

Data Validation Package

September 2009
Water Sampling at the
Slick Rock, Colorado, Processing Site

January 2010

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Sampling Event Summary

Site: Slick Rock, Colorado, Processing Sites

Sampling Period: September 22-24, 2009

The Slick Rock, Colorado, Processing Sites are referred to as the Slick Rock East Processing Site (SRK06) and the Slick Rock West Processing Site (SRK05). This annual event involved sampling a total of 14 monitor wells and 7 surface water locations at both sites as required by the 2006 *Draft Final Ground Water Compliance Action Plan for the Slick Rock, Colorado, Processing Sites*. Water levels were measured at all sampled wells. All sampled wells were inspected and found in good condition, except well 0318 at the west site which has 3 feet of well sand inside the casing and about 1 foot of water above the sand.

The proposed compliance strategy for the Slick Rock sites is natural flushing in conjunction with institutional controls and compliance monitoring. Contaminant concentrations at the Slick Rock sites are compared to their respective maximum concentration limit (MCL) to assess compliance with Title 40, *Code of Federal Regulations*, Part 192, with the exception of manganese and selenium. Manganese concentrations are compared to the maximum background concentration of 3.5 milligrams per liter (mg/L) to assess compliance because manganese does not have an MCL. A human-health risk-based alternate concentration limit of 0.18 mg/L has been proposed to assess compliance for selenium because groundwater modeling predicts that selenium concentrations at the Slick Rock West Processing Site will not be reduced to below the MCL within 100 years.

Wells with analyte concentrations that exceeded applicable groundwater standards are listed in Table 1. Table 2 lists the drinking water MCLs and results for benzene, toluene, ethyl benzene, and xylenes (total) in well 0319.

Results from this sampling event demonstrated elevated concentrations for most contaminants at West Processing Site locations 0318, 0508, and 0510 as shown in the time-concentration graphs included in the Data Presentation section. A notable example is the generally increasing concentration of selenium in well 0318. The mobility of selenium is sensitive to changes in redox conditions in the groundwater and the redox potential has been generally increasing in well 0318 since 2004.

The radium-226 plus radium-228 concentration has decreased in well 0319 since 2006, and was slightly below the MCL of 5 picocuries per liter for this event.

Surface water results from Dolores River locations downstream of and adjacent to the processing sites were compared to statistical benchmark values derived using historical data from river locations 0693, which is located upstream of the West Processing Site and 0696, which is located upstream of the East Processing Site. As shown in Tables 3 and 4, no benchmark values were exceeded during this event, which indicates that the sites are having no measurable impact on river water quality.

Table 1. Slick Rock Wells with Samples that Exceeded EPA Standards in September 2009

Analyte	Standard (mg/L)	Site	Location	Concentration (mg/L)
Manganese ^a	3.5	West	0508	3.9
			0510	4.8
Molybdenum	0.1	West	0317	0.19
			0318	3.4
			0508	1.3
			0510	0.93
Nitrate + Nitrite as Nitrogen	10	West	0318	140
			0508	280
			0510	360
Selenium ^b	0.18	West	0318	5.3
			0508	1.4
			0510	1.2
Uranium	0.044	West	0508	0.091
			0510	0.12
		East	0303	1.3
			0305	0.93
			0307	0.53
			0309	0.2
			0311	0.11
			0312	0.068

Standards are listed in 40 CFR 192.02 Table 1 to Subpart A; concentrations are in mg/L.

^aManganese standard is the Maximum Background Concentration.

^bSelenium standard is the proposed Alternate Concentration Limit.

Table 2. BTEX^a MCLs and Results for Location 0319 in September 2009

Analyte	MCL (mg/L)	Concentration in Well Location 0319 (mg/L)
Benzene	0.005	3.9
Ethyl benzene	0.7	0.10
Toluene	1	2.8
Xylenes, Total	10	4.5

MCLs (Maximum Contaminant Levels) are listed in the 2009 *National Primary Drinking Water Regulations* (EPA 816-F-09-0004, May 2009); concentrations are in mg/L.

^aBTEX = Benzene, Toluene, Ethyl benzene, and Xylenes (total).

Table 3. Comparison of Slick Rock East Processing Site September 2009 Surface Water Concentrations to Historical Upgradient Benchmarks

Analyte	Benchmark Value for 0696 (mg/L)	0692 Concentration (mg/L)	0700 Concentration (mg/L)
Uranium	0.0550	0.00086	0.00120

Table 4. Comparison of Slick Rock West Processing Site September 2009 Surface Water Concentrations to Historical Upgradient Benchmarks

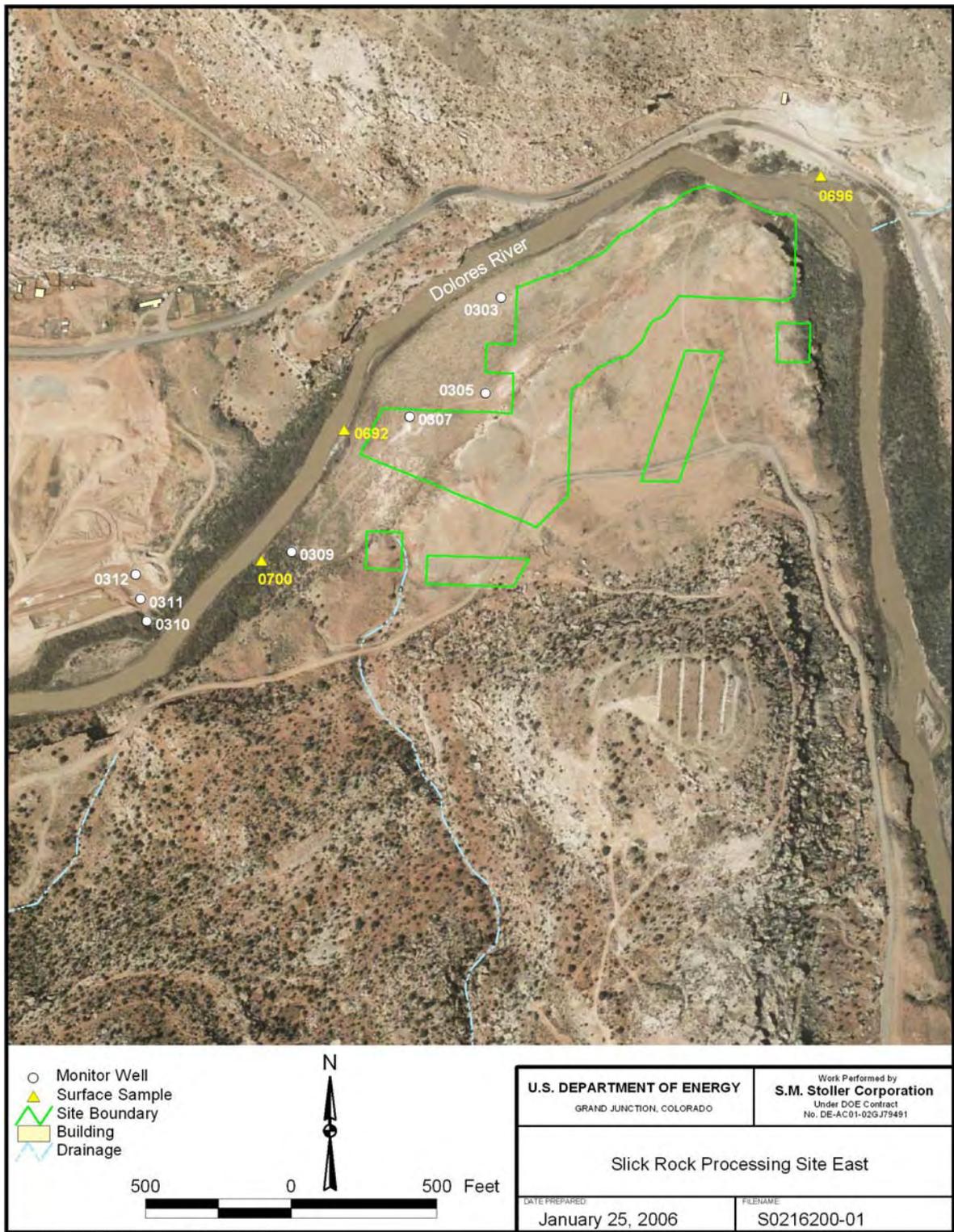
Analyte	Benchmark Value for 0693 (mg/L)	0347 Concentration (mg/L)	0349 Concentration (mg/L)	0694 Concentration (mg/L)
Manganese	0.0122	0.0035	0.0053	0.0046
Molybdenum	0.0048	0.0016	0.0018	0.0018
Nitrate + Nitrite as N	0.2400	0.032	0.052	0.074
Selenium	0.0047	0.00071	0.00094	0.0015
Uranium	0.0030	0.00076	0.00079	0.00088

David Traub

David Traub
Site Lead, S.M. Stoller

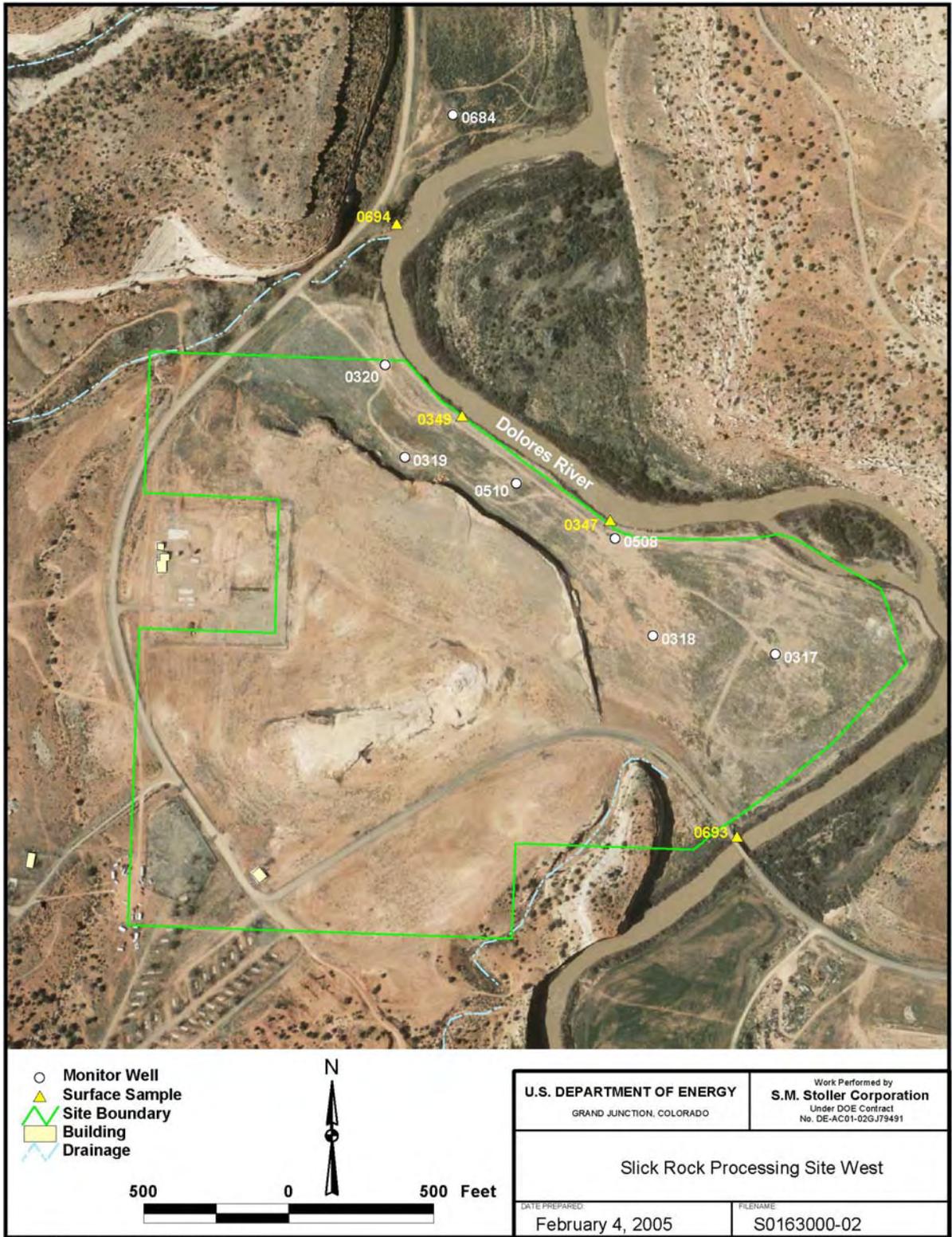
1-22-10

Date



m:\lts\111\0021109\02162\0216200.apr carvesh 1/25/2006, 10:23

Slick Rock Processing Site East, Sample Location Map



m:\lts\111\007\10\1\016300\0163000.apr carverh 2/4/2005, 10:26

Slick Rock Processing Site West, Sample Location Map

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Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	<u>Slick Rock, Colorado</u>	Date(s) of Water Sampling	<u>September 22-24, 2009</u>
Date(s) of Verification	<u>November 18, 2009</u>	Name of Verifier	<u>Gretchen Baer</u>

