Data Validation Package

June 2013
Groundwater and Surface Water Sampling at the Green River, Utah, Disposal Site

August 2013

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Sampling Event Summary

Site: Green River, Utah, Disposal Site

Sampling Period: June 17–18, 2013

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.

Groundwater samples were collected during the 2013 sampling event from point-of-compliance (POC) wells 0171, 0173, 0176, 0179, 0181, and 0813 (Figure 1) to monitor the disposition of contaminants in the middle sandstone unit of the Cedar Mountain Formation. Groundwater samples also were collected from alluvium monitoring wells 0188, 0189, 0192, 0194, and 0707, and basal sandstone monitoring wells 0182, 0184, 0185, and 0588 as a best management practice. Surface locations 0846 and 0847 (Figure 1) were sampled to monitor for degradation of water quality in the backwater area of Browns Wash and in the Green River immediately downstream of Browns Wash. The Green River location, 0801, is upstream from the site and is sampled to determine benchmark concentration values. Sampling and analysis were conducted as specified in *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PRO/S04351, continually updated). Water levels were measured at each sampled well.

All six POC wells are completed in the middle sandstone unit of the Cedar Mountain Formation and are monitored to measure contaminant concentrations for comparison to proposed alternate concentration limits (ACLs), as provided in Table 1. Contaminant concentrations in the POC wells remain below their respective ACLs.

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

Well	Arsenic		Nitrate + Nitrite as Nitrogen (N)		Selenium		Sulfate		Uranium	
	ACL	Sample Result	ACL	Sample Result	ACL	Sample Result	ACL	Sample Result	ACL	Sample Result
0171	5.0	0.0013	1,000	52	5.0	0.140	None	4200	4.4	0.064
0173		0.0026		64		0.037		4900		0.008
0176		0.0003		64		0.750		3900		0.0026
0179		0.0006		17		0.250		3800		0.190
0181		0.0018		67		0.016		6200		0.020
0813		0.130		ND[b]		0.0012		3600		0.033

[a] Analytical results and ACLs are in milligrams per liter.
[b] ND = Not Detected

The alluvium monitoring wells are sampled as a best management practice. The results are not compared to ACLs because the alluvium is not classified as an aquifer. As expected, some of these wells continue to have elevated concentrations of nitrate and uranium because processing activities contaminated the alluvial groundwater. Analytical results for the alluvium monitoring wells are provided in Table 2.

Table 2. Analytical Results[a] for the Alluvium and Basal Sandstone Monitoring Wells

Well	Arsenic	Nitrate + Nitrite as N	Selenium	Sulfate	Uranium
Alluvium Monitoring Wells					
0188	0.0002	6.1	0.023	7400	0.071
0189	0.0004	32	0.065	7200	0.320
0192	0.0002	80	0.096	6700	0.450
0194	0.0039	330	0.090	41000	8.80
0707	0.0003	2.8	0.073	7400	0.026
Basal Sandstone Monitoring Wells					
0182	0.0099	ND[b]	0.0001	620	0.0013
0184	0.0016	ND[b]	0.0002	650	0.0024
0185	0.0015	ND[b]	0.0001	490	0.0008
0588	0.0100	ND[b]	0.0001	630	0.0002

[a] Analytical results are in milligrams per liter
[b] ND = Not Detected

Groundwater in the basal sandstone unit has not been contaminated by site-related activities, but groundwater in this unit is monitored as a best management practice. Analytical results for the basal sandstone monitoring wells are also provided in Table 2.

The surface water locations (Figure 1) are in the ephemeral Browns Wash (0847, backwater of the Green River); at the confluence of Browns Wash and the Green River (0846); and at an upgradient Green River benchmark location (0801). The uranium concentration in the backwater from the Green River (0847) is less than, but close in value to, the benchmark concentration for this constituent in surface water, and may be due to contaminated alluvial groundwater discharging to the surface in Browns Wash. The concentration at the confluence of Browns Wash and Green River (0846) is below the benchmark value, indicating no degradation of water quality resulting from contaminated groundwater discharge. Surface-water sample results from the 2013 sampling event for contaminants of concern are provided in Table 3.

Table 3. Analytical Results[a] and Standards/Benchmarks for Surface Water

Location	Ammonia as N		Arsenic		Nitrate + Nitrite as N		Selenium		Uranium	
	Std[b]	Sample Result	Std[c]	Sample Result	Std[c]	Sample Result	Std[c]	Sample Result	Benchmark[d]	Sample Result
0801	0.5	ND[e]	0.150	0.0011	4	0.04	0.0046	0.0004	0.0057	0.0012
0846		ND		0.0013		0.02		0.0005		0.0014
0847		ND		0.0011		0.14		0.0012		0.0055

[a] Sample results are in milligrams per liter.
[b] Std = Standard.
[c] Standards for arsenic, nitrate, and selenium are aquatic wildlife standards from Utah Rule R317-2, Standards of Quality for Waters of the State, Table 2.14.2.
[d] Uranium benchmark concentration is based on historical data set (1997–present) from upstream Green River location (0801).
[e] ND = Not Detected.

J. E. Price

Jeffrey Price
Site Lead, S.M. Stoller Corporation

9/9/13
Date

David M. Peterson

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Figure 1. 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 17–18, 2013
Date(s) of Verification	August 14, 2013	**Name of Verifier**	Stephen Donivan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List any Program Directives or other documents, SOPs, instructions.		Work Order letter dated May 28, 2013.
2. Were the sampling locations specified in the planning documents sampled?	Yes	
3. Were calibrations conducted as specified in the above-named documents?	Yes	Calibrations were performed on June 14, 2013.
4. Was an operational check of the field equipment conducted daily?	Yes	
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. Were wells categorized correctly?	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?	No	Water level stability for well 0185 was not fully demonstrated.
Did pH, specific conductance, and turbidity measurements meet criteria prior to sampling?	Yes	
Was the flow rate less than 500 mL/min?	Yes	

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 at location 0188.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment?	Yes	One equipment blank was collected.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were the true identities of the QC samples documented?	Yes	Location ID 2357 was used for the duplicate sample.
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. Was all pertinent information documented on the field data sheets?	Yes	
18. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
19. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Report Number (RIN):	13065402
Sample Event:	June 17-18, 2013
Site(s):	Green River, Utah, Disposal Site
Laboratory:	ALS Laboratory Group, Fort Collins, Colorado
Work Order No.:	1306306
Analysis:	Metals and Wet Chemistry
Validator:	Stephen Donivan
Review Date:	August 9, 2013

This validation was performed according to the *Environmental Procedures Catalog*, (LMS/POL/S04325, continually updated) "Standard Practice for Validation of Environmental 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	WCH-A-005	EPA 350.1	EPA 350.1
As, Se, U	LMM-02	SW-846 3005A	SW-846 6020A
Nitrate + Nitrite as N	WCH-A-022	EPA 353.2	EPA 353.2
Sulfate	MIS-A-045	SW-846 9056	SW-846 9056

Data Qualifier Summary

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

Table 5. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
1306306-20	Equipment Blank	Uranium	U	Less than 5 times the method blank

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 20 water samples on June 20, 2013, accompanied by a Chain of Custody form. Copies of the air bills were included in the receiving documentation. The Chain of Custody form was checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present, indicating sample relinquishment and receipt. The Chain of Custody form was complete with no errors or omissions.

Preservation and Holding Times

The sample shipment was received intact with the temperature inside the iced cooler at 0.8 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

Detection and Quantitation Limits

The method detection limit (MDL) was reported for all analytes as required. The MDL, as defined in 40 CFR 136, is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. The practical quantitation limit (PQL) for these analytes is the lowest concentration that can be reliably measured, and is defined as 5 times the MDL. The reported MDLs for all analytes demonstrate compliance with contractual requirements.

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
Calibrations were performed using six calibration standards on June 25, 2013. The correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration checks were made at the required frequency with all checks meeting the acceptance criteria.

Method EPA 353.2, Nitrate + Nitrite as N
Calibrations were performed using seven calibration standards on June 27, 2013. The correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration checks were made at the required frequency with all checks meeting the acceptance criteria.

Method SW-846 6020A, Arsenic, Selenium, and Uranium
Calibrations were performed on June 24, 2013, using four calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency with all calibration checks meeting the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the PQL and all results were within the acceptance range. Mass calibration and resolution verifications were performed at the beginning of each analytical run in

accordance with the analytical procedure. Internal standard recoveries were stable and within acceptable ranges.

Method SW-846 9056, Sulfate
Calibrations were performed using five calibration standards on April 3, 2013. The correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration checks were made at the required frequency with all checks meeting the acceptance criteria.

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 blank and calibration blank results were below the PQL for all analytes. In cases where a blank concentration 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 Interference Check Sample Analysis

Interference check samples 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 (MS/MSD) samples are used to measure method performance in the sample matrix. The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration (as was the case with the phosphorus spikes). The spike recoveries met the acceptance criteria for all analytes evaluated.

Laboratory Replicate Analysis

Laboratory replicate analyses are used to determine laboratory precision for each sample matrix. The relative percent difference for replicate results that are greater than 5 times the PQL should be less than 20 percent. For results that are less than 5 times the PQL, the range should be no greater than the PQL. The replicate results met these criteria.

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. All control sample results were acceptable.

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 MDL. All serial dilution data evaluated met the acceptance criteria.

Completeness

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

Electronic Data Deliverable (EDD) File

A revised EDD file arrived on July 5, 2013, containing the sulfate result for sample 0813 that was missing from the original EDD. 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.

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 13065402 **Lab Code:** PAR **Validator:** Stephen Donivan **Validation Date:** 08/09/2013

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

# of Samples: 20 **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	The reported detection limits are equal to or below contract requirements.
☑ 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: 13065402 **Lab Code:** PAR **Date Due:** 07/18/2013

Matrix: Water **Site Code:** GRN01 **Date Completed:** 07/03/2013

Analyte	Method Type	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
			Int.	R^2	CCV	CCB								
Arsenic	ICP/MS	06/24/2013	0.0000	1.0000	OK	OK	OK	97.0	98.0	101.0	3.0	100.0		106.0
Selenium	ICP/MS	06/24/2013	0.0000	1.0000	OK	OK	OK	101.0	104.0	106.0	1.0	101.0	9.0	106.0
Uranium	ICP/MS	06/24/2013	0.0000	1.0000	OK	OK	OK	107.0	94.0	119.0	3.0	103.0	5.0	95.0

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 13065402 **Lab Code:** PAR **Date Due:** 07/18/2013

Matrix: Water **Site Code:** GRN01 **Date Completed:** 07/03/2013

Analyte	Date Analyzed	CALIBRATION				Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	CCV	CCB						
AMMONIA AS N	06/25/2013	0.000	0.9999	OK	OK	OK	95.00	91.0	92.0	1.00	
AMMONIA AS N	06/25/2013					OK	94.00				
Nitrate+Nitrite as N	06/27/2013	0.000	1.0000	OK	OK	OK	105.00	107.0	109.0	2.00	
SULFATE	06/25/2013	0.000	0.9998	OK	OK	OK	95.00				
SULFATE	06/26/2013							90.0	90.0	0	

Sampling Quality Control Assessment

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

Sampling Protocol

Sample results for all monitoring wells were qualified with an "F" flag in the database, indicating the wells were purged and sampled using the low-flow sampling method. All wells met the Category I criteria with the following exceptions: Wells 0182, 0184, and 0194 were classified as Category II 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 (field ID 2358) was collected after decontamination of the non-dedicated sampling equipment used at surface water locations. Arsenic, selenium, and sulfate were detected in the equipment blank. All sample results for these analytes were greater than 5 times the equipment blank, indicating that no further qualification is required. The equipment blank results indicate adequate decontamination of the sampling equipment.

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. The relative percent difference for duplicate results that are greater than 5 times the PQL should be less than 20 percent. For results that are less than 5 times the PQL, the range should be no greater than the PQL. A duplicate sample was collected from location 0188. The duplicate results met the criteria demonstrating acceptable overall precision.

SAMPLE MANAGEMENT SYSTEM

Validation Report: Equipment/Trip Blanks

RIN: 13065402 **Lab Code:** PAR **Project:** Green River **Validation Date:** 08/09/2013

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	1306306-20	SW6020	Arsenic	0.033	B	0.015	UG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
1306306-15	LHW 734	0801	1.1	1		
1306306-17	LHW 729	0846	1.3	1		
1306306-18	LHW 730	0847	1.1	1		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	1306306-20	SW6020	Selenium	0.037	B	0.032	UG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
1306306-15	LHW 734	0801	0.44	1		
1306306-17	LHW 729	0846	0.47	1		
1306306-18	LHW 730	0847	1.2	1		

Blank Data

Blank Type	Lab Sample ID	Lab Method	Analyte Name	Result	Qualifier	MDL	Units
Equipment Blank	1306306-20	SW9056	SULFATE	0.7		0.5	MG/L

Sample ID	Sample Ticket	Location	Result	Dilution Factor	Lab Qualifier	Validation Qualifier
1306306-15	LHW 734	0801	60	1		
1306306-17	LHW 729	0846	67	1		
1306306-18	LHW 730	0847	150	2		

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

RIN: 13065402 **Lab Code:** PAR **Project:** Green River **Validation Date:** 08/09/2013

Duplicate: 2357 **Sample:** 0188

Analyte	Sample Result	Sample Flag	Sample Error	Sample Dilution	Duplicate Result	Duplicate Flag	Duplicate Error	Duplicate Dilution	RPD	RER	Units
AMMONIA AS N	11			10	11			10	0		MG/L
Arsenic	0.23			1	0.22			1	4.44		UG/L
Nitrate+Nitrite as N	6.1			10	6.3			10	3.23		MG/L
Selenium	23			10	28			5	19.61		UG/L
SULFATE	7400			200	7200			200	2.74		MG/L
Uranium	71			10	72			5	1.40		UG/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: Stephen Donivan — Stephen Donivan — 9-6-2013 — Date

Data Validation Lead: Stephen Donivan — Stephen Donivan — 9-6-2013 — Date

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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 environmental database. The application compares the new data set (in standard environmental database units) 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. The review should include an evaluation of any notable trends in the data that may indicate the outliers represent true extreme values.

Three laboratory results from this sampling event were identified as potential outliers. The data associated with these results were reviewed in detail with no errors noted. The laboratory results for this RIN are acceptable as qualified.

Potential anomalies in the field parameters were also examined for evidence which would suggest a systematic error due to instrument malfunction. No such data were found. All field data from this event are acceptable.

