LMS/DUR/S00608

Data Validation Package

June 2008
Groundwater and Surface Water Sampling at the Durango, Colorado Disposal and Processing Sites

August 2008

U.S. Department of Energy
Office of Legacy Management

Work Performed by the S.M. Stoller Corporation Under DOE Contract No. DE–AM01–07LM00060 for the U.S. Department of Energy Office of Legacy Management.

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Sampling Event Summary

Site: Durango, Colorado, Disposal and Processing Sites

Sampling Period: June 2-4, 2008

The *Long-Term Surveillance Plan* (LTSP) *for the Bodo Canyon Disposal Site, Durango, Colorado* requires annual monitoring to verify the performance of the disposal cell. Point-of-compliance wells 0607, 0612, 0621, and monitor wells 0605, 0608, 0618, and 0623 were sampled as specified in the plan.

The *Preliminary Final Ground Water Compliance Action Plan for the Durango, Colorado, UMTRA Project Site* requires annual monitoring of groundwater and surface water from the Mill Tailings area to determine progress of the natural flushing process in meeting compliance standards. Groundwater and surface water samples were collected at the Raffinate Pond area as a best management practice to monitor selenium and uranium concentrations.

Sampling and analysis was conducted as specified in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Water levels were measured at each sampled well.

For the groundwater samples collected at the disposal site, the concentrations of the indicator parameters (molybdenum, selenium, and uranium) were below their respective U.S. Environmental Protection Agency (EPA) groundwater standard (40 CFR 192) with the following exception. The uranium concentration in well 0618 has been increasing since 2005 and is now 0.05 milligram per liter (mg/L); however, this level is below the proposed concentration limit of 0.077 mg/L.

For the groundwater samples collected at the processing site, EPA groundwater standards for cadmium, molybdenum, and uranium were exceeded in samples collected from monitor wells listed in Table 1 on the following page.

Results from this sampling event are generally consistent with values previously obtained. In reviewing the time-concentration graphs included in this report, it is noted that selenium concentrations at process site wells 0633 and 0617 increased where decreases were previously observed.

Surface water contaminant concentrations were compared to the values obtained at upgradient locations on the Animas River (0652) and South Creek (0588). The uranium concentration (0.016 mg/L) from location 0588 is an indicator of the quality of water entering the site. Surface water results from Animas River locations adjacent to and downstream of the processing site were compared to statistical benchmark values derived using historical data from location 0652. As shown in Table 2, no benchmark values were exceeded during this event, which indicates that the natural flushing strategy is not adversely affecting the water quality in the Animas River.

Table 1. Durango Processing Site Wells Exceeding EPA Standards in June 2008

Analyte	Standard[a]	Cleanup Goal[c]	Site Code[b]	Location	Concentration (mg/L)
Cadmium	0.01	Not applicable	DUR01	0612	0.042
Molybdenum	0.1	Not applicable	DUR01	0612	0.11
Selenium	0.01	0.05	DUR01	0617	0.032
				0630	0.025
				0633	0.083
Selenium	0.01	0.05	DUR02	0594	0.02
				0598	0.23
				0607	0.7
				0884	1.2
Uranium	0.044	Not applicable	DUR01	0612	1.4
				0617	0.15
				0630	0.27
				0631	0.11
				0633	0.58
				0634	0.087
Uranium	0.044	Not applicable	DUR02	0594	0.084
				0598	0.13
				0884	0.15

[a]Standards are listed in 40 CFR 192.02 Table 1 to Subpart A; concentrations are in milligrams per liter, mg/L.
[b]DUR01 = Mill Tailings Area; DUR02 = Raffinate Ponds Area.
[c]Cleanup goal for selenium, from the *Preliminary Final Ground Water Compliance Action Plan for the Durango, Colorado, UMTRA Project Site (July 2003).* Concentrations are in milligrams per liter, mg/L.

Table 2. Comparison of Animas River Concentrations to Benchmarks

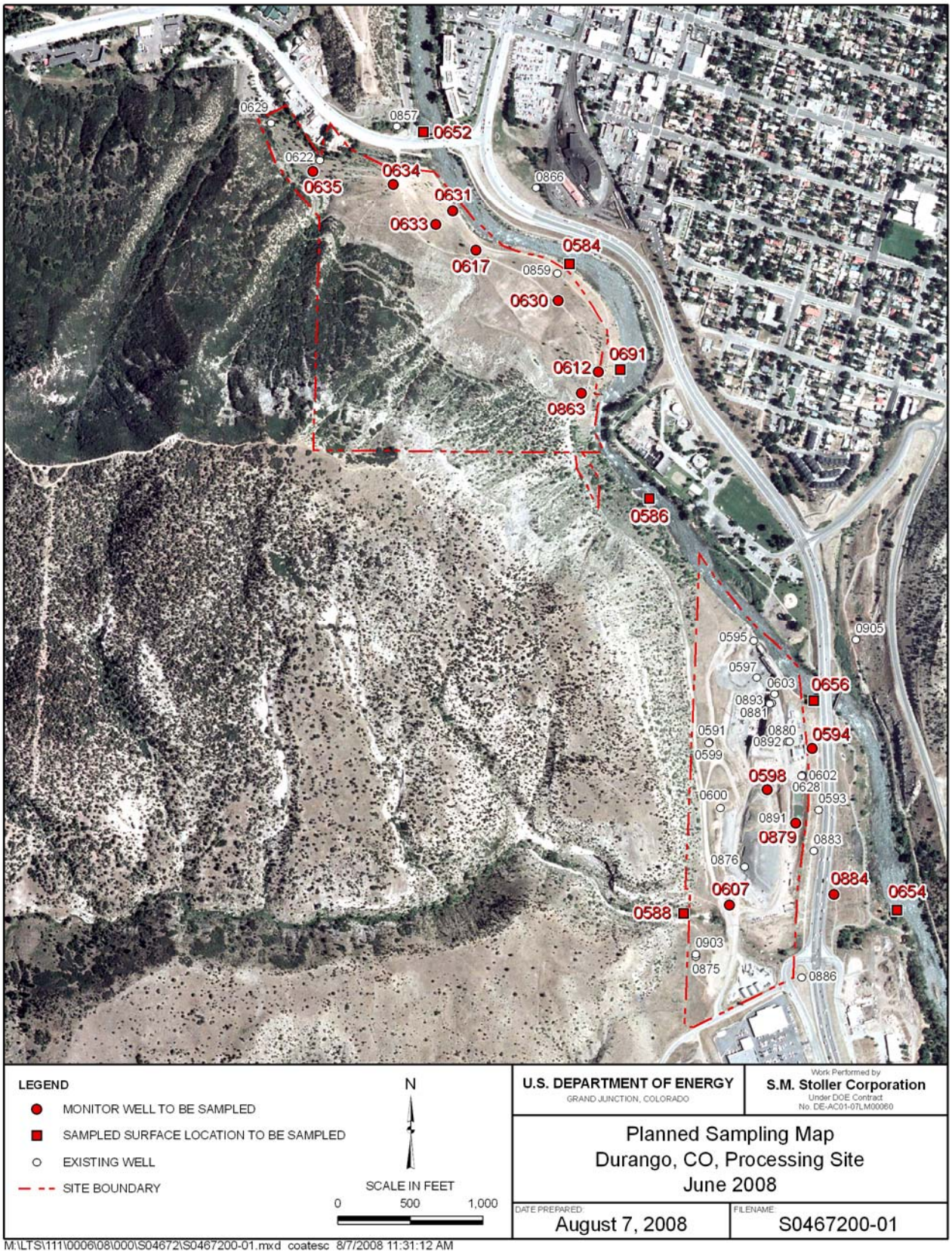
Analyte	Benchmark at 0652	0584	0691	0586	0656	0654
Cadmium	0.0020	0.00012	0.00011	0.00011	0.00013	0.00011
Molybdenum	0.010	0.00053	0.00048	0.00052	0.00047	0.00048
Selenium	0.0015[a]	0.00016	0.00016	0.00015	0.00015	0.00063
Uranium	0.0018	0.00025	0.00024	0.00052	0.00024	0.00029

Concentrations are in milligrams per liter, mg/L.
[a]Value of the highest historical detection limit.

David Miller
Site Lead, S.M. Stoller Corporation

9/2/08
Date

Durango, Colorado, Disposal Site Sample Location Map



Durango, Colorado, Processing Site Sample Location Map

Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Durango, Colorado	**Date(s) of Water Sampling**	June 2-4, 2008
Date(s) of Verification	August 8, 2008	**Name of Verifier**	Gretchen Baer

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOP's, instructions.		Work Order Letter dated May 6, 2008.
2. Were the sampling locations specified in the planning documents sampled?	Yes	With the exception of well DUR02-0879 that was damaged.
3. Was a pre-trip calibration conducted as specified in the above named documents?	Yes	Pre-trip calibration was performed on June 2, 2008.
4. Was an operational check of the field equipment conducted twice daily?	Yes	When sampling activities were performed in a half-day, one op-check was conducted, which is acceptable.
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	Exception: at DUR03-0608 and DUR01-0863 the water level drop exceeded Cat I requirements. Data are qualified as "Q."
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	Yes	Exception: Turbidity was >10 NTU at DUR03-0621. Data are qualified as "Q."
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	Two duplicate samples were collected.
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	Location numbers 2626, 2627, and 2642 were used.
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?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Report Number (RIN):	08051595
Sample Event:	June 2-4, 2008
Site(s):	Durango, Colorado
Laboratory:	Paragon Analytics
Work Order No.:	0806059
Analysis:	Metals and Wet Chemistry
Validator:	Gretchen Baer
Review Date:	August 8, 2008

This validation was performed according to the *Environmental Procedures Catalog*, "Standard Practice for Validation of Laboratory Data," GT-9(P). 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
Chloride	MIS-A-039	SW-846 9056	SW-846 9056
Metals, Ca, Fe, K, Mg, Mn, Na	LMM-01	SW-846 3005A	SW-846 6010B
Metals, Cd, Mo, Se, U	LMM-02	SW-846 3005A	SW-846 6020A
Sulfate	MIS-A-044	SW-846 9056	SW-846 9056
Total Dissolved Solids	WCH-B-033	MCAWW 160.1	MCAWW 160.1

Data Qualifier Summary

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(s)	Flag	Reason
0806059-1	DUR03-0621 Dup (2642)	Iron	J	Serial dilution failure
0806059-1	DUR03-0621 Dup (2642)	Magnesium	J	Serial dilution failure
0806059-1	DUR03-0621 Dup (2642)	Molybdenum	U	Less than 5 times the calibration blank
0806059-1	DUR03-0621 Dup (2642)	Potassium	J	Serial dilution failure
0806059-1	DUR03-0621 Dup (2642)	Selenium	U	Less than 5 times the calibration blank
0806059-1	DUR03-0621 Dup (2642)	Sodium	J	Serial dilution failure
0806059-1	DUR03-0621 Dup (2642)	Uranium	U	Less than 5 times the calibration blank
0806059-2	DUR03-0608	Molybdenum	U	Less than 5 times the calibration blank
0806059-8	DUR01-0631	Potassium	J	Serial dilution failure
0806059-12	DUR01-0863	Molybdenum	U	Less than 5 times the calibration blank
0806059-12	DUR01-0863	Selenium	U	Less than 5 times the calibration blank
0806059-12	DUR01-0863	Uranium	U	Less than 5 times the calibration blank
0806059-13	DUR01-0691	Molybdenum	U	Less than 5 times the calibration blank
0806059-13	DUR01-0691	Uranium	U	Less than 5 times the calibration blank
0806059-14	DUR01-0584	Molybdenum	U	Less than 5 times the calibration blank
0806059-15	DUR01-0652	Molybdenum	U	Less than 5 times the calibration blank
0806059-16	DUR01-0586	Molybdenum	U	Less than 5 times the calibration blank
0806059-17	DUR02-0656	Molybdenum	U	Less than 5 times the calibration blank
0806059-20	DUR02-0654	Molybdenum	U	Less than 5 times the calibration blank
0806059-23	Equipment Blank (2627)	Molybdenum	U	Less than 5 times the calibration blank
0806059-23	Equipment Blank (2627)	Uranium	U	Less than 5 times the calibration blank
0806059-24	DUR03-0605	Molybdenum	U	Less than 5 times the calibration blank
0806059-24	DUR03-0605	Selenium	U	Less than 5 times the calibration blank
0806059-24	DUR03-0605	Uranium	U	Less than 5 times the calibration blank
0806059-25	DUR03-0607	Molybdenum	U	Less than 5 times the calibration blank
0806059-25	DUR03-0607	Selenium	U	Less than 5 times the calibration blank
0806059-25	DUR03-0607	Uranium	U	Less than 5 times the calibration blank
0806059-26	DUR03-0612	Molybdenum	U	Less than 5 times the calibration blank
0806059-26	DUR03-0612	Selenium	U	Less than 5 times the calibration blank
0806059-26	DUR03-0612	Uranium	U	Less than 5 times the calibration blank
0806059-27	DUR03-0605 Dup (2626)	Molybdenum	U	Less than 5 times the calibration blank
0806059-27	DUR03-0605 Dup (2626)	Selenium	U	Less than 5 times the calibration blank
0806059-27	DUR03-0605 Dup (2626)	Uranium	U	Less than 5 times the calibration blank
0806059-28	DUR03-0618	Molybdenum	U	Less than 5 times the calibration blank
0806059-29	DUR03-0621	Iron	J	Serial dilution failure
0806059-29	DUR03-0621	Magnesium	J	Serial dilution failure
0806059-29	DUR03-0621	Potassium	J	Serial dilution failure
0806059-29	DUR03-0621	Sodium	J	Serial dilution failure
0806059-29	DUR03-0621	Uranium	U	Less than 5 times the calibration blank

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 29 water samples on June 6, 2008, under air bill numbers 7927 1100 3738 and 7920 6755 1049 accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC form and the sample tickets had no errors or omissions with the following exceptions. The site ID on ticket NFE 101 read "DUR01" instead of "DUR03." The COC form listed an incorrect filtration status at two locations, but this was corrected by the laboratory.