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures? List other documents, SOPs, instructions.	<u>Yes</u>	<u>Work Order Letter dated August 19, 2009.</u>
2. Were the sampling locations specified in the planning documents sampled?	<u>Yes</u>	
3. Was a pre-trip calibration conducted as specified in the above-named documents?	<u>Yes</u>	<u>Pre-trip calibration was performed on September 22, 2009.</u>
4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria?	<u>Yes</u>	<u>The daily check result for ORP on 9/23/09 was out of range; all ORP results recorded on that date are flagged "J" (estimated).</u>
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	<u>Yes</u>	
6. Was the category of the well documented?	<u>Yes</u>	
7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling?	<u>Yes</u>	
Did the water level stabilize prior to sampling?	<u>Yes</u>	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	<u>No</u>	<u>Specific cond did not stabilize at well SRK06 0311; data are qualified as "Q."</u>
Was the flow rate less than 500 mL/min?	<u>Yes</u>	
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	<u>NA</u>	

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	
Was one pump/tubing volume removed prior to sampling?	NA	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	Duplicates were collected from wells 0319, 0508, and 0684.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	No	No equipment blanks were taken for the surface water reel used to collect at locations 0347, 0349, 0693, and 0694.
11. Were trip blanks prepared and included with each shipment of VOC samples?	Yes	One trip blank was collected.
12. Were QC samples assigned a fictitious site identification number?	Yes	
Was the true identity of the samples recorded on the Quality Assurance Sample Log or in the Field Data Collection System (FDCS) report?	Yes	Location IDs of 2498, 2404, and 2676 were used for QC samples.
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	All samples with turbidity readings above 10 were filtered. VOA samples were not filtered.
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Are field data sheets signed and dated by both team members (hardcopies) or are dates present for the "Date Signed" fields (FDCS)?	No	The field sheets (handwritten) for site SRK06 samples were not signed by either team member.
18. Was all other pertinent information documented on the field data sheets?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Report Number (RIN): 09092580
 Sample Event: September 22-24, 2009
 Site(s): Slick Rock, Colorado; Processing Sites
 Laboratory: ALS Laboratory Group, Fort Collins, Colorado
 Work Order No.: 0909270
 Analysis: Metals, Organics, Wet Chemistry, and Radiochemistry
 Validator: Gretchen Baer
 Review Date: November 18, 2009

This validation was performed according to the *Environmental Procedures Catalog* (LMS/PRO/S04325, continually updated), "Standard Practice for Validation of Laboratory Data," GT-9(P). The procedure was applied at Level 3, Data 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 5.

Table 5. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Manganese	LMM-01	SW-846 3005A	SW-846 6010B
Molybdenum, Selenium, Uranium	LMM-02	SW-846 3005A	SW-846 6020A
Nitrite + Nitrate as N	WCH-A-022	MCAWW 353.2	MCAWW 353.2
Radium-226	ASP-A-016	PA SOP783R8	PA SOP783R8
Radium-228	GPC-A-020	SW-846 9320 (m)	PA SOP724R10
Volatile Organics	VOA-A-009	SW-846 5030C	SW-846 8260B

Data Qualifier Summary

Analytical results were qualified as listed in Table 6. Refer to the sections below for an explanation of the data qualifiers applied.

Table 6. Data Qualifier Summary

Sample Number	Location	Analyte	Flag	Reason
0909270-4	0320	Selenium	U	Less than 5 times the method blank
0909270-4	0320	Selenium	J	Reporting limit verification failure
0909270-9	0684	Selenium	U	Less than 5 times the calibration blank
0909270-9	0684	Selenium	J	Reporting limit verification failure
0909270-10	0693	Manganese	J	Intercept greater than 3 times MDL
0909270-15	0684 dup, 2676	Selenium	U	Less than 5 times the calibration blank
0909270-15	0684 dup, 2676	Selenium	J	Reporting limit verification failure
0909270-18	0307	Selenium	J	Reporting limit verification failure
All	All	Volatile Organics	J	Exceeded holding time

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 25 water samples on September 26, 2009, accompanied by a Chain of Custody (COC) form. Copies of the two air bills were included in the receiving documentation. The COC 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 COC form was complete with no errors or omissions with the following exceptions. The sample times for locations SRK05 0347 and SRK06 0310 differed slightly from the times written on the bottle labels; the laboratory used the times on the COC for log in.

Preservation and Holding Times

The sample shipment was received intact with the temperature inside the iced cooler at 1.8 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses with the exception of the samples collected for the determination of volatile organics, which were not acid preserved at the time of collection. All samples collected for volatile organics analysis exceeded the 7-day holding time for unpreserved samples by three days. These results are qualified with a “J” flag as estimated values.

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 and of producing a linear curve. 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.

Method MCAWW 353.2

Calibrations for nitrite + nitrate as N were performed using seven calibration standards on October 6, 2009. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the method detection limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 12 verification checks. All calibration check results were within the acceptance criteria.

Method SW-846 6010B

Calibration for manganese was performed on October 20 and 21, 2009, using three calibration standards. The calibration curve correlation coefficient values were greater than 0.995. The absolute values of the intercepts were slightly greater than 3 times the MDL. All associated detects less than 3 times the intercept are qualified with a “J” flag (estimated). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing

calibration verification checks were made at the required frequency resulting in 16 verification checks. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit (PQL) and all results were within the acceptance range.

Method SW-846 6020

Calibration for selenium was performed on October 22, 2009, and for molybdenum and uranium on October 23, 2009, using seven 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. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 7 verification checks for molybdenum and uranium, and 13 for selenium. 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 following exception. The selenium check result was below the acceptance range. The affected results less than 5 times the PQL are qualified with a “J” flag (estimated). Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries associated with requested analytes were stable and within acceptable ranges.

Method SW-846 8260B

The initial calibrations for benzene, ethylbenzene, toluene, and xylenes were performed using eight calibration standards on September 2, 2009. Calibration curves are established using linear regression, quadratic regression, or the average response factor approach. Calibrations using average response factors had relative standard deviations of less than 15 percent. Linear or higher order regression calibrations had correlation coefficient values greater than 0.99 and intercepts less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency. The verification checks met all acceptance criteria. The mass spectrometer calibration and resolution were checked at the beginning of each analytical run in accordance with the procedure. Internal standard recoveries were stable and within acceptance ranges. All surrogate recoveries were within the acceptance ranges.

Radiochemical Analysis

All radiochemical results reported included the calculated two-sigma total propagated uncertainty and minimum detectable concentration (MDC).

Radium-226

Emanation cell plateau voltage determinations and cell efficiency calibrations were performed January 2009. Daily instrument checks performed on October 10, 2009, met the acceptance criteria. The chemical recovery for location 0319 was slightly below the acceptance criteria of 40 to 110 percent. The recovery for the field duplicate at that location was acceptable and no further qualification is necessary.

Radium-228

Plateau voltage determinations and detector efficiency calibrations were performed in November 2008. Background determinations were performed on October 15, 2009. Daily instrument checks performed on October 20, 2009, met the acceptance criteria. The chemical recoveries met the acceptance criteria of 40 to 110 percent for all samples.

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.

Metals and Wet Chemistry

All method blank and calibration blank results associated with the samples were below the PQLs 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. For manganese, some blank results were negative and the absolute values were greater than the MDL but less than the PQL. All associated manganese results were greater than 5 times the MDL, so no results are qualified.

Volatile Organics

The method blank results were below the PQLs and MDLs for all target compounds.

Radiochemistry

All radiochemical method blank results were below the MDC.

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

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

Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) pairs were analyzed for metals and nitrate + nitrite as N as a measure of 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. The spike recoveries met the recovery and precision criteria for all analytes evaluated. For the volatile organics spike analyses, the laboratory used samples from another client.

Laboratory Replicate Analysis

Laboratory replicate sample results demonstrate acceptable laboratory precision. The relative percent difference values for the non-radiochemical sample replicates, laboratory control sample replicates, and matrix spike replicates were less than 20 percent for results that are greater than 5 times the PQL, indicating acceptable precision.

The radiochemical relative error ratio (calculated using the one-sigma total propagated uncertainty) for the laboratory control sample replicates was less than three, indicating acceptable precision.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. 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 100 times the PQL for ICP-MS or greater than 50 times the PQL for ICP. All evaluated serial dilution data were acceptable.

Volatile Organics Internal Standard and Surrogate Recovery

Laboratory performance for individual samples is evaluated by means of surrogate spikes. All samples are spiked with surrogate compounds prior to sample preparation. Surrogate recoveries are used to monitor factors such as interference and high concentrations of analytes. Surrogate recoveries may also be influenced by the success in recoveries of the internal standards. Internal standard recoveries were stable and within acceptance ranges. All surrogate recoveries were within the acceptance ranges.

Chromatography Peak Integration

The integration of analyte peaks was reviewed for all volatile organics data. All peak integrations were satisfactory.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of molybdenum and uranium to reduce interferences. The required detection limits were met for all non-radiochemical analytes.

All radiochemical MDCs were calculated using the following equation as specified in *Quality Systems for Analytical Services*.

$$MDC = \frac{4.65 \times \sqrt{\frac{b}{T}}}{K} + \frac{3}{K \times T}$$

Where:

b = background count rate (cpm)

K = Efficiency factor

T = Count time in minutes

The calculation of the MDCs using the equation above was verified. All reported MDCs were less than the required MDCs with one exception. An MDC for radium-226 was slightly above the required limit; however, the sample result was above the MDC, so no corrective action is required.

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers. The analytical report included the MDL (MDC for radiochemistry) and PQL for all analytes and all required supporting documentation.

Electronic Data Deliverable (EDD) File

A revised EDD file arrived on November 19, 2009, that included corrections to some filtration status fields in response to Request for Information #09-2365. 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: 09092580 Lab Code: PAR Validator: Gretchen Baer Validation Date: 11/17/2009

Project: Slick Rock Analysis Type: Metals General Chem Rad Organics

of Samples: 25 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
- Detection Limits
- Field/Trip Blanks
- Field Duplicates

All analyses were completed within the applicable holding times.

There are 1 detection limit failures.

There was 1 trip/equipment blank evaluated.

There were 3 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM

Non-Compliance Report: Detection Limits

RIN: 09092580 Lab Code: PAR

Project: Slick Rock

Validation Date: 11/17/2009

Ticket	Location	Lab Sample ID	Method Code	Lab Method	Analyte Name	Result	Qualifier	Reported Detection Limit	Required Detection Limit	Units
HKR 127	0319	0909270-3	ASP-A-016	783R8	Radium-226	3.05		1.1	1	pCi/L

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 09092580Lab Code: PARDate Due: 10/24/2009Matrix: WaterSite Code: SRKDate Completed: 11/2/2009

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
MANGANESE	10/20/2009	-1.2000	1.0000	OK	OK	OK	OK	OK	94.0	83.0	84.0	1.0	88.0	4.0	90.0
MANGANESE	10/20/2009											0.0	87.0		88.0
MANGANESE	10/21/2009	-0.9000	1.0000	OK	OK	OK	OK			112.0	114.0	2.0	98.0		101.0
MANGANESE	10/21/2009												97.0		101.0
MOLYBDENUM	10/23/2009	0.0000	1.0000	OK	OK	OK	OK	OK	105.0			1.0	111.0	4.0	112.0
MOLYBDENUM	10/23/2009									105.0	107.0	2.0			
MOLYBDENUM	10/23/2009											1.0			
SELENIUM	10/22/2009	-0.0500	1.0000	OK	OK	OK	OK	OK	95.0	96.0	94.0	1.0	97.0		66.0
SELENIUM	10/22/2009							OK	96.0	122.0	116.0	4.0			
URANIUM	10/23/2009	0.0000	1.0000	OK	OK	OK	OK	OK	107.0	97.0	103.0	3.0	107.0	5.0	102.0
URANIUM	10/23/2009									109.0	109.0	0.0		3.0	
URANIUM	10/23/2009											1.2			

SAMPLE MANAGEMENT SYSTEM

Wet Chemistry Data Validation Worksheet

RIN: 09092580 **Lab Code:** PAR **Date Due:** 10/24/2009
Matrix: Water **Site Code:** SRK **Date Completed:** 11/2/2009

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB						
NITRATE/NITRITE AS N	10/06/2009	0.000	0.9991	OK	OK	OK	OK	OK	102.00	103.0	101.0	1.00	

SAMPLE MANAGEMENT SYSTEM Organics Data Validation Summary

RIN: 09092580

Project: Slick Rock

Lab Code: PAR

Validation Date: 11/18/2009

LCS Recovery: All LCS recoveries were within the laboratory acceptance limits.

Method Blank(s): All method blanks results were below the method detection limit.

MS/MSD Recovery: N/A

Surrogate Recovery: All surrogate recoveries were within the laboratory acceptance limits.

