Data Validation Package

April 2010
Groundwater and Surface Water Sampling at the Gunnison, Colorado, Processing Site

August 2010

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Sampling Event Summary

Site: Gunnison, Colorado, Processing Site

Sampling Period: April 12−15 and July 1, 2010

This event included annual sampling of wells and surface water locations at the Gunnison, Colorado, Processing Site. Sampling and analysis was conducted as specified in *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PLN/S04351, continually updated).

Samples were collected from 28 monitoring wells, four domestic wells, and six surface locations in April at the processing site as specified in the 2010 *Ground Water Compliance Action Plan for the Gunnison, Colorado, Processing Site*. Domestic wells 0476 and 0478 were sampled in July because the homes were vacant in April, and the wells were not in use. Domestic well 0469, which was included in the sampling letter, was not sampled because the residence is connected to the Dos Rios water system. This location will be removed from the long-term monitoring program. Duplicate samples were collected from locations 0006 and 0187. One equipment blank was collected during this sampling event. Water levels were measured at all monitoring wells that were sampled.

Manganese and uranium were selected as the constituents of potential concern at the Gunnison site because they exceeded a risk-based benchmark and a groundwater standard, respectively. A variety of tailings-related contaminants were monitored in the past, which were eliminated as constituents of potential concern because concentrations did not exceed groundwater standards and/or did not pose a significant risk to human health and the environment. Monitoring wells with sample concentrations that exceeded the U.S. Environmental Protection Agency (EPA) maximum contaminant level (MCL) for uranium (40 CFR 192) or the EPA drinking water equivalent level (DWEL) for manganese are listed in Table 1.

Time-concentration graphs for selected processing site monitoring wells are included with the analytical data. Time-concentration graphs for manganese indicate that concentrations of manganese in groundwater beneath and downgradient of the site are above the DWEL, but concentrations are generally decreasing with time. Time-concentration graphs for uranium indicate that concentrations of uranium in groundwater beneath and downgradient of the site are above the MCL, with concentrations decreasing in some portions of the aquifer and remaining constant or increasing in others.

Uranium concentrations in the six domestic wells sampled near the processing site were all below the EPA drinking water standard (0.030 milligrams per liter [mg/L]), and manganese concentrations in these wells were all below the DWEL.

Table 1. Gunnison Locations That Exceed the Uranium MCL and Manganese DWEL

Analyte	MCL[a]	DWEL[b]	Location	Concentration[c]
Uranium	0.044		0006	0.680
			0012R	0.310
			0013	0.091
			0113	0.150
			0183	0.060
Manganese		1.6	0105	3.8
			0106	5.4
			0112	4.9
			0113	2.0
			0135	2.6

[a]Uranium standard is listed in 40 CFR 192.04 Table 1 to Subpart A; units are in mg/L.
[b]DWEL from EPA 's *2006 Edition of the Drinking Water Standards and Health Advisories.*
[c]Units are in mg/L.

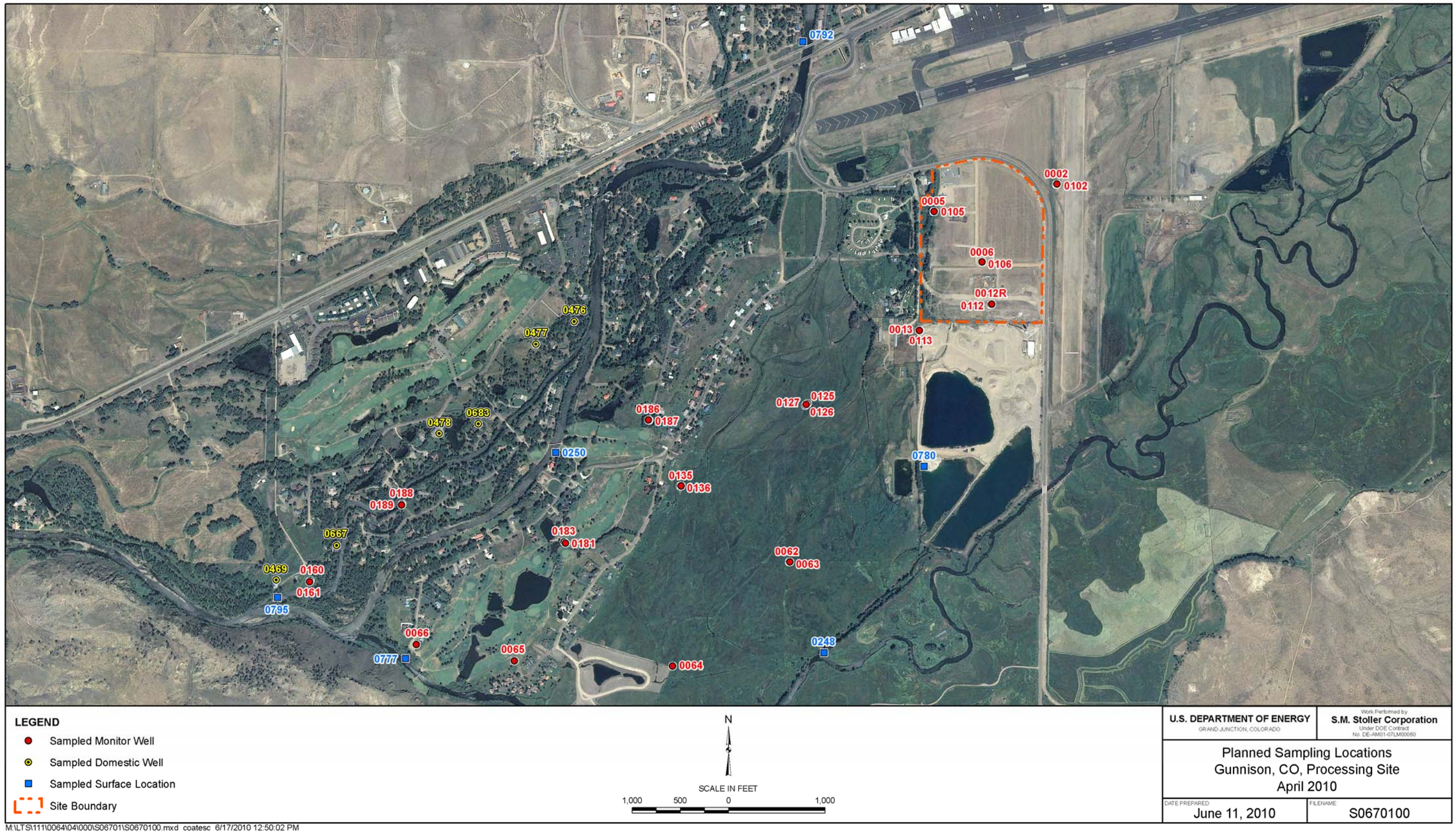
Surface water uranium concentrations were compared to a statistical benchmark derived from location 0792 data, which is located on the Gunnison River upstream from the site. The benchmark value is equal to the maximum concentration or the highest detection limit because there are more than 15 percent but less than 50 percent non-detects. The uranium concentration at the Gunnison River downstream location 0795 and south fork location 0250 were less than the benchmark value indicating minimal impact to the Gunnison River from site activities. Uranium concentration at the gravel pit pond (0780) is elevated compared to the benchmark as expected because the gravel pit is recharged by contaminated groundwater from the site. Uranium concentrations at Tomichi Creek locations (0248 and 0777) were elevated compared to the benchmark because Tomichi Creek receives discharge from the gravel pit pond.

Table 2. Comparison of Surface Water Uranium Concentrations to the Benchmark Value

Description	Location	Uranium Concentration (mg/L)	Benchmark Value
Tomichi Creek	0248	0.0059	0.0010
Gunnison River	0250	0.00078	
Tomichi Creek	0777	0.0045	
Valco Pond	0780	0.026	
Gunnison River	0795	0.00076	

Sam Campbell
Site Lead, S.M. Stoller

8-18-2010
Date



Gunnison, Colorado, Sample Location Map

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Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Gunnison, Colorado	**Date(s) of Water Sampling**	April 12-15 and July 1, 2010
Date(s) of Verification	June 2 and August 12, 2010	**Name of Verifier**	Steve Donivan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOPs, instructions.		Work Order Letter dated March 10, 2010.
2. Were the sampling locations specified in the planning documents sampled?	Yes	
3. Was a pre-trip calibration conducted as specified in the above-named documents?	Yes	Pre-trip calibration was performed on April 8, 2010.
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. Was the category of the well documented?	Yes	
7. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	
Was the flow rate less than 500 mL/min?	Yes	
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	NA	

Water Sampling Field Activities Verification Checklist (continued)

	Response (Yes, No, NA)	Comments
8. Were the following conditions met when purging a Category II well:		
Was the flow rate less than 500 mL/min?	Yes	
Was one pump/tubing volume removed prior to sampling?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	Duplicate samples were collected from locations 0006 and 0187.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	Yes	One equipment blank was collected.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	
Was the true identity of the samples recorded on the Quality Assurance Sample Log or in the Field Data Collection System (FDCS) report?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Are field data sheets signed and dated by both team members (hardcopies) or are dates present for the “Date Signed” fields (FDCS)?	Yes	
18. Was all other pertinent information documented on the field data sheets?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	NA	Sample cooling was not required.
20. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Report Number (RIN): 10032954
Sample Event: April 12-15, 2010
Site(s): Gunnison, Colorado
Laboratory: ALS Laboratory Group, Fort Collins, Colorado
Work Order No.: 1004181
Analysis: Metals
Validator: Steve Donivan
Review Date: June 2, 2010

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

Table 3. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Manganese, Mn	LMM-01	SW-846 3005A	SW-846 6010B
Uranium, U	LMM-02	SW-846 3005A	SW-846 6020A

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received 41 water samples on April 20, 2010, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the forms and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC form, and the sample tickets had no errors or omissions with the following exception. The relinquishment signature appeared on only one of the three pages for the COC form. Copies of the air waybill labels were included with the receiving documentation.