Preservation and Holding Times

The sample shipment was received cool and intact with temperatures inside the iced cooler at 1.4 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

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 6010B

Calibrations for calcium, iron, magnesium, manganese, potassium, and sodium were performed on June 10, 11, and 17, 2008, using three calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the reporting limits. Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 39 verification checks. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit and all results were within the acceptance range.

Method SW-846 6020A

Calibrations for cadmium, molybdenum, selenium, and uranium were performed on June 17, 2008, and for selenium on June 16, 2008, using seven calibration standards. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the method detection limits (MDLs). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 7 verification

checks for cadmium, molybdenum, and uranium, and 17 for selenium. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit and all results were within the acceptance range, with the following exception. The molybdenum check result was slightly above the acceptance range. All affected results have been previously qualified with a "U" flag (not detected), so no qualification is necessary. Mass calibration and resolution verifications were performed at the beginning of each analytical run in accordance with the analytical procedure. Internal standard recoveries associated with requested analytes were stable and within acceptable ranges.

Method SW-846 9056

Initial calibrations were performed for chloride and sulfate using five calibration standards on May 20, 2008. The calibration curve correlation coefficient values were greater than 0.995 and the absolute values of the intercepts were less than 3 times the MDL. Initial and continuing calibration verification checks were made at the required frequency resulting in eight verification checks. All calibration check results were within the acceptance criteria.

Method EPA 160.1

There are no calibration requirements associated with the determination of total dissolved solids.

Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and calibration blank results associated with the samples were below the practical quantitation limits for all analytes. In cases where a blank concentration exceeds the MDL, the associated sample results are qualified with a "U" flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration.

For calcium, iron, magnesium, and manganese, some blank results were negative and the absolute values were greater than the MDL but less than the practical quantitation limit. All associated results were greater than 5 times the MDL, so no results are qualified.

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

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

Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) samples are used to measure method performance in the sample matrix. The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spikes met the recovery and precision criteria for all analytes evaluated. Matrix spikes are not required for

sodium, potassium, magnesium, and calcium; these results were evaluated only for acceptable precision.

Laboratory Replicate Analysis

Laboratory replicate sample results demonstrate acceptable laboratory precision. The relative percent difference values for the sample replicates and matrix spike replicates were less than 20 percent for results that are greater than 5 times the practical quantitation limit, indicating acceptable precision.

Laboratory Control Sample

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

Metals Serial Dilution

Serial dilutions were prepared and analyzed for magnesium, manganese, potassium, sodium, and uranium to monitor chemical or physical interferences in the sample matrix. The serial dilution results met the acceptance criteria, with the exception of potassium at location DUR01-0631, and iron, magnesium, potassium, and sodium at location DUR03-0621. All associated results are qualified with a "J" flag as estimated values.

Detection Limits/Dilutions

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

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers. Cadmium, calcium, iron, magnesium, potassium, and sodium were reported for location DUR01-0631 although these analytes were not requested.

Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. There were no manual integrations performed and all peak integrations were satisfactory.

Electronic Data Deliverable (EDD) File

The EDD file arrived on June 23, 2008. 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

EDD Non-Conformance Report

Report Date: 8/7/2008

EDD File: 08051595.xml

EDD Errors: 0

Record	Table	Error Type	Field	Error Description
				NO ERRORS DETECTED

SAMPLE MANAGEMENT SYSTEM
General Data Validation Report

RIN: 08051595 **Lab Code:** PAR **Validator:** Gretchen Baer **Validation Date:** 8/7/2008

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

# of Samples: 29 **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

Wet Chemistry Data Validation Worksheet

RIN: 08051595 **Lab Code:** PAR **Date Due:** 7/4/2008

Matrix: Water **Site Code:** DUR **Date Completed:** 6/24/2008

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB						
CHLORIDE	06/10/2008	0.023	1.0000	OK	OK	OK	OK	OK	97.0	99.0	95.0	2.00	
SULFATE	06/10/2008	0.329	0.9999	OK	OK	OK	OK	OK	95.0	98.0	98.0	0	
TOTAL DISSOLVED SOLIDS	06/10/2008			OK	OK	OK	OK	OK	97.0			0	
TOTAL DISSOLVED SOLIDS	06/10/2008			OK	OK	OK	OK	OK	98.0				

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 08051595 **Lab Code:** PAR **Date Due:** 7/4/2008

Matrix: Water **Site Code:** DUR **Date Completed:** 6/24/2008

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								
CADMIUM	06/17/2008	-0.0020	1.0000	OK	OK	OK	OK	OK	102.0	101.0	101.0	1.0	99.0		81.0
CADMIUM	06/17/2008									104.0	104.0	0.0			
icp CALCIUM	06/10/2008	36.9000	1.0000	OK	OK	OK	OK	OK					103.0		101.0
icp CALCIUM	06/10/2008												103.0		101.0
icp CALCIUM	06/11/2008	99.9900	1.0000	OK	OK	OK	OK	OK	103.0			2.0	109.0	0.0	102.0
icp CALCIUM	06/11/2008												104.0		101.0
icp CALCIUM	06/11/2008											1.0	105.0		101.0
icp CALCIUM	06/17/2008												100.0		95.0
icp CALCIUM	06/17/2008												98.0		98.0
icp CALCIUM	06/17/2008	32.6000	1.0000	OK	OK	OK	OK	OK				2.0	104.0	4.0	102.0
icp IRON	06/10/2008	-2.2900	1.0000	OK	OK	OK	OK	OK					105.0		98.0
icp IRON	06/10/2008												106.0		98.0
icp IRON	06/11/2008	-6.1900	1.0000	OK	OK	OK	OK	OK	97.0	94.0	93.0	1.0	112.0		103.0
icp IRON	06/11/2008												106.0		105.0
icp IRON	06/11/2008												106.0		101.0
icp IRON	06/17/2008												103.0		97.0
icp IRON	06/17/2008												101.0		98.0

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 08051595 **Lab Code:** PAR **Date Due:** 7/4/2008

Matrix: Water **Site Code:** DUR **Date Completed:** 6/24/2008

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								
icp IRON	06/17/2008	-2.9000	1.0000	OK	OK	OK	OK	OK				1.0	106.0	16.0	98.0
icp Magnesium	06/10/2008	-7.3400	1.0000	OK	OK	OK	OK	OK					103.0		100.0
icp Magnesium	06/10/2008												103.0		101.0
icp Magnesium	06/11/2008	20.0000	1.0000	OK	OK	OK	OK	OK	104.0			1.0	108.0	0.0	106.0
icp Magnesium	06/11/2008												98.0		109.0
icp Magnesium	06/11/2008											0.0	109.0		108.0
icp Magnesium	06/17/2008												96.0		101.0
icp Magnesium	06/17/2008												97.0		104.0
icp Magnesium	06/17/2008	-4.0600	1.0000	OK	OK	OK	OK	OK				0.0	94.0	14.0	100.0
icp Manganese	06/10/2008	-0.0560	1.0000	OK	OK	OK	OK	OK					92.0		100.0
icp Manganese	06/10/2008												93.0		100.0
icp Manganese	06/11/2008	-0.0830	1.0000	OK	OK	OK	OK	OK	99.0	97.0	96.0	1.0	98.0	5.0	105.0
icp Manganese	06/11/2008												98.0		108.0
icp Manganese	06/11/2008											1.0	97.0		107.0
icp Manganese	06/17/2008												96.0		99.0
icp Manganese	06/17/2008												97.0		103.0
icp Manganese	06/17/2008	-0.6600	1.0000	OK	OK	OK	OK	OK				0.0	94.0	3.0	100.0

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 08051595 **Lab Code:** PAR **Date Due:** 7/4/2008

Matrix: Water **Site Code:** DUR **Date Completed:** 6/24/2008

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								
icp POTASSIUM	06/10/2008	99.9900	1.0000	OK	OK	OK	OK	OK							88.0
icp POTASSIUM	06/10/2008														88.0
icp POTASSIUM	06/11/2008	99.9900	1.0000	OK	OK	OK	OK	OK	98.0			1.0		11.0	91.0
icp POTASSIUM	06/11/2008														90.0
icp POTASSIUM	06/11/2008											0.0			91.0
icp POTASSIUM	06/17/2008														84.0
icp POTASSIUM	06/17/2008														85.0
icp POTASSIUM	06/17/2008	99.9900	1.0000	OK	OK	OK	OK	OK				1.0		29.0	85.0
icp SODIUM	06/10/2008	89.3000	1.0000	OK	OK	OK	OK	OK							90.0
icp SODIUM	06/10/2008														89.0
icp SODIUM	06/11/2008	87.1000	1.0000	OK	OK	OK	OK	OK	98.0			1.0		4.0	93.0
icp SODIUM	06/11/2008														95.0
icp SODIUM	06/11/2008											0.0			94.0
icp SODIUM	06/17/2008														88.0
icp SODIUM	06/17/2008														89.0
icp SODIUM	06/17/2008	99.9900	1.0000	OK	OK	OK	OK	OK				0.0		12.0	88.0
MOLYBDENUM	06/17/2008	-0.0030	1.0000	OK	OK	OK	OK	OK	103.0	103.0	105.0	1.0	114.0		133.0

SAMPLE MANAGEMENT SYSTEM

Metals Data Validation Worksheet

RIN: 08051595 **Lab Code:** PAR **Date Due:** 7/4/2008

Matrix: Water **Site Code:** DUR **Date Completed:** 6/24/2008

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								
MOLYBDENUM	06/17/2008									104.0	107.0	2.0			
SELENIUM	06/16/2008	-0.0470	1.0000	OK	OK	OK	OK	OK	84.0	78.0	82.0	5.0	91.0		104.0
SELENIUM	06/17/2008	-0.0630	1.0000	OK	OK	OK	OK	OK	88.0	104.0	103.0	1.0	100.0		87.0
URANIUM	06/17/2008											0.0			
URANIUM	06/17/2008	0.0000	1.0000	OK	OK	OK	OK	OK	106.0	101.0	108.0	1.0	109.0	1.0	97.0
URANIUM	06/17/2008									110.0	109.0	0.0		2.0	

Sampling Quality Control Assessment

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

Sampling Protocol

Sample results for all monitor 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.

All wells met the Category I criteria and were sampled with dedicated tubing using the low-flow purge procedure, with the following exceptions:

- Wells DUR01-0634, DUR01-0635, DUR02-0594, DUR02-0607, DUR03-0612, and DUR03-0623 were classified as Category II due to water level drawdown.
- Turbidity requirements were not met for well DUR03-0621.
- The water level drawdown exceeded the Category I criterion for wells DUR03-0608 and DUR01-0863.

The sample results for these nine wells were qualified with a "Q" flag, indicating the data are qualitative because of the sampling technique.

Surface water locations were sampled using a peristaltic pump. Monitor wells were sampled using either a peristaltic pump and dedicated tubing or a dedicated bladder pump.