Sampling Quality Control Assessment

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

Sampling Protocol

Surface water locations were sampled using a peristaltic pump and tubing reel or by container immersion. Monitor wells were sampled using a peristaltic pump and dedicated tubing. All monitor wells met the Category I low-flow sampling criteria. Sample results for these wells were qualified with an “F” flag in the database, indicating the wells were purged and sampled using the low-flow sampling method.

Trip Blank Assessment

A trip blank (field ID 2500) was prepared and analyzed for volatile organics to document contamination attributable to shipping and field handling procedures. There were no target analytes detected in the trip blank.

Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. Duplicate samples were collected from locations 0319, 0508, and 0684 (field duplicate IDs 2498, 2404, and 2676). The non-radiochemical duplicate results were acceptable, meeting the Environmental Protection Agency recommended laboratory duplicate criteria of less than 20 percent relative difference for results that are greater than 5 times the PQL. The radiochemical duplicate results were acceptable with relative error ratios (calculated using the one-sigma total propagated uncertainty) of less than three.

SAMPLE MANAGEMENT SYSTEM
Validation Report: Field Duplicates

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RIN: 09092580 Lab Code: PAR Project: Slick Rock Validation Date: 11/19/2009

Duplicate: 2404

Sample: 0508

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
MANGANESE	3900			1	4000			1	2.53		UG/L
MOLYBDENUM	1400			200	1300			200	7.41		UG/L
NITRATE/NITRITE AS N	280			500	280			500	0		MG/L
SELENIUM	1400			200	1300			200	7.41		UG/L
URANIUM	91			200	78			200	15.38		UG/L

Duplicate: 2498

Sample: 0319

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
BENZENE	3900			200	3500			200	10.81		UG/L
BENZENE	4600	E		50	4400	E		50	4.44		UG/L
Ethyl Benzene	80	J		200	96	J		200			UG/L
Ethyl Benzene	100			50	130			50	26.09		UG/L
M+P-XYLENE	2900			200	2800			200	3.51		UG/L
M+P-XYLENE	3700			50	3600			50	2.74		UG/L
O-XYLENE	580			200	570			200	1.74		UG/L
O-XYLENE	760			50	750			50	1.32		UG/L
Radium-226	3.05		1.26	1	1.26		0.655	1		2.5	pCi/L
Radium-228	1.47		0.582	1	1.4		0.573	1		0.2	pCi/L
TOLUENE	2800			200	2500			200	11.32		UG/L
TOLUENE	3500	E		50	3200	E		50	8.96		UG/L

Duplicate: 2676

Sample: 0684

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
MANGANESE	260			1	250			1	3.92		UG/L
MOLYBDENUM	5.5			10	5.6			10	1.80		UG/L
NITRATE/NITRITE AS N	0.016			1	0.012			1			MG/L
SELENIUM	0.3			1	0.29			1	3.39		UG/L
URANIUM	11			10	11			10	0		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:

Steve Donivan
Steve Donivan

1-22-2010
Date

Data Validation Lead:

Gretchen Baer
Gretchen Baer

1-22-10
Date

Attachment 1
Assessment of Anomalous Data

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Potential Outliers Report

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Potential Outliers Report

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

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

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

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

No laboratory results from this sampling event were identified as potential outliers and the results for this event are acceptable as qualified. The field measurements for alkalinity at locations 0312 (SRK06) and 0319 (SRK05) were identified as outliers. The associated field data were further reviewed. There were no errors noted and the data for this RIN are acceptable as qualified.

Data Validation Outliers Report - No Field Parameters

Laboratory: PARAGON (Fort Collins, CO)

RIN: 09092580

Comparison: All Historical Data

Report Date: 12/21/2009

Site Code	Location Code	Sample Date	Analyte	Current		Historical Maximum			Historical Minimum			Number of Data Points		Normally Distributed	Statistical Outlier
				Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	N	N Below Detect				
SRK05	0318	09/23/2009	Manganese	0.039	F	12.8		0.1	F	18	0	Yes	No		
SRK05	0318	09/23/2009	Nitrate + Nitrite as Nitrogen	140	F	730	F	230	F	5	0	Yes	No		
SRK05	0318	09/23/2009	Uranium	0.025	F	0.0554	F	0.028	F	18	0	Yes	No		
SRK05	0319	09/22/2009	Radium-226	1.26	F	3.22		1.64	FJ	21	0	Yes (log)	No		
SRK05	0319	09/22/2009	Radium-228	1.4	F	4.53	F	1.7		21	0	Yes	No		
SRK05	0319	09/22/2009	Radium-228	1.47	F	4.53	F	1.7		21	0	Yes	No		
SRK05	0320	09/23/2009	Nitrate + Nitrite as Nitrogen	0.086	F	0.014	F	0.01	U F	5	3	No	Yes		
SRK05	0320	09/23/2009	Uranium	0.014	F	0.03	F	0.015	F	16	0	Yes	No		
SRK05	0508	09/23/2009	Manganese	4	F	7.49		4.6	F	29	0	Yes	No		
SRK05	0508	09/23/2009	Manganese	3.9	F	7.49		4.6	F	29	0	Yes	No		
SRK05	0510	09/23/2009	Selenium	1.2	F	1.1	F	0.005	U	40	1	No	No		

Data Validation Outliers Report - Field Parameters Only

Laboratory: Field Measurements
 RIN: 09092580
 Comparison: All Historical Data
 Report Date: 12/21/2009

Site Code	Location Code	Sample Date	Analyte	Current		Historical Maximum			Historical Minimum			Number of Data Points		Normally Distributed	Statistical Outlier
				Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	Result	Qualifiers Lab Data	N	N Below Detect				
SRK05	0319	09/22/2009	Alkalinity, Total (As CaCO3)	327	F	1474			1019			19	0	Yes	Yes
SRK06	0312	09/23/2009	Alkalinity, Total (As CaCO3)	420	F	348		F	209		F	13	0	Yes	Yes

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

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.

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Attachment 2

Data Presentation

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Groundwater Quality Data

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Groundwater Quality Data by Location (USEE100) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0317 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	19.46	- 39.52	287		F	#		
Molybdenum	mg/L	09/23/2009	N001	19.46	- 39.52	0.19		F	#	0.00034	
Oxidation Reduction Potential	mV	09/23/2009	N001	19.46	- 39.52	32.8		JF	#		
pH	s.u.	09/23/2009	N001	19.46	- 39.52	7.41		F	#		
Specific Conductance	umhos/cm	09/23/2009	N001	19.46	- 39.52	2283		F	#		
Temperature	C	09/23/2009	N001	19.46	- 39.52	13.65		F	#		
Turbidity	NTU	09/23/2009	N001	19.46	- 39.52	3.14		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0318 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	4.99	- 15.02	272		F	#		
Manganese	mg/L	09/23/2009	N001	4.99	- 15.02	0.039		F	#	0.0001	
Molybdenum	mg/L	09/23/2009	N001	4.99	- 15.02	3.4		F	#	0.0034	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	N001	4.99	- 15.02	140		F	#	5	
Oxidation Reduction Potential	mV	09/23/2009	N001	4.99	- 15.02	44.1		JF	#		
pH	s.u.	09/23/2009	N001	4.99	- 15.02	6.96		F	#		
Selenium	mg/L	09/23/2009	N001	4.99	- 15.02	5.3		F	#	0.032	
Specific Conductance	umhos/cm	09/23/2009	N001	4.99	- 15.02	2787		F	#		
Temperature	C	09/23/2009	N001	4.99	- 15.02	17.73		F	#		
Uranium	mg/L	09/23/2009	N001	4.99	- 15.02	0.025		F	#	0.000087	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0319 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/22/2009	N001	4.55	- 14.58	327		F	#		
Benzene	ug/L	09/22/2009	N001	4.55	- 14.58	3900		JF	#	33	
Benzene	ug/L	09/22/2009	N002	4.55	- 14.58	3500		JF	#	33	
Ethylbenzene	ug/L	09/22/2009	N001	4.55	- 14.58	100		JF	#	8.3	
Ethylbenzene	ug/L	09/22/2009	N002	4.55	- 14.58	130		JF	#	8.3	
m,p-Xylene	ug/L	09/22/2009	N001	4.55	- 14.58	3700		JF	#	8.3	
m,p-Xylene	ug/L	09/22/2009	N002	4.55	- 14.58	3600		JF	#	8.3	
o-Xylene	ug/L	09/22/2009	N001	4.55	- 14.58	760		JF	#	8.3	
o-Xylene	ug/L	09/22/2009	N002	4.55	- 14.58	750		JF	#	8.3	
Oxidation Reduction Potential	mV	09/22/2009	N001	4.55	- 14.58	-133.8		F	#		
pH	s.u.	09/22/2009	N001	4.55	- 14.58	7.04		F	#		
Radium-226	pCi/L	09/22/2009	N001	4.55	- 14.58	3.05		F	#	1.1	1.26
Radium-226	pCi/L	09/22/2009	N002	4.55	- 14.58	1.26		F	#	0.71	0.655
Radium-228	pCi/L	09/22/2009	N001	4.55	- 14.58	1.47		F	#	0.55	0.582
Radium-228	pCi/L	09/22/2009	N002	4.55	- 14.58	1.4		F	#	0.57	0.573
Specific Conductance	umhos/cm	09/22/2009	N001	4.55	- 14.58	6386		F	#		
Temperature	C	09/22/2009	N001	4.55	- 14.58	17.33		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0319 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Toluene	ug/L	09/22/2009	N001	4.55 - 14.58	2800		JF	#	33	
Toluene	ug/L	09/22/2009	N002	4.55 - 14.58	2500		JF	#	33	
Turbidity	NTU	09/22/2009	N001	4.55 - 14.58	6.7		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0320 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	4.92	- 9.96	415		F	#		
Manganese	mg/L	09/23/2009	N001	4.92	- 9.96	0.47		F	#	0.0001	
Molybdenum	mg/L	09/23/2009	N001	4.92	- 9.96	0.011		F	#	0.000067	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	N001	4.92	- 9.96	0.086		F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2009	N001	4.92	- 9.96	-51.1		JF	#		
pH	s.u.	09/23/2009	N001	4.92	- 9.96	7.19		F	#		
Selenium	mg/L	09/23/2009	N001	4.92	- 9.96	0.000092	B	UJF	#	0.000032	
Specific Conductance	umhos/cm	09/23/2009	N001	4.92	- 9.96	931		F	#		
Temperature	C	09/23/2009	N001	4.92	- 9.96	16.54		F	#		
Turbidity	NTU	09/23/2009	N001	4.92	- 9.96	9.04		F	#		
Uranium	mg/L	09/23/2009	N001	4.92	- 9.96	0.014		F	#	0.0000017	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0508 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	1.01	- 11.01	298		F	#		
Manganese	mg/L	09/23/2009	N001	1.01	- 11.01	3.9		F	#	0.0001	
Manganese	mg/L	09/23/2009	N002	1.01	- 11.01	4		F	#	0.0001	
Molybdenum	mg/L	09/23/2009	N001	1.01	- 11.01	1.4		F	#	0.0013	
Molybdenum	mg/L	09/23/2009	N002	1.01	- 11.01	1.3		F	#	0.0013	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	N001	1.01	- 11.01	280		F	#	5	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	N002	1.01	- 11.01	280		F	#	5	
Oxidation Reduction Potential	mV	09/23/2009	N001	1.01	- 11.01	59.6		JF	#		
pH	s.u.	09/23/2009	N001	1.01	- 11.01	6.78		F	#		
Selenium	mg/L	09/23/2009	N001	1.01	- 11.01	1.4		F	#	0.0064	
Selenium	mg/L	09/23/2009	N002	1.01	- 11.01	1.3		F	#	0.0064	
Specific Conductance	umhos/cm	09/23/2009	N001	1.01	- 11.01	4129		F	#		
Temperature	C	09/23/2009	N001	1.01	- 11.01	18.5		F	#		
Turbidity	NTU	09/23/2009	N001	1.01	- 11.01	1.53		F	#		
Uranium	mg/L	09/23/2009	N001	1.01	- 11.01	0.091		F	#	0.000035	
Uranium	mg/L	09/23/2009	N002	1.01	- 11.01	0.078		F	#	0.000035	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0510 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	4.92	- 13.92	257		F	#		
Manganese	mg/L	09/23/2009	N001	4.92	- 13.92	4.8		F	#	0.0001	
Molybdenum	mg/L	09/23/2009	N001	4.92	- 13.92	0.93		F	#	0.00067	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	N001	4.92	- 13.92	360		F	#	5	
Oxidation Reduction Potential	mV	09/23/2009	N001	4.92	- 13.92	52.1		JF	#		
pH	s.u.	09/23/2009	N001	4.92	- 13.92	6.6		F	#		
Selenium	mg/L	09/23/2009	N001	4.92	- 13.92	1.2		F	#	0.0064	
Specific Conductance	umhos/cm	09/23/2009	N001	4.92	- 13.92	4817		F	#		
Temperature	C	09/23/2009	N001	4.92	- 13.92	15.92		F	#		
Turbidity	NTU	09/23/2009	N001	4.92	- 13.92	1.25		F	#		
Uranium	mg/L	09/23/2009	N001	4.92	- 13.92	0.12		F	#	0.000017	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0684 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	11	- 21	218		F	#		
Manganese	mg/L	09/23/2009	N001	11	- 21	0.26		F	#	0.0001	
Manganese	mg/L	09/23/2009	N002	11	- 21	0.25		F	#	0.0001	
Molybdenum	mg/L	09/23/2009	N001	11	- 21	0.0055		F	#	0.000067	
Molybdenum	mg/L	09/23/2009	N002	11	- 21	0.0056		F	#	0.000067	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	N001	11	- 21	0.016		F	#	0.01	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	N002	11	- 21	0.012		F	#	0.01	
Oxidation Reduction Potential	mV	09/23/2009	N001	11	- 21	32.2		JF	#		
pH	s.u.	09/23/2009	N001	11	- 21	7.44		F	#		
Selenium	mg/L	09/23/2009	N001	11	- 21	0.0003		UJF	#	0.000032	
Selenium	mg/L	09/23/2009	N002	11	- 21	0.00029		UJF	#	0.000032	
Specific Conductance	umhos/cm	09/23/2009	N001	11	- 21	772		F	#		
Temperature	C	09/23/2009	N001	11	- 21	14.89		F	#		
Turbidity	NTU	09/23/2009	N001	11	- 21	5.57		F	#		
Uranium	mg/L	09/23/2009	N001	11	- 21	0.011		F	#	0.0000017	
Uranium	mg/L	09/23/2009	N002	11	- 21	0.011		F	#	0.0000017	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK06, Slick Rock East Processing Site