Preservation and Holding Times

The sample shipments were received intact at ambient temperature, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses and all samples were analyzed within the applicable holding times.

Data Qualifier Summary

The analytical results were qualified as listed in Table 4. Refer to the sections below for an explanation of the data qualifiers applied.

Table 4. Data Qualifier Summary

Sample Number	Location	Analyte	Flag	Reason
1004181-1	0002	Mn	U	Less than 5 times the calibration blank
1004181-32	0479	Mn	U	Less than 5 times the calibration blank
1004181-33	0667	Mn	U	Less than 5 times the calibration blank
1004181-40	Equipment Blank	Mn	U	Less than 5 times the method blank
1004181-40	Equipment Blank	U	U	Less than 5 times the method blank

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 SW-846 6010M, Manganese
Calibrations were performed for manganese on May 5 and 6, 2010. The initial calibrations were performed using one standard and a blank. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 26 verification checks. All initial and continuing calibration verification results were within the acceptance range. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curves near the practical quantitation limit (PQL). All check results were within the acceptance range.

Method SW-846 6020A, Uranium
Calibration was performed for uranium on May 5, 2010. The initial calibration was performed using seven calibration standards resulting in a calibration curve with a correlation coefficient (r^2) value greater than 0.995. The absolute value of the curve intercept was less than 3 times the method detection limit. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in ten verification checks. All initial and continuing calibration verification results were within the acceptance range. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curves near the PQL. All check results were within the acceptance range. The mass calibration and resolution was checked at the beginning of each analytical run in accordance with the procedure. Internal standard recoveries were stable and within acceptance ranges.

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 initial and continuing calibration blank results were below the PQLs for manganese and uranium. In cases where blank concentration exceeds

the instrument detection limit, the associated sample results are qualified with a "U" flag (not detected) when the sample result is greater than the method detection limit but less than 5 times the blank concentration.

Inductively Coupled Plasma Interference Check Sample Analysis

Inductively coupled plasma 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 pairs were analyzed for manganese and uranium as a measure of method performance in the sample matrix. The matrix spike and matrix spike duplicate recoveries met the acceptance criteria for both analytes.

Laboratory Replicate Analysis

The relative percent difference values for the laboratory replicate sample results for all analytes were less than twenty percent, indicating acceptable laboratory precision.

Laboratory Control Samples

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

Metals Serial Dilution

Serial dilutions were performed during the metals analysis to monitor physical or chemical interferences that may exist in the sample matrix. Serial dilutions were prepared and analyzed for manganese and uranium. The acceptance criteria were met for both analytes.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved for both analytes.

Completeness

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

Electronic Data Deliverable (EDD) File

The EDD file arrived on May 18, 2010. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements.

The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 10032954 **Lab Code:** PAR **Validator:** Steve Donivan **Validation Date:** 6/2/2010

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

# of Samples: 41 **Matrix:** WATER **Requested Analysis Completed:** Yes

Chain of Custody

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

Sample

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

Select Quality Parameters

☑ Holding Times	All analyses were completed within the applicable holding times.
☑ Detection Limits	The reported detection limits are equal to or below contract requirements.
☑ Field/Trip Blanks	There was 1 trip/equipment blank evaluated.
☑ Field Duplicates	There were 2 duplicates evaluated.

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 10032954 **Lab Code:** PAR **Date Due:** 5/18/2010

Matrix: Water **Site Code:** GUN **Date Completed:** 5/19/2010

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
MANGANESE	05/05/2010			OK	OK	OK	OK	OK	102.0	98.0	97.0	1.0	95.0		104.0
MANGANESE	05/06/2010			OK	OK	OK	OK	OK	101.0	97.0	98.0	1.0	95.0		105.0
URANIUM	05/05/2010	0.0000	1.0000	OK	OK	OK	OK	OK	111.0	108.0	107.0	1.0	105.0	0.0	101.0
URANIUM	05/05/2010							OK	107.0	102.0	101.0	0.0		5.0	
URANIUM	05/05/2010									116.0	113.0	1.0		4.0	

General Information

Report Number (RIN): 10063192
Sample Event: July 1, 2010
Site(s): Gunnison, Colorado
Laboratory: ALS Laboratory Group, Fort Collins, Colorado
Work Order No.: 1006064
Analysis: Metals
Validator: Steve Donivan
Review Date: August 12, 2010

This validation was performed according to the *Environmental Procedures Catalog* (LMS/PRO/S04325, continually updated), "Standard Practice for Validation of Laboratory Data." The procedure was applied at Level 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 5.

Table 5. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Manganese, Mn	LMM-01	SW-846 3005A	SW-846 6010B
Uranium, U	LMM-02	SW-846 3005A	SW-846 6020A

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado received two water samples on July 7, 2010, accompanied by a COC form. The COC form was checked to confirm that all of the samples were listed on the forms and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC form, and the sample tickets had no errors or omissions. Copies of the air waybill labels were included with the receiving documentation.

Preservation and Holding Times

The sample shipments were received intact at ambient temperature, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses and all samples were analyzed within the applicable holding times.

Data Qualifier Summary

None of the analytical results required qualification.

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 SW-846 6010M, Manganese
Calibrations were performed for manganese on July 19, 2010. The initial calibration was performed using one standard and a blank. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 29 verification checks. All initial and continuing calibration verification results were within the acceptance range. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curves near the practical quantitation limit. All check results were within the acceptance range.

Method SW-846 6020A, Uranium
Calibration was performed for uranium on July 20, 2010. The initial calibration was performed using seven calibration standards resulting in a calibration curve with an r^2 value greater than 0.995. The absolute value of the curve intercept was less than three times the method detection limit. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in nine verification checks. All initial and continuing calibration verification results were within the acceptance range. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curves near the practical quantitation limit. All check results were within the acceptance range. The mass calibration and resolution was checked at the beginning of each analytical run in accordance with the procedure. Internal standard recoveries were stable and within acceptance ranges.

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 initial and continuing calibration blank results were below the practical quantitation limits for manganese and uranium.

ICP 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 manganese and uranium as a measure of method performance in the sample matrix. The MS/MSD recoveries met the acceptance criteria for both analytes.

Laboratory Replicate Analysis

The relative percent difference values for the laboratory replicate sample results for all analytes were less than twenty percent, indicating acceptable laboratory precision.

Laboratory Control Sample (LCS)

LCSs were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The LCS results were acceptable for both analysis.

Metals Serial Dilution

Serial dilutions were performed during the metals analysis to monitor physical or chemical interferences that may exist in the sample matrix. Serial dilutions were prepared and analyzed for manganese and uranium. The acceptance criteria were met for both analytes.

Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limits were achieved for both analytes.

Completeness

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

EDD File

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

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 10063192 **Lab Code:** PAR **Validator:** Steve Donivan **Validation Date:** 8/12/2010

Project: Gunnison **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
- ☑ Detection Limits
- ☐ Field/Trip Blanks
- ☐ Field Duplicates

All analyses were completed within the applicable holding times.

The reported detection limits are equal to or below contract requirements.

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 10063192 **Lab Code:** PAR **Date Due:** 7/21/2010

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

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
MANGANESE	07/19/2010			OK	OK	OK	OK	OK	101.0	100.0	98.0	2.0	89.0		97.0
URANIUM	07/20/2010	0.0000	1.0000	OK	OK	OK	OK	OK	102.0	106.0	105.0	1.0	100.0	1.0	100.0

Sampling Quality Control Assessment

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

Sampling Protocol

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

The groundwater sample results for wells 0136 and 0189 were qualified with a "Q" flag in the database indicating the data are considered qualitative because the wells were sampled using Category II criteria.

The turbidity exceeded 10 NTUs at the time of sampling at groundwater location 0136 and surface water locations 0248, 0777, and 0780. The samples collected from these locations were field filtered.

Equipment Blank Assessment

Equipment blanks are prepared and analyzed to document contamination attributable to the sample collection process. One equipment blank was collected after sampling at surface location 0780. There were no analytes detected in this 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. 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 the PQL, the range should be no greater than the PQL. Duplicate samples were collected from locations 0006 and 0187. The duplicate results met these criteria, demonstrating acceptable overall precision.

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

RIN: 10032954 **Lab Code:** PAR **Project:** Gunnison **Validation Date:** 6/2/2010

Duplicate: 2597 **Sample:** 0187

Analyte	Sample Result	Sample Flag	Sample Error	Sample Dilution	Duplicate Result	Duplicate Flag	Duplicate Error	Duplicate Dilution	RPD	RER	Units
MANGANESE	1100			1	1100			1	0		UG/L
URANIUM	15			10	14			10	6.90		UG/L

Duplicate: 2748 **Sample:** 0006

Analyte	Sample Result	Sample Flag	Sample Error	Sample Dilution	Duplicate Result	Duplicate Flag	Duplicate Error	Duplicate Dilution	RPD	RER	Units
MANGANESE	110			1	110			1	0		UG/L
URANIUM	680			200	690			200	1.46		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 — Date: 8-18-2010

Data Validation Lead: Steve Donivan — Date: 8-18-2010

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.

The manganese concentrations at surface water locations 0792 and 0795 were identified as potential outliers. A higher degree of variability in the data is expected in surface water samples and the data from this sampling event are acceptable as qualified.