Equipment Blank Assessment

An equipment blank (field ID 2627) was collected after decontamination of the hose reel used to collect the surface water samples. Molybdenum and uranium were detected in the blank by the laboratory, but these analytes were qualified during data validation with a "U" flag as not detected. The equipment blank results indicate adequate decontamination of the sampling equipment.

Field Duplicate Assessment

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates which measure only laboratory performance. Duplicate samples were collected from wells DUR03-0605 and DUR03-0621. The duplicate results met the EPA recommended laboratory duplicate criteria of less than 20 percent relative difference for results that are greater than 5 times the practical quantitation limit, indicating acceptable overall precision.

SAMPLE MANAGEMENT SYSTEM

Validation Report: Field Duplicates

RIN: 08051595 **Lab Code:** PAR **Project:** Durango **Validation Date:** 8/7/2008

Duplicate: 2626 **Sample:** 0605

Analyte	Sample Result	Flag	Error	Duplicate Result	Flag	Error	RPD	RER	Units
CALCIUM	140000			130000			7.41		UG/L
CHLORIDE	30			33			9.52		MG/L
IRON	45	B		43	B		4.55		UG/L
MAGNESIUM	120000			120000			0		UG/L
MANGANESE	35			35			0		UG/L
MOLYBDENUM	0.11	B		0.15	B				UG/L
POTASSIUM	11000			11000			0		UG/L
SELENIUM	0.054	B		0.06	B				UG/L
SODIUM	260000			260000			0		UG/L
SULFATE	740			730			1.36		MG/L
TOTAL DISSOLVED SOLIDS	1800			1800			0		MG/L
URANIUM	0.058	B		0.072	B				UG/L

Duplicate: 2642 **Sample:** 0621

Analyte	Sample Result	Flag	Error	Duplicate Result	Flag	Error	RPD	RER	Units
CALCIUM	440000			470000			6.59		UG/L
CHLORIDE	10			11			9.52		MG/L
IRON	150000	E		150000			0		UG/L
MAGNESIUM	400000	E		370000			7.79		UG/L
MANGANESE	2900			2700			7.14		UG/L
MOLYBDENUM	0.51	B		0.4	B				UG/L
POTASSIUM	19000	EN		17000			11.11		UG/L
SELENIUM	0.082	B		0.076	B				UG/L
SODIUM	200000	E		180000			10.53		UG/L
SULFATE	3200			3100			3.17		MG/L
TOTAL DISSOLVED SOLIDS	4700			4700			0		MG/L
URANIUM	0.13			0.11					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: 8-27-2008

Data Validation Lead: Gretchen Baer — Date: 8/26/08

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Attachment 1
Assessment of Anomalous Data

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Potential Outliers

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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 all new data that fall outside the historical data range. Data listed in the report are highlighted if the concentration detected is not within 50 percent of historical minimum or maximum values. 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.

Two values from this sampling event were identified as potential outliers. The iron result for DUR01-0631 was below the historical minimum, and the uranium result for DUR03-0618 was slightly above the historical maximum. There were no analytical errors identified during the review of the data. The data for this RIN are acceptable as qualified.

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Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08051595
Comparison: All Historical Data
Report Date: 8/8/2008

				Current			Historical Maximum			Historical Minimum			Count		Normally Distributed	Statistical Outlier
					Qualifiers			Qualifiers			Qualifiers					
Site Code	Location Code	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect		
DUR01	0584	06/03/2008	Cadmium	0.00012	B		0.00087	B	U	0.00016	B	U	13	7	No	No
DUR01	0586	06/03/2008	Cadmium	0.00011	B		0.001		U	0.00014	B	U	13	9	No	No
DUR01	0630	06/03/2008	Total Dissolved Solids	3100		F	4370			3110		F	15	0	No	No
DUR01	0631	06/03/2008	Iron	0.041	B	F	0.51			0.0501		F	10	0	Yes (log)	Yes
DUR01	0631	06/03/2008	Magnesium	43		F	189			60.7			13	0	Yes	No
DUR01	0631	06/03/2008	Potassium	6.4	E	FJ	17.8			8.45			14	0	Yes	No
DUR01	0631	06/03/2008	Sodium	63		F	407			95.1		F	15	0	Yes	No
DUR01	0631	06/03/2008	Uranium	0.11		F	0.63			0.12		F	21	0	Yes	No
DUR01	0633	06/02/2008	Total Dissolved Solids	4200		F	6500		F	4940		F	16	0	Yes	No
DUR01	0633	06/02/2008	Uranium	0.58		F	1.59			0.65		F	21	0	Yes	No
DUR01	0634	06/02/2008	Sulfate	2500		FQ	2400		Q	585		QF	18	0	No	No
DUR01	0634	06/02/2008	Total Dissolved Solids	4300		FQ	4180			3500			14	0	Yes	No
DUR01	0652	06/03/2008	Cadmium	0.00013	B		0.002	S		0.00015	B	U	22	13	No	No
DUR01	0691	06/03/2008	Cadmium	0.00011	B		0.005	U		0.00017	B	U	32	24	No	No
DUR01	0863	06/03/2008	Cadmium	0.000066	B	FQ	0.00067	B	U	0.000067	B	UF	11	10	Yes	No
DUR01	0863	06/03/2008	Sulfate	690		FQ	680		F	544			11	0	Yes	No
DUR02	0588	06/03/2008	Cadmium	0.000059	B		0.0013		U	0.00011	B	U	15	11	No	No
DUR02	0654	06/03/2008	Cadmium	0.00011	B		0.001	U	RX	0.00015	B	U	19	13	No	No
DUR02	0656	06/03/2008	Cadmium	0.00013	B		0.001	U	RX	0.00014	B	U	18	15	No	No
DUR03	0612	06/03/2008	Manganese	0.0055		FQ	0.13		F	0.0066	B	F	27	3	Yes (log)	No
DUR03	0612	06/03/2008	Total Dissolved Solids	2900		FQ	2870		F	2090		L	23	0	Yes	No

Data Validation Outliers Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 08051595
Comparison: All Historical Data
Report Date: 8/8/2008

Site Code	Location Code	Sample Date	Analyte	Current Result	Current Qualifiers Lab	Current Qualifiers Data	Historical Maximum Result	Historical Maximum Qualifiers Lab	Historical Maximum Qualifiers Data	Historical Minimum Result	Historical Minimum Qualifiers Lab	Historical Minimum Qualifiers Data	Count N	Count N Below Detect	Normally Distributed	Statistical Outlier
DUR03	0618	06/04/2008	Uranium	0.05		F	0.047		F	0.001			10	0	Yes (log)	Yes
DUR03	0621	06/04/2008	Manganese	2.7		FQ	6.04		F	2.9		F	23	0	Yes	No
DUR03	0621	06/04/2008	Potassium	19	EN	FQJ	17		F	7			22	0	No	No
DUR03	0621	06/04/2008	Sodium	200	E	FQJ	199		F	89		F	22	0	No	No

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.		

