

# Data Validation Package

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## May 2005 Ground Water and Surface Water Sampling at the Gunnison, Colorado, Processing Site

July 2005



**U.S. Department of Energy**  
**Office of Legacy Management**

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# Sampling Event Summary

**Site:** Gunnison, Colorado, Processing Site

**Sampling Period:** May 16–20, 2005

This annual event includes sampling ground water and surface water at the Gunnison, Colorado, Processing Site. Sampling and analysis was conducted as specified in *Ground Water and Surface Water Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Duplicate samples were collected from locations 0063, 0113, and 0683. Two equipment blanks were collected during this sampling event.

Samples were collected from twenty-seven monitor wells, nine domestic wells, and five surface locations as specified in the *Ground Water Compliance Action Plan for the Gunnison, Colorado, Processing Site*. Water levels were measured at all monitor wells and selected domestic wells.

Monitor wells with sample concentrations that exceeded the Uranium Mill Tailings Remedial Action (UMTRA) ground water standard for uranium or the U.S. Environmental Protection Agency (EPA) risk-based concentration (RBC) for manganese are listed in Table 1.

Table 1. Gunnison Locations That Exceed UMTRA Ground Water Standards

Analyte	UMTRA Standard <sup>a</sup>	RBC <sup>b</sup>	Location	Concentration <sup>c</sup>
Uranium	0.044		0006	0.73
			0012	0.38
			0113	0.081
			0183	0.058
Manganese		1.6	0105	2.0
			0106	9.6
			0112	12
			0135	3.4

<sup>a</sup>Uranium standard is listed in 40 CFR 192.02 Table 1 to Subpart A; units are in mg/L.


<sup>b</sup>RBC from EPA 's 2004 Edition of the *Drinking Water Standards and Health Advisories*.

<sup>c</sup>units are in mg/L.

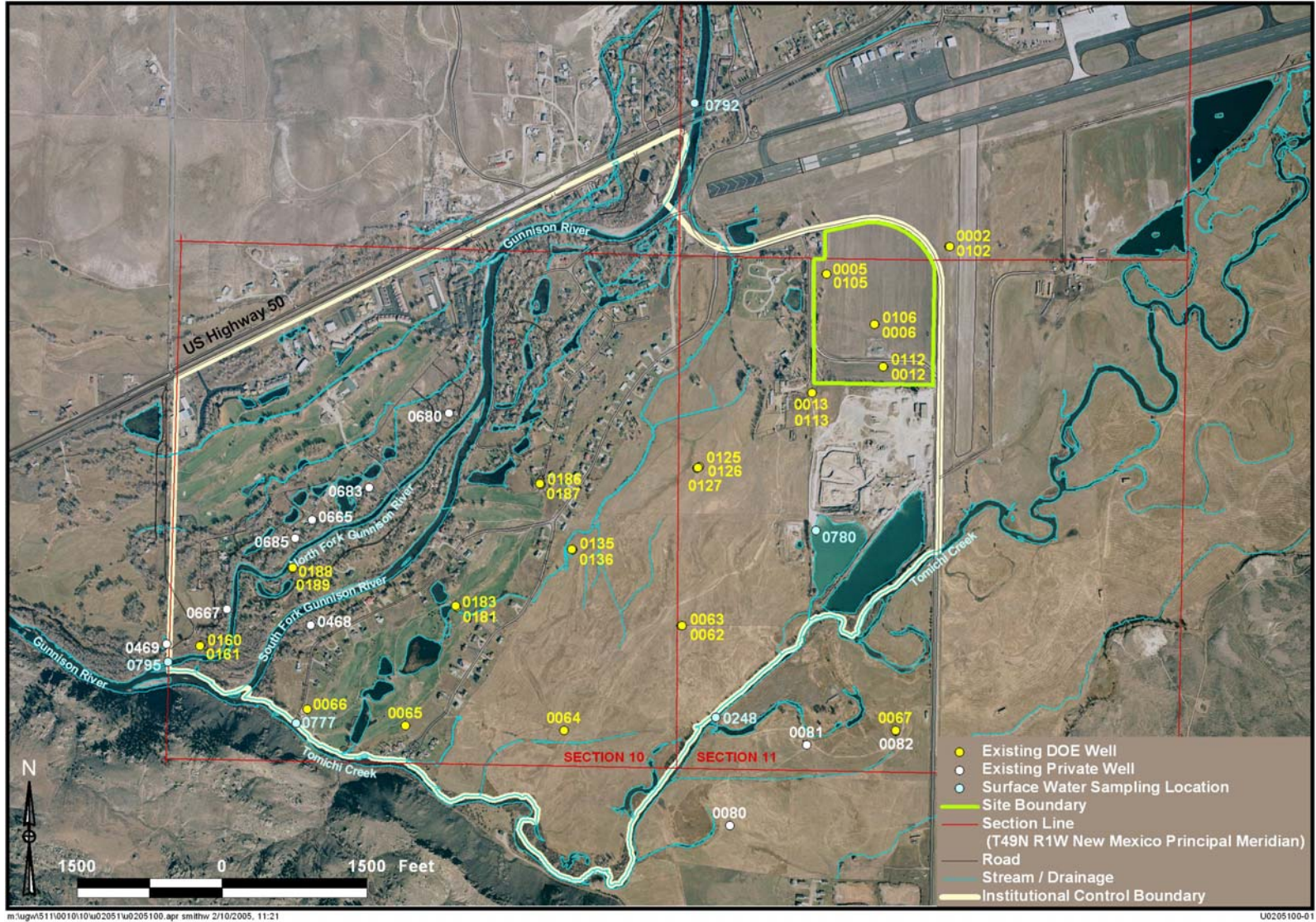
Results from this sampling event do not indicate any unexpected contaminated ground water movement. The time versus concentration graphs included with the analytical data indicate that while the concentrations of uranium and manganese in ground water beneath and down gradient of the site are above the UMTRA standard and RBC, respectively, the concentrations are generally decreasing with time, indicating that natural flushing is progressing in the alluvial aquifer.

Uranium concentrations in the nine domestic wells sampled were all below the UMTRA ground water standard, and manganese concentrations in these wells were all below the RBC.

Surface water uranium concentrations are compared to data from location 0792, which is located on the Gunnison River upstream from the site. The benchmark value of 0.0015 milligrams per liter is upper 95% tolerance limit of uranium data from that location. The uranium concentration at the Gunnison River downstream location 0795 was less than the benchmark value indicating minimal impact to the Gunnison River from site activities. Uranium concentration at the Valco gravel pit pond (0780) is elevated when compared to the benchmark, which is expected because the gravel pit is recharged by contaminated ground water from the site. Uranium concentrations at Tomichi Creek locations (0248 and 0077) are slightly elevated when compared to the benchmark, which is expected because Tomichi Creek receives discharge from the Valco pond.

  
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Sam Campbell  
Site Lead, S.M. Stoller

9-7-05  
Date



Gunnison Colorado Processing Site Sample Location Map

# **Data Assessment Summary**

## Water Sampling Field Activities Verification Checklist

<b>Project</b>	Gunnison	<b>Date(s) of Water Sampling</b>	May 16-20, 2005
<b>Date(s) of Verification</b>	July 8, 2005	<b>Name of Verifier</b>	Steve Donovan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures? List other documents, SOP's, instructions.	Yes	Work Order Letter dated April 14, 2005
2. Were the sampling locations specified in the planning documents sampled?	Yes	Well 0680 no longer exists. Wells 0005 and 0187 were not sampled because of damage.
3. Was a pre-trip calibration conducted as specified in the above named documents?	Yes	
4. Was an operational check of the field equipment conducted twice daily? Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, Ec, 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?	No	Well 0136 did not produce adequate water to purge
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with non-dedicated equipment?	Yes	
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?	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?	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	Metals only, no cooling required.
20. Were water levels measured at the locations specified in the planning documents?	Yes	



## Laboratory Performance Assessment

### General Information

Report Number (RIN): 05040186  
Sample Event: May 16–20, 2005  
Site(s): Gunnison, Colorado  
Laboratory: Paragon Analytics  
Work Order No.: 0505198  
Analysis: Metals  
Validator: Steve Donovan  
Review Date: July 8, 2005

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), “Standard Practice for Validation of Laboratory Data,” GT-9(P) (2004). 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 1.

Table 1. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Manganese, Mn	GJO-17	SW-846 3005A	SW-846 6010B
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020A

### Data Qualifier Summary

Analytical results were qualified as listed in Table 2. Refer to the sections below for an explanation of the data qualifiers applied.

Table 2. Data Qualifier Summary

Sample Number	Location	Analyte(s)	Flag	Reason
0505198-3	0136	U	U	Less than 5 times the calibration blank
0505198-11	0683	Mn	U	Less than 5 times the calibration blank
0505198-12	2889 (0683 dup)	Mn	U	Less than 5 times the calibration blank
0505198-15	2890 (equip. blank)	U	U	Less than 5 times the calibration blank
0505198-19	0667	Mn	U	Less than 5 times the calibration blank
0505198-41	2887 (equip. blank)	U	U	Less than 5 times the calibration blank

### Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 46 water samples on May 24, 2005, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the form and that signatures and dates were present indicating sample relinquishment and receipt.

The sample submittal documents including the COC form, the Sample Submittal form, and the sample tickets had no errors or omissions.