Data Validation Outliers Report - No Field Parameters
Comparison: All Historical Data
Laboratory: ALS Laboratory Group
RIN: 10032954
Report Date: 6/2/2010

					Current			Historical Maximum			Historical Minimum			Number of Data Points		Statistical Outlier
						Qualifiers			Qualifiers			Qualifiers				
Site Code	Location Code	Sample ID	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect	
GUN01	0062	N001	04/15/2010	Manganese	0.0029	B	F	0.083		F	0.0044	B	F	5	0	No
GUN01	0064	N001	04/15/2010	Uranium	0.01		F	0.019		F	0.011		F	5	0	No
GUN01	0065	N001	04/13/2010	Manganese	0.017		F	0.62		FQ	0.033		F	5	0	No
GUN01	0127	N001	04/14/2010	Uranium	0.016		F	0.053			0.017		F	27	0	No
GUN01	0135	N001	04/15/2010	Manganese	2.6		F	4.4			2.8		F	8	0	No
GUN01	0161	N001	04/14/2010	Uranium	0.02		F	0.019		F	0.003	U		28	1	No
GUN01	0181	N001	04/13/2010	Manganese	1.5		F	0.89		F	0.01	U		30	1	No
GUN01	0181	N001	04/13/2010	Uranium	0.01		F	0.069			0.011		F	29	0	No
GUN01	0792	N001	04/12/2010	Manganese	0.073			0.0321			0.0099	B		18	0	Yes
GUN01	0795	N001	04/14/2010	Manganese	0.042			0.032			0.0068	B		17	0	Yes

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

Attachment 2
Data Presentation

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Groundwater Quality Data

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Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0002 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	N001	10	-	15	0.00095	B	UF	#	0.00011	
Oxidation Reduction Potential	mV	04/13/2010	N001	10	-	15	203.3		F	#		
pH	s.u.	04/13/2010	N001	10	-	15	7.36		F	#		
Specific Conductance	umhos /cm	04/13/2010	N001	10	-	15	552		F	#		
Temperature	C	04/13/2010	N001	10	-	15	6.22		F	#		
Turbidity	NTU	04/13/2010	N001	10	-	15	1.42		F	#		
Uranium	mg/L	04/13/2010	N001	10	-	15	0.0025		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0005 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	10	-	15	0.12		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	10	-	15	96.3		F	#		
pH	s.u.	04/14/2010	N001	10	-	15	7.24		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	10	-	15	424		F	#		
Temperature	C	04/14/2010	N001	10	-	15	4.7		F	#		
Turbidity	NTU	04/14/2010	N001	10	-	15	5.01		F	#		
Uranium	mg/L	04/14/2010	N001	10	-	15	0.018		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0006 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	10	-	15	0.11		F	#	0.00011	
Manganese	mg/L	04/14/2010	N002	10	-	15	0.11		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	10	-	15	91.1		F	#		
pH	s.u.	04/14/2010	N001	10	-	15	6.94		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	10	-	15	2151		F	#		
Temperature	C	04/14/2010	N001	10	-	15	6.26		F	#		
Turbidity	NTU	04/14/2010	N001	10	-	15	4.14		F	#		
Uranium	mg/L	04/14/2010	N001	10	-	15	0.68		F	#	0.000035	
Uranium	mg/L	04/14/2010	N002	10	-	15	0.69		F	#	0.000035	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0012R WELL Replacement well for 0012, broken casing, decommissioned

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	6.03	-	16	0.24		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	6.03	-	16	91.8		F	#		
pH	s.u.	04/14/2010	N001	6.03	-	16	6.93		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	6.03	-	16	1238		F	#		
Temperature	C	04/14/2010	N001	6.03	-	16	6.73		F	#		
Turbidity	NTU	04/14/2010	N001	6.03	-	16	4.87		F	#		
Uranium	mg/L	04/14/2010	N001	6.03	-	16	0.31		F	#	0.000035	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0013 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	N001	11	-	16	0.08		F	#	0.00011	
Oxidation Reduction Potential	mV	04/13/2010	N001	11	-	16	115.6		F	#		
pH	s.u.	04/13/2010	N001	11	-	16	7.28		F	#		
Specific Conductance	umhos /cm	04/13/2010	N001	11	-	16	840		F	#		
Temperature	C	04/13/2010	N001	11	-	16	6.15		F	#		
Turbidity	NTU	04/13/2010	N001	11	-	16	2.31		F	#		
Uranium	mg/L	04/13/2010	N001	11	-	16	0.091		F	#	0.000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0062 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/15/2010	N001	47.9	-	57.9	0.0029	B	F	#	0.00011	
Oxidation Reduction Potential	mV	04/15/2010	N001	47.9	-	57.9	190		F	#		
pH	s.u.	04/15/2010	N001	47.9	-	57.9	7.49		F	#		
Specific Conductance	umhos /cm	04/15/2010	N001	47.9	-	57.9	517		F	#		
Temperature	C	04/15/2010	N001	47.9	-	57.9	6.8		F	#		
Turbidity	NTU	04/15/2010	N001	47.9	-	57.9	0.88		F	#		
Uranium	mg/L	04/15/2010	N001	47.9	-	57.9	0.0085		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0063 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/15/2010	N001	87.9	-	97.9	0.031		F	#	0.00011	
Oxidation Reduction Potential	mV	04/15/2010	N001	87.9	-	97.9	180.2		F	#		
pH	s.u.	04/15/2010	N001	87.9	-	97.9	7.54		F	#		
Specific Conductance	umhos /cm	04/15/2010	N001	87.9	-	97.9	487		F	#		
Temperature	C	04/15/2010	N001	87.9	-	97.9	8.66		F	#		
Turbidity	NTU	04/15/2010	N001	87.9	-	97.9	9.48		F	#		
Uranium	mg/L	04/15/2010	N001	87.9	-	97.9	0.012		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0064 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/15/2010	N001	86.7	-	96.7	0.0092		F	#	0.00011	
Oxidation Reduction Potential	mV	04/15/2010	N001	86.7	-	96.7	153.6		F	#		
pH	s.u.	04/15/2010	N001	86.7	-	96.7	7.43		F	#		
Specific Conductance	umhos /cm	04/15/2010	N001	86.7	-	96.7	466		F	#		
Temperature	C	04/15/2010	N001	86.7	-	96.7	8.97		F	#		
Turbidity	NTU	04/15/2010	N001	86.7	-	96.7	3.68		F	#		
Uranium	mg/L	04/15/2010	N001	86.7	-	96.7	0.01		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0065 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	N001	49.7	-	59.7	0.017		F	#	0.00011	
Oxidation Reduction Potential	mV	04/13/2010	N001	49.7	-	59.7	81.8		F	#		
pH	s.u.	04/13/2010	N001	49.7	-	59.7	7.46		F	#		
Specific Conductance	umhos /cm	04/13/2010	N001	49.7	-	59.7	699		F	#		
Temperature	C	04/13/2010	N001	49.7	-	59.7	7.47		F	#		
Turbidity	NTU	04/13/2010	N001	49.7	-	59.7	6.45		F	#		
Uranium	mg/L	04/13/2010	N001	49.7	-	59.7	0.031		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0066 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/12/2010	N001	40.2	-	50.2	0.032		F	#	0.00011	
Oxidation Reduction Potential	mV	04/12/2010	N001	40.2	-	50.2	173.6		F	#		
pH	s.u.	04/12/2010	N001	40.2	-	50.2	7.16		F	#		
Specific Conductance	umhos /cm	04/12/2010	N001	40.2	-	50.2	699		F	#		
Temperature	C	04/12/2010	N001	40.2	-	50.2	8.62		F	#		
Turbidity	NTU	04/12/2010	N001	40.2	-	50.2	6.05		F	#		
Uranium	mg/L	04/12/2010	N001	40.2	-	50.2	0.024		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0102 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	N001	42	-	47	0.0068		F	#	0.00011	
Oxidation Reduction Potential	mV	04/13/2010	N001	42	-	47	166.4		F	#		
pH	s.u.	04/13/2010	N001	42	-	47	7.49		F	#		
Specific Conductance	umhos /cm	04/13/2010	N001	42	-	47	573		F	#		
Temperature	C	04/13/2010	N001	42	-	47	8.52		F	#		
Turbidity	NTU	04/13/2010	N001	42	-	47	3.27		F	#		
Uranium	mg/L	04/13/2010	N001	42	-	47	0.0043		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0105 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	42	-	47	3.8		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	42	-	47	107		F	#		
pH	s.u.	04/14/2010	N001	42	-	47	6.71		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	42	-	47	506		F	#		
Temperature	C	04/14/2010	N001	42	-	47	7.65		F	#		
Turbidity	NTU	04/14/2010	N001	42	-	47	2.01		F	#		
Uranium	mg/L	04/14/2010	N001	42	-	47	0.013		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0106 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	34	-	39	5.4		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	34	-	39	96.9		F	#		
pH	s.u.	04/14/2010	N001	34	-	39	6		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	34	-	39	1816		F	#		
Temperature	C	04/14/2010	N001	34	-	39	8.37		F	#		
Turbidity	NTU	04/14/2010	N001	34	-	39	8.02		F	#		
Uranium	mg/L	04/14/2010	N001	34	-	39	0.011		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0112 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	40	-	45	4.9		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	40	-	45	83.6		F	#		
pH	s.u.	04/14/2010	N001	40	-	45	6.31		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	40	-	45	909		F	#		
Temperature	C	04/14/2010	N001	40	-	45	9.25		F	#		
Turbidity	NTU	04/14/2010	N001	40	-	45	9.77		F	#		
Uranium	mg/L	04/14/2010	N001	40	-	45	0.042		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0113 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	N001	41	-	46	2		F	#	0.00011	
Oxidation Reduction Potential	mV	04/13/2010	N001	41	-	46	126.4		F	#		
pH	s.u.	04/13/2010	N001	41	-	46	7.09		F	#		
Specific Conductance	umhos /cm	04/13/2010	N001	41	-	46	621		F	#		
Temperature	C	04/13/2010	N001	41	-	46	8.62		F	#		
Turbidity	NTU	04/13/2010	N001	41	-	46	2.69		F	#		
Uranium	mg/L	04/13/2010	N001	41	-	46	0.15		F	#	0.0000088	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0125 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	17.8	-	22.8	0.01		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	17.8	-	22.8	-.1		F	#		
pH	s.u.	04/14/2010	N001	17.8	-	22.8	7.32		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	17.8	-	22.8	480		F	#		
Temperature	C	04/14/2010	N001	17.8	-	22.8	9.22		F	#		
Turbidity	NTU	04/14/2010	N001	17.8	-	22.8	0.77		F	#		
Uranium	mg/L	04/14/2010	N001	17.8	-	22.8	0.01		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0126 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	54	-	59	0.018		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	54	-	59	20.8		F	#		
pH	s.u.	04/14/2010	N001	54	-	59	7.21		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	54	-	59	615		F	#		
Temperature	C	04/14/2010	N001	54	-	59	9.42		F	#		
Turbidity	NTU	04/14/2010	N001	54	-	59	2.56		F	#		
Uranium	mg/L	04/14/2010	N001	54	-	59	0.01		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0127 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	94	-	99	0.0025	B	F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	94	-	99	34		F	#		
pH	s.u.	04/14/2010	N001	94	-	99	7.23		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	94	-	99	698		F	#		
Temperature	C	04/14/2010	N001	94	-	99	9.48		F	#		
Turbidity	NTU	04/14/2010	N001	94	-	99	1.42		F	#		
Uranium	mg/L	04/14/2010	N001	94	-	99	0.016		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0135 WELL Well is knocked over!!