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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Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0612 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	37.41	-	57.41	434		F	#		
Cadmium	mg/L	06/03/2008	N001	37.41	-	57.41	0.042		F	#	0.006	
Manganese	mg/L	06/03/2008	N001	37.41	-	57.41	4.5		F	#	0.00013	
Molybdenum	mg/L	06/03/2008	N001	37.41	-	57.41	0.11		F	#	0.02	
Oxidation Reduction Potential	mV	06/03/2008	N001	37.41	-	57.41	-13		F	#		
pH	s.u.	06/03/2008	N001	37.41	-	57.41	6.83		F	#		
Selenium	mg/L	06/03/2008	N001	37.41	-	57.41	0.00061		F	#	0.00004	
Specific Conductance	umhos /cm	06/03/2008	N001	37.41	-	57.41	3961		F	#		
Sulfate	mg/L	06/03/2008	N001	37.41	-	57.41	1800		F	#	25	
Temperature	C	06/03/2008	N001	37.41	-	57.41	11.92		F	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	37.41	-	57.41	3400		F	#	80	
Turbidity	NTU	06/03/2008	N001	37.41	-	57.41	3		F	#		
Uranium	mg/L	06/03/2008	N001	37.41	-	57.41	1.4		F	#	0.002	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0617 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	14	-	29	436		F	#		
Manganese	mg/L	06/03/2008	N001	14	-	29	0.0087		F	#	0.00013	
Molybdenum	mg/L	06/03/2008	N001	14	-	29	0.0016		F	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	14	-	29	72		F	#		
pH	s.u.	06/03/2008	N001	14	-	29	6.94		F	#		
Selenium	mg/L	06/03/2008	N001	14	-	29	0.032		F	#	0.0002	
Specific Conductance	umhos /cm	06/03/2008	N001	14	-	29	3657		F	#		
Sulfate	mg/L	06/03/2008	N001	14	-	29	2000		F	#	25	
Temperature	C	06/03/2008	N001	14	-	29	10.99		F	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	14	-	29	3600		F	#	80	
Turbidity	NTU	06/03/2008	N001	14	-	29	1.4		F	#		
Uranium	mg/L	06/03/2008	N001	14	-	29	0.15		F	#	0.0002	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0630 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	28.3	-	38.3	234		F	#		
Manganese	mg/L	06/03/2008	N001	28.3	-	38.3	0.57		F	#	0.00013	
Molybdenum	mg/L	06/03/2008	N001	28.3	-	38.3	0.0046		F	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	28.3	-	38.3	11		F	#		
pH	s.u.	06/03/2008	N001	28.3	-	38.3	6.95		F	#		
Selenium	mg/L	06/03/2008	N001	28.3	-	38.3	0.025		F	#	0.0002	
Specific Conductance	umhos /cm	06/03/2008	N001	28.3	-	38.3	3311		F	#		
Sulfate	mg/L	06/03/2008	N001	28.3	-	38.3	1800		F	#	25	
Temperature	C	06/03/2008	N001	28.3	-	38.3	12.57		F	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	28.3	-	38.3	3100		F	#	80	
Turbidity	NTU	06/03/2008	N001	28.3	-	38.3	8.37		F	#		
Uranium	mg/L	06/03/2008	N001	28.3	-	38.3	0.27		F	#	0.0005	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0631 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	6	-	16	412		F	#		
Cadmium	mg/L	06/03/2008	N001	6	-	16	0.0001713	B	F	#	0.0006	
Calcium	mg/L	06/03/2008	N001	6	-	16	94		F	#	1	
Iron	mg/L	06/03/2008	N001	6	-	16	0.041	B	F	#	0.0029	
Magnesium	mg/L	06/03/2008	N001	6	-	16	43		F	#	1	
Manganese	mg/L	06/03/2008	N001	6	-	16	0.19		F	#	0.00013	
Molybdenum	mg/L	06/03/2008	N001	6	-	16	0.007	E	F	#	0.002	
Oxidation Reduction Potential	mV	06/03/2008	N001	6	-	16	45		F	#		
pH	s.u.	06/03/2008	N001	6	-	16	7.32		F	#		
Potassium	mg/L	06/03/2008	N001	6	-	16	6.4	E	FJ	#	1	
Selenium	mg/L	06/03/2008	N001	6	-	16	0.00046		F	#	0.00004	
Sodium	mg/L	06/03/2008	N001	6	-	16	63		F	#	1	
Specific Conductance	umhos /cm	06/03/2008	N001	6	-	16	969		F	#		
Sulfate	mg/L	06/03/2008	N001	6	-	16	150		F	#	5	
Temperature	C	06/03/2008	N001	6	-	16	10.22		F	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	6	-	16	600		F	#	40	
Turbidity	NTU	06/03/2008	N001	6	-	16	0.67		F	#		
Uranium	mg/L	06/03/2008	N001	6	-	16	0.11		F	#	0.0002	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0633 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/02/2008	N001	4	-	14	360		F	#		
Manganese	mg/L	06/02/2008	N001	4	-	14	0.025		F	#	0.00013	
Molybdenum	mg/L	06/02/2008	N001	4	-	14	0.0064		F	#	0.001	
Oxidation Reduction Potential	mV	06/02/2008	N001	4	-	14	-41		F	#		
pH	s.u.	06/02/2008	N001	4	-	14	7.25		F	#		
Selenium	mg/L	06/02/2008	N001	4	-	14	0.083		F	#	0.0004	
Specific Conductance	umhos /cm	06/02/2008	N001	4	-	14	4288		F	#		
Sulfate	mg/L	06/02/2008	N001	4	-	14	2300		F	#	25	
Temperature	C	06/02/2008	N001	4	-	14	12.84		F	#		
Total Dissolved Solids	mg/L	06/02/2008	N001	4	-	14	4200		F	#	80	
Turbidity	NTU	06/02/2008	N001	4	-	14	1.01		F	#		
Uranium	mg/L	06/02/2008	N001	4	-	14	0.58		F	#	0.001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0634 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/02/2008	N001	8	-	18	477		FQ	#		
Manganese	mg/L	06/02/2008	N001	8	-	18	0.23		FQ	#	0.00013	
Molybdenum	mg/L	06/02/2008	N001	8	-	18	0.0023		FQ	#	0.001	
Oxidation Reduction Potential	mV	06/02/2008	N001	8	-	18	108		FQ	#		
pH	s.u.	06/02/2008	N001	8	-	18	7.03		FQ	#		
Selenium	mg/L	06/02/2008	N001	8	-	18	0.00035		FQ	#	0.00004	
Specific Conductance	umhos /cm	06/02/2008	N001	8	-	18	4707		FQ	#		
Sulfate	mg/L	06/02/2008	N001	8	-	18	2500		FQ	#	25	
Temperature	C	06/02/2008	N001	8	-	18	10.66		FQ	#		
Total Dissolved Solids	mg/L	06/02/2008	N001	8	-	18	4300		FQ	#	80	
Turbidity	NTU	06/02/2008	N001	8	-	18	10.3		FQ	#		
Uranium	mg/L	06/02/2008	N001	8	-	18	0.087		FQ	#	0.0001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0635 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/02/2008	N001	5.5	-	15.5	468		FQ	#		
Manganese	mg/L	06/02/2008	N001	5.5	-	15.5	0.49		FQ	#	0.00013	
Molybdenum	mg/L	06/02/2008	N001	5.5	-	15.5	0.0015		FQ	#	0.001	
Oxidation Reduction Potential	mV	06/02/2008	N001	5.5	-	15.5	-14.3		FQ	#		
pH	s.u.	06/02/2008	N001	5.5	-	15.5	6.91		FQ	#		
Selenium	mg/L	06/02/2008	N001	5.5	-	15.5	0.00082		FQ	#	0.00004	
Specific Conductance	umhos /cm	06/02/2008	N001	5.5	-	15.5	2708		FQ	#		
Sulfate	mg/L	06/02/2008	N001	5.5	-	15.5	1300		FQ	#	25	
Temperature	C	06/02/2008	N001	5.5	-	15.5	11.4		FQ	#		
Total Dissolved Solids	mg/L	06/02/2008	N001	5.5	-	15.5	2400		FQ	#	40	
Turbidity	NTU	06/02/2008	N001	5.5	-	15.5	7.65		FQ	#		
Uranium	mg/L	06/02/2008	N001	5.5	-	15.5	0.01		FQ	#	0.0001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0863 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	58	-	67.5	568		FQ	#		
Cadmium	mg/L	06/03/2008	N001	58	-	67.5	0.000066	B	FQ	#	0.0003	
Manganese	mg/L	06/03/2008	N001	58	-	67.5	0.11		FQ	#	0.00013	
Molybdenum	mg/L	06/03/2008	N001	58	-	67.5	0.00071	B	UFQ	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	58	-	67.5	-34		FQ	#		
pH	s.u.	06/03/2008	N001	58	-	67.5	7.11		FQ	#		
Selenium	mg/L	06/03/2008	N001	58	-	67.5	0.00012		UFQ	#	0.00004	
Specific Conductance	umhos /cm	06/03/2008	N001	58	-	67.5	2251		FQ	#		
Sulfate	mg/L	06/03/2008	N001	58	-	67.5	690		FQ	#	10	
Temperature	C	06/03/2008	N001	58	-	67.5	12.21		FQ	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	58	-	67.5	1600		FQ	#	40	
Turbidity	NTU	06/03/2008	N001	58	-	67.5	1.75		FQ	#		
Uranium	mg/L	06/03/2008	N001	58	-	67.5	0.00015		UFQ	#	0.0001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR02, Durango Raffinate Pond Process Site
REPORT DATE: 8/8/2008
Location: 0594 WELL Original location DH-116.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	8.5	-	38.5	380		FQ	#		
Oxidation Reduction Potential	mV	06/03/2008	N001	8.5	-	38.5	-17		FQ	#		
pH	s.u.	06/03/2008	N001	8.5	-	38.5	6.91		FQ	#		
Selenium	mg/L	06/03/2008	N001	8.5	-	38.5	0.02		FQ	#	0.0002	
Specific Conductance	umhos /cm	06/03/2008	N001	8.5	-	38.5	4739		FQ	#		
Temperature	C	06/03/2008	N001	8.5	-	38.5	13.11		FQ	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	8.5	-	38.5	4000		FQ	#	80	
Turbidity	NTU	06/03/2008	N001	8.5	-	38.5	3.4		FQ	#		
Uranium	mg/L	06/03/2008	N001	8.5	-	38.5	0.084		FQ	#	0.0005	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR02, Durango Raffinate Pond Process Site
REPORT DATE: 8/8/2008
Location: 0598 WELL Original location Bureau of Rec well DH-110.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/04/2008	N001	66.2	-	96.2	364		F	#		
Oxidation Reduction Potential	mV	06/04/2008	N001	66.2	-	96.2	-1		F	#		
pH	s.u.	06/04/2008	N001	66.2	-	96.2	7.08		F	#		
Selenium	mg/L	06/04/2008	N001	66.2	-	96.2	0.23		F	#	0.004	
Specific Conductance	umhos /cm	06/04/2008	N001	66.2	-	96.2	7897		F	#		
Temperature	C	06/04/2008	N001	66.2	-	96.2	12.28		F	#		
Total Dissolved Solids	mg/L	06/04/2008	N001	66.2	-	96.2	7500		F	#	200	
Turbidity	NTU	06/04/2008	N001	66.2	-	96.2	4.9		F	#		
Uranium	mg/L	06/04/2008	N001	66.2	-	96.2	0.13		F	#	0.0005	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR02, Durango Raffinate Pond Process Site
REPORT DATE: 8/8/2008
Location: 0607 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	35	-	55	356		FQ	#		
Oxidation Reduction Potential	mV	06/03/2008	N001	35	-	55	42.6		FQ	#		
pH	s.u.	06/03/2008	N001	35	-	55	7.12		FQ	#		
Selenium	mg/L	06/03/2008	N001	35	-	55	0.7		FQ	#	0.004	
Specific Conductance	umhos /cm	06/03/2008	N001	35	-	55	2816		FQ	#		
Temperature	C	06/03/2008	N001	35	-	55	14.35		FQ	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	35	-	55	2300		FQ	#	40	
Turbidity	NTU	06/03/2008	N001	35	-	55	4.02		FQ	#		
Uranium	mg/L	06/03/2008	N001	35	-	55	0.0044		FQ	#	0.0001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR02, Durango Raffinate Pond Process Site
REPORT DATE: 8/8/2008
Location: 0884 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	36.5	-	46.5	380		F	#		
Oxidation Reduction Potential	mV	06/03/2008	N001	36.5	-	46.5	37.3		F	#		
pH	s.u.	06/03/2008	N001	36.5	-	46.5	7.17		F	#		
Selenium	mg/L	06/03/2008	N001	36.5	-	46.5	1.2		F	#	0.0079	
Specific Conductance	umhos /cm	06/03/2008	N001	36.5	-	46.5	4807		F	#		
Temperature	C	06/03/2008	N001	36.5	-	46.5	14.28		F	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	36.5	-	46.5	4400		F	#	80	
Turbidity	NTU	06/03/2008	N001	36.5	-	46.5	7.47		F	#		
Uranium	mg/L	06/03/2008	N001	36.5	-	46.5	0.15		F	#	0.0005	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
REPORT DATE: 8/8/2008
Location: 0605 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	36	-	56	720		F	#		