The nitrate + nitrite as N result from the June 2012 sampling event for location 0181 was identified as anomalously low and listed for further review in the 2012 report. Although the nitrate + nitrite as N concentration returned to within the historical range, there is no evidence to support rejection of the 2012 result.

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Data Validation Outliers Report - No Field Parameters
Comparison: All historical Data Beginning 01/01/2003
Laboratory: ALS Laboratory Group
RIN: 13065402
Report Date: 08/14/2013

					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	0173	N001	06/18/2013	Nitrate + Nitrite as Nitrogen	64		F	350		F	120		F	21	0	Yes
GRN01	0173	N001	06/18/2013	Selenium	0.037		F	0.213		F	0.0547		F	31	0	No
GRN01	0173	N001	06/18/2013	Sulfate	4900		F	9100		F	6600		F	25	0	NA
GRN01	0181	N001	06/18/2013	Sulfate	6200		F	6190		F	4400		F	8	0	No
GRN01	0189	N001	06/17/2013	Nitrate + Nitrite as Nitrogen	32		F	810		FQ	34		FQ	9	0	NA
GRN01	0194	N001	06/17/2013	Arsenic	0.0039		FQ	0.0038		JFQ	0.0001	U	FQ	10	3	No
GRN01	0194	N001	06/17/2013	Selenium	0.09		FQ	0.033		JFQ	0.00084		FQ	10	0	Yes
GRN01	0194	N001	06/17/2013	Sulfate	41000		FQ	38000		FQ	6000		FQ	6	0	No
GRN01	0813	N001	06/18/2013	Uranium	0.033		F	0.021		F	0.0042	B	F	29	0	Yes

Data Validation Outliers Report - Field Parameters Only

Comparison: All historical Data Beginning 01/01/2003

Laboratory: Field Measurements

RIN: 13065402

Report Date: 08/14/2013

					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	06/18/2013	Specific Conductance	6770		F	8182		F	6808		F	24	0	No
GRN01	0171	N001	06/18/2013	Turbidity	3.08		F	3.06		F	0.01		F	24	0	No
GRN01	0173	N001	06/18/2013	Alkalinity, Total (as $CaCO_3$)	602		F	550		F	348		F	22	0	No
GRN01	0173	N001	06/18/2013	Specific Conductance	9380		F	17189		F	13089		F	24	0	Yes
GRN01	0176	N001	06/18/2013	Turbidity	2.57		F	2.53		F	0.63		F	7	0	No
GRN01	0194	N001	06/17/2013	pH	7.68		FQ	7.54		FQ	7		F	10	0	No
GRN01	0813	N001	06/18/2013	Alkalinity, Total (as $CaCO_3$)	570		F	750		F	634		F	22	0	Yes
GRN01	0813	N001	06/18/2013	Specific Conductance	6770		F	8100		F	7024		F	24	0	No
GRN01	0846	N001	06/18/2013	pH	7.88			8.51			7.92			9	0	No
GRN01	0846	N001	06/18/2013	Specific Conductance	340			630			341			9	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.

NA: Data are not normally or lognormally distributed.

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: 08/14/2013
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 $CaCO_3$)	mg/L	06/18/2013	N001	76	-	86	366		F	#		
Ammonia Total as N	mg/L	06/18/2013	N001	76	-	86	0.1	U	F	#	0.1	
Arsenic	mg/L	06/18/2013	N001	76	-	86	0.0013		F	#	0.000074	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	N001	76	-	86	52		F	#	0.5	
Oxidation Reduction Potential	mV	06/18/2013	N001	76	-	86	40		F	#		
pH	s.u.	06/18/2013	N001	76	-	86	6.83		F	#		
Selenium	mg/L	06/18/2013	N001	76	-	86	0.14		F	#	0.00016	
Specific Conductance	umhos /cm	06/18/2013	N001	76	-	86	6770		F	#		
Sulfate	mg/L	06/18/2013	N001	76	-	86	4200		F	#	50	
Temperature	C	06/18/2013	N001	76	-	86	20.11		F	#		
Turbidity	NTU	06/18/2013	N001	76	-	86	3.08		F	#		
Uranium	mg/L	06/18/2013	N001	76	-	86	0.064		F	#	0.000015	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
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 $CaCO_3$)	mg/L	06/18/2013	N001	92	-	102	602		F	#		
Ammonia Total as N	mg/L	06/18/2013	N001	92	-	102	0.1	U	F	#	0.1	
Arsenic	mg/L	06/18/2013	N001	92	-	102	0.0026		F	#	0.000074	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	N001	92	-	102	64		F	#	1	
Oxidation Reduction Potential	mV	06/18/2013	N001	92	-	102	75		F	#		
pH	s.u.	06/18/2013	N001	92	-	102	6.9		F	#		
Selenium	mg/L	06/18/2013	N001	92	-	102	0.037		F	#	0.00016	
Specific Conductance	umhos /cm	06/18/2013	N001	92	-	102	9380		F	#		
Sulfate	mg/L	06/18/2013	N001	92	-	102	4900		F	#	50	
Temperature	C	06/18/2013	N001	92	-	102	18.4		F	#		
Turbidity	NTU	06/18/2013	N001	92	-	102	2.86		F	#		
Uranium	mg/L	06/18/2013	N001	92	-	102	0.008		F	#	0.000015	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
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 $CaCO_3$)	mg/L	06/18/2013	N001	72	-	82	364		F	#		
Ammonia Total as N	mg/L	06/18/2013	N001	72	-	82	0.1	U	F	#	0.1	
Arsenic	mg/L	06/18/2013	N001	72	-	82	0.00029		F	#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	N001	72	-	82	64		F	#	0.5	
Oxidation Reduction Potential	mV	06/18/2013	N001	72	-	82	70		F	#		
pH	s.u.	06/18/2013	N001	72	-	82	6.7		F	#		
Selenium	mg/L	06/18/2013	N001	72	-	82	0.75		F	#	0.00032	
Specific Conductance	umhos /cm	06/18/2013	N001	72	-	82	7460		F	#		
Sulfate	mg/L	06/18/2013	N001	72	-	82	3900		F	#	50	
Temperature	C	06/18/2013	N001	72	-	82	18.7		F	#		
Turbidity	NTU	06/18/2013	N001	72	-	82	2.57		F	#		
Uranium	mg/L	06/18/2013	N001	72	-	82	0.0026		F	#	0.000029	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
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 $CaCO_3$)	mg/L	06/18/2013	N001	78	-	88	440		F	#		
Ammonia Total as N	mg/L	06/18/2013	N001	78	-	88	0.1	U	F	#	0.1	
Arsenic	mg/L	06/18/2013	N001	78	-	88	0.00057		F	#	0.000074	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	N001	78	-	88	17		F	#	0.2	
Oxidation Reduction Potential	mV	06/18/2013	N001	78	-	88	115		F	#		
pH	s.u.	06/18/2013	N001	78	-	88	6.67		F	#		
Selenium	mg/L	06/18/2013	N001	78	-	88	0.25		F	#	0.00016	
Specific Conductance	umhos /cm	06/18/2013	N001	78	-	88	7100		F	#		
Sulfate	mg/L	06/18/2013	N001	78	-	88	3800		F	#	50	
Temperature	C	06/18/2013	N001	78	-	88	20.7		F	#		
Turbidity	NTU	06/18/2013	N001	78	-	88	3.84		F	#		
Uranium	mg/L	06/18/2013	N001	78	-	88	0.19		F	#	0.000015	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
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 $CaCO_3$)	mg/L	06/18/2013	N001	77 - 92	480		F	#		
Ammonia Total as N	mg/L	06/18/2013	N001	77 - 92	0.1	U	F	#	0.1	
Arsenic	mg/L	06/18/2013	N001	77 - 92	0.0018		F	#	0.000074	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	N001	77 - 92	67		F	#	0.5	
Oxidation Reduction Potential	mV	06/18/2013	N001	77 - 92	65		F	#		
pH	s.u.	06/18/2013	N001	77 - 92	7.11		F	#		
Selenium	mg/L	06/18/2013	N001	77 - 92	0.016		F	#	0.00016	
Specific Conductance	umhos /cm	06/18/2013	N001	77 - 92	10405		F	#		
Sulfate	mg/L	06/18/2013	N001	77 - 92	6200		F	#	100	
Temperature	C	06/18/2013	N001	77 - 92	20.2		F	#		
Turbidity	NTU	06/18/2013	N001	77 - 92	1.06		F	#		
Uranium	mg/L	06/18/2013	N001	77 - 92	0.02		F	#	0.000015	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
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 $CaCO_3$)	mg/L	06/18/2013	0001	140 - 150	503		FQ	#		
Ammonia Total as N	mg/L	06/18/2013	0001	140 - 150	0.1	U	FQ	#	0.1	
Arsenic	mg/L	06/18/2013	0001	140 - 150	0.0099		FQ	#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	0001	140 - 150	0.01	U	FQ	#	0.01	
Oxidation Reduction Potential	mV	06/18/2013	N001	140 - 150	-120		FQ	#		
pH	s.u.	06/18/2013	N001	140 - 150	8.33		FQ	#		
Selenium	mg/L	06/18/2013	0001	140 - 150	0.000086	B	FQ	#	0.000032	
Specific Conductance	umhos /cm	06/18/2013	N001	140 - 150	2690		FQ	#		
Sulfate	mg/L	06/18/2013	0001	140 - 150	620		FQ	#	25	
Temperature	C	06/18/2013	N001	140 - 150	17.3		FQ	#		
Turbidity	NTU	06/18/2013	N001	140 - 150	18.7		FQ	#		
Uranium	mg/L	06/18/2013	0001	140 - 150	0.0013		FQ	#	0.0000029	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
Location: 0184 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (as $CaCO_3$)	mg/L	06/18/2013	N001	169 - 184	426		FQ	#		
Ammonia Total as N	mg/L	06/18/2013	N001	169 - 184	0.1	U	FQ	#	0.1	
Arsenic	mg/L	06/18/2013	N001	169 - 184	0.0016		FQ	#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	N001	169 - 184	0.01	U	FQ	#	0.01	
Oxidation Reduction Potential	mV	06/18/2013	N001	169 - 184	-90		FQ	#		
pH	s.u.	06/18/2013	N001	169 - 184	7.91		FQ	#		
Selenium	mg/L	06/18/2013	N001	169 - 184	0.00018		FQ	#	0.000032	
Specific Conductance	umhos /cm	06/18/2013	N001	169 - 184	2605		FQ	#		
Sulfate	mg/L	06/18/2013	N001	169 - 184	650		FQ	#	25	
Temperature	C	06/18/2013	N001	169 - 184	19.4		FQ	#		
Turbidity	NTU	06/18/2013	N001	169 - 184	8.17		FQ	#		
Uranium	mg/L	06/18/2013	N001	169 - 184	0.0024		FQ	#	0.0000029	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
Location: 0185 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (as $CaCO_3$)	mg/L	06/18/2013	N001	131 - 141	612		F	#		
Ammonia Total as N	mg/L	06/18/2013	N001	131 - 141	0.1	U	F	#	0.1	
Arsenic	mg/L	06/18/2013	N001	131 - 141	0.0015		F	#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	N001	131 - 141	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	06/18/2013	N001	131 - 141	-50		F	#		
pH	s.u.	06/18/2013	N001	131 - 141	8.35		F	#		
Selenium	mg/L	06/18/2013	N001	131 - 141	0.000043	B	F	#	0.000032	
Specific Conductance	umhos /cm	06/18/2013	N001	131 - 141	2470		F	#		
Sulfate	mg/L	06/18/2013	N001	131 - 141	490		F	#	25	
Temperature	C	06/18/2013	N001	131 - 141	20.9		F	#		
Turbidity	NTU	06/18/2013	N001	131 - 141	8.12		F	#		
Uranium	mg/L	06/18/2013	N001	131 - 141	0.00081		F	#	0.0000029	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
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 $CaCO_3$)	mg/L	06/17/2013	N001	7.5	-	12.5	304		F	#		
Ammonia Total as N	mg/L	06/17/2013	N001	7.5	-	12.5	11		F	#	1	
Ammonia Total as N	mg/L	06/17/2013	N002	7.5	-	12.5	11		F	#	1	
Arsenic	mg/L	06/17/2013	N001	7.5	-	12.5	0.00023		F	#	0.000015	
Arsenic	mg/L	06/17/2013	N002	7.5	-	12.5	0.00022		F	#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/17/2013	N001	7.5	-	12.5	6.1		F	#	0.1	
Nitrate + Nitrite as Nitrogen	mg/L	06/17/2013	N002	7.5	-	12.5	6.3		F	#	0.1	
Oxidation Reduction Potential	mV	06/17/2013	N001	7.5	-	12.5	137		F	#		
pH	s.u.	06/17/2013	N001	7.5	-	12.5	7.07		F	#		
Selenium	mg/L	06/17/2013	N001	7.5	-	12.5	0.023		F	#	0.00032	
Selenium	mg/L	06/17/2013	N002	7.5	-	12.5	0.028		F	#	0.00016	
Specific Conductance	umhos /cm	06/17/2013	N001	7.5	-	12.5	12350		F	#		
Sulfate	mg/L	06/17/2013	N001	7.5	-	12.5	7400		F	#	100	
Sulfate	mg/L	06/17/2013	N002	7.5	-	12.5	7200		F	#	100	
Temperature	C	06/17/2013	N001	7.5	-	12.5	17.6		F	#		
Turbidity	NTU	06/17/2013	N001	7.5	-	12.5	1.7		F	#		
Uranium	mg/L	06/17/2013	N001	7.5	-	12.5	0.071		F	#	0.000029	
Uranium	mg/L	06/17/2013	N002	7.5	-	12.5	0.072		F	#	0.000015	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
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 $CaCO_3$)	mg/L	06/17/2013	N001	14	-	19	410		F	#		
Ammonia Total as N	mg/L	06/17/2013	N001	14	-	19	41		F	#	2	
Arsenic	mg/L	06/17/2013	N001	14	-	19	0.0004	B	F	#	0.000074	
Nitrate + Nitrite as Nitrogen	mg/L	06/17/2013	N001	14	-	19	32		F	#	0.2	
Oxidation Reduction Potential	mV	06/17/2013	N001	14	-	19	155		F	#		
pH	s.u.	06/17/2013	N001	14	-	19	7.05		F	#		
Selenium	mg/L	06/17/2013	N001	14	-	19	0.065		F	#	0.00016	
Specific Conductance	umhos /cm	06/17/2013	N001	14	-	19	11915		F	#		
Sulfate	mg/L	06/17/2013	N001	14	-	19	7200		F	#	50	
Temperature	C	06/17/2013	N001	14	-	19	19		F	#		
Turbidity	NTU	06/17/2013	N001	14	-	19	2.45		F	#		
Uranium	mg/L	06/17/2013	N001	14	-	19	0.32		F	#	0.000015	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
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 $CaCO_3$)	mg/L	06/17/2013	N001	5.02 - 9.96	328		F	#		
Ammonia Total as N	mg/L	06/17/2013	N001	5.02 - 9.96	1.8		F	#	0.1	
Arsenic	mg/L	06/17/2013	N001	5.02 - 9.96	0.00023		F	#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/17/2013	N001	5.02 - 9.96	80		F	#	0.5	
Oxidation Reduction Potential	mV	06/17/2013	N001	5.02 - 9.96	140		F	#		
pH	s.u.	06/17/2013	N001	5.02 - 9.96	6.94		F	#		
Selenium	mg/L	06/17/2013	N001	5.02 - 9.96	0.096		F	#	0.0016	
Specific Conductance	umhos /cm	06/17/2013	N001	5.02 - 9.96	11395		F	#		
Sulfate	mg/L	06/17/2013	N001	5.02 - 9.96	6700		F	#	50	
Temperature	C	06/17/2013	N001	5.02 - 9.96	17.9		F	#		
Turbidity	NTU	06/17/2013	N001	5.02 - 9.96	4.02		F	#		
Uranium	mg/L	06/17/2013	N001	5.02 - 9.96	0.45		F	#	0.00015	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
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 $CaCO_3$)	mg/L	06/17/2013	N001	12.5 - 17.5	1340		FQ	#		
Ammonia Total as N	mg/L	06/17/2013	N001	12.5 - 17.5	0.55		FQ	#	0.1	
Arsenic	mg/L	06/17/2013	N001	12.5 - 17.5	0.0039		FQ	#	0.00015	
Nitrate + Nitrite as Nitrogen	mg/L	06/17/2013	N001	12.5 - 17.5	330		FQ	#	2	
Oxidation Reduction Potential	mV	06/17/2013	N001	12.5 - 17.5	118		FQ	#		
pH	s.u.	06/17/2013	N001	12.5 - 17.5	7.68		FQ	#		
Selenium	mg/L	06/17/2013	N001	12.5 - 17.5	0.09		FQ	#	0.00032	
Specific Conductance	umhos /cm	06/17/2013	N001	12.5 - 17.5	52470		FQ	#		
Sulfate	mg/L	06/17/2013	N001	12.5 - 17.5	41000		FQ	#	500	
Temperature	C	06/17/2013	N001	12.5 - 17.5	21.5		FQ	#		
Turbidity	NTU	06/17/2013	N001	12.5 - 17.5	2.65		FQ	#		
Uranium	mg/L	06/17/2013	N001	12.5 - 17.5	8.8		FQ	#	0.00058	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
Location: 0588 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (as $CaCO_3$)	mg/L	06/18/2013	N001	123 - 143	480		F	#		
Ammonia Total as N	mg/L	06/18/2013	N001	123 - 143	0.1	U	F	#	0.1	
Arsenic	mg/L	06/18/2013	N001	123 - 143	0.01		F	#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	N001	123 - 143	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	06/18/2013	N001	123 - 143	-245		F	#		
pH	s.u.	06/18/2013	N001	123 - 143	8.26		F	#		
Selenium	mg/L	06/18/2013	N001	123 - 143	0.000046	B	F	#	0.000032	
Specific Conductance	umhos /cm	06/18/2013	N001	123 - 143	2750		F	#		
Sulfate	mg/L	06/18/2013	N001	123 - 143	630		F	#	25	
Temperature	C	06/18/2013	N001	123 - 143	18.6		F	#		
Turbidity	NTU	06/18/2013	N001	123 - 143	3.15		F	#		
Uranium	mg/L	06/18/2013	N001	123 - 143	0.00022		F	#	0.0000029	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
Location: 0707 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (as $CaCO_3$)	mg/L	06/17/2013	N001	9	-	15	192		F	#		
Ammonia Total as N	mg/L	06/17/2013	N001	9	-	15	0.1	U	F	#	0.1	
Arsenic	mg/L	06/17/2013	N001	9	-	15	0.0003		F	#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/17/2013	N001	9	-	15	2.8		F	#	0.02	
Oxidation Reduction Potential	mV	06/17/2013	N001	9	-	15	230		F	#		
pH	s.u.	06/17/2013	N001	9	-	15	7.5		F	#		
Selenium	mg/L	06/17/2013	N001	9	-	15	0.073		F	#	0.000032	
Specific Conductance	umhos /cm	06/17/2013	N001	9	-	15	11615		F	#		
Sulfate	mg/L	06/17/2013	N001	9	-	15	7400		F	#	100	
Temperature	C	06/17/2013	N001	9	-	15	18.96		F	#		
Turbidity	NTU	06/17/2013	N001	9	-	15	2.8		F	#		
Uranium	mg/L	06/17/2013	N001	9	-	15	0.026		F	#	0.0000029	