### Preservation and Holding Times

All samples had been preserved correctly for the requested analyses and all samples were analyzed within the applicable holding times.

### Laboratory Instrument Calibration

All laboratory instrument calibrations were performed correctly in accordance with the cited methods.

#### *Method SW-846 6020A*

Calibration for uranium was performed on June 8, 2005. The initial calibration was performed using six calibration standards resulting in a calibration curve with correlation coefficient ( $r^2$ ) value greater than 0.995. The absolute value of the intercept of the calibration curve was less than 3 times the method detection limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in 12 CCVs. All calibration checks met the acceptance criteria. A reporting limit verification check was made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit. The check result met the acceptance criteria. 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 SW-846 6010B*

Calibrations for manganese were performed on May 31, 2005, and June 2, 2005, using two calibration standards resulting in calibration curve correlation coefficient ( $r^2$ ) values greater than 0.995. The absolute values of the calibration curve intercepts were less than three 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 thirteen CCVs. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the beginning and end of the analytical sequence to verify the linearity of the calibration curve near the practical quantitation limit and all results were within the acceptance range.

### Method and Calibration Blanks

All initial and continuing calibration blank results were below the practical quantitation limits for manganese and uranium. In cases where blank concentration exceeded the MDL, the associated sample results are qualified with a “U” flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration.

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

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

### Matrix Spike Analysis

Matrix spike and matrix spike duplicate samples (MS/MSD) were analyzed for manganese and uranium as a measure of method performance in the sample matrix. The MS/MSD analyses resulted in acceptable recovery and precision. The manganese MS/MSD data for sample 0505198-21 were not evaluated because the concentration of the unspiked sample was greater than four times the spike concentration.

### Laboratory Replicate Analysis

The relative percent difference (RPD) values for the laboratory replicate samples and matrix spike duplicate sample results for all analytes were less than twenty percent, indicating acceptable laboratory precision.

### Laboratory Control Sample

Laboratory control samples (LCS) 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 analytes.

### Metals Serial Dilution

Serial dilutions were prepared and analyzed for manganese and uranium to monitor chemical or physical interferences in the sample matrix. All of the serial dilution results met the acceptance criteria. The uranium serial dilution data for samples 0505198-1 and 0505198-10 were not evaluated because the concentration of the undiluted sample was less than one hundred times the practical quantitation limit.

### 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 met for all analytes.

### Completeness

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

### Electronic Data Deliverable (EDD) File

The EDD file arrived on June 6, 2005. 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.

## General Data Validation Worksheet

**RIN:** 05040186      **Lab Code:** PAR      **Validator:** Steve Donovan      **Validation Date:** 7/8/2005  
**Site:** GUNNISON      **Analysis Type:**     Metals     General Chem     Rad     Organics  
**# of Samples:** 46      **Matrix:** WATER      **Requested Analysis Completed:**    Yes

**Chain of Custody**  
**Present:** OK    **Signed:** OK    **Dated:** OK

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

### Exceptions

Method	Analyte	Location	Ticket	Collection Date	Preparation Date	Analysis Date	Dilution Factor	Holding Time Met	Detection Limit Met

**Comments:**    The reported detection limits are equal to or below contract requirements.  
                       All samples were analyzed within the applicable holding times.  
                       \_\_\_\_\_  
                       \_\_\_\_\_  
                       \_\_\_\_\_

GRAND JUNCTION SITE

Metals Data Validation Worksheet

RIN: 05040186 Lab Code: PAR Date Due: 6/21/2005  
 Matrix: Water Site Code: GUN Date Completed: 6/21/2005

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	MS/MSD RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
Manganese	05/31/2005	0.0000	1.0000	OK	OK	OK	OK		95.0	95.0	1.0	87.0	1.0	96.2	
Manganese	05/31/2005								135.0	74.0	3.0	87.0		101.0	
Manganese	05/31/2005								103.0	105.0	1.0	87.0			
Manganese	06/02/2005	0.0000	1.0000	OK	OK	OK	OK	99.0	97.0	96.0	0.0	89.0	4.0	101.0	
Manganese	06/02/2005											90.0		105.0	
Uranium	06/08/2005	0.0010	0.9998	OK	OK	OK	OK	102.0	107.0	106.0	0.0	113.0	28.0	102.0	
Uranium	06/08/2005								106.0	108.0	2.0		15.0		
Uranium	06/08/2005								107.0	107.0	0.0		2.0		
Uranium	06/08/2005								100.0	99.0	1.0		3.0		
Uranium	06/08/2005												9.0		

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Sampling Quality Control Assessment

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

### Sampling Protocol

All monitor well sample results were qualified with an “F” flag in the database indicating the wells were purged and sampled using the low-flow sampling method. Locations 0006, 0012, 0013, and 0065 were also qualified with a “Q” flag indicating a category II or III well. Location 0136 was qualified with a “G” flag because the pH was 12.45.

### Equipment Blank Assessment

The results for the equipment blanks that were collected during this sampling event were acceptable because all results were below the method detection limits.

### 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 0113, 0063, and 0683. All duplicate results were acceptable, meeting the EPA recommended laboratory duplicate criteria of having a relative percent difference (RPD) of less than 20 percent for results that are greater than five times the practical quantitation limit.

## 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 Donovan 7-22-05  
Steve Donovan Date

Data Validation Lead: Steve Donovan 7-22-05  
Steve Donovan Date



**Attachment 1**  
**Assessment of Anomalous Data**

# **Minimums and Maximums Report**

## **Minimums and Maximums Report**

The Minimums and Maximums Report is generated by a data validation application used to query the SEEPro database. The data validation application compares the new data set with historical data and lists all new data that fall outside the historical data range. Values listed in the report are further screened using the following criteria. Results are considered valid if (1) identified low concentrations are the result of low detection limits; (2) the concentration detected is within 50 percent of historical minimum or maximum values; (3) there were fewer than 5 historical samples for comparison. Results that did not meet these criteria are listed on the Anomalous Data Review Checksheet.

The manganese concentrations at locations 0006 and 0188 had been previously noted as anomalously low and continued to trend downward to concentrations below the method detection limit, therefore these previous results are acceptable. The uranium concentration at location 0112 was observed above the historical maximum in May 2004, and again is anomalously high. These data will be compared to data from the next sampling event to determine if the observed trends continue.

Data Validation Minimums and Maximums Report - No Field Parameters  
 Laboratory: PARAGON (Fort Collins, CO)  
 RIN: 05040186  
 Comparison: All Historical Data  
 Report Date: 7/11/2005

Site Code	Location Code	Sample Date	Analyte	Current			Historical Maximum			Historical Minimum			Count	
				Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		N	N Below Detect
GUN01	0006	5/20/2005	Manganese	0.00053	U	FQ	9.4			0.17		FQ	30	0
GUN01	0012	5/17/2005	Manganese	0.15		FQ	5		J	0.6	E	J	11	0
GUN01	0012	5/17/2005	Uranium	0.38		FQ	1.43			0.43		F	13	0
GUN01	0013	5/16/2005	Uranium	0.022		FQ	0.307			0.024	E	F	24	0
GUN01	0102	5/19/2005	Manganese	0.00053	U	F	0.09			0.00082	B		17	11
GUN01	0112	5/17/2005	Uranium	0.021		F	0.0084		F	0.002			12	0
GUN01	0125	5/18/2005	Manganese	0.0046	B	F	0.39			0.166			19	0
GUN01	0125	5/18/2005	Uranium	0.009	E	F	0.023			0.0119			18	0
GUN01	0127	5/18/2005	Manganese	0.16		F	0.019		F	0.00013	B		23	17
GUN01	0160	5/17/2005	Manganese	0.00053	U	F	0.4			0.0022	B	F	27	1
GUN01	0160	5/17/2005	Uranium	0.022		F	0.0208			0.007			26	0
GUN01	0161	5/17/2005	Manganese	0.0054		F	2.31			0.0064	B		23	10
GUN01	0161	5/17/2005	Uranium	0.016		F	0.0143		F	0.003	U		21	1
GUN01	0186	5/19/2005	Manganese	0.00053	U	F	0.06	E		0.00093	B		26	21
GUN01	0186	5/19/2005	Uranium	0.024		F	0.055			0.0372			24	0
GUN01	0665	5/19/2005	Manganese	0.031			0.02			0.0096	B		7	1
GUN01	0777	5/17/2005	Uranium	0.0027			0.0097			0.0028			9	1

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.                        |   |                  |

# **Anomalous Data Review Checksheet**



**Attachment 2**  
**Data Presentation**



# **Ground Water Quality Data**

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0002 (MONITOR 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	5/19/2005	0001	10	-	15	204		F	#		
Manganese	mg/L	5/19/2005	0001	10	-	15	0.00053	U	F	#	0.00053	
Oxidation Reduction Potential	mV	5/19/2005	N001	10	-	15	-58		F	#		
pH	s.u.	5/19/2005	N001	10	-	15	7.41		F	#		
Specific Conductance	umhos/cm	5/19/2005	N001	10	-	15	582		F	#		
Temperature	C	5/19/2005	N001	10	-	15	9.06		F	#		
Turbidity	NTU	5/19/2005	N001	10	-	15	1.5		F	#		
Uranium	mg/L	5/19/2005	0001	10	-	15	0.0022		F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0006 (MONITOR 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	5/20/2005	0001	10	-	15		FQ	#		
Manganese	mg/L	5/20/2005	0001	10	-	15	0.00053	U	FQ	#	0.00053
Oxidation Reduction Potential	mV	5/20/2005	N001	10	-	15	92		FQ	#	
pH	s.u.	5/20/2005	N001	10	-	15	7.18		FQ	#	
Specific Conductance	umhos/cm	5/20/2005	N001	10	-	15	2274		FQ	#	
Temperature	C	5/20/2005	N001	10	-	15	8.44		FQ	#	
Turbidity	NTU	5/20/2005	N001	10	-	15	14.9		FQ	#	
Uranium	mg/L	5/20/2005	0001	10	-	15	0.73		FQ	#	0.000022