Calcium	mg/L	06/03/2008	N001	36	-	56	140		F	#	1	
Calcium	mg/L	06/03/2008	N002	36	-	56	130		F	#	1	
Chloride	mg/L	06/03/2008	N001	36	-	56	30		F	#	4	
Chloride	mg/L	06/03/2008	N002	36	-	56	33		F	#	4	
Iron	mg/L	06/03/2008	N001	36	-	56	0.045	B	F	#	0.0029	
Iron	mg/L	06/03/2008	N002	36	-	56	0.043	B	F	#	0.0029	
Magnesium	mg/L	06/03/2008	N001	36	-	56	120		F	#	1	
Magnesium	mg/L	06/03/2008	N002	36	-	56	120		F	#	1	
Manganese	mg/L	06/03/2008	N001	36	-	56	0.035		F	#	0.00013	
Manganese	mg/L	06/03/2008	N002	36	-	56	0.035		F	#	0.00013	
Molybdenum	mg/L	06/03/2008	N001	36	-	56	0.00011	B	UF	#	0.001	
Molybdenum	mg/L	06/03/2008	N002	36	-	56	0.00015	B	UF	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	36	-	56	-71		F	#		
pH	s.u.	06/03/2008	N001	36	-	56	6.96		F	#		
Potassium	mg/L	06/03/2008	N001	36	-	56	11		F	#	1	
Potassium	mg/L	06/03/2008	N002	36	-	56	11		F	#	1	
Selenium	mg/L	06/03/2008	N001	36	-	56	0.000054	B	UF	#	0.00004	
Selenium	mg/L	06/03/2008	N002	36	-	56	0.00006	B	UF	#	0.00004	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
REPORT DATE: 8/8/2008
Location: 0605 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Sodium	mg/L	06/03/2008	N001	36	-	56	260		F	#	10	
Sodium	mg/L	06/03/2008	N002	36	-	56	260		F	#	10	
Specific Conductance	umhos /cm	06/03/2008	N001	36	-	56	2420		F	#		
Sulfate	mg/L	06/03/2008	N001	36	-	56	740		F	#	10	
Sulfate	mg/L	06/03/2008	N002	36	-	56	730		F	#	10	
Temperature	C	06/03/2008	N001	36	-	56	15.1		F	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	36	-	56	1800		F	#	40	
Total Dissolved Solids	mg/L	06/03/2008	N002	36	-	56	1800		F	#	40	
Turbidity	NTU	06/03/2008	N001	36	-	56	0.65		F	#		
Uranium	mg/L	06/03/2008	N001	36	-	56	0.000058	B	UF	#	0.0001	
Uranium	mg/L	06/03/2008	N002	36	-	56	0.000072	B	UF	#	0.0001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
REPORT DATE: 8/8/2008
Location: 0607 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	36.7	-	56.7	422		F	#		
Calcium	mg/L	06/03/2008	N001	36.7	-	56.7	290		F	#	1	
Chloride	mg/L	06/03/2008	N001	36.7	-	56.7	14		F	#	1	
Iron	mg/L	06/03/2008	N001	36.7	-	56.7	0.12		F	#	0.0029	
Magnesium	mg/L	06/03/2008	N001	36.7	-	56.7	200		F	#	1	
Manganese	mg/L	06/03/2008	N001	36.7	-	56.7	0.085		F	#	0.00013	
Molybdenum	mg/L	06/03/2008	N001	36.7	-	56.7	0.00014	B	UF	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	36.7	-	56.7	-83		F	#		
pH	s.u.	06/03/2008	N001	36.7	-	56.7	6.94		F	#		
Potassium	mg/L	06/03/2008	N001	36.7	-	56.7	10		F	#	1	
Selenium	mg/L	06/03/2008	N001	36.7	-	56.7	0.000081	B	UF	#	0.00004	
Sodium	mg/L	06/03/2008	N001	36.7	-	56.7	290		F	#	10	
Specific Conductance	umhos /cm	06/03/2008	N001	36.7	-	56.7	3350		F	#		
Sulfate	mg/L	06/03/2008	N001	36.7	-	56.7	1700		F	#	25	
Temperature	C	06/03/2008	N001	36.7	-	56.7	11.66		F	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	36.7	-	56.7	3100		F	#	80	
Turbidity	NTU	06/03/2008	N001	36.7	-	56.7	0.85		F	#		
Uranium	mg/L	06/03/2008	N001	36.7	-	56.7	0.00011		UF	#	0.0001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
REPORT DATE: 8/8/2008
Location: 0608 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/04/2008	N001	29	-	39	388		FQ	#		
Calcium	mg/L	06/04/2008	N001	29	-	39	210		FQ	#	1	
Chloride	mg/L	06/04/2008	N001	29	-	39	23		FQ	#	4	
Iron	mg/L	06/04/2008	N001	29	-	39	0.082		FQ	#	0.0029	
Magnesium	mg/L	06/04/2008	N001	29	-	39	140		FQ	#	1	
Manganese	mg/L	06/04/2008	N001	29	-	39	0.0025	B	FQ	#	0.00013	
Molybdenum	mg/L	06/04/2008	N001	29	-	39	0.0011		UFQ	#	0.001	
Oxidation Reduction Potential	mV	06/04/2008	N001	29	-	39	58		FQ	#		
pH	s.u.	06/04/2008	N001	29	-	39	7.06		FQ	#		
Potassium	mg/L	06/04/2008	N001	29	-	39	5.1		FQ	#	1	
Selenium	mg/L	06/04/2008	N001	29	-	39	0.0042		FQ	#	0.00004	
Sodium	mg/L	06/04/2008	N001	29	-	39	73		FQ	#	1	
Specific Conductance	umhos /cm	06/04/2008	N001	29	-	39	1845		FQ	#		
Sulfate	mg/L	06/04/2008	N001	29	-	39	730		FQ	#	10	
Temperature	C	06/04/2008	N001	29	-	39	8.93		FQ	#		
Total Dissolved Solids	mg/L	06/04/2008	N001	29	-	39	1500		FQ	#	40	
Turbidity	NTU	06/04/2008	N001	29	-	39	5.58		FQ	#		
Uranium	mg/L	06/04/2008	N001	29	-	39	0.0061		FQ	#	0.0001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
REPORT DATE: 8/8/2008
Location: 0612 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	N001	98.09	-	108.09	2254		FQ	#		
Calcium	mg/L	06/03/2008	N001	98.09	-	108.09	5.4		FQ	#	1	
Chloride	mg/L	06/03/2008	N001	98.09	-	108.09	54		FQ	#	1	
Iron	mg/L	06/03/2008	N001	98.09	-	108.09	0.047	B	FQ	#	0.0029	
Magnesium	mg/L	06/03/2008	N001	98.09	-	108.09	3.8		FQ	#	1	
Manganese	mg/L	06/03/2008	N001	98.09	-	108.09	0.0055		FQ	#	0.00013	
Molybdenum	mg/L	06/03/2008	N001	98.09	-	108.09	0.00021	B	UFQ	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	98.09	-	108.09	-267		FQ	#		
pH	s.u.	06/03/2008	N001	98.09	-	108.09	8		FQ	#		
Potassium	mg/L	06/03/2008	N001	98.09	-	108.09	12		FQ	#	1	
Selenium	mg/L	06/03/2008	N001	98.09	-	108.09	0.000046	B	UFQ	#	0.00004	
Sodium	mg/L	06/03/2008	N001	98.09	-	108.09	880		FQ	#	100	
Specific Conductance	umhos /cm	06/03/2008	N001	98.09	-	108.09	3875		FQ	#		
Sulfate	mg/L	06/03/2008	N001	98.09	-	108.09	31		FQ	#	2.5	
Temperature	C	06/03/2008	N001	98.09	-	108.09	74.81		FQ	#		
Total Dissolved Solids	mg/L	06/03/2008	N001	98.09	-	108.09	2900		FQ	#	80	
Turbidity	NTU	06/03/2008	N001	98.09	-	108.09	3.12		FQ	#		
Uranium	mg/L	06/03/2008	N001	98.09	-	108.09	0.000097	B	UFQ	#	0.0001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
REPORT DATE: 8/8/2008
Location: 0618 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/04/2008	N001	29.77	-	49.77	404		F	#		
Calcium	mg/L	06/04/2008	N001	29.77	-	49.77	290		F	#	1	
Chloride	mg/L	06/04/2008	N001	29.77	-	49.77	41		F	#	4	
Iron	mg/L	06/04/2008	N001	29.77	-	49.77	0.066		F	#	0.0029	
Magnesium	mg/L	06/04/2008	N001	29.77	-	49.77	170		F	#	1	
Manganese	mg/L	06/04/2008	N001	29.77	-	49.77	0.00044	B	F	#	0.00013	
Molybdenum	mg/L	06/04/2008	N001	29.77	-	49.77	0.00078	B	UF	#	0.001	
Oxidation Reduction Potential	mV	06/04/2008	N001	29.77	-	49.77	31		F	#		
pH	s.u.	06/04/2008	N001	29.77	-	49.77	7.03		F	#		
Potassium	mg/L	06/04/2008	N001	29.77	-	49.77	3.5		F	#	1	
Selenium	mg/L	06/04/2008	N001	29.77	-	49.77	0.0063		F	#	0.00004	
Sodium	mg/L	06/04/2008	N001	29.77	-	49.77	110		F	#	1	
Specific Conductance	umhos /cm	06/04/2008	N001	29.77	-	49.77	2354		F	#		
Sulfate	mg/L	06/04/2008	N001	29.77	-	49.77	1100		F	#	10	
Temperature	C	06/04/2008	N001	29.77	-	49.77	9.54		F	#		
Total Dissolved Solids	mg/L	06/04/2008	N001	29.77	-	49.77	2000		F	#	40	
Turbidity	NTU	06/04/2008	N001	29.77	-	49.77	0.68		F	#		
Uranium	mg/L	06/04/2008	N001	29.77	-	49.77	0.05		F	#	0.0001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
REPORT DATE: 8/8/2008
Location: 0621 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/04/2008	0001	78.46	-	88.46	0		FQ	#		
Calcium	mg/L	06/04/2008	0001	78.46	-	88.46	440		FQ	#	5	
Calcium	mg/L	06/04/2008	N002	78.46	-	88.46	470		FQ	#	1	
Chloride	mg/L	06/04/2008	0001	78.46	-	88.46	10		FQ	#	1	
Chloride	mg/L	06/04/2008	N002	78.46	-	88.46	11		FQ	#	1	
Iron	mg/L	06/04/2008	0001	78.46	-	88.46	150	E	FQJ	#	0.0029	
Iron	mg/L	06/04/2008	N002	78.46	-	88.46	150		FQJ	#	0.0029	
Magnesium	mg/L	06/04/2008	0001	78.46	-	88.46	400	E	FQJ	#	1	
Magnesium	mg/L	06/04/2008	N002	78.46	-	88.46	370		FQJ	#	1	
Manganese	mg/L	06/04/2008	0001	78.46	-	88.46	2.9		FQ	#	0.00013	
Manganese	mg/L	06/04/2008	N002	78.46	-	88.46	2.7		FQ	#	0.00013	
Molybdenum	mg/L	06/04/2008	0001	78.46	-	88.46	0.00051	B	FQ	#	0.001	
Molybdenum	mg/L	06/04/2008	N002	78.46	-	88.46	0.0004	B	UFQ	#	0.001	
Oxidation Reduction Potential	mV	06/04/2008	N001	78.46	-	88.46	172		FQ	#		
pH	s.u.	06/04/2008	N001	78.46	-	88.46	4.97		FQ	#		
Potassium	mg/L	06/04/2008	0001	78.46	-	88.46	19	EN	FQJ	#	1	
Potassium	mg/L	06/04/2008	N002	78.46	-	88.46	17		FQJ	#	1	
Selenium	mg/L	06/04/2008	0001	78.46	-	88.46	0.000082	B	FQ	#	0.00004	
Selenium	mg/L	06/04/2008	N002	78.46	-	88.46	0.000076	B	UFQ	#	0.00004	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
REPORT DATE: 8/8/2008
Location: 0621 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Sodium	mg/L	06/04/2008	0001	78.46	-	88.46	200	E	FQJ	#	1	
Sodium	mg/L	06/04/2008	N002	78.46	-	88.46	180		FQJ	#	1	
Specific Conductance	umhos /cm	06/04/2008	N001	78.46	-	88.46	4214		FQ	#		
Sulfate	mg/L	06/04/2008	0001	78.46	-	88.46	3200		FQ	#	25	
Sulfate	mg/L	06/04/2008	N002	78.46	-	88.46	3100		FQ	#	25	
Temperature	C	06/04/2008	N001	78.46	-	88.46	10.31		FQ	#		
Total Dissolved Solids	mg/L	06/04/2008	0001	78.46	-	88.46	4700		FQ	#	80	
Total Dissolved Solids	mg/L	06/04/2008	N002	78.46	-	88.46	4700		FQ	#	80	
Turbidity	NTU	06/04/2008	N001	78.46	-	88.46	37.2		FQ	#		
Uranium	mg/L	06/04/2008	0001	78.46	-	88.46	0.00013		UFQ	#	0.0001	
Uranium	mg/L	06/04/2008	N002	78.46	-	88.46	0.00011		UFQ	#	0.0001	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
REPORT DATE: 8/8/2008
Location: 0623 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/04/2008	0001	19.35	-	39.35	420		FQ	#		
Calcium	mg/L	06/04/2008	0001	19.35	-	39.35	210		FQ	#	1	
Chloride	mg/L	06/04/2008	0001	19.35	-	39.35	19		FQ	#	4	
Iron	mg/L	06/04/2008	0001	19.35	-	39.35	1.6		FQ	#	0.0029	
Magnesium	mg/L	06/04/2008	0001	19.35	-	39.35	190		FQ	#	1	
Manganese	mg/L	06/04/2008	0001	19.35	-	39.35	0.064		FQ	#	0.00013	
Molybdenum	mg/L	06/04/2008	0001	19.35	-	39.35	0.0011		FQ	#	0.001	
Oxidation Reduction Potential	mV	06/04/2008	N001	19.35	-	39.35	-81		FQ	#		
pH	s.u.	06/04/2008	N001	19.35	-	39.35	7.2		FQ	#		
Potassium	mg/L	06/04/2008	0001	19.35	-	39.35	3.6		FQ	#	1	
Selenium	mg/L	06/04/2008	0001	19.35	-	39.35	0.0038		FQ	#	0.00004	
Sodium	mg/L	06/04/2008	0001	19.35	-	39.35	120		FQ	#	1	
Specific Conductance	umhos /cm	06/04/2008	N001	19.35	-	39.35	2451		FQ	#		
Sulfate	mg/L	06/04/2008	0001	19.35	-	39.35	1000		FQ	#	10	
Temperature	C	06/04/2008	N001	19.35	-	39.35	9.1		FQ	#		
Total Dissolved Solids	mg/L	06/04/2008	0001	19.35	-	39.35	1900		FQ	#	40	
Turbidity	NTU	06/04/2008	N001	19.35	-	39.35	23.4		FQ	#		
Uranium	mg/L	06/04/2008	0001	19.35	-	39.35	0.0034		FQ	#	0.0001	

