 901.1	Cesium-134	pCi/L	1.19	U	2.22	1.95	U	3.56	-1.83	U	2.19	1.44	U	2	-0.439	U	2.45
EPA 901.1	Cesium-137	pCi/L	-0.5	U	1.75	-1.75	U	3.16	0.365	U	2.18	0.725	U	1.65	0.871	U	2.06
EPA 901.1	Cobalt-60	pCi/L	1.2	U	1.76	0.203	U	2.75	3.37	U	2.19	0.163	U	1.77	0.804	U	1.75
EPA 901.1	Europium-152	pCi/L	-2.51	U	5.26	-1.58	U	6.12	-0.874	U	5.74	-1.16	U	5.36	1.32	U	6.25
EPA 901.1	Europium-154	pCi/L	0.769	U	4.65	0.832	U	7.35	-1.16	U	5.27	2.78	U	4.25	-0.9	U	5.47
EPA 901.1	Europium-155	pCi/L	-1.22	U	5.27	4.13	U	7.02	-4.76	U	6.88	2.23	U	6.03	0.595	U	8.72
EPA 901.1	Niobium-94	pCi/L	-0.221	U	1.58	0.597	U	2.3	0.6	U	1.82	-0.009	U	1.47	1.66	U	2.16
EPA 901.1	Silver-108	pCi/L	-1.17	U	1.53	-0.787	U	1.84	1.07	U	1.57	-1.26	U	1.6	-0.178	U	1.92
EPA 905.0 Modified	Strontium-90	pCi/L	0.374	U	0.918	0.671	U	0.909	-0.0495	U	0.844	0.104	U	0.843	-0.367	U	0.76
EPA 906.0 Modified	Tritium	pCi/L	20100		3950	7280		1480	5470		1130	8940		1800	39.8	U	101
Notes:																	
FS = Field Sample																	
FD = Field Duplicate																	
EB = Equipment Blank																	
pCi/L = Picocuries per liter																	
U = Not detected																	

**APPENDIX B-1
Radiological Data - March 2010**

Yankee Nuclear Power Station

Sample Delivery Group			3Y-YR-003			3Y-YR-003			3Y-YR-003			3Y-YR-003		
Lab Sample Id			248811011			248811012			248811013			248811014		
Location			SP-1			SW-011			SW-408			QC		
Sample Date			3/3/2010			3/3/2010			3/3/2010			3/4/2010		
Sample ID			SP-1			SW-011			SW-408			EB-003		
Qc Code			FS			FS			FS			EB		
Analysis	Parameter	Units	Result	Qualifier	Uncertainty									
EPA 901.1	Antimony-125	pCi/L	-1.22	U	4.64	-2.15	U	5.58	-1.08	U	6.09	7.12	U	5.39
EPA 901.1	Cesium-134	pCi/L	0.758	U	2.09	1.23	U	2.29	2.32	U	2.53	2.43	U	2.24
EPA 901.1	Cesium-137	pCi/L	0.345	U	1.76	0.163	U	1.93	-1.51	U	2.32	0.697	U	1.89
EPA 901.1	Cobalt-60	pCi/L	1.01	U	1.57	0.028	U	2.44	-0.396	U	2.39	-1.03	U	1.94
EPA 901.1	Europium-152	pCi/L	-3.72	U	4.8	4.19	U	6.15	0.542	U	6.2	2.47	U	6.15
EPA 901.1	Europium-154	pCi/L	-1.11	U	5.49	0.847	U	6.15	4.29	U	6.83	-1.54	U	5.33
EPA 901.1	Europium-155	pCi/L	-1.16	U	6.37	7.04	U	7.72	4.81	U	8.82	-1.77	U	7.42
EPA 901.1	Niobium-94	pCi/L	1.34	U	1.74	-0.214	U	1.79	0.796	U	2.12	-0.0061	U	1.95
EPA 901.1	Silver-108	pCi/L	0.014	U	1.49	-1.71	U	1.76	-0.95	U	1.94	-0.908	U	1.66
EPA 905.0 Modified	Strontium-90	pCi/L	0.708	U	0.94	-0.108	U	0.832	0.109	U	0.872	-0.273	U	0.794
EPA 906.0 Modified	Tritium	pCi/L	244		129	94.1	U	104	74.3	U	99.7	-13.5	U	88.3
Notes:														
FS = Field Sample														
FD = Field Duplicate														
EB = Equipment Blank														
pCi/L = Picocuries per liter														
U = Not detected														

**Data Validation Summary
Yankee Nuclear Power Station
Rowe, Massachusetts
SDG: 3Y-YR-003**

Introduction:

Nine groundwater samples, four surface water samples, and one equipment blank were collected March 2, 2010, through March 4, 2010, at the Yankee Nuclear Power Station, located in Rowe, Massachusetts. The samples were analyzed for one or more of the following parameters: Tritium by Liquid Scintillation, Strontium-90 by GFPC, and Gamma Isotopes (Co-60, Cs-134, Cs-137, Nb-94, Sb-125, Eu-152, Eu-154, Eu-155, and Ag-108m) by Gamma Spectroscopy. Sample analyses for all parameters were performed by GEL Laboratories, LLC, located in Charleston, South Carolina.

A chemist review was performed on all samples and analyses using information supplied by the laboratory. The data package was validated using SAIC guidance – “Laboratory Data Validation Guidelines for Evaluating Radionuclide Analyses” (April 2002), DOE Guidance – “Evaluation of Radiochemical Data Usability” (April, 1997), and the Yankee Nuclear Power Station Groundwater Monitoring Program, Document RP-05, Rev. 3 (June 16, 2009).

The following samples collected during March 2010 are included in the data evaluation:

Field Sample ID	GEL ID	Sample Date	Comment
MW-102D	248811001	3/4/10	Tritium, Sr-90, Gamma
MW-104A	248811002	3/2/10	Tritium, Sr-90, Gamma
MW-104ADUP	248811003	3/2/10	Tritium, Sr-90, Gamma
MW-105B	248811004	3/4/10	Tritium, Sr-90, Gamma
MW-106A	248811005	3/4/10	Tritium, Sr-90, Gamma
MW-107C	248811006	3/4/10	Tritium, Sr-90, Gamma
MW-107D	248811007	3/2/10	Tritium, Sr-90, Gamma
MW-107E	248811008	3/3/10	Tritium, Sr-90, Gamma
MW-107F	248811009	3/3/10	Tritium, Sr-90, Gamma
Monroe Dam	248811010	3/3/10	Tritium, Sr-90, Gamma
SP-1	248811011	3/3/10	Tritium, Sr-90, Gamma
SW-011	248811012	3/3/10	Tritium, Sr-90, Gamma
SW-408	248811013	3/3/10	Tritium, Sr-90, Gamma
EB-003	248811014	3/4/10	Tritium, Sr-90, Gamma

Data were evaluated for the following parameters:

- * Collection and Preservation
- * Holding Times
- * Data Completeness
- * Tracer Recoveries
- * Blank Contamination
- * Duplicates
- * Laboratory Control Samples
- * Matrix Spike/Matrix Spike Duplicates
- * Target Compound Quantitation
- Miscellaneous

* - all criteria were met for this parameter

One sample was logged into the laboratory and reported with an incorrect sample identification as noted below. Otherwise, all associated quality control parameters were within control limits, and sample results were determined to be usable as reported by the laboratory.

Miscellaneous

All Parameters – Sample MW-104ADUP was incorrectly logged into the laboratory and reported as MW-104DUP. The sample identification was manually corrected on the hardcopy final results as well as the electronic data deliverable during data validation.

References:

Science Applications International Corporation (SAIC), 2002. "Laboratory Data Validation Guidelines for Evaluating Radionuclide Analyses." Thomas L Rucker, Ph.D. and C. Martin Johnson, Jr.; Revision 07, April, 2002.

Department of Energy (DOE). "Evaluation of Radiochemical Data Usability." April, 1997.

Yankee Nuclear Power Station, 2009. "YNPS Groundwater Monitoring Program." ISFSI Radiation Protection, RP-05, Rev. 3: June 16, 2009.

Data Validator: Julie Ricardi

Signature  Dr Julie Ricardi Date: April 9, 2010

APPENDIX B-2

CHEMICAL DATA – MARCH 2010

**APPENDIX B-2
CHEMICAL DATA, 2010**

			Location	CFW-6	SW-4	SW-5	CFW-5		
			Sample Date	3/2/2010	3/2/2010	3/2/2010	3/2/2010		
			Sample ID	CFW-6	SW-4	SW-5	CFW-5		
			Qc Code	FS	FS	FS	FS		
Analysis	Fraction	Param Name	Units	Result	Qualifier	Result	Qualifier	Result	Qualifier
EPA 8260B	T	1,1,1,2-Tetrachloroethane	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,1,1-Trichloroethane	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,1,2,2-Tetrachloroethane	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,1,2-Trichloroethane	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,1-Dichloroethane	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,1-Dichloroethene	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,2,3-Trichlorobenzene	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,2,4-Trichlorobenzene	ug/L	1	U	1	U	1	UJ
EPA 8260B	T	1,2-Dibromoethane	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,2-Dichlorobenzene	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,2-Dichloroethane	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,2-Dichloropropane	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,3-Dichlorobenzene	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,3-Dichloropropane	ug/L	1	U	1	U	1	U
EPA 8260B	T	1,4-Dichlorobenzene	ug/L	1	U	1	U	1	U
EPA 8260B	T	Acetone	ug/L	1	U	1	U	1	U
EPA 8260B	T	Benzene	ug/L	1	U	1	U	1	U
EPA 8260B	T	Bromodichloromethane	ug/L	1	U	1	U	1	U
EPA 8260B	T	Bromoform	ug/L	1	U	1	U	1	U
EPA 8260B	T	Bromomethane	ug/L	1	U	1	U	1	U
EPA 8260B	T	Carbon tetrachloride	ug/L	1	U	1	U	1	U
EPA 8260B	T	Chlorobenzene	ug/L	1	U	1	U	1	U
EPA 8260B	T	Chlorodibromomethane	ug/L	1	U	1	U	1	U
EPA 8260B	T	Chloroform	ug/L	1	U	1	U	1	U
EPA 8260B	T	Cis-1,2-Dichloroethene	ug/L	1	U	1	U	1	U
EPA 8260B	T	cis-1,3-Dichloropropene	ug/L	1	U	1	U	1	U
EPA 8260B	T	Ethyl benzene	ug/L	1	U	1	U	1	U
EPA 8260B	T	Methylene chloride	ug/L	1	U	1	U	1	U
EPA 8260B	T	Naphthalene	ug/L	1	U	1	U	1	UJ
EPA 8260B	T	Styrene	ug/L	1	U	1	U	1	U
EPA 8260B	T	Tetrachloroethene	ug/L	1	U	1	U	1	U
EPA 8260B	T	Toluene	ug/L	1	U	1	U	1	U
EPA 8260B	T	trans-1,2-Dichloroethene	ug/L	1	U	1	U	1	U
EPA 8260B	T	trans-1,3-Dichloropropene	ug/L	1	U	1	U	1	U
EPA 8260B	T	Trichloroethene	ug/L	1	U	1	U	1	U
EPA 8260B	T	Vinyl chloride	ug/L	1	U	1	U	1	U
EPA 8260B	T	Xylenes, Total	ug/L	1	U	1	U	1	U
EPA 6010B	T	Arsenic	mg/L	0.01	U	0.01	U	0.01	U
EPA 6010B	T	Barium	mg/L	0.05	U	0.05	U	0.053	
EPA 6010B	T	Cadmium	mg/L	0.004	U	0.004	U	0.004	U
EPA 6010B	T	Calcium	mg/L	14		2.4		2	28
EPA 6010B	T	Chromium	mg/L	0.01	U	0.01	U	0.01	U
EPA 6010B	T	Copper	mg/L	0.01	U	0.01	U	0.01	U
EPA 6010B	T	Iron	mg/L	20		0.9		0.27	70
EPA 6010B	T	Lead	mg/L	0.01	U	0.01	U	0.01	U
EPA 6010B	T	Manganese	mg/L	2.9		0.13		0.044	3.8
EPA 6010B	T	Selenium	mg/L	0.01	U	0.01	U	0.01	U
EPA 6010B	T	Silver	mg/L	0.005	U	0.005	U	0.005	U
EPA 6010B	T	Sodium	mg/L	2.7		0.65		0.6	2.9
EPA 6010B	T	Thallium	mg/L						
EPA 6010B	T	Zinc	mg/L	0.02	U	0.02	U	0.02	U
EPA 6010B	D	Arsenic	mg/L						
EPA 6010B	D	Barium	mg/L						
EPA 6010B	D	Cadmium	mg/L						
EPA 6010B	D	Chromium	mg/L						
EPA 6010B	D	Lead	mg/L						
EPA 6010B	D	Selenium	mg/L						
EPA 6010B	D	Silver	mg/L						
EPA 7470A	T	Mercury	mg/L	0.0002	U	0.0002	U	0.0002	U
EPA 7470A	D	Mercury	mg/L						
EPA 9056	T	Chloride	mg/L	2.7	J	2	UJ	2	UJ
EPA 9056	T	Nitrate as N	mg/L	0.5	U	0.5	U	0.5	U
EPA 9056	T	Sulfate	mg/L	4.3	J	4.8	J	4.2	J
non-NELAC 3.3.13	T	2-Butanone	ug/L	5	U	5	U	5	U
non-NELAC 3.3.13	T	4-Methyl-2-pentanone	ug/L	1	U	1	U	1	U
non-NELAC 3.3.13	T	Methyl Tertbutyl Ether	ug/L	1	U	1	U	1	U
SM 2320B	T	Total Alkalinity, as CaCO3	mg/L	71		6.5		4.3	110
SM 2540 C	T	Total Dissolved Solids	mg/L	89	J	11	J	4	J
SM 4500 CN-C&E	T	Cyanide, Total	mg/L	0.01	U	0.01	U	0.01	U
SM 5220C	T	Chemical Oxygen Demand	mg/L	12		11	U	11	U