Groundwater Quality Data by Location (USEE100) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
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 $CaCO_3$)	mg/L	06/18/2013	N001	77.7	-	97.7	570		F	#		
Ammonia Total as N	mg/L	06/18/2013	N001	77.7	-	97.7	0.12		F	#	0.1	
Arsenic	mg/L	06/18/2013	N001	77.7	-	97.7	0.13		F	#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	N001	77.7	-	97.7	0.01	U	F	#	0.01	
Oxidation Reduction Potential	mV	06/18/2013	N001	77.7	-	97.7	-60		F	#		
pH	s.u.	06/18/2013	N001	77.7	-	97.7	6.78		F	#		
Selenium	mg/L	06/18/2013	N001	77.7	-	97.7	0.0012		F	#	0.000032	
Specific Conductance	umhos /cm	06/18/2013	N001	77.7	-	97.7	6770		F	#		
Sulfate	mg/L	06/18/2013	N001	77.7	-	97.7	3600		F	#	50	
Temperature	C	06/18/2013	N001	77.7	-	97.7	18		F	#		
Turbidity	NTU	06/18/2013	N001	77.7	-	97.7	3.14		F	#		
Uranium	mg/L	06/18/2013	N001	77.7	-	97.7	0.033		F	#	0.0000029	

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.	

QA QUALIFIER:

#	Validated according to quality assurance guidelines.

Surface Water Quality Data

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Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
Location: 0801 SURFACE LOCATION GREEN RIVER

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (as $CaCO_3$)	mg/L	06/17/2013	0001	88			#		
Ammonia Total as N	mg/L	06/17/2013	0001	0.1	U		#	0.1	
Arsenic	mg/L	06/17/2013	0001	0.0011			#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/17/2013	0001	0.041			#	0.01	
Oxidation Reduction Potential	mV	06/17/2013	N001	85			#		
pH	s.u.	06/17/2013	N001	8.15			#		
Selenium	mg/L	06/17/2013	0001	0.00044			#	0.000032	
Specific Conductance	umhos/cm	06/17/2013	N001	695			#		
Sulfate	mg/L	06/17/2013	0001	60			#	0.5	
Temperature	C	06/17/2013	N001	26.5			#		
Turbidity	NTU	06/17/2013	N001	170			#		
Uranium	mg/L	06/17/2013	0001	0.0012			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
Location: 0846 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (as $CaCO_3$)	mg/L	06/18/2013	0001	101			#		
Ammonia Total as N	mg/L	06/18/2013	0001	0.1	U		#	0.1	
Arsenic	mg/L	06/18/2013	0001	0.0013			#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	0001	0.023			#	0.01	
Oxidation Reduction Potential	mV	06/18/2013	N001	115			#		
pH	s.u.	06/18/2013	N001	7.88			#		
Selenium	mg/L	06/18/2013	0001	0.00047			#	0.000032	
Specific Conductance	umhos/cm	06/18/2013	N001	340			#		
Sulfate	mg/L	06/18/2013	0001	67			#	0.5	
Temperature	C	06/18/2013	N001	20.5			#		
Turbidity	NTU	06/18/2013	N001	248			#		
Uranium	mg/L	06/18/2013	0001	0.0014			#	0.0000029	

Surface Water Quality Data by Location (USEE102) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013
Location: 0847 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (as $CaCO_3$)	mg/L	06/18/2013	0001	120			#		
Ammonia Total as N	mg/L	06/18/2013	0001	0.1	U		#	0.1	
Arsenic	mg/L	06/18/2013	0001	0.0011			#	0.000015	
Nitrate + Nitrite as Nitrogen	mg/L	06/18/2013	0001	0.14			#	0.01	
Oxidation Reduction Potential	mV	06/18/2013	N001	125			#		
pH	s.u.	06/18/2013	N001	8.18			#		
Selenium	mg/L	06/18/2013	0001	0.0012			#	0.000032	
Specific Conductance	umhos/cm	06/18/2013	N001	540			#		
Sulfate	mg/L	06/18/2013	0001	150			#	1	
Temperature	C	06/18/2013	N001	20.1			#		
Turbidity	NTU	06/18/2013	N001	224			#		
Uranium	mg/L	06/18/2013	0001	0.0055			#	0.0000029	

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.		

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: 13065402
Report Date: 08/14/2013

Parameter	Site Code	Location ID	Sample Date	Sample ID	Units	Result	Qualifiers Lab	Qualifiers Data	Detection Limit	Uncertainty	Sample Type
Ammonia Total as N	GRN01	0999	06/18/2013	N001	mg/L	0.1	U		0.1		E
Arsenic	GRN01	0999	06/18/2013	N001	mg/L	0.000033	B		0.000015		E
Nitrate + Nitrite as Nitrogen	GRN01	0999	06/18/2013	N001	mg/L	0.01	U		0.01		E
Selenium	GRN01	0999	06/18/2013	N001	mg/L	0.000037	B		0.000032		E
Sulfate	GRN01	0999	06/18/2013	N001	mg/L	0.7			0.5		E
Uranium	GRN01	0999	06/18/2013	N001	mg/L	0.000006	B	U	0.0000029		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.

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Static Water Level Data

STATIC WATER LEVELS (USEE700) FOR SITE GRN01, Green River Disposal Site
REPORT DATE: 08/14/2013

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	06/18/2013	12:05:15	56.72	4083.38
0173	D	4141.23	06/18/2013	13:10:23	57.74	4083.49
0176	D	4143.4	06/18/2013	14:50:44	58.67	4084.73
0179	C	4161.39	06/18/2013	15:25:09	77.38	4084.01
0181	D	4141.1	06/18/2013	12:40:14	57.89	4083.21
0182	D	4101.52	06/18/2013	09:25:55	15.56	4085.96
0184	C	4192.98	06/18/2013	15:45:38	106.48	4086.5
0185	U	4135.46	06/18/2013	11:30:31	50	4085.46
0188	O	4075.11	06/17/2013	15:05:26	12.49	4062.62
0189	O	4075.96	06/17/2013	15:35:00	19.31	4056.65
0192	O	4065.83	06/17/2013	16:15:57	11.2	4054.63
0194	D	4067.76	06/17/2013	16:40:43	18.31	4049.45
0588	U	4113.92	06/18/2013	10:05:15	28.6	4085.32
0707	U	4083.03	06/17/2013	14:35:18	14.92	4068.11
0813	D	4136.36	06/18/2013	10:40:46	52.95	4083.41

