LMS/GRN/S00814

Data Validation Package

August 2014
Surface Water Sampling at the Green River, Utah, Disposal Site

December 2014

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Sampling Event Summary

Site: Green River, Utah, Disposal Site

Sampling Period: August 14, 2014

Results from the June 2014 annual sampling event at the Green River, Utah, Disposal Site indicated exceedances of the State of Utah surface water standards for nitrate + nitrite as N and selenium at surface water location 0847. The 2011 *Groundwater Compliance Action Plan for the Green River, Utah, Disposal Site* (LMS/GRN/S07892) requires that if a surface water location exceeds the State of Utah surface water standards, quarterly monitoring will be conducted at that location for a year. In response to this requirement, location 0847 was sampled again in August 2014.

Results from the August 2014 sampling event indicate that the contaminant concentrations at location 0847 have returned to historic levels and are below the State of Utah standards. Sample results at location 0847 from the August 2014 and June 2014 sampling events are provided in Table 1.

Table 1. Analytical Results[a] and Standards/Background Threshold Values 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	BTV[d]	Sample Result
0847 (June 2014)	0.5	ND	0.150	0.0011	4	4.8	0.0046	0.0068	0.00536	0.015
0847 (August 2014)		ND[e]		0.00094	4	0.074		0.0014		0.0052

[a] Sample results are in milligrams per liter.
[b] Std = Standard, in milligrams per liter
[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 BTV concentration (in milligrams per liter) is based on historical data set (1997–present) from upstream Green River location (0801).
[e] ND = Not Detected.

J. E. Price — 2/4/15

Jeffrey Price, Site Lead
The S.M. Stoller Corporation, a wholly owned subsidiary of Huntington Ingalls Industries

Date

David Peterson — 2/4/15

David Peterson, Senior Hydrogeologist
The S.M. Stoller Corporation, a wholly owned subsidiary of Huntington Ingalls Industries

Date

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Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Green River, Utah, Disposal Site	**Date(s) of Water Sampling**	August 14, 2014
Date(s) of Verification	November 24, 2014	**Name of Verifier**	Alison Kuhlman

	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.	NA	
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 August 14, 2014. A typo is present in the pH calibration section for the pH 10 buffer, mV is written as 175 when it was -175. Making the span between pH buffers 7 and 10 positive 170.
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?	NA	All locations were surface water locations.
7. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged prior to sampling?	NA	All locations were surface water locations.
Did the water level stabilize prior to sampling?		
Did pH, specific conductance, and turbidity measurements meet criteria prior to sampling?		
Was the flow rate less than 500 mL/min?		

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?	NA	All locations were surface water locations.
Was one pump/tubing volume removed prior to sampling?		
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	A duplicate sample was collected at location 0847.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment?	NA	All samples were collected with dedicated equipment.
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	
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?	NA	All locations were surface water locations.

Laboratory Performance Assessment

General Information

Report Number (RIN):	14086411
Sample Event:	August 14, 2014
Site(s):	Green River, Utah, Disposal Site
Laboratory:	ALS Laboratory Group, Fort Collins, Colorado
Work Order No.:	1408385
Analysis:	Metals and Wet Chemistry
Validator:	Alison Kuhlman
Review Date:	October 24, 2014

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 2.

Table 2. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Ammonia as N	WCH-A-005	EPA 350.1	EPA 350.1
Arsenic, Selenium, Uranium	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 3. Refer to the attached validation worksheets and the sections below for an explanation of the data qualifiers applied.

Table 3. Data Qualifiers

Sample Number	Location	Analyte	Flag	Reason
1408385-1	0847	Arsenic	J	Field Duplicate RPD criteria not met
1408385-2	2659	Arsenic	J	Field Duplicate RPD criteria not met

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received two water samples on August 15, 2014, 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 1.0 °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 August 21, 2014. 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 verification checks were made at the required frequency. All calibration checks met the acceptance criteria.

Method EPA 353.2, Nitrate + Nitrite as N
Calibrations were performed using seven calibration standards on August 21, 2014. 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 verification checks were made at the required frequency. All calibration checks met the acceptance criteria.