**APPENDIX B-2
CHEMICAL DATA, 2010**

Analysis	Fraction	Param Name	CFW-5		QC		CFW-1		SW-1		SW-2	
			3/2/2010		3/2/2010		3/3/2010		3/3/2010		3/3/2010	
			CFW-5 Dup		TB-005		CFW-1		SW-1		SW-2	
			FD		TB		FS		FS		FS	
			Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
EPA 8260B	T	1,1,1,2-Tetrachloroethane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,1,1-Trichloroethane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,1,2,2-Tetrachloroethane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,1,2-Trichloroethane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,1-Dichloroethane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,1-Dichloroethene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,2,3-Trichlorobenzene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,2,4-Trichlorobenzene	1	UJ	1	U	1	U	1	U	1	U
EPA 8260B	T	1,2-Dibromoethane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,2-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,2-Dichloroethane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,2-Dichloropropane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,3-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,3-Dichloropropane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	1,4-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Acetone	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Benzene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Bromodichloromethane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Bromoform	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Bromomethane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Carbon tetrachloride	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Chlorobenzene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Chlorodibromomethane	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Chloroform	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Cis-1,2-Dichloroethene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	cis-1,3-Dichloropropene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Ethyl benzene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Methylene chloride	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Naphthalene	1	UJ	1	U	1	U	1	U	1	U
EPA 8260B	T	Styrene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Tetrachloroethene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Toluene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	trans-1,2-Dichloroethene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	trans-1,3-Dichloropropene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Trichloroethene	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Vinyl chloride	1	U	1	U	1	U	1	U	1	U
EPA 8260B	T	Xylenes, Total	1	U	1	U	1	U	1	U	1	U
EPA 6010B	T	Arsenic	0.01	U			0.01	U	0.01	U	0.01	U
EPA 6010B	T	Barium	0.053				0.05	U	0.05	U	0.05	U
EPA 6010B	T	Cadmium	0.004	U			0.004	U	0.004	U	0.004	U
EPA 6010B	T	Calcium	27				1.3		2.6		2.5	
EPA 6010B	T	Chromium	0.01	U			0.01	U	0.01	U	0.01	U
EPA 6010B	T	Copper	0.01	U			0.01	U	0.01	U	0.01	U
EPA 6010B	T	Iron	71				5.7		0.032		0.037	
EPA 6010B	T	Lead	0.01	U			0.01	U	0.01	U	0.01	U
EPA 6010B	T	Manganese	3.7				0.2		0.01	U	0.01	U
EPA 6010B	T	Selenium	0.022	J			0.01	U	0.01	U	0.01	U
EPA 6010B	T	Silver	0.005	U			0.005	U	0.005	U	0.005	U
EPA 6010B	T	Sodium	2.9				0.81		0.78		0.8	
EPA 6010B	T	Thallium										
EPA 6010B	T	Zinc	0.02	U			0.02	U	0.02	U	0.02	U
EPA 6010B	D	Arsenic										
EPA 6010B	D	Barium										
EPA 6010B	D	Cadmium										
EPA 6010B	D	Chromium										
EPA 6010B	D	Lead										
EPA 6010B	D	Selenium										
EPA 6010B	D	Silver										
EPA 7470A	T	Mercury	0.0002	U			0.0002	U	0.0002	U	0.0002	U
EPA 7470A	D	Mercury										
EPA 9056	T	Chloride	5	J			2	UJ	2	UJ	2	UJ
EPA 9056	T	Nitrate as N	0.5	U			0.5	U	0.5	U	0.5	U
EPA 9056	T	Sulfate	1	U			2.6		5.5		5.5	
non-NELAC 3.3.13	T	2-Butanone	5	U	5	U	5	U	5	U	5	U
non-NELAC 3.3.13	T	4-Methyl-2-pentanone	1	U	1	U	1	U	1	U	1	U
non-NELAC 3.3.13	T	Methyl Tertbutyl Ether	1	U	1	U	1	U	1	U	1	U
SM 2320B	T	Total Alkalinity, as CaCO3	140				4.6		5.4		5.4	
SM 2540 C	T	Total Dissolved Solids	140	J			1	UJ	19	J	19	J
SM 4500 CN-C&E	T	Cyanide, Total	0.01	U			0.01	U	0.01	U	0.01	U
SM 5220C	T	Chemical Oxygen Demand	26				11	U	11	U	11	U

**APPENDIX B-2
CHEMICAL DATA, 2010**

Analysis	Fraction	Param Name	SW-3		SP-1		QC		SW-408		SW-011	
			3/3/2010		3/3/2010		3/3/2010		3/3/2010		3/3/2010	
			FS		FS		TB-006		SW-408		SW-011	
			Result	Qualifier								
EPA 8260B	T	1,1,1,2-Tetrachloroethane	1	U	1	U	1	U				
EPA 8260B	T	1,1,1-Trichloroethane	1	U	1	U	1	U				
EPA 8260B	T	1,1,2,2-Tetrachloroethane	1	U	1	U	1	U				
EPA 8260B	T	1,1,2-Trichloroethane	1	U	1	U	1	U				
EPA 8260B	T	1,1-Dichloroethane	1	U	1	U	1	U				
EPA 8260B	T	1,1-Dichloroethene	1	U	1	U	1	U				
EPA 8260B	T	1,2,3-Trichlorobenzene	1	U	1	U	1	U				
EPA 8260B	T	1,2,4-Trichlorobenzene	1	U	1	U	1	U				
EPA 8260B	T	1,2-Dibromoethane	1	U	1	U	1	U				
EPA 8260B	T	1,2-Dichlorobenzene	1	U	1	U	1	U				
EPA 8260B	T	1,2-Dichloroethane	1	U	1	U	1	U				
EPA 8260B	T	1,2-Dichloropropane	1	U	1	U	1	U				
EPA 8260B	T	1,3-Dichlorobenzene	1	U	1	U	1	U				
EPA 8260B	T	1,3-Dichloropropane	1	U	1	U	1	U				
EPA 8260B	T	1,4-Dichlorobenzene	1	U	1	U	1	U				
EPA 8260B	T	Acetone	1	U	1	U	1	U				
EPA 8260B	T	Benzene	1	U	1	U	1	U				
EPA 8260B	T	Bromodichloromethane	1	U	1	U	1	U				
EPA 8260B	T	Bromoform	1	U	1	U	1	U				
EPA 8260B	T	Bromomethane	1	U	1	U	1	U				
EPA 8260B	T	Carbon tetrachloride	1	U	1	U	1	U				
EPA 8260B	T	Chlorobenzene	1	U	1	U	1	U				
EPA 8260B	T	Chlorodibromomethane	1	U	1	U	1	U				
EPA 8260B	T	Chloroform	1	U	1	U	1	U				
EPA 8260B	T	Cis-1,2-Dichloroethene	1	U	1	U	1	U				
EPA 8260B	T	cis-1,3-Dichloropropene	1	U	1	U	1	U				
EPA 8260B	T	Ethyl benzene	1	U	1	U	1	U				
EPA 8260B	T	Methylene chloride	1	U	1	U	1	U				
EPA 8260B	T	Naphthalene	1	U	1	U	1	U				
EPA 8260B	T	Styrene	1	U	1	U	1	U				
EPA 8260B	T	Tetrachloroethene	1	U	1	U	1	U				
EPA 8260B	T	Toluene	1	U	1	U	1	U				
EPA 8260B	T	trans-1,2-Dichloroethene	1	U	1	U	1	U				
EPA 8260B	T	trans-1,3-Dichloropropene	1	U	1	U	1	U				
EPA 8260B	T	Trichloroethene	1	U	1	U	1	U				
EPA 8260B	T	Vinyl chloride	1	U	1	U	1	U				
EPA 8260B	T	Xylenes, Total	1	U	1	U	1	U				
EPA 6010B	T	Arsenic	0.01	U	0.005	U						
EPA 6010B	T	Barium	0.05	U	0.026							
EPA 6010B	T	Cadmium	0.004	U	0.0004	U						
EPA 6010B	T	Calcium	2.4									
EPA 6010B	T	Chromium	0.01	U	0.005	U						
EPA 6010B	T	Copper	0.01	U								
EPA 6010B	T	Iron	0.5									
EPA 6010B	T	Lead	0.01	U	0.003	U						
EPA 6010B	T	Manganese	0.074									
EPA 6010B	T	Selenium	0.01	U	0.01	U						
EPA 6010B	T	Silver	0.005	U	0.007	U						
EPA 6010B	T	Sodium	0.6									
EPA 6010B	T	Thallium			0.0028	U						
EPA 6010B	T	Zinc	0.02	U								
EPA 6010B	D	Arsenic						0.01	U		0.01	U
EPA 6010B	D	Barium						0.011			0.011	
EPA 6010B	D	Cadmium						0.01	U		0.01	U
EPA 6010B	D	Chromium						0.01	U		0.01	U
EPA 6010B	D	Lead						0.01	U		0.01	U
EPA 6010B	D	Selenium						0.05	U		0.05	U
EPA 6010B	D	Silver						0.01	U		0.01	U
EPA 7470A	T	Mercury	0.0002	U	0.0002	U						
EPA 7470A	D	Mercury						0.0002	U		0.0002	U
EPA 9056	T	Chloride	2	UJ								
EPA 9056	T	Nitrate as N	0.5	U								
EPA 9056	T	Sulfate	4.8									
non-NELAC 3.3.13	T	2-Butanone	5	U	5	U	5	U				
non-NELAC 3.3.13	T	4-Methyl-2-pentanone	1	U	1	U	1	U				
non-NELAC 3.3.13	T	Methyl Tertbutyl Ether	1	U	1	U	1	U				
SM 2320B	T	Total Alkalinity, as CaCO3	5.6									
SM 2540 C	T	Total Dissolved Solids	13	J								
SM 4500 CN-C&E	T	Cyanide, Total	0.01	U								
SM 5220C	T	Chemical Oxygen Demand	11	U								