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/15/2010	N001	18	-	23	2.6		F	#	0.00011	
Oxidation Reduction Potential	mV	04/15/2010	N001	18	-	23	30		F	#		
pH	s.u.	04/15/2010	N001	18	-	23	6.95		F	#		
Specific Conductance	umhos /cm	04/15/2010	N001	18	-	23	392		F	#		
Temperature	C	04/15/2010	N001	18	-	23	7.56		F	#		
Turbidity	NTU	04/15/2010	N001	18	-	23	1.35		F	#		
Uranium	mg/L	04/15/2010	N001	18	-	23	0.0018		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0136 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/15/2010	0001	53	-	58	0.16		FQ	#	0.00011	
Oxidation Reduction Potential	mV	04/15/2010	N001	53	-	58	69.9		FQ	#		
pH	s.u.	04/15/2010	N001	53	-	58	7.99		FQ	#		
Specific Conductance	umhos /cm	04/15/2010	N001	53	-	58	649		FQ	#		
Temperature	C	04/15/2010	N001	53	-	58	8.43		FQ	#		
Turbidity	NTU	04/15/2010	N001	53	-	58	29.4		FQ	#		
Uranium	mg/L	04/15/2010	0001	53	-	58	0.016		FQ	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0160 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	51	-	56	0.013		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	51	-	56	88.9		F	#		
pH	s.u.	04/14/2010	N001	51	-	56	6.73		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	51	-	56	813		F	#		
Temperature	C	04/14/2010	N001	51	-	56	7.17		F	#		
Turbidity	NTU	04/14/2010	N001	51	-	56	2.66		F	#		
Uranium	mg/L	04/14/2010	N001	51	-	56	0.024		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0161 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	93	-	98	0.0079		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	93	-	98	86.6		F	#		
pH	s.u.	04/14/2010	N001	93	-	98	6.74		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	93	-	98	810		F	#		
Temperature	C	04/14/2010	N001	93	-	98	8.45		F	#		
Turbidity	NTU	04/14/2010	N001	93	-	98	3.4		F	#		
Uranium	mg/L	04/14/2010	N001	93	-	98	0.02		F	#	0.0000088	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0181 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	N001	18	-	23	1.5		F	#	0.00011	
Oxidation Reduction Potential	mV	04/13/2010	N001	18	-	23	117		F	#		
pH	s.u.	04/13/2010	N001	18	-	23	7.14		F	#		
Specific Conductance	umhos /cm	04/13/2010	N001	18	-	23	504		F	#		
Temperature	C	04/13/2010	N001	18	-	23	6.39		F	#		
Turbidity	NTU	04/13/2010	N001	18	-	23	9.76		F	#		
Uranium	mg/L	04/13/2010	N001	18	-	23	0.01		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0183 WELL Casing bent.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	N001	93	-	98	0.012		F	#	0.00011	
Oxidation Reduction Potential	mV	04/13/2010	N001	93	-	98	100.2		F	#		
pH	s.u.	04/13/2010	N001	93	-	98	6.77		F	#		
Specific Conductance	umhos /cm	04/13/2010	N001	93	-	98	1101		F	#		
Temperature	C	04/13/2010	N001	93	-	98	8.57		F	#		
Turbidity	NTU	04/13/2010	N001	93	-	98	9.82		F	#		
Uranium	mg/L	04/13/2010	N001	93	-	98	0.06		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0186 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/12/2010	N001	53	-	58	0.0053		F	#	0.00011	
Oxidation Reduction Potential	mV	04/12/2010	N001	53	-	58	25.9		F	#		
pH	s.u.	04/12/2010	N001	53	-	58	8.23		F	#		
Specific Conductance	umhos /cm	04/12/2010	N001	53	-	58	543		F	#		
Temperature	C	04/12/2010	N001	53	-	58	8.46		F	#		
Turbidity	NTU	04/12/2010	N001	53	-	58	7.63		F	#		
Uranium	mg/L	04/12/2010	N001	53	-	58	0.019		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0187 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/12/2010	N001	93	-	98	1.1		F	#	0.00011	
Manganese	mg/L	04/12/2010	N002	93	-	98	1.1		F	#	0.00011	
Oxidation Reduction Potential	mV	04/12/2010	N001	93	-	98	23.8		F	#		
pH	s.u.	04/12/2010	N001	93	-	98	6.57		F	#		
Specific Conductance	umhos /cm	04/12/2010	N001	93	-	98	834		F	#		
Temperature	C	04/12/2010	N001	93	-	98	8.31		F	#		
Turbidity	NTU	04/12/2010	N001	93	-	98	1.31		F	#		
Uranium	mg/L	04/12/2010	N001	93	-	98	0.015		F	#	0.0000018	
Uranium	mg/L	04/12/2010	N002	93	-	98	0.014		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0188 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	53	-	58	0.006		F	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	53	-	58	-13.3		F	#		
pH	s.u.	04/14/2010	N001	53	-	58	7.28		F	#		
Specific Conductance	umhos /cm	04/14/2010	N001	53	-	58	814		F	#		
Temperature	C	04/14/2010	N001	53	-	58	8.13		F	#		
Turbidity	NTU	04/14/2010	N001	53	-	58	5.29		F	#		
Uranium	mg/L	04/14/2010	N001	53	-	58	0.04		F	#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0189 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	93	-	98	0.82		FQ	#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	93	-	98	32.5		FQ	#		
pH	s.u.	04/14/2010	N001	93	-	98	6.24		FQ	#		
Specific Conductance	umhos /cm	04/14/2010	N001	93	-	98	2053		FQ	#		
Temperature	C	04/14/2010	N001	93	-	98	8.33		FQ	#		
Turbidity	NTU	04/14/2010	N001	93	-	98	2.84		FQ	#		
Uranium	mg/L	04/14/2010	N001	93	-	98	0.016		FQ	#	0.0000018	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site

REPORT DATE: 8/12/2010

Location: 0476 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	07/01/2010	N001	-	0.0024	B		#	0.00011	
Oxidation Reduction Potential	mV	07/01/2010	N001	-	180			#		
pH	s.u.	07/01/2010	N001	-	7.16			#		
Specific Conductance	umhos /cm	07/01/2010	N001	-	230			#		
Temperature	C	07/01/2010	N001	-	15.7			#		
Turbidity	NTU	07/01/2010	N001	-	2.25			#		
Uranium	mg/L	07/01/2010	N001	-	0.0015			#	0.000029	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0477 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	-	0.03			#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	-	47.1			#		
pH	s.u.	04/14/2010	N001	-	7.4			#		
Specific Conductance	umhos /cm	04/14/2010	N001	-	230			#		
Temperature	C	04/14/2010	N001	-	11.62			#		
Turbidity	NTU	04/14/2010	N001	-	2.17			#		
Uranium	mg/L	04/14/2010	N001	-	0.0012			#	0.0000018	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site

REPORT DATE: 8/12/2010

Location: 0478 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	07/01/2010	N001	-	0.51			#	0.00011	
Oxidation Reduction Potential	mV	07/01/2010	N001	-	175			#		
pH	s.u.	07/01/2010	N001	-	7.1			#		
Specific Conductance	umhos /cm	07/01/2010	N001	-	290			#		
Temperature	C	07/01/2010	N001	-	20.1			#		
Turbidity	NTU	07/01/2010	N001	-	2.59			#		
Uranium	mg/L	07/01/2010	N001	-	0.0026			#	0.000029	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0479 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	N001	-	0.0016	B	U	#	0.00011	
Oxidation Reduction Potential	mV	04/13/2010	N001	-	123.5			#		
pH	s.u.	04/13/2010	N001	-	7.35			#		
Specific Conductance	umhos /cm	04/13/2010	N001	-	209			#		
Temperature	C	04/13/2010	N001	-	14.28			#		
Turbidity	NTU	04/13/2010	N001	-	1.82			#		
Uranium	mg/L	04/13/2010	N001	-	0.00095			#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0667 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	N001	-	0.0006	B	U	#	0.00011	
Oxidation Reduction Potential	mV	04/13/2010	N001	-	111.7			#		
pH	s.u.	04/13/2010	N001	-	7.73			#		
Specific Conductance	umhos /cm	04/13/2010	N001	-	217			#		
Temperature	C	04/13/2010	N001	-	8.91			#		
Turbidity	NTU	04/13/2010	N001	-	1.89			#		
Uranium	mg/L	04/13/2010	N001	-	0.0018			#	0.0000018	

Groundwater Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0683 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	N001	-	0.0016	B		#	0.00011	
Oxidation Reduction Potential	mV	04/13/2010	N001	-	179.6			#		
pH	s.u.	04/13/2010	N001	-	6.93			#		
Specific Conductance	umhos /cm	04/13/2010	N001	-	324			#		
Temperature	C	04/13/2010	N001	-	14.36			#		
Turbidity	NTU	04/13/2010	N001	-	2.03			#		
Uranium	mg/L	04/13/2010	N001	-	0.00088			#	0.0000018	