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

Hydrographs

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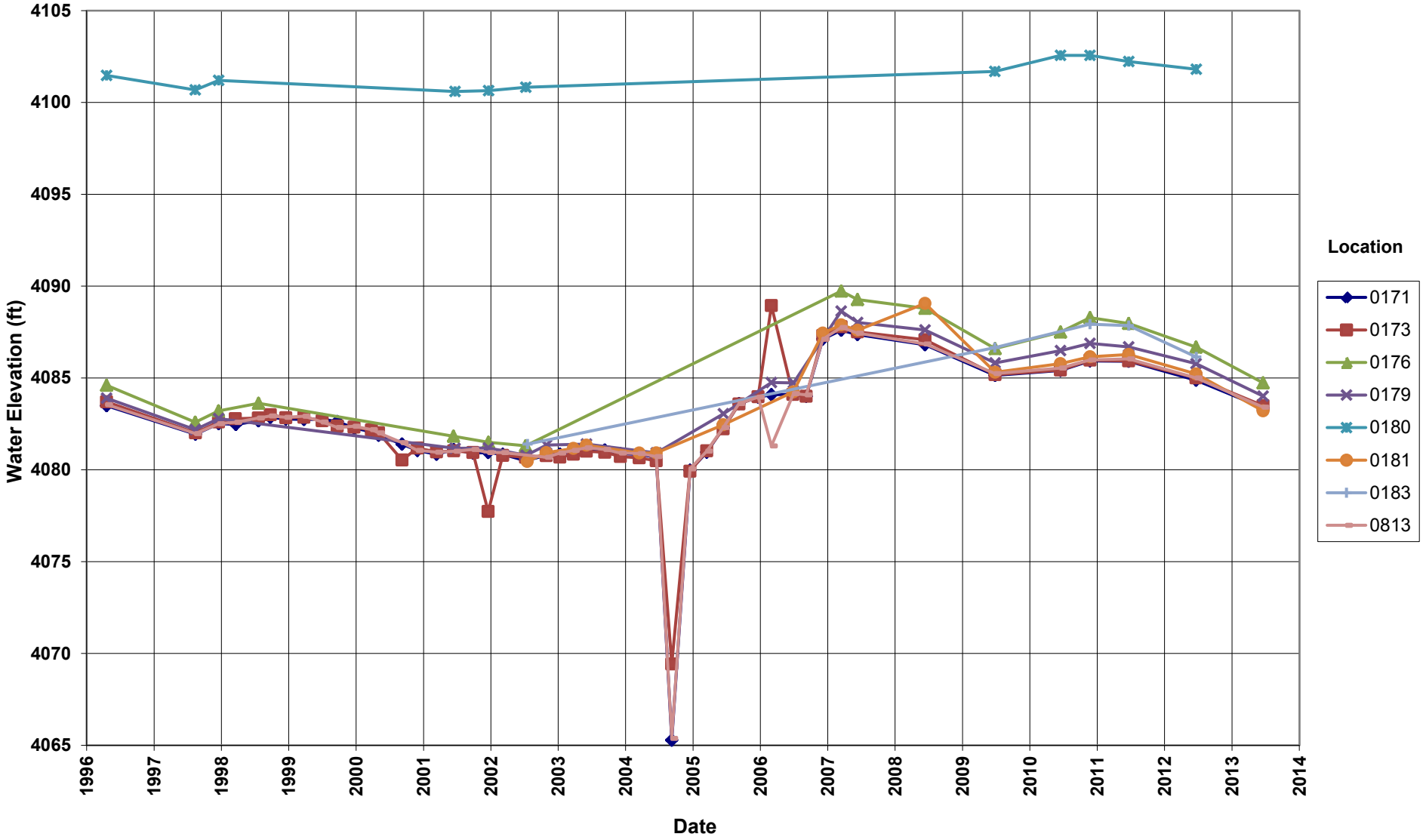
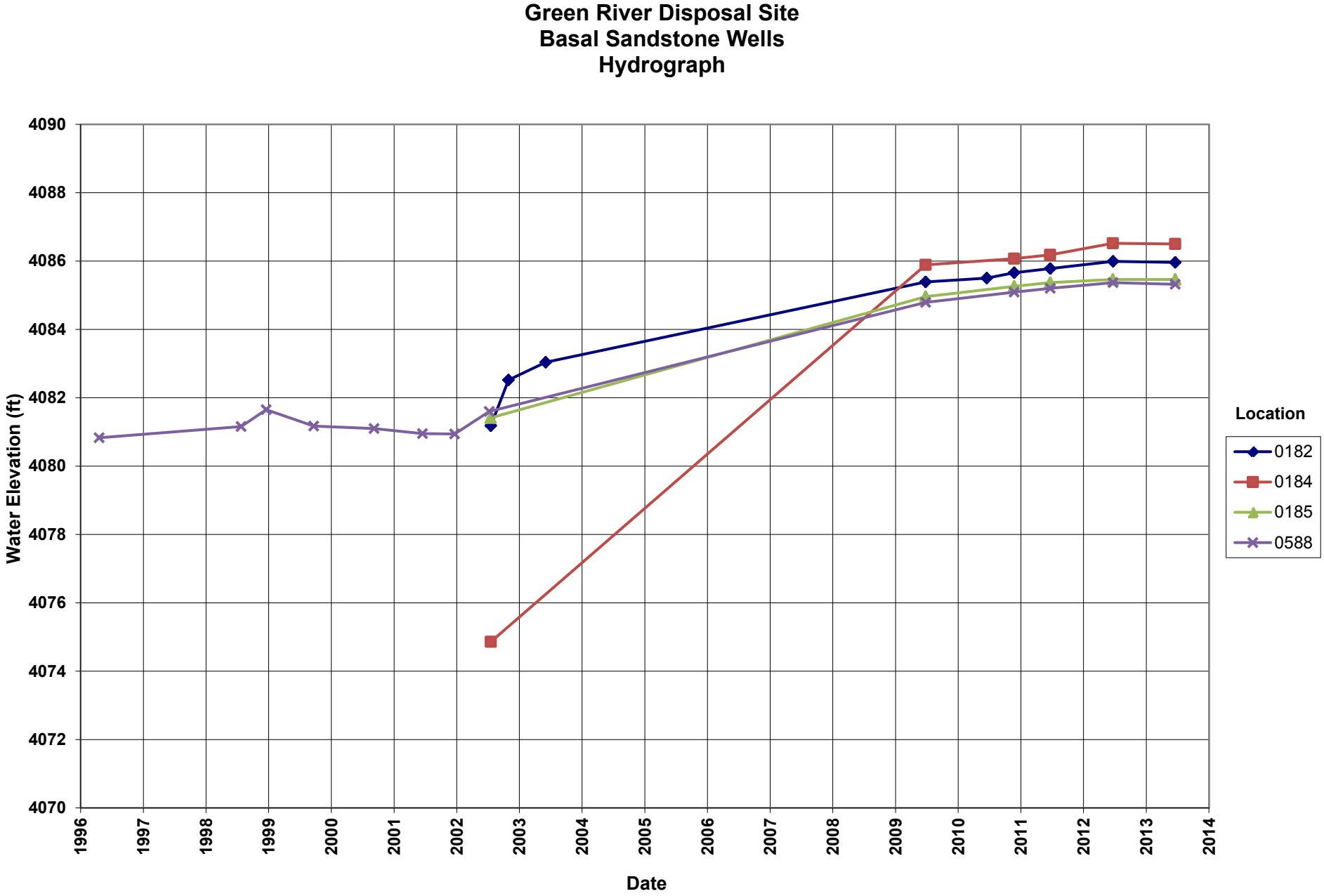
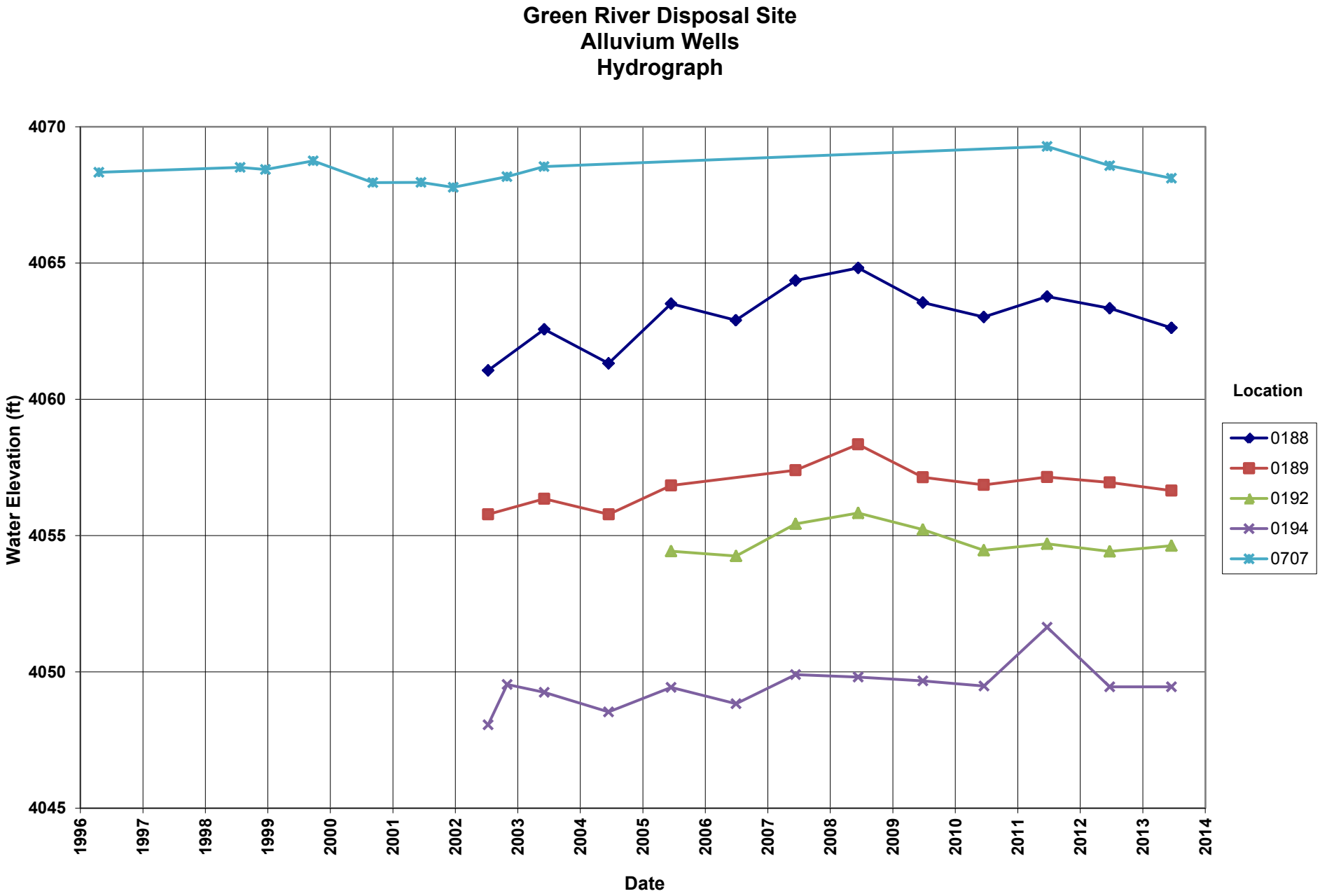
Green River Disposal Site
Middle Sandstone Unit Wells
Hydrograph




Green River Disposal Site
Basal Sandstone Wells
Hydrograph
Water Elevation (ft)
4090
4088
4086
4084
4082
4080
4078
4076
4074
4072
4070
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0182
0184
0185
0588


Green River Disposal Site
Alluvium Wells
Hydrograph
Water Elevation (ft)
4070
4065
4060
4055
4050
4045
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0188
0189
0192
0194
0707