APPENDIX B-2
CHEMICAL DATA, 2010

			MW-101A	
			3/3/2010	
			MW-101A	
			FS	
Analysis	Fraction	Param Name	Result	Qualifier
EPA 8260B	T	1,1,1,2-Tetrachloroethane		
EPA 8260B	T	1,1,1-Trichloroethane		
EPA 8260B	T	1,1,2,2-Tetrachloroethane		
EPA 8260B	T	1,1,2-Trichloroethane		
EPA 8260B	T	1,1-Dichloroethane		
EPA 8260B	T	1,1-Dichloroethene		
EPA 8260B	T	1,2,3-Trichlorobenzene		
EPA 8260B	T	1,2,4-Trichlorobenzene		
EPA 8260B	T	1,2-Dibromoethane		
EPA 8260B	T	1,2-Dichlorobenzene		
EPA 8260B	T	1,2-Dichloroethane		
EPA 8260B	T	1,2-Dichloropropane		
EPA 8260B	T	1,3-Dichlorobenzene		
EPA 8260B	T	1,3-Dichloropropane		
EPA 8260B	T	1,4-Dichlorobenzene		
EPA 8260B	T	Acetone		
EPA 8260B	T	Benzene		
EPA 8260B	T	Bromodichloromethane		
EPA 8260B	T	Bromoform		
EPA 8260B	T	Bromomethane		
EPA 8260B	T	Carbon tetrachloride		
EPA 8260B	T	Chlorobenzene		
EPA 8260B	T	Chlorodibromomethane		
EPA 8260B	T	Chloroform		
EPA 8260B	T	Cis-1,2-Dichloroethene		
EPA 8260B	T	cis-1,3-Dichloropropene		
EPA 8260B	T	Ethyl benzene		
EPA 8260B	T	Methylene chloride		
EPA 8260B	T	Naphthalene		
EPA 8260B	T	Styrene		
EPA 8260B	T	Tetrachloroethene		
EPA 8260B	T	Toluene		
EPA 8260B	T	trans-1,2-Dichloroethene		
EPA 8260B	T	trans-1,3-Dichloropropene		
EPA 8260B	T	Trichloroethene		
EPA 8260B	T	Vinyl chloride		
EPA 8260B	T	Xylenes, Total		
EPA 6010B	T	Arsenic	0.005 U	
EPA 6010B	T	Barium		
EPA 6010B	T	Cadmium		
EPA 6010B	T	Calcium		
EPA 6010B	T	Chromium		
EPA 6010B	T	Copper		
EPA 6010B	T	Iron		
EPA 6010B	T	Lead		
EPA 6010B	T	Manganese		
EPA 6010B	T	Selenium		
EPA 6010B	T	Silver		
EPA 6010B	T	Sodium		
EPA 6010B	T	Thallium		
EPA 6010B	T	Zinc		
EPA 6010B	D	Arsenic		
EPA 6010B	D	Barium		
EPA 6010B	D	Cadmium		
EPA 6010B	D	Chromium		
EPA 6010B	D	Lead		
EPA 6010B	D	Selenium		
EPA 6010B	D	Silver		
EPA 7470A	T	Mercury		
EPA 7470A	D	Mercury		
EPA 9056	T	Chloride		
EPA 9056	T	Nitrate as N		
EPA 9056	T	Sulfate		
non-NELAC 3.3.13	T	2-Butanone		
non-NELAC 3.3.13	T	4-Methyl-2-pentanone		
non-NELAC 3.3.13	T	Methyl Tertbutyl Ether		
SM 2320B	T	Total Alkalinity, as CaCO3		
SM 2540 C	T	Total Dissolved Solids		
SM 4500 CN-C&E	T	Cyanide, Total		
SM 5220C	T	Chemical Oxygen Demand		

**Data Validation Summary
 Yankee Nuclear Power Station
 Rowe, Massachusetts
 SDG: 3Y-YR-101**

Introduction:

Five groundwater samples, eight surface water samples, and two trip blanks were collected on March 2 and 3, 2010, at the Yankee Nuclear Power Station, located in Rowe, Massachusetts. The samples were analyzed for one or more of the following parameters: volatile organic compounds (VOC), total metals, dissolved metals, and wet chemistry parameters (cyanide, chemical oxygen demand [COD], nitrate, chloride, sulfate, total dissolved solids [TDS], and alkalinity). Sample analyses for all parameters were performed by Northeast Laboratory Services (NEL), located in Waterville, ME.

A chemist review was performed on all samples and analyses using information supplied by the laboratory. The data package was validated using Region I EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses (USEPA, 1996) and the Yankee Nuclear Power Station Groundwater Monitoring Program, Document RP-05, Revision 3 (June 16, 2009).

The following samples collected during March 2010 are included in the data evaluation:

Field Sample ID	NEL ID	Sample Date	Comment
CFW-6	AM01012	3/2/10	VOC, total metals*, cyanide, COD, nitrate, chloride, sulfate, TDS, alkalinity
SW-4	AM01013	3/2/10	VOC, total metals*, cyanide, COD, nitrate, chloride, sulfate, TDS, alkalinity
SW-5	AM01014	3/2/10	VOC, total metals*, cyanide, COD, nitrate, chloride, sulfate, TDS, alkalinity
CFW-5	AM01015	3/2/10	VOC, total metals*, cyanide, COD, nitrate, chloride, sulfate, TDS, alkalinity
CFW-5DUP	AM01016	3/2/10	VOC, total metals*, cyanide, COD, nitrate, chloride, sulfate, TDS, alkalinity
TB-005	AM01019	3/2/10	VOC
CFW-1	AM01105	3/3/10	VOC, total metals*, cyanide, COD, nitrate, chloride, sulfate, TDS, alkalinity
SW-1	AM01106	3/3/10	VOC, total metals*, cyanide, COD, nitrate, chloride, sulfate, TDS, alkalinity
SW-2	AM01107	3/3/10	VOC, total metals*, cyanide, COD, nitrate, chloride, sulfate, TDS, alkalinity
SW-3	AM01108	3/3/10	VOC, total metals*, cyanide, COD, nitrate, chloride, sulfate, TDS, alkalinity
SP-1	AM01109	3/3/10	VOC, RCRA 8 total metals plus thallium
TB-006	AM01110	3/3/10	VOC
SW-408	AM01111	3/3/10	RCRA 8 dissolved metals
SW-011	AM01112	3/3/10	RCRA 8 dissolved metals
MW-101A	AM01113	3/3/10	Arsenic

* Metals include - RCRA 8 (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver) + copper, iron, manganese, zinc, calcium, sodium

Data were evaluated for the following parameters:

- * Collection and Preservation
- * Holding Times
- * Data Completeness
- * Surrogate Recoveries
- * Blank Contamination
- * Duplicates
- * Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)
- * Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- * Miscellaneous

* - all criteria were met for this parameter

With the exception of the following items discussed below, results were determined to be usable as reported by the laboratory.

Duplicates

TDS – The relative percent difference between sample SW-3 and its laboratory duplicate was greater than the laboratory QC limit of 20 for TDS (47). TDS results in associated samples CFW-6, SW-4, SW-5, CFW-5, CFW-5DUP, CFW-1, SW-1, SW-2, and SW-3 were qualified as estimated (J/UJ).

Laboratory Control Samples

Sulfate – The LCSD associated with a subset of samples had a percent recovery above the laboratory upper QC limit of 110 for sulfate (117), indicating potential high bias. Sulfate detections in samples CFW-6, SW-4, and SW-5 were qualified as estimated (J).

Matrix Spike/Matrix Spike Duplicate

VOCs – The MS associated with sample CFW-5 and its field duplicate CFW-5DUP had a percent recovery below the lower laboratory QC limit of 79% for 1,2,4-trichlorobenzene (78), indicating potential low bias. The relative percent difference between the MS and MSD was greater than the laboratory QC limit of 20 for naphthalene (22). Naphthalene and 1,2,4-trichlorobenzene were reported as non-detect (U) in samples CFW-5 and CFW-5DUP and were qualified as estimated (UJ).

Metals – The MS/MSD associated with sample CFW-5 and its field duplicate CFW-5DUP had percent recoveries above the upper laboratory QC limit of 125% for selenium (133/132), indicating potential high bias. Selenium detections samples CFW-5 and CFW-5DUP were qualified as estimated (J).

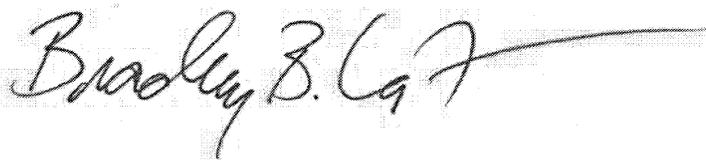
Chloride – The matrix spike/matrix spike duplicate associated with sample CFW-5 and its field duplicate CFW-5DUP had percent recoveries below the laboratory lower QC limit of 90 for chloride (88/88), indicating potential low bias. Chloride results in associated samples CFW-6, SW-4, SW-5, CFW-5, CFW-5DUP, CFW-1, SW-1, SW-2, and SW-3 were qualified as estimated (J/UJ).

References:

U.S. Environmental Protection Agency (USEPA), 1996. "Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Parts I and II," Quality Assurance Unit Staff, Office of Environmental Measurement and Evaluation; December, 1996.

Yankee Nuclear Power Station, 2007. "YNPS Groundwater Monitoring Program." ISFSI Radiation Protection, RP-05: Revision 3, June 16, 2009.

Data Validator: Bradley B. LaForest, NRCC-EAC



April 2, 2010

APPENDIX B-3

VALIDATION CHECKLISTS – MARCH 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
 (Several pages will be required for each batch)

Gamma Spec

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
MW-102D	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
MW-104A	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
MW-104ADUP	03/24/2010	DU (Field)	Yes	See (1) below	Yes	See attached Checklist
MW-105B	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
MW-106A	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
MW-107C	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
MW-107D	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
MW-107E	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
MW-107F	03/24/2010	FS	Yes	OK	Yes	See attached Checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? Yes No
- II. Resolution of Sample Processing/Missing Analytes comments:
 (1) Sample incorrectly logged in and reported by lab as MW-104DUP; manually corrected sample ID to MW-104ADUP on hardcopy result and EDD as needed.
 No other processing issues or missing analytes.
- III. Resolution of Sample Processing/Missing Analytes comments:
 (1) Sample incorrectly logged in and reported by lab as MW-104DUP; manually corrected sample ID to MW-104ADUP on hardcopy result and EDD as needed.

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

No other processing issues or missing analytes.

IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached Checklist for details; no sample qualifications required.