Method SW-846 6020A, Arsenic, Selenium, and Uranium
Calibrations were performed on August 20, 2014, 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. 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 PQL and all results were within the acceptance range, with the exception of arsenic. The arsenic reporting limit verification percent recovery was greater than the 130 percent criteria. All associated samples that are greater than 5 times the PQL are qualified with "J" flags as estimated values. 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 six calibration standards on August 4, 2014. 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 verification checks were made at the required frequency. All calibration checks met 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 or when the MS/MSD samples were prepared from diluted samples. 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

The EDD file arrived on August 26, 2014. 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: 14086411 **Lab Code:** PAR **Validator:** Alison Kuhlman **Validation Date:** 10/24/2014

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

# of Samples: 2 **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	
☑ Field Duplicates	There was 1 duplicate evaluated.

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 14086411 **Lab Code:** PAR **Date Due:** 8/29/2014

Matrix: Water **Site Code:** GRN01 **Date Completed:** 8/28/2014

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	08/20/2014	0.0000	1.0000	OK	OK	OK	109.0			0.0	104.0		135.0
Selenium	ICP/MS	08/20/2014	0.0000	1.0000	OK	OK	OK	107.0			2.0	101.0		90.0
Uranium	ICP/MS	08/20/2014	0.0000	1.0000	OK	OK	OK	99.0			1.0	100.0	6.0	100.0

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 14086411 **Lab Code:** PAR **Date Due:** 8/29/2014

Matrix: Water **Site Code:** GRN01 **Date Completed:** 8/28/2014

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	08/21/2014	0.000	1.0000	OK	OK	OK	105.00	94.0	103.0	10.00	
Nitrate+Nitrite as N	08/21/2014	0.000	1.0000	OK	OK	OK	107.00	99.0	83.0	15.00	
SULFATE	08/20/2014	0.000	1.0000	OK	OK	OK	97.00	99.0	96.0	1.00	

Sampling Quality Control Assessment

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

Equipment Blank

An equipment blank was not collected for this sampling event.

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. A duplicate sample was collected from location 0847. 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. The duplicate results met the criteria, with the exception of arsenic. The arsenic sample result was less than 5 times the PQL with the difference between the sample result and the duplicate being greater than the PQL. This can be attributed to both variability in the sampling process and laboratory precision. The associated sample results are qualified with "J" flags as estimated values.

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

RIN: 14086411 **Lab Code:** PAR **Project:** Green River **Validation Date:** 10/24/2014

Duplicate: 2659 **Sample:** 0847

Analyte	Sample Result	Flag	Error	Dilution	Duplicate Result	Flag	Error	Dilution	RPD	RER	Units
AMMONIA AS N	0.1	U		1	0.1	U		1			MG/L
Arsenic	0.94			5	1.4			5	39.32		UG/L
Nitrate+Nitrite as N	0.074			1	0.07			1	5.56		MG/L
Selenium	1.4			5	1.7			5	19.35		UG/L
SULFATE	320			10	340			10	6.06		MG/L
Uranium	5.2			5	5.1			5	1.94		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 — Date: 12-19-2014

Data Validation Lead: Alison Kuhlman — Date: 12/19/14

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 can result from transcription errors, data-coding errors, or measurement system problems. However, outliers can also represent true extreme values of a distribution and can 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.** Do this by generating the Data Validation 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 as to whether the data are normally distributed using the Shapiro-Wilk Test.
2. **Apply the appropriate statistical test.** Dixon's Test for extreme values 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.

There were no outliers identified and the data for this RIN are acceptable as qualified. In the Data Validation Outlier Report- Field Parameters Only, the turbidity at location 0847 was identified as falling outside the historical data range. However statistical tests did not identify the result as an outlier.

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.

Selenium was identified in the previous report (for the June 2014 sampling event) as a potential outlier at the location sampled in this event.

