Data Validation Package

June 2010
Groundwater and Surface Water Sampling at the Green River, Utah, Disposal Site

October 2010

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Sampling Event Summary

Site: Green River, Utah, Disposal Site

Sampling Period: June 15−17, 2010

The 2008 Preliminary Final *Groundwater Compliance Action Plan for the Green River, Utah, Disposal Site* requires annual groundwater monitoring at the site to observe the effectiveness of the groundwater compliance strategy. Point-of-compliance (POC) wells 0171, 0173, 0176, 0179, 0181, and 0813 were sampled during this event to monitor the performance of the disposal cell. Additionally, annual sampling of alluvium monitoring wells 0180, 0182, 0188, 0189, 0192, 0194, and 0817 (for best management practice only) and potential point of exposure surface locations 0846 and 0847, was conducted according to a proposed compliance strategy for the combined disposal site and processing site. Sampling and analysis was conducted as specified in *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PLN/S04351, continually updated). The water level was measured at each sampled well.

Concentrations of contaminants of concern compared to alternate concentration limits (ACLs) are provided in Table 1 for the POC wells. Analytical results for the alluvium monitoring wells are provided in Table 2, and surface water sample results for contaminants of concern are provided in Table 3. All concentrations are expressed in milligrams per liter (mg/L).

Table 1. Analytical Results and Proposed ACL Values for the POC Wells

Monitoring Well	Arsenic (mg/L)		Nitrate (mg/L)		Selenium (mg/L)		Uranium (mg/L)	
	ACL	Sample Result	ACL	Sample Result	ACL	Sample Result	ACL	Sample Result
0171	5.0	0.0015	1,000	47	5.0	0.19	4.4	0.096
0173	5.0	0.0016	1,000	270	5.0	0.13	4.4	0.016
0176	5.0	0.0003	1,000	75	5.0	0.61	4.4	0.003
0179	5.0	0.0006	1,000	32	5.0	0.42	4.4	0.130
0181	5.0	0.0048	1,000	64	5.0	0.006	4.4	0.011
0813	5.0	0.0820	1,000	0.1	5.0	0.0009	4.4	0.016

Table 2. Analytical Results for the Alluvium Wells

Monitoring Well	Arsenic (mg/L)	Nitrate (mg/L)	Selenium (mg/L)	Uranium (mg/L)
0180	0.0001	Not Detected	0.0002	0.0001
0182	0.0032	Not Detected	0.0002	0.001
0188	0.0003	10	0.024	0.083
0189	0.0006	40	0.064	0.270
0192	0.0003	100	0.095	0.440
0194	0.0032	570	0.016	3.9
0817	Not Detected	Not Detected	Not Detected	0.0001

Table 3. Analytical Results for the Surface Water Locations

Locations	Arsenic (mg/L)	Nitrate (mg/L)	Selenium (mg/L)	Uranium (mg/L)
0846	0.0012	0.07	0.0006	0.0011
0847	0.0012	Not Detected	0.0015	0.0012

All six POC wells are completed in the middle sandstone unit of the Cedar Mountain Formation. Three wells—0171, 0173, and 0181—are located approximately 50 feet downgradient from the disposal cell. Well 0813 was constructed approximately 100 feet downgradient from well 0171, which, historically, has had the highest uranium concentrations. Well 0176 is located adjacent to the east corner of the disposal cell. Well 0179 is located on Umetco property southeast of the disposal cell.

Arsenic concentrations remain below 0.005 mg/L for wells 0171, 0173, 0176, 0179, and 0181. The arsenic concentration in well 0813 has fluctuated around 0.08 mg/L since 2007.

The nitrate (nitrate plus nitrite as nitrogen) concentration in wells 0171, 0173, 0176, 0179, 0181, and 0813 has not changed significantly since March 2007 with the concentration in well 0813 near the method detection limit (MDL).

The selenium concentration is trending downward in well 0176, upward in well 0179, and is essentially constant for the other four POC wells.

Uranium concentrations continue to remain essentially unchanged in wells 0173, 0176, 0181, and 0813. In wells 0171 and 0179, the uranium concentration continued a decreasing trend.

The remaining monitoring wells (0188, 0189, 0192, and 0194) are monitored as a best management practice because the alluvial groundwater is not classified as an aquifer; therefore, the results are not compared to ACLs. Some of these wells continue to have elevated concentrations of nitrate and uranium as expected because processing activities contaminated the low-yield unused alluvial groundwater. Bedrock wells 0180, 0182, and 0817 were also sampled during this event in order to define the radiochemical signature of the groundwater.

The surface water locations are in the backwater of the Green River in the ephemeral Browns Wash (0847) and at the confluence of Browns Wash and the Green River (0846). Though the contaminated Browns Wash groundwater discharges to the Green River alluvial aquifer and the Green River, contaminant concentrations remain below the applicable surface water standards.

J. E. Price

Jeffrey Price
Site Lead, S.M. Stoller Corporation

11/2/2010

Date

Green River, Utah, Sample Location Map

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Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Green River, Utah	**Date(s) of Water Sampling**	June 15−17, 2010
Date(s) of Verification	August 17, 2010	**Name of Verifier**	Steve Donivan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOPs, instructions.		Work Order Letter dated May 20, 2010.
2. Were the sampling locations specified in the planning documents sampled?	No	Surface location 0718 was compromised by the high stage of the Green River backing up Browns Wash.
3. Was a pre-trip calibration conducted as specified in the above-named documents?	Yes	Pre-trip calibration was performed on June 11, 2010.
4. Was an operational check of the field equipment conducted daily?	No	One operational check was performed on June 16, 2010.
Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	Yes	
6. Was the category of the well documented?	Yes	
7. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	
Was the flow rate less than 500 mL/min?	Yes	
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	NA	

Water Sampling Field Activities Verification Checklist (continued)

	Response (Yes, No, NA)	Comments
8. Were the following conditions met when purging a Category II well:		
Was the flow rate less than 500 mL/min?	Yes	
Was one pump/tubing volume removed prior to sampling?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	A duplicate sample was collected from well 0179.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	Yes	One equipment blank was collected.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	Location ID 2945 was used for the duplicate sample.
Was the true identity of the samples recorded on the Quality Assurance Sample Log or in the Field Data Collection System (FDCS) report?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Are field data sheets signed and dated by both team members (hardcopies) or are dates present for the “Date Signed” fields (FDCS)?	Yes	
18. Was all other pertinent information documented on the field data sheets?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Report Number (RIN):	10063150
Sample Event:	June 15-17, 2010
Site(s):	Green River, Utah, Disposal Site
Laboratory:	ALS Laboratory Group, Fort Collins, Colorado
Work Order No.:	1006193
Analysis:	Metals and Inorganics
Validator:	Steve Donivan
Review Date:	August 17, 2010

This validation was performed according to the *Environmental Procedures Catalog* (LMS/PRO/S04325, continually updated), "Standard Practice for Validation of Laboratory Data". The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 4.

Table 4. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N, NH_3-N	WCH-A-005	EPA 350.1	EPA 350.1
Chloride	MIS-A-039	SW-846 9056	SW-846 9056
Metals: As, Se, U	LMM-02	SW-846 3005A	SW-846 6020A
Metals: Ca, Fe, K, Mg, Na	LMM-01	SW-846 3005A	SW-846 6010B
Nitrate + Nitrite as N, NO_3+NO_2-N	WCH-A-022	EPA 353.2	EPA 353.2
Organic Carbon	WCH-A-025	EPA 415.1	EPA 415.1
Sulfate	MIS-A-039	SW-846 9056	SW-846 9056
Uranium Isotopes	ASP-A-024	SOP 776R11, 778R13	SOP 714R12

Data Qualifier Summary

Analytical results were qualified as listed in Table 5. Refer to the sections below for an explanation of the data qualifiers applied.

Table 5. Data Qualifier Summary

Sample Number	Location	Analyte	Flag	Reason
1006193-2	0173	Uranium-235	J	Less than the determination limit
1006193-3	0176	Iron	U	Less than 5 times the method blank
1006193-5	0180	Uranium-234	J	Less than the determination limit
1006193-6	0181	Uranium-235	J	Less than the determination limit
1006193-7	0182	Uranium-234	J	Less than the determination limit
1006193-13	0817	Arsenic	U	Less than 5 times the method blank
1006193-13	0817	Iron	U	Less than 5 times the method blank
1006193-13	0817	Selenium	U	Less than 5 times the method blank
1006193-13	0817	Uranium-234	J	Less than the determination limit
1006193-14	0846	Sodium	J	Serial dilution failure
1006193-14	0846	Uranium-234	J	Less than 5 times the method blank
1006193-14	0846	Uranium-238	J	Less than the determination limit
1006193-15	0847	Uranium-234	J	Less than 5 times the method blank
1006193-17	Equipment Blank	Arsenic	U	Less than 5 times the method blank
1006193-17	Equipment Blank	Calcium	U	Less than 5 times the calibration blank
1006193-17	Equipment Blank	Selenium	U	Less than 5 times the method blank
1006193-17	Equipment Blank	Uranium	U	Less than 5 times the method blank

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 17 water samples on June 18, 2010, accompanied by a Chain of Custody (COC) form. The receiving documentation included copies of the shipping labels listing the air waybill numbers. The COC form was checked to confirm that all of the samples were listed on the form with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The COC form was complete with no errors or omissions.

Preservation and Holding Times

The sample shipment was received cool and intact with a temperature inside the iced cooler at 4.6 °C, which does not comply with requirements. All samples were received in the correct container types and were analyzed within the applicable holding times.

Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument calibrations were performed correctly in accordance with the cited methods. All calibration and laboratory spike standards were prepared from independent sources.

Method EPA 350.1, Ammonia as N
The initial calibration was performed using six calibration standards on June 21, 2010, resulting in a calibration curve correlation coefficient value greater than 0.995 and an intercept less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency resulting in 11 verification checks that met the acceptance criteria.

Method EPA 353.2, Nitrate + Nitrite as N
The initial calibration was performed using seven calibration standards on June 23, 2010, resulting in a calibration curve correlation coefficient value greater than 0.995 and an intercept less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency resulting in six verification checks that met the acceptance criteria.

Method EPA 415.1, Organic Carbon
The initial calibration was performed using six calibration standards on January 4, 2010, resulting in a calibration curve correlation coefficient value greater than 0.995 and an intercept less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency resulting in six verification checks that met the acceptance criteria.

Method SW-846 6010, Calcium, Iron, Magnesium, Potassium, Sodium
Calibrations were performed on July 15, 2010, using single point calibrations. Initial and continuing calibration verification checks were made at the required frequency resulting in 12 verification checks. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit (PQL) and all results were within the acceptance range.

Method SW-846 6020A, Arsenic, Selenium, and Uranium
Calibrations were performed on July 12, 2010, using four calibration standards resulting in calibration curves with correlation coefficient values greater than 0.995. The absolute values of the calibration curve intercepts were less than 3 times the MDLs. Initial and continuing calibration verification checks were made at the required frequency resulting in nine verification checks. All calibration checks met the acceptance criteria. A reporting limit verification check was made at the required frequency to verify the linearity of the calibration curve near the PQL. The check results were within the acceptance criteria range. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries associated with requested analytes were stable and within acceptable ranges.

Method SW-846 9056, Chloride, Sulfate
The calibrations for chloride and sulfate were performed using six calibration standards on June 10, 2010. The calibration curve correlation coefficient value was greater than 0.995 and the absolute value of the intercept was less than 3 times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 15 verification checks. The calibration checks met the acceptance criteria.

Radiochemical Analysis

Radiochemical results are qualified with a "J" flag (estimated) when the result is greater than the minimum detectable concentration (MDC), but less than Determination Limit (3 times the MDC). Radiochemical results are qualified with a "U" flag (not detected) when the result is greater than the MDC, but less than the Decision Level Concentration estimated as the two sigma total propagated uncertainty.

The uranium-234 result for the method blank was greater than the MDC. Uranium-234 sample results that are grater than the MDC but less than 5 times the blank concentration are qualified with a "J" flag as estimated values.

Alpha Spectrometry
Alpha spectrometry calibrations and instrument backgrounds were performed within a month previous to sample analysis. Calibration standards were counted to obtain a minimum of 10,000 counts per peak. Daily instrument checks met the acceptance criteria. The tracer recoveries met the acceptance criteria of 30 to 110 percent. The full width at half maximum was reviewed to evaluate the spectral resolution. All internal standard full width at half maximum values were below 100 kiloelectron volts, demonstrating acceptable resolution. All internal standard peaks were within 50 kiloelectron volts of the expected position. The regions of interest for analyte peaks were reviewed. No manual integrations were performed and all regions of interest were satisfactory.

Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method, initial calibration, and continuing calibration blank results associated with the samples were below the PQLs with the exception of two sulfate calibration blanks. The samples associated with these blanks had sulfate concentrations greater than 10 times the blank concentration. In cases where a non-radiochemical blank exceeds the MDL, the associated sample results are qualified with a "U" flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration.

Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Analysis

ICP interference check samples, ICSA and ICSAB, were analyzed at the required frequency to verify the instrumental interelement and background correction factors. All check sample results met the acceptance criteria.

Matrix Spike Analysis

Matrix spike and matrix spike duplicate samples are analyzed as a measure of method performance in the sample matrix. Matrix spike performance is not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spike analyses resulted in acceptable recoveries for all analytes evaluated.

Laboratory Replicate Analysis

The laboratory replicate sample results demonstrate acceptable laboratory precision. The relative percent difference values for the matrix spike duplicate samples were less than 20 percent, demonstrating acceptable precision.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The control sample results were acceptable for all analytes.