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0012 (MONITOR 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	5/17/2005	0001	10	-	15		FQ #		
Manganese	mg/L	5/17/2005	0001	10	-	15	0.15	FQ #	0.00053	
Oxidation Reduction Potential	mV	5/17/2005	N001	10	-	15	170	FQ #		
pH	s.u.	5/17/2005	N001	10	-	15	7.08	FQ #		
Specific Conductance	umhos/cm	5/17/2005	N001	10	-	15	580	FQ #		
Temperature	C	5/17/2005	N001	10	-	15	13.55	FQ #		
Turbidity	NTU	5/17/2005	N001	10	-	15	5.11	FQ #		
Uranium	mg/L	5/17/2005	0001	10	-	15	0.38	FQ #	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0013 (MONITOR 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	5/16/2005	0001	11	-	16		FQ	#		
Manganese	mg/L	5/16/2005	0001	11	-	16	0.00053	U	FQ	#	0.00053
Oxidation Reduction Potential	mV	5/16/2005	N001	11	-	16	133		FQ	#	
pH	s.u.	5/16/2005	N001	11	-	16	7.12		FQ	#	
Specific Conductance	umhos/cm	5/16/2005	N001	11	-	16	496		FQ	#	
Temperature	C	5/16/2005	N001	11	-	16	13.37		FQ	#	
Turbidity	NTU	5/16/2005	N001	11	-	16	1.83		FQ	#	
Uranium	mg/L	5/16/2005	0001	11	-	16	0.022		FQ	#	0.000022

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0062 (MONITOR 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	5/18/2005	0001	47.9	-	57.9		F	#		
Manganese	mg/L	5/18/2005	0001	47.9	-	57.9	0.083	F	#	0.00053	
Oxidation Reduction Potential	mV	5/18/2005	N001	47.9	-	57.9	-246	F	#		
pH	s.u.	5/18/2005	N001	47.9	-	57.9	7.47	F	#		
Specific Conductance	umhos/cm	5/18/2005	N001	47.9	-	57.9	514	F	#		
Temperature	C	5/18/2005	N001	47.9	-	57.9	10.21	F	#		
Turbidity	NTU	5/18/2005	N001	47.9	-	57.9	8.78	F	#		
Uranium	mg/L	5/18/2005	0001	47.9	-	57.9	0.007	F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0063 (MONITOR 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	5/19/2005	0001	87.9	-	97.9		F	#		
Manganese	mg/L	5/19/2005	0001	87.9	-	97.9		F	#	0.00053	
Manganese	mg/L	5/19/2005	0002	87.9	-	97.9		F	#	0.00053	
Oxidation Reduction Potential	mV	5/19/2005	N001	87.9	-	97.9		F	#		
pH	s.u.	5/19/2005	N001	87.9	-	97.9		F	#		
Specific Conductance	umhos/cm	5/19/2005	N001	87.9	-	97.9		F	#		
Temperature	C	5/19/2005	N001	87.9	-	97.9		F	#		
Turbidity	NTU	5/19/2005	N001	87.9	-	97.9		F	#		
Uranium	mg/L	5/19/2005	0001	87.9	-	97.9		F	#	0.0000022	
Uranium	mg/L	5/19/2005	0002	87.9	-	97.9		F	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0064 (MONITOR 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	5/19/2005	0001	86.7	-	96.7		F	#		
Manganese	mg/L	5/19/2005	0001	86.7	-	96.7		F	#	0.00053	
Oxidation Reduction Potential	mV	5/19/2005	N001	86.7	-	96.7		F	#		
pH	s.u.	5/19/2005	N001	86.7	-	96.7		F	#		
Specific Conductance	umhos/cm	5/19/2005	N001	86.7	-	96.7		F	#		
Temperature	C	5/19/2005	N001	86.7	-	96.7		F	#		
Turbidity	NTU	5/19/2005	N001	86.7	-	96.7		F	#		
Uranium	mg/L	5/19/2005	0001	86.7	-	96.7		F	#	0.000022	



Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0065 (MONITOR 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	5/17/2005	0001	49.7	- 59.7	221		FQ #		
Manganese	mg/L	5/17/2005	0001	49.7	- 59.7	0.62		FQ #	0.00053	
Oxidation Reduction Potential	mV	5/17/2005	N001	49.7	- 59.7	-10		FQ #		
pH	s.u.	5/17/2005	N001	49.7	- 59.7	7.25		FQ #		
Specific Conductance	umhos /cm	5/17/2005	N001	49.7	- 59.7	761		FQ #		
Temperature	C	5/17/2005	N001	49.7	- 59.7	9.2		FQ #		
Turbidity	NTU	5/17/2005	N001	49.7	- 59.7	7.92		FQ #		
Uranium	mg/L	5/17/2005	0001	49.7	- 59.7	0.03		FQ #	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0066 (MONITOR 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	5/17/2005	0001	40.2	-	50.2		F	#		
Manganese	mg/L	5/17/2005	0001	40.2	-	50.2		F	#	0.00053	
Oxidation Reduction Potential	mV	5/17/2005	N001	40.2	-	50.2		F	#		
pH	s.u.	5/17/2005	N001	40.2	-	50.2		F	#		
Specific Conductance	umhos/cm	5/17/2005	N001	40.2	-	50.2		F	#		
Temperature	C	5/17/2005	N001	40.2	-	50.2		F	#		
Turbidity	NTU	5/17/2005	N001	40.2	-	50.2		F	#		
Uranium	mg/L	5/17/2005	0001	40.2	-	50.2		F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0067 (MONITOR 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	5/16/2005	0001	39.67	-	49.67		F	#		
Manganese	mg/L	5/16/2005	0001	39.67	-	49.67		F	#	0.00053	
Oxidation Reduction Potential	mV	5/16/2005	N001	39.67	-	49.67		F	#		
pH	s.u.	5/16/2005	N001	39.67	-	49.67		F	#		
Specific Conductance	umhos /cm	5/16/2005	N001	39.67	-	49.67		F	#		
Temperature	C	5/16/2005	N001	39.67	-	49.67		F	#		
Turbidity	NTU	5/16/2005	N001	39.67	-	49.67		F	#		
Uranium	mg/L	5/16/2005	0001	39.67	-	49.67		F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0080 (DOMESTIC WELL)

Parameter	Units	Sample		Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID			Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	5/16/2005	N001	-	221			#		
Manganese	mg/L	5/16/2005	N001	-	0.16			#	0.00053	
Oxidation Reduction Potential	mV	5/16/2005	N001	-	-14			#		
pH	s.u.	5/16/2005	N001	-	6.64			#		
Specific Conductance	umhos /cm	5/16/2005	N001	-	470			#		
Temperature	C	5/16/2005	N001	-	10.48			#		
Turbidity	NTU	5/16/2005	N001	-	7.18			#		
Uranium	mg/L	5/16/2005	N001	-	0.0042			#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0081 (DOMESTIC WELL)

Parameter	Units	Sample		Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID			Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	5/18/2005	N001	-	122			#		
Manganese	mg/L	5/18/2005	N001	-	0.058			#	0.00053	
Oxidation Reduction Potential	mV	5/18/2005	N001	-	-20			#		
pH	s.u.	5/18/2005	N001	-	7.09			#		
Specific Conductance	umhos /cm	5/18/2005	N001	-	473			#		
Temperature	C	5/18/2005	N001	-	8.42			#		
Turbidity	NTU	5/18/2005	N001	-	9.75			#		
Uranium	mg/L	5/18/2005	N001	-	0.013			#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0082 (DOMESTIC WELL)

Parameter	Units	Sample		Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID			Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	5/16/2005	N001	-	197			#		
Manganese	mg/L	5/16/2005	N001	-	0.26			#	0.00053	
Oxidation Reduction Potential	mV	5/16/2005	N001	-	-17			#		
pH	s.u.	5/16/2005	N001	-	6.67			#		
Specific Conductance	umhos /cm	5/16/2005	N001	-	470			#		
Temperature	C	5/16/2005	N001	-	8.68			#		
Turbidity	NTU	5/16/2005	N001	-	9.08			#		
Uranium	mg/L	5/16/2005	N001	-	0.0088			#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0102 (MONITOR 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	5/19/2005	0001	42	-	47		F	#		
Manganese	mg/L	5/19/2005	0001	42	-	47	0.00053	U	F	#	0.00053
Oxidation Reduction Potential	mV	5/19/2005	N001	42	-	47	-46		F	#	
pH	s.u.	5/19/2005	N001	42	-	47	7.46		F	#	
Specific Conductance	umhos/cm	5/19/2005	N001	42	-	47	546		F	#	
Temperature	C	5/19/2005	N001	42	-	47	10.84		F	#	
Turbidity	NTU	5/19/2005	N001	42	-	47	1.22		F	#	
Uranium	mg/L	5/19/2005	0001	42	-	47	0.0034		F	#	0.000022