V. Data verification calculation sheets are attached(at least one calculation per batch) NA

Reviewed:  for Julie Ricardi Date: April 7, 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Gamma Spec

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
Monroe Dam	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
SP-1	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
SW-011	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
SW-408	03/24/2010	FS	Yes	OK	Yes	See attached Checklist
EB-003	03/24/2010	BL (Field)	Yes	OK	Yes	See attached Checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC ≤ Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? Yes No
 - II. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes.
 - III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes.
 - IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached Checklist for details; no sample qualifications required.
 - V. Data verification/calculation sheets are attached(at least one calculation per batch) NA
- Reviewer *Julie Ricardi* for Julie Ricardi Date: April 7, 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

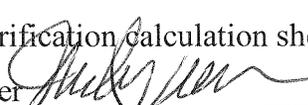
List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Gamma Spec

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
QC1202063075	03/24/2010	DU	Yes	OK	Yes	See attached Checklist
QC1202063077	03/24/2010	QC (LCS)	Yes	OK	Yes	See attached Checklist
QC1202063074	03/24/2010	BL	Yes	OK	Yes	See attached Checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC ≤ Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? Yes No
- II. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes.
- III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes.
- IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached Checklist for details; no sample qualifications required.
- V. Data verification calculation sheets are attached(at least one calculation per batch) NA
Reviewer  for Julie Riccardi Date: April 7, 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
 (Several pages will be required for each batch)

Strontium-90

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
MW-102D	03/15/2010	FS	Yes	OK	Yes	See attached Checklist
MW-104A	03/15/2010	FS	Yes	OK	Yes	See attached Checklist
MW-104ADUP	03/15/2010	DU (Field)	Yes	See (1) below	Yes	See attached Checklist
MW-105B	03/15/2010	FS	Yes	OK	Yes	See attached Checklist
MW-106A	03/15/2010	FS	Yes	OK	Yes	See attached Checklist
MW-107C	03/15/2010	FS	Yes	OK	Yes	See attached Checklist
MW-107D	03/22/2010	FS	Yes	See (2) below	Yes	See attached Checklist
MW-107E	03/15/2010	FS	Yes	OK	Yes	See attached Checklist
MW-107F	03/15/2010	FS	Yes	OK	Yes	See attached Checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

I. All Requested analyses performed on all samples? Yes No

II. Resolution of Sample Processing/Missing Analytes comments:

(1) Sample incorrectly logged in and reported by lab as MW-104DUP; manually corrected sample ID to MW-104ADUP on hardcopy result and EDD as needed.

(2) Sample recounted to verify results; no problems noted.

No processing issues or missing analytes.

ATTACHMENT C**ASSESSMENT OF DATA QUALITY**

III. Resolution of Sample Processing/Missing Analytes comments:

(1) Sample incorrectly logged in and reported by lab as MW-104DUP; manually corrected sample ID to MW-104ADUP on hardcopy result and EDD as needed.

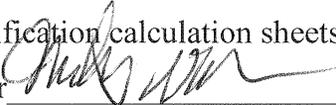
(2) Sample recounted to verify results; no problems noted.

No processing issues or missing analytes.

IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):

See attached Checklist for details; no sample qualifications required.

V. Data verification calculation sheets are attached(at least one calculation per batch) NA

Reviewer  For Julie Riccardi Date: April 7, 2010

ATTACHMENT C

ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Strontium-90

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
Monroe Dam	03/15/2010	FS	Yes	OK	Yes	See attached Checklist
SP-1	03/15/2010	FS	Yes	OK	Yes	See attached Checklist
SW-011	03/15/2010	FS	Yes	OK	Yes	See attached Checklist
SW-408	03/15/2010	FS	Yes	OK	Yes	See attached Checklist
EB-003	03/15/2010	BL (Field)	Yes	OK	Yes	See attached Checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC ≤ Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

I. All Requested analyses performed on all samples? Yes No

II. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes.

III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes.

IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached Checklist for details; no sample qualifications required.

V. Data verification calculation sheets are attached(at least one calculation per batch) NA

Reviewer *Mark [Signature]* for Julie Ricard; Date: April 7, 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Strontium-90

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
QC1202065011	03/15/2010	DU	Yes	OK	Yes	See attached Checklist
QC1202065013	03/15/2010	QC (LCS)	Yes	OK	Yes	See attached Checklist
QC1202065010	03/15/2010	BL	Yes	OK	Yes	See attached Checklist
QC1202065012	03/15/2010	SK	Yes	OK	Yes	See attached Checklist

NOTE

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- 2.0 Reported MDC ≤ Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? Yes No
- II. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes.
- III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes.
- IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached Checklist for details; no sample qualifications required.
- V. Data verification calculation sheets are attached(at least one calculation per batch) NA
Reviewer *Julie Richards* for Julie Richards Date: April 7, 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Tritium

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
MW-102D	03/25/2010	FS	Yes	See (1) below	Yes	See attached Checklist
MW-104A	03/25/2010	FS	Yes	See (1) below	Yes	See attached Checklist
MW-104ADUP	03/25/2010	DU (Field)	Yes	See (1) and (2) below	Yes	See attached Checklist
MW-105B	03/25/2010	FS	Yes	See (1) below	Yes	See attached Checklist
MW-106A	03/25/2010	FS	Yes	See (1) below	Yes	See attached Checklist
MW-107C	03/25/2010	FS	Yes	See (1) below	Yes	See attached Checklist
MW-107D	03/25/2010	FS	Yes	See (1) below	Yes	See attached Checklist
MW-107E	03/25/2010	FS	Yes	See (1) below	Yes	See attached Checklist
MW-107F	03/25/2010	FS	Yes	See (1) below	Yes	See attached Checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

I. All Requested analyses performed on all samples? Yes No

II. Resolution of Sample Processing/Missing Analytes comments:

(1) Sample recounted to verify results; no problems noted.

(2) Sample incorrectly logged in and reported by lab as MW-104DUP; manually corrected sample ID to MW-104ADUP on hardcopy result and EDD as needed.

No processing issues or missing analytes.

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

III. Resolution of Sample Processing/Missing Analytes comments:

(1) Sample recounted to verify results; no problems noted.

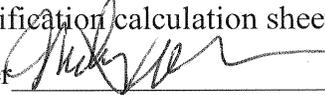
(2) Sample incorrectly logged in and reported by lab as MW-104DUP; manually corrected sample ID to MW-104ADUP on hardcopy result and EDD as needed.

No processing issues or missing analytes.

IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):

See attached Checklist for details; no sample qualifications required.

V. Data verification calculation sheets are attached(at least one calculation per batch) NA

Reviewer  for Julie Ricardi Date: April 7, 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Tritium

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
Monroe Dam	03/23/2010	FS	Yes	OK	Yes	See attached Checklist
SP-1	03/25/2010	FS	Yes	See (1) below	Yes	See attached Checklist
SW-011	03/25/2010	FS	Yes	OK	Yes	See attached Checklist
SW-408	03/25/2010	FS	Yes	OK	Yes	See attached Checklist
EB-003	03/25/2010	BL (Field)	Yes	OK	Yes	See attached Checklist

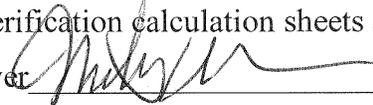
NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? Yes No
- II. Resolution of Sample Processing/Missing Analytes comments:
(1) Sample recounted to verify results; no problems noted.
No processing issues or missing analytes.
- III. Resolution of Sample Processing/Missing Analytes comments:
(1) Sample recounted to verify results; no problems noted.
No processing issues or missing analytes.
- IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached Checklist for details; no sample qualifications required.

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

V. Data verification calculation sheets are attached(at least one calculation per batch) NA

Reviewer  for Julie Riccardi Date: April 7, 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

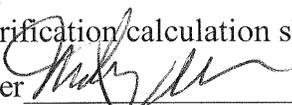
List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Tritium

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
QC1202064443	03/25/2010	DU	Yes	OK	Yes	See attached Checklist
QC1202064445	03/25/2010	QC (LCS)	Yes	OK	Yes	See attached Checklist
QC1202064442	03/25/2010	BL	Yes	OK	Yes	See attached Checklist
QC1202064444	03/25/2010	SK	Yes	OK	Yes	See attached Checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC ≤ Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? Yes No
- II. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes.
- III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes.
- IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached Checklist for details; no sample qualifications required.
- V. Data verification calculation sheets are attached (at least one calculation per batch) NA
Reviewer  For Julie Riccardi Date: April 7, 2010

ATTACHMENT D

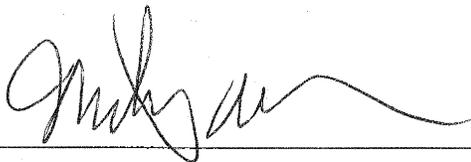
REVIEW OF CHAIN OF CUSTODY AND SAMPLE DOCUMENTATION

Sampling Event Date(s) March 2010 Shipment Date 3-4-10

Wells Sampled in this Batch: MW-102D, MW-104A, MW-105B, MW-106A, MW-107C, MW-107D, MW-107E,

MW-107F, SP-1, SW-908, Monroe Dam, EB-003

- I. All samples identified on COC forms? Yes No
- II. Samples obtained match those required by sampling plan? Yes No
- III. Verification of unbroken chain of custody for samples? Yes No
- IV. Samples received intact by laboratory? Yes No
- V. Sample flush volumes and flow parameters consistent with historical data and acceptable? Yes No
- VI. Sample non-radiological parameters consistent with historical data and acceptable? Yes No
- VII. All preservative and container requirements met? Yes No
- VIII. Samples obtained match those required by sampling plan? Yes No
- IX. Evaluation for accepting sample for any questions I – VIII answered "NO" (indicate if resample will be done prior to shipment):

Reviewer  Date 3-5-10

4 coolers shipped to FEL

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC, Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

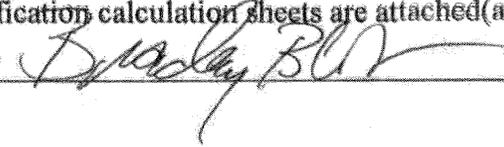
Volatile Organic Compounds (VOCs)

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
CFW-6	3/3/10	FS	Yes	O.K.	Yes	See attached checklist
SW-4	3/3/10	FS	Yes	O.K.	Yes	See attached checklist
SW-5	3/3/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5	3/3/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5DUP	3/3/10	DU (Field)	Yes	O.K.	Yes	See attached checklist
TB-005	3/3/10	BL (Trip)	Yes	O.K.	Yes	See attached checklist
CFW-1	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
SW-1	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
SW-2	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
SW-3	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
SP-1	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
TB-006	3/4/10	BL (Trip)	Yes	O.K.	Yes	See attached checklist
Laboratory QC						
LCSEF0303	3/3/10	QC	Yes	O.K.	Yes	See attached checklist
VBLKF0303	3/3/10	BL	Yes	O.K.	Yes	See attached checklist
LCSEF0304	3/4/10	QC	Yes	O.K.	Yes	See attached checklist
VBLKF0304	3/4/10	BL	Yes	O.K.	Yes	See attached checklist
LCSEF0305	3/5/10	QC	Yes	O.K.	Yes	See attached checklist
VBLKF0305	3/5/10	BL	Yes	O.K.	Yes	See attached checklist
AM01015.14MS	3/5/10	SK	Yes	O.K.	Yes	See attached checklist
AM01015.15MSD	3/5/10	SK	Yes	O.K.	Yes	See attached checklist

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? Yes No
- II. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
- III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
- IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached checklist for details on sample qualifications
- V. Data verification calculation sheets are attached (at least one calculation per batch) NA
- Reviewer  Date: March 30, 2010

REGION I TIER II VALIDATION CHECKLIST
Criteria and Qualifications: REGION I Organics Guideline (Draft 12/96)
VOLATILE

Site: YANKEE ROWE

Project #: 3617087152/02.01

Box #: YR-101

Sample IDs: See attached tracking sheet or samples listed.