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Surface Water Quality Data

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Surface Water Quality Data by Location (USEE102) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0584 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	0001	40			#		
Cadmium	mg/L	06/03/2008	0001	0.00012	B		#	0.0003	
Molybdenum	mg/L	06/03/2008	0001	0.00053	B	U	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	-17			#		
pH	s.u.	06/03/2008	N001	7.93			#		
Selenium	mg/L	06/03/2008	0001	0.00016			#	0.00004	
Specific Conductance	umhos/cm	06/03/2008	N001	151			#		
Temperature	C	06/03/2008	N001	7.9			#		
Uranium	mg/L	06/03/2008	0001	0.00025			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0586 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	0001	63			#		
Cadmium	mg/L	06/03/2008	0001	0.00011	B		#	0.0003	
Molybdenum	mg/L	06/03/2008	0001	0.00052	B	U	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	14			#		
pH	s.u.	06/03/2008	N001	7.87			#		
Selenium	mg/L	06/03/2008	0001	0.00015			#	0.00004	
Specific Conductance	umhos/cm	06/03/2008	N001	153			#		
Temperature	C	06/03/2008	N001	7.93			#		
Uranium	mg/L	06/03/2008	0001	0.00052			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0652 SURFACE LOCATION SURFACE WATER AND SED.

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	0001	38			#		
Cadmium	mg/L	06/03/2008	0001	0.00013	B		#	0.0003	
Molybdenum	mg/L	06/03/2008	0001	0.00046	B	U	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	-3			#		
pH	s.u.	06/03/2008	N001	7.88			#		
Selenium	mg/L	06/03/2008	0001	0.00015			#	0.00004	
Specific Conductance	umhos/cm	06/03/2008	N001	143			#		
Temperature	C	06/03/2008	N001	7.55			#		
Uranium	mg/L	06/03/2008	0001	0.00023			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008
Location: 0691 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	0001	50			#		
Cadmium	mg/L	06/03/2008	0001	0.00011	B		#	0.0003	
Molybdenum	mg/L	06/03/2008	0001	0.00048	B	U	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	-45			#		
pH	s.u.	06/03/2008	N001	8.01			#		
Selenium	mg/L	06/03/2008	0001	0.00016			#	0.00004	
Specific Conductance	umhos/cm	06/03/2008	N001	155			#		
Temperature	C	06/03/2008	N001	8.1			#		
Uranium	mg/L	06/03/2008	0001	0.00024		U	#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR02, Durango Raffinate Pond Process Site
REPORT DATE: 8/8/2008
Location: 0588 SURFACE LOCATION

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	0001	279			#		
Cadmium	mg/L	06/03/2008	0001	0.000059	B		#	0.0003	
Molybdenum	mg/L	06/03/2008	0001	0.0014			#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	23.8			#		
pH	s.u.	06/03/2008	N001	8.37			#		
Selenium	mg/L	06/03/2008	0001	0.0011			#	0.000079	
Specific Conductance	umhos/cm	06/03/2008	N001	1397			#		
Temperature	C	06/03/2008	N001	24.11			#		
Uranium	mg/L	06/03/2008	0001	0.016			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR02, Durango Raffinate Pond Process Site
REPORT DATE: 8/8/2008
Location: 0654 SURFACE LOCATION RESERVED FOR CDAY

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	0001	38			#		
Cadmium	mg/L	06/03/2008	0001	0.00011	B		#	0.0003	
Molybdenum	mg/L	06/03/2008	0001	0.00048	B	U	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	1.3			#		
pH	s.u.	06/03/2008	N001	7.81			#		
Selenium	mg/L	06/03/2008	0001	0.00063			#	0.00004	
Specific Conductance	umhos/cm	06/03/2008	N001	172			#		
Temperature	C	06/03/2008	N001	8.47			#		
Uranium	mg/L	06/03/2008	0001	0.00029			#	0.0001	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR02, Durango Raffinate Pond Process Site
REPORT DATE: 8/8/2008
Location: 0656 SURFACE LOCATION RESERVED FOR CDAY

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	06/03/2008	0001	36			#		
Cadmium	mg/L	06/03/2008	0001	0.00013	B		#	0.0003	
Molybdenum	mg/L	06/03/2008	0001	0.00047	B	U	#	0.001	
Oxidation Reduction Potential	mV	06/03/2008	N001	31			#		
pH	s.u.	06/03/2008	N001	7.86			#		
Selenium	mg/L	06/03/2008	0001	0.00015			#	0.00004	
Specific Conductance	umhos/cm	06/03/2008	N001	146			#		
Temperature	C	06/03/2008	N001	9			#		
Uranium	mg/L	06/03/2008	0001	0.00024			#	0.0001	

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.

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Equipment Blank Data

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BLANKS REPORT
LAB: PARAGON (Fort Collins, CO)
RIN: 08051595
Report Date: 8/8/2008

Parameter	Site Code	Location ID	Sample Date	ID	Units	Result	Qualifiers Lab	Qualifiers Data	Detection Limit	Uncertainty	Sample Type
Cadmium	DUR03	0999	06/03/2008	N001	mg/L	0.0003	U		0.0003		E
Molybdenum	DUR03	0999	06/03/2008	N001	mg/L	0.000085	B	U	0.001		E
Selenium	DUR03	0999	06/03/2008	N001	mg/L	0.00004	U		0.00004		E
Uranium	DUR03	0999	06/03/2008	N001	mg/L	0.00013		U	0.0001		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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STATIC WATER LEVELS (USEE700) FOR SITE DUR01, Durango Mill Tailings Process Site
REPORT DATE: 8/8/2008

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
0612	D	6500.94	06/03/2008		39.52	6461.42	
0617	D	6498.11	06/03/2008		27.01	6471.1	
0630	D	6494.44	06/03/2008		31.89	6462.55	
0631	D	6477.91	06/03/2008		5.53	6472.38	
0633	D	6481.81	06/02/2008		6.29	6475.52	
0634	D	6491.75	06/02/2008		12.99	6478.76	
0635	D	6497.68	06/02/2008		12.35	6485.33	
0863		6513.32	06/03/2008		54.82	6458.5	

STATIC WATER LEVELS (USEE700) FOR SITE DUR02, Durango Raffinate Pond Process Site
REPORT DATE: 8/8/2008

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
0594	O	6472.49	06/03/2008		18.04	6454.45	
0598	O	6479.09	06/04/2008		20.85	6458.24	
0607	U	6527.95	06/03/2008		49.79	6478.16	
0884		6476.37	06/03/2008		15.62	6460.75	

STATIC WATER LEVELS (USEE700) FOR SITE DUR03, Durango Disposal Site
REPORT DATE: 8/8/2008

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
0605	U	7189.6	06/03/2008		38.41	7151.19	
0607	D	7099.1	06/03/2008		39.81	7059.29	
0608	D	7035	06/04/2008		27.24	7007.76	
0612	D	7109.8	06/03/2008		74.33	7035.47	
0618	D	7036.41	06/04/2008		29.33	7007.08	
0621	U	7035.77	06/04/2008		44.35	6991.42	
0623	U	7048.67	06/04/2008		21.12	7027.55	

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

WATER LEVEL FLAGS: D Dry F FLOWING

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Time-Concentration Graphs

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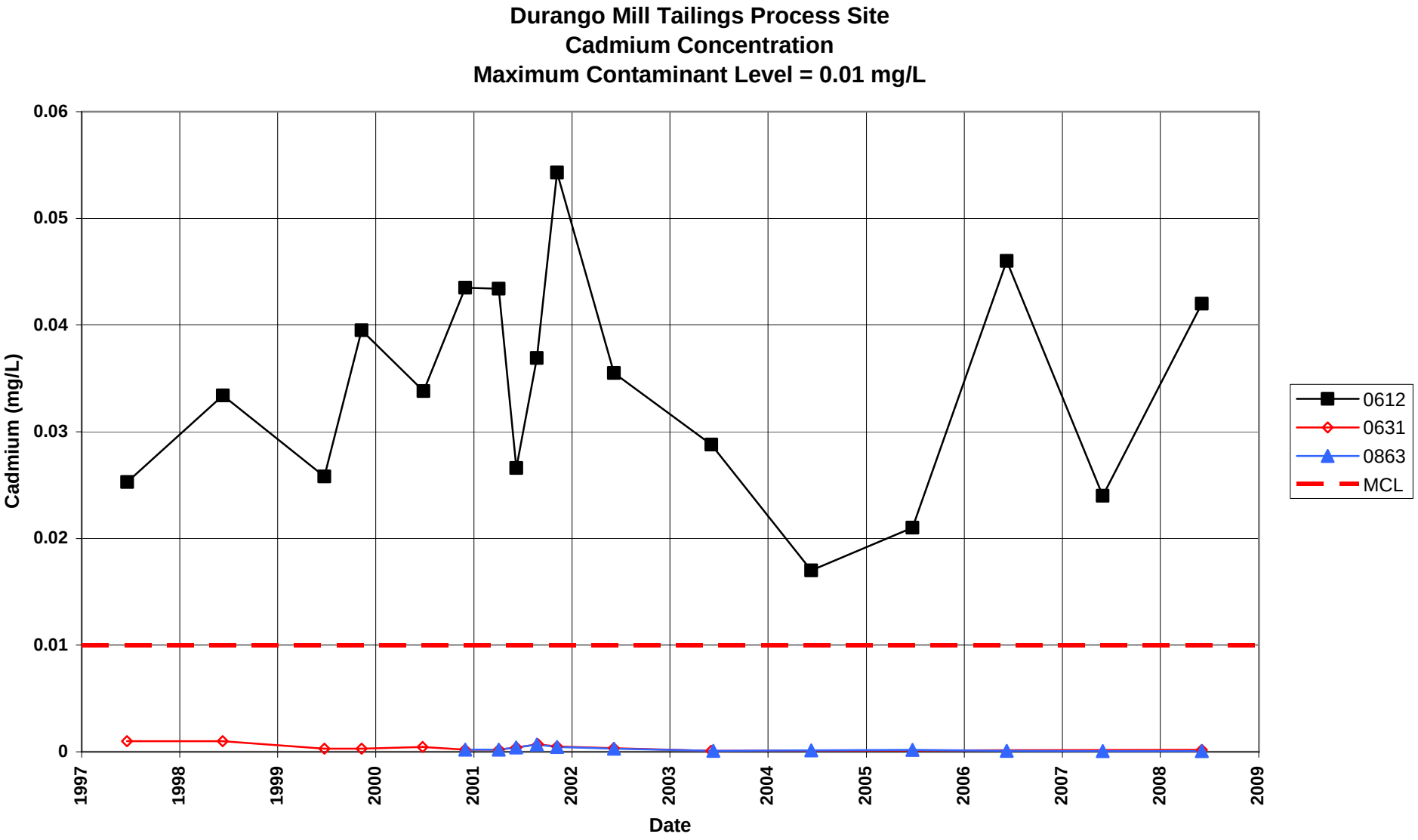
Durango Mill Tailings Process Site
Cadmium Concentration
Maximum Contaminant Level = 0.01 mg/L
Cadmium (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Date
0612
0631
0863
MCL

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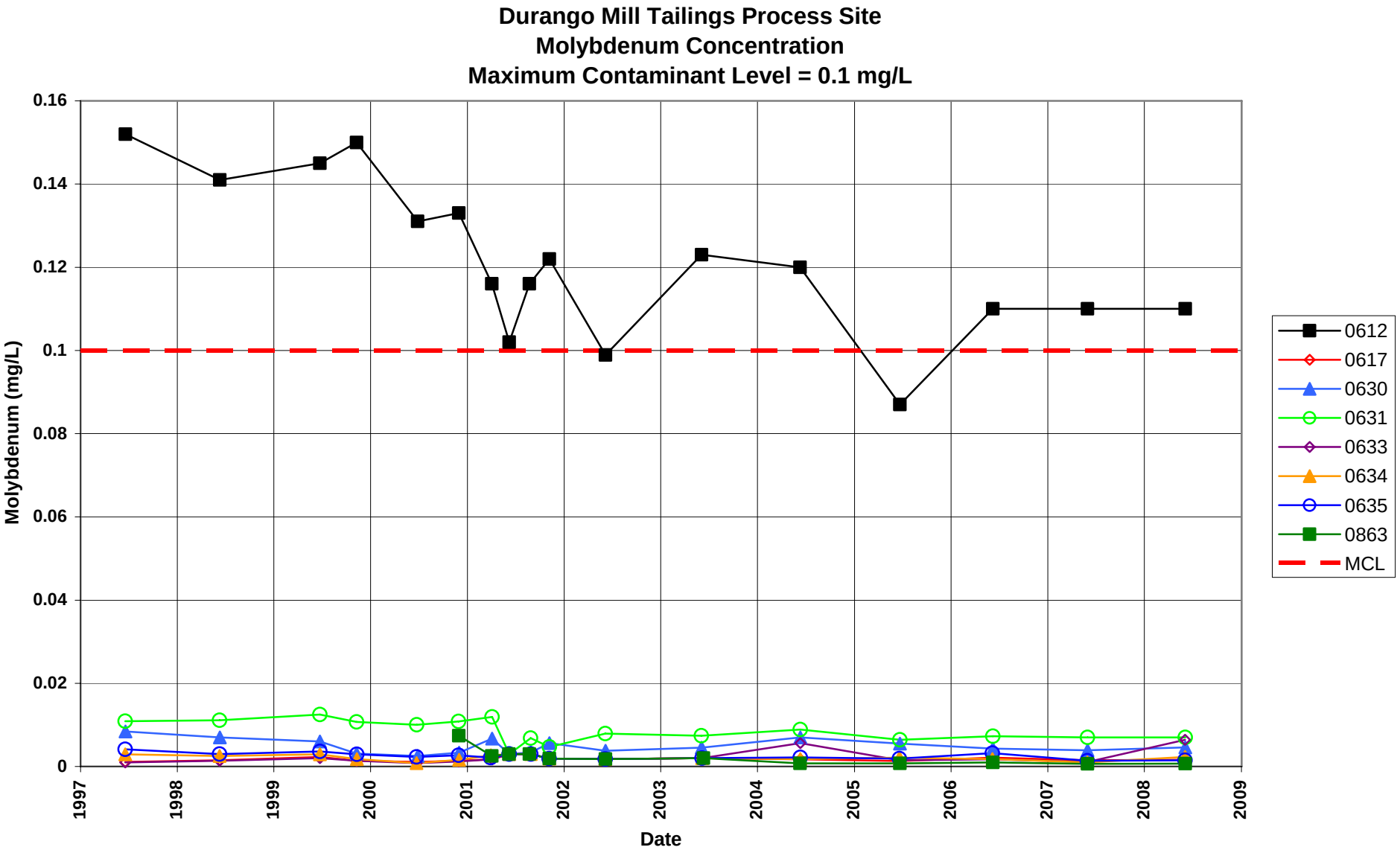
Durango Mill Tailings Process Site
Molybdenum Concentration
Maximum Contaminant Level = 0.1 mg/L
Molybdenum (mg/L)
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Date
0612
0617
0630
0631
0633
0634
0635
0863
MCL