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Time-Concentration Graphs

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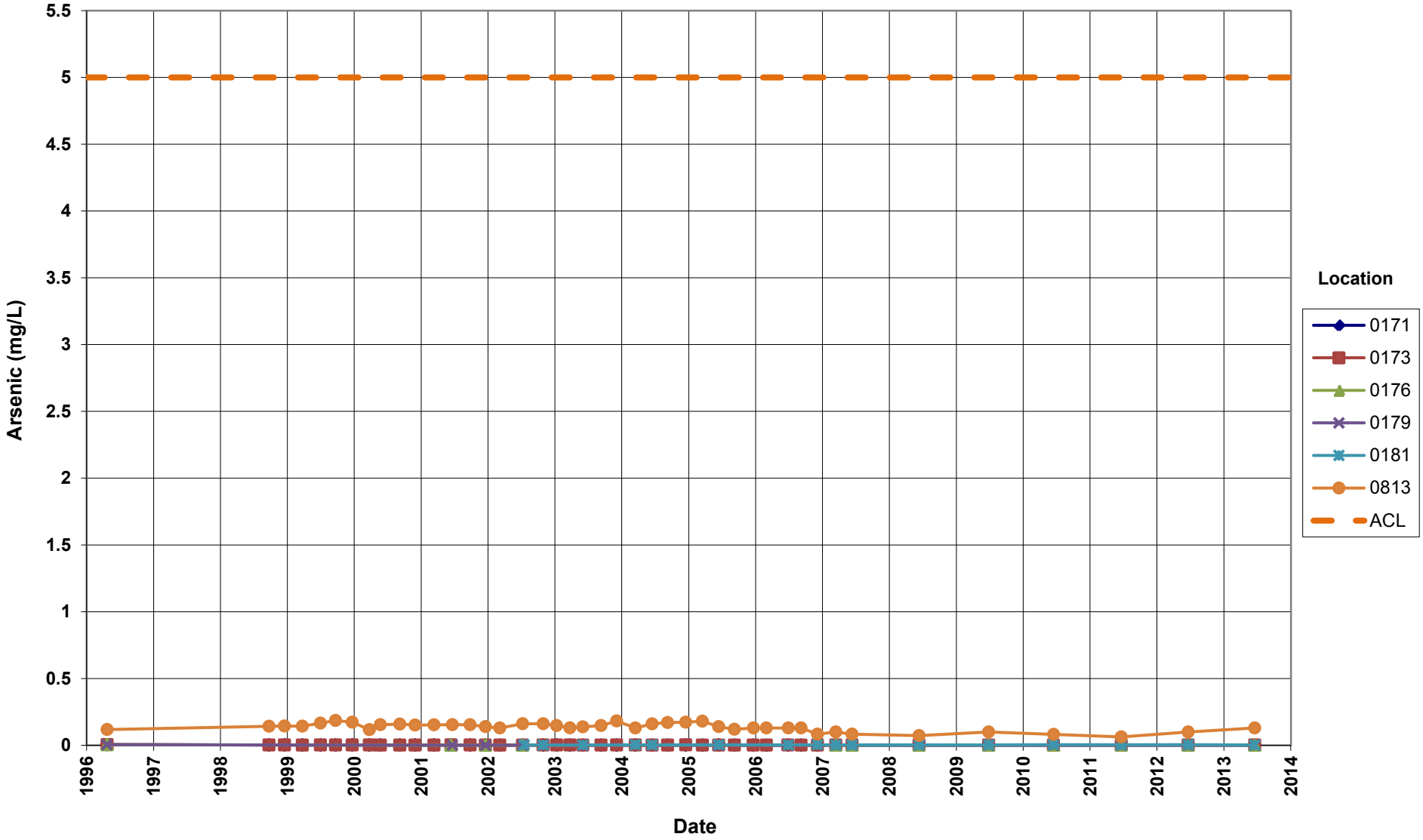
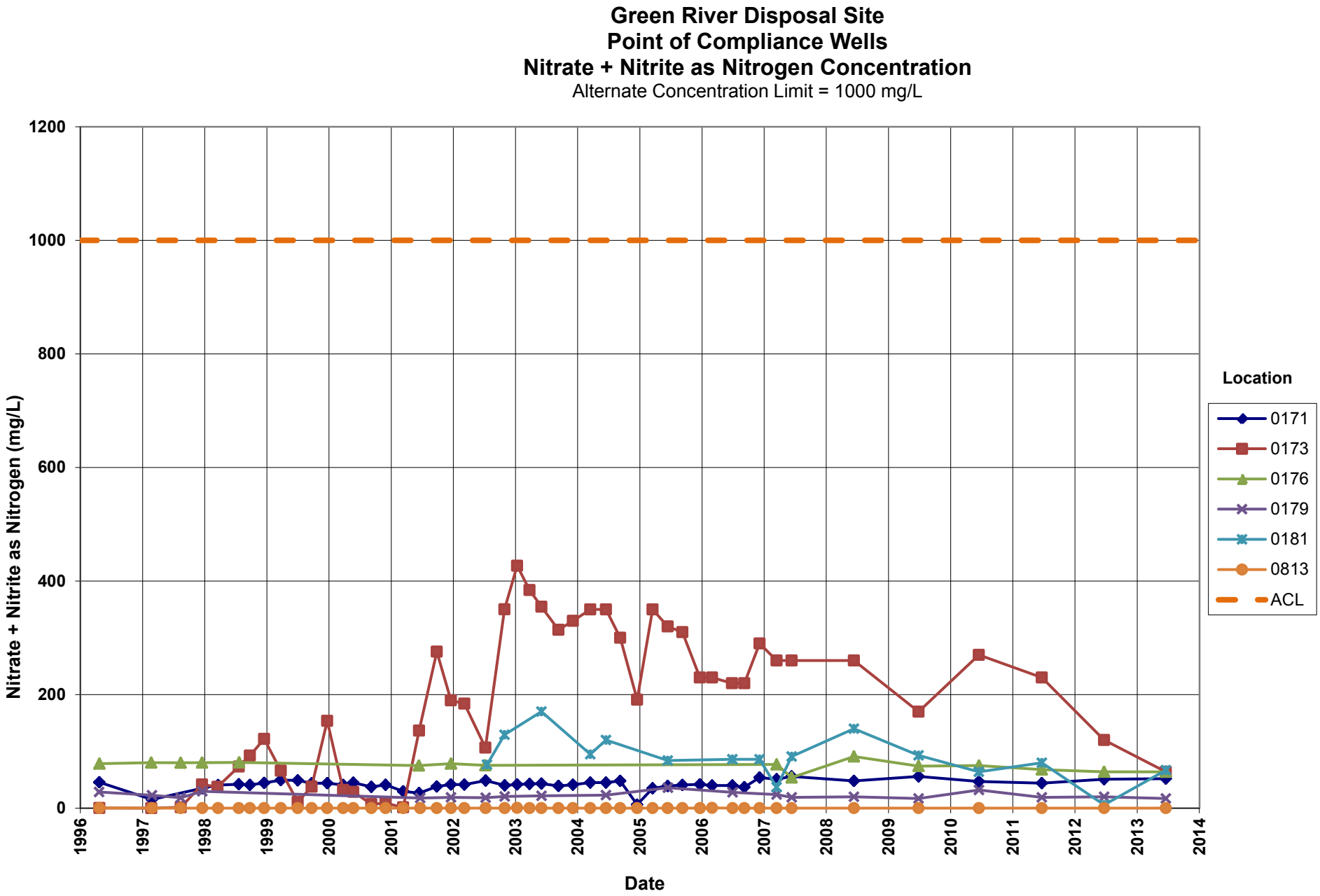
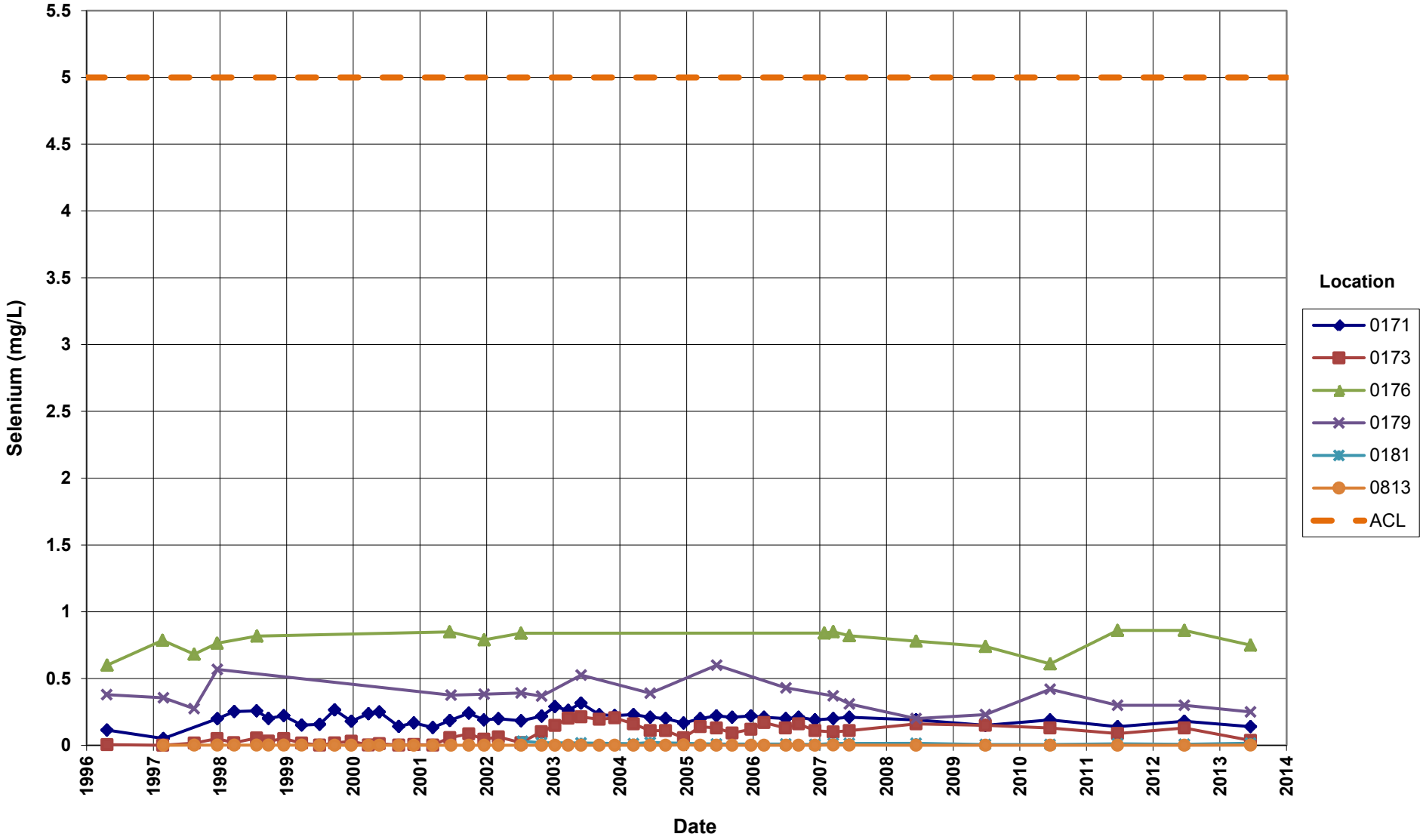
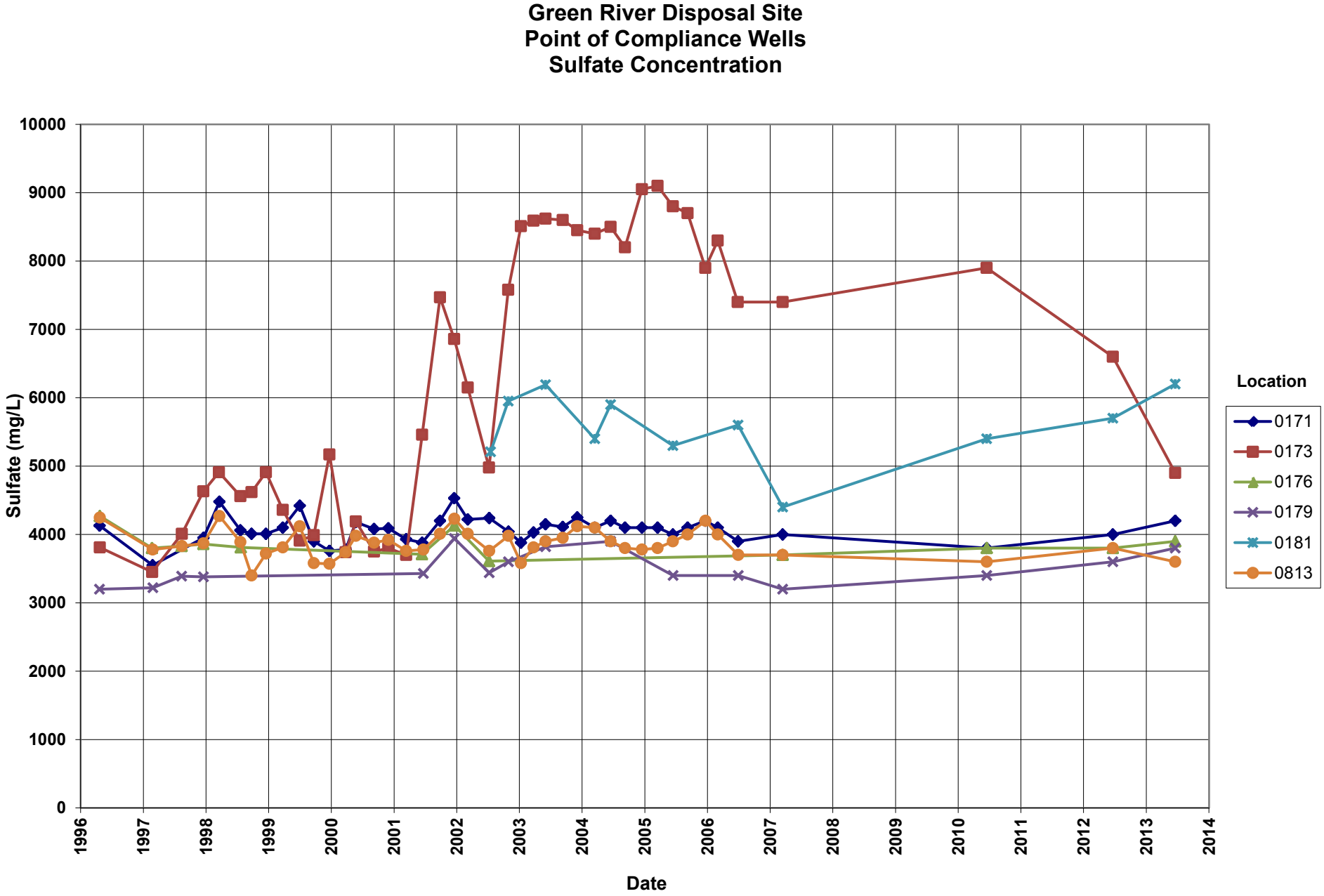
Green River Disposal Site
Point of Compliance Wells
Arsenic Concentration
Alternate Concentration Limit (ACL) = 5.0 mg/L




Green River Disposal Site
Point of Compliance Wells
Nitrate + Nitrite as Nitrogen Concentration
Alternate Concentration Limit = 1000 mg/L
Nitrate + Nitrite as Nitrogen (mg/L)
1200
1000
800
600
400
200
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0171
0173
0176
0179
0181
0813
ACL

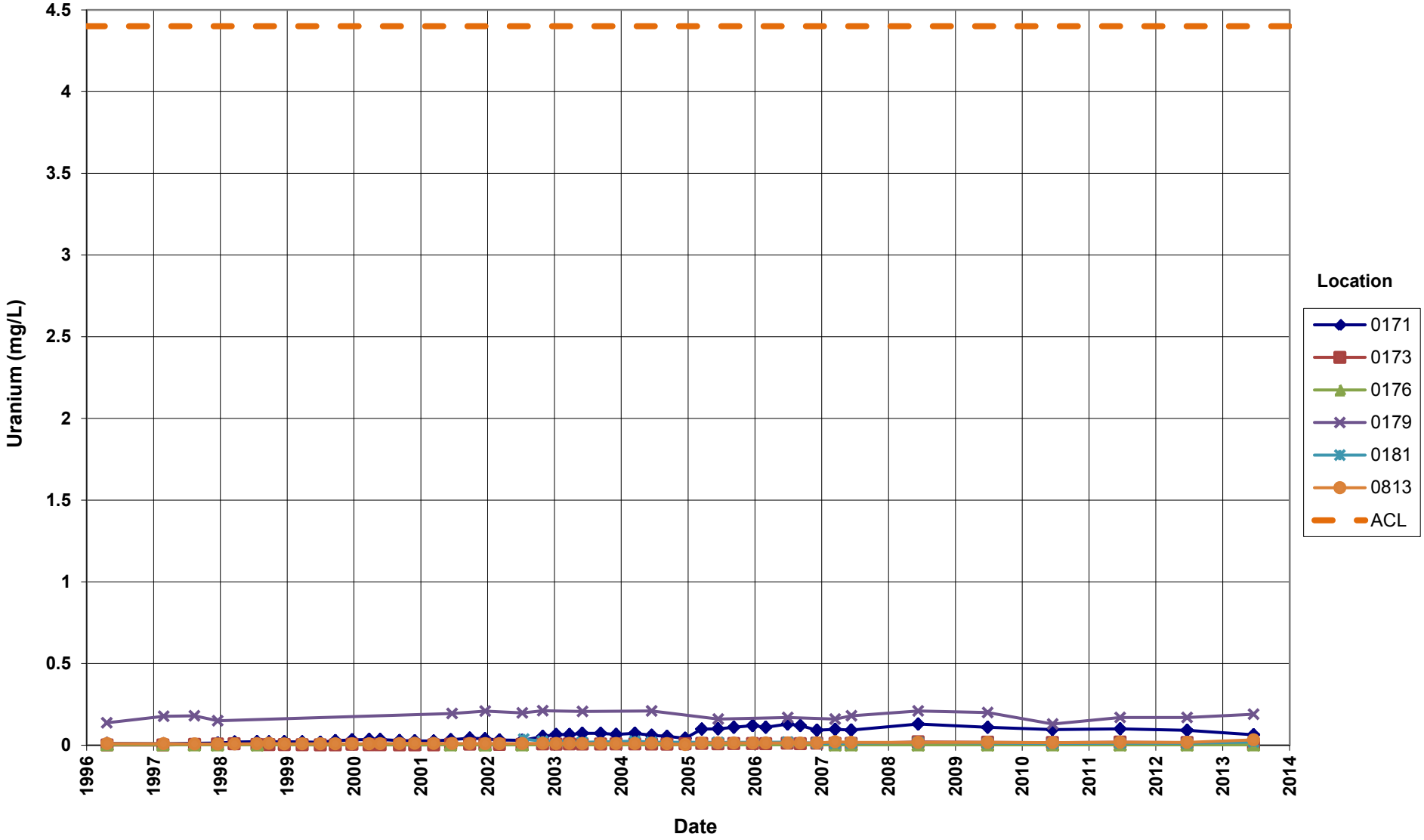
Green River Disposal Site
Point of Compliance Wells
Selenium Concentration
Alternate Concentration Limit = 5.0 mg/L