Metals Serial Dilution

Serial dilutions were prepared and analyzed for the metals analyses to monitor chemical or physical interferences in the sample matrix. Serial dilution data are evaluated when the concentration of the undiluted sample is greater than 50 times the PQL for method 6010B analytes, or 100 times the PQL for 6020A analytes. The serial dilution results for sodium did not meet the acceptance criteria. The associated sample result is qualified with a "J" flag as an estimated value.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The required detection limits were met for all analytes.

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers.

Electronic Data Deliverable (EDD) File

The EDD file arrived on July 23, 2010. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

Anion/Cation Balance

The anion/cation balance is used to determine if major ion concentrations have been quantified correctly. The total anions should balance with (be equal to) the total cations when expressed in milliequivalents per liter (meq/L). Table 6 shows the total anion and cation results from this event and the charge balance, which is a relative percent difference calculation. Typically, a charge balance difference of ten percent is considered acceptable. With the exception of one location, the charge balance differences were ten percent or less and are acceptable.

Table 6. Cation/Anion Balance

Location	Cations (meq/L)	Anions (meq/L)	Charge Balance (%)
0171	93.56	96.66	1.63
0173	171.54	201.27	7.98
0176	100.00	108.42	4.04
0179	89.36	93.46	2.24
0180	80.07	92.18	7.03
0181	113.93	133.05	7.74
0182	22.31	27.29	10.0
0188	165.50	190.99	7.15
0189	132.84	154.56	7.56
0192	118.06	136.82	7.36
0194	575.47	653.44	6.34
0813	85.82	93.97	4.53
0817	19.30	24.47	11.8
0846	2.54	2.81	5.10
0847	2.79	2.58	3.91

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 10063150 **Lab Code:** PAR **Validator:** Steve Donivan **Validation Date:** 8/17/2010

Project: Green River **Analysis Type:** ☑ Metals ☑ General Chem ☑ Rad ☐ Organics

# of Samples: 17 **Matrix:** WATER **Requested Analysis Completed:** Yes

Chain of Custody

Present: OK **Signed:** OK **Dated:** OK

Sample

Integrity: OK **Preservation:** OK **Temperature:** OK

Select Quality Parameters

☑ Holding Times	All analyses were completed within the applicable holding times.
☑ Detection Limits	There are 3 detection limit failures.
☑ Field/Trip Blanks	There was 1 trip/equipment blank evaluated.
☑ Field Duplicates	There was 1 duplicate evaluated.

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 10063150 **Lab Code:** PAR **Date Due:** 7/16/2010

Matrix: Water **Site Code:** GRN **Date Completed:** 7/26/2010

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
ARSENIC	07/12/2010	0.0000	1.0000	OK	OK	OK	OK	OK	99.0	91.0	90.0	0.0	111.0		125.0
CALCIUM	07/15/2010			OK	OK	OK	OK	OK	95.0	97.0	96.0	1.0	106.0	1.0	103.0
IRON	07/15/2010			OK	OK	OK	OK	OK	95.0	93.0	93.0	0.0	110.0		108.0
MAGNESIUM	07/15/2010			OK	OK	OK	OK	OK	98.0	98.0	97.0	1.0	110.0	1.0	104.0
POTASSIUM	07/15/2010			OK	OK	OK	OK	OK	91.0	97.0	95.0	1.0			72.0
SELENIUM	07/12/2010	0.0000	1.0000	OK	OK	OK	OK	OK	101.0	96.0	95.0	1.0	108.0		112.0
SODIUM	07/15/2010			OK	OK	OK	OK	OK	92.0	92.0	91.0	1.0		13.0	87.0
URANIUM	07/12/2010	0.0000	1.0000	OK	OK	OK	OK	OK	102.0	98.0	97.0	1.0	108.0	2.0	95.0

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 10063150 **Lab Code:** PAR **Date Due:** 7/16/2010

Matrix: Water **Site Code:** GRN **Date Completed:** 7/26/2010

Analyte	Date Analyzed	CALIBRATION						Method	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB	Blank					
AMMONIA AS N	06/21/2010	0.000	0.9999	OK	OK	OK	OK	OK	92.00	80.0	79.0	1.00	
CHLORIDE	06/18/2010	0.000	1.0000	OK	OK	OK	OK	OK	95.00	91.0	91.0	0	
CHLORIDE	06/21/2010				OK		OK	OK		94.0			
DISSOLVED ORGANIC CAR	06/29/2010				OK		OK	OK	102.00				
DISSOLVED ORGANIC CAR	06/29/2010								103.00			1.00	
NITRATE/NITRITE AS N	06/23/2010	0.000	1.0000	OK	OK	OK	OK	OK	100.00	95.0	89.0	2.00	
SULFATE	06/18/2010	0.000	1.0000	OK	OK	OK	OK	OK	92.00	97.0	96.0	1.00	
SULFATE	06/21/2010				OK		OK	OK		95.0			
TOTAL ORGANIC CARBON	06/29/2010	0.000	1.0000	OK	OK	OK	OK	OK	102.00	91.0	91.0	0	
TOTAL ORGANIC CARBON	06/29/2010								102.00			1.00	
TOTAL ORGANIC CARBON	06/30/2010				OK		OK	OK	110.00				
TOTAL ORGANIC CARBON	06/30/2010								106.00			4.00	

SAMPLE MANAGEMENT SYSTEM
Radiochemistry Data Validation Worksheet

RIN: 10063150 **Lab Code:** PAR **Date Due:** 7/16/2010

Matrix: Water **Site Code:** GRN **Date Completed:** 7/26/2010

Sample	Analyte	Date Analyzed	Result	Flag	Tracer %R	LCS %R	MS %R	Duplicate
0171	URANIUM-233,-234	07/01/2010			78.8			
0173	URANIUM-233,-234	07/01/2010			84.6			
0176	URANIUM-233,-234	07/01/2010			81.8			
0179	URANIUM-233,-234	07/01/2010			76.4			
0180	URANIUM-233,-234	07/01/2010			91.8			
0181	URANIUM-233,-234	07/01/2010			81.8			
0182	URANIUM-233,-234	07/01/2010			81.6			
0188	URANIUM-233,-234	07/01/2010			63.1			
0189	URANIUM-233,-234	07/01/2010			81.8			
0192	URANIUM-233,-234	07/01/2010			85.1			
0194	URANIUM-233,-234	07/01/2010			65.7			
0817	URANIUM-233,-234	07/01/2010			90.5			
0813	URANIUM-233,-234	07/01/2010			78.0			
0846	URANIUM-233,-234	07/01/2010			87.1			
0847	URANIUM-233,-234	07/01/2010			93.3			
2945	URANIUM-233,-234	07/01/2010			86.2			
2946	URANIUM-233,-234	07/01/2010			76.7			
0176	URANIUM-233,-234	07/01/2010			88.9			0.30
0188	URANIUM-233,-234	07/01/2010			88.1			0.73
Blank_Spike	URANIUM-233,-234	07/01/2010			90.8	98.90		
Blank	URANIUM-233,-234	07/01/2010	0.3630		81.1			
0176	Uranium-235	07/01/2010						0.26
0188	Uranium-235	07/01/2010						1.32
Blank	URANIUM-235	07/01/2010	0.0530	U				
0176	Uranium-238	07/01/2010						0.12
0188	Uranium-238	07/01/2010						0.15
Blank_Spike	Uranium-238	07/01/2010				106.00		
Blank	URANIUM-238	07/01/2010	0.0940	U				

Sampling Quality Control Assessment

The following information summarizes and assesses quality control for this sampling event.

Sampling Protocol

Sample results for monitoring wells that met the Category I, II, or III low-flow sampling criteria were qualified with an "F" flag in the database, indicating the wells were purged and sampled using the low-flow sampling method.

Wells 0182, 0189, and 0194 were classified as Category II or Category III because of water level drawdown. The sample results for these wells were qualified with a "Q" flag, indicating the data are qualitative because of the sampling technique.

Equipment Blank

An equipment blank was collected after completion of decontamination and prior to collection of environmental samples. This blank is useful in documenting adequate decontamination of sampling equipment. There were no analytes detected in the equipment blank.

Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. Duplicate samples were collected from well 0179. The non-radiochemical duplicate results met the recommended laboratory duplicate criteria of less than 20 percent relative difference for results that are greater than 5 times the PQL, and the radiochemical duplicate relative error ratios were less than three, indicating acceptable overall precision.

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

RIN: 10063150 **Lab Code:** PAR **Project:** Green River **Validation Date:** 8/17/2010

Duplicate: 2945 **Sample:** 0179

Analyte	Sample Result	Sample Flag	Sample Error	Sample Dilution	Duplicate Result	Duplicate Flag	Duplicate Error	Duplicate Dilution	RPD	RER	Units
AMMONIA AS N	0.1	U		1	0.1	U		1			MG/L
ARSENIC	0.62			5	0.68			5	9.23		UG/L
CALCIUM	480000			5	480000			5	0		UG/L
CHLORIDE	520			100	520			100	0		MG/L
IRON	25	U		5	25	U		5			UG/L
MAGNESIUM	210000			5	210000			5	0		UG/L
NITRATE/NITRITE AS N	32			20	31			20	3.17		MG/L
POTASSIUM	11000			5	11000			5	0		UG/L
SELENIUM	420			5	410			5	2.41		UG/L
SODIUM	1100000			5	1100000			5	0		UG/L
SULFATE	3300			100	3400			100	2.99		MG/L
TOTAL ORGANIC CARBON	4.8			1	4.8			1			MG/L
URANIUM	130			5	130			5	0		UG/L
URANIUM-233,-234	110		17.9	1	113		18.3	1	2.69	0.2	pCi/L
Uranium-235	3.9		1.07	1	2.45		0.793	1	45.67	2.1	pCi/L
Uranium-238	43.1		7.3	1	51.9		8.68	1	18.53	1.5	pCi/L

Certification

All laboratory analytical quality control criteria were met except as qualified in this report. The data qualifiers listed on the SEEPro database reports are defined on the last page of each report. All data in this package are considered validated and available for use.

Laboratory Coordinator: Steve Donivan — Date: 10-28-2010

Data Validation Lead: Steve Donivan — Date: 10-28-2010

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Attachment 1
Assessment of Anomalous Data

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Potential Outliers Report

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Potential Outliers Report

Potential outliers are measurements that are extremely large or small relative to the rest of the data and, therefore, are suspected of misrepresenting the population from which they were collected. Potential outliers may result from transcription errors, data-coding errors, or measurement system problems. However, outliers may also represent true extreme values of a distribution and indicate more variability in the population than was expected.

Statistical outlier tests give probabilistic evidence that an extreme value does not "fit" with the distribution of the remainder of the data and is therefore a statistical outlier. These tests should only be used to identify data points that require further investigation. The tests alone cannot determine whether a statistical outlier should be discarded or corrected within a data set.

There are three steps involved in identifying extreme values or outliers:

1. Identify extreme values that may be potential outliers by generating the Outliers Report using the Sample Management System from data in the SEEPro database. The application compares the new data set with historical data and lists the new data that fall outside the historical data range. A determination is also made if the data are normally distributed using the Shapiro-Wilk Test.
2. Apply the appropriate statistical test. Dixon's Extreme Value test is used to test for statistical outliers when the sample size is less than or equal to 25. This test considers both extreme values that are much smaller than the rest of the data (case 1) and extreme values that are much larger than the rest of the data (case 2). This test is valid only if the data without the suspected outlier are normally distributed. Rosner's Test is a parametric test that is used to detect outliers for sample sizes of 25 or more. This test also assumes that the data without the suspected outliers are normally distributed.
3. Scientifically review statistical outliers and decide on their disposition.

Six of the analytical results were identified as potential outliers. Of these results, only the sodium data appear to be affected by a possible laboratory error. A request was submitted on August 17, 2010, to have the suspect samples re-analyzed to confirm the sodium results. A laboratory error was confirmed and corrected deliverables were received on October 5, 2010.