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

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

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

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

Surface Water Quality Data

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Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0248 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	0001	0.094			#	0.00011	
Uranium	mg/L	04/14/2010	0001	0.0059			#	0.0000018	
Oxidation Reduction Potential	mV	04/14/2010	N001	73.6			#		
pH	s.u.	04/14/2010	N001	7.49			#		
Specific Conductance	umhos/cm	04/14/2010	N001	227			#		
Temperature	C	04/14/2010	N001	7.58			#		
Turbidity	NTU	04/14/2010	N001	19			#		

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0250 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	0.051			#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	155.1			#		
pH	s.u.	04/14/2010	N001	7.66			#		
Specific Conductance	umhos/cm	04/14/2010	N001	197			#		
Temperature	C	04/14/2010	N001	1.16			#		
Turbidity	NTU	04/14/2010	N001	5.73			#		
Uranium	mg/L	04/14/2010	N001	0.00078			#	0.0000018	

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0777 SURFACE LOCATION Tomichi Creek SSE of well 0058

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/12/2010	0001	0.089			#	0.00011	
Uranium	mg/L	04/12/2010	0001	0.0045			#	0.0000018	
Oxidation Reduction Potential	mV	04/12/2010	N001	108.7			#		
pH	s.u.	04/12/2010	N001	8.1			#		
Specific Conductance	umhos/cm	04/12/2010	N001	222			#		
Temperature	C	04/12/2010	N001	9.41			#		
Turbidity	NTU	04/12/2010	N001	61.5			#		

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0780 SURFACE LOCATION NE CORNER VALCO PIT

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/13/2010	0001	0.027			#	0.00011	
Uranium	mg/L	04/13/2010	0001	0.026			#	0.0000018	
Oxidation Reduction Potential	mV	04/13/2010	N001	149.6			#		
pH	s.u.	04/13/2010	N001	8.31			#		
Specific Conductance	umhos/cm	04/13/2010	N001	461			#		
Temperature	C	04/13/2010	N001	6.02			#		
Turbidity	NTU	04/13/2010	N001	19.6			#		

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0792 SURFACE LOCATION KMONKS, SURFACE LOCATION, 8/11/94

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/12/2010	N001	0.073			#	0.00011	
Oxidation Reduction Potential	mV	04/12/2010	N001	5.4			#		
pH	s.u.	04/12/2010	N001	7.82			#		
Specific Conductance	umhos/cm	04/12/2010	N001	129			#		
Temperature	C	04/12/2010	N001	11.76			#		
Turbidity	NTU	04/12/2010	N001	8.49			#		
Uranium	mg/L	04/12/2010	N001	0.00087			#	0.0000018	

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site
REPORT DATE: 6/2/2010
Location: 0795 SURFACE LOCATION KMONKS, SURFACE LOCATION, 8/11/94

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Manganese	mg/L	04/14/2010	N001	0.042			#	0.00011	
Oxidation Reduction Potential	mV	04/14/2010	N001	43.8			#		
pH	s.u.	04/14/2010	N001	7.84			#		
Specific Conductance	umhos/cm	04/14/2010	N001	196			#		
Temperature	C	04/14/2010	N001	5.29			#		
Turbidity	NTU	04/14/2010	N001	6.08			#		
Uranium	mg/L	04/14/2010	N001	0.00076			#	0.0000018	

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.

Equipment Blank Data

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BLANKS REPORT
LAB: PARAGON/ALS LABORATORY GROUP (Fort Collins, CO)
RIN: 10032954
Report Date: 6/2/2010

Parameter	Site Code	Location ID	Sample Date	Sample ID	Units	Result	Qualifiers Lab	Qualifiers Data	Detection Limit	Uncertainty	Sample Type
Manganese	GUN01	0999	04/13/2010	N001	mg/L	0.00077	B	U	0.00011		E
Uranium	GUN01	0999	04/13/2010	N001	mg/L	0.00003	B	U	0.0000018		E

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

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

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

SAMPLE TYPES:
E Equipment Blank.

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Static Water Level Data

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Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
0002	U	7646.75	04/13/2010	08:50:35	5.9	7640.85
0005	O	7644.66	04/14/2010	09:20:50	7.17	7637.49
0006	O	7647.23	04/14/2010	10:15:41	11.63	7635.6
0012R		7645.95	04/14/2010	11:15:31	12.13	7633.82
0013	D	7643.75	04/13/2010	11:15:23	12.41	7631.34
0062	O	7630.61	04/15/2010	09:15:28	6.48	7624.13
0063	O	7630.34	04/15/2010	10:35:28	7.54	7622.8
0064	O	7620.76	04/15/2010	11:40:16	6.76	7614
0065	O	7610.27	04/13/2010	17:15:05	2.04	7608.23
0066	O	7606.22	04/12/2010	14:50:12	2.01	7604.21
0102	U	7647.3	04/13/2010	09:30:19	6.64	7640.66
0105	O	7646.11	04/14/2010	09:00:52	9.18	7636.93
0106	O	7647.22	04/14/2010	09:55:31	11.78	7635.44
0112	O	7645.74	04/14/2010	10:55:17	12.53	7633.21
0113	D	7643.83	04/13/2010	10:50:47	12.5	7631.33
0125	D	7633.52	04/14/2010	17:00:00	6.51	7627.01
0126	D	7634.14	04/14/2010	17:30:29	6.65	7627.49
0127	D	7634.64	04/14/2010	18:00:05	8.52	7626.12
0135	D	7627.03	04/15/2010	12:45:31	5.95	7621.08
0136	D	7626.24	04/15/2010	12:20:18	5.63	7620.61
0160	D	7604.39	04/14/2010	12:20:14	5.69	7598.7
0161	D	7605.63	04/14/2010	12:40:02	7.17	7598.46
0181	D	7616.38	04/13/2010	14:30:36	2.65	7613.73
0183	D	7616.27	04/13/2010	16:40:38	4.49	7611.78
0186	D	7627.21	04/12/2010	16:05:28	6.34	7620.87
0187	D	7625.91	04/12/2010	17:00:16	5.93	7619.98
0188	D	7613.65	04/14/2010	13:40:18	6.8	7606.85
0189	D	7613.56	04/14/2010	13:20:47	7.75	7605.81