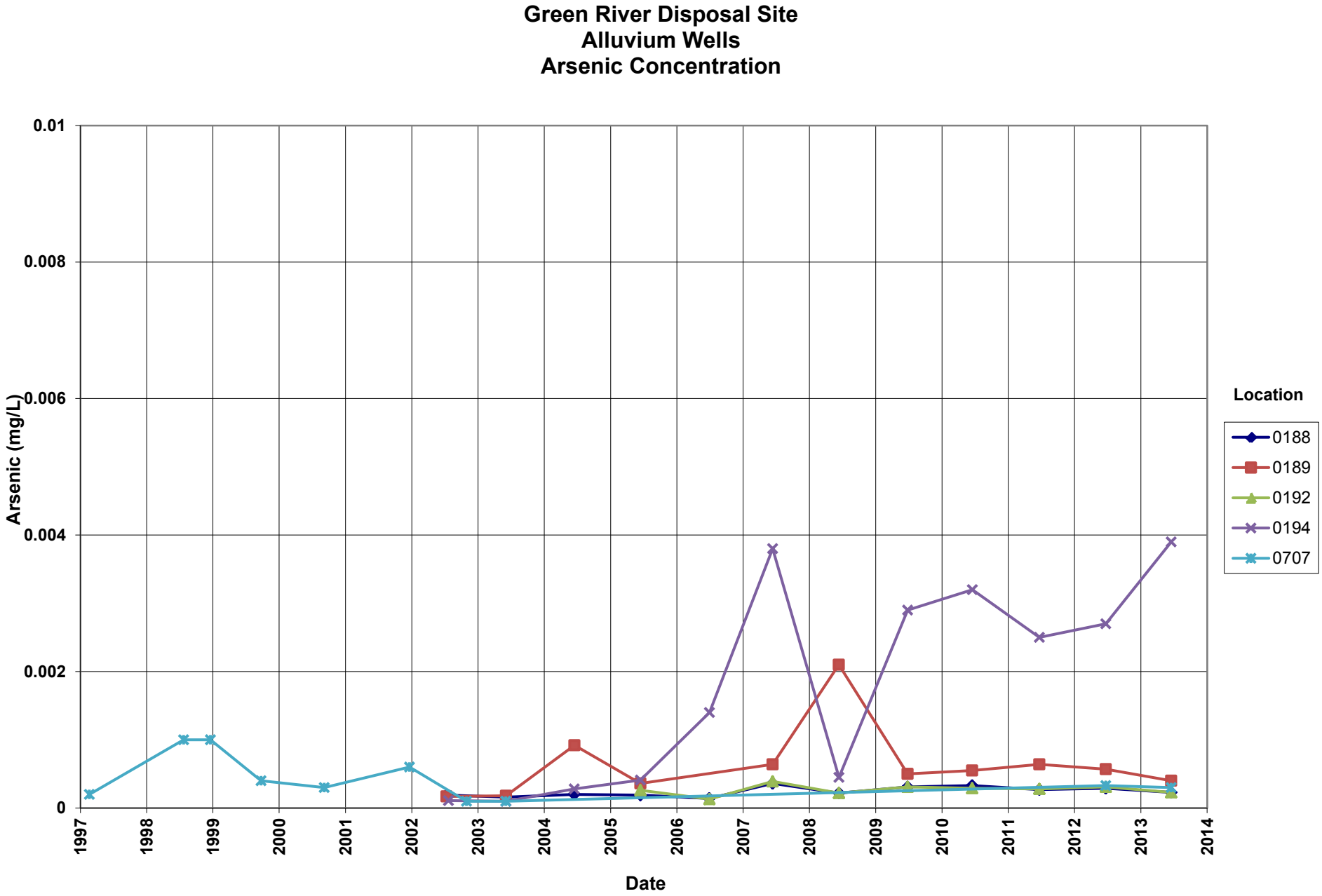


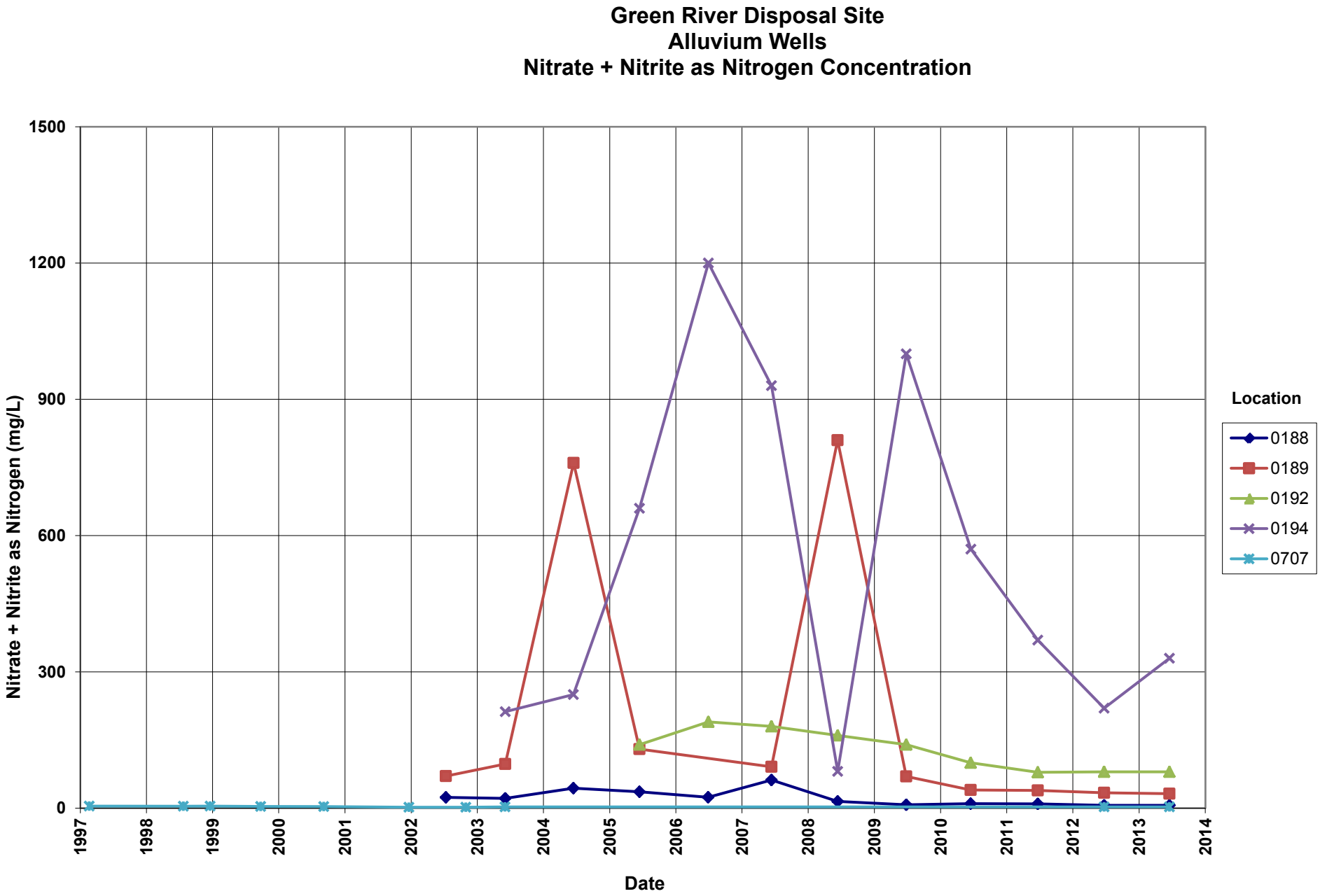

Green River Disposal Site
Point of Compliance Wells
Sulfate Concentration
Sulfate (mg/L)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0171
0173
0176
0179
0181
0813

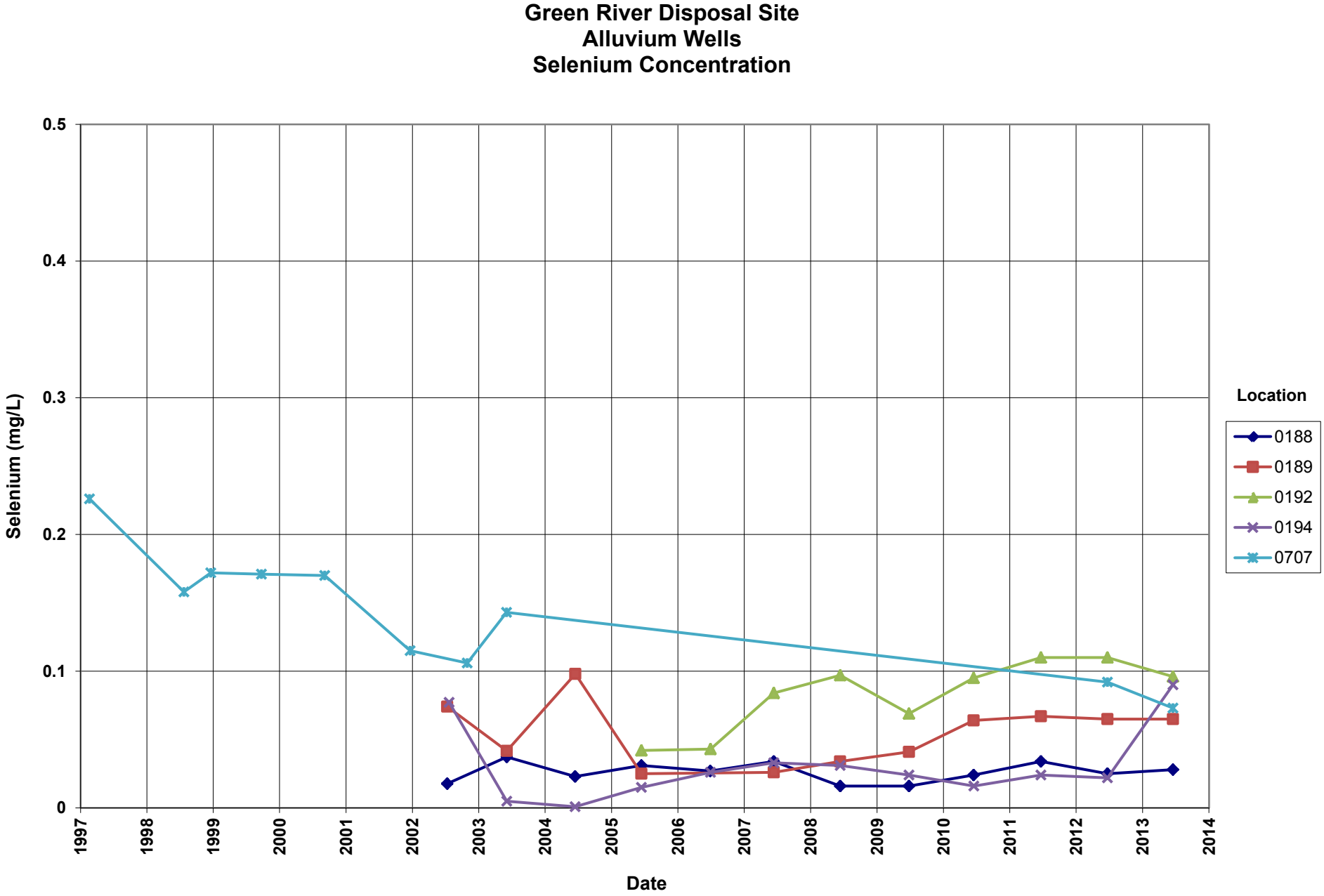
Green River Disposal Site
Point of Compliance Wells
Uranium Concentration

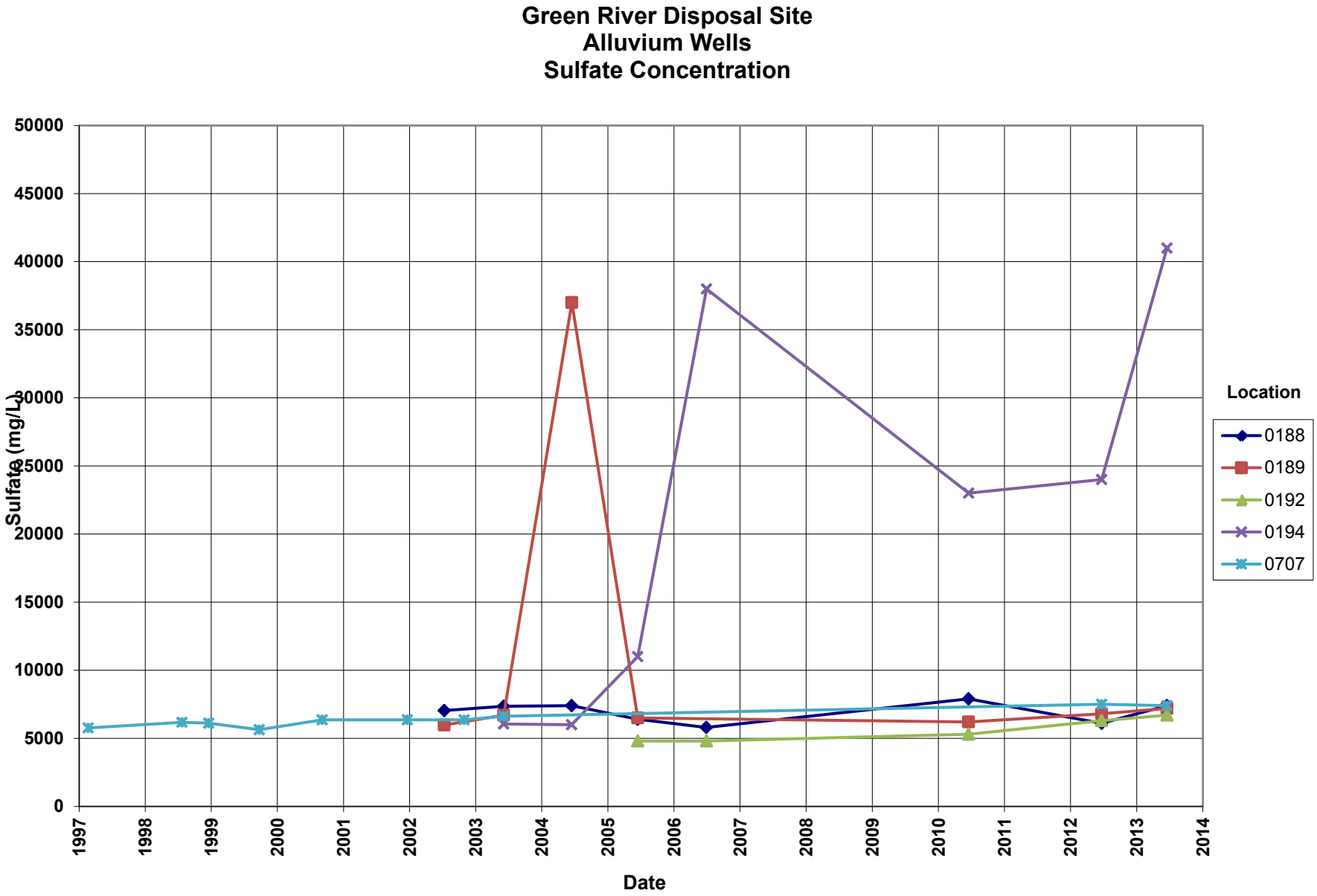
Alternate Concentration Limit = 4.4 mg/L