<u>CFW-6</u>	<u>CFW-5 DUP</u>	<u>SW-3</u>
<u>SW-4</u>	<u>CFW-1</u>	<u>SP-1</u>
<u>SW-5</u>	<u>SW-1</u>	<u>TB-005</u>
<u>CFW-5</u>	<u>SW-2</u>	<u>TB-006</u>

This checklist is used to document Tier II validation. It can also be used to document Level III validation. During Level III validation, calculation and transcription checks are completed for instrument tuning, surrogates, target compounds, spike recoveries, calibration data, and internal standards as specified in the guideline. These checks are documented on attached validation notes.

YES	NO	
X	<input type="checkbox"/>	Hold Times Attach list of samples which exceed hold times. Indicate <u>total</u> hold time and qualifiers.
X	<input type="checkbox"/>	Data completeness Cover page, Forms I-VIII, DC-1, DC-2, and raw data Comments on missing information (if any) and action taken.
X	<input type="checkbox"/>	Original shipping and receiving documents Chain of Custody
X	<input type="checkbox"/>	All original lab records of sample preparation and analysis
<input type="checkbox"/>	<input type="checkbox"/>	GC/MS Instrument Performance Check Form V present and complete for all samples for each 12-hour period samples were analyzed Attach copy of Form V if criteria was not met. Highlight criteria not met, list samples affected, and list qualifiers added. OK – Per case narrative
<input type="checkbox"/>	<input type="checkbox"/>	Appropriate number of significant figures reported (at least 2)
<input type="checkbox"/>	<input type="checkbox"/>	Mass/Charge list (m/z) criteria met
<input type="checkbox"/>	<input type="checkbox"/>	GC/MS Initial Calibration Form VI present and complete for all samples Attach copy of Form VI if criteria was not met. Highlight criteria not met, list samples affected, and list qualifiers added. OK – Per case narrative
<input type="checkbox"/>	<input type="checkbox"/>	%RSD less than or equal to 30%
<input type="checkbox"/>	<input type="checkbox"/>	RRF greater than or equal to 0.05
<input type="checkbox"/>	<input type="checkbox"/>	GC/MS Continuing Calibration Form VII present and complete for all samples Attach copy of Form VII if criteria was not met. Highlight criteria not met, list samples affected, and list qualifiers added. OK – Per case narrative
<input type="checkbox"/>	<input type="checkbox"/>	%D less than or equal to 25%
<input type="checkbox"/>	<input type="checkbox"/>	RRF greater than or equal to 0.05.
X	<input type="checkbox"/>	Method Blanks Form I & IV present and complete for all blanks Attach copy of Form IV for all samples. List all contaminants, concentrations and action level.
X	<input type="checkbox"/>	One analyzed per GC/MS system per tune
X	<input type="checkbox"/>	One analyzed per matrix/concentration level
<input type="checkbox"/>	X	Contaminants Attach copy of Form I for contaminated field or trip blanks. Circle all contaminants. Field QC blanks will not be used to determine action levels for non-aqueous samples. Flag samples EB (equipment blank), TB (trip blank), or BB (bottle blank) as indicated in the guideline.
<input type="checkbox"/>	<input type="checkbox"/>	A cleaning blank was analyzed after any high concentration sample (exceeding calibration range)

REGION I TIER II VALIDATION CHECKLIST
Criteria and Qualifications: REGION I Organics Guideline (Draft 12/96)
VOLATILE

Site: YANKEE ROWE

Project #: 3617087152/02.01

Box #: YR-101

<p>Trip/Equipment Blanks</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Contaminants</p>	<p>Describe professional judgements and qualifiers if applied.</p>
<p>Surrogate/System Monitoring Compounds Recovery</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Form II present and complete for all samples</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Percent recovery criteria met</p>	<p>Attach copies of Form II (Part 2) for all non-compliant %R. Circle outliers & indicate qualifier.</p>
<p>Matrix Spike/Matrix Spike Duplicate</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Form I and III present and complete</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Percent recovery criteria met</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> RPD criteria met</p>	<p>Attach copy of Form III for all non-compliant % and RPD. Circle all non-compliances and indicate qualifiers. The MS associated with sample CFW-5 and its field duplicate CFW-5DUP had a percent recovery below the lower laboratory QC limit of 79% for 1,2,4-trichlorobenzene (78), indicating potential low bias. The relative percent difference between the MS and MSD was greater than the laboratory QC limit of 20 for naphthalene (22). Naphthalene and 1,2,4-trichlorobenzene were reported as non-detect (U) in samples CFW-5 and CFW-5DUP and were qualified as estimated (UJ).</p>
<p>Field Duplicates</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Form I's present and complete</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> RPD criteria (water <30%, soils <50%) met</p>	<p>Identify field duplicate pair and attach list of all compounds with non-compliant RfDs. Indicate qualifiers.</p>
<p>Internal Standard</p> <p><input type="checkbox"/> <input type="checkbox"/> Form VIII present and complete for all samples</p> <p><input type="checkbox"/> <input type="checkbox"/> Area counts within -50 to +100 percent of calib. std.</p> <p><input type="checkbox"/> <input type="checkbox"/> Retention Time within 30 seconds of calib. std.</p>	<p>Attach copy of Form VIII if criteria was not met. Highlight criteria not met, list samples affected, and list qualifiers added.</p> <p>OK – Per case narrative</p>
<p>Target Compounds List (TCL)</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Form I present and complete for all samples</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Reviewed narrative for anomalies</p>	<p>Call (Fax) lab for re-submittals. Attach copy of facsimile transmission to this review.</p>
<p>Tentatively Identified Compounds (TICs)</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Form I Part B present and complete for all samples</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> TCL compounds reported as TICs</p>	<p>Call lab for missing data. Fill out TIC Form and submit to data entry.</p>
<p>Table 1 Check</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Check Table 1 results against Form I's and ensure all data on Table 1 is correct.</p>	

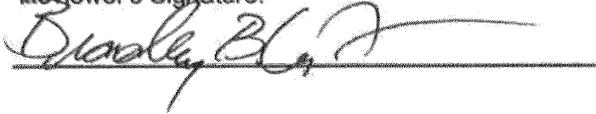
REGION I TIER II VALIDATION CHECKLIST
Criteria and Qualifications: REGION I Organics Guideline (Draft 12/96)
VOLATILE

Site: YANKEE ROWE

Project #: 3617087152/02.01

Box #: YR-101

Reviewer's Signature:



Comments: LCS - OK

Date:
3/30/10

Method: 5030B / 8260B Aqueous
 SOP: 3.3.40 / 3.3.13
 Matrix Spike Sample/ Matrix Spike Sample Duplicate Recovery

Lab Name: Northeast Laboratory Services
 SDG No.
 Contractor
 Project No.
 Case No.
 Client No. Mactec
 Lab Code AM01015 13
 Sample(s):

Instrument ID: 5970 F
 GC Column: Restek RTX-VMS, 0.25um ID, 30m

MS ID: AM01015.14MS
 File #: F0905.D
 Date/Time Analyzed: 5 Mar 2010 12:08

MSD ID: AM01015.16MSD
 File #: F0906.D
 Date/Time Analyzed: 5 Mar 2010 15:49

Compound	Spike Added ug/L	Native Sample Concentration ug/L	MS Concentration ug/L	MSD Concentration ug/L	MS %		MSD %		Recovery Window %		RPD #	RPD %
					Rec. #	Rec. #						
Vinyl Chloride	50.0	1.0	U	45.2	44.8	90.4	89.6	48	-133	0.689	20	
Bromomethane	50.0	1.0	U	44.0	36.7	88.0	73.4	69	-155	18.1	20	
Acetone	50.0	1.0	U	36.9	39.7	73.8	79.4	D	-239	7.31	20	
1,1-Dichloroethene	50.0	1.0	U	59.2	59.8	118	120	42	-138	1.01	20	
Methylene Chloride	50.0	1.0	U	44.6	43.8	89.2	87.6	30	-154	1.81	20	
(1-Butyl-Methyl Ether (MTBE)	100	2.0	U	92.9	94.8	92.9	94.8	71	-129	2.02	20	
trans-1,2-Dichloroethene	50.0	1.0	U	46.5	49.0	97.0	98.0	52	-141	1.03	20	
1,1-Dichloroethane	50.0	1.0	U	47.4	48.0	94.8	96.0	44	-142	1.26	20	
2-Butanone	50.0	1.0	U	42.2	44.2	84.4	88.4	47	-155	4.63	20	
cis-1,2-Dichloroethene	50.0	1.0	U	47.3	47.4	94.6	94.8	58	-135	0.211	20	
Chloroform	50.0	1.0	U	47.9	48.6	95.8	97.2	74	-121	1.45	20	
1,1,1-Trichloroethane	50.0	1.0	U	51.7	52.0	103	104	84	-122	0.579	20	
Carbon Tetrachloride	50.0	1.0	U	52.6	53.8	105	108	81	-131	2.26	20	
1,2-Dichloroethane	50.0	1.0	U	46.1	47.2	92.2	94.4	77	-131	2.36	20	
Benzene	50.0	1.0	U	48.1	47.9	96.2	95.8	39	-140	0.417	20	
Trichloroethene	50.0	1.0	U	56.3	57.1	113	114	77	-123	1.41	20	
1,2-Dichloropropane	50.0	1.0	U	49.6	50.9	99.2	102	52	-133	2.59	20	
Bromodichloromethane	50.0	1.0	U	51.6	52.7	103	105	76	-127	2.11	20	
4-Methyl-2-Pentanone	50.0	1.0	U	49.6	51.0	99.2	102	69	-128	2.78	20	
cis-1,3-Dichloropropene	50.0	1.0	U	51.5	52.8	103	106	82	-127	2.49	20	
Toluene	50.0	1.0	U	53.8	55.0	108	110	73	-122	2.21	20	
trans-1,3-Dichloropropene	50.0	1.0	U	51.6	52.4	103	105	84	-155	1.54	20	
1,1,2-Trichloroethane	50.0	1.0	U	51.6	51.8	103	104	73	-134	0.387	20	
1,3-Dichloropropane	50.0	1.0	U	50.7	51.6	101	103	73	-126	1.76	20	
Tetrachloroethene	50.0	1.0	U	55.1	55.5	110	111	55	-116	0.723	20	
Dibromochloromethane	50.0	1.0	U	52.8	54.0	106	108	62	-158	2.25	20	
1,2-Dibromoethane	50.0	1.0	U	52.1	52.4	104	105	67	-148	0.574	20	
Chlorobenzene	50.0	1.0	U	52.3	53.5	105	107	76	-124	2.27	20	
1,1,1,2-Tetrachloroethane	50.0	1.0	U	53.0	54.4	106	109	76	-127	2.61	20	
Ethylbenzene	50.0	1.0	U	54.7	54.9	109	110	76	-124	0.365	20	
m,p-Xylene	100	2.0	U	110	110	110	110	79	-126	0.000	20	
o-Xylene	50.0	1.0	U	54.1	53.8	108	108	80	-129	0.556	20	
Styrene	50.0	1.0	U	52.9	53.4	106	107	77	-128	0.941	20	
Bromoform	50.0	1.0	U	53.3	53.2	107	106	59	-162	0.188	20	
1,1,2,2-Tetrachloroethane	50.0	1.0	U	52.1	51.2	104	102	55	-155	1.74	20	
1,3-Dichlorobenzene	50.0	1.0	U	52.7	55.3	105	111	84	-123	4.81	20	
1,4-Dichlorobenzene	50.0	1.0	U	51.9	55.0	104	110	72	-121	5.80	20	
1,2-Dichlorobenzene	50.0	1.0	U	51.8	53.3	106	107	78	-125	2.85	20	
1,2,4-Trichlorobenzene	50.0	1.0	U	38.8	46.5	77.6*	93.0	79	-156	18.1	20	
Naphthalene	50.0	1.0	U	35.3	43.8	70.6*	87.6	42	-180	21.6*	20	
1,2,3-Trichlorobenzene	50.0	1.0	U	36.4	44.2	72.8	88.4	42	-180	19.4	20	