Data Validation Outliers Report - Field Parameters Only
Comparison: All Historical Data
Laboratory: Field Measurements
RIN: 14086411
Report Date: 10/24/2014

Site Code	Location Code	Sample ID	Sample Date	Analyte	Current	Qualifiers		Historical Maximum	Qualifiers		Historical Minimum	Qualifiers		Number of Data Points		Statistical Outlier
					Result	*Lab*	*Data*	Result	*Lab*	*Data*	Result	*Lab*	*Data*	N	N Below Detect	
GRN01	0847	N001	08/14/2014	Turbidity	566			565			83.9			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.
NA: Data are not normally or lognormally distributed.

Attachment 2
Data Presentation

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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: 11/24/2014
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	08/14/2014	0001	204			#		
Ammonia Total as N	mg/L	08/14/2014	0001	0.1	U		#	0.1	
Ammonia Total as N	mg/L	08/14/2014	0002	0.1	U		#	0.1	
Arsenic	mg/L	08/14/2014	0001	0.00094		J	#	0.000074	
Arsenic	mg/L	08/14/2014	0002	0.0014		J	#	0.000074	
Nitrate + Nitrite as Nitrogen	mg/L	08/14/2014	0001	0.074			#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	08/14/2014	0002	0.07			#	0.01	
Oxidation Reduction Potential	mV	08/14/2014	N001	165			#		
pH	s.u.	08/14/2014	N001	7.75			#		
Selenium	mg/L	08/14/2014	0001	0.0014			#	0.00016	
Selenium	mg/L	08/14/2014	0002	0.0017			#	0.00016	
Specific Conductance	umhos/cm	08/14/2014	N001	1150			#		
Sulfate	mg/L	08/14/2014	0001	320			#	5	
Sulfate	mg/L	08/14/2014	0002	340			#	5	
Temperature	C	08/14/2014	N001	26.1			#		
Turbidity	NTU	08/14/2014	N001	566			#		
Uranium	mg/L	08/14/2014	0001	0.0052			#	0.000015	
Uranium	mg/L	08/14/2014	0002	0.0051			#	0.000015	

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.