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0105 (MONITOR 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	5/20/2005	0001	42	-	47		F #		
Manganese	mg/L	5/20/2005	0001	42	-	47		F #	0.00053	
Oxidation Reduction Potential	mV	5/20/2005	N001	42	-	47		F #		
pH	s.u.	5/20/2005	N001	42	-	47		F #		
Specific Conductance	umhos/cm	5/20/2005	N001	42	-	47		F #		
Temperature	C	5/20/2005	N001	42	-	47		F #		
Turbidity	NTU	5/20/2005	N001	42	-	47		F #		
Uranium	mg/L	5/20/2005	0001	42	-	47		F #	0.000022	



Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0106 (MONITOR 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	5/20/2005	0001	34	-	39		F	#		
Manganese	mg/L	5/20/2005	0001	34	-	39		F	#	0.00053	
Oxidation Reduction Potential	mV	5/20/2005	N001	34	-	39		F	#		
pH	s.u.	5/20/2005	N001	34	-	39		F	#		
Specific Conductance	umhos/cm	5/20/2005	N001	34	-	39		F	#		
Temperature	C	5/20/2005	N001	34	-	39		F	#		
Turbidity	NTU	5/20/2005	N001	34	-	39		F	#		
Uranium	mg/L	5/20/2005	0001	34	-	39		F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0112 (MONITOR 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	5/17/2005	0001	40	-	45		F	#		
Manganese	mg/L	5/17/2005	0001	40	-	45		F	#	0.00053	
Oxidation Reduction Potential	mV	5/17/2005	N001	40	-	45		F	#		
pH	s.u.	5/17/2005	N001	40	-	45		F	#		
Specific Conductance	umhos/cm	5/17/2005	N001	40	-	45		F	#		
Temperature	C	5/17/2005	N001	40	-	45		F	#		
Turbidity	NTU	5/17/2005	N001	40	-	45		F	#		
Uranium	mg/L	5/17/2005	0001	40	-	45		F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0113 (MONITOR 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	5/16/2005	0001	41	-	46		F #		
Manganese	mg/L	5/16/2005	0001	41	-	46		F #	0.00053	
Manganese	mg/L	5/16/2005	0002	41	-	46		F #	0.00053	
Oxidation Reduction Potential	mV	5/16/2005	N001	41	-	46		F #		
pH	s.u.	5/16/2005	N001	41	-	46		F #		
Specific Conductance	umhos/cm	5/16/2005	N001	41	-	46		F #		
Temperature	C	5/16/2005	N001	41	-	46		F #		
Turbidity	NTU	5/16/2005	N001	41	-	46		F #		
Uranium	mg/L	5/16/2005	0001	41	-	46		F #	0.000022	
Uranium	mg/L	5/16/2005	0002	41	-	46		F #	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0125 (MONITOR 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	5/18/2005	0001	17.8	-	22.8		F	#		
Manganese	mg/L	5/18/2005	0001	17.8	-	22.8	0.0046	B	F	#	0.00053
Oxidation Reduction Potential	mV	5/18/2005	N001	17.8	-	22.8	-231		F	#	
pH	s.u.	5/18/2005	N001	17.8	-	22.8	7.22		F	#	
Specific Conductance	umhos/cm	5/18/2005	N001	17.8	-	22.8	485		F	#	
Temperature	C	5/18/2005	N001	17.8	-	22.8	7.1		F	#	
Turbidity	NTU	5/18/2005	N001	17.8	-	22.8	1.12		F	#	
Uranium	mg/L	5/18/2005	0001	17.8	-	22.8	0.009	E	F	#	0.000022

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0126 (MONITOR 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	5/18/2005	0001	54	-	59		FQ	#		
Manganese	mg/L	5/18/2005	0001	54	-	59	0.00053	U	FQ	#	0.00053
Oxidation Reduction Potential	mV	5/18/2005	N001	54	-	59	-67		FQ	#	
pH	s.u.	5/18/2005	N001	54	-	59	7.1		FQ	#	
Specific Conductance	umhos/cm	5/18/2005	N001	54	-	59	505		FQ	#	
Temperature	C	5/18/2005	N001	54	-	59	8		FQ	#	
Turbidity	NTU	5/18/2005	N001	54	-	59	5.35		FQ	#	
Uranium	mg/L	5/18/2005	0001	54	-	59	0.014		FQ	#	0.000022

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0127 (MONITOR 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	5/18/2005	0001	94	-	99		F	#		
Manganese	mg/L	5/18/2005	0001	94	-	99	0.16	F	#	0.00053	
Oxidation Reduction Potential	mV	5/18/2005	N001	94	-	99	-251	F	#		
pH	s.u.	5/18/2005	N001	94	-	99	7.35	F	#		
Specific Conductance	umhos/cm	5/18/2005	N001	94	-	99	1103	F	#		
Temperature	C	5/18/2005	N001	94	-	99	9.9	F	#		
Turbidity	NTU	5/18/2005	N001	94	-	99	8.79	F	#		
Uranium	mg/L	5/18/2005	0001	94	-	99	0.032	F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0135 (MONITOR 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	5/18/2005	0001	18	-	23		F	#		
Manganese	mg/L	5/18/2005	0001	18	-	23		F	#	0.00053	
Oxidation Reduction Potential	mV	5/18/2005	N001	18	-	23		F	#		
pH	s.u.	5/18/2005	N001	18	-	23		F	#		
Specific Conductance	umhos/cm	5/18/2005	N001	18	-	23		F	#		
Temperature	C	5/18/2005	N001	18	-	23		F	#		
Turbidity	NTU	5/18/2005	N001	18	-	23		F	#		
Uranium	mg/L	5/18/2005	0001	18	-	23	0.00059	F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0136 (MONITOR 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	5/18/2005	0001	53	-	58		FG	#		
Manganese	mg/L	5/18/2005	0001	53	-	58	0.00053	U	FG	#	0.00053
Oxidation Reduction Potential	mV	5/18/2005	N001	53	-	58	-346		FG	#	
pH	s.u.	5/18/2005	N001	53	-	58	12.45		FG	#	
Specific Conductance	umhos/cm	5/18/2005	N001	53	-	58	4272		FG	#	
Temperature	C	5/18/2005	N001	53	-	58	14.68		FG	#	
Turbidity	NTU	5/18/2005	N001	53	-	58	25.2		FG	#	
Uranium	mg/L	5/18/2005	0001	53	-	58	0.000087	B	UFG	#	0.000022



Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0160 (MONITOR 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	5/17/2005	0001	51	-	56		F	#		
Manganese	mg/L	5/17/2005	0001	51	-	56	0.00053	U	F	#	0.00053
Oxidation Reduction Potential	mV	5/17/2005	N001	51	-	56	121		F	#	
pH	s.u.	5/17/2005	N001	51	-	56	6.58		F	#	
Specific Conductance	umhos/cm	5/17/2005	N001	51	-	56	7.98		F	#	
Temperature	C	5/17/2005	N001	51	-	56	7.97		F	#	
Turbidity	NTU	5/17/2005	N001	51	-	56	0.75		F	#	
Uranium	mg/L	5/17/2005	0001	51	-	56	0.022		F	#	0.000022

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0161 (MONITOR 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	5/17/2005	0001	93	-	98		F	#		
Manganese	mg/L	5/17/2005	0001	93	-	98	0.0054	F	#	0.00053	
Oxidation Reduction Potential	mV	5/17/2005	N001	93	-	98	67	F	#		
pH	s.u.	5/17/2005	N001	93	-	98	6.63	F	#		
Specific Conductance	umhos/cm	5/17/2005	N001	93	-	98	784	F	#		
Temperature	C	5/17/2005	N001	93	-	98	7.88	F	#		
Turbidity	NTU	5/17/2005	N001	93	-	98	2.15	F	#		
Uranium	mg/L	5/17/2005	0001	93	-	98	0.016	F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0181 (MONITOR 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	5/17/2005	0001	18	-	23		F	#		
Manganese	mg/L	5/17/2005	0001	18	-	23		F	#	0.00053	
Oxidation Reduction Potential	mV	5/17/2005	N001	18	-	23		F	#		
pH	s.u.	5/17/2005	N001	18	-	23		F	#		
Specific Conductance	umhos/cm	5/17/2005	N001	18	-	23		F	#		
Temperature	C	5/17/2005	N001	18	-	23		F	#		
Turbidity	NTU	5/17/2005	N001	18	-	23		F	#		
Uranium	mg/L	5/17/2005	0001	18	-	23		F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0183 (MONITOR 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	5/17/2005	0001	93	-	98		F	#		
Manganese	mg/L	5/17/2005	0001	93	-	98	0.0019	B	F	#	0.00053
Oxidation Reduction Potential	mV	5/17/2005	N001	93	-	98	78		F	#	
pH	s.u.	5/17/2005	N001	93	-	98	6.4		F	#	
Specific Conductance	umhos/cm	5/17/2005	N001	93	-	98	1113		F	#	
Temperature	C	5/17/2005	N001	93	-	98	8.74		F	#	
Turbidity	NTU	5/17/2005	N001	93	-	98	0.71		F	#	
Uranium	mg/L	5/17/2005	0001	93	-	98	0.058		F	#	0.000022