RPD Spike Recovery

1	out of	40	outside limits
1	out of	80	outside limits

#Column to be used to flag recovery and RPD values with an asterisk.
 *Values outside of QC limits
 NC: Not calculable
 Comments:

LES MKS

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Total Metals (excluding mercury)

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
CFW-6	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
SW-4	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
SW-5	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5DUP	3/12/10	DU (Field)	Yes	O.K.	Yes	See attached checklist
CFW-1	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
SW-1	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
SW-2	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
SW-3	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
SP-1	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
MW-101A	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
Laboratory QC						
LRB 031010	3/12/10	BL	Yes	O.K.	Yes	See attached checklist
LCS 031010	3/12/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD 031010	3/12/10	QC	Yes	O.K.	Yes	See attached checklist
AM01015.1LD	3/12/10	DU	Yes	O.K.	Yes	See attached checklist
AM01015.1MS	3/12/10	SK	Yes	O.K.	Yes	See attached checklist
AM01015.1MSD	3/12/10	SK	Yes	O.K.	Yes	See attached checklist

NOTE

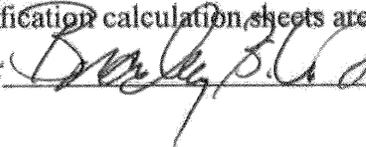
- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

I. All Requested analyses performed on all samples? X Yes No

II. Resolution of Sample Processing/Missing Analytes comments:

No processing issues or missing analytes

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

- III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
 - IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached checklist for details on sample qualifications
 - V. Data verification calculation sheets are attached (at least one calculation per batch) NA
- Reviewer  Date: March 31, 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Dissolved Metals (excluding mercury)

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
SW-408	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
SW-011	3/12/10	FS	Yes	O.K.	Yes	See attached checklist
Laboratory QC						
LRB 031010	3/12/10	BL	Yes	O.K.	Yes	See attached checklist
LCS 031010	3/12/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD 031010	3/12/10	QC	Yes	O.K.	Yes	See attached checklist
AM01015.1LD	3/12/10	DU	Yes	O.K.	Yes	See attached checklist
AM01015.1MS	3/12/10	SK	Yes	O.K.	Yes	See attached checklist
AM01015.1MSD	3/12/10	SK	Yes	O.K.	Yes	See attached checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? Yes No
 - II. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
 - III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
 - IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached checklist for details on sample qualifications
 - V. Data verification calculation sheets are attached (at least one calculation per batch) NA
- Reviewer Brody JLD Date: March 31, 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

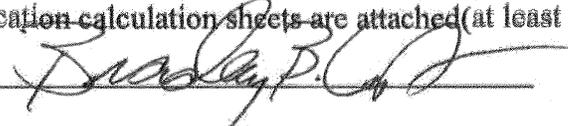
List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Dissolved Mercury

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
SW-408	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
SW-011	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
Laboratory QC						
LRB-031110B	3/15/10	BL	Yes	O.K.	Yes	See attached checklist
LCS-031110B	3/15/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD-031110B	3/15/10	QC	Yes	O.K.	Yes	See attached checklist
AM01015.1LD	3/15/10	DU	Yes	O.K.	Yes	See attached checklist
AM01015.1MS	3/15/10	SK	Yes	O.K.	Yes	See attached checklist
AM01015.1MSD	3/15/10	SK	Yes	O.K.	Yes	See attached checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? X Yes No
 - II. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
 - III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
 - IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached checklist for details on sample qualifications
 - V. Data verification calculation sheets are attached (at least one calculation per batch) NA
- Reviewer  Date: March 31, 2010

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC, Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Total Mercury

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
CFW-6	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
SW-4	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
SW-5	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5DUP	3/15/10	DU (Field)	Yes	O.K.	Yes	See attached checklist
CFW-1	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
SW-1	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
SW-2	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
SW-3	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
SP-1	3/15/10	FS	Yes	O.K.	Yes	See attached checklist
Laboratory QC						
LRB-031110B	3/15/10	BL	Yes	O.K.	Yes	See attached checklist
LCS-031110B	3/15/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD-031110B	3/15/10	QC	Yes	O.K.	Yes	See attached checklist
AM01015.1LD	3/15/10	DU	Yes	O.K.	Yes	See attached checklist
AM01015.1MS	3/15/10	SK	Yes	O.K.	Yes	See attached checklist
AM01015.1MSD	3/15/10	SK	Yes	O.K.	Yes	See attached checklist

NOTE

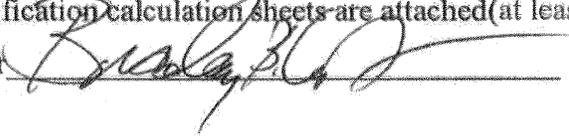
- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

I. All Requested analyses performed on all samples? Yes No

II. Resolution of Sample Processing/Missing Analytes comments:

No processing issues or missing analytes

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

- III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
- IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached checklist for details on sample qualifications
- V. Data verification calculation sheets are attached (at least one calculation per batch) NA
- Reviewer:  Date: March 31, 2010

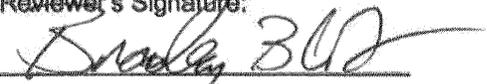
REGION I TIER II VALIDATION CHECKLIST
Criteria and Qualifiers: Region I Guidelines (6/13/88 Modified 2/89)
INORGANIC

SITE: YANKEE ROWE Project #: 3617087152/02.01 Box #: YR-101

Sample IDs: See attached tracking sheet or samples listed:
 CFW-6, SW-4, SW-5, CFW-5, CFW-5DUP, CFW-1, SW-1, SW-2, SW-3, SP-1, SW-408, SW-011,
 MW-101A

YES	NO	VALIDATION CHECK	NONCOMPLIANCE NOTES	
X	<input type="checkbox"/>	Hold Times Met	Attach list of samples which exceed hold times. Indicate <u>total</u> hold time and qualifiers.	
X	<input type="checkbox"/>	Samples preserved		
Data Completeness			Comments on missing information (if any) and action taken.	
X	<input type="checkbox"/>	Cover page, Forms I - XIV, DC-1, DC-2, and raw data.		
X	<input type="checkbox"/>	Original shipping and receiving documents		Chain of Custody
X	<input type="checkbox"/>	Lab records of sample transfer, preparation and analysis		Internal laboratory chain of custody
Calibration			<p>ICP: at least one blank and one standard AA and CN: at least one blank and three standards, with one standard at the CRDL for AA. Hg: at least one blank and four standards Correlation coefficient criteria applicable to all analyses except ICP If correlation coefficient is not acceptable, discuss deficiencies, affected samples and action taken.</p> <p>See method.</p> <p>No acceptance range dictated by CLP methods or National Functional Guidelines. See regional guidelines for guidance.</p> <p>90-110% for ICP, 85-115% for CN, 80-120% for Hg</p> <p>Every 10 samples or every 2 hrs.</p> <p>Attach copy of Form II (2A) for all noncompliant ICVs and CCVs. Circle non-compliances and indicate qualifiers.</p> <p>OK - Per case narrative</p>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Appropriate number of standards used to establish calibration curve.		
<input type="checkbox"/>	<input type="checkbox"/>	Correlation coefficient > 0.995.		
<input type="checkbox"/>	<input type="checkbox"/>	Calibrated daily.		
<input type="checkbox"/>	<input type="checkbox"/>	CRI/CRA analyzed at the proper frequency in the analytical run sequence.		
<input type="checkbox"/>	<input type="checkbox"/>	CRI/CRA %R within acceptance range.		
<input type="checkbox"/>	<input type="checkbox"/>	ICV/CCV %R within acceptance range.		
<input type="checkbox"/>	<input type="checkbox"/>	CCVs analyzed at the proper frequency.		
<input type="checkbox"/>	<input type="checkbox"/>	Traceable ICV source.		

<p>Blanks</p> <p>Method:</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Method blank was prepared with each batch of samples or with a maximum of 20 samples</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Results >IDL</p> <p><input type="checkbox"/> <input type="checkbox"/> Absolute value negative method blank results > 2xIDL</p> <p><input type="checkbox"/> <input type="checkbox"/> Reanalysis was conducted if necessary</p> <p>Calibration Blanks</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> ICB/CCB results > IDL</p> <p><input type="checkbox"/> <input type="checkbox"/> Absolute value of negative ICB/CCB results > 2xIDL</p> <p><input type="checkbox"/> <input type="checkbox"/> CCB analyzed every 10 samples or 2 hrs.</p> <p>Field Blanks</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Results >IDL</p>	<p>Attach copy of Form III (3). Circle all contaminants; indicate action to be taken, action level if applicable, and samples affected.</p> <p>Establish action level at 5Xcontamination level. Qualify data per Region I Guidelines.</p> <p>Establish action level at 5X abs value of result. J (+<AL) and UJ (ND).</p> <p>See above under method blank for action.</p> <p>See above under method blank for action.</p> <p>Attach copy of Form III (3). Circle all contaminants; indicate action to be taken, action level if applicable, and samples affected.</p> <p>OK- Per case narrative</p>
<p>Interference Check Sample</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> ICS analyzed at proper frequency</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> ICS AB %R 80%-120%</p> <p>For samples with interference concentrations > 50% of interference concentration in ICS solution A:</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Are positive ICS A results >IDL for analytes not present in the ICS A solution?</p> <p><input type="checkbox"/> <input type="checkbox"/> Are negative ICS A results >2XIDL for analytes not present in the ICS A solution?</p>	<p>An ICS must be run at the beginning and end of run or every 8 hours.</p> <p>Interference's are Calcium, Aluminum, Iron and Magnesium.</p> <p>If yes, J sample result (>2XIDL) for that analyte.</p> <p>If yes, UJ (ND) sample result for that analyte.</p> <p>OK - Per case narrative</p>
<p>Matrix Spikes</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> All compounds are within %R of 75-125% excluding results exceeding the spike concentration by $\geq 4x$</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Were post-digestion spikes reported on VB for ICP, flame, Hg and CN for unacceptable pre-digestion spike recoveries</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Was a field blank used for spike analysis</p>	<p>Attach copy of Form V (Part 1) 5A for noncompliant % Recoveries. The MS/MSD associated with sample CFW-5 and its field duplicate CFW-5DUP had percent recoveries above the upper laboratory QC limit of 125% for selenium (133/132), indicating potential high bias. Selenium detections samples CFW-5 and CFW-5DUP were qualified as estimated (J).</p> <p>Circle all non-compliances and indicate qualifiers.</p> <p>Ca - saturated %rec not calculated, OK; Fe and Mn - sample concentration >4x spike, OK.</p>