REPORT DATE: 12/21/2009

Location: 0303 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers			Detection Limit	Uncertainty
							Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	4.3	-	14.3		F	#		
Oxidation Reduction Potential	mV	09/23/2009	N001	4.3	-	14.3		JF	#		
pH	s.u.	09/23/2009	N001	4.3	-	14.3		F	#		
Specific Conductance	umhos /cm	09/23/2009	N001	4.3	-	14.3		F	#		
Temperature	C	09/23/2009	N001	4.3	-	14.3		F	#		
Turbidity	NTU	09/23/2009	N001	4.3	-	14.3		F	#		
Uranium	mg/L	09/23/2009	N001	4.3	-	14.3		F	#	0.000087	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK06, Slick Rock East Processing Site

REPORT DATE: 12/21/2009

Location: 0305 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	8.7	- 18.7	406		F	#		
Oxidation Reduction Potential	mV	09/23/2009	N001	8.7	- 18.7	37.3		JF	#		
pH	s.u.	09/23/2009	N001	8.7	- 18.7	7.23		F	#		
Selenium	mg/L	09/23/2009	N001	8.7	- 18.7	0.018		F	#	0.000064	
Specific Conductance	umhos/cm	09/23/2009	N001	8.7	- 18.7	3606		F	#		
Temperature	C	09/23/2009	N001	8.7	- 18.7	16.48		F	#		
Turbidity	NTU	09/23/2009	N001	8.7	- 18.7	6.21		F	#		
Uranium	mg/L	09/23/2009	N001	8.7	- 18.7	0.93		F	#	0.000044	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK06, Slick Rock East Processing Site

REPORT DATE: 12/21/2009

Location: 0307 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	4.4	- 14.4	720		F	#		
Oxidation Reduction Potential	mV	09/23/2009	N001	4.4	- 14.4	-83.6		JF	#		
pH	s.u.	09/23/2009	N001	4.4	- 14.4	7.25		F	#		
Selenium	mg/L	09/23/2009	N001	4.4	- 14.4	0.00039		JF	#	0.000032	
Specific Conductance	umhos/cm	09/23/2009	N001	4.4	- 14.4	6013		F	#		
Temperature	C	09/23/2009	N001	4.4	- 14.4	15.39		F	#		
Turbidity	NTU	09/23/2009	N001	4.4	- 14.4	7.9		F	#		
Uranium	mg/L	09/23/2009	N001	4.4	- 14.4	0.53		F	#	0.000044	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK06, Slick Rock East Processing Site

REPORT DATE: 12/21/2009

Location: 0309 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/24/2009	N001	10.2	- 20.2	695		F	#		
Oxidation Reduction Potential	mV	09/24/2009	N001	10.2	- 20.2	28.8		F	#		
pH	s.u.	09/24/2009	N001	10.2	- 20.2	7.48		F	#		
Specific Conductance	umhos/cm	09/24/2009	N001	10.2	- 20.2	5616		F	#		
Temperature	C	09/24/2009	N001	10.2	- 20.2	13.35		F	#		
Turbidity	NTU	09/24/2009	N001	10.2	- 20.2	5.24		F	#		
Uranium	mg/L	09/24/2009	N001	10.2	- 20.2	0.2		F	#	0.0000087	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK06, Slick Rock East Processing Site

REPORT DATE: 12/21/2009

Location: 0310 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	14.7	- 19.7	217		F	#		
Oxidation Reduction Potential	mV	09/23/2009	N001	14.7	- 19.7	-86.4		JF	#		
pH	s.u.	09/23/2009	N001	14.7	- 19.7	7.39		F	#		
Specific Conductance	umhos /cm	09/23/2009	N001	14.7	- 19.7	913		F	#		
Temperature	C	09/23/2009	N001	14.7	- 19.7	14.43		F	#		
Turbidity	NTU	09/23/2009	N001	14.7	- 19.7	9.81		F	#		
Uranium	mg/L	09/23/2009	N001	14.7	- 19.7	0.025		F	#	0.0000017	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK06, Slick Rock East Processing Site

REPORT DATE: 12/21/2009

Location: 0311 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	14.1	- 19.1	339		QF	#		
Oxidation Reduction Potential	mV	09/23/2009	N001	14.1	- 19.1	77.9		JQF	#		
pH	s.u.	09/23/2009	N001	14.1	- 19.1	7.08		QF	#		
Specific Conductance	umhos /cm	09/23/2009	N001	14.1	- 19.1	2329		QF	#		
Temperature	C	09/23/2009	N001	14.1	- 19.1	16.79		QF	#		
Turbidity	NTU	09/23/2009	N001	14.1	- 19.1	3.16		QF	#		
Uranium	mg/L	09/23/2009	N001	14.1	- 19.1	0.11		QF	#	0.0000087	

Groundwater Quality Data by Location (USEE100) FOR SITE SRK06, Slick Rock East Processing Site

REPORT DATE: 12/21/2009

Location: 0312 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers		Detection Limit	Uncertainty
						Lab	QA		
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	N001	14.5 - 19.5	420		F #		
Oxidation Reduction Potential	mV	09/23/2009	N001	14.5 - 19.5	-10.5		JF #		
pH	s.u.	09/23/2009	N001	14.5 - 19.5	7.42		F #		
Specific Conductance	umhos/cm	09/23/2009	N001	14.5 - 19.5	3145		F #		
Temperature	C	09/23/2009	N001	14.5 - 19.5	17.33		F #		
Turbidity	NTU	09/23/2009	N001	14.5 - 19.5	1.66		F #		
Uranium	mg/L	09/23/2009	N001	14.5 - 19.5	0.068		F #	0.0000017	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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Surface Water Quality Data

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Surface Water Quality Data by Location (USEE102) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0347 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	0001	149			#		
Manganese	mg/L	09/23/2009	0001	0.0035	B		#	0.0001	
Molybdenum	mg/L	09/23/2009	0001	0.0016			#	0.000067	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	0001	0.032			#	0.01	
Oxidation Reduction Potential	mV	09/23/2009	N001	16.3		J	#		
pH	s.u.	09/23/2009	N001	8.26			#		
Selenium	mg/L	09/23/2009	0001	0.00071			#	0.000032	
Specific Conductance	umhos/cm	09/23/2009	N001	529			#		
Temperature	C	09/23/2009	N001	13.25			#		
Turbidity	NTU	09/23/2009	N001	251			#		
Uranium	mg/L	09/23/2009	0001	0.00076			#	0.0000017	

Surface Water Quality Data by Location (USEE102) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0349 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	0001	132			#		
Manganese	mg/L	09/23/2009	0001	0.0053			#	0.0001	
Molybdenum	mg/L	09/23/2009	0001	0.0018			#	0.000067	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	0001	0.052			#	0.01	
Oxidation Reduction Potential	mV	09/23/2009	N001	38.5	J		#		
pH	s.u.	09/23/2009	N001	8.41			#		
Selenium	mg/L	09/23/2009	0001	0.00094			#	0.000032	
Specific Conductance	umhos/cm	09/23/2009	N001	444			#		
Temperature	C	09/23/2009	N001	14.79			#		
Turbidity	NTU	09/23/2009	N001	246			#		
Uranium	mg/L	09/23/2009	0001	0.00079			#	0.0000017	

Surface Water Quality Data by Location (USEE102) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0693 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	0001	139			#		
Manganese	mg/L	09/23/2009	0001	0.00092	B	J	#	0.0001	
Molybdenum	mg/L	09/23/2009	0001	0.0016			#	0.000067	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	0001	0.01	U		#	0.01	
Oxidation Reduction Potential	mV	09/23/2009	N001	27.4		J	#		
pH	s.u.	09/23/2009	N001	8.33			#		
Selenium	mg/L	09/23/2009	0001	0.00086			#	0.000032	
Specific Conductance	umhos/cm	09/23/2009	N001	455			#		
Temperature	C	09/23/2009	N001	19.94			#		
Turbidity	NTU	09/23/2009	N001	145			#		
Uranium	mg/L	09/23/2009	0001	0.00081			#	0.0000017	

Surface Water Quality Data by Location (USEE102) FOR SITE SRK05, Slick Rock West Processing Site

REPORT DATE: 12/21/2009

Location: 0694 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	09/23/2009	0001	145			#		
Manganese	mg/L	09/23/2009	0001	0.0046	B		#	0.0001	
Molybdenum	mg/L	09/23/2009	0001	0.0018			#	0.000067	
Nitrate + Nitrite as Nitrogen	mg/L	09/23/2009	0001	0.074			#	0.01	
Oxidation Reduction Potential	mV	09/23/2009	N001	-9		J	#		
pH	s.u.	09/23/2009	N001	8.31			#		
Selenium	mg/L	09/23/2009	0001	0.0015			#	0.000032	
Specific Conductance	umhos/cm	09/23/2009	N001	442			#		
Temperature	C	09/23/2009	N001	14.18			#		
Turbidity	NTU	09/23/2009	N001	186			#		
Uranium	mg/L	09/23/2009	0001	0.00088			#	0.0000017	

Surface Water Quality Data by Location (USEE102) FOR SITE SRK06, Slick Rock East Processing Site

REPORT DATE: 12/21/2009

Location: 0692 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	09/24/2009	0001	126			#		
Oxidation Reduction Potential	mV	09/24/2009	N001	15.7			#		
pH	s.u.	09/24/2009	N001	8.16			#		
Specific Conductance	umhos/cm	09/24/2009	N001	463			#		
Temperature	C	09/24/2009	N001	12.71			#		
Turbidity	NTU	09/24/2009	N001	183			#		
Uranium	mg/L	09/24/2009	0001	0.00086			#	0.0000017	

Surface Water Quality Data by Location (USEE102) FOR SITE SRK06, Slick Rock East Processing Site

REPORT DATE: 12/21/2009

Location: 0696 SURFACE LOCATION WQD, KNOWNS

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	09/24/2009	0001	115			#		
Oxidation Reduction Potential	mV	09/24/2009	N001	51.8			#		
pH	s.u.	09/24/2009	N001	8.12			#		
Specific Conductance	umhos/cm	09/24/2009	N001	459			#		
Temperature	C	09/24/2009	N001	13.11			#		
Turbidity	NTU	09/24/2009	N001	149			#		
Uranium	mg/L	09/24/2009	0001	0.00076			#	0.0000017	

Surface Water Quality Data by Location (USEE102) FOR SITE SRK06, Slick Rock East Processing Site

REPORT DATE: 12/21/2009

Location: 0700 SURFACE LOCATION

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	09/24/2009	0001	134			#		
Oxidation Reduction Potential	mV	09/24/2009	N001	-19.5			#		
pH	s.u.	09/24/2009	N001	8.23			#		
Specific Conductance	umhos/cm	09/24/2009	N001	541			#		
Temperature	C	09/24/2009	N001	12.14			#		
Turbidity	NTU	09/24/2009	N001	199			#		
Uranium	mg/L	09/24/2009	0001	0.0012			#	0.0000017	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

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Static Water Level Data

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STATIC WATER LEVELS (USEE700) FOR SITE SRK05, Slick Rock West Processing Site
REPORT DATE: 12/21/2009