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0186 (MONITOR 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	5/19/2005	0001	53	-	58		F	#		
Manganese	mg/L	5/19/2005	0001	53	-	58	0.00053	U	F	#	0.00053
Oxidation Reduction Potential	mV	5/19/2005	N001	53	-	58	-17		F	#	
pH	s.u.	5/19/2005	N001	53	-	58	7.54		F	#	
Specific Conductance	umhos/cm	5/19/2005	N001	53	-	58	793		F	#	
Temperature	C	5/19/2005	N001	53	-	58	10.2		F	#	
Turbidity	NTU	5/19/2005	N001	53	-	58	0.75		F	#	
Uranium	mg/L	5/19/2005	0001	53	-	58	0.024		F	#	0.000022

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0188 (MONITOR 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	5/19/2005	0001	53	-	58		F	#		
Manganese	mg/L	5/19/2005	0001	53	-	58	0.00053	U	F	#	0.00053
Oxidation Reduction Potential	mV	5/19/2005	N001	53	-	58	27		F	#	
pH	s.u.	5/19/2005	N001	53	-	58	7.21		F	#	
Specific Conductance	umhos/cm	5/19/2005	N001	53	-	58	832		F	#	
Temperature	C	5/19/2005	N001	53	-	58	8.98		F	#	
Turbidity	NTU	5/19/2005	N001	53	-	58	0.44		F	#	
Uranium	mg/L	5/19/2005	0001	53	-	58	0.035		F	#	0.000022

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0189 (MONITOR 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	5/19/2005	0001	93	-	98		F	#		
Manganese	mg/L	5/19/2005	0001	93	-	98		F	#	0.00053	
Oxidation Reduction Potential	mV	5/19/2005	N001	93	-	98		F	#		
pH	s.u.	5/19/2005	N001	93	-	98		F	#		
Specific Conductance	umhos/cm	5/19/2005	N001	93	-	98		F	#		
Temperature	C	5/19/2005	N001	93	-	98		F	#		
Turbidity	NTU	5/19/2005	N001	93	-	98		F	#		
Uranium	mg/L	5/19/2005	0001	93	-	98		F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0468 (DOMESTIC WELL)

Parameter	Units	Sample		Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID			Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	5/19/2005	N001	-	239			#		
Manganese	mg/L	5/19/2005	N001	-	0.55			#	0.00053	
Oxidation Reduction Potential	mV	5/19/2005	N001	-	-160			#		
pH	s.u.	5/19/2005	N001	-	7.18			#		
Specific Conductance	umhos /cm	5/19/2005	N001	-	874			#		
Temperature	C	5/19/2005	N001	-	7.85			#		
Turbidity	NTU	5/19/2005	N001	-	197			#		
Uranium	mg/L	5/19/2005	N001	-	0.027			#	0.000022	



Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0469 (DOMESTIC WELL)

Parameter	Units	Sample		Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID			Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	5/17/2005	N001	-	111			#		
Manganese	mg/L	5/17/2005	N001	-	0.012			#	0.00053	
Oxidation Reduction Potential	mV	5/17/2005	N001	-	92			#		
pH	s.u.	5/17/2005	N001	-	6.85			#		
Specific Conductance	umhos /cm	5/17/2005	N001	-	275			#		
Temperature	C	5/17/2005	N001	-	9.4			#		
Turbidity	NTU	5/17/2005	N001	-	8.55			#		
Uranium	mg/L	5/17/2005	N001	-	0.0016			#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0665 (DOMESTIC WELL)

Parameter	Units	Sample		Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID			Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	5/19/2005	N001	-	136			#		
Manganese	mg/L	5/19/2005	N001	-	0.031			#	0.00053	
Oxidation Reduction Potential	mV	5/19/2005	N001	-	18.4			#		
pH	s.u.	5/19/2005	N001	-	7.17			#		
Specific Conductance	umhos /cm	5/19/2005	N001	-	309			#		
Temperature	C	5/19/2005	N001	-	8.37			#		
Turbidity	NTU	5/19/2005	N001	-	1.51			#		
Uranium	mg/L	5/19/2005	N001	-	0.0026	E		#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0667 (DOMESTIC WELL)

Parameter	Units	Sample		Depth Range (Ft BLS)	Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID			Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	5/19/2005	N001	-	87			#		
Manganese	mg/L	5/19/2005	N001	-	0.001	B	U	#	0.00053	
Oxidation Reduction Potential	mV	5/19/2005	N001	-	51.7			#		
pH	s.u.	5/19/2005	N001	-	7.11			#		
Specific Conductance	umhos /cm	5/19/2005	N001	-	228			#		
Temperature	C	5/19/2005	N001	-	9.05			#		
Turbidity	NTU	5/19/2005	N001	-	6.75			#		
Uranium	mg/L	5/19/2005	N001	-	0.00087			#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0683 (DOMESTIC 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	5/19/2005	N001	-	98			#		
Manganese	mg/L	5/19/2005	N001	-	0.0014	B	U	#	0.00053	
Manganese	mg/L	5/19/2005	N002	-	0.0018	B	U	#	0.00053	
Oxidation Reduction Potential	mV	5/19/2005	N001	-	39			#		
pH	s.u.	5/19/2005	N001	-	7.71			#		
Specific Conductance	umhos/cm	5/19/2005	N001	-	265			#		
Temperature	C	5/19/2005	N001	-	9.9			#		
Turbidity	NTU	5/19/2005	N001	-	6.61			#		
Uranium	mg/L	5/19/2005	N001	-	0.0008			#	0.000022	
Uranium	mg/L	5/19/2005	N002	-	0.00075			#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0685 (DOMESTIC 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	5/19/2005	N001	-	97			#		
Manganese	mg/L	5/19/2005	N001	-	0.0076			#	0.00053	
Oxidation Reduction Potential	mV	5/19/2005	N001	-	19.1			#		
pH	s.u.	5/19/2005	N001	-	7.38			#		
Specific Conductance	umhos /cm	5/19/2005	N001	-	268			#		
Temperature	C	5/19/2005	N001	-	15.55			#		
Turbidity	NTU	5/19/2005	N001	-	1.13			#		
Uranium	mg/L	5/19/2005	N001	-	0.0029			#	0.000022	

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**

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0248 (Tomichi Creek)

Parameter	Units	Sample Date	ID	Result	Qualifiers Lab Data QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO <sub>3</sub> )	mg/L	5/18/2005	0001	135	#		
Manganese	mg/L	5/18/2005	0001	0.13	#	0.00053	
Oxidation Reduction Potential	mV	5/18/2005	N001	-18.6	#		
pH	s.u.	5/18/2005	N001	7.95	#		
Specific Conductance	umhos/cm	5/18/2005	N001	346	#		
Temperature	C	5/18/2005	N001	8.99	#		
Turbidity	NTU	5/18/2005	N001	9.95	#		
Uranium	mg/L	5/18/2005	0001	0.0042	#	0.0000022	

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0777 (Tomichi Creek)

Parameter	Units	Sample Date	ID	Result	Qualifiers Lab Data QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO <sub>3</sub> )	mg/L	5/17/2005	0001	126	#		
Manganese	mg/L	5/17/2005	0001	0.14	#	0.00053	
Oxidation Reduction Potential	mV	5/17/2005	N001	88.7	#		
pH	s.u.	5/17/2005	N001	8.16	#		
Specific Conductance	umhos/cm	5/17/2005	N001	308	#		
Temperature	C	5/17/2005	N001	14.19	#		
Turbidity	NTU	5/17/2005	N001	10.2	#		
Uranium	mg/L	5/17/2005	0001	0.0027	#	0.0000022	



Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0780 (Valco Pond)

Parameter	Units	Sample Date	ID	Result	Qualifiers Lab Data QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	5/16/2005	0001	158	#		
Manganese	mg/L	5/16/2005	0001	0.0048	B	#	0.00053
Oxidation Reduction Potential	mV	5/16/2005	N001	103	#		
pH	s.u.	5/16/2005	N001	7.72	#		
Specific Conductance	umhos/cm	5/16/2005	N001	559	#		
Temperature	C	5/16/2005	N001	13.78	#		
Turbidity	NTU	5/16/2005	N001	9.52	#		
Uranium	mg/L	5/16/2005	0001	0.021	#		0.0000022

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0792 (Gunnison River)

Parameter	Units	Sample Date	ID	Result	Qualifiers Lab Data QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	5/17/2005	0001	80	#		
Manganese	mg/L	5/17/2005	0001	0.017	#		0.00053
Oxidation Reduction Potential	mV	5/17/2005	N001	181	#		
pH	s.u.	5/17/2005	N001	8.27	#		
Specific Conductance	umhos/cm	5/17/2005	N001	194	#		
Temperature	C	5/17/2005	N001	13.07	#		
Turbidity	NTU	5/17/2005	N001	28.7	#		
Uranium	mg/L	5/17/2005	0001	0.00055	#		0.0000022

Surface Water Quality Data by Location (USEE102) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/11/2005  
 Location: 0795 (Gunnison River)