<p>Laboratory Duplicate</p> <p><input type="checkbox"/> X <input checked="" type="checkbox"/> Was a field blank used as the lab duplicate</p> <p>X <input type="checkbox"/> Is the RPD within control limits of $\pm 20\%$ (35% for soil) for sample values $> 5x$ CRDL</p> <p>X <input type="checkbox"/> Is the control limit of \pm CRDL (35% for soil) met for sample values $< 5x$ CRDL</p> <p>X <input type="checkbox"/> Was a duplicate analyzed for every matrix and every 20 samples or batch</p>	<p>Attach copy of Lab-Duplicate form for criteria not met. Indicate exceeded limits, samples affected, and action taken.</p>
<p>Field Duplicate</p> <p>X <input type="checkbox"/> For sample values $> 5x$ CRDL, the RPD control limit of $\pm 30\%$ (50% for soil) was met</p> <p>X <input type="checkbox"/> For sample values $< 5x$ CRDL, the control limit of $\pm 2x$ CRDL (4x CRDL for soil) was met</p>	<p>Attach list of samples that did not meet criteria requirements and qualifiers used.</p>
<p>Laboratory Control Samples (LCS)</p> <p>X <input type="checkbox"/> Percent recoveries are within limits of 80-120% for aqueous samples and within control limits for soils.</p> <p>X <input type="checkbox"/> An LCS was analyzed for each matrix, batch of samples, or every 20 samples.</p>	<p>Attach copy of Form VII (7) from for all noncompliant recoveries. Circle non-compliances and indicate qualifiers, and samples affected.</p>
<p>Furnace AA Analysis</p> <p><input checked="" type="checkbox"/> N/A <input type="checkbox"/> Spike recovery criteria ($85 \leq \% R \leq 115$) was met</p> <p><input type="checkbox"/> <input type="checkbox"/> Duplicate injection criteria met</p> <p><input type="checkbox"/> <input type="checkbox"/> Are "M" flags present on Form I's indicating failing duplicate injection criteria</p> <p><input type="checkbox"/> <input type="checkbox"/> Are "S" flags present on Form I's indicating MAS analysis was required</p>	<p>Attach sheet indicating criteria not met and qualifiers used.</p>
<p>Serial Dilution</p> <p><input checked="" type="checkbox"/> N/A <input type="checkbox"/> Are any percent difference criteria $> 15\%$</p> <p><input type="checkbox"/> <input type="checkbox"/> Are results of the diluted samples $>$ the original sample results</p>	<p>Attach copy of Serial Dilution Form for criteria not met. Circle criteria not met, samples affected, and qualifiers used.</p> <p>OK - Per case narrative</p>
<p>Reviewer's Signature:  <hr/> Date <u>4/2/10</u></p>	<p>Comments:</p>

**USEPA 200.7/6016B Aqueous
Matrix Spike/Matrix Spike Duplicate Recovery**

Lab Name: Northeast Laboratory Services
 SDG No.
 Contractor: Mactec
 Project No.
 Case No.
 Client No.
 Lab Code
 Instrument ID: ICP 3000XL

Native Sample ID: AM01015.1
 Date Digested: 3/10/2010
 Date Analyzed: 3/12/2010

MS ID: AM01015.1 MS
 Date Digested: 3/10/2010
 Date Analyzed: 3/12/2010

MSD ID: AM01015.1 MSD
 Date Digested: 3/10/2010
 Date Analyzed: 3/12/2010

Analyte/Wavelength	Spike Added mg/L	Sample Concentration mg/L		MS Concentration mg/L	MSD Concentration mg/L	MS % Rec	MSD % Rec.	Recovery Window %	% RPD	RPD Limit %
Ag 338.289	0.100	0.008	U	0.098	0.106	98.0	106	75-125	7.84	20.0
As 188.979	0.250	0.010	U	0.239	0.239	95.6	95.6	75-125	0.00	20.0
Ba 233.527	0.500	0.060		0.516	0.496	103	99.2	75-125	0.00	20.0
Ca 317.933	50.0	SATURATED		SATURATED	SATURATED	0	0	75-125	0.00	20.0
Cd 228.802	0.250	0.004	U	0.245	0.240	98.0	96.0	75-125	2.06	20.0
Cr 267.716	0.250	0.010	U	0.249	0.239	100	95.6	75-125	4.10	20.0
Cu 324.752	0.250	0.010	U	0.250	0.239	100	95.6	75-125	4.50	20.0
Fe 238.204	0.050	44.7		44.9	44.3	0	0	75-125	0.00	20.0
Mn 257.610	0.050	3.80		3.80	3.75	0	0	75-125	0.00	20.0
Na 330.237	10.0	2.90		8.30	7.93	83.0	79.3	75-125	4.56	20.0
Pb 220.353	0.250	0.010	U	0.252	0.249	101	100	75-125	1.20	20.0
Se 196.026	1.000	0.021		1.33	1.32	133	132	75-125	0.75	20.0
Zn 202.548	0.25	0.020	U	0.251	0.256	100	102	75-125	1.97	20.0

RPD

0

 out of

13

 outside window
 Spike Recovery

8

 out of

26

 outside window

*Values outside acceptance window
 Comments:

Sample results and sample duplicate results are reported from undiluted samples for fair comparison.
 This is because the matrix spikes were not diluted.

709

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Alkalinity

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
CFW-6	3/5/10	FS	Yes	O.K.	Yes	See attached checklist
SW-4	3/5/10	FS	Yes	O.K.	Yes	See attached checklist
SW-5	3/5/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5	3/11/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5DUP	3/5/10	DU (Field)	Yes	O.K.	Yes	See attached checklist
CFW-1	3/5/10	FS	Yes	O.K.	Yes	See attached checklist
SW-1	3/5/10	FS	Yes	O.K.	Yes	See attached checklist
SW-2	3/5/10	FS	Yes	O.K.	Yes	See attached checklist
SW-3	3/5/10	FS	Yes	O.K.	Yes	See attached checklist
Laboratory QC						
Blank	3/5/10	BL	Yes	O.K.	Yes	See attached checklist
LCS	3/5/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD	3/5/10	QC	Yes	O.K.	Yes	See attached checklist
Blank	3/11/10	BL	Yes	O.K.	Yes	See attached checklist
LCS	3/11/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD	3/11/10	QC	Yes	O.K.	Yes	See attached checklist
AM01015.8MS	3/11/10	SK	Yes	O.K.	Yes	See attached checklist
AM01015.9MSD	3/11/10	SK	Yes	O.K.	Yes	See attached checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

I. All Requested analyses performed on all samples? X Yes No

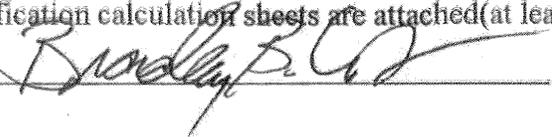
II. Resolution of Sample Processing/Missing Analytes comments:

No processing issues or missing analytes

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

- III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
- IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached checklist for details on sample qualifications
- V. Data verification calculation sheets are attached (at least one calculation per batch) NA

Reviewer



Date: March 31, 2010

Project: YANKEE ROWE
Project #: 3617087152/02.01
Date: 3/30/10

Method: Alkalinity
Laboratory and SDG: YR-101
Reviewer: Bradley B. LaForest, NRCC-EAC

Sample IDs: CFW-6, SW-4, SW-5, CFW-5, CFW-5DUP, CFW-1, SW-1, SW-2, SW-3

1. Case Narrative and Data Package Completeness
OK
2. Holding Times
OK
3. QC Blanks
OK
4. Initial Calibration Records
NA
5. Continuing Calibration Records
NA
6. Laboratory Control Sample Review
OK
7. field Duplicate Precision
OK
8. Matrix Spike Results (if applicable)
OK

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Nitrate, Sulfate, Chloride

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
CFW-6	3/3/10	FS	Yes	O.K.	Yes	See attached checklist
SW-4	3/3/10	FS	Yes	O.K.	Yes	See attached checklist
SW-5	3/3/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5	3/3/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5DUP	3/3/10	DU (Field)	Yes	O.K.	Yes	See attached checklist
CFW-1	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
SW-1	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
SW-2	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
SW-3	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
Laboratory QC						
SBLK	3/3/10	BL	Yes	O.K.	Yes	See attached checklist
LCS	3/3/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD	3/3/10	QC	Yes	O.K.	Yes	See attached checklist
AM01015	3/3/10	SK	Yes	O.K.	Yes	See attached checklist
AM01015	3/3/10	SK	Yes	O.K.	Yes	See attached checklist
SBLK	3/4/10	BL	Yes	O.K.	Yes	See attached checklist
LCS	3/4/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD	3/4/10	QC	Yes	O.K.	Yes	See attached checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

I. All Requested analyses performed on all samples? X Yes No

II. Resolution of Sample Processing/Missing Analytes comments:

No processing issues or missing analytes

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

III. Resolution of Sample Processing/Missing Analytes comments:

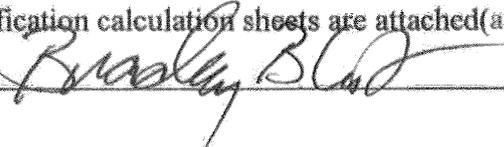
No processing issues or missing analytes

IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):

See attached checklist for details on sample qualifications

V. Data verification calculation sheets are attached(at least one calculation per batch) NA

Reviewer



Date: March 31, 2010

Project: YANKEE ROWE
Project #: 3617087152/02.01
Date: 3/30/10

Method: Nitrate, Sulfate, Chloride
Laboratory and SDG: YR-101
Reviewer: Bradley B. LaForest, NRCC-EAC

Sample IDs: CFW-6, SW-4, SW-5, CFW-5, CFW-5DUP, CFW-1, SW-1, SW-2, SW-3

1. Case Narrative and Data Package Completeness

OK

2. Holding Times

OK

3. QC Blanks

OK

4. Initial Calibration Records

NA

5. Continuing Calibration Records

NA

6. Laboratory Control Sample Review

The laboratory control sample duplicate associated with a subset of samples had a percent recovery above the laboratory upper QC limit of 110 for sulfate (117), indicating potential high bias. Sulfate detections in samples CFW-6, SW-4, and SW-5 were qualified as estimated (J).

7. Field Duplicate Precision

OK

8. Matrix Spike Results (if applicable)

The matrix spike/matrix spike duplicate associated with sample CFW-5 and its field duplicate CFW-5DUP had percent recoveries below the laboratory lower QC limit of 90 for chloride (88/88), indicating potential low bias. Chloride results associated samples CFW-6, SW-4, SW-5, CFW-5, CFW-5DUP, CFW-1, SW-1, SW-2, and SW-3 were qualified as estimated (J/UJ).

Lab Name: Northeast Laboratory Services
 SDG No.
 Contractor: Mactec
 Project No.
 Case No.
 Client No.
 Lab Code: AM01012-AM01016, AM01105-AM01108

Instrument ID: DIONEX ION CHROMATOGRAPH 600
 Date Analyzed: 3/3/2010, 03/04/10
 Concentration Units: mg/L

Analyte	True	Found (LCS)	%R	Found (LCSD)	%R	%RPD	RPD Limit	Rec. Limit
Nitrate: 3/3/10	10.0	10.37	103.7	10.33	103.3	0.386	20.0	90.0-110
Sulfate: 3/3/10	25.0	25.0	100 ✓	29.3	117	15.86	20.0	90.0-110
Chloride: 3/3/10	25.0	24.6	98	24.5	98	0.285	20.0	90.0-110

Analyte	True	Found (LCS)	%R	Found (LCSD)	%R	%RPD	RPD Limit	Rec. Limit
Nitrate: 3/4/10	10.0	10.1	101 ✓	10.11	101.1	0.60	20.0	90.0-110
Sulfate: 3/4/10	25.0	24.3	97 ✓	25.1	100 ✓	3.038	20.0	90.0-110
Chloride: 3/4/10	25.0	24.0	96	24.0	96	0.000	20.0	90.0-110

RPD out of outside limits
 Spike Recovery out of outside limits

07-07-10

Lab Name: Northeast Laboratory Services
 SDG No. _____
 Contractor: Mactec
 Project No. _____
 Case No. _____
 Client No. _____
 Lab Code: _____

Instrument ID: DIONEX ION CHROMATOGRAPH 600
 Date Analyzed: 3/3/2010, 3/4/2010
 Concentration Units: mg/L

Lab Sample ID: AM01015

Analyte	Spike Added	Spiked Sample Result (MS)	Sample Results	Q	%R	Spiked Sample Result (MSD)	%R	Limit %R	%RPD MS/MSD	Limit % RPD
Nitrate	10	9.8	0.50	U	98	9.8	98	90-110	0.00000	20.0
Sulfate	25	24.5	0.10	U	98	24.9	99	90-110	1.506	20.0
Chloride	25	27.0	5.08		87.6*	27.1	87.9*	90-110	0.319	20.0

RPD out of outside limits

Spike Recovery out of outside limits

Handwritten signature

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Chemical Oxygen Demand

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
CFW-6	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
SW-4	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
SW-5	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5DUP	3/10/10	DU (Field)	Yes	O.K.	Yes	See attached checklist
CFW-1	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
SW-1	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
SW-2	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
SW-3	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
Laboratory QC						
Blank	3/10/10	BL	Yes	O.K.	Yes	See attached checklist
LCS	3/10/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD	3/10/10	QC	Yes	O.K.	Yes	See attached checklist
AM01108MS	3/10/10	SK	Yes	O.K.	Yes	See attached checklist
AM01108MSD	3/10/10	SK	Yes	O.K.	Yes	See attached checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? X Yes No
- II. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
- III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached checklist for details on sample qualifications

V. Data verification calculation sheets are attached (at least one calculation per batch) NA

Reviewer

Bradley B. C.