Data Validation Outliers Report - No Field Parameters
Comparison: All Historical Data
Laboratory: ALS Laboratory Group
RIN: 10063150
Report Date: 8/17/2010

					Current			Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
						Qualifiers			Qualifiers			Qualifiers				
Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
GRN01	0171	N001	06/15/2010	Total Organic Carbon	1.9		F	19.6			11			9	0	Yes
GRN01	0173	N001	06/15/2010	Total Organic Carbon	1.5		F	13.4	*	F	9			10	0	Yes
GRN01	0176	N001	06/16/2010	Sodium	1000		F	1730			1080			17	0	No
GRN01	0176	N001	06/16/2010	Total Organic Carbon	1	U	F	60.7		F	1.1			9	0	No
GRN01	0179	N001	06/16/2010	Total Organic Carbon	4.8		F	27			7.5	N		10	0	No
GRN01	0179	N002	06/16/2010	Total Organic Carbon	4.8		F	27			7.5	N		10	0	No
GRN01	0180	N001	06/16/2010	Sodium	1700		F	2150		J	1730			16	0	No
GRN01	0180	N001	06/16/2010	Total Organic Carbon	2.8		F	32			2.9			8	0	No
GRN01	0181	N001	06/15/2010	Arsenic	0.0048		F	0.0043		F	0.0018		F	14	0	No
GRN01	0181	N001	06/15/2010	Potassium	7.8		F	13		F	8		F	8	0	No
GRN01	0188	N001	06/16/2010	Calcium	380		F	490		FQ	400		F	5	0	No
GRN01	0188	N001	06/16/2010	Chloride	630		F	600		QF	330		F	5	0	No
GRN01	0188	N001	06/16/2010	Sodium	6500		F	2800		FQ	1700		F	5	0	Yes
GRN01	0188	N001	06/16/2010	Sulfate	7900		F	7400		FQ	5800		F	5	0	No
GRN01	0189	N001	06/16/2010	Ammonia Total as N	39		FQ	38		JFQ	0.56		FQJ	6	0	No
GRN01	0189	N001	06/16/2010	Nitrate + Nitrite as Nitrogen	40		FQ	810		FQ	70		FQ	6	0	No
GRN01	0189	N001	06/16/2010	Uranium	0.27		FQ	7.1		FQ	0.36		FQ	8	0	No
GRN01	0192	N001	06/16/2010	Ammonia Total as N	2.2		F	3.7		F	3.2		FJ	5	0	Yes
GRN01	0192	N001	06/16/2010	Nitrate + Nitrite as Nitrogen	100		F	190		F	140		F	5	0	No

Data Validation Outliers Report - No Field Parameters
Comparison: All Historical Data
Laboratory: ALS Laboratory Group
RIN: 10063150
Report Date: 8/17/2010

					Current			Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
						Qualifiers			Qualifiers			Qualifiers				
Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
GRN01	0192	N001	06/16/2010	Uranium	0.44		F	0.6		F	0.5		F	5	0	No
GRN01	0817	N001	06/15/2010	Chloride	240			360		F	245			31	0	No
GRN01	0817	N001	06/15/2010	Magnesium	0.43	B		0.73			0.493			31	0	No
GRN01	0817	N001	06/15/2010	Sodium	440			594		F	486		F	31	0	Yes
GRN01	0846	0001	06/16/2010	Calcium	25			47.9			28.2			5	0	No
GRN01	0846	0001	06/16/2010	Chloride	5.9			30.9			5.98			5	0	No
GRN01	0846	0001	06/16/2010	Magnesium	8			26.2			9.98			5	0	No
GRN01	0846	0001	06/16/2010	Potassium	0.73	B		3.28	E	J	1.51			5	0	No
GRN01	0846	0001	06/16/2010	Sodium	14	E	J	70.5			19.5			5	0	No
GRN01	0846	0001	06/16/2010	Sulfate	53			185			61			5	0	No
GRN01	0846	0001	06/16/2010	Uranium	0.0011			0.0029			0.0013			8	0	No
GRN01	0847	0001	06/16/2010	Calcium	27			60.6			28.4			5	0	No
GRN01	0847	0001	06/16/2010	Chloride	6.2			33.5			12			5	0	No
GRN01	0847	0001	06/16/2010	Magnesium	8.2			24.9			13			5	0	No
GRN01	0847	0001	06/16/2010	Potassium	0.89	B		3.6			2.92			5	0	Yes
GRN01	0847	0001	06/16/2010	Sodium	17			77.4			33			5	0	No
GRN01	0847	0001	06/16/2010	Sulfate	54			231			89			5	0	No
GRN01	0847	0001	06/16/2010	Uranium	0.0012			0.014			0.0026			8	0	No

Data Validation Outliers Report - Field Parameters Only
Comparison: All Historical Data
Laboratory: Field Measurements
RIN: 10063150
Report Date: 8/17/2010

					Current			Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
						Qualifiers			Qualifiers			Qualifiers				
Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
GRN01	0176	N001	06/16/2010	Alkalinity, Total (As CaCO3)	351		F	845		F	352			24	0	No
GRN01	0179	N001	06/16/2010	pH	6.59		F	7.47		F	6.6			28	0	No
GRN01	0179	N001	06/16/2010	Specific Conductance	7622		F	7555		F	5200			28	0	No
GRN01	0180	N001	06/16/2010	Alkalinity, Total (As CaCO3)	768		F	933			770			19	0	No
GRN01	0180	N001	06/16/2010	Specific Conductance	8360		F	8140		F	5810		F	18	0	No
GRN01	0188	N001	06/16/2010	Specific Conductance	14578		F	13204		QF	8134		F	8	0	No
GRN01	0189	N001	06/16/2010	Alkalinity, Total (As CaCO3)	355		FQ	961		F	389		FQ	5	0	No
GRN01	0189	N001	06/16/2010	Temperature	22.71		FQ	19.8		F	16.18		FQ	7	0	No
GRN01	0192	N001	06/16/2010	Oxidation Reduction Potential	66.5		F	215		F	68.9		F	5	0	No
GRN01	0192	N001	06/16/2010	pH	6.89		F	7.16		F	6.92		F	5	0	No
GRN01	0192	N001	06/16/2010	Specific Conductance	10642		F	10560		F	9298		F	5	0	No
GRN01	0817	N001	06/15/2010	Alkalinity, Total (As CaCO3)	760			697		F	618			31	0	No
GRN01	0846	0001	06/16/2010	Alkalinity, Total (As CaCO3)	77			151			91			5	0	No
GRN01	0846	N001	06/16/2010	Specific Conductance	341			760			375			7	0	No
GRN01	0847	0001	06/16/2010	Alkalinity, Total (As CaCO3)	64			196			107			6	0	No
GRN01	0847	N001	06/16/2010	Specific Conductance	344			2380			436			8	0	No

STATISTICAL TESTS:
The distribution of the data is tested for normality or lognormality using the Shapiro-Wilk Test
Outliers are identified using Dixon's Test when there are 25 or fewer data points.
Outliers are identified using Rosner's Test when there are 26 or more data points.
See Data Quality Assessment: Statistical Methods for Practitioners, EPA QC/G-9S, February 2006.

Attachment 2
Data Presentation

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Groundwater Quality Data

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Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0171 WELL POC Monitoring Well (Down Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/15/2010	N001	76	-	86	385		F	#		
Ammonia Total as N	mg/L	06/15/2010	N001	76	-	86	0.1	U	F	#	0.1	
Arsenic	mg/L	06/15/2010	N001	76	-	86	0.0015		F	#	0.000074	
Calcium	mg/L	06/15/2010	N001	76	-	86	420		F	#	0.06	
Chloride	mg/L	06/15/2010	N001	76	-	86	230		F	#	20	
Dissolved Oxygen	mg/L	06/15/2010	N001	76	-	86	1.09		F	#		
Iron	mg/L	06/15/2010	N001	76	-	86	0.025	U	F	#	0.025	
Magnesium	mg/L	06/15/2010	N001	76	-	86	290		F	#	0.065	
Nitrate + Nitrite as Nitrogen	mg/L	06/15/2010	N001	76	-	86	47		F	#	0.5	
Oxidation Reduction Potential	mV	06/15/2010	N001	76	-	86	210		F	#		
pH	s.u.	06/15/2010	N001	76	-	86	6.76		F	#		
Potassium	mg/L	06/15/2010	N001	76	-	86	35		F	#	0.54	
Selenium	mg/L	06/15/2010	N001	76	-	86	0.19		F	#	0.00016	
Sodium	mg/L	06/15/2010	N001	76	-	86	1100		F	#	0.033	
Specific Conductance	umhos /cm	06/15/2010	N001	76	-	86	7613		F	#		
Sulfate	mg/L	06/15/2010	N001	76	-	86	3800		F	#	50	
Temperature	C	06/15/2010	N001	76	-	86	19.14		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0171 WELL POC Monitoring Well (Down Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Organic Carbon	mg/L	06/15/2010	N001	76	-	86	1.9		F	#	1	
Turbidity	NTU	06/15/2010	N001	76	-	86	2.72		F	#		
Uranium	mg/L	06/15/2010	N001	76	-	86	0.096		F	#	0.000015	
Uranium-234	pCi/L	06/15/2010	N001	76	-	86	48.1		F	#	0.25	8.09
Uranium-235	pCi/L	06/15/2010	N001	76	-	86	1.62		F	#	0.23	0.615
Uranium-238	pCi/L	06/15/2010	N001	76	-	86	37.3		F	#	0.26	6.38

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0173 WELL POC Monitoring Well (Down Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/15/2010	N001	92	-	102	495		F	#		
Ammonia Total as N	mg/L	06/15/2010	N001	92	-	102	0.1	U	F	#	0.1	
Arsenic	mg/L	06/15/2010	N001	92	-	102	0.0016		F	#	0.000015	
Calcium	mg/L	06/15/2010	N001	92	-	102	380		F	#	0.12	
Chloride	mg/L	06/15/2010	N001	92	-	102	270		F	#	40	
Dissolved Oxygen	mg/L	06/15/2010	N001	92	-	102	1.94		F	#		
Iron	mg/L	06/15/2010	N001	92	-	102	0.049	U	F	#	0.049	
Magnesium	mg/L	06/15/2010	N001	92	-	102	210		F	#	0.13	
Nitrate + Nitrite as Nitrogen	mg/L	06/15/2010	N001	92	-	102	270		F	#	2	
Oxidation Reduction Potential	mV	06/15/2010	N001	92	-	102	214.8		F	#		
pH	s.u.	06/15/2010	N001	92	-	102	6.86		F	#		
Potassium	mg/L	06/15/2010	N001	92	-	102	18		F	#	1.1	
Selenium	mg/L	06/15/2010	N001	92	-	102	0.13		F	#	0.000032	
Sodium	mg/L	06/15/2010	N001	92	-	102	3100		F	#	0.33	
Specific Conductance	umhos /cm	06/15/2010	N001	92	-	102	15824		F	#		
Sulfate	mg/L	06/15/2010	N001	92	-	102	7900		F	#	100	
Temperature	C	06/15/2010	N001	92	-	102	19.24		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0173 WELL POC Monitoring Well (Down Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Organic Carbon	mg/L	06/15/2010	N001	92	-	102	1.5		F	#	1	
Turbidity	NTU	06/15/2010	N001	92	-	102	3.16		F	#		
Uranium	mg/L	06/15/2010	N001	92	-	102	0.016		F	#	0.0000029	
Uranium-234	pCi/L	06/15/2010	N001	92	-	102	26.4		F	#	0.27	4.6
Uranium-235	pCi/L	06/15/2010	N001	92	-	102	0.309		FJ	#	0.12	0.238
Uranium-238	pCi/L	06/15/2010	N001	92	-	102	5.58		F	#	0.26	1.27

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0176 WELL POC Monitoring Well (Cross Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	N001	72	-	82	351		F	#		
Ammonia Total as N	mg/L	06/16/2010	N001	72	-	82	0.1	U	F	#	0.1	
Arsenic	mg/L	06/16/2010	N001	72	-	82	0.0003		F	#	0.000015	
Calcium	mg/L	06/16/2010	N001	72	-	82	470		F	#	0.06	
Chloride	mg/L	06/16/2010	N001	72	-	82	600		F	#	20	
Dissolved Oxygen	mg/L	06/16/2010	N001	72	-	82	1.05		F	#		
Iron	mg/L	06/16/2010	N001	72	-	82	0.028	B	UF	#	0.025	
Magnesium	mg/L	06/16/2010	N001	72	-	82	390		F	#	0.065	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	N001	72	-	82	75		F	#	0.5	
Oxidation Reduction Potential	mV	06/16/2010	N001	72	-	82	109.9		F	#		
pH	s.u.	06/16/2010	N001	72	-	82	6.65		F	#		
Potassium	mg/L	06/16/2010	N001	72	-	82	38		F	#	0.54	
Selenium	mg/L	06/16/2010	N001	72	-	82	0.61		F	#	0.000032	
Sodium	mg/L	06/16/2010	N001	72	-	82	1000		F	#	0.033	
Specific Conductance	umhos /cm	06/16/2010	N001	72	-	82	8374		F	#		
Sulfate	mg/L	06/16/2010	N001	72	-	82	3800		F	#	50	
Temperature	C	06/16/2010	N001	72	-	82	19.76		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0176 WELL POC Monitoring Well (Cross Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Organic Carbon	mg/L	06/16/2010	N001	72	-	82	1	U	F	#	1	
Turbidity	NTU	06/16/2010	N001	72	-	82	2.09		F	#		
Uranium	mg/L	06/16/2010	N001	72	-	82	0.0026		F	#	0.0000029	
Uranium-234	pCi/L	06/16/2010	N001	72	-	82	5.63		F	#	0.28	1.29
Uranium-235	pCi/L	06/16/2010	N001	72	-	82	0.22	U	F	#	0.22	0.166
Uranium-238	pCi/L	06/16/2010	N001	72	-	82	0.966		F	#	0.27	0.428