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0317		5435.180000 0000003	09/23/2009	11:00:56	11.13	5424.05	
0318	O	5435.220000 0000003	09/23/2009	11:30:49	11.61	5423.61	
0319	O	5430.659999 9999999	09/22/2009	15:55:23	9.11	5421.55	
0320	O	5427.399999 9999996	09/23/2009	12:50:25	6.11	5421.29	
0508	O	5430.2	09/23/2009	09:45:51	7	5423.2	
0510	O	5427.87	09/23/2009	09:15:58	5.91	5421.96	
0684	D	5432.680000 0000003	09/23/2009	13:55:22	16.18	5416.5	

STATIC WATER LEVELS (USEE700) FOR SITE SRK06, Slick Rock East Processing Site
REPORT DATE: 12/21/2009

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0303	O	5446.909999 9999999	09/23/2009		9.94	5436.97	
0305	O	5448.75	09/23/2009		12.42	5436.33	
0307	O	5447.100000 0000004	09/23/2009		11.35	5435.75	
0309	O	5450.180000 0000003	09/24/2009		15.54	5434.64	
0310	D	5450.560000 0000004	09/23/2009		17.51	5433.05	
0311	D	5450.699999 9999998	09/23/2009		17.77	5432.93	
0312	D	5451.060000 0000004	09/23/2009		17.63	5433.43	

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

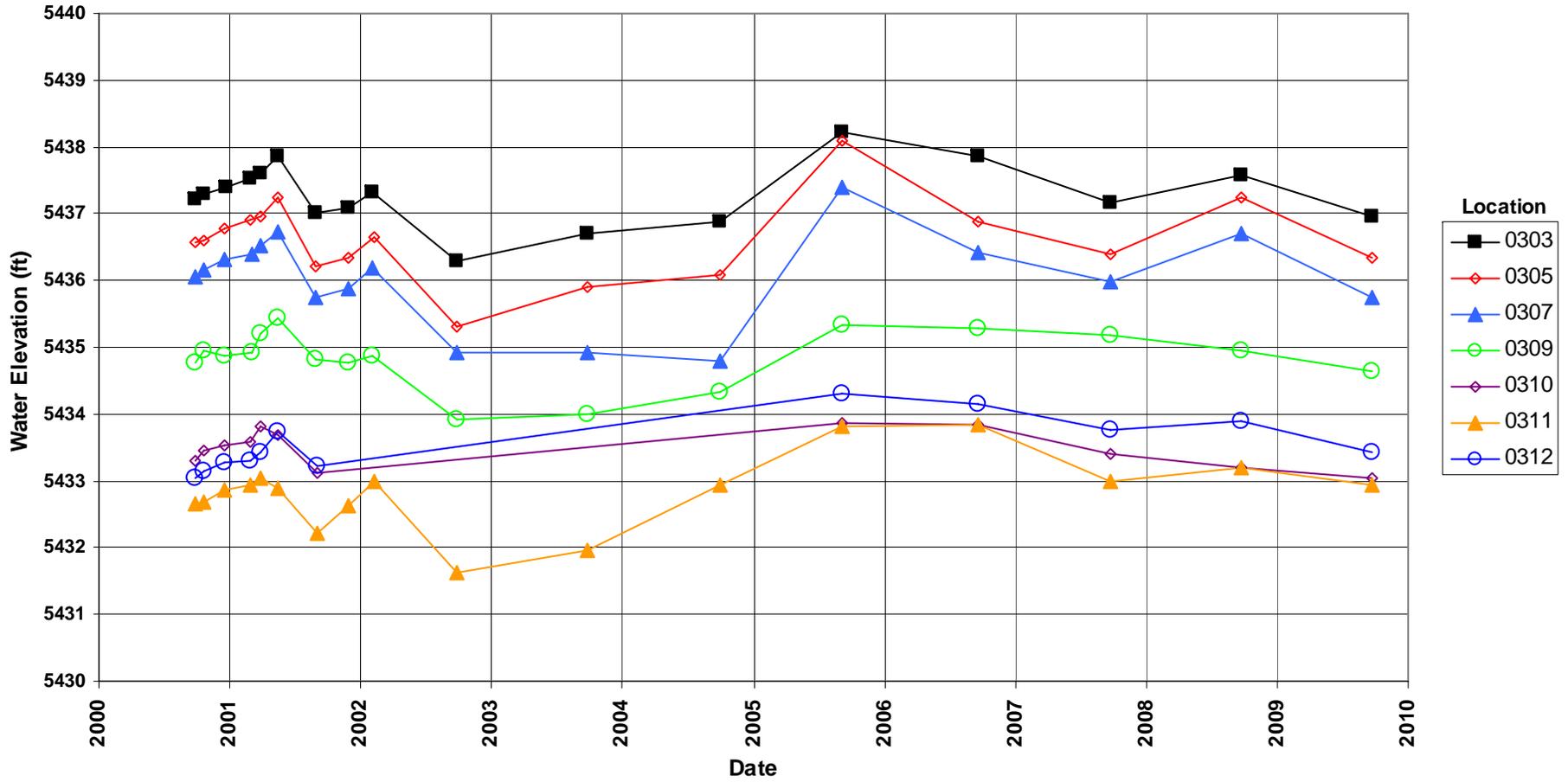
WATER LEVEL FLAGS: D Dry F FLOWING

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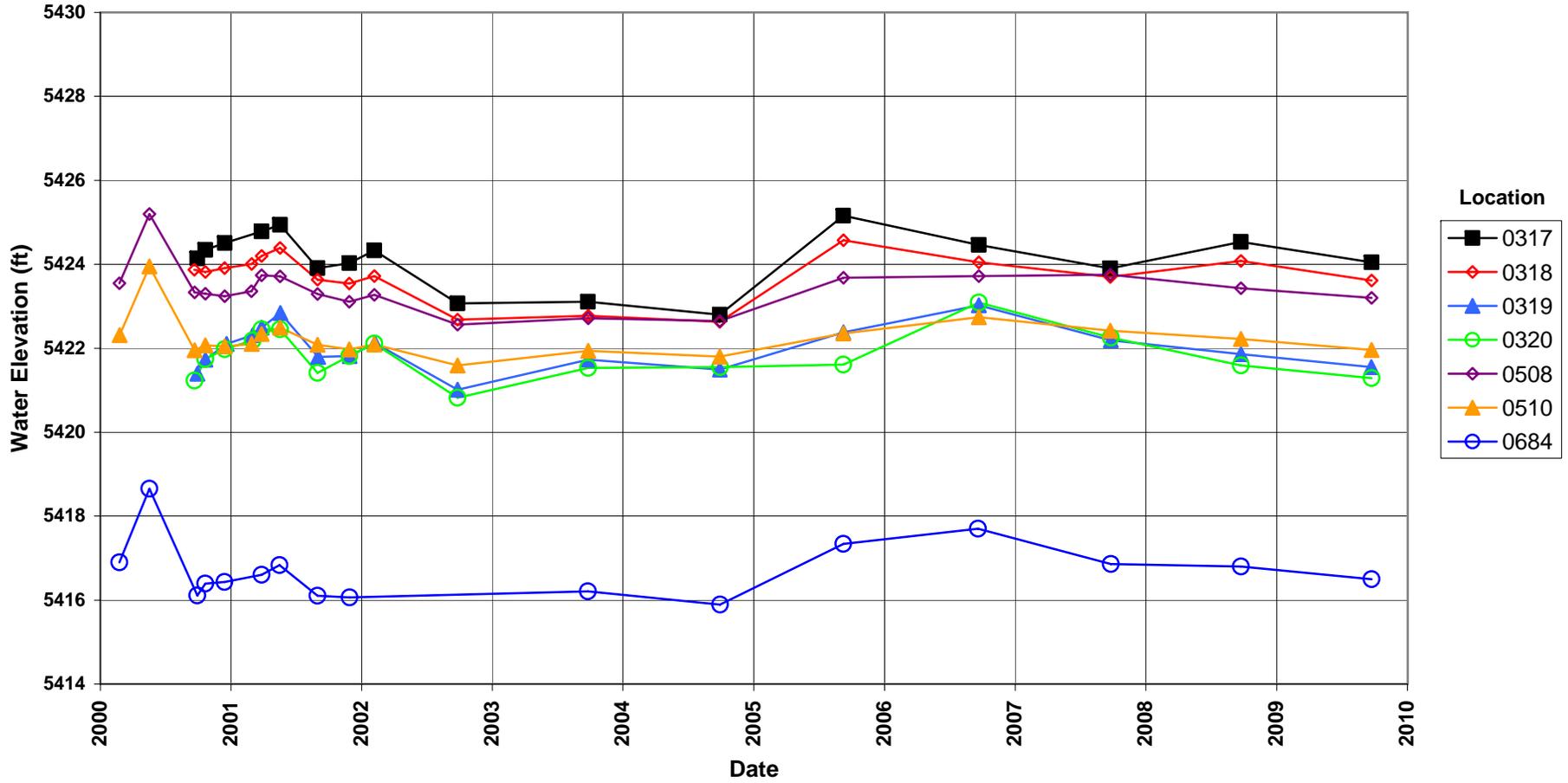
Hydrographs

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Slick Rock East Processing Site Hydrograph



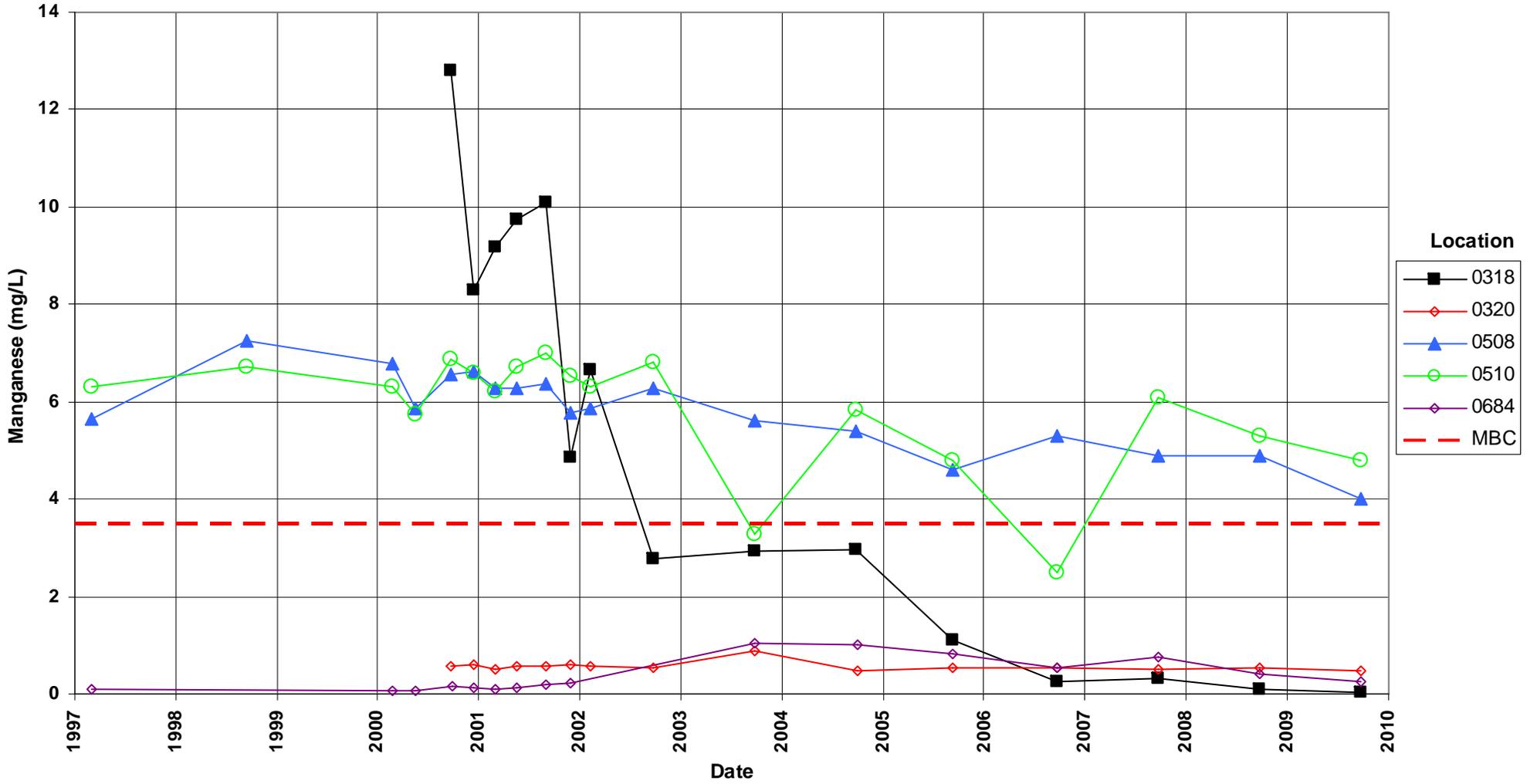
Slick Rock West Processing Site Hydrograph