Time-Concentration Graphs

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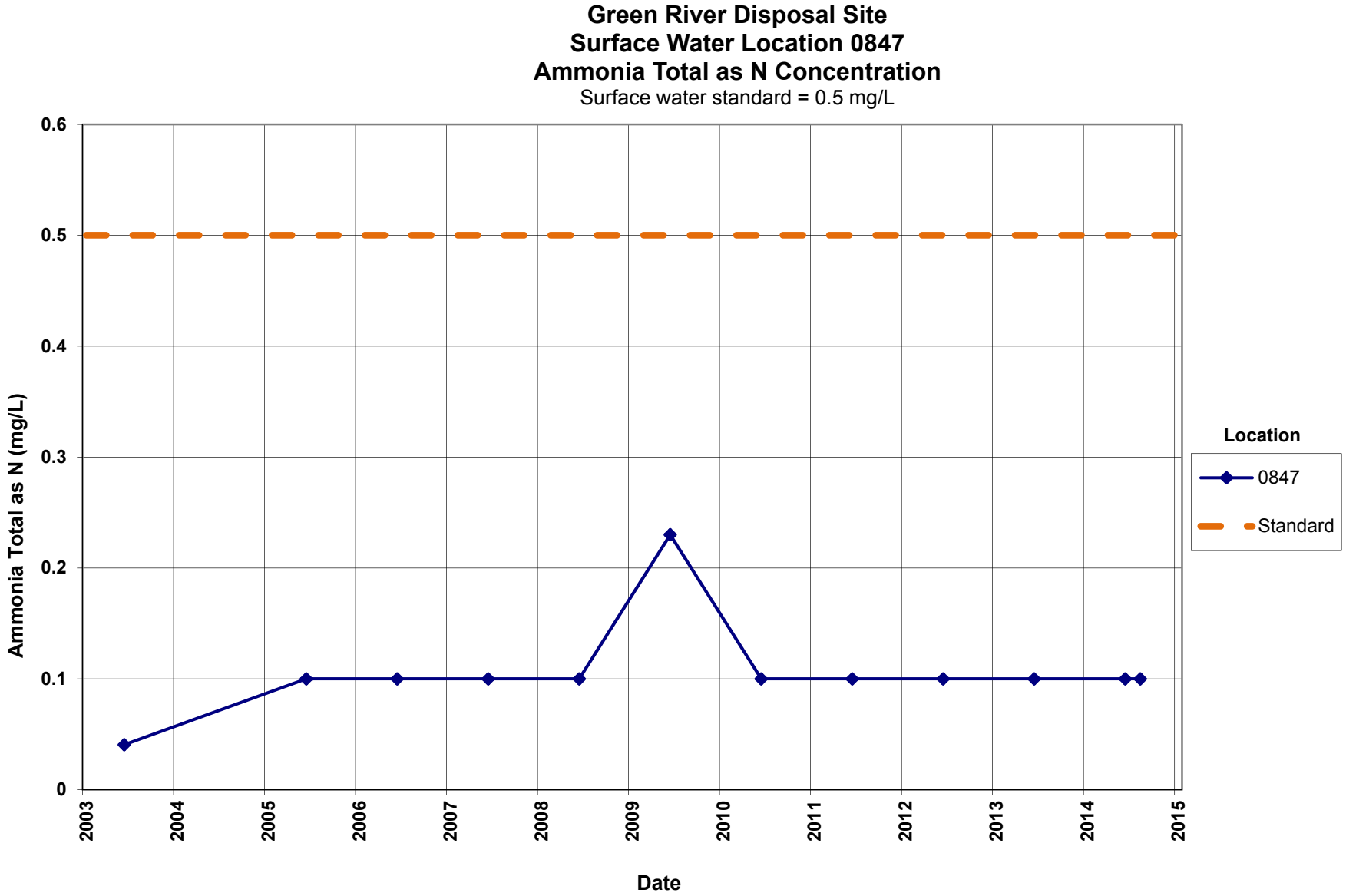
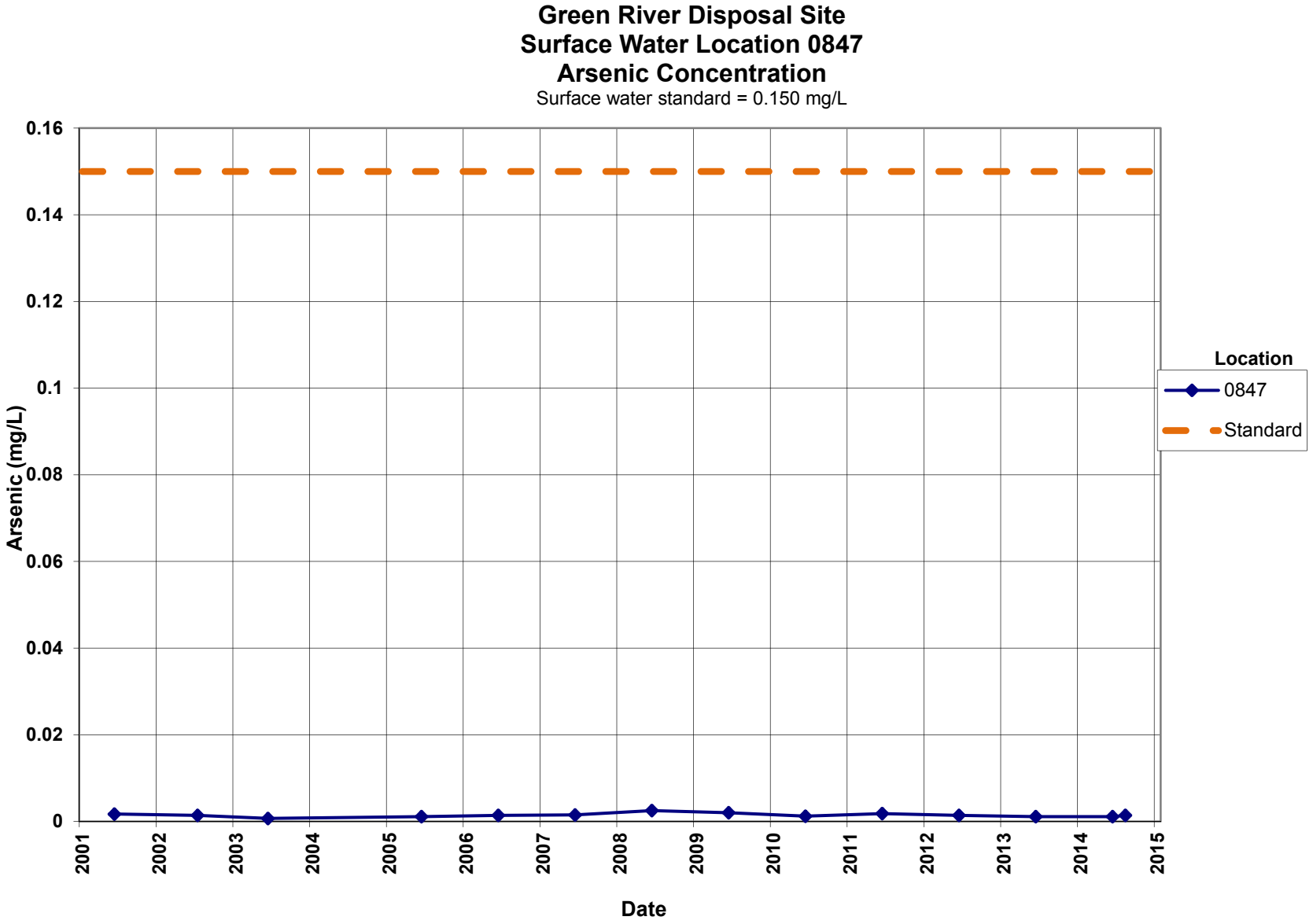