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0179 WELL POC Monitoring Well (Up Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	N001	78	-	88	390		F	#		
Ammonia Total as N	mg/L	06/16/2010	N001	78	-	88	0.1	U	F	#	0.1	
Ammonia Total as N	mg/L	06/16/2010	N002	78	-	88	0.1	U	F	#	0.1	
Arsenic	mg/L	06/16/2010	N001	78	-	88	0.00062		F	#	0.000074	
Arsenic	mg/L	06/16/2010	N002	78	-	88	0.00068		F	#	0.000074	
Calcium	mg/L	06/16/2010	N001	78	-	88	480		F	#	0.06	
Calcium	mg/L	06/16/2010	N002	78	-	88	480		F	#	0.06	
Chloride	mg/L	06/16/2010	N001	78	-	88	520		F	#	20	
Chloride	mg/L	06/16/2010	N002	78	-	88	520		F	#	20	
Dissolved Oxygen	mg/L	06/16/2010	N001	78	-	88	0.83		F	#		
Iron	mg/L	06/16/2010	N001	78	-	88	0.025	U	F	#	0.025	
Iron	mg/L	06/16/2010	N002	78	-	88	0.025	U	F	#	0.025	
Magnesium	mg/L	06/16/2010	N001	78	-	88	210		F	#	0.065	
Magnesium	mg/L	06/16/2010	N002	78	-	88	210		F	#	0.065	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	N001	78	-	88	32		F	#	0.2	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	N002	78	-	88	31		F	#	0.2	
Oxidation Reduction Potential	mV	06/16/2010	N001	78	-	88	86.7		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0179 WELL POC Monitoring Well (Up Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
pH	s.u.	06/16/2010	N001	78	-	88	6.59		F	#		
Potassium	mg/L	06/16/2010	N001	78	-	88	11		F	#	0.54	
Potassium	mg/L	06/16/2010	N002	78	-	88	11		F	#	0.54	
Selenium	mg/L	06/16/2010	N001	78	-	88	0.42		F	#	0.00016	
Selenium	mg/L	06/16/2010	N002	78	-	88	0.41		F	#	0.00016	
Sodium	mg/L	06/16/2010	N001	78	-	88	1100		F	#	0.033	
Sodium	mg/L	06/16/2010	N002	78	-	88	1100		F	#	0.033	
Specific Conductance	umhos /cm	06/16/2010	N001	78	-	88	7622		F	#		
Sulfate	mg/L	06/16/2010	N001	78	-	88	3300		F	#	50	
Sulfate	mg/L	06/16/2010	N002	78	-	88	3400		F	#	50	
Temperature	C	06/16/2010	N001	78	-	88	19.48		F	#		
Total Organic Carbon	mg/L	06/16/2010	N001	78	-	88	4.8		F	#	1	
Total Organic Carbon	mg/L	06/16/2010	N002	78	-	88	4.8		F	#	1	
Turbidity	NTU	06/16/2010	N001	78	-	88	3.84		F	#		
Uranium	mg/L	06/16/2010	N001	78	-	88	0.13		F	#	0.000015	
Uranium	mg/L	06/16/2010	N002	78	-	88	0.13		F	#	0.000015	
Uranium-234	pCi/L	06/16/2010	N001	78	-	88	110		F	#	0.23	17.9

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0179 WELL POC Monitoring Well (Up Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Uranium-234	pCi/L	06/16/2010	N002	78	-	88	113		F	#	0.28	18.3
Uranium-235	pCi/L	06/16/2010	N001	78	-	88	3.9		F	#	0.27	1.07
Uranium-235	pCi/L	06/16/2010	N002	78	-	88	2.45		F	#	0.3	0.793
Uranium-238	pCi/L	06/16/2010	N001	78	-	88	43.1		F	#	0.11	7.3
Uranium-238	pCi/L	06/16/2010	N002	78	-	88	51.9		F	#	0.23	8.68

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0180 WELL POC Monitoring Well (Up Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	N001	78	-	88	768		F	#		
Ammonia Total as N	mg/L	06/16/2010	N001	78	-	88	0.29		F	#	0.1	
Arsenic	mg/L	06/16/2010	N001	78	-	88	0.00012		F	#	0.000015	
Calcium	mg/L	06/16/2010	N001	78	-	88	81		F	#	0.06	
Chloride	mg/L	06/16/2010	N001	78	-	88	140		F	#	20	
Dissolved Oxygen	mg/L	06/16/2010	N001	78	-	88	0.94		F	#		
Iron	mg/L	06/16/2010	N001	78	-	88	0.24	B	F	#	0.025	
Magnesium	mg/L	06/16/2010	N001	78	-	88	24		F	#	0.065	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	N001	78	-	88	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	06/16/2010	N001	78	-	88	-10.8		F	#		
pH	s.u.	06/16/2010	N001	78	-	88	7.05		F	#		
Potassium	mg/L	06/16/2010	N001	78	-	88	3.6	B	F	#	0.54	
Selenium	mg/L	06/16/2010	N001	78	-	88	0.0002		F	#	0.000032	
Sodium	mg/L	06/16/2010	N001	78	-	88	1700		F	#	0.16	
Specific Conductance	umhos /cm	06/16/2010	N001	78	-	88	8360		F	#		
Sulfate	mg/L	06/16/2010	N001	78	-	88	3500		F	#	50	
Temperature	C	06/16/2010	N001	78	-	88	21.13		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0180 WELL POC Monitoring Well (Up Gradient)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Organic Carbon	mg/L	06/16/2010	N001	78	-	88	2.8		F	#	1	
Turbidity	NTU	06/16/2010	N001	78	-	88	2.87		F	#		
Uranium	mg/L	06/16/2010	N001	78	-	88	0.00013		F	#	0.0000029	
Uranium-234	pCi/L	06/16/2010	N001	78	-	88	0.398		FJ	#	0.22	0.259
Uranium-235	pCi/L	06/16/2010	N001	78	-	88	0.24	U	F	#	0.24	0.153
Uranium-238	pCi/L	06/16/2010	N001	78	-	88	0.25	U	F	#	0.25	0.183

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0181 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/15/2010	N001	77	-	92	464		F	#		
Ammonia Total as N	mg/L	06/15/2010	N001	77	-	92	0.1	U	F	#	0.1	
Arsenic	mg/L	06/15/2010	N001	77	-	92	0.0048		F	#	0.000015	
Calcium	mg/L	06/15/2010	N001	77	-	92	180		F	#	0.06	
Chloride	mg/L	06/15/2010	N001	77	-	92	240		F	#	20	
Dissolved Oxygen	mg/L	06/15/2010	N001	77	-	92	1.23		F	#		
Iron	mg/L	06/15/2010	N001	77	-	92	0.025	U	F	#	0.025	
Magnesium	mg/L	06/15/2010	N001	77	-	92	110		F	#	0.065	
Nitrate + Nitrite as Nitrogen	mg/L	06/15/2010	N001	77	-	92	64		F	#	0.5	
Oxidation Reduction Potential	mV	06/15/2010	N001	77	-	92	214.3		F	#		
pH	s.u.	06/15/2010	N001	77	-	92	7.11		F	#		
Potassium	mg/L	06/15/2010	N001	77	-	92	7.8		F	#	0.54	
Selenium	mg/L	06/15/2010	N001	77	-	92	0.0063		F	#	0.000032	
Sodium	mg/L	06/15/2010	N001	77	-	92	2200		F	#	0.16	
Specific Conductance	umhos /cm	06/15/2010	N001	77	-	92	11314		F	#		
Sulfate	mg/L	06/15/2010	N001	77	-	92	5400		F	#	50	
Temperature	C	06/15/2010	N001	77	-	92	19.81		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0181 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Organic Carbon	mg/L	06/15/2010	N001	77	-	92	3.2		F	#	1	
Turbidity	NTU	06/15/2010	N001	77	-	92	1.32		F	#		
Uranium	mg/L	06/15/2010	N001	77	-	92	0.011		F	#	0.0000029	
Uranium-234	pCi/L	06/15/2010	N001	77	-	92	18.3		F	#	0.22	3.34
Uranium-235	pCi/L	06/15/2010	N001	77	-	92	0.425		FJ	#	0.29	0.307
Uranium-238	pCi/L	06/15/2010	N001	77	-	92	3.77		F	#	0.25	0.98

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0182 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	N001	140 - 150	489		FQ	#		
Ammonia Total as N	mg/L	06/16/2010	N001	140 - 150	0.1	U	FQ	#	0.1	
Arsenic	mg/L	06/16/2010	N001	140 - 150	0.0032		FQ	#	0.000015	
Calcium	mg/L	06/16/2010	N001	140 - 150	1.6	B	FQ	#	0.024	
Chloride	mg/L	06/16/2010	N001	140 - 150	200		FQ	#	10	
Dissolved Oxygen	mg/L	06/16/2010	N001	140 - 150	1.82		FQ	#		
Iron	mg/L	06/16/2010	N001	140 - 150	0.0099	U	FQ	#	0.0099	
Magnesium	mg/L	06/16/2010	N001	140 - 150	0.36	B	FQ	#	0.026	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	N001	140 - 150	0.01	U	FQ	#	0.01	
Oxidation Reduction Potential	mV	06/16/2010	N001	140 - 150	44.4		FQ	#		
pH	s.u.	06/16/2010	N001	140 - 150	8.21		FQ	#		
Potassium	mg/L	06/16/2010	N001	140 - 150	0.22	U	FQ	#	0.22	
Selenium	mg/L	06/16/2010	N001	140 - 150	0.00015		FQ	#	0.000032	
Sodium	mg/L	06/16/2010	N001	140 - 150	510		FQ	#	0.033	
Specific Conductance	umhos /cm	06/16/2010	N001	140 - 150	2862		FQ	#		
Sulfate	mg/L	06/16/2010	N001	140 - 150	570		FQ	#	25	
Temperature	C	06/16/2010	N001	140 - 150	18.5		FQ	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0182 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Organic Carbon	mg/L	06/16/2010	N001	140	-	150	1		FQ	#	1	
Turbidity	NTU	06/16/2010	N001	140	-	150	3.82		FQ	#		
Uranium	mg/L	06/16/2010	N001	140	-	150	0.001		FQ	#	0.0000029	
Uranium-234	pCi/L	06/16/2010	N001	140	-	150	0.951		FQJ	#	0.32	0.437
Uranium-235	pCi/L	06/16/2010	N001	140	-	150	0.26	U	FQ	#	0.26	0.17
Uranium-238	pCi/L	06/16/2010	N001	140	-	150	0.271	U	FQ	#	0.27	0.234

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0188 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	N001	7.5	-	12.5	401		F	#		
Ammonia Total as N	mg/L	06/16/2010	N001	7.5	-	12.5	12		F	#	0.5	
Arsenic	mg/L	06/16/2010	N001	7.5	-	12.5	0.00033		F	#	0.00003	
Calcium	mg/L	06/16/2010	N001	7.5	-	12.5	380		F	#	0.12	
Chloride	mg/L	06/16/2010	N001	7.5	-	12.5	630		F	#	20	
Dissolved Oxygen	mg/L	06/16/2010	N001	7.5	-	12.5	0.53		F	#		
Iron	mg/L	06/16/2010	N001	7.5	-	12.5	0.049	U	F	#	0.049	
Magnesium	mg/L	06/16/2010	N001	7.5	-	12.5	390		F	#	0.13	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	N001	7.5	-	12.5	10		F	#	0.1	
Oxidation Reduction Potential	mV	06/16/2010	N001	7.5	-	12.5	90.6		F	#		
pH	s.u.	06/16/2010	N001	7.5	-	12.5	6.96		F	#		
Potassium	mg/L	06/16/2010	N001	7.5	-	12.5	20		F	#	1.1	
Selenium	mg/L	06/16/2010	N001	7.5	-	12.5	0.024		F	#	0.000065	
Sodium	mg/L	06/16/2010	N001	7.5	-	12.5	2600		F	#	0.13	
Specific Conductance	umhos /cm	06/16/2010	N001	7.5	-	12.5	14578		F	#		
Sulfate	mg/L	06/16/2010	N001	7.5	-	12.5	7900		F	#	50	
Temperature	C	06/16/2010	N001	7.5	-	12.5	17.11		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0188 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Organic Carbon	mg/L	06/16/2010	N001	7.5	-	12.5	2.3		F	#	1	
Turbidity	NTU	06/16/2010	N001	7.5	-	12.5	1.96		F	#		
Uranium	mg/L	06/16/2010	N001	7.5	-	12.5	0.083		F	#	0.000015	
Uranium-234	pCi/L	06/16/2010	N001	7.5	-	12.5	41.4		F	#	0.4	7.26
Uranium-235	pCi/L	06/16/2010	N001	7.5	-	12.5	1.02		F	#	0.29	0.533
Uranium-238	pCi/L	06/16/2010	N001	7.5	-	12.5	29.1		F	#	0.33	5.27

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0189 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	N001	14	-	19	355		FQ	#		
Ammonia Total as N	mg/L	06/16/2010	N001	14	-	19	39		FQ	#	1	
Arsenic	mg/L	06/16/2010	N001	14	-	19	0.00055		FQ	#	0.000074	
Calcium	mg/L	06/16/2010	N001	14	-	19	430		FQ	#	0.06	
Chloride	mg/L	06/16/2010	N001	14	-	19	550		FQ	#	20	
Dissolved Oxygen	mg/L	06/16/2010	N001	14	-	19	1.74		FQ	#		
Iron	mg/L	06/16/2010	N001	14	-	19	0.025	U	FQ	#	0.025	
Magnesium	mg/L	06/16/2010	N001	14	-	19	360		FQ	#	0.065	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	N001	14	-	19	40		FQ	#	0.5	
Oxidation Reduction Potential	mV	06/16/2010	N001	14	-	19	98.4		FQ	#		
pH	s.u.	06/16/2010	N001	14	-	19	6.98		FQ	#		
Potassium	mg/L	06/16/2010	N001	14	-	19	27		FQ	#	0.54	
Selenium	mg/L	06/16/2010	N001	14	-	19	0.064		FQ	#	0.00016	
Sodium	mg/L	06/16/2010	N001	14	-	19	1800		FQ	#	0.16	
Specific Conductance	umhos /cm	06/16/2010	N001	14	-	19	11922		FQ	#		
Sulfate	mg/L	06/16/2010	N001	14	-	19	6200		FQ	#	50	
Temperature	C	06/16/2010	N001	14	-	19	22.71		FQ	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0189 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Organic Carbon	mg/L	06/16/2010	N001	14	-	19	2.1		FQ	#	1	
Turbidity	NTU	06/16/2010	N001	14	-	19	3.24		FQ	#		
Uranium	mg/L	06/16/2010	N001	14	-	19	0.27		FQ	#	0.000015	
Uranium-234	pCi/L	06/16/2010	N001	14	-	19	129		FQ	#	0.3	21
Uranium-235	pCi/L	06/16/2010	N001	14	-	19	5.66		FQ	#	0.24	1.4
Uranium-238	pCi/L	06/16/2010	N001	14	-	19	112		FQ	#	0.27	18.3