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

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Time-Concentration Graphs

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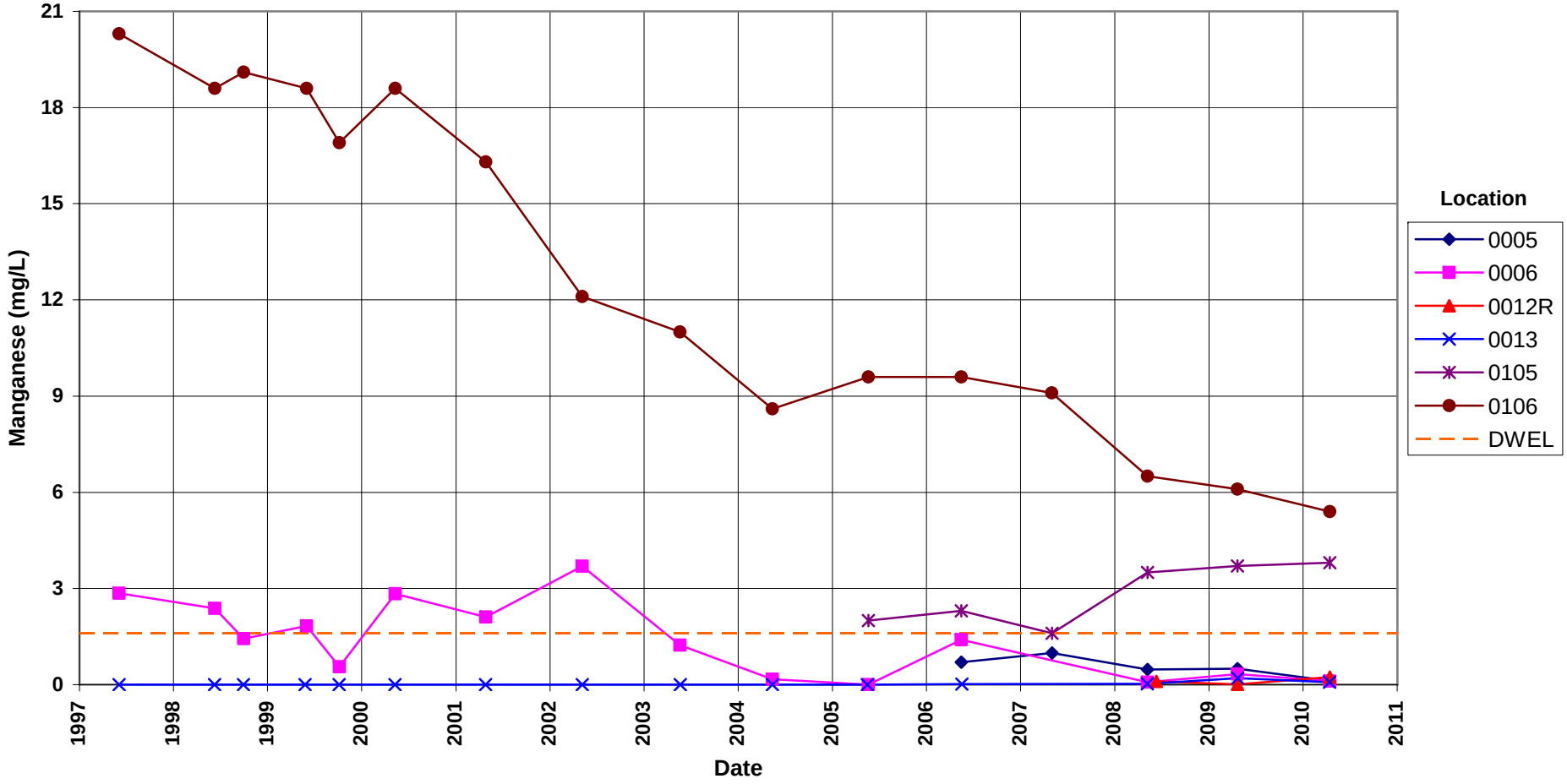
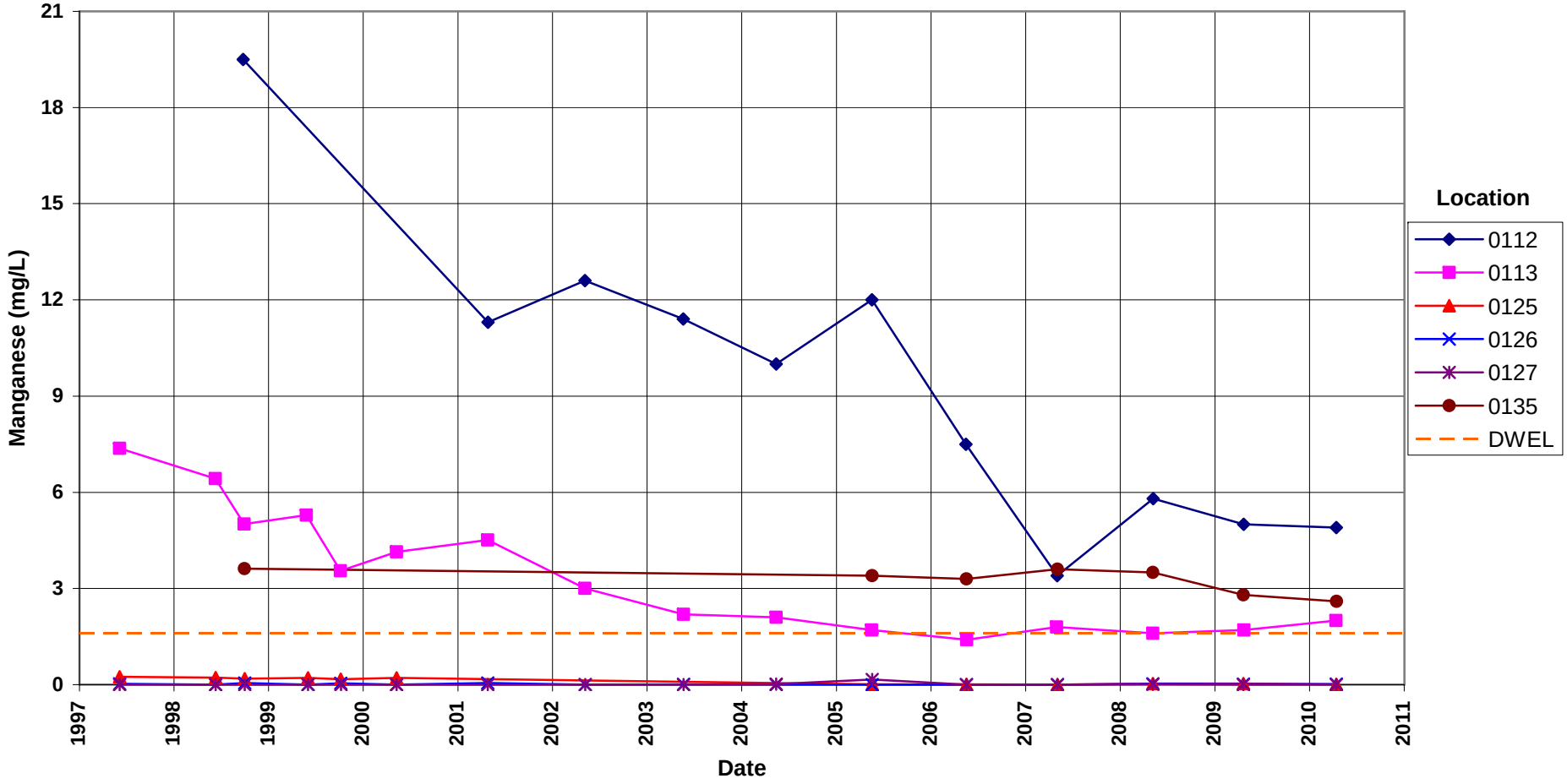
Gunnison Processing Site
Manganese Concentration

Drinking Water Equivalent Level (DWEL) = 1.6 mg/L

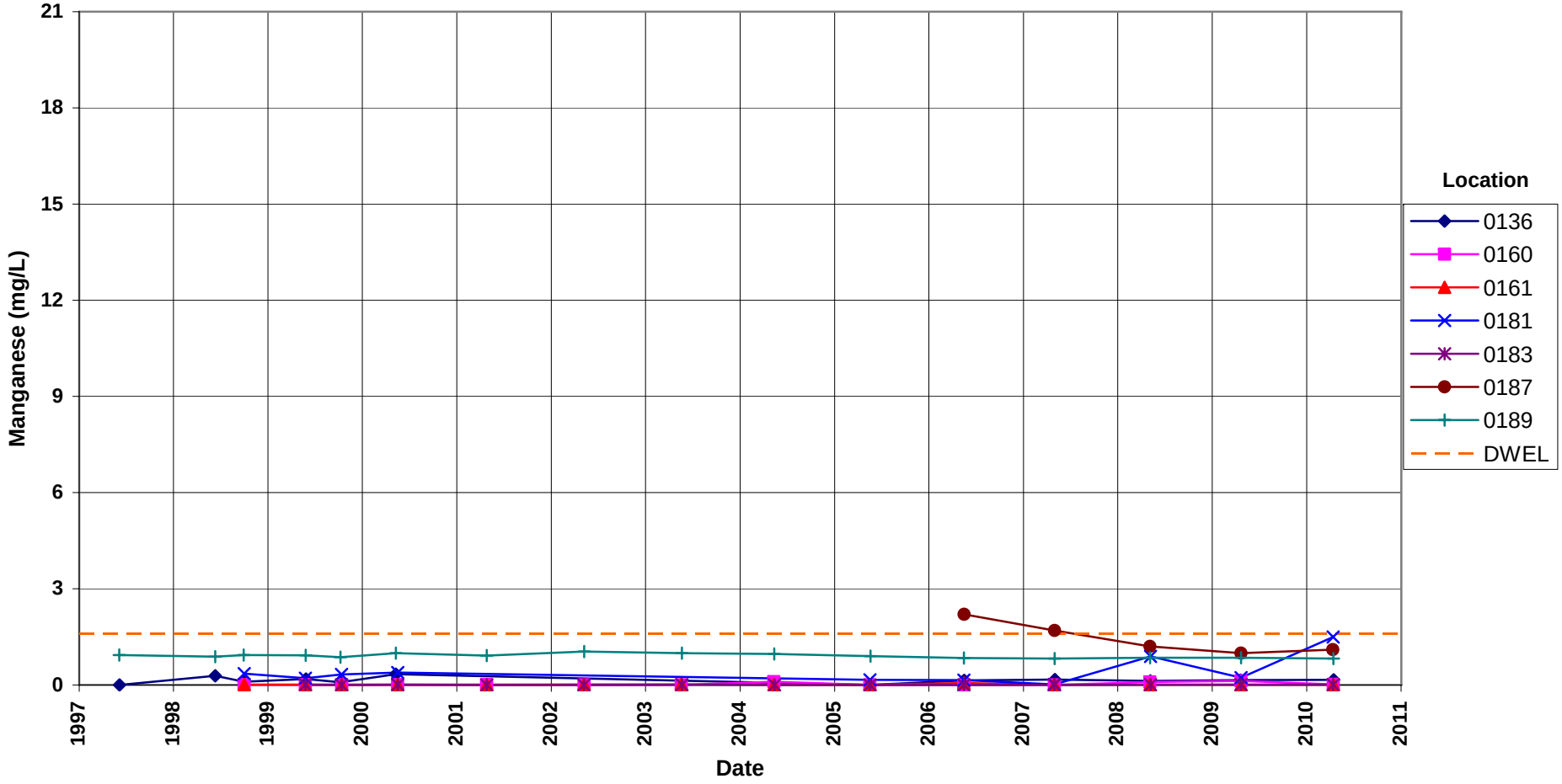


Gunnison Processing Site
Manganese Concentration
Drinking Water Equivalent Level (DWEL) = 1.6 mg/L