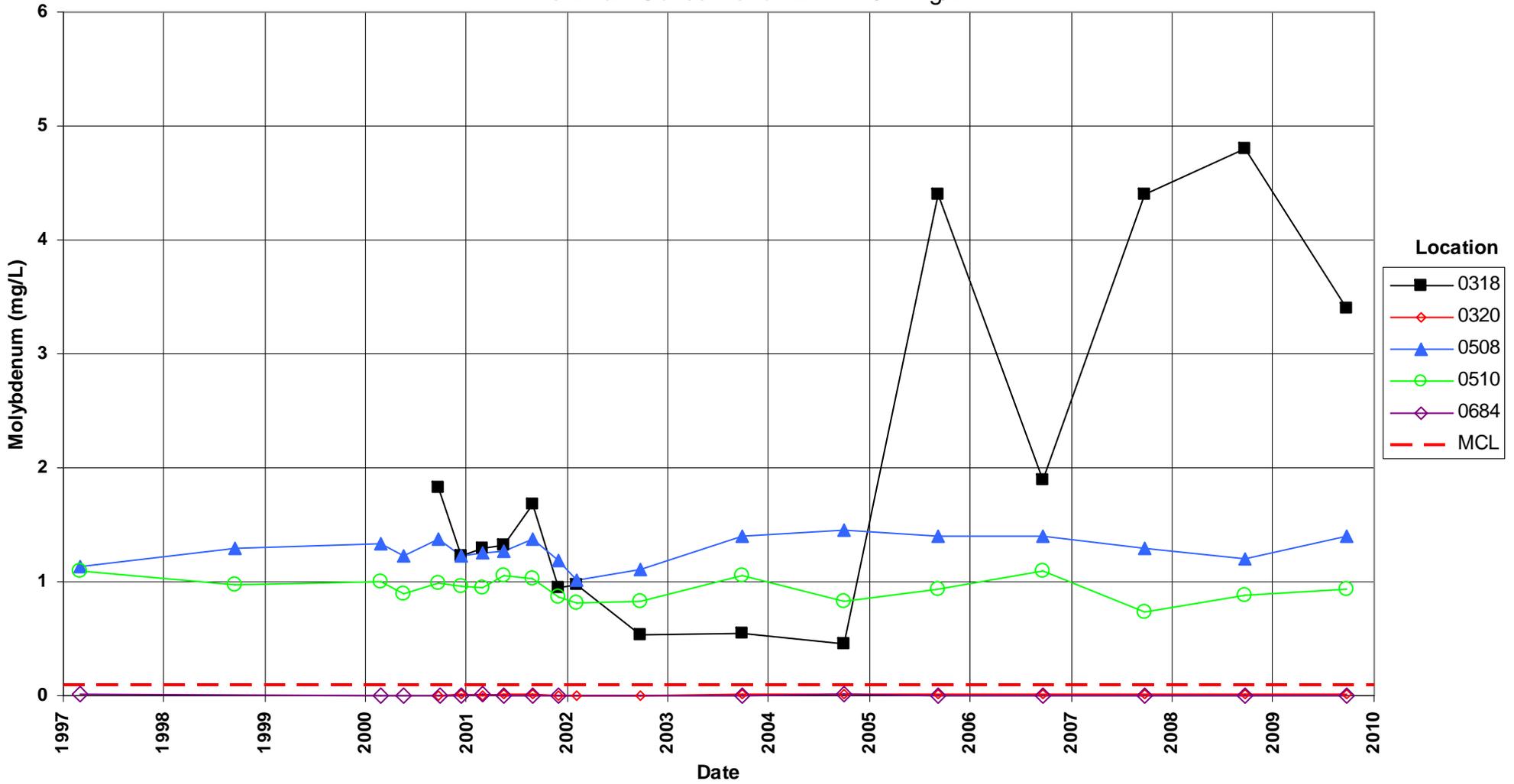
Time-Concentration Graphs

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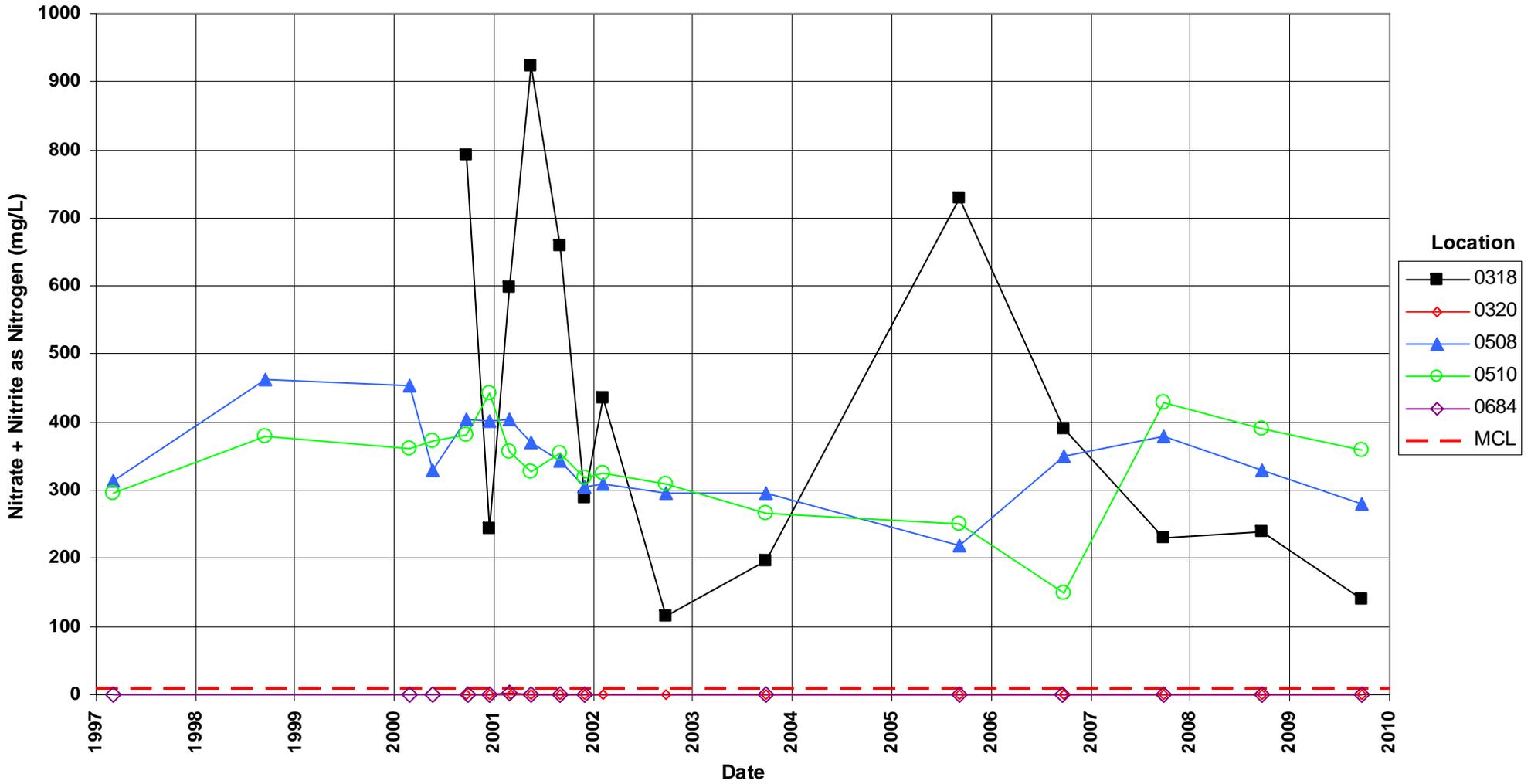
Slick Rock West Processing Site
Manganese Concentration
 Maximum Background Concentration = 3.5 mg/L



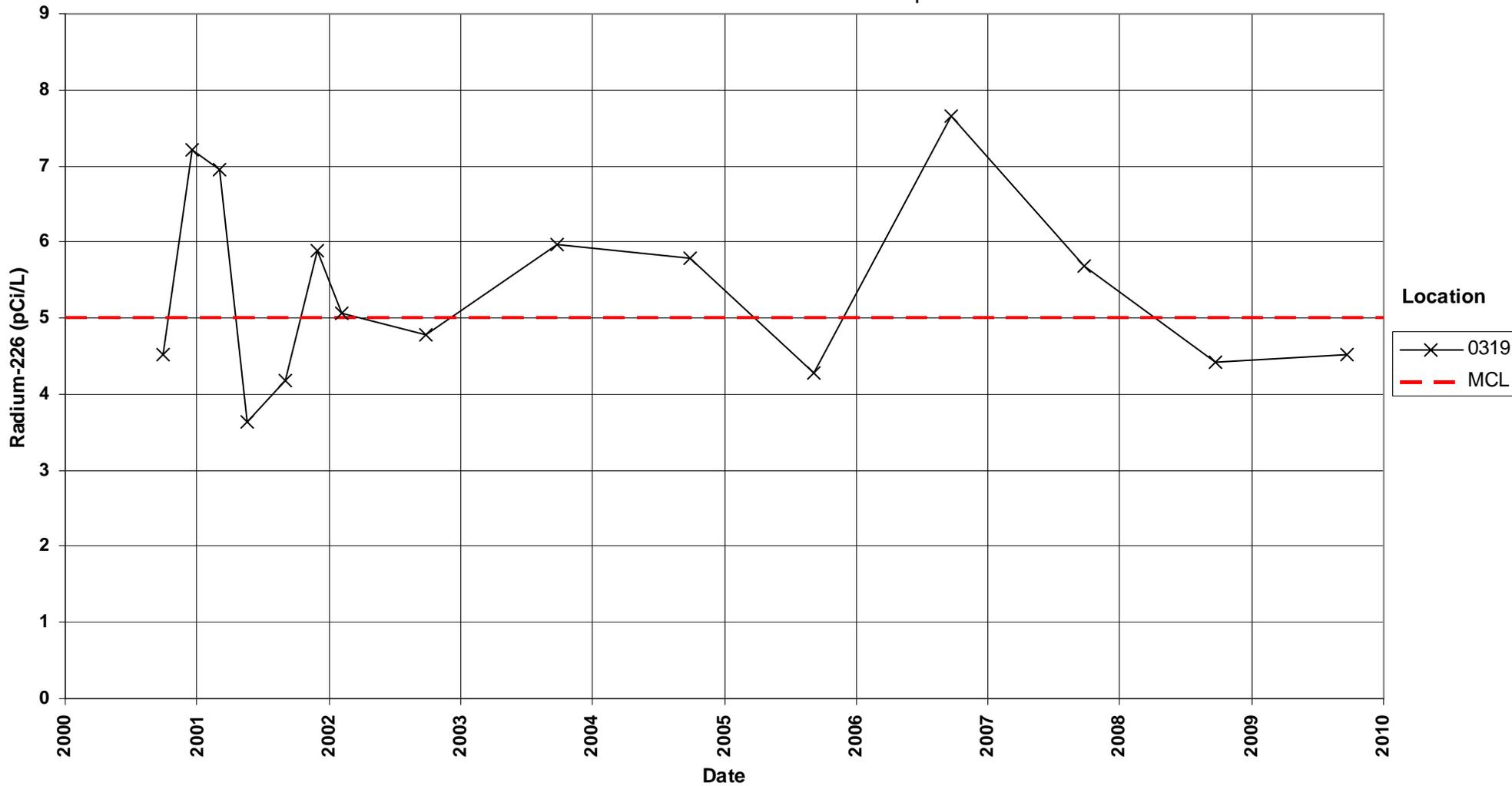
Slick Rock West Processing Site
Molybdenum Concentration
Maximum Concentration Limit = 0.1 mg/L