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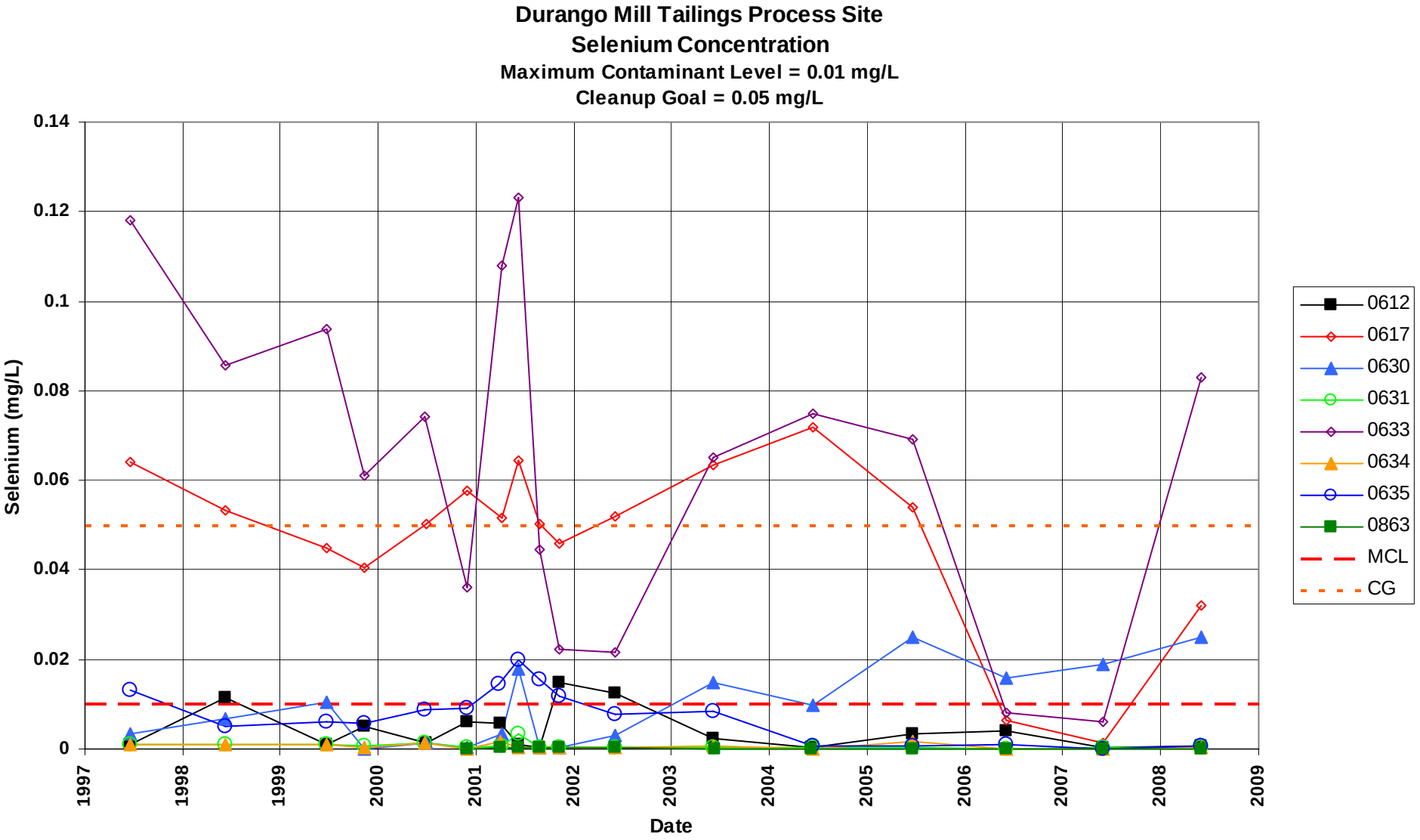
Durango Mill Tailings Process Site
Selenium Concentration
Maximum Contaminant Level = 0.01 mg/L
Cleanup Goal = 0.05 mg/L
Selenium (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
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0631
0633
0634
0635
0863
MCL
CG

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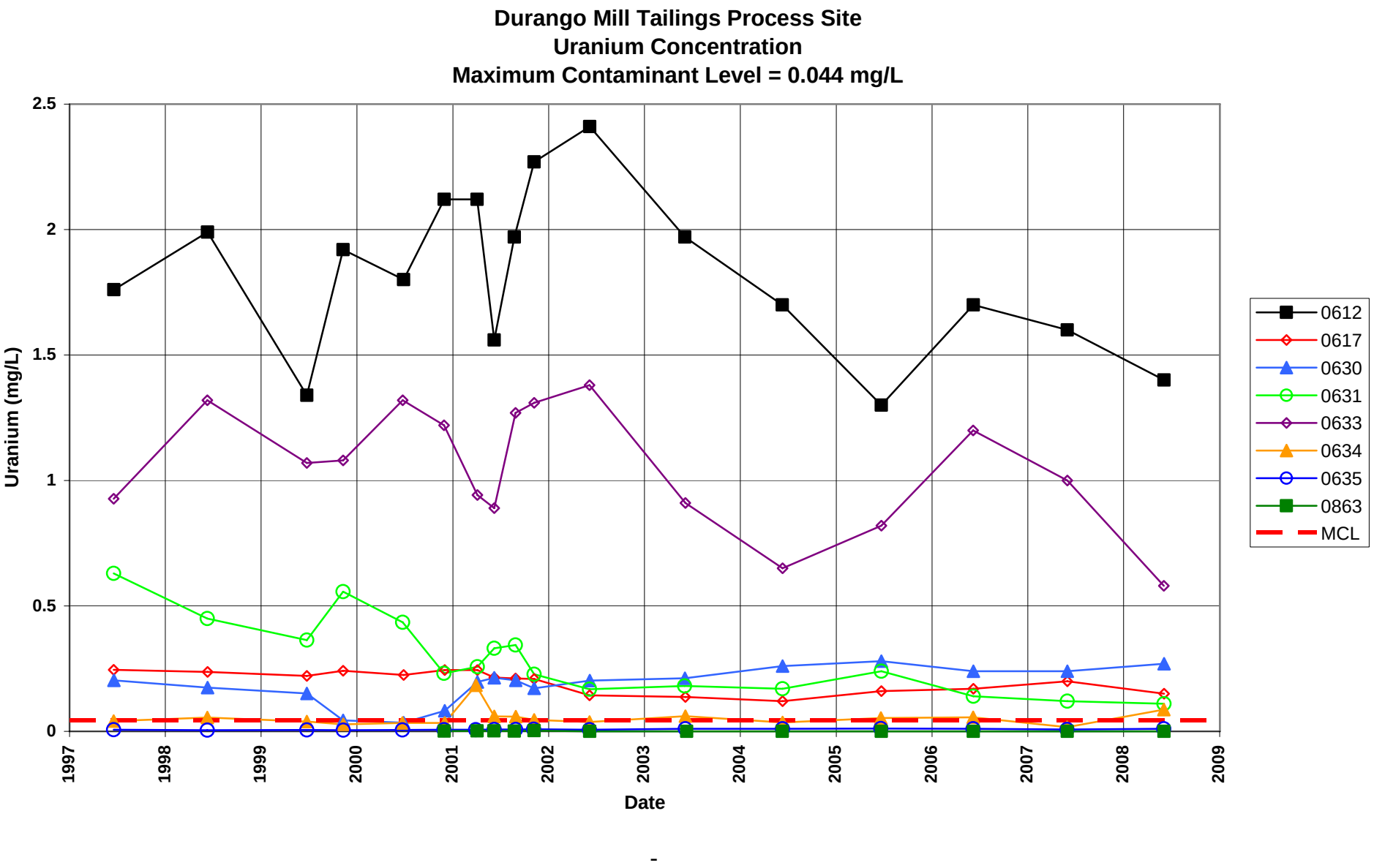
Durango Mill Tailings Process Site
Uranium Concentration
Maximum Contaminant Level = 0.044 mg/L
Uranium (mg/L)
2.5
2
1.5
1
0.5
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Date
0612
0617
0630
0631
0633
0634
0635
0863
MCL

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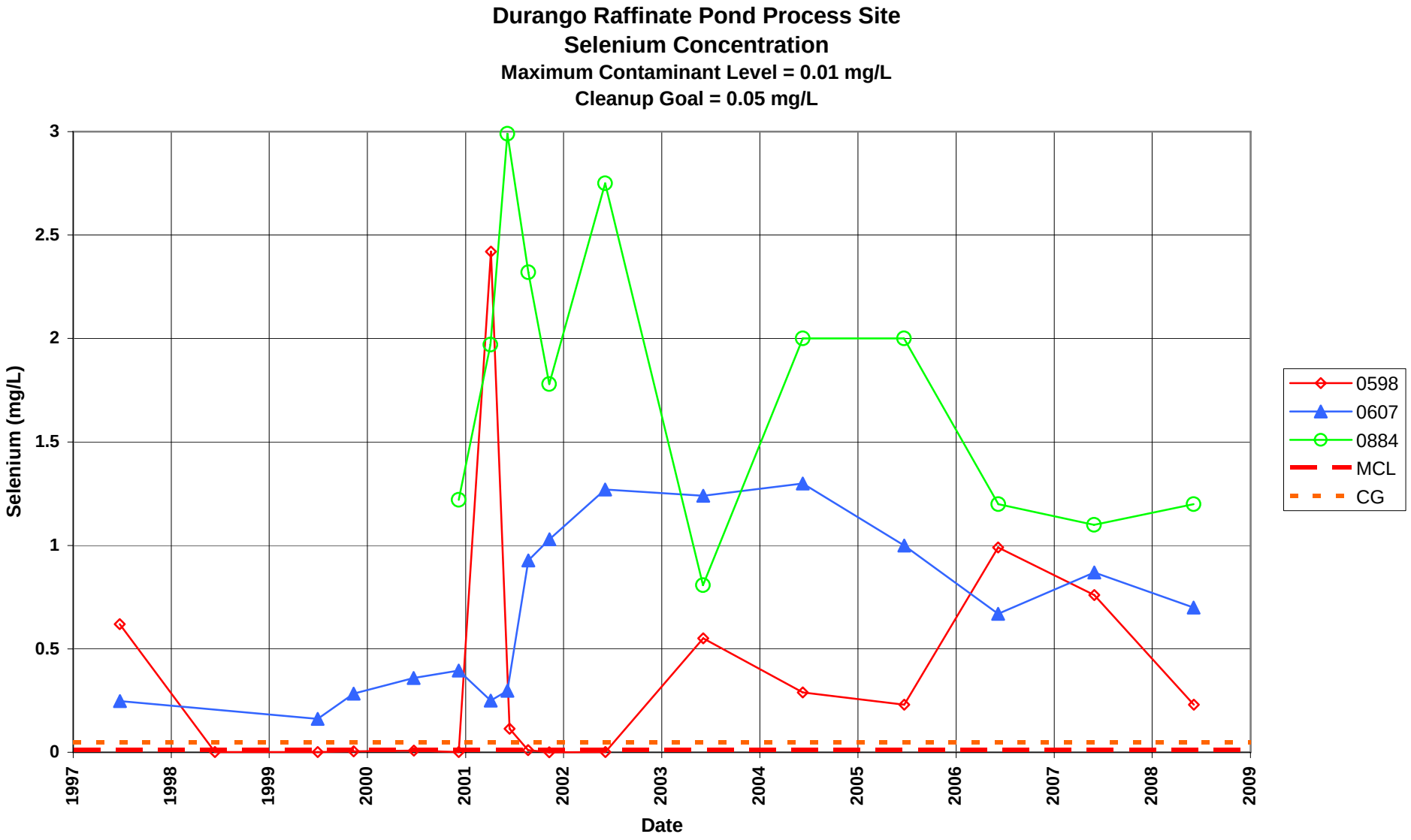
Durango Raffinate Pond Process Site
Selenium Concentration
Maximum Contaminant Level = 0.01 mg/L
Cleanup Goal = 0.05 mg/L
Selenium (mg/L)
3
2.5
2
1.5
1
0.5
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Date
0598
0607
0884
MCL
CG