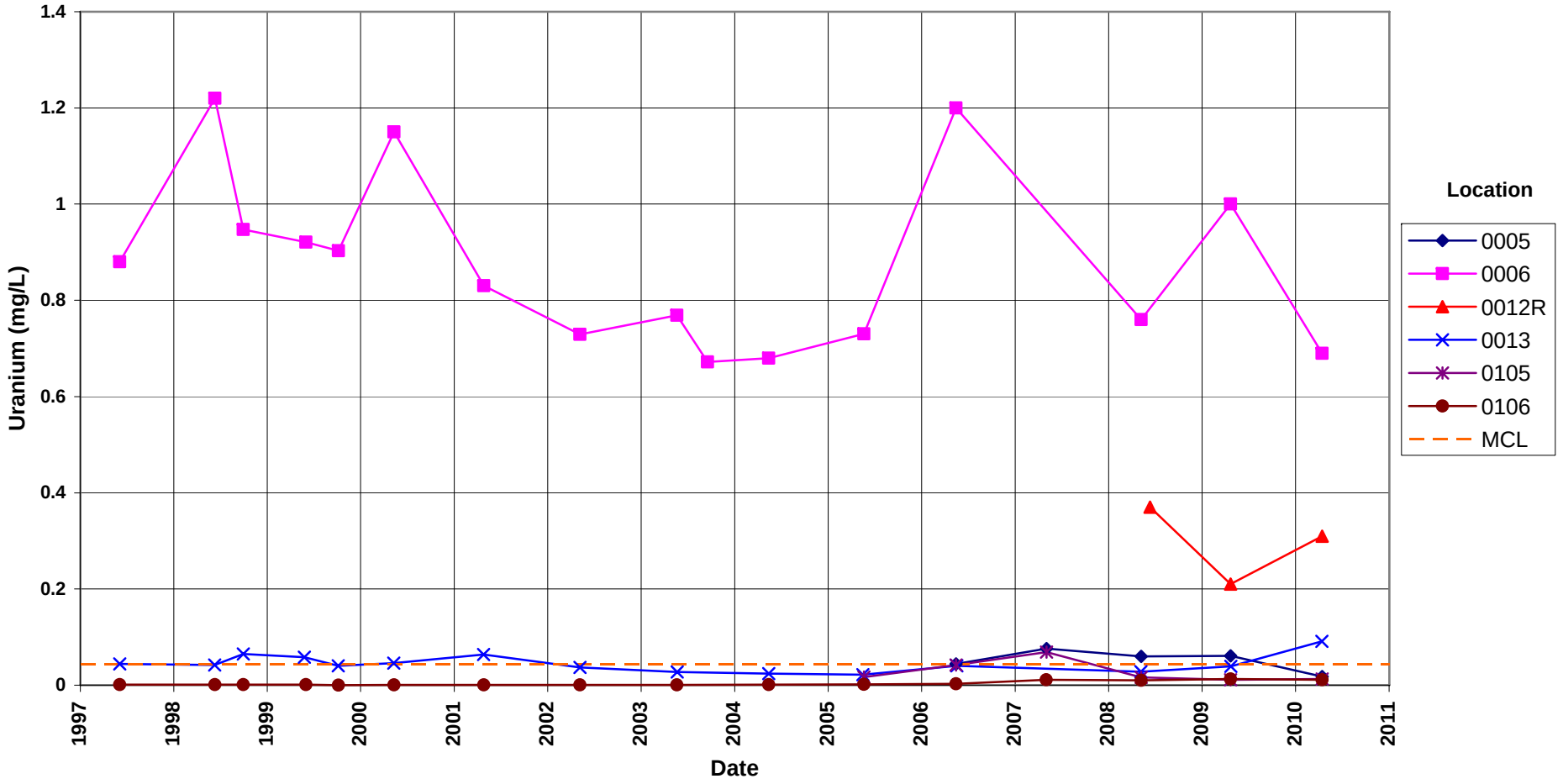


Gunnison Processing Site
Manganese Concentration

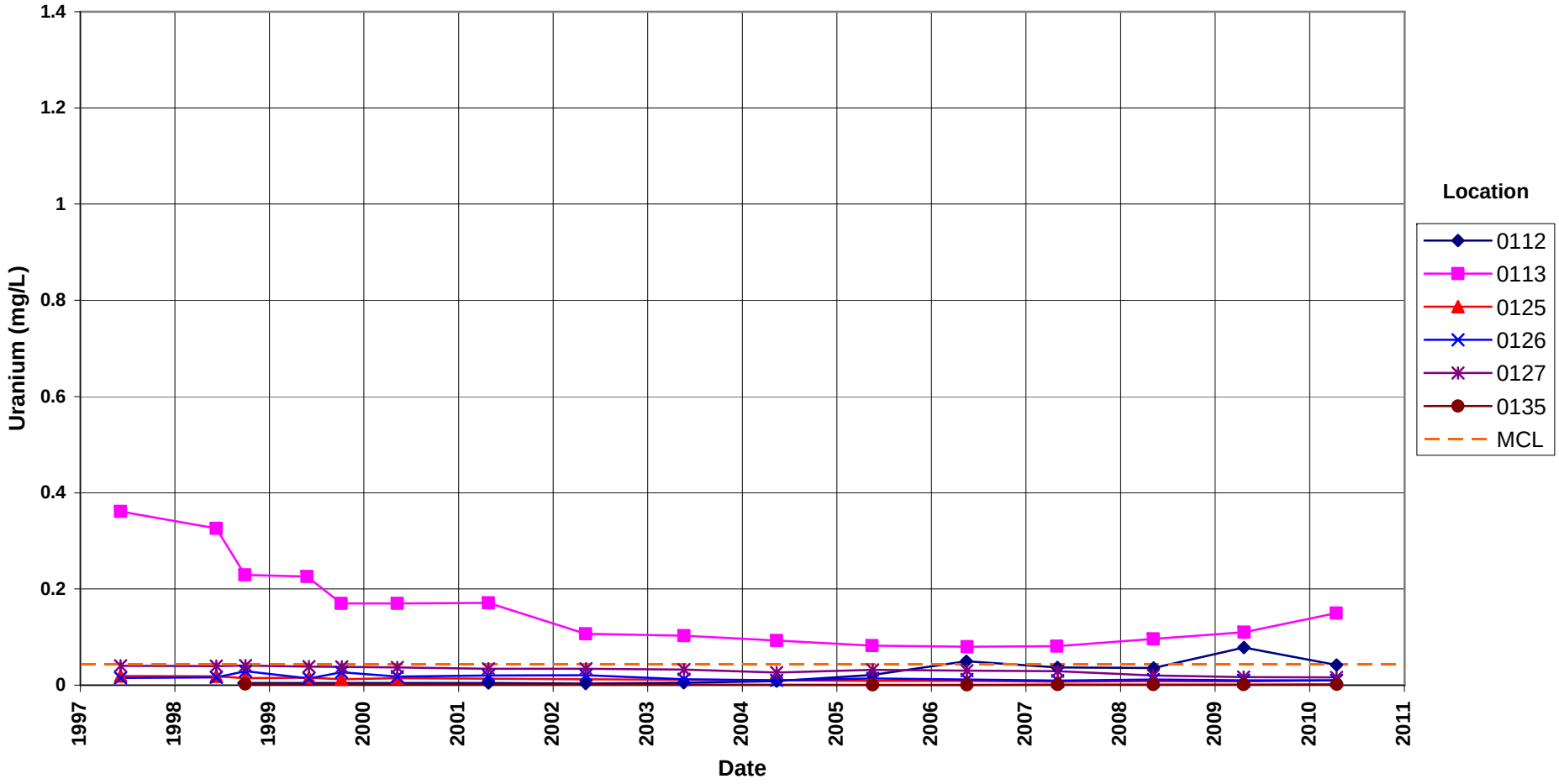
Drinking Water Equivalent Level (DWEL) = 1.6 mg/L



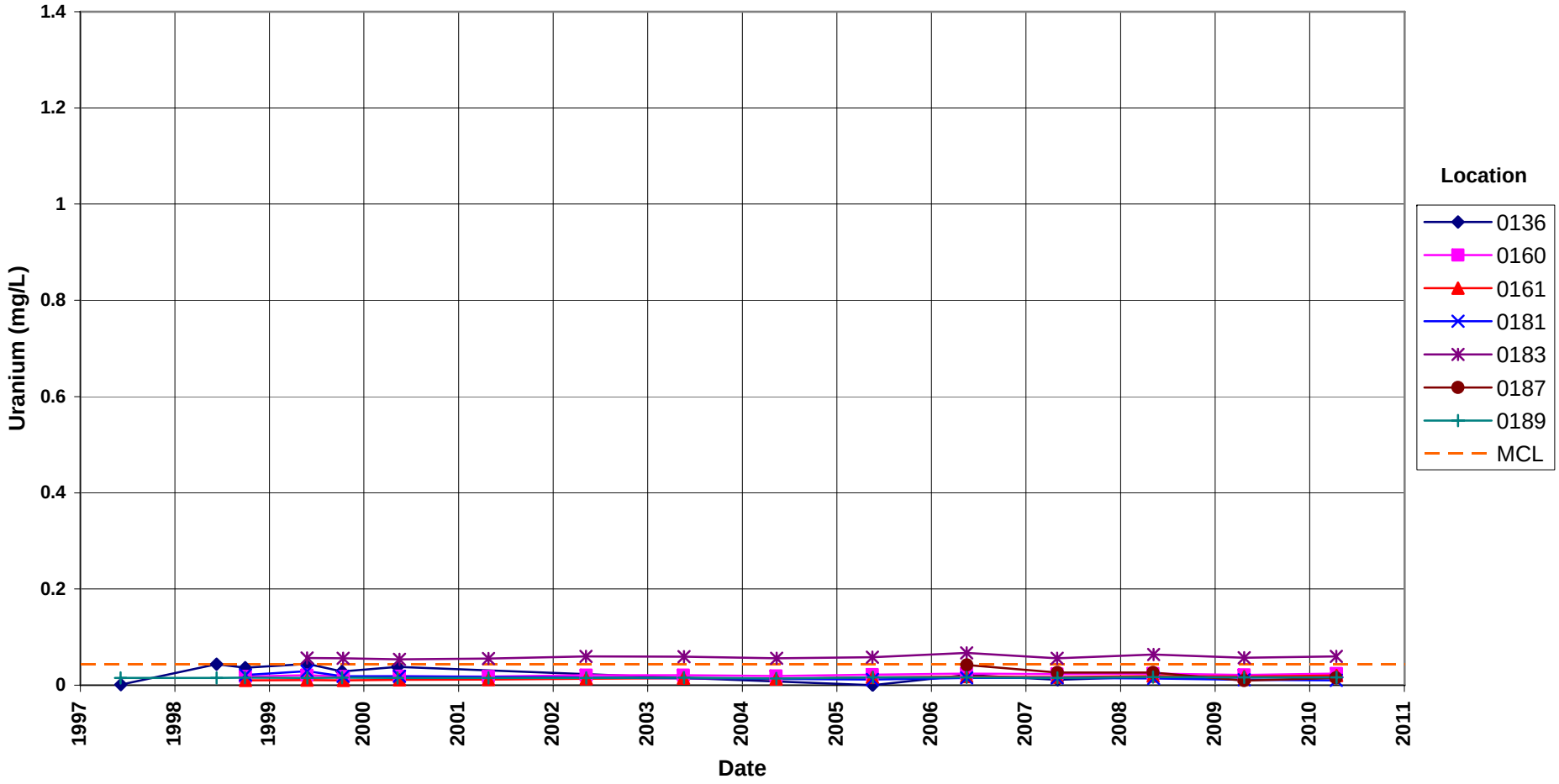
Gunnison Processing Site
Uranium Concentration
Maximum Contaminant Level = 0.044 mg/L



Gunnison Processing Site
Uranium Concentration
Maximum Contaminant Level = 0.044 mg/L



Gunnison Processing Site
Uranium Concentration
Maximum Contaminant Level = 0.044 mg/L



Attachment 3
Sampling and Analysis Work Order

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Stoller established 1959

Task Order LM-501
Control Number: 10-0437

March 10, 2010

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

SUBJECT: Contract No. DE-AM01-07LM00060, Stoller
April 2010 Environmental Sampling at Gunnison, Colorado

REFERENCE: Task Order LM00-501-02-108-402, Gunnison Processing Site

Dear Mr. Desormeau:

The purpose of this letter is to inform you of the upcoming sampling at Gunnison, Colorado. Enclosed are the map and tables specifying sample locations and analytes for routine monitoring at the Gunnison, Colorado, Processing Site. Water quality data will be collected at this site as part of the routine environmental sampling currently scheduled to begin the week of April 5, 2010.