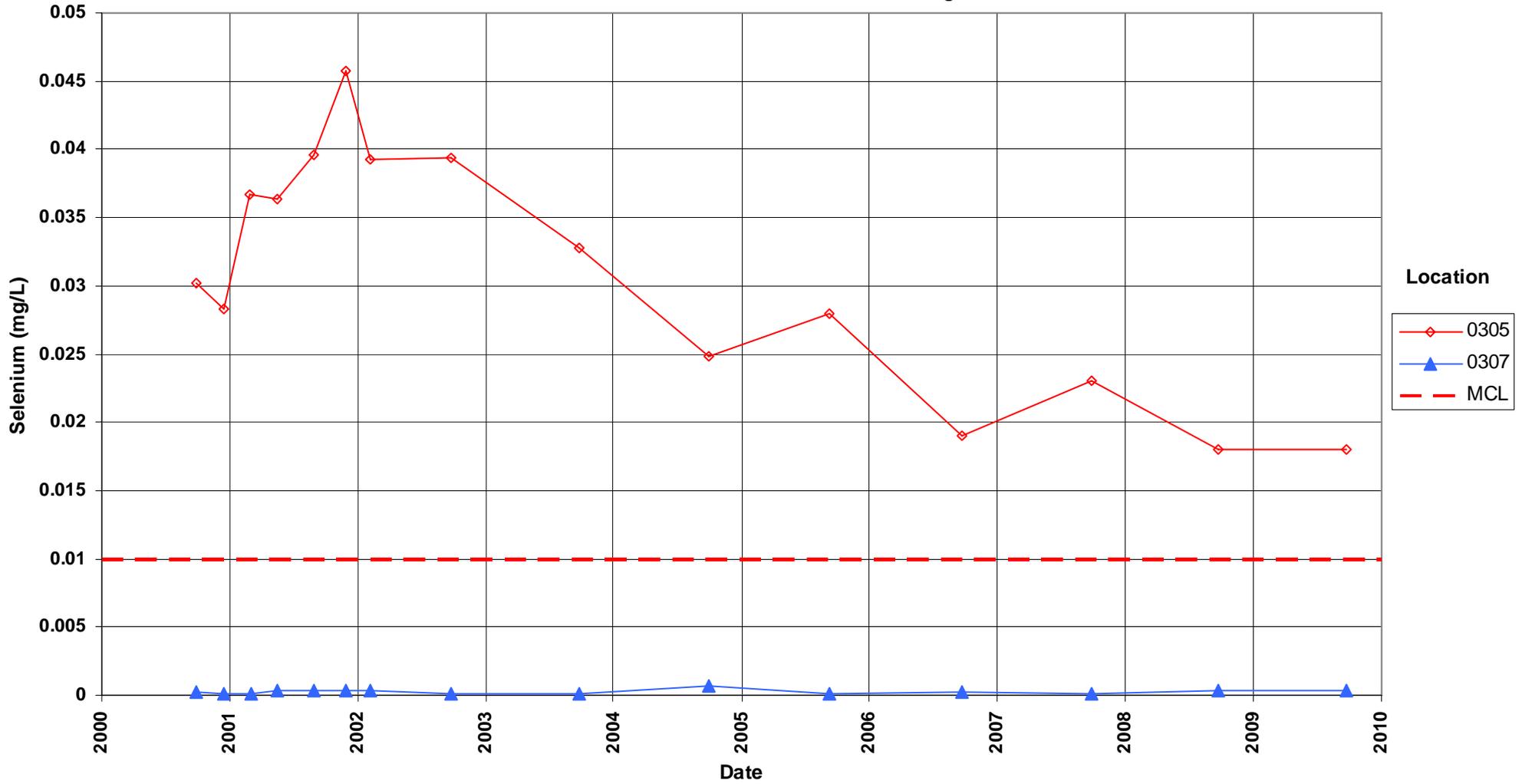
Slick Rock West Processing Site
Nitrate + Nitrite as Nitrogen Concentration
 Maximum Concentration limit = 10.0 mg/L



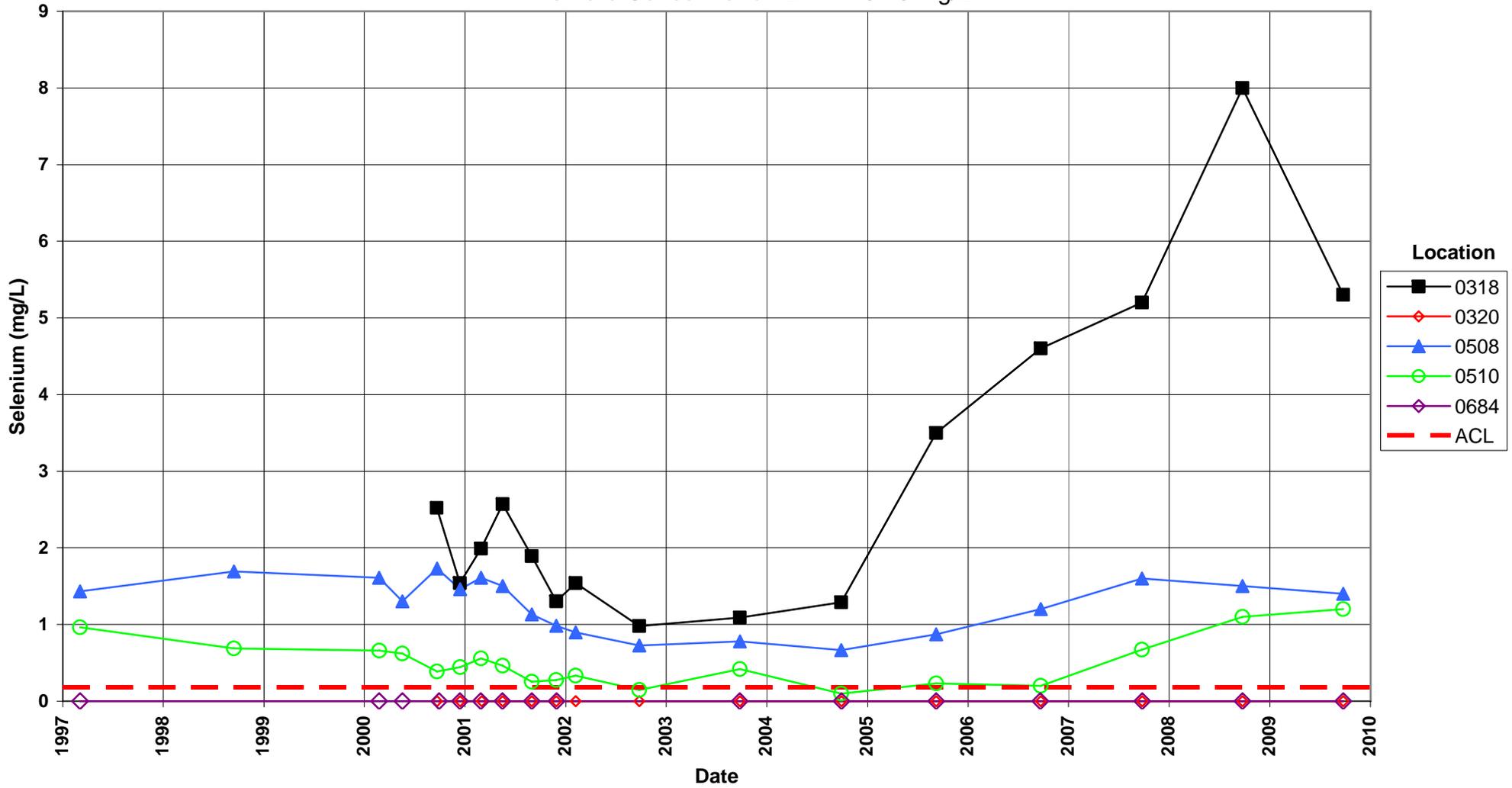
Slick Rock West Processing Site
Radium-226+228 Concentration
Maximum Concentration Limit = 5.0 pCi/L



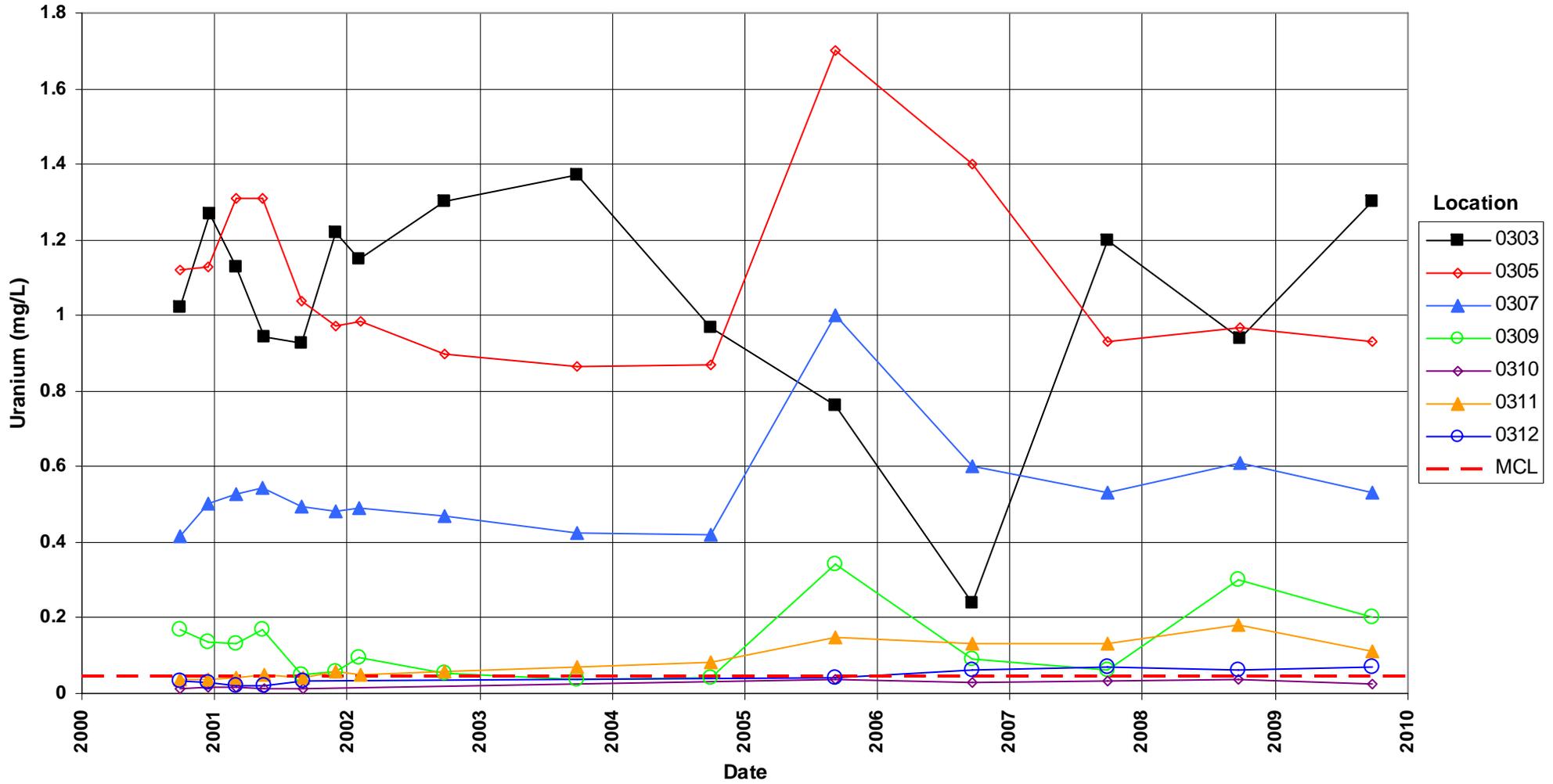
Slick Rock East Processing Site
Selenium Concentration
Maximum Concentration Limit = 0.01 mg/L



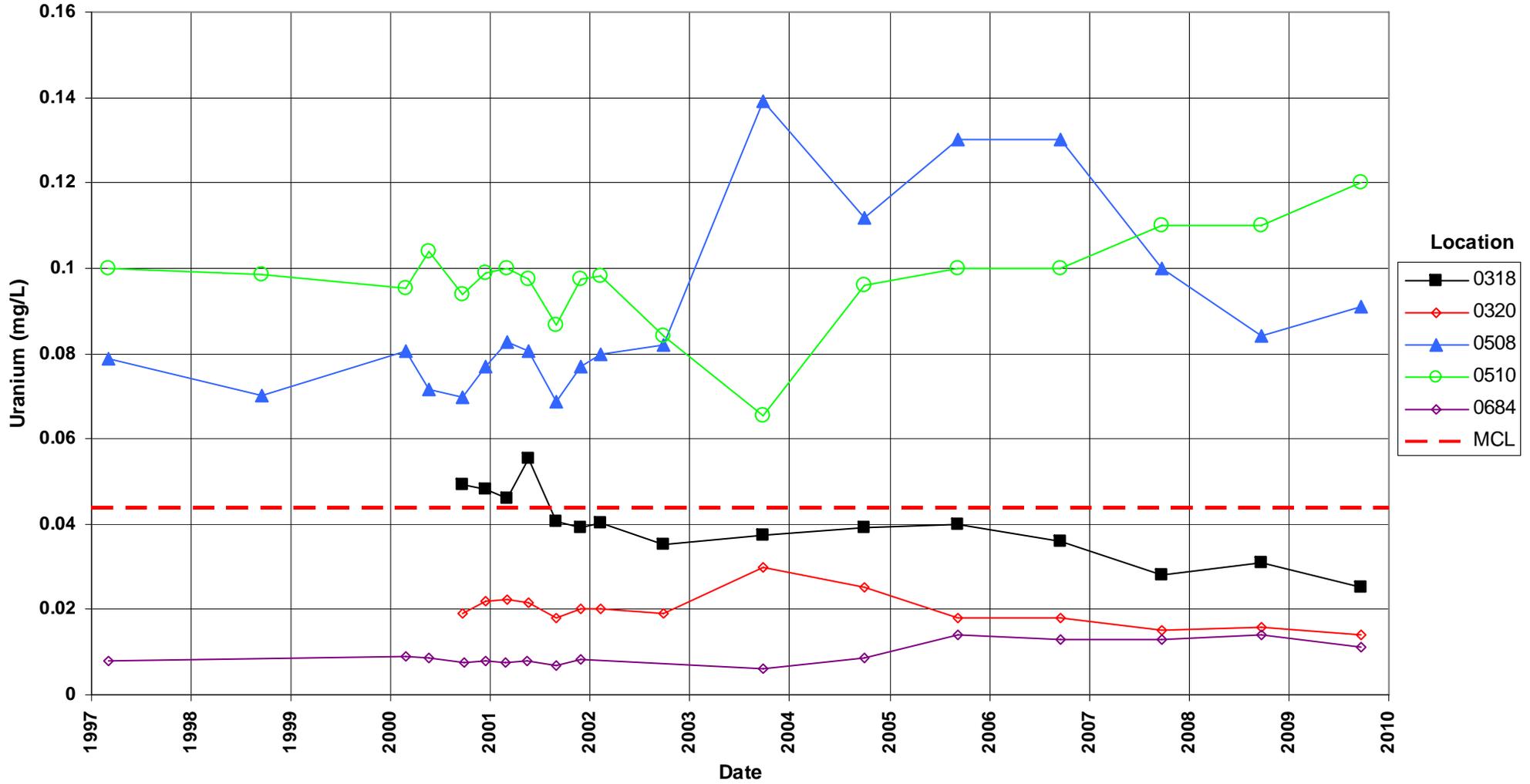
Slick Rock West Processing Site
Selenium Concentration
Alternate Concentration Limit = 0.18 mg/L