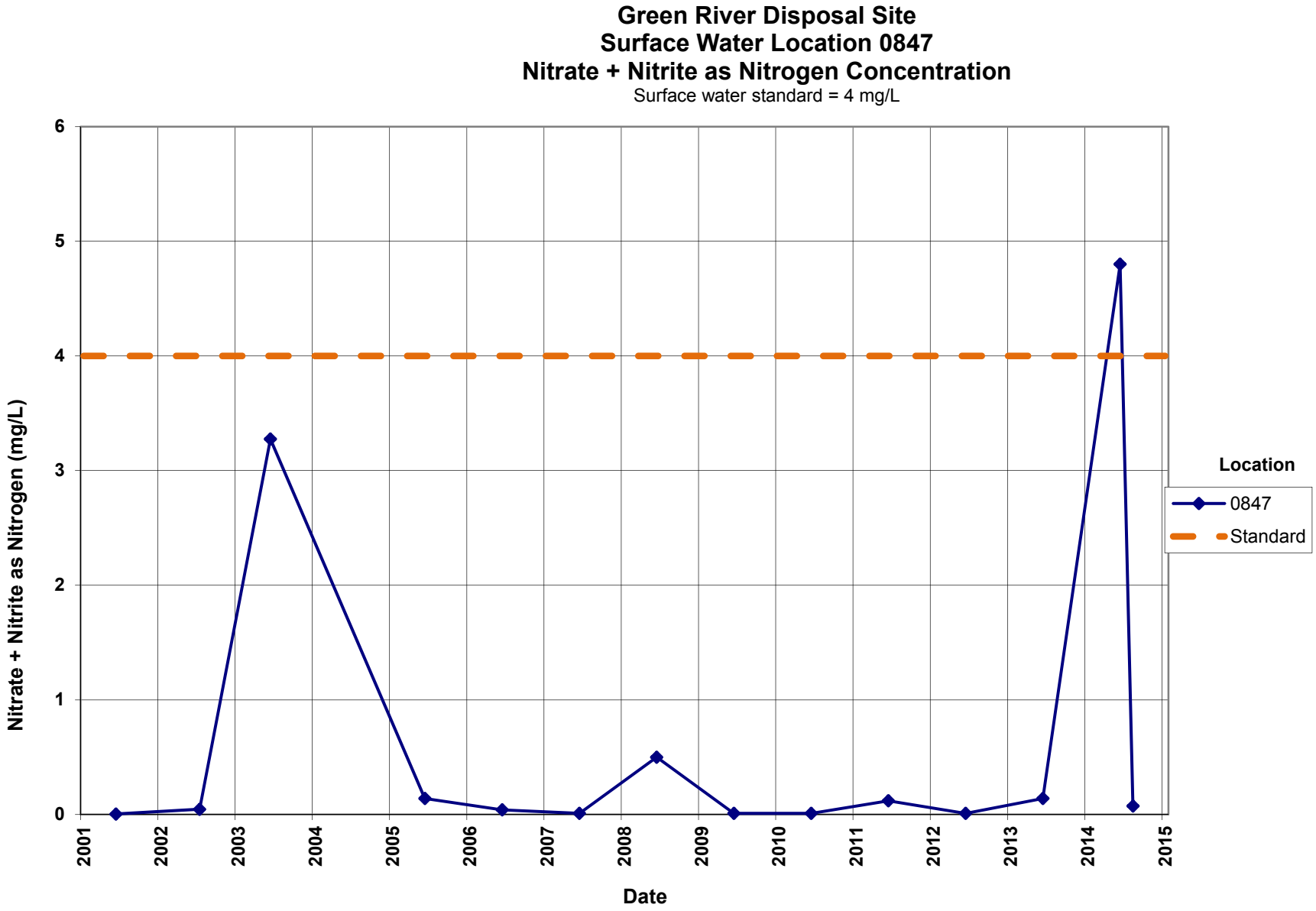
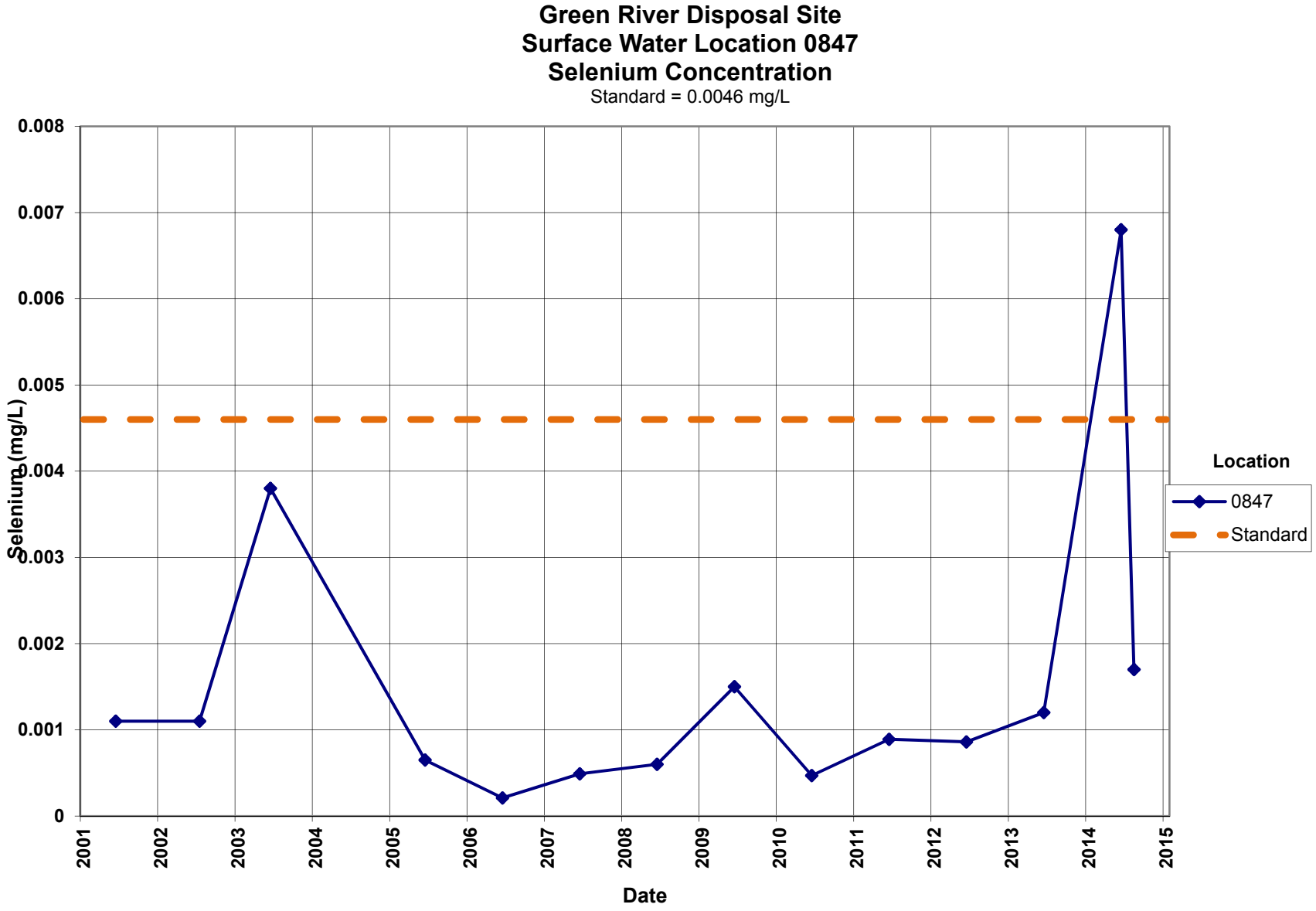