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

Processing Site (GUN01) Monitor Wells*

002 Al	013 Al	065 Al	106 Al	126 Al	160 Al	186 Al
005 Al	062 Al	066 Al	112 Al	127 Al	161 Al	187 Al
006 Al	063 Al	102 Al	113 Al	135 Al	181 Al	188 Al
012R Al	064 Al	105 Al	125 Al	136 Al	183 Al	189 Al

Processing Site (GUN01) Domestic Wells*

469 Al	476 Nr	477 Nr	478 Nr	667 Al	683 Nr

*NOTE: Al = Alluvium; Nr = no recovery of data for classifying

Surface Locations (GUN01)

248	250	777	780	792	795

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 ¾ Road Grand Junction, CO 81503 (970) 248-6000 Fax: (970) 248-6040

Please call me at (970) 248-6654 if you have any questions

Sincerely,

Sam Campbell

Sam Campbell
Site Lead

SC/lcg/lb

Enclosures (3)

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

Sampling Frequencies for Locations at Gunnison, Colorado

Location ID	Quarterly	Semiannually	Annually	Every 5 years	Not Sampled	Notes
Monitoring Wells						
GUN01						
002			X			
005			X			
006			X			
012R			X			
013			X			
062			X			
063			X			
064			X			
065			X			
066			X			
067					X	Deleted per updated GCAP
102			X			
105			X			
106			X			
112			X			
113			X			
125			X			
126			X			
127			X			
135			X			
136			X			
160			X			
161			X			
181			X			
183			X			
186			X			
187			X			
188			X			
189			X			
Surface Locations						
GUN01						
248			X			
250			X			Added per updated GCAP
777			X			
780			X			
792			X			
795			X			

Domestic Wells						
GUN01						
080					X	Deleted per updated GCAP
081					X	Deleted per updated GCAP
082					X	Deleted per updated GCAP
469			X			
476			X			
477			X			
478			X			
667			X			
683			X			

GUN01 Sampling conducted in April

GUN08 sampling at the disposal cell must not be conducted before May 15th due to CDOW requirements regarding access to this site during Sage Grouse mating.

Constituent Sampling Breakdown

	Gunnison					
Analyte	**Groundwater**		**Surface Water**	**Required Detection Limit (mg/L)**	**Analytical Method**	**Line Item Code**
Approx. No. Samples/yr	38		6			
Field Measurements						
Alkalinity						
Dissolved Oxygen						
Redox Potential	X		X			
pH	X		X			
Specific Conductance	X		X			
Turbidity	X		X			
Temperature	X		X			
Laboratory Measurements	*GUN01*	*GUN08*	*GUN01*			
Aluminum						
Ammonia as N (NH3-N)						
Calcium		X		5	SW-846 6010	LMM-01
Chloride		X		0.5	SW-846 9056	WCH-A-039
Chromium						
Gross Alpha						
Gross Beta						
Iron		X		0.05	SW-846 6020	LMM-02
Lead						
Magnesium		X		5	SW-846 6010	LMM-01
Manganese	X	X	X	0.005	SW-846 6010	LMM-01
Molybdenum						
Nitrate + Nitrite as N (NO3+NO2)-N						
Potassium		X		1	SW-846 6010	LMM-01
Selenium						
Silica						
Sodium		X		1	SW-846 6010	LMM-01
Strontium						
Sulfate		X		0.5	SW-846 9056	MIS-A-044
Sulfide						
Total Dissolved Solids		X		10	SM2540 C	WCH-A-033
Total Organic Carbon						
Uranium	X	X	X	0.0001	SW-846 6020	LMM-02
Vanadium						
Zinc						
Total No. of Analytes	2	10	2			

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 Reports

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Stoller established 1959
Grand Junction Office

Memorandum

Control Number N/A

DATE: April 19, 2010

TO: Distribution

FROM: Sam Campbell

SUBJECT: Trip Report

Site: Gunnison, Colorado, Processing Site.

Dates of Sampling Event: April 12-15, 2010.

Team Members: David Atkinson and Sam Campbell.

Number of Locations Sampled: 28 monitoring wells, 6 surface water locations, and 4 domestic wells.

Locations Not Sampled/Reason: Domestic wells 0476 and 0478 were not sampled because the homes were vacant, and the wells were not in use.

Domestic well 0469, which was included in the sampling letter, was not sampled because the residence is connected to the Dos Rios water system. This location will be removed from the long-term monitoring program.

Domestic well 0479 was sampled for the first time because Gunnison County records show that this residence is not connected to the Dos Rios water system, and the well is being used for potable water.

Location Specific Information: All monitoring wells were purged and sampled using Category I criteria with the exception of monitoring wells 0136 and 0189, which were purged and sampled using Category II criteria.

Surface water location 0250 on the south fork of the Gunnison River was sampled for the first time; GPS coordinate data were collected at the sampling location.

Updated contact information:

Domestic well 0667
Phil Klingsmith
1050 Camino Del Rio
Gunnison, CO 81230

Domestic Well 0479
Michael Grosse
Physical Address – 904 Camino Del Rio
Gunnison, CO 81230
Letter report to P.O. Box 1157
Gunnison, Colorado 81230

The pasture south of the gravel operation that contains numerous monitoring wells was dry because flood irrigation activities had not started yet.

Field Variance: None.

Quality Control Samples: Following are the false identifications assigned to the quality control samples:

False ID	True ID	Sample Type	Ticket Number
2597	0187	Duplicate	IEZ 488
2598	0780	Equipment blank	IEZ 489
2748	0006	Duplicate	IEZ 492

Requisition Numbers Assigned: Samples were assigned to report identification number (RIN) 10032954.

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

Well Inspection Summary: Most monitoring wells in the sampling network were redeveloped the previous week, and five wells were redeveloped the week of sampling. All wells were in good condition with no significant deficiencies identified. The PVC riser on well 0125 is broken but functional. Most wells in the monitoring network could use new paint on the protective casing.

Equipment: All equipment functioned properly.

Stakeholder/Regulatory: Met with Marlene Crosby, Gunnison County Public Works Director, to obtain a map of current homes that are not connected to the water system. Marlene also asked about wells 0012R and 0112, which are in an area of a planned County facility. She wanted to know if a building could be built around them, and the wells sampled from inside the building, or if the wells could be abandoned and relocated.

Institutional Controls

Fences, Gates, Locks: No issues identified.
Signs: Not applicable

Trespassing/Site Disturbances: Work continues on the former processing site to develop the site as a light industrial complex. A new Federal Express dock facility has been constructed.

Site Issues: None

Disposal Cell/Drainage Structure Integrity: Not applicable.
Vegetation/Noxious Weed Concerns: Not applicable.
Maintenance Requirements: None.
Safety Issues: None.

Access Issues: Prior to accessing wells in the pasture south of United Sand and Gravel (owner), contact Tracy Hildreth at (970) 596-0561. Tracy leases the land from the gravel company and operates a cattle ranch on the property.

Corrective Action Required/Taken: Well maintenance, including painting of protective casings relabeling of wells, and riser assessment/repair (0125) should be conducted. Hose barbs that fit 3/8-inch tubing need installed and dedicated at numerous locations.

(SEC/lcg)

cc: (electronic)
Joe Desormeau, DOE
Cheri Bahrke, Stoller
Steve Donivan, Stoller
EDD Delivery

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Stoller established 1959
Grand Junction Office

Memorandum

Control Number N/A

DATE: July 7, 2010

TO: Sam Campbell

FROM: Jeff Price

SUBJECT: Trip Report

Site: Gunnison, Colorado, Processing Site.

Dates of Sampling Event: July 1, 2010.

Team Member: Jeff Price.

Number of Locations Sampled: Domestic wells 0476 and 0478. These domestic wells were not sampled during the annual April event because the owners were not at home.

Locations Not Sampled/Reason: None.

Location Specific Information: Neither home owner was present during the sampling; however, permission had been granted to sample prior to the sampling event. At the request of the homeowner at location 0478, a note was left indicating that we had indeed collected a sample.

Field Variance: None.

Quality Control Sample Cross Reference: None taken.

Requisition Numbers Assigned: Samples were assigned to requisition identification number (RIN) 10063192. Samples were shipped on July 6, 2010 to ALS Laboratory to be analyzed for uranium and manganese.

Water Level Measurements: N/A.

Well Inspection Summary: N/A**.**

Equipment: All equipment functioned properly.

Regulatory: None.

Institutional Controls

Fences, Gates, Locks: Not applicable.
Signs: Not applicable.
Trespassing/Site Disturbances: Not applicable.

Site Issues: None

Disposal Cell/Drainage Structure Integrity: Not applicable.
Vegetation/Noxious Weed Concerns: Not applicable.
Maintenance Requirements: Not applicable.
Site Issues: None.

Access Issues: None.

Corrective Action Required/Taken: None.

(JEP/lcg)

cc: (electronic)
Joe Desormeau, DOE
Cheri Bahrke, Stoller
Steve Donivan, Stoller
EDD Delivery

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