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0192 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	N001	5.02	-	9.96	318		F	#		
Ammonia Total as N	mg/L	06/16/2010	N001	5.02	-	9.96	2.2		F	#	0.1	
Arsenic	mg/L	06/16/2010	N001	5.02	-	9.96	0.00029		F	#	0.00003	
Calcium	mg/L	06/16/2010	N001	5.02	-	9.96	430		F	#	0.06	
Chloride	mg/L	06/16/2010	N001	5.02	-	9.96	460		F	#	20	
Dissolved Oxygen	mg/L	06/16/2010	N001	5.02	-	9.96	0.58		F	#		
Iron	mg/L	06/16/2010	N001	5.02	-	9.96	0.025	U	F	#	0.025	
Magnesium	mg/L	06/16/2010	N001	5.02	-	9.96	320		F	#	0.065	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	N001	5.02	-	9.96	100		F	#	1	
Oxidation Reduction Potential	mV	06/16/2010	N001	5.02	-	9.96	66.5		F	#		
pH	s.u.	06/16/2010	N001	5.02	-	9.96	6.89		F	#		
Potassium	mg/L	06/16/2010	N001	5.02	-	9.96	21		F	#	0.54	
Selenium	mg/L	06/16/2010	N001	5.02	-	9.96	0.095		F	#	0.000065	
Sodium	mg/L	06/16/2010	N001	5.02	-	9.96	1600		F	#	0.16	
Specific Conductance	umhos /cm	06/16/2010	N001	5.02	-	9.96	10642		F	#		
Sulfate	mg/L	06/16/2010	N001	5.02	-	9.96	5300		F	#	50	
Temperature	C	06/16/2010	N001	5.02	-	9.96	16.69		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0192 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Organic Carbon	mg/L	06/16/2010	N001	5.02	-	9.96	1.5		F	#	1	
Turbidity	NTU	06/16/2010	N001	5.02	-	9.96	1.47		F	#		
Uranium	mg/L	06/16/2010	N001	5.02	-	9.96	0.44		F	#	0.000029	
Uranium-234	pCi/L	06/16/2010	N001	5.02	-	9.96	168		F	#	0.27	27
Uranium-235	pCi/L	06/16/2010	N001	5.02	-	9.96	8.65		F	#	0.29	1.87
Uranium-238	pCi/L	06/16/2010	N001	5.02	-	9.96	165		F	#	0.11	26.5

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0194 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/17/2010	N001	12.5	-	17.5	1475		FQ	#		
Ammonia Total as N	mg/L	06/17/2010	N001	12.5	-	17.5	4		FQ	#	0.1	
Arsenic	mg/L	06/17/2010	N001	12.5	-	17.5	0.0032		FQ	#	0.00015	
Calcium	mg/L	06/17/2010	N001	12.5	-	17.5	460		FQ	#	0.24	
Chloride	mg/L	06/17/2010	N001	12.5	-	17.5	3700		FQ	#	100	
Iron	mg/L	06/17/2010	N001	12.5	-	17.5	0.099	U	FQ	#	0.099	
Magnesium	mg/L	06/17/2010	N001	12.5	-	17.5	2400		FQ	#	0.26	
Nitrate + Nitrite as Nitrogen	mg/L	06/17/2010	N001	12.5	-	17.5	570		FQ	#	5	
Oxidation Reduction Potential	mV	06/17/2010	N001	12.5	-	17.5	119.4		FQ	#		
pH	s.u.	06/17/2010	N001	12.5	-	17.5	7.18		FQ	#		
Potassium	mg/L	06/17/2010	N001	12.5	-	17.5	99		FQ	#	2.2	
Selenium	mg/L	06/17/2010	N001	12.5	-	17.5	0.016		FQ	#	0.00032	
Sodium	mg/L	06/17/2010	N001	12.5	-	17.5	8100		FQ	#	0.66	
Specific Conductance	umhos /cm	06/17/2010	N001	12.5	-	17.5	38775		FQ	#		
Sulfate	mg/L	06/17/2010	N001	12.5	-	17.5	23000		FQ	#	250	
Temperature	C	06/17/2010	N001	12.5	-	17.5	18.36		FQ	#		
Total Organic Carbon	mg/L	06/17/2010	N001	12.5	-	17.5	10		FQ	#	1	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0194 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Turbidity	NTU	06/17/2010	N001	12.5	-	17.5	5.95		FQ	#		
Uranium	mg/L	06/17/2010	N001	12.5	-	17.5	3.9		FQ	#	0.00029	
Uranium-234	pCi/L	06/17/2010	N001	12.5	-	17.5	1590		FQ	#	1.8	259
Uranium-235	pCi/L	06/17/2010	N001	12.5	-	17.5	75.4		FQ	#	1.7	15.5
Uranium-238	pCi/L	06/17/2010	N001	12.5	-	17.5	1530		FQ	#	1.2	249

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0813 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	N001	77.7	-	97.7	640		F	#		
Ammonia Total as N	mg/L	06/16/2010	N001	77.7	-	97.7	0.13		F	#	0.1	
Arsenic	mg/L	06/16/2010	N001	77.7	-	97.7	0.082		F	#	0.000015	
Calcium	mg/L	06/16/2010	N001	77.7	-	97.7	270		F	#	0.06	
Chloride	mg/L	06/16/2010	N001	77.7	-	97.7	220		F	#	20	
Dissolved Oxygen	mg/L	06/16/2010	N001	77.7	-	97.7	0.94		F	#		
Iron	mg/L	06/16/2010	N001	77.7	-	97.7	1.7		F	#	0.025	
Magnesium	mg/L	06/16/2010	N001	77.7	-	97.7	190		F	#	0.065	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	N001	77.7	-	97.7	0.1		F	#	0.01	
Oxidation Reduction Potential	mV	06/16/2010	N001	77.7	-	97.7	7.7		F	#		
pH	s.u.	06/16/2010	N001	77.7	-	97.7	6.61		F	#		
Potassium	mg/L	06/16/2010	N001	77.7	-	97.7	6.5		F	#	0.54	
Selenium	mg/L	06/16/2010	N001	77.7	-	97.7	0.00087		F	#	0.000032	
Sodium	mg/L	06/16/2010	N001	77.7	-	97.7	1300		F	#	0.16	
Specific Conductance	umhos /cm	06/16/2010	N001	77.7	-	97.7	7971		F	#		
Sulfate	mg/L	06/16/2010	N001	77.7	-	97.7	3600		F	#	50	
Temperature	C	06/16/2010	N001	77.7	-	97.7	18.26		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0813 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Total Organic Carbon	mg/L	06/16/2010	N001	77.7	-	97.7	25		F	#	2	
Turbidity	NTU	06/16/2010	N001	77.7	-	97.7	0.94		F	#		
Uranium	mg/L	06/16/2010	N001	77.7	-	97.7	0.016		F	#	0.0000029	
Uranium-234	pCi/L	06/16/2010	N001	77.7	-	97.7	17.3		F	#	0.42	3.25
Uranium-235	pCi/L	06/16/2010	N001	77.7	-	97.7	0.48	U	F	#	0.48	0.33
Uranium-238	pCi/L	06/16/2010	N001	77.7	-	97.7	6.19		F	#	0.32	1.44

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0817 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/15/2010	N001	100	-	130	760			#		
Ammonia Total as N	mg/L	06/15/2010	N001	100	-	130	0.1	U		#	0.1	
Arsenic	mg/L	06/15/2010	N001	100	-	130	0.00006	B	U	#	0.000015	
Calcium	mg/L	06/15/2010	N001	100	-	130	2			#	0.012	
Chloride	mg/L	06/15/2010	N001	100	-	130	240			#	4	
Dissolved Oxygen	mg/L	06/15/2010	N001	100	-	130	0.64			#		
Iron	mg/L	06/15/2010	N001	100	-	130	0.025	B	U	#	0.0049	
Magnesium	mg/L	06/15/2010	N001	100	-	130	0.43	B		#	0.013	
Nitrate + Nitrite as Nitrogen	mg/L	06/15/2010	N001	100	-	130	0.01	U		#	0.01	
Oxidation Reduction Potential	mV	06/15/2010	N001	100	-	130	163.8			#		
pH	s.u.	06/15/2010	N001	100	-	130	8.37			#		
Potassium	mg/L	06/15/2010	N001	100	-	130	0.76	B		#	0.11	
Selenium	mg/L	06/15/2010	N001	100	-	130	0.000081	B	U	#	0.000032	
Sodium	mg/L	06/15/2010	N001	100	-	130	440			#	0.066	
Specific Conductance	umhos /cm	06/15/2010	N001	100	-	130	2337			#		
Sulfate	mg/L	06/15/2010	N001	100	-	130	120			#	10	
Temperature	C	06/15/2010	N001	100	-	130	20.32			#		
Total Organic Carbon	mg/L	06/15/2010	N001	100	-	130	1.2			#	1	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0817 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Turbidity	NTU	06/15/2010	N001	100	-	130	0.94			#		
Uranium	mg/L	06/15/2010	N001	100	-	130	0.00011			#	0.0000029	
Uranium-234	pCi/L	06/15/2010	N001	100	-	130	0.94		J	#	0.49	0.462
Uranium-235	pCi/L	06/15/2010	N001	100	-	130	0.31	U		#	0.31	0.159
Uranium-238	pCi/L	06/15/2010	N001	100	-	130	0.3	U		#	0.3	0.188

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:
- F Low flow sampling method used.
- L Less than 3 bore volumes purged prior to sampling.
- U Parameter analyzed for but was not detected.
- G Possible grout contamination, pH > 9.
- Q Qualitative result due to sampling technique.
- X Location is undefined.
- J Estimated value.
- R Unusable result.

QA QUALIFIER:
- # Validated according to quality assurance guidelines.

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Surface Water Quality Data

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Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0846 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	0001	77			#		
Ammonia Total as N	mg/L	06/16/2010	0001	0.1	U		#	0.1	
Arsenic	mg/L	06/16/2010	0001	0.0012	E		#	0.000015	
Calcium	mg/L	06/16/2010	0001	25			#	0.012	
Chloride	mg/L	06/16/2010	0001	5.9			#	0.2	
Dissolved Organic Carbon	mg/L	06/16/2010	0001	5			#	1	
Iron	mg/L	06/16/2010	0001	0.027	B		#	0.0049	
Magnesium	mg/L	06/16/2010	0001	8			#	0.013	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	0001	0.07			#	0.01	
Potassium	mg/L	06/16/2010	0001	0.73	B		#	0.11	
Selenium	mg/L	06/16/2010	0001	0.00048			#	0.000032	
Sodium	mg/L	06/16/2010	0001	14	E	J	#	0.0066	
Sulfate	mg/L	06/16/2010	0001	53			#	0.5	
Uranium	mg/L	06/16/2010	0001	0.0011			#	0.0000029	
Uranium-234	pCi/L	06/16/2010	0001	1.1		J	#	0.27	0.461
Uranium-235	pCi/L	06/16/2010	0001	0.26	U		#	0.26	0.168
Uranium-238	pCi/L	06/16/2010	0001	0.591		J	#	0.36	0.355

Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0846 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Dissolved Oxygen	mg/L	06/16/2010	N001	8.65			#		
Oxidation Reduction Potential	mV	06/16/2010	N001	16.5			#		
pH	s.u.	06/16/2010	N001	8.13			#		
Specific Conductance	umhos/cm	06/16/2010	N001	341			#		
Temperature	C	06/16/2010	N001	20.68			#		
Turbidity	NTU	06/16/2010	N001	403			#		

Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0847 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	0001	64			#		
Ammonia Total as N	mg/L	06/16/2010	0001	0.1	U		#	0.1	
Arsenic	mg/L	06/16/2010	0001	0.0012			#	0.000015	
Calcium	mg/L	06/16/2010	0001	27			#	0.012	
Chloride	mg/L	06/16/2010	0001	6.2			#	0.2	
Dissolved Organic Carbon	mg/L	06/16/2010	0001	5.3			#	1	
Iron	mg/L	06/16/2010	0001	0.033	B		#	0.0049	
Magnesium	mg/L	06/16/2010	0001	8.2			#	0.013	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	0001	0.01	U		#	0.01	
Potassium	mg/L	06/16/2010	0001	0.89	B		#	0.11	
Selenium	mg/L	06/16/2010	0001	0.00047			#	0.000032	
Sodium	mg/L	06/16/2010	0001	17			#	0.0066	
Sulfate	mg/L	06/16/2010	0001	54			#	0.5	
Uranium	mg/L	06/16/2010	0001	0.0012			#	0.0000029	
Uranium-234	pCi/L	06/16/2010	0001	1.09		J	#	0.21	0.44
Uranium-235	pCi/L	06/16/2010	0001	0.21	U		#	0.21	0.157
Uranium-238	pCi/L	06/16/2010	0001	0.706			#	0.23	0.351
Dissolved Oxygen	mg/L	06/16/2010	N001	8.06			#		

Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 10/15/2010
Location: 0847 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Oxidation Reduction Potential	mV	06/16/2010	N001	40.2			#		
pH	s.u.	06/16/2010	N001	8.41			#		
Specific Conductance	umhos/cm	06/16/2010	N001	344			#		
Temperature	C	06/16/2010	N001	25.37			#		
Turbidity	NTU	06/16/2010	N001	225			#		

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
* Replicate analysis not within control limits.
> Result above upper detection limit.
A TIC is a suspected aldol-condensation product.
B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
C Pesticide result confirmed by GC-MS.
D Analyte determined in diluted sample.
E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H Holding time expired, value suspect.
I Increased detection limit due to required dilution.
JEstimated
N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
U Analytical result below detection limit.
W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:
F Low flow sampling method used. G Possible grout contamination, pH > 9. J Estimated value.
LLess than 3 bore volumes purged prior to sampling. Q Qualitative result due to sampling technique. R Unusable result.
U Parameter analyzed for but was not detected. X Location is undefined.