Date: April 2, 2010

Project: YANKEE ROWE
Project #: 3617087152/02.01
Date: 3/30/10

Method: COD
Laboratory and SDG: YR-101
Reviewer: Bradley B. LaForest, NRCC-EAC

Sample IDs: CFW-6, SW-4, SW-5, CFW-5, CFW-5DUP, CFW-1, SW-1, SW-2, SW-3

1. Case Narrative and Data Package Completeness
OK
2. Holding Times
OK
3. QC Blanks
OK
4. Initial Calibration Records
NA
5. Continuing Calibration Records
NA
6. Laboratory Control Sample Review
OK
7. Field Duplicate Precision
OK
8. Matrix Spike Results (if applicable)
OK

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Cyanide

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
CFW-6	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
SW-4	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
SW-5	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5	3/4/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5DUP	3/8/10	DU (Field)	Yes	O.K.	Yes	See attached checklist
CFW-1	3/8/10	FS	Yes	O.K.	Yes	See attached checklist
SW-1	3/8/10	FS	Yes	O.K.	Yes	See attached checklist
SW-2	3/8/10	FS	Yes	O.K.	Yes	See attached checklist
SW-3	3/8/10	FS	Yes	O.K.	Yes	See attached checklist
Laboratory QC						
Blank	3/4/10	BL	Yes	O.K.	Yes	See attached checklist
LCS	3/4/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD	3/4/10	QC	Yes	O.K.	Yes	See attached checklist
AM01015D	3/4/10	DU	Yes	O.K.	Yes	See attached checklist
Blank	3/8/10	BL	Yes	O.K.	Yes	See attached checklist
LCS	3/8/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD	3/8/10	QC	Yes	O.K.	Yes	See attached checklist
AM01105D	3/8/10	DU	Yes	O.K.	Yes	See attached checklist
AM01016MS	3/8/10	SK	Yes	O.K.	Yes	See attached checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

- I. All Requested analyses performed on all samples? X Yes No
- II. Resolution of Sample Processing/Missing Analytes comments:

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

- No processing issues or missing analytes
- III. Resolution of Sample Processing/Missing Analytes comments:
No processing issues or missing analytes
- IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):
See attached checklist for details on sample qualifications
- V. Data verification calculation sheets are attached (at least one calculation per batch) NA

Reviewer

Brody Blodgett

Date: March 31, 2010

Project: YANKEE ROWE
Project #: 3617087152/02.01
Date: 3/30/10

Method: CYANIDE
Laboratory and SDG: YR-101
Reviewer: Bradley B. LaForest, NRCC-EAC

Sample IDs: CFW-6, SW-4, SW-5, CFW-5, CFW-5DUP, CFW-1, SW-1, SW-2, SW-3

1. Case Narrative and Data Package Completeness

OK

2. Holding Times

OK

3. QC Blanks

OK

4. Initial Calibration Records

NA

5. Continuing Calibration Records

NA

6. Laboratory Control Sample Review

OK

7. Field Duplicate Precision

OK

8. Matrix Spike Results (if applicable)

OK

ATTACHMENT C
ASSESSMENT OF DATA QUALITY

List each analysis individually. Use a separate table for QC. Duplicates, Blanks and Spikes.
(Several pages will be required for each batch)

Total Dissolved Solids

Sample ID	Analysis Date	Sample Designator (Note 1)	All Scheduled Analyses Performed?	Sample Processing Comments?	Units Correct?	Assessment Criteria (Note 2) (Note 3)
CFW-6	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
SW-4	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
SW-5	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
CFW-5DUP	3/10/10	DU (Field)	Yes	O.K.	Yes	See attached checklist
CFW-1	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
SW-1	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
SW-2	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
SW-3	3/10/10	FS	Yes	O.K.	Yes	See attached checklist
Laboratory QC						
Blank	3/10/10	BL	Yes	O.K.	Yes	See attached checklist
LCS	3/10/10	QC	Yes	O.K.	Yes	See attached checklist
LCSD	3/10/10	QC	Yes	O.K.	Yes	See attached checklist
LCS Second Source	3/10/10	QC	Yes	O.K.	Yes	See attached checklist
AM01108	3/10/10	DU	Yes	O.K.	Yes	See attached checklist

NOTE

- 1.0 FS = Field Sample, BL = Blank, QC = Lab Quality Control. DU = Duplicate, SK = Spike
- 2.0 Reported MDC \leq Required MDC for FS, DU, BL. Yield for all samples evaluated when reported.
- 3.0 Requirements for SK, DU, and QC per section D.

I. All Requested analyses performed on all samples? X Yes No

II. Resolution of Sample Processing/Missing Analytes comments:

No processing issues or missing analytes

III. Resolution of Sample Processing/Missing Analytes comments:

No processing issues or missing analytes

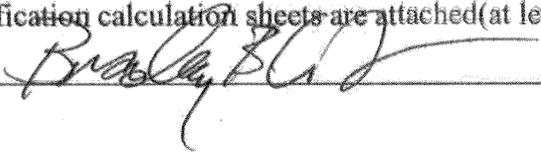
ATTACHMENT C
ASSESSMENT OF DATA QUALITY

IV. Resolution of Anomalies in QC, Duplicates, Spikes, or Blanks (Identified above):

See attached checklist for details on sample qualifications

V. Data verification calculation sheets are attached (at least one calculation per batch) NA

Reviewer



Date: March 31, 2010

Project: YANKEE ROWE
Project #: 3617087152/02.01
Date: 3/30/10

Method: TDS
Laboratory and SDG: YR-101
Reviewer: Bradley B. LaForest, NRCC-EAC

Sample IDs: CFW-6, SW-4, SW-5, CFW-5, CFW-5DUP, CFW-1, SW-1, SW-2, SW-3

1. Case Narrative and Data Package Completeness

OK

2. Holding Times

OK

3. QC Blanks

OK

4. Initial Calibration Records

NA

5. Continuing Calibration Records

NA

6. Laboratory Control Sample Review

OK

7. Field Duplicate Precision

OK

8. Laboratory Duplicate

The relative percent difference between sample SW-3 and its laboratory duplicate was greater than the laboratory QC limit of 20 for TDS (47). TDS results in associated samples CFW-6, SW-4, SW-5, CFW-5, CFW-5DUP, CFW-1, SW-1, SW-2, and SW-3 were qualified as estimated (J).

9. Matrix Spike Results (if applicable)

NA

Total Dissolved Solids QC Summary

Date(s) Analyzed: 03/08/10-03/10/10

Method: 160.1

Client Name: Mactec

NEL Sample Numbers: AM01012-16 & AM01105-08

Blank	
Sample#	Result
	mg/L
Blank	1.0 U

LCD/LCSD				
Std Tag #	True Value	Result	Recovery	Acceptance Limits
	mg/L	mg/L	%	%
LCD	361	334	93	80-120
LCSD	361	336	93	80-120
LCS Second Source	322	368	114	80-120

Sample Duplicate Analysis				
Sample	Sample Result	Duplicate Result	RPD	Acceptance limit
	mg/L	mg/L	%	%
AM01108*	13.0	21.0	47%	20
(SW-3)				

* While sample dup was out of range the LCS/D RPD was in range at 0.6%.

01/13

ATTACHMENT D

REVIEW OF CHAIN OF CUSTODY AND SAMPLE DOCUMENTATION

Sampling Event Date(s) March 2010 Shipment Date 3-2-10

Wells Sampled in this Batch: CFW-5, CFW-6, SW-4, SW-5, TB-005

- I. All samples identified on COC forms? Yes ___ No
- II. Samples obtained match those required by sampling plan? Yes ___ No
- III. Verification of unbroken chain of custody for samples? Yes ___ No
- IV. Samples received intact by laboratory? Yes ___ No
- V. Sample flush volumes and flow parameters consistent with historical data and acceptable? Yes ___ No
- VI. Sample non-radiological parameters consistent with historical data and acceptable? Yes ___ No
- VII. All preservative and container requirements met? Yes ___ No
- VIII. Samples obtained match those required by sampling plan? Yes ___ No
- IX. Evaluation for accepting sample for any questions I – VIII answered "NO" (indicate if resample will be done prior to shipment):

Reviewer  Date 3-29-10

2 coolers shipped to NEL

ATTACHMENT D

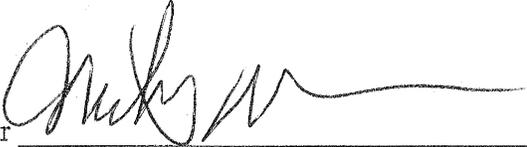
REVIEW OF CHAIN OF CUSTODY AND SAMPLE DOCUMENTATION

Sampling Event Date(s) March 2010 Shipment Date 3-3-10

Wells Sampled in this Batch: CEW-1, SW-1, SW-2, SW-3, SP-1, SW-011, SW-408, MW-101A, TB-006

- I. All samples identified on COC forms? Yes No
- II. Samples obtained match those required by sampling plan? Yes No
- III. Verification of unbroken chain of custody for samples? Yes No
- IV. Samples received intact by laboratory? Yes No
- V. Sample flush volumes and flow parameters consistent with historical data and acceptable? Yes No
- VI. Sample non-radiological parameters consistent with historical data and acceptable? Yes No
- VII. All preservative and container requirements met? Yes No
- VIII. Samples obtained match those required by sampling plan? Yes No
- IX. Evaluation for accepting sample for any questions I – VIII answered "NO" (indicate if resample will be done prior to shipment):

N
A

Reviewer  Date 3-29-10

1 coder shipped to NEL

Attachment 2

Post-Closure Soil Stability Monitoring – Settlement, Cracks and Erosion and Vegetative Cover

Monitoring of the soil stability of the SCFA and BUD Area was performed several times in 2008 and in March/April 2009. The following provides the results of the monitoring:

SCFA

No problems were noted with the soil stability during the post-closure monitoring of the SCFA in 2008 and 2009. No settlement, cracks or erosion was noted and the grassy cover remained intact.

BUD Area

No problems were noted with the soil stability during the post-closure monitoring of the BUD Area in 2008 and 2009. No settlement, cracks or erosion was noted and the grassy cover remained intact.

Attachment 3

Southeast Construction Fill Area (SCFA) Financial Assurance Mechanism (FAM) Review

As required by the SCFA Closure Certification Report Condition No. 13, the FAM for the SCFA is evaluated every two (2) years and the results reported to the DEP.

No change to the estimate for the FAM is required at this time.