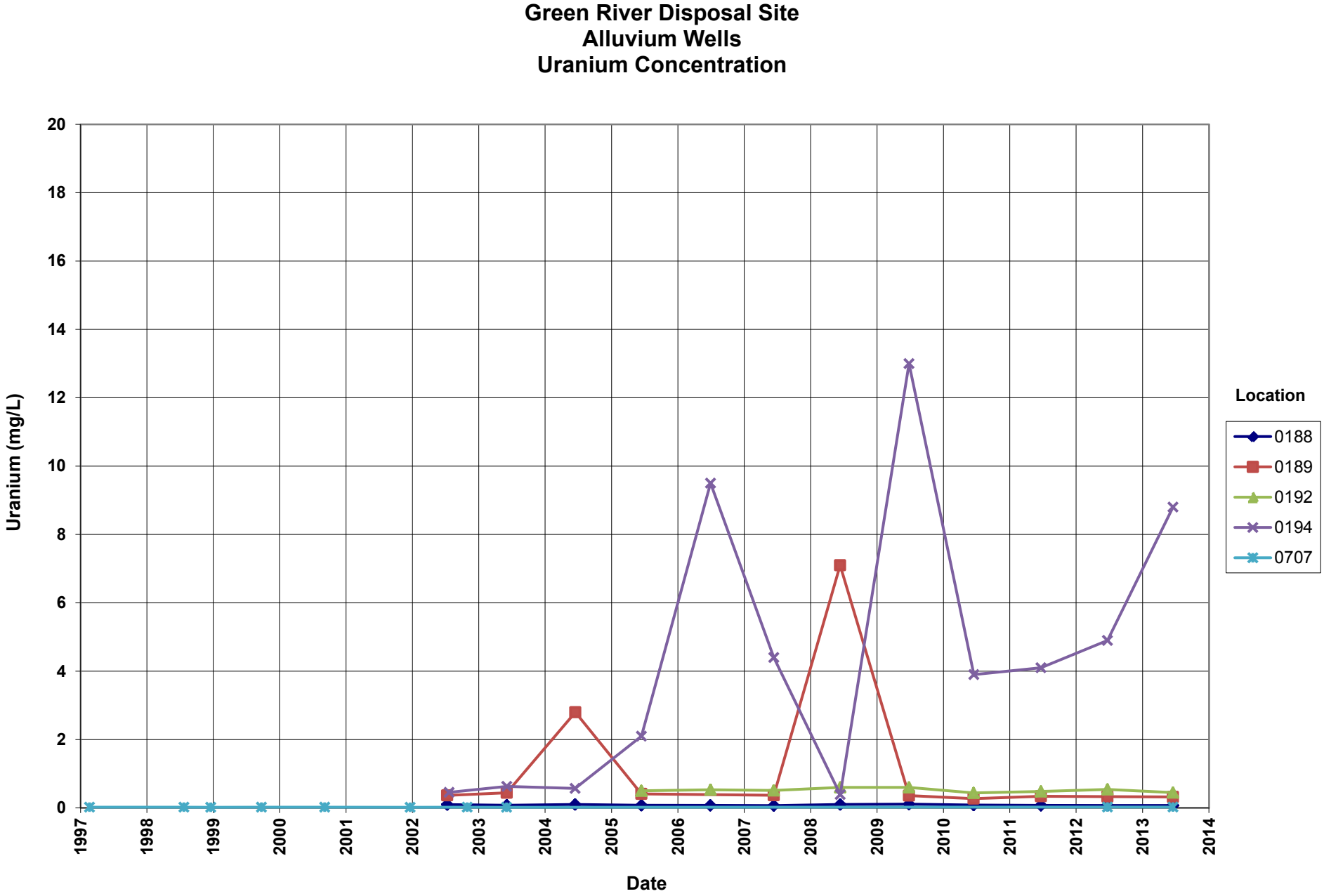


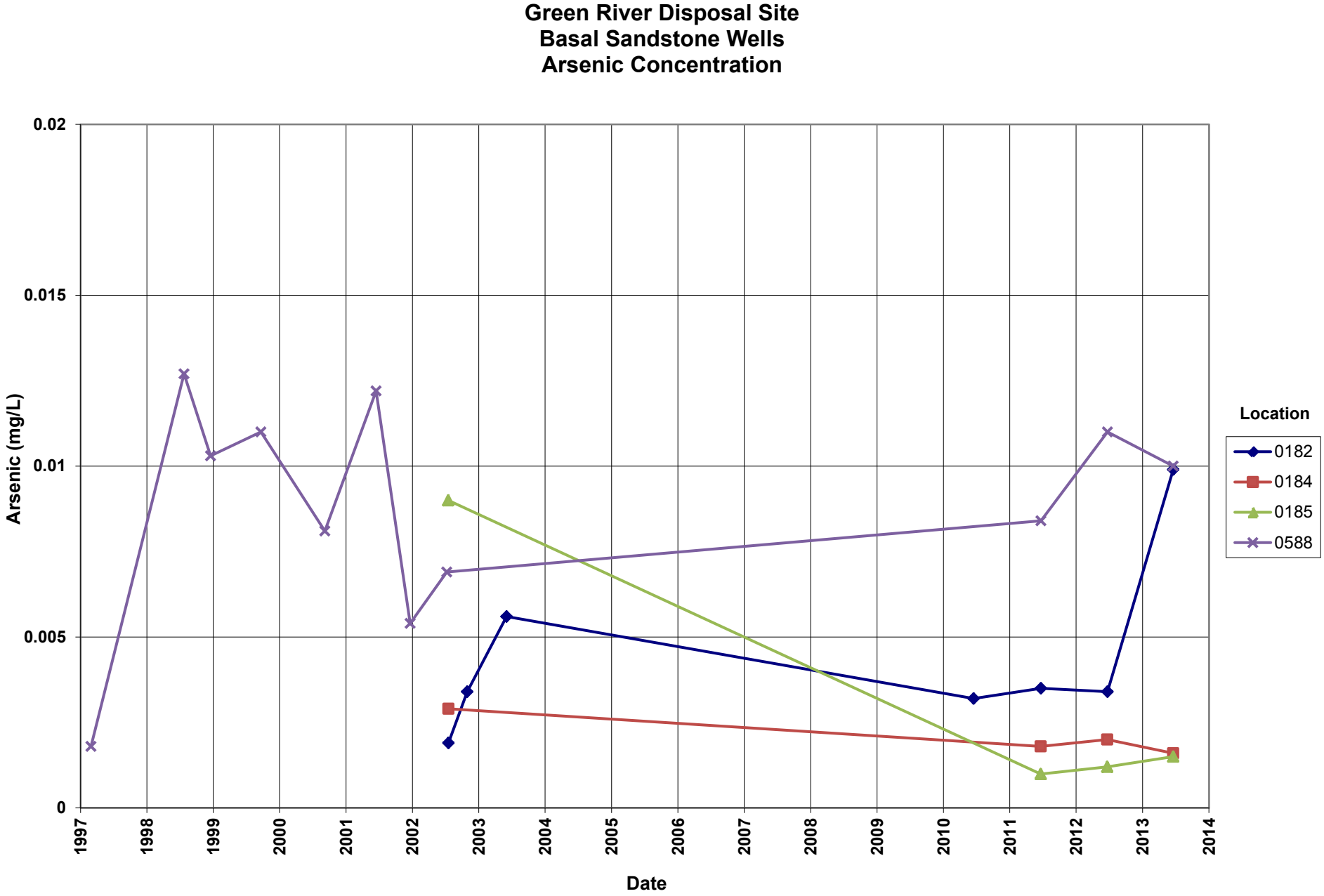

Green River Disposal Site
Alluvium Wells
Arsenic Concentration
Arsenic (mg/L)
0.01
0.008
0.006
0.004
0.002
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0188
0189
0192
0194
0707

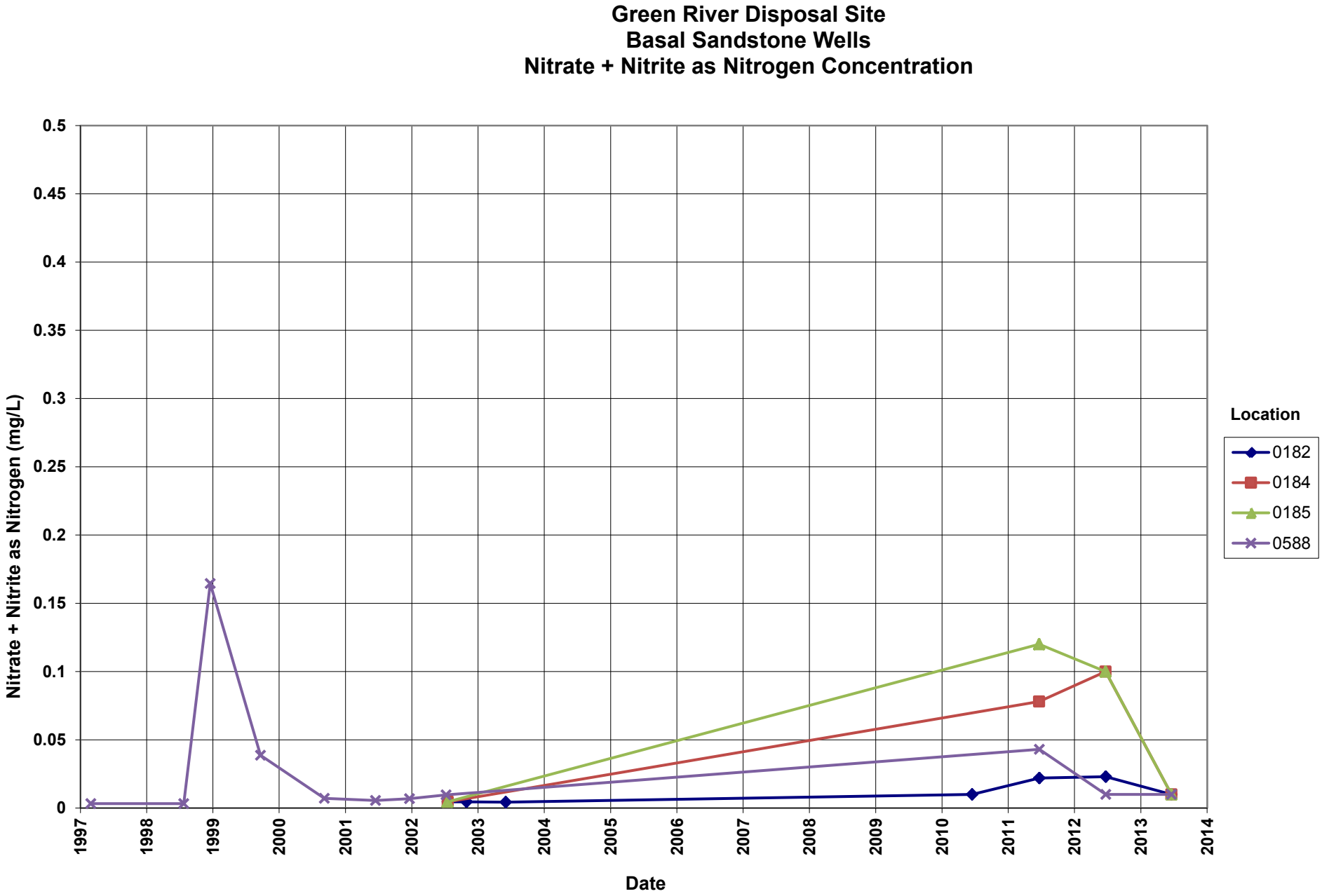

Green River Disposal Site
Alluvium Wells
Nitrate + Nitrite as Nitrogen Concentration
Nitrate + Nitrite as Nitrogen (mg/L)
1500
1200
900
600
300
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0188
0189
0192
0194
0707

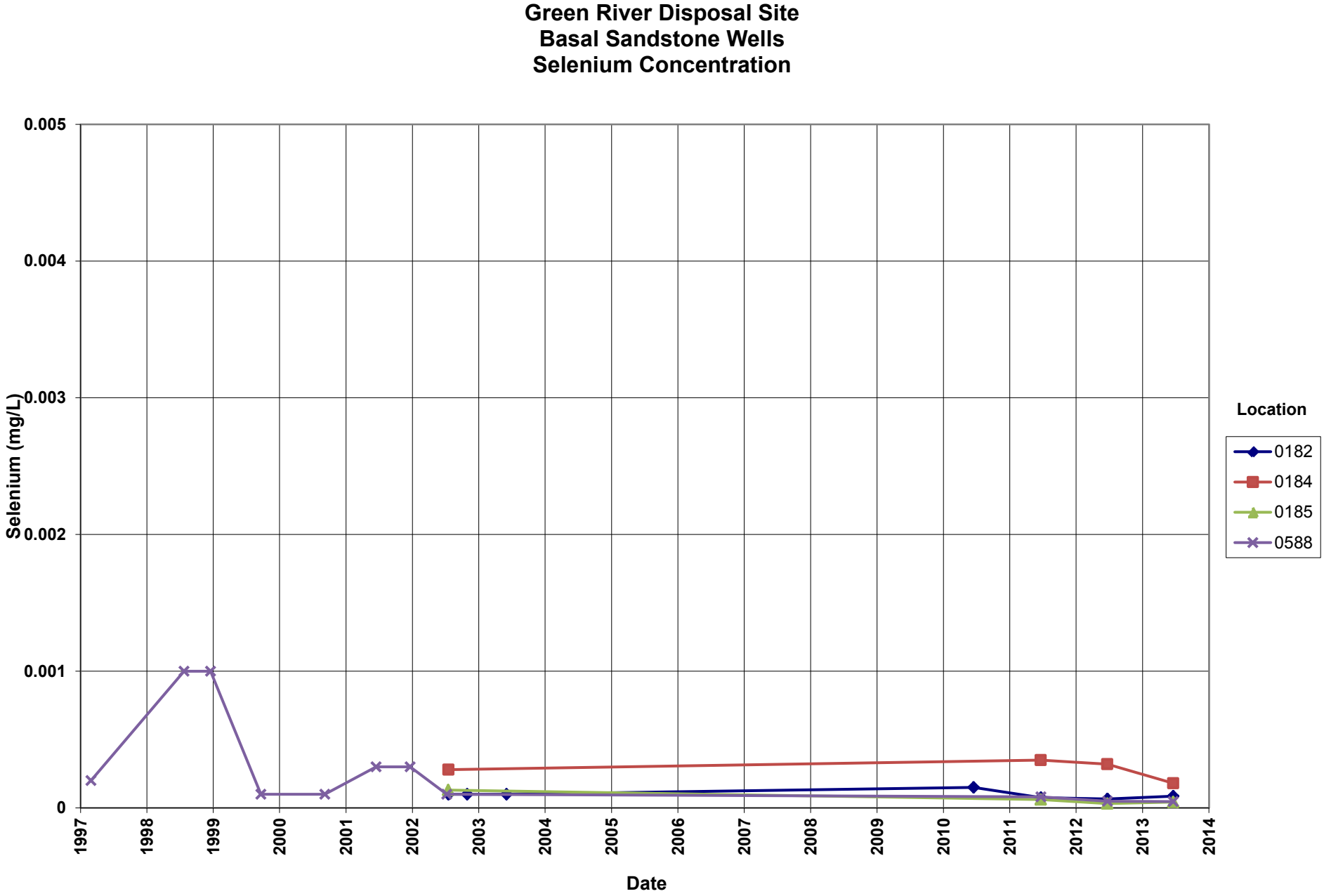

Green River Disposal Site
Alluvium Wells
Selenium Concentration
Selenium (mg/L)
0.5
0.4
0.3
0.2
0.1
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0188
0189
0192
0194
0707