QA QUALIFIER:
Validated according to quality assurance guidelines.

Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 8/17/2010
Location: 0846 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	0001	77			0		
Ammonia Total as N	mg/L	06/16/2010	0001	0.1	U		0	0.1	
Arsenic	mg/L	06/16/2010	0001	0.0012	E		0	0.000015	
Calcium	mg/L	06/16/2010	0001	25			0	0.012	
Chloride	mg/L	06/16/2010	0001	5.9			0	0.2	
Dissolved Organic Carbon	mg/L	06/16/2010	0001	5			0	1	
Iron	mg/L	06/16/2010	0001	0.027	B		0	0.0049	
Magnesium	mg/L	06/16/2010	0001	8			0	0.013	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	0001	0.07			0	0.01	
Potassium	mg/L	06/16/2010	0001	0.73	B		0	0.11	
Selenium	mg/L	06/16/2010	0001	0.00048			0	0.000032	
Sodium	mg/L	06/16/2010	0001	14	E	J	0	0.0066	
Sulfate	mg/L	06/16/2010	0001	53			0	0.5	
Uranium	mg/L	06/16/2010	0001	0.0011			0	0.0000029	
Uranium-234	pCi/L	06/16/2010	0001	1.1		J	0	0.27	0.461
Uranium-235	pCi/L	06/16/2010	0001	0.26	U		0	0.26	0.168
Uranium-238	pCi/L	06/16/2010	0001	0.591		J	0	0.36	0.355

Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 8/17/2010
Location: 0846 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Dissolved Oxygen	mg/L	06/16/2010	N001	8.65			0		
Oxidation Reduction Potential	mV	06/16/2010	N001	16.5			0		
pH	s.u.	06/16/2010	N001	8.13			0		
Specific Conductance	umhos/cm	06/16/2010	N001	341			0		
Temperature	C	06/16/2010	N001	20.68			0		
Turbidity	NTU	06/16/2010	N001	403			0		

Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 8/17/2010
Location: 0847 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/16/2010	0001	64			0		
Ammonia Total as N	mg/L	06/16/2010	0001	0.1	U		0	0.1	
Arsenic	mg/L	06/16/2010	0001	0.0012			0	0.000015	
Calcium	mg/L	06/16/2010	0001	27			0	0.012	
Chloride	mg/L	06/16/2010	0001	6.2			0	0.2	
Dissolved Organic Carbon	mg/L	06/16/2010	0001	5.3			0	1	
Iron	mg/L	06/16/2010	0001	0.033	B		0	0.0049	
Magnesium	mg/L	06/16/2010	0001	8.2			0	0.013	
Nitrate + Nitrite as Nitrogen	mg/L	06/16/2010	0001	0.01	U		0	0.01	
Potassium	mg/L	06/16/2010	0001	0.89	B		0	0.11	
Selenium	mg/L	06/16/2010	0001	0.00047			0	0.000032	
Sodium	mg/L	06/16/2010	0001	17			0	0.0066	
Sulfate	mg/L	06/16/2010	0001	54			0	0.5	
Uranium	mg/L	06/16/2010	0001	0.0012			0	0.0000029	
Uranium-234	pCi/L	06/16/2010	0001	1.09		J	0	0.21	0.44
Uranium-235	pCi/L	06/16/2010	0001	0.21	U		0	0.21	0.157
Uranium-238	pCi/L	06/16/2010	0001	0.706			0	0.23	0.351
Dissolved Oxygen	mg/L	06/16/2010	N001	8.06			0		

Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 8/17/2010
Location: 0847 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Oxidation Reduction Potential	mV	06/16/2010	N001	40.2			0		
pH	s.u.	06/16/2010	N001	8.41			0		
Specific Conductance	umhos/cm	06/16/2010	N001	344			0		
Temperature	C	06/16/2010	N001	25.37			0		
Turbidity	NTU	06/16/2010	N001	225			0		

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
* Replicate analysis not within control limits.
> Result above upper detection limit.
A TIC is a suspected aldol-condensation product.
B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
C Pesticide result confirmed by GC-MS.
D Analyte determined in diluted sample.
E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H Holding time expired, value suspect.
I Increased detection limit due to required dilution.
JEstimated
N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
U Analytical result below detection limit.
W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X,Y,Z Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:
F Low flow sampling method used. G Possible grout contamination, pH > 9. J Estimated value.
LLess than 3 bore volumes purged prior to sampling. Q Qualitative result due to sampling technique. R Unusable result.
U Parameter analyzed for but was not detected. X Location is undefined.

QA QUALIFIER:
Validated according to quality assurance guidelines.

Equipment Blank Data

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BLANKS REPORT
LAB: PARAGON/ALS LABORATORY GROUP (Fort Collins, CO)
RIN: 10063150
Report Date: 10/15/2010

Parameter	Site Code	Location ID	Sample Date	ID	Units	Result	Qualifiers Lab	Qualifiers Data	Detection Limit	Uncertainty	Sample Type
Ammonia Total as N	GRN01	0999	06/16/2010	N001	mg/L	0.1	U		0.1		E
Arsenic	GRN01	0999	06/16/2010	N001	mg/L	0.000029	B	U	0.000015		E
Calcium	GRN01	0999	06/16/2010	N001	mg/L	0.14	B	U	0.012		E
Chloride	GRN01	0999	06/16/2010	N001	mg/L	0.2	U		0.2		E
Iron	GRN01	0999	06/16/2010	N001	mg/L	0.0049	U		0.0049		E
Magnesium	GRN01	0999	06/16/2010	N001	mg/L	0.013	U		0.013		E
Nitrate + Nitrite as Nitrogen	GRN01	0999	06/16/2010	N001	mg/L	0.01	U		0.01		E
Potassium	GRN01	0999	06/16/2010	N001	mg/L	0.11	U		0.11		E
Selenium	GRN01	0999	06/16/2010	N001	mg/L	0.000091	B	U	0.000032		E
Sodium	GRN01	0999	06/16/2010	N001	mg/L	0.0066	U		0.0066		E
Sulfate	GRN01	0999	06/16/2010	N001	mg/L	0.5	U		0.5		E
Total Organic Carbon	GRN01	0999	06/16/2010	N001	mg/L	1	U		1		E
Uranium	GRN01	0999	06/16/2010	N001	mg/L	0.000007	B	U	0.0000029		E
Uranium-234	GRN01	0999	06/16/2010	N001	pCi/L	0.29	U		0.29	0.167	E
Uranium-235	GRN01	0999	06/16/2010	N001	pCi/L	0.15	U		0.15	0.196	E
Uranium-238	GRN01	0999	06/16/2010	N001	pCi/L	0.26	U		0.26	0.167	E

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
>	Result above upper detection limit.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
C	Pesticide result confirmed by GC-MS.
D	Analyte determined in diluted sample.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
J	Estimated
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
P	> 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X,Y,Z	Laboratory defined qualifier, see case narrative.

DATA QUALIFIERS:

F	Low flow sampling method used.	G	Possible grout contamination, pH > 9.	J	Estimated value.
L	Less than 3 bore volumes purged prior to sampling.	Q	Qualitative result due to sampling technique.	R	Unusable result.
U	Parameter analyzed for but was not detected.	X	Location is undefined.		

SAMPLE TYPES:

E	Equipment Blank.

Static Water Level Data

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STATIC WATER LEVELS (USEE700) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 8/17/2010

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
0171	D	4140.1	06/15/2010	13:20:28	54.69	4085.41
0173	D	4141.23	06/15/2010	14:50:57	55.8	4085.43
0176	D	4143.4	06/16/2010	16:25:27	55.9	4087.5
0179	C	4161.39	06/16/2010	11:05:44	74.9	4086.49
0180	C	4159.11	06/16/2010	12:00:54	56.55	4102.56
0181	D	4141.1	06/15/2010	14:15:35	55.32	4085.78
0182	D	4101.52	06/16/2010	10:30:44	16.02	4085.5
0188	O	4075.11	06/16/2010	13:20:10	12.09	4063.02
0189	O	4075.96	06/16/2010	13:30:08	19.1	4056.86
0192	O	4065.83	06/16/2010	12:55:23	11.37	4054.46
0194	D	4067.76	06/17/2010	10:30:06	18.28	4049.48
0813	D	4136.36	06/16/2010	10:00:16	50.82	4085.54
0817	C	4085.31	06/15/2010	15:20:39	0	4085.31

FLOW CODES: B BACKGROUND C CROSS GRADIENT D DOWN GRADIENT F OFF SITE
N UNKNOWN O ON SITE U UPGRADIENT

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Hydrographs

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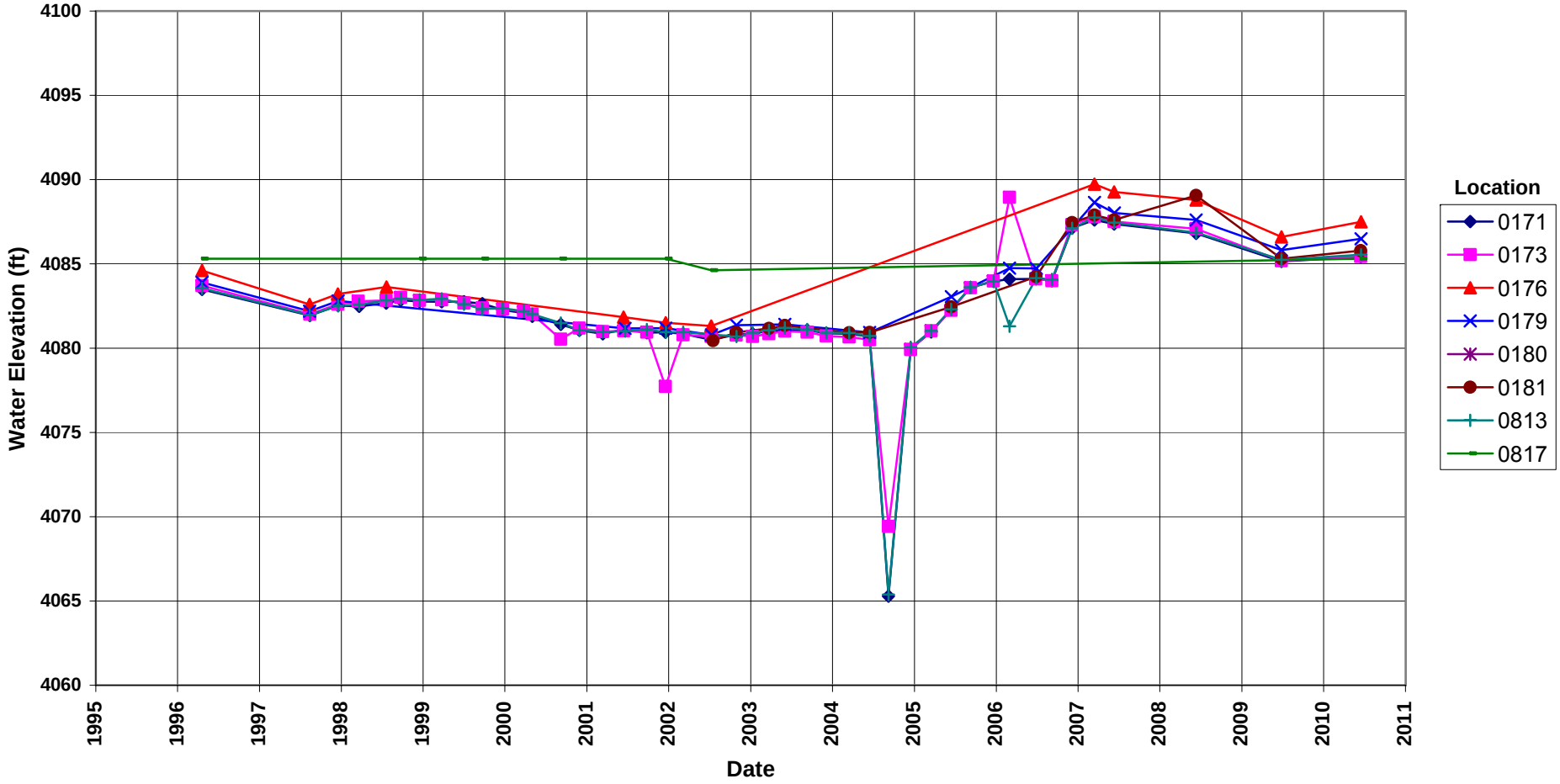
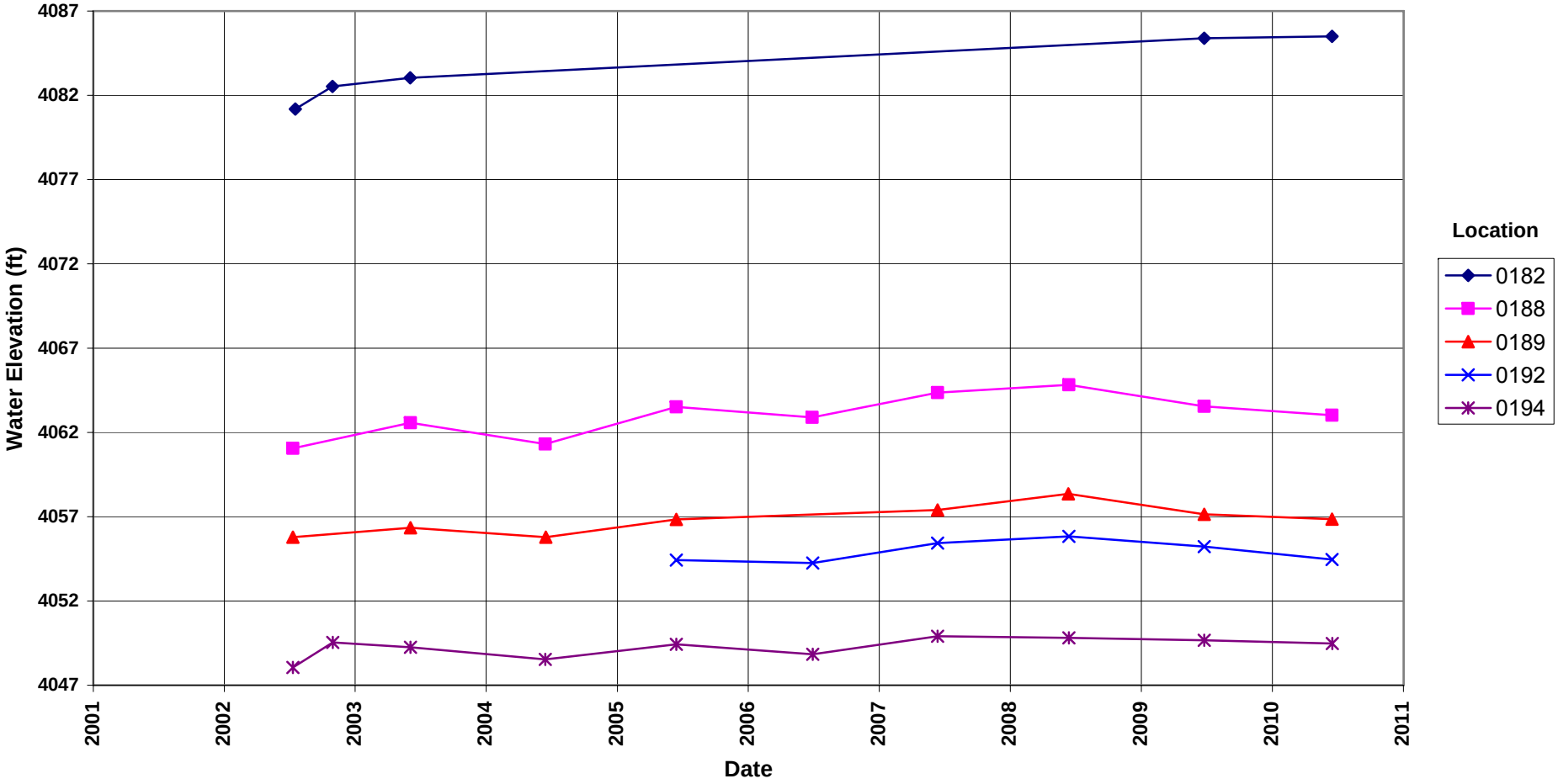
Green River Disposal Site
Hydrograph