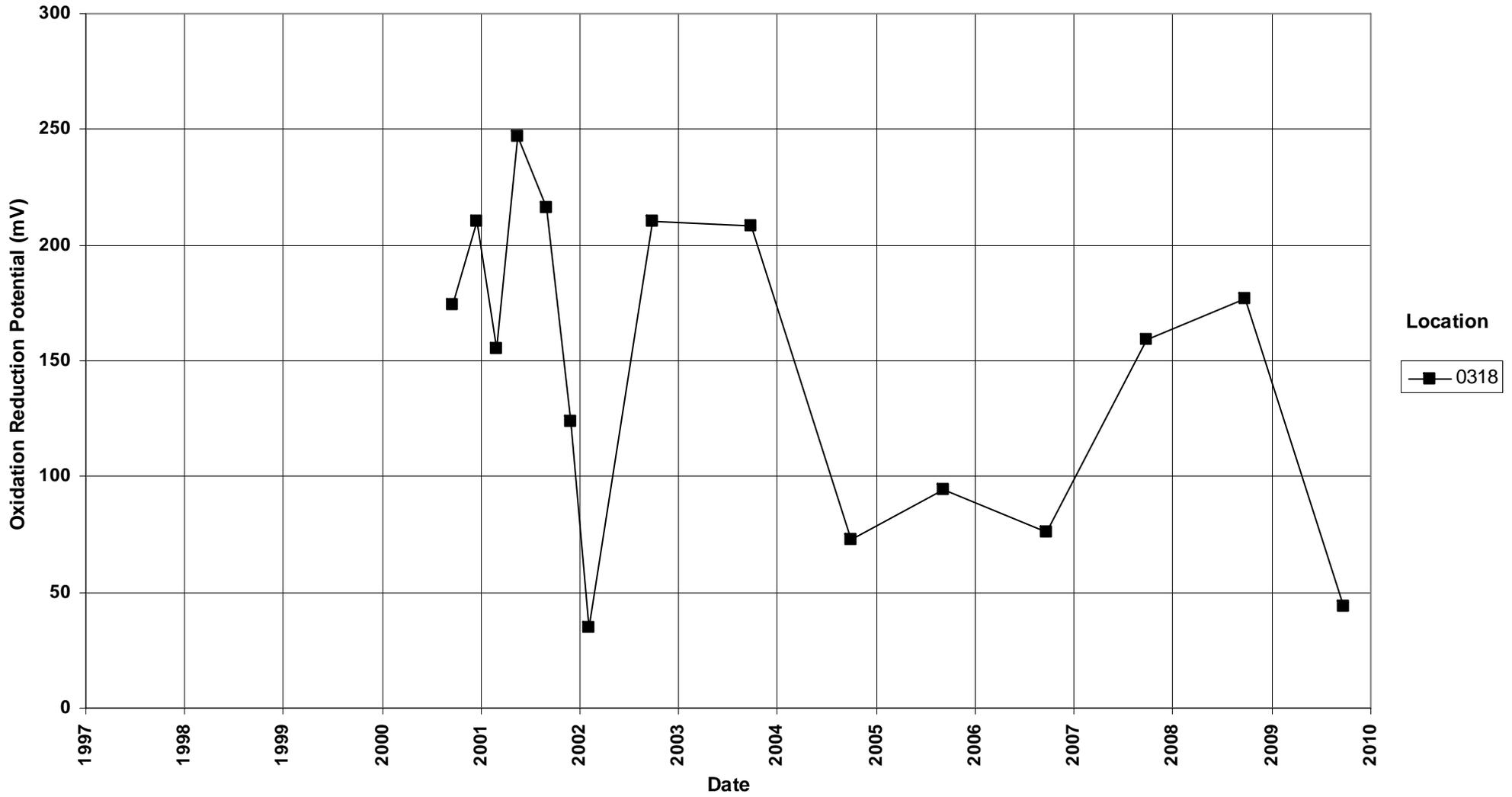
Slick Rock East Processing Site
Uranium Concentration
Maximum Concentration Limit = 0.044 mg/L



Slick Rock West Processing Site
Uranium Concentration
 Maximum Concentration Limit = 0.044 mg/L



Slick Rock West Processing Site
Oxidation Reduction Potential Concentration at Well 0318



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Attachment 3
Sampling and Analysis Work Order

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established 1959

Task Order LM00-501
Control Number 09-0998

August 19, 2009

U.S. Department of Energy
Office of Legacy Management
ATTN: Richard Bush
Site Manager
2597 B ¼ Road
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, Stoller
September 2009 Environmental Sampling Slick Rock, Colorado

REFERENCE: Task Order LM00-501-02-120-402, Slick Rock, CO, Site

Dear Mr. Bush:

The purpose of this letter is to inform you of the upcoming sampling event at Slick Rock, Colorado. Enclosed are the map and tables specifying sample locations and analytes for routine monitoring at the Slick Rock Site. Water quality data will be collected from monitor wells and surface locations at this site as part of the routine environmental sampling currently scheduled to begin the week of September 21, 2009.

The following lists show the locations scheduled to be sampled during this event.

Monitor Wells*

West Site

317 Je 318 Al 319 Al 320 Al 508 Al 510 Al 684 Al

East Site

303 Al 305 Al 307 Al 309 Al 310 Al 311 Al 312 Al

*NOTE: Al = Alluvium; Je = Jurassic Entrada Sandstone

Surface Water

West Site

347 349 693 694

East Site

692 696 700

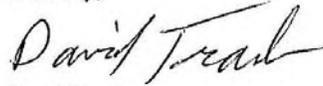
All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Access agreements are being reviewed and are expected to be complete by the beginning of fieldwork.

The S.M. Stoller Corporation 2597 B ¼ Road Grand Junction, CO 81503 (970) 248-6000 Fax: (970) 248-6040

Richard Bush
Control Number 09-0998
Page 2

Please call me at (970) 248-6557 if you have any questions.

Sincerely,



David Traub
Site Lead

DT/lcg/lb

Enclosures (3)

cc: (electronic)
Cheri Bahrke, Stoller
Steve Donovan, Stoller
Bev Gallagher, Stoller
Lauren Goodknight, Stoller
David Traub, Stoller
EDD Delivery
re-grand.junction

Constituent Sampling Breakdown

Site	Slick Rock		Required Detection Limit (mg/L)	Analytical Method	Line Item Code
	Groundwater	Surface Water			
Approx. No. Samples/yr	14	7			
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)					
Calcium					
Chloride					
Chromium					
Iron					
Lead					
Magnesium					
Manganese	0318, 0320, 0508, 0510, 0684	0347, 0349, 0693, 0694	0.005	SW-846 6010	LMM-01
Molybdenum	0318, 0320, 0508, 0510, 0684	0347, 0349, 0693, 0694	0.003	SW-846 6020	LMM-02
Nickel					
Nitrate + Nitrite as N (NO3+NO2)-N	0318, 0320, 0508, 0510, 0684	0347, 0349, 0693, 0694	0.05	EPA 353.1	WCH-A-022
Potassium					
Radium-226	0319				GPC-A-018
Radium-228	0319				GPC-A-020
Selenium	0305, 0307, 0318, 0320, 0508, 0510, 0684	0347, 0349, 0693, 0694	0.0001	SW-846 6020	LMM-02
Silica					
Sodium					
Strontium					
Total Dissolved Solids					
Uranium	0303, 0305, 0307, 0309, 0310, 0311, 0312, 0318, 0320, 0508, 0510, 0684	X	0.0001	SW-846 6020	LMM-02
Vanadium					
VOCs (BETX)	0319 only		0.005	SW-846 8260	VOA-A-009
Zinc					
Total No. of Analytes	8	5			

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

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Attachment 4 Trip Report

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Memorandum

DATE: December 21, 2009

TO: Dave Traub

FROM: Kent Moe

SUBJECT: Sampling Trip Report

Site: Slick Rock, Colorado — East and West sites (also well DM1 in Naturita)

Dates of Sampling Event: September 22-24, 2009

Team Members: Kent Moe and Joe Trevino

Number of Locations Sampled: 14 monitor wells and 7 surface locations.

Locations Not Sampled/Reason: All scheduled locations were sampled.

Location Specific Information:

Ticket Number	Location	Sample Date	Description	Notes
HKR 146	0310	9/23/09	Category I	
HKR 138	0311	9/23/09	Category I	
HKR 147	0312	9/23/09	Category I	
HKR 142	0694	9/23/09	Surface water	Filtered. Sampled by bailing with dedicated bottles.
HKR 141	0693	9/23/09	Surface water	Filtered. Sampled by bailing with dedicated bottles
HKR 144	0696	9/24/09	Surface water	Filtered. Sampled by bailing with dedicated bottles.
HKR 132	0684	9/23/09	Category I	
HKR 129	0320	9/23/09	Category I	
HKR 127	0319	9/22/09	Category I	
HKR 140	0349	9/23/09	Surface water	Filtered.
HKR 131	0510	9/23/09	Category I	
HKR 130	0508	9/23/09	Category I	
HKR 139	0347	9/23/09	Surface water	Filtered.
HKR 128	0318	9/23/09	Category I	
HKR 133	0317	9/23/09	Category I	
HKR 137	0309	9/24/09	Category I	
HKR 148	0700	9/24?09	Surface water	Filtered.

Ticket Number	Location	Sample Date	Description	Notes
HKR 135	0307	9/23/09	Category I	
HKR 143	0692	9/24/09	Surface water	Filtered.
HKR 134	0305	9/23/09	Category I	
HKR 136	0303	9/23/09	Category I	

Field Variance: Well DM 1 at Naturita was repaired and sampled on September 24; ticket number HKR 338. Also duplicate 2815, ticket number HKR 339, not filtered.

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

False ID	True ID	Sample Type	Associated Matrix	Ticket Number	Notes
2404	0508	Duplicate	Groundwater	HKR 150	
2498	0319	Duplicate	Groundwater	HKR 145	
2500	----	Trip Blank	Groundwater	HKR 149	Created in Bldg 32 (GJO) on 9/25/08 using boiled Milli-Q water.
2676	0684	Duplicate	Ground Water	HKR 151	Rinse water from hose reel that was used to collect surface water samples 0347, 0349, 0693, 0692, 0700.

RIN Number Assigned: All samples were assigned to RIN 09092580 for Slick Rock and 09092605 for Naturita.

Sample Shipment: Samples were shipped overnight by FedEx to ALS Laboratory, Fort Collins, CO, from Grand Junction, CO, on September 25, 2009.

Well Inspection Summary: Well inspections were conducted at all sampled wells. All wells were in good condition. Well 0684 had an active wasp nest inside the outer casing. The nest was sprayed with insecticide before sampling. Well 0319 emanates a strong fuel-like odor.

Equipment: The wells were sampled using the low-flow procedure with a peristaltic pump and the appropriate dedicated equipment.

Institutional Controls: All gates were appropriately closed and locked during the sampling event.

Fences, Gates, Locks: All were in good condition.

Signs: No missing or vandalized signs were observed.

Trespassing/Site Disturbances: N/A

Site Issues: None

Disposal Cell/Drainage Structure Integrity: N/A

Vegetation/Noxious Weed Concerns: None

Maintenance Requirements: In future events, brush may need to be pruned back at some locations.

Safety Issues: None.

Corrective Action Taken/Required: None.

(KLM/lcg)

cc: (electronic)
Rich Bush, DOE
Cheri Bahrke, Stoller
Steve Donovan, Stoller
EDD Delivery

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