Green River Disposal Site
Surface Water Location 0847
Ammonia Total as N Concentration
Surface water standard = 0.5 mg/L
Ammonia Total as N (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date
Location
0847
Standard


Green River Disposal Site
Surface Water Location 0847
Arsenic Concentration
Surface water standard = 0.150 mg/L
Arsenic (mg/L)
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date
Location
0847
Standard


Green River Disposal Site
Surface Water Location 0847
Nitrate + Nitrite as Nitrogen Concentration
Surface water standard = 4 mg/L
Nitrate + Nitrite as Nitrogen (mg/L)
0
1
2
3
4
5
6
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date
Location
0847
Standard


Green River Disposal Site
Surface Water Location 0847
Selenium Concentration
Standard = 0.0046 mg/L
Selenium (mg/L)
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date
Location
0847
Standard

Attachment 3
Trip Report

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Stoller

Memorandum

DATE: August 19, 2014

TO: Distribution

FROM: Jeff Price

SUBJECT: Surface Water Sampling Trip Report

Site: Green River, Utah, Disposal Site

Dates of Event: August 14, 2014

Team Members: Rob Rice and Jeff Price

Number of Locations Sampled: 1 surface water sample was collected for arsenic, uranium, selenium, ammonia as N, nitrate + nitrite as N, and sulfate.

Locations Not Sampled/Reason: All locations were sampled. This was a special sampling event in response to an exceedance in the surface water quality standard for nitrate + nitrite as N and selenium at location 0847 during the annual sampling event in June 2014.

Location Specific Information: Surface water location 0847 was collected at the location identified on the map. This location varies depending on the stage of the river and outflow into Browns Wash.

Quality Control Sample Cross Reference: The following is the false identification assigned to the quality control sample.

False ID	Ticket Number	True ID	Sample Type	Associated Matrix
2659	MJS 440	0847	Duplicate	Surface water

Report Identification Number (RIN) Assigned: All samples were assigned to RIN 14086411.

Sample Shipment: Samples were shipped from Grand Junction to ALS Laboratory Group on August 14, 2014.

Water Level Measurements: NA

Well Inspection Summary: NA

Field Variance: None.

Equipment: All equipment functioned properly. The location was sampled with a peristaltic pump and dedicated tubing.

Sampling Method: Samples were collected according to the *Sampling and Analysis Plan for the U. S. Department of Energy Office of Legacy Management Sites* (LMS/PLN/S04351, continually updated).

Regulatory: NA

Institutional Controls: No issues identified.

Disposal Cell/ Drainage Structure Integrity: No issues observed.
Fences, Gates, Locks: All appeared to be in working condition.
Trespassing/Site Disturbances: Nothing to note.

Site Issues:

Vegetation/Noxious Weed Concerns: None observed.
Maintenance Requirements: None observed.
Access Issues: None
Safety Issues: None

Corrective Action Taken: None.

(JP/lcg)

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