Green River Disposal Site
Hydrograph



Time-Concentration Graphs

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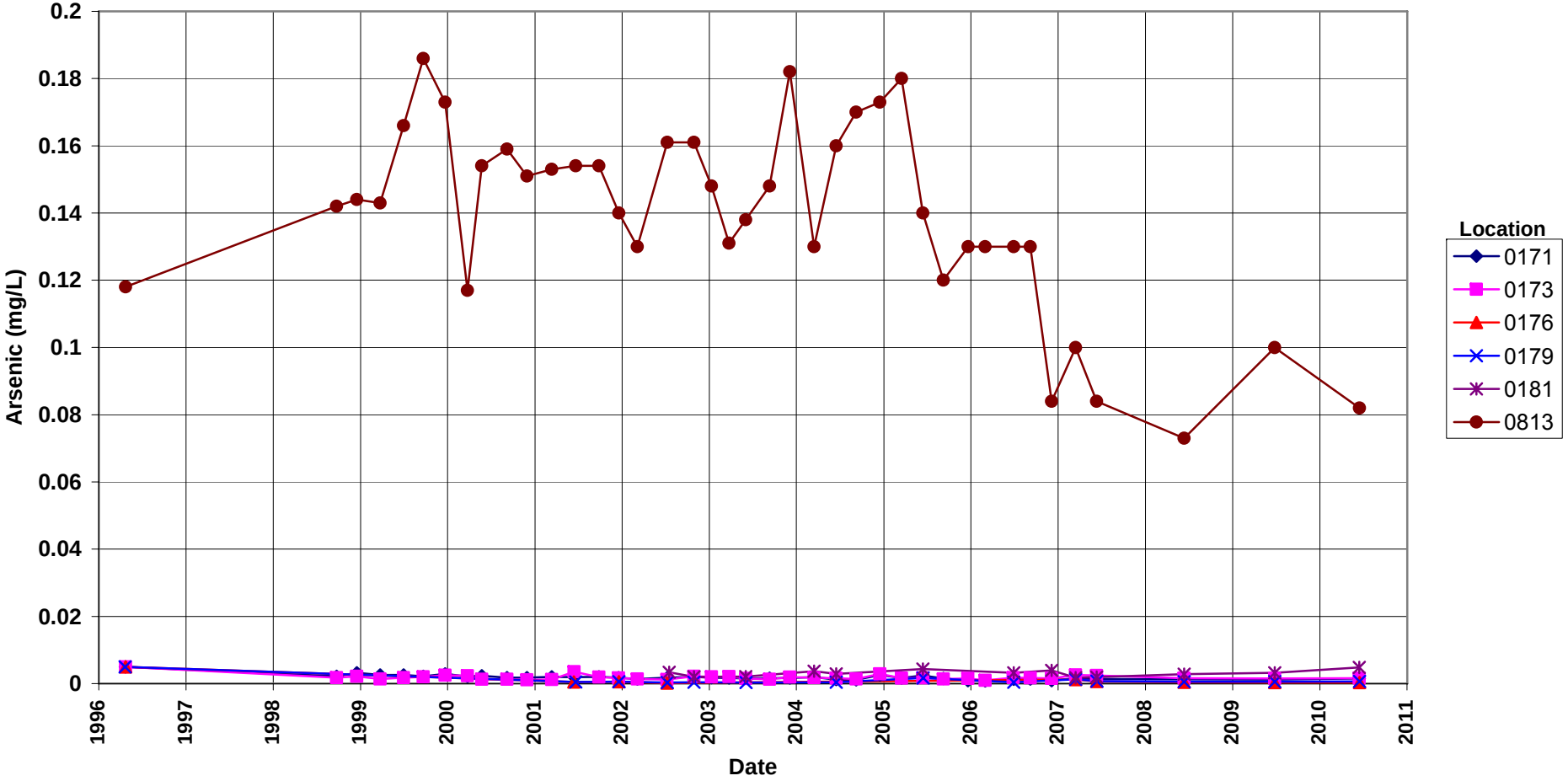
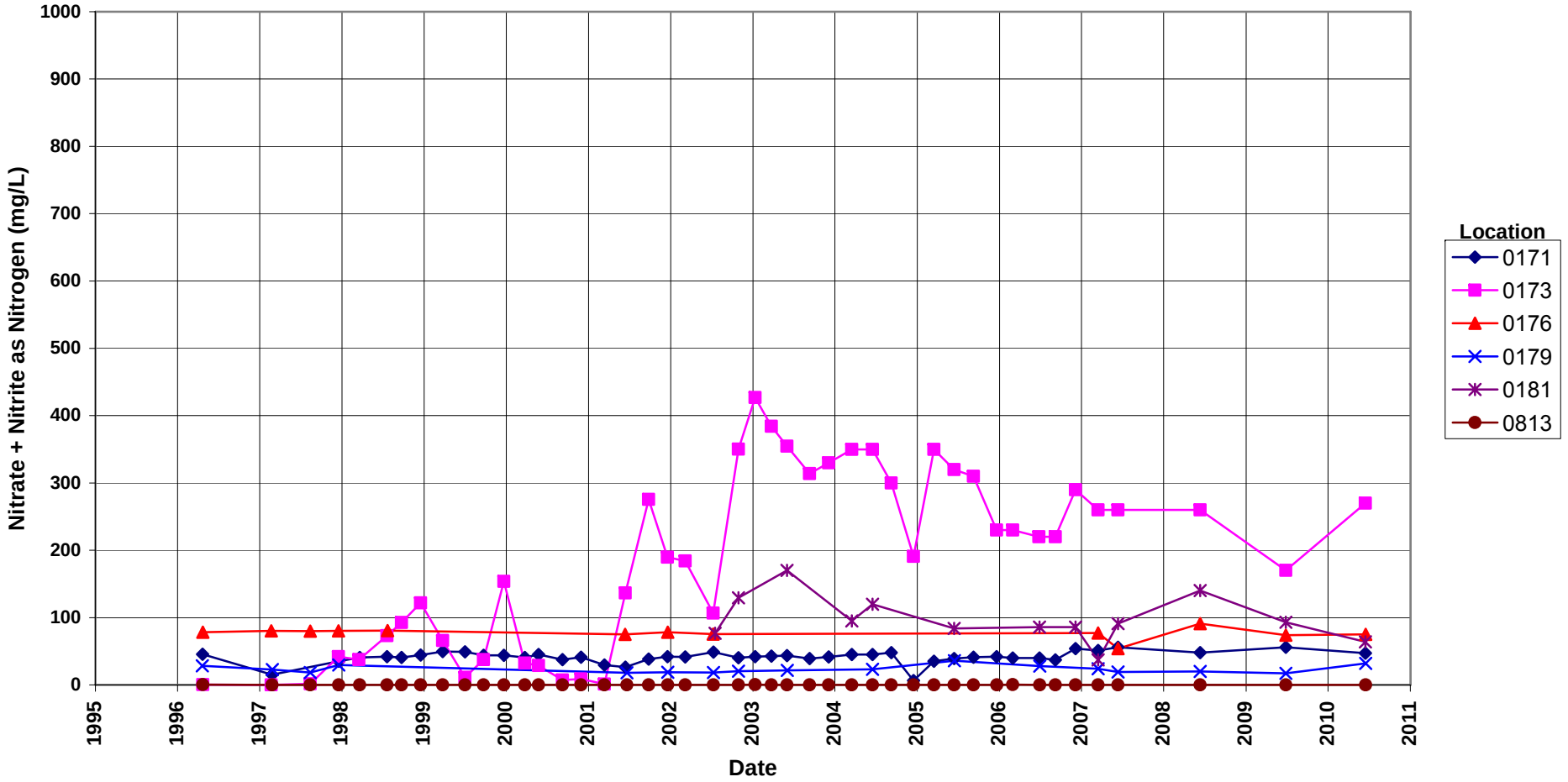
Green River Disposal Site
Arsenic Concentration