Parameter	Units	Sample Date	ID	Result	Qualifiers Lab Data QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	5/17/2005	0001	75	#		
Manganese	mg/L	5/17/2005	0001	0.016	#	0.00053	
Oxidation Reduction Potential	mV	5/17/2005	N001	66	#		
pH	s.u.	5/17/2005	N001	8.13	#		
Specific Conductance	umhos/cm	5/17/2005	N001	195	#		
Temperature	C	5/17/2005	N001	8.48	#		
Turbidity	NTU	5/17/2005	N001	47.1	#		
Uranium	mg/L	5/17/2005	0001	0.00049	#	0.000022	

QA QUALIFIER:

# Validated according to quality assurance guidelines.

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

## **Equipment Blank Data**

BLANKS REPORT

LAB CODE: PAR, PARAGON (Fort Collins, CO)

RIN: 05040186

Report Date: 7/11/2005

Parameter	Site Code	Location ID	Sample Date	Sample ID	Units	Result	Qualifier Lab	Qualifier Data	Detection Limit	Uncertainty	Sample Type
Manganese	GUN01	0999	5/17/2005	0001	mg/L	0.00053	U		0.00053		E
Manganese	GUN01	0999	5/19/2005	0001	mg/L	0.00053	U		0.00053		E
Uranium	GUN01	0999	5/17/2005	0001	mg/L	0.00006	B	U	0.0000022		E
Uranium	GUN01	0999	5/19/2005	0001	mg/L	0.00007	B	U	0.0000022		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.
- 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.

SAMPLE TYPES:

- E Equipment Blank.

## **Static Water Level Data**

STATIC WATER LEVELS (USEE700) FOR SITE GUN01, Gunnison Processing Site  
 REPORT DATE: 7/12/2005

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
0002	U	7649.26	5/19/2005	11:06:00	9.60	7639.66	
0006	O	7647.19	5/20/2005	07:43:00	15.92	7631.27	
0012	O	7645.46	5/17/2005	16:23:00	16.09	7629.37	
0013	D	7643.75	5/16/2005	15:27:00	17.79	7625.96	
0062	O		5/18/2005	14:02:00	9.79		
0063	O		5/19/2005	08:13:00	10.09		
0065	O		5/17/2005	13:15:00	1.74		
0066	O		5/17/2005	11:05:00	1.75		
0067	O		5/16/2005	13:20:00	4.15		
0081			5/18/2005	08:05:00	2.90		
0082			5/16/2005	13:00:00	0.00		
0102	U	7649.21	5/19/2005	11:36:00	9.96	7639.25	
0105	O	7646.11	5/20/2005	09:08:00	9.65	7636.46	
0106	O	7647.3	5/20/2005	08:05:00	16.31	7630.99	
0112	O	7644.84	5/17/2005	17:00:00	19.56	7625.28	
0113	D	7643.83	5/16/2005	16:08:00	20.20	7623.63	
0125	D	7633.52	5/18/2005	11:55:00	4.02	7629.50	
0126	D	7634.14	5/18/2005	10:54:00	11.17	7622.97	
0127	D	7634.64	5/18/2005	11:24:00	17.10	7617.54	
0135	D	7627.03	5/18/2005	17:08:00	4.09	7622.94	
0136	D	7626.24	5/18/2005	16:34:00	7.45	7618.79	
0160	D	7604.39	5/17/2005	07:57:00	4.49	7599.90	
0161	D	7605.63	5/17/2005	08:22:00	5.99	7599.64	
0181	D	7619.07	5/17/2005	14:01:00	4.88	7614.19	
0183	D	7617.82	5/17/2005	14:28:00	5.21	7612.61	
0186	D	7627.21	5/19/2005	16:12:00	7.08	7620.13	
0188	D	7613.65	5/19/2005	17:49:00	5.23	7608.42	
0189	D	7613.56	5/19/2005	18:10:00	5.60	7607.96	
0468	D		5/19/2005	15:00:00	3.76		

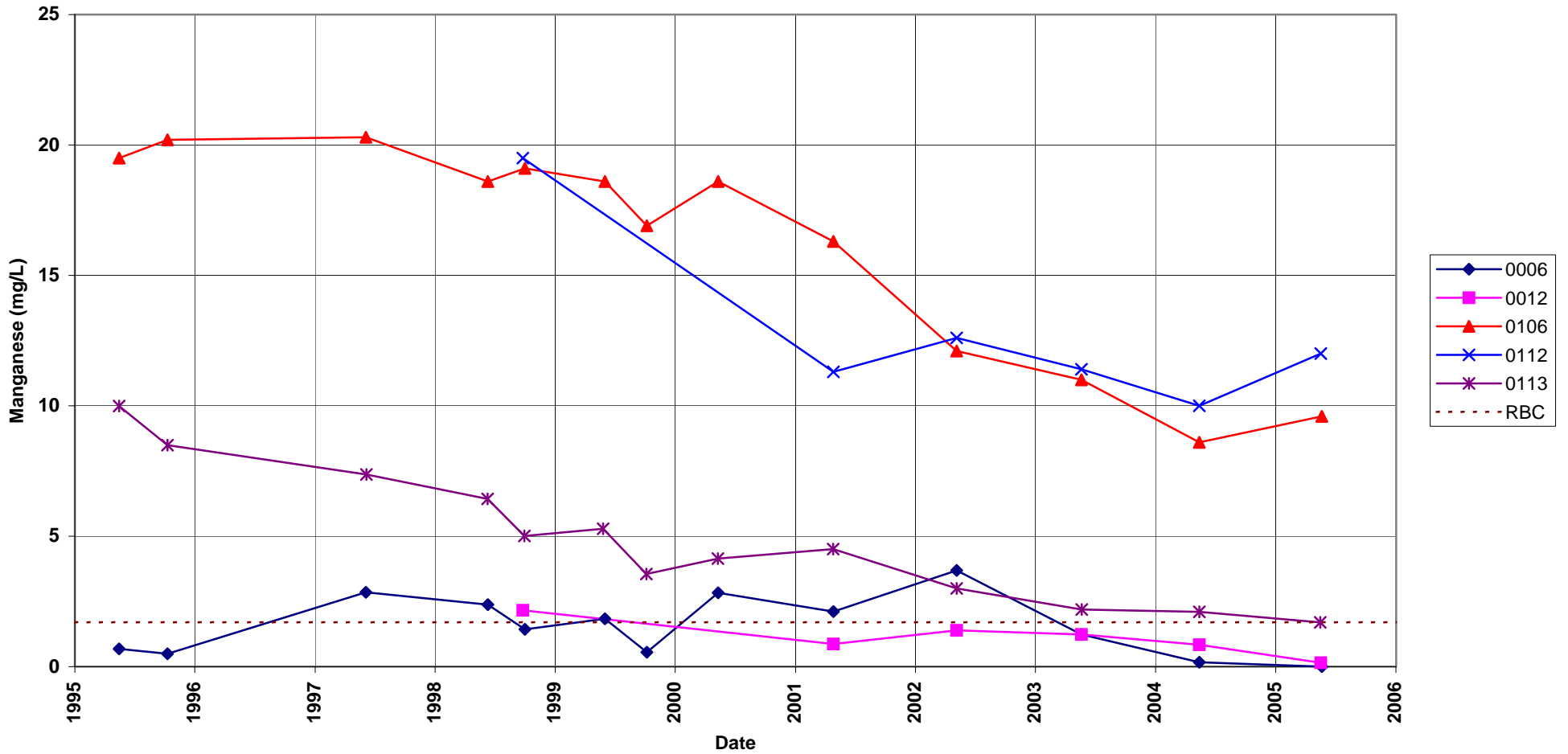
FLOW CODES: B BACKGROUND C CROSS GRADIENT D DOWN GRADIENT U UPGRADIENT  
 WATER LEVEL FLAGS: D Dry