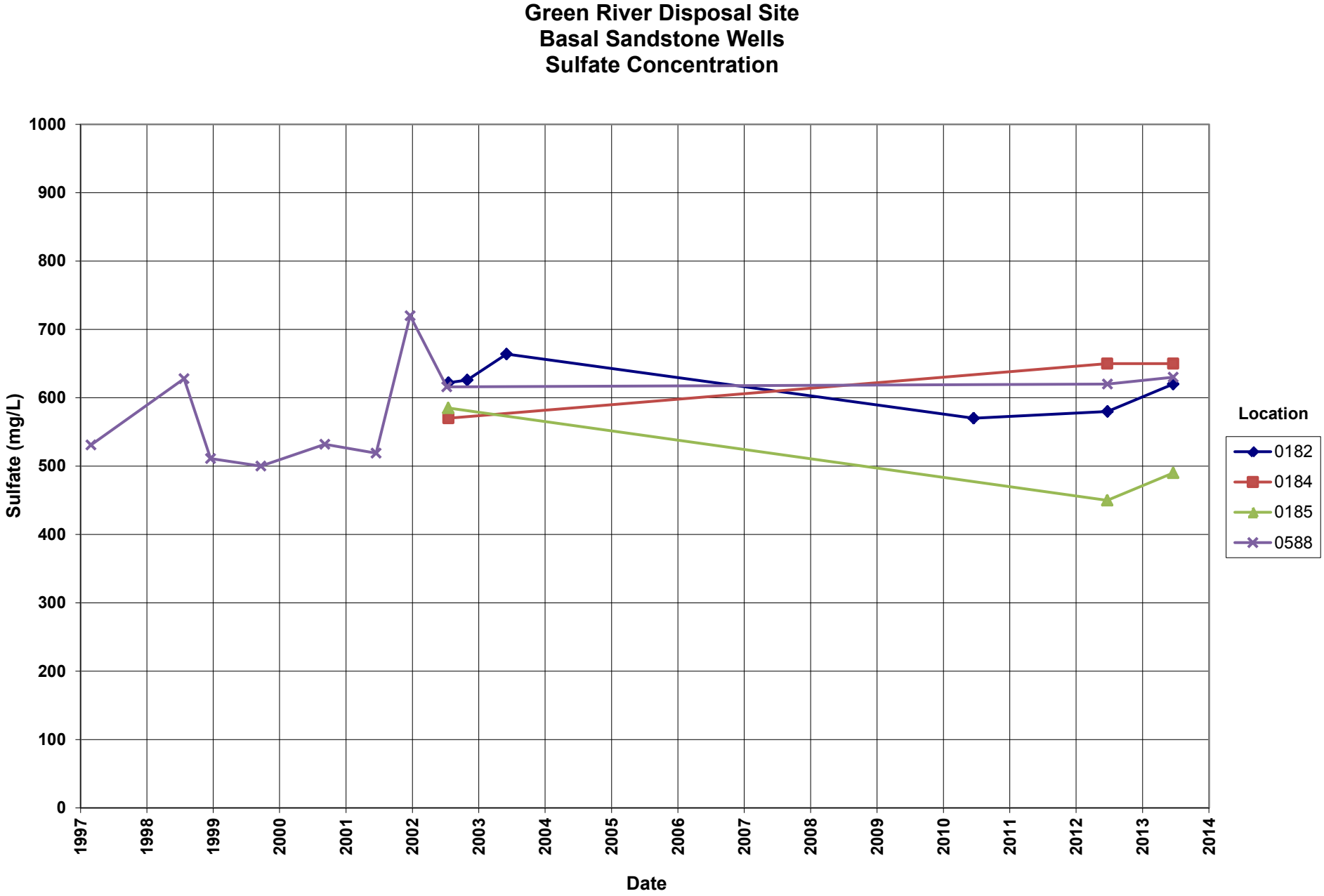

Green River Disposal Site
Alluvium Wells
Sulfate Concentration
Sulfate (mg/L)
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0188
0189
0192
0194
0707

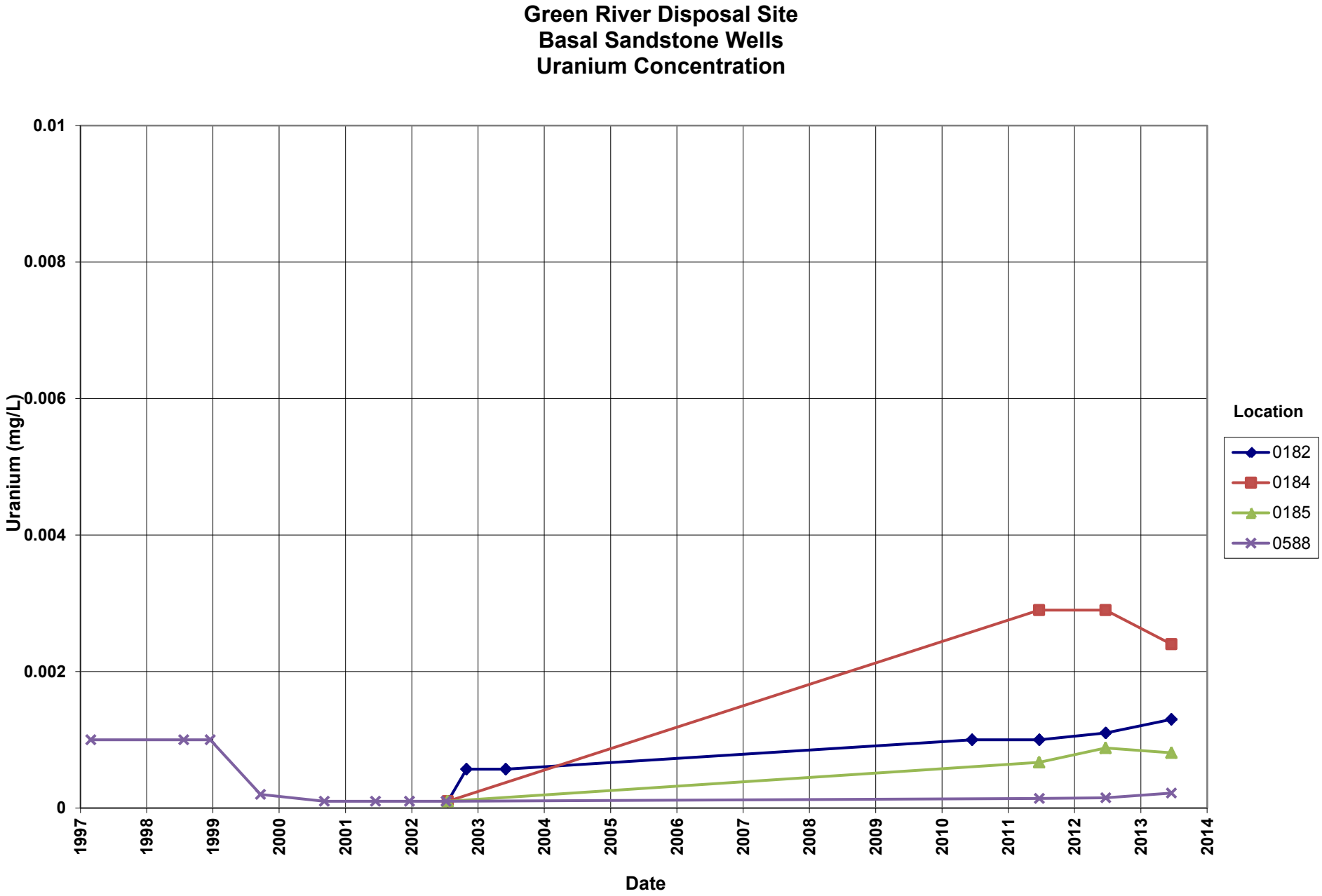

Green River Disposal Site
Alluvium Wells
Uranium Concentration
Uranium (mg/L)
20
18
16
14
12
10
8
6
4
2
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0188
0189
0192
0194
0707


Green River Disposal Site
Basal Sandstone Wells
Arsenic Concentration
Arsenic (mg/L)
0.02
0.015
0.01
0.005
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0182
0184
0185
0588


Green River Disposal Site
Basal Sandstone Wells
Nitrate + Nitrite as Nitrogen Concentration
Nitrate + Nitrite as Nitrogen (mg/L)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0182
0184
0185
0588


Green River Disposal Site
Basal Sandstone Wells
Selenium Concentration
Selenium (mg/L)
0.005
0.004
0.003
0.002
0.001
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0182
0184
0185
0588


Green River Disposal Site
Basal Sandstone Wells
Sulfate Concentration
Sulfate (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0182
0184
0185
0588


Green River Disposal Site
Basal Sandstone Wells
Uranium Concentration
Uranium (mg/L)
0.01
0.008
0.006
0.004
0.002
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Date
Location
0182
0184
0185
0588

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Attachment 3
Sampling and Analysis Work Order

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Task Order LM-501
Control Number 13-0584

May 28, 2013

U.S. Department of Energy
Office of Legacy Management
ATTN: Mark Kautsky
Site Manager
2597 Legacy Way
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)
June 2013 Environmental Sampling at Green River, Utah, Disposal Site

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

Dear Mr. Kautsky:

The purpose of this letter is to inform you of the upcoming sampling event at Green River, Utah. Enclosed are the maps and tables specifying sample locations and analytes for monitoring at the Green River 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 17, 2013.

The following lists show the monitoring wells (with zone of completion) and surface locations scheduled to be sampled during this event. Water levels will be obtained site wide prior to sampling.

Monitoring Wells*

0171 Cm	0179 Cm	0182 Cb	0185 Cb	0189 Al	0194 Al	0707 Al
0173 Cm	0181 Cm	0184 Cb	0188 Al	0192 Al	0588 Cb	0813 Cm
0176 Cm						

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

Surface Locations

0801	0846	0847

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.

The S.M. Stoller Corporation 2597 Legacy Way Grand Junction, CO 81503 (970) 248-6000 Fax (970) 248-6040

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

Sincerely,

J. E. Price

Jeffrey E. Price
Site Lead

JP/lcg/lb

Enclosures (3)

cc: (electronic)
Christina Pennal, DOE
Karl Stoeckle, DOE
Steve Donivan, Stoller
Bev Gallagher, Stoller
Lauren Goodknight, Stoller
Jeffrey Price, Stoller
EDD Delivery
rc-grand.junction
File: GRN 410.02 (A)

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;
185			X			Telemetry
188			X			
189			X			
192			X			
194			X			
582					X	Telemetry; WL only
588			X			Telemetry
707			X			
813			X			Telemetry
817					X	Telemetry; WL only
Surface Locations						
801			X			
846			X			
847			X			

Annual sampling conducted in June

Site-wide water levels. Do water levels first prior to sampling. Record exact time that water levels are measured.

Constituent Sampling Breakdown

Site	Green River				
Analyte	Groundwater	Surface Water	Required Detection Limit (mg/L)	Analytical Method	Line Item Code
Approx. No. Samples/yr	10	2			
Field Measurements					
Alkalinity	X	X			
Dissolved Oxygen					
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					
Chloride					
Chromium					
Gross Alpha					
Gross Beta					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Nickel-63					
Nitrate + Nitrite as N (NO_3+NO_2)-N	X	X	0.05	EPA 353.1	WCH-A-022
Potassium					
Radium-226					
Radium-228					
Selenium	X	X	0.0001	SW-846 6020	LMM-02
Silica					
Sodium					
Strontium					
Sulfate	X	X	0.5	SW-846 9056	MIS-A-044
Sulfide					
Total Dissolved Solids					
Total Organic Carbon					
Uranium	X	X	0.0001	SW-846 6020	LMM-02
Vanadium					
Zinc					
Total No. of Analytes	6	6			

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

Attachment 4
Trip Report

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DATE: June 20, 2013

TO: Distribution

FROM: Jeff Price

SUBJECT: Trip Report

Site: Green River, Utah

Dates of Sampling Event: June 17-18, 2013

Team Members: Joe Treviño and Jeff Price.

Number of Locations Sampled: Water samples for arsenic, selenium, uranium, ammonia as N, nitrate + nitrite as N, and sulfate, were collected from 15 monitoring wells and three surface water locations.

Locations Not Sampled/Reason: None.

Location Specific Information: The intent of collecting surface location 0847 is to sample the upper reach of the Green River water that backs up into Browns Wash. Depending on the stage of the river, the location of surface sample 0847 will vary. This year, the sample was collected approximately 1,200 feet above the Green River confluence.

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
2357	LHW 736	0188	Duplicate	Groundwater
2358	LHW 737	N/A	Equipment Blank	Surface Water

Report Identification Number (RIN) Assigned: All samples were assigned to RIN 13065402.

Sample Shipment: Samples were shipped from Grand Junction overnight via FedEx to ALS Laboratory Group, Fort Collins, Colorado, on June 19, 2013.

Water Level Measurements: Water levels were measured at all 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 disposable tubing.

Regulatory: Mark Kautsky (DOE) and Dean Henderson (State of Utah Department of Environmental Quality) were on site June 18 to observe the sampling activities and to discuss site issues.

Institutional Controls

Fences, Gates, Locks: All fences, gates, and locks are OK.
Signs: OK
Trespassing/Site Disturbances: None.

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.

Access Issues: None.

Corrective Action Required/Taken: None.

(JP/lcg)

cc: (electronic)
Mark Kautsky, DOE
Steve Donivan, Stoller
Jeff Price, Stoller
EDD Delivery