Alternate Concentration Limit = 5.0 mg/L

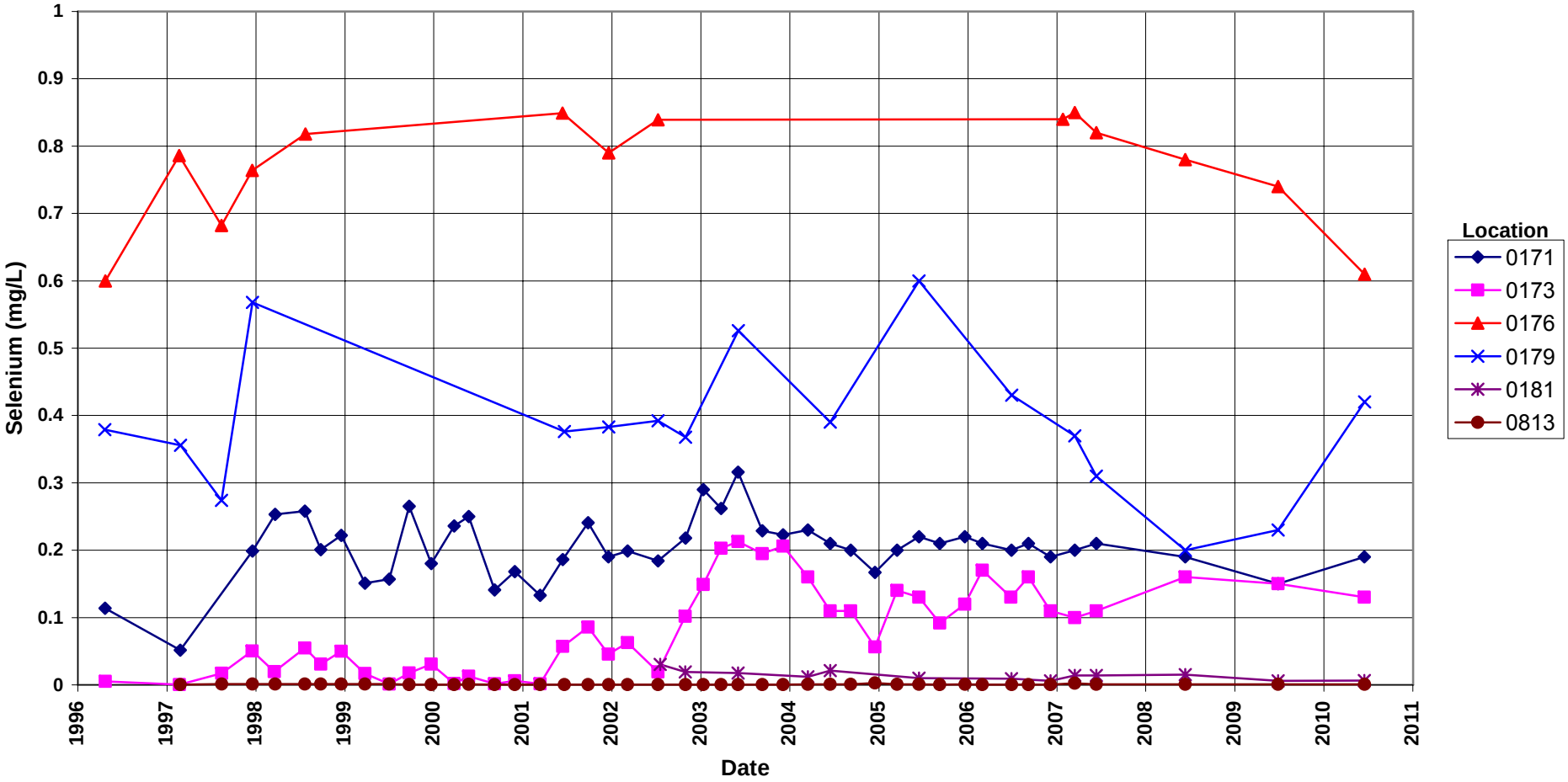


Green River Disposal Site
Nitrate + Nitrite as Nitrogen Concentration

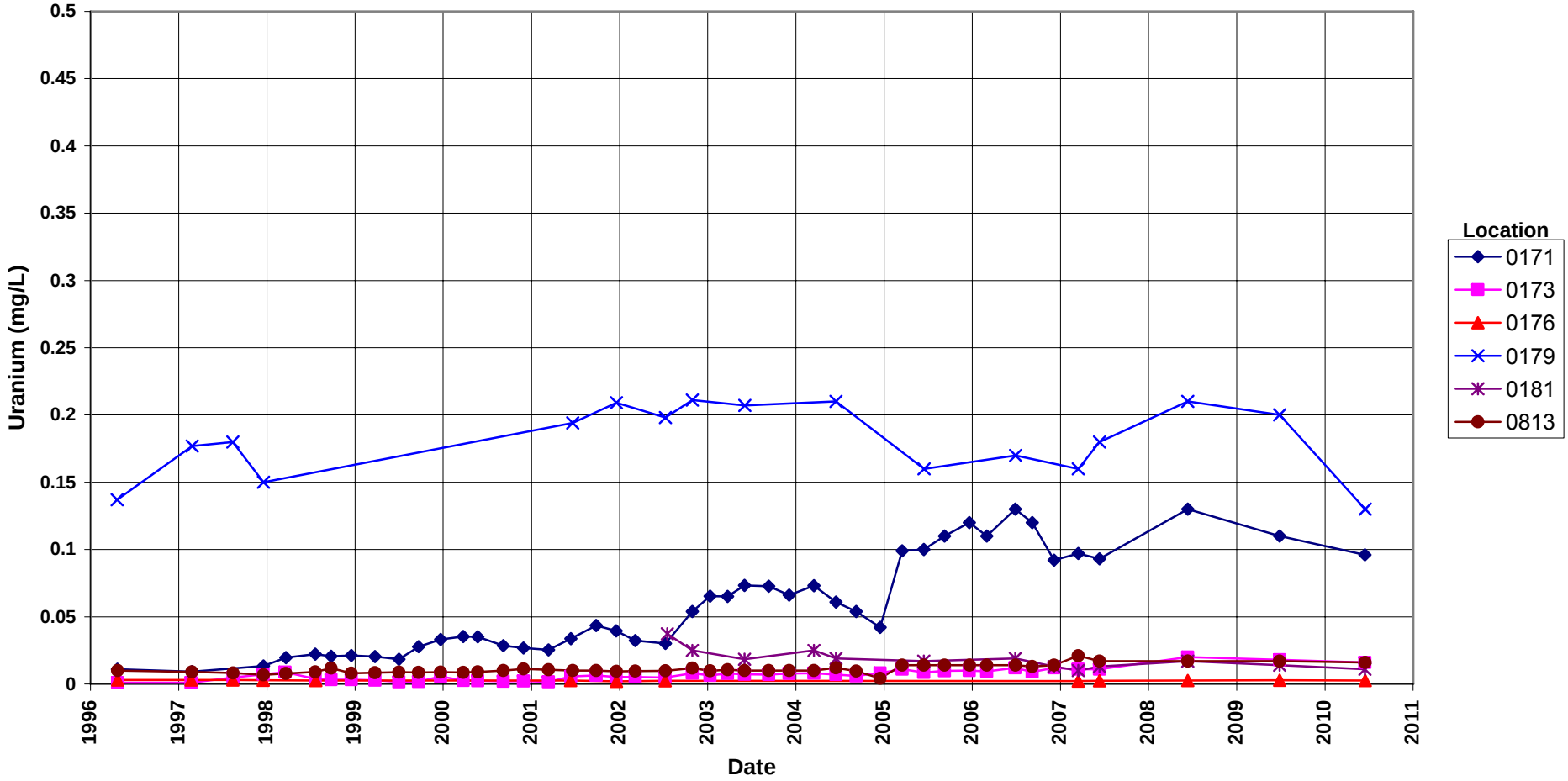
Alternate Concentration Limit = 1,000 mg/L



Green River Disposal Site
Selenium Concentration
Alternate Concentration Limit = 1.0 mg/L



Green River Disposal Site
Uranium Concentration
Alternate Concentration Limit = 4.4 mg/L



Attachment 3
Sampling and Analysis Work Order

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Stoller established 1959

Task Order LM00-501
Control Number 10-0623

May 20, 2010

U.S. Department of Energy
Office of Legacy Management
ATTN: Richard Bush
Site Manager
2597 B ¾ Road
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, Stoller
June 2010 Environmental Sampling at Green River, Utah

REFERENCE: Task Order LM00-501-02-107-402, Green River, UT, Disposal Site

Dear Mr. Bush:

The purpose of this letter is to inform you of the upcoming sampling event at Green River, Utah. Enclosed are the map and tables specifying sample locations and analytes for monitoring at the Green River, disposal site. Water quality data will be collected from monitoring wells and surface locations at this site as part of the annual environmental sampling currently scheduled to begin the week of June 21, 2010. Both the analyte and well set have been increased (for at least one event) to further characterize the chemical signature of the groundwater. This added characterization effort was determined to be necessary by DOE and Stoller staff to better define groundwater contamination.

The following lists show the monitoring wells (with zone of completion) and surface locations scheduled to be sampled during this event.

Monitor Wells*

0171 Cm	0176 Cm	0180 Cm	0182 Cb	0189 Al	0194 Al	0813 Cm
0173 Cm	0179 Cm	0181 Cm	0188 Al	0192 Al	0817 Cm	

*NOTE: Al = Alluvium; Cb = Cedar Mountain Basal Sandstone Member; Cm = Middle Sandstone Unit

Surface Locations

0718	0846	0847

The S.M. Stoller Corporation 2597 B ¾ Road Grand Junction, CO 81503 (970) 248-6000 Fax: (970) 248-6040

All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Access agreements are being reviewed and are expected to be complete by the beginning of fieldwork.

Please contact me at (970) 248-6592 if you have any questions or concerns.

Sincerely,

J. E. Price

Jeffrey Price
Site Lead

JP/lcg/lb

Enclosures (3)

cc: (electronic)
Cheri Bahrke, Stoller
Steve Donivan, Stoller
Bev Gallagher, Stoller
Lauren Goodknight, Stoller
Jeff Price, Stoller
EDD Delivery
rc-grand.junction

Sampling Frequencies for Locations at Green River, Utah

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Monitoring Wells						
171			X			Telemetry
173			X			Telemetry
176			X			Telemetry
179			X			Telemetry
180			X*			Telemetry
181			X			
182			X*			Telemetry
183					X	Telemetry; WL only
184					X	Telemetry; WL only
185					X	Telemetry; WL only
188			X			
189			X			
192			X			
194			X			
582					X	Telemetry; WL only
588					X	Telemetry; WL only
813			X			Telemetry
817			X*			Telemetry
Surface Locations						
718			X*			
846			X			
847			X			

Annual sampling conducted in June

*This event only.

Constituent Sampling Breakdown

Site	Green River				
Analyte	Groundwater	Surface Water	Required Detection Limit (mg/L)	Analytical Method	Line Item Code
Approx. No. Samples/yr	13	3			
Field Measurements					
Alkalinity	X*	X*			
Dissolved Oxygen	X*	X*			
Redox Potential	X	X			
pH	X	X			
Specific Conductance	X	X			
Turbidity	X	X			
Temperature	X	X			
Laboratory Measurements					
Aluminum					
Ammonia as N (NH3-N)	X	X	0.1	EPA 350.1	WCH-A-005
Arsenic	X	X	0.0001	SW-846 6020	LMM-02
Calcium	X*	X*	5	SW-846 6010	LMM-01
Chloride	X*	X*	0.5	SW-846 9056	MIS-A-039
Chromium					
Gross Alpha					
Gross Beta					
Iron	X*	X*	0.1	SW-846 6010	LMM-01
Lead					
Magnesium	X*	X*	5	SW-846 6010	LMM-01
Manganese					
Molybdenum					
Nickel					
Nickel-63					
Nitrate + Nitrite as N (NO3+NO2)-N	X	X	0.05	EPA 353.1	WCH-A-022
Potassium	X*	X*	1	SW-846 6010	LMM-01
Radium-226					
Radium-228					
Selenium	X	X	0.0001	SW-846 6020	LMM-02
Silica					
Sodium	X*	X*	5	SW-846 6010	LMM-01
Strontium					
Sulfate	X*	X*	0.5	SW-846 9056	MIS-A-039
Sulfide					
Total Dissolved Solids					
Total Organic Carbon	X*	X*		SM5310 B, C, D	WCH-A-025
Uranium	X	X	0.0001	SW-846 6020	LMM-02
Uranium-234/-238	X*	X*	1 pCi/L	Alpha Spectrometry	ASP-A-024
Vanadium					
Zinc					
Total No. of Analytes	14	14			

Note: All analyte samples are considered unfiltered unless stated otherwise. All private well samples are to be unfiltered. The total number of analytes does not include field parameters.

*This event only.

Attachment 4
Trip Report

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Stoller
established 1959
Grand Junction Office

Memorandum

Control Number N/A

DATE: June 22, 2010

TO: Distribution

FROM: Jeff Price

SUBJECT: Trip Report

Site: Green River, Utah

Dates of Sampling Event: June 15-17, 2010

Team Members: David Atkinson and Jeff Price.

Number of Locations Sampled: Water samples for metals and cations (arsenic, calcium, iron, magnesium, potassium, sodium, selenium, uranium), ammonia as N, nitrate + nitrite as N, anions (chloride and sulfate), total organic carbon, and isotopic uranium (U-234/238) were collected from 13 monitoring wells and two surface locations.

Locations Not Sampled/Reason: Surface location 0718. This location was compromised by the high stage of the Green River backing up Browns Wash. A sample will be collected later this summer after the flood waters have receded.

Location Specific Information: None.

Quality Control Sample Cross Reference: The following are the false identifications assigned to the quality control samples.

False ID	Ticket Number	True ID	Sample Type	Associated Matrix
2945	IHW 083	0179	Duplicate	Groundwater
2946	IHW 084	Associated with 0846 and 0847	Equipment Blank	Water

Report Identification Number (RIN) Assigned: All samples were assigned to RIN 10063150.

Sample Shipment: Samples were shipped overnight via FedEx to ALS Laboratory Group, Fort Collins, Colorado, on June 17, 2010.

Water Level Measurements: Water levels were measured at all sampled wells.

Well Inspection Summary: All sampled wells were in adequate condition.

Field Variance: None.

Equipment: Wells were sampled with a peristaltic pump and dedicated tubing, or a dedicated bladder pump. Surface water locations were sampled using a peristaltic pump and tubing reel. An equipment blank was collected after decontamination of the tubing reel used to sample the surface waters. Replaced the old large-volume bladder pump (which was leaking) in well 0176 with a new bladder pump

Regulatory: N/A

Institutional Controls

Fences, Gates, Locks: All fences, gates, and locks are OK.
Signs: OK
Trespassing/Site Disturbances: The bank side at surface location 0846 had evidence of trespassing: litter and coals from a fire.

Site Issues:

Disposal Cell/Drainage Structure Integrity: No issues observed.
Vegetation/Noxious Weed Concerns: None observed.
Maintenance Requirements: None observed.
Safety Issues: None.
Access Issues: None.

Corrective Action Required/Taken: Older wells should be repainted and relabeled because the paint is starting to deteriorate.

(JEP/lcg)

cc: (electronic)
Richard Bush, DOE
Cheri Bahrke, Stoller
Steve Donivan, Stoller
EDD Delivery