## **Time Versus Concentration Graphs**

# Gunnison Processing Site Selected Monitor Wells

## Manganese Concentration

Acceptable Risk-Based Concentration (RBC) = 1.7 mg/L

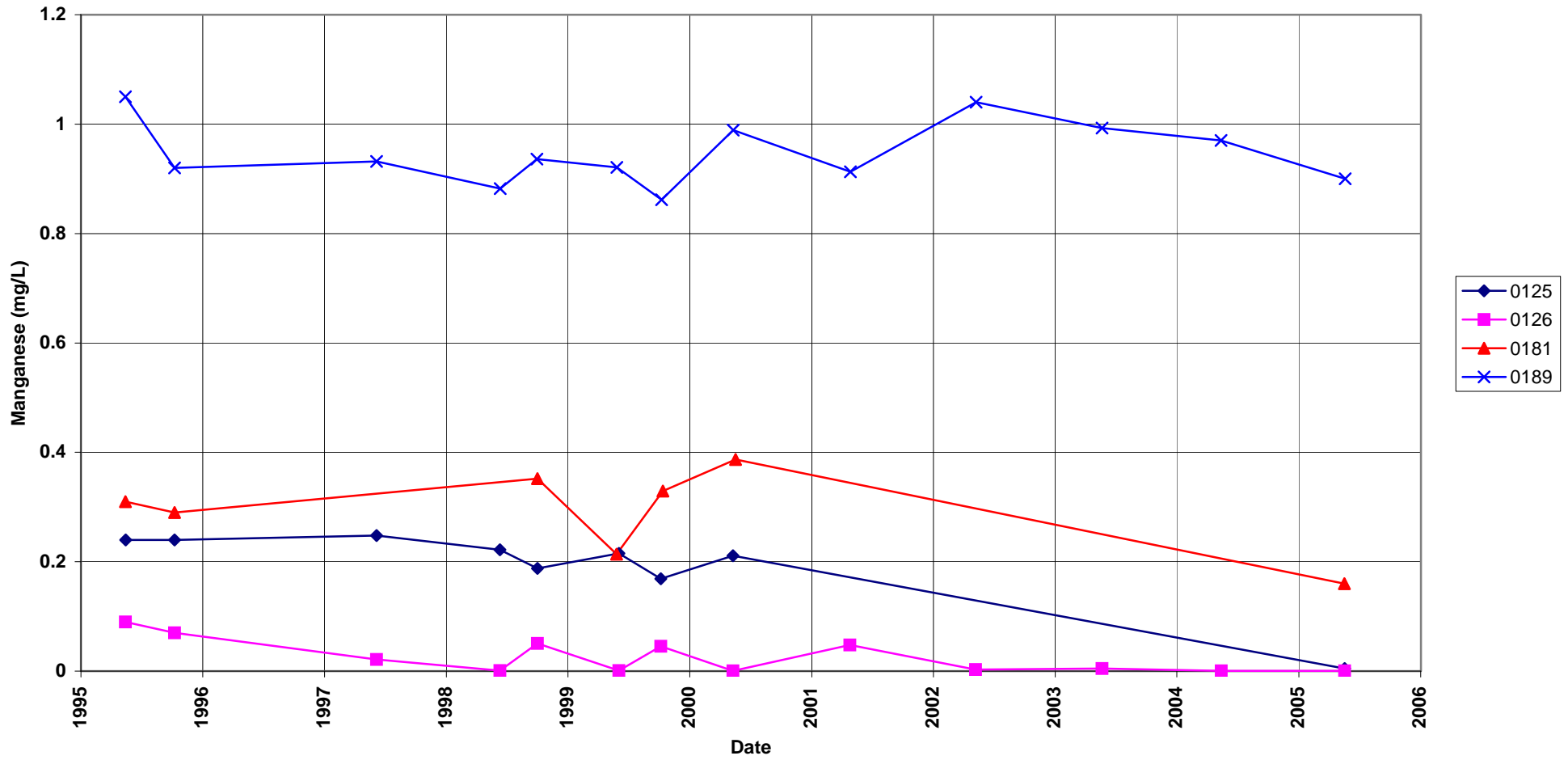




# Gunnison Processing Site Selected Monitor Wells

## Manganese Concentration

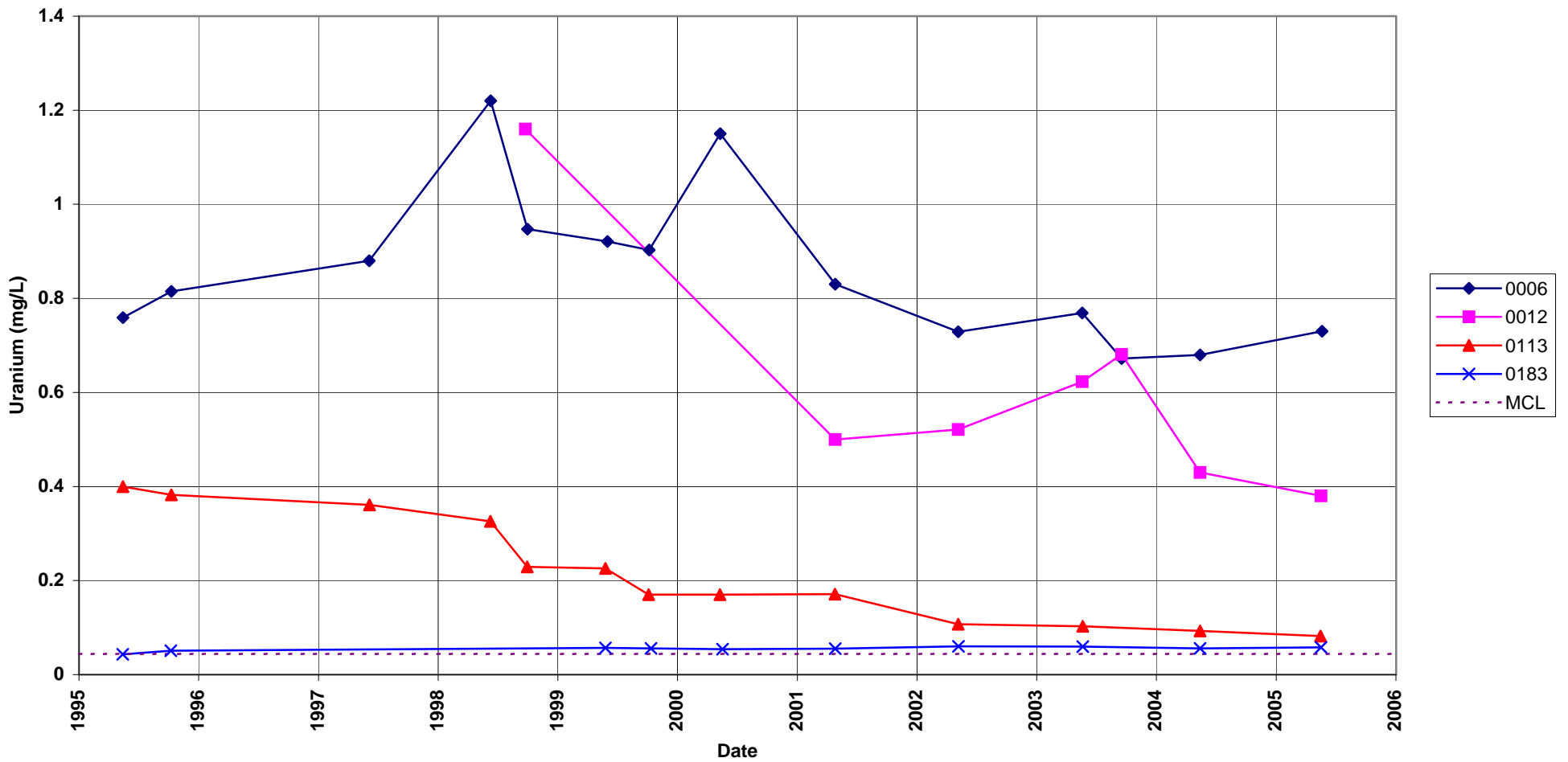
Acceptable Risk-Based Concentration (RBC) = 1.7 mg/L



# Gunnison Processing Site Selected Monitor Wells

## Uranium Concentration

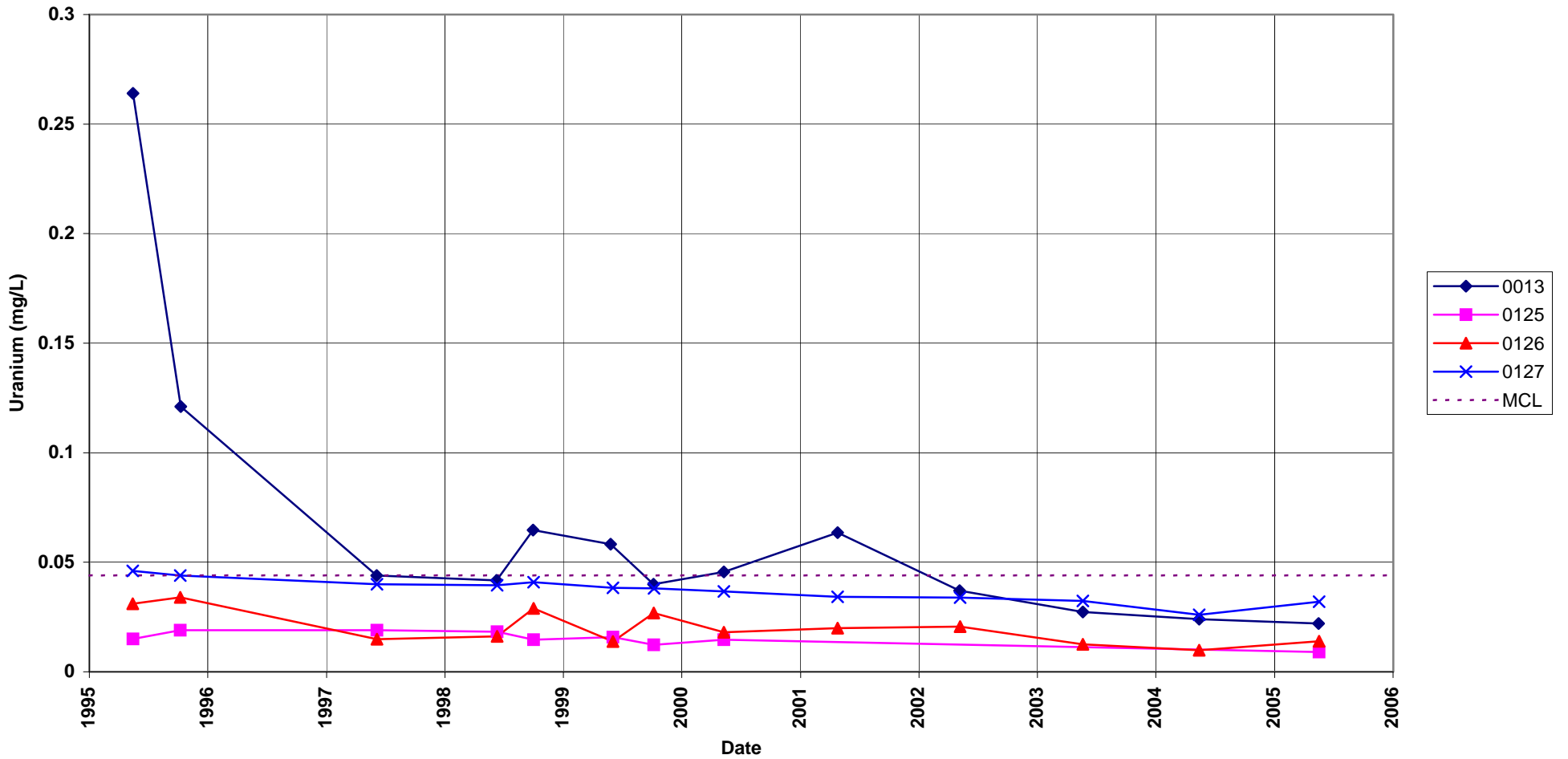
Maximum Contaminant Level (MCL) = 0.044 mg/L



# Gunnison Processing Site Selected Monitor Wells

## Uranium Concentration

Maximum Contaminant Level = 0.044 mg/L



**Attachment 3**  
**Sampling and Analysis Work Order**



*established 1959*

Task Order ST05-102  
Control Number 1000-T05-1229

April 14, 2005

Ms. Tracy Plessinger  
Site Manager, LM-50  
U.S. Department of Energy  
Office of Legacy Management  
2597 B <sup>3</sup>/<sub>4</sub> Road  
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AC01-02GJ79491, Stoller  
May 2005 Environmental Sampling at Gunnison, Colorado

Reference: FY 2005 LM Task Order No. ST05-102-11

Dear Ms. Plessinger:

The purpose of this letter is to inform you of the upcoming sampling at Gunnison, Colorado. Enclosed are the maps and tables specifying sample locations and analytes for monitoring at Gunnison, Colorado. Water quality data will be collected from monitor wells at this site as part of the routine environmental sampling currently scheduled to begin the week of May 16, 2005. The following lists show the monitor wells (with zone of completion), surface locations, and private wells scheduled to be sampled during this event.

**Monitor Wells (filtered)\***

002 Al	062 Al	066 Al	106 Al	126 Al	160 Al	186 Al
005 Al	063 Al	067 Al	112 Al	127 Al	161 Al	187 Al
006 Al	064 Al	102 Al	113 Al	135 Al	181 Al	188 Al
012 Al	065 Al	105 Al	125 Al	136 Al	183 Al	189 Al
013 Al						

**Private Well**

080 Nr	082 Nr	469 Al	667 Al	680	683 Nr	685 Nr
081 Nr	468 Al	665 Al				

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

**Surface Locations (filtered)**

248	777	780	792	795
-----	-----	-----	-----	-----

QA/QC samples will be collected as directed in the *Sampling and Analysis Plan for GJO Projects*. Access agreements are being reviewed and are expected to be complete by the beginning of fieldwork.

If you have any questions, please call me at extension 6588 or Sam Campbell at extension 6654.

Sincerely,

*Signature on original*

Clay Carpenter  
Project Manager

CC/lcg/lac  
Enclosures (3)

cc: C. I. Bahrke, Stoller  
S. E. Campbell, Stoller (e)  
S. E. Donovan, Stoller (e)  
K. E. Miller, Stoller  
D. G. Traub, Stoller (e)  
Working File GUN

cc w/o enclosures:  
Correspondence Control File (Thru V. Creagar)

**Constituent Sampling  
Breakdown  
For Individual Sites**

Site	Gunnison	
	Ground Water	Surface Water
<b>Approx. No. Samples/yr.</b>	47	5
Alkalinity	X	X
Dissolved Oxygen		
Redox Potential	X	X
pH	X	X
Specific Conductance	X	X
Turbidity	X	X
Temperature	X	X
Aluminum		
Ammonia as N (NH <sub>3</sub> -N)		
Antimony		
Arsenic		
Boron		
Beryllium		
Bromide		
Cadmium		
Calcium		
Chloride		
Chromium		
Cobalt		
Copper		
Fluoride		
Gamma Spec		
Gross Alpha		
Gross Beta		
Iron		
Lead		
Lead-210		
Magnesium		
Manganese	X	X
Molybdenum		
Nickel		
Nickel-63		
Nitrate + Nitrite as N (NO <sub>3</sub> +NO <sub>2</sub> )-N		
PCBs		
Phosphate		
Polonium-210		
Potassium		
Radium-226		
Radium-228		

<b>Analyte</b>	<b>Ground Water</b>	<b>Surface Water</b>
Selenium		
Silica		
Sodium		
Strontium		
Sulfate		
Sulfide		
Thallium		
Thorium-230		
Tin		
Total Dissolved Solids		
Total Organic Carbon		
Tritium		
Uranium	X	X
Uranium-234, -238		
Vanadium		
Zinc		
<b>Total Analytes</b>	<b>2</b>	<b>2</b>



**Attachment 4**  
**Trip Report**

## Memorandum

To: S. E. Campbell  
From: S. E. Campbell  
Date: May 24, 2005  
Subject: Trip Report

**Site:** Gunnison, Colorado, Processing Site

**Dates of Sampling Event:** May 16 to May 20, 2005.

**Team Members:** Sam Campbell and David Traub.

**Number of Locations Sampled:** 27 monitor wells, 5 surface water locations, and 9 domestic wells.

**Locations Not Sampled/Reason:** Domestic well location 0680 no longer exists. The PVC casings in monitor wells 0005 and 0187 were damaged causing an obstruction, which prohibited sampling these wells.

**Location Specific Information:** The house at location 0680 has been demolished, and a new house built in its place. The new house is connected to the County water system. All homes in this cluster are connected to the County water system.

Domestic wells 081 and 082 were purged with a high-volume suction pump prior to sampling. These wells are inactive, and the high-volume purge was necessary to remove rust and sediment that had accumulated in the wells over the past few years of inactivity.

All new monitor wells (0062 to 0067) were developed prior to or during this sampling event. A turbidity reading of less than 10 NTUs was obtained during sampling of these wells indicating development was successful.

Wells 0006, 0012, 0013 were classified as Category I wells during previous sampling events; however, these wells were sampled as a Category II or III this event because of the low yield. Water levels were 3 to 4 feet lower than previous sampling events.

Well 0136 had odd field measurements (pH: 12.45, ORP: -346) and poor yield (Category II well). The field measurements and flow rate did not correlate with historic measurements. Field instrumentation was operating properly, so there appears to be a problem with the well. Data

from this well may be suspect and should be looked at closely during data validation. This well and well 0137, were in approximately 1 foot of water because of flood irrigation of the pasture.

Domestic well 0468 is no longer being used. The house is connected to the County water system, and the homeowner is using water from the Gunnison River for irrigation. A high-volume suction lift pump was used to purge and sample. The steel casing is deteriorating and significant rust and metal flakes were observed in the purge water.

The sample at domestic well location 0685 was collected before the water softener. The sample from well 0667 was collected from a spigot at the woodpile on the west side of the house.

**Field Variance:** Water level stability was not obtained at well 0126.

**Quality Control Sample Cross Reference:** Following are the false identifications assigned to the quality control samples:

False ID	True ID	Sample Type	Ticket Number
2886	0113	Duplicate	NDV-932
2887	NA	Equipment Blank	NDV-945
2888	0063	Duplicate	NDV-906
2889	0683	Duplicate	NDV-912
2890	NA	Equipment Blank	NDV-915

**Requisition Numbers Assigned:** All samples were assigned to report identification number (RIN) 05040186.

**Water Level Measurements:** Water levels were measured at all monitor wells and selected domestic wells.

**Well Inspection Summary:** Monitor wells 0005 and 0187 appear to have been hit by a vehicle. The protective casing is bent and the PVC casing is broken, which obstructed access to the ground water. The PVC casing is broken approximately 2 feet below ground surface at well 0005 and approximately 4.5 feet below ground surface at well 0187.

Wells 0125, 0126, and 0127 have concrete pads that have deteriorated. The PVC riser on well 0125 is shattered at the top.

All other wells were in good condition.

**Equipment:** The pH function on the YSI water quality monitor became unstable on May 17, so the backup YSI water quality monitor was used. All pH measurements are considered acceptable.

**Regulatory:** None.

**Site Issues:** The key to the pump house for domestic well 080 can be obtained from the house to the southwest if needed.

**Corrective Action Required/Taken:** Domestic well locations 0468 (not used for drinking) and 0680 (no longer exists) should be dropped from the long-term monitoring program.

Well maintenance needs to be conducted at monitor wells 0005, 0125, 0126, 0127, and 0187.

Wells 0006, 0012, 0013, and 0136 need to be redeveloped as well yield has declined significantly from previous sampling events.

(SEC/lcg)

cc: T. B. Plessinger, DOE-LM (e)  
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