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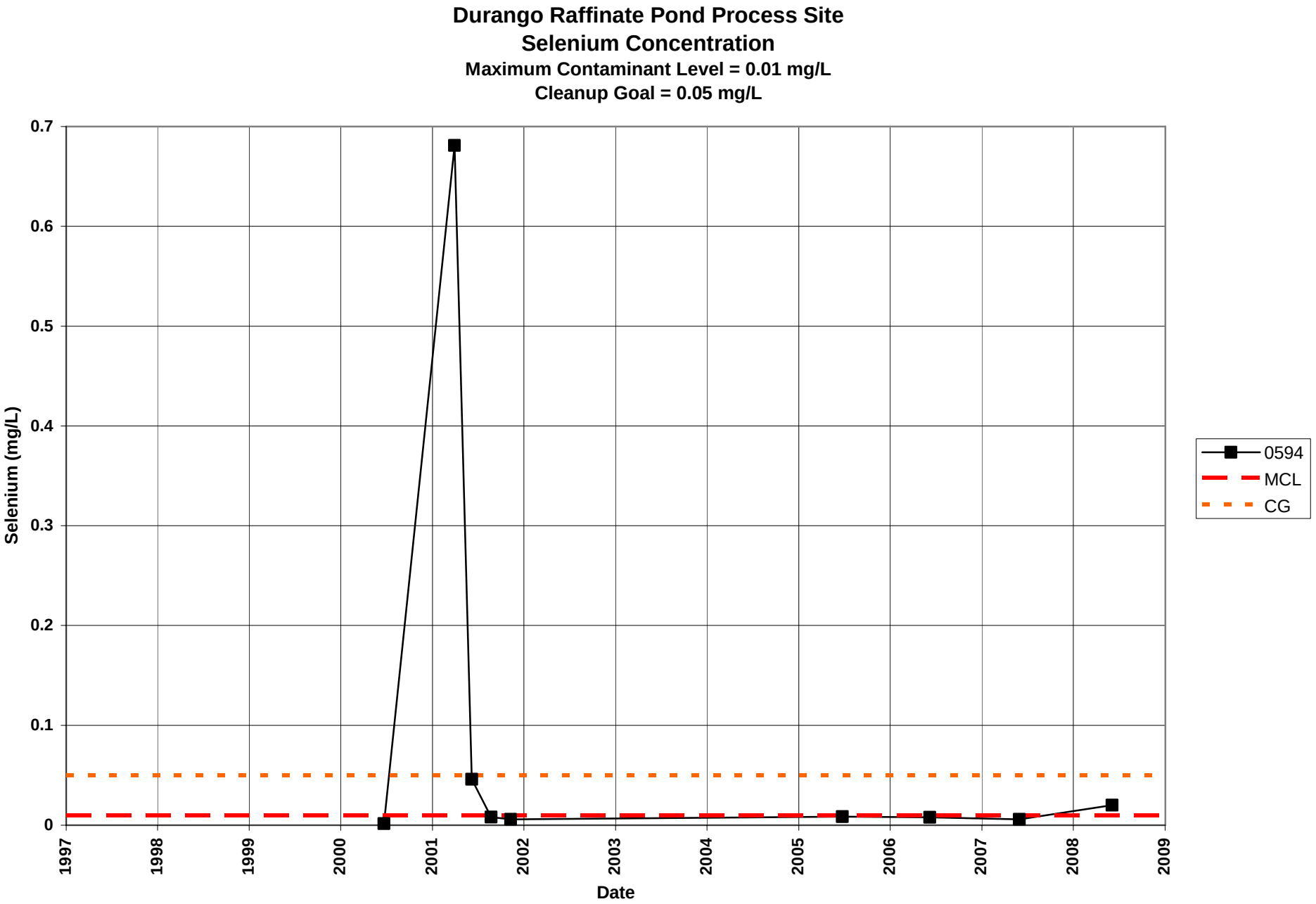
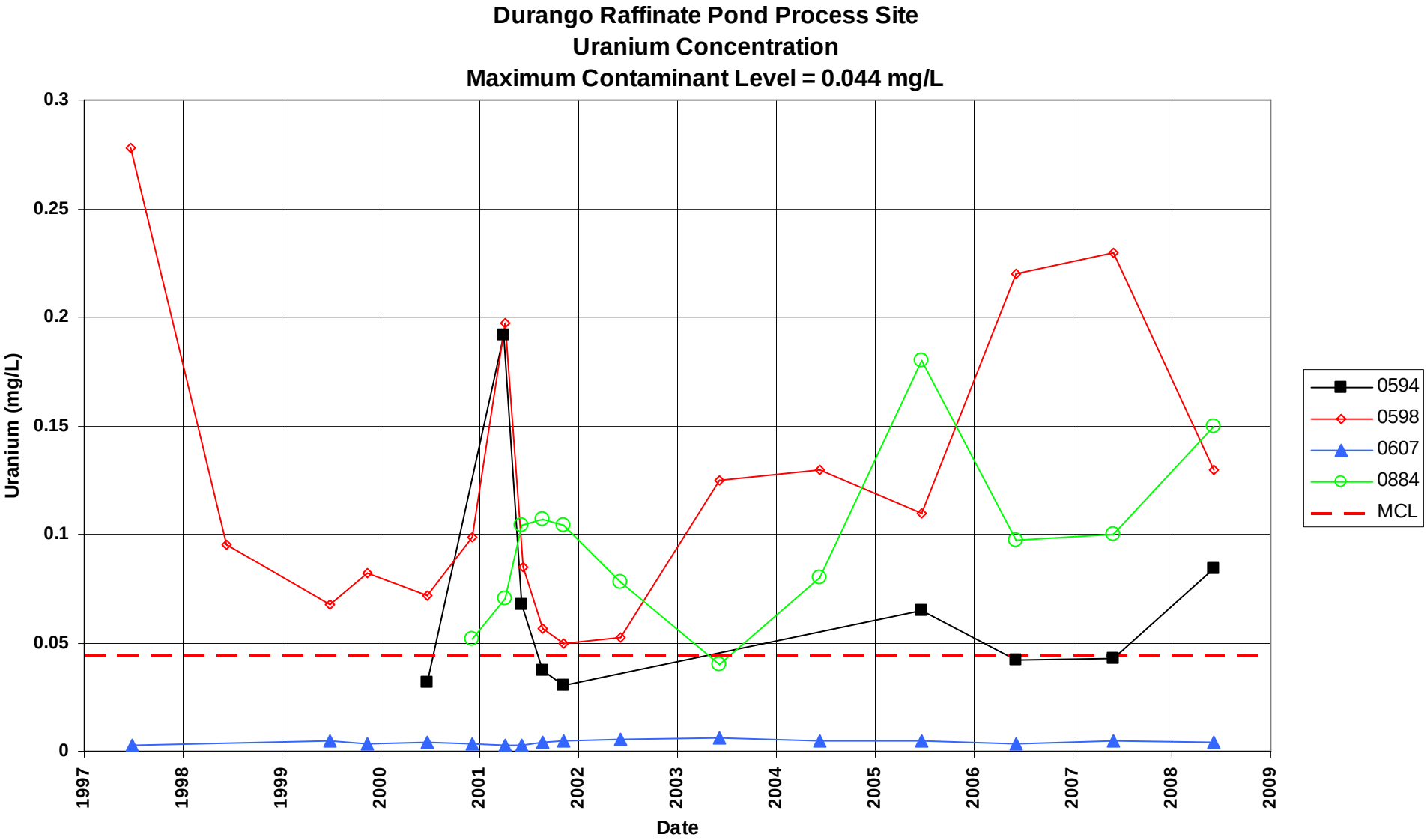
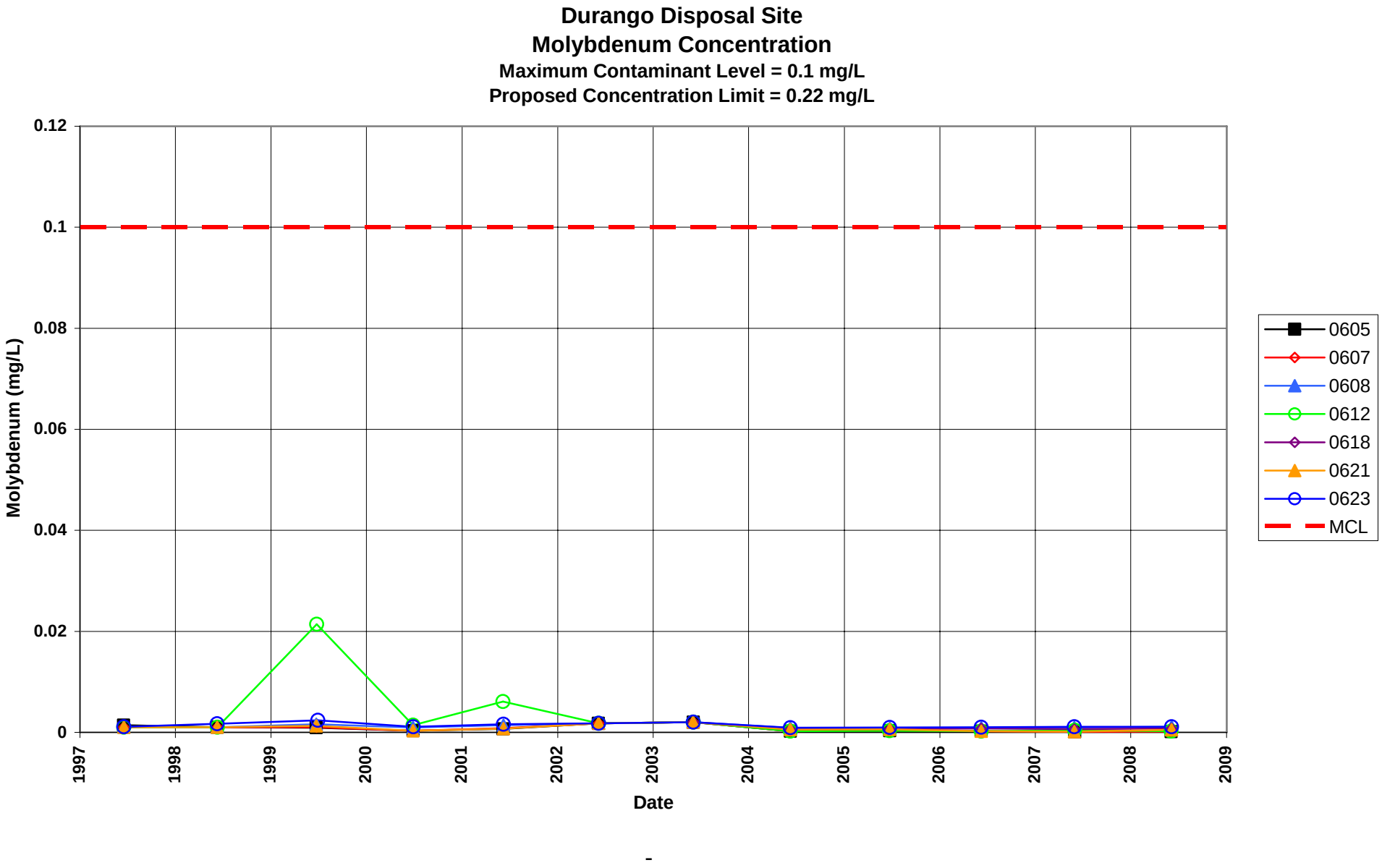

Durango Raffinate Pond Process Site
Selenium Concentration
Maximum Contaminant Level = 0.01 mg/L
Cleanup Goal = 0.05 mg/L
Selenium (mg/L)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Date
0594
MCL
CG


Durango Raffinate Pond Process Site
Uranium Concentration
Maximum Contaminant Level = 0.044 mg/L
Uranium (mg/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Date
0594
0598
0607
0884
MCL

-


Durango Disposal Site
Molybdenum Concentration
Maximum Contaminant Level = 0.1 mg/L
Proposed Concentration Limit = 0.22 mg/L
Molybdenum (mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Date
0605
0607
0608
0612
0618
0621
0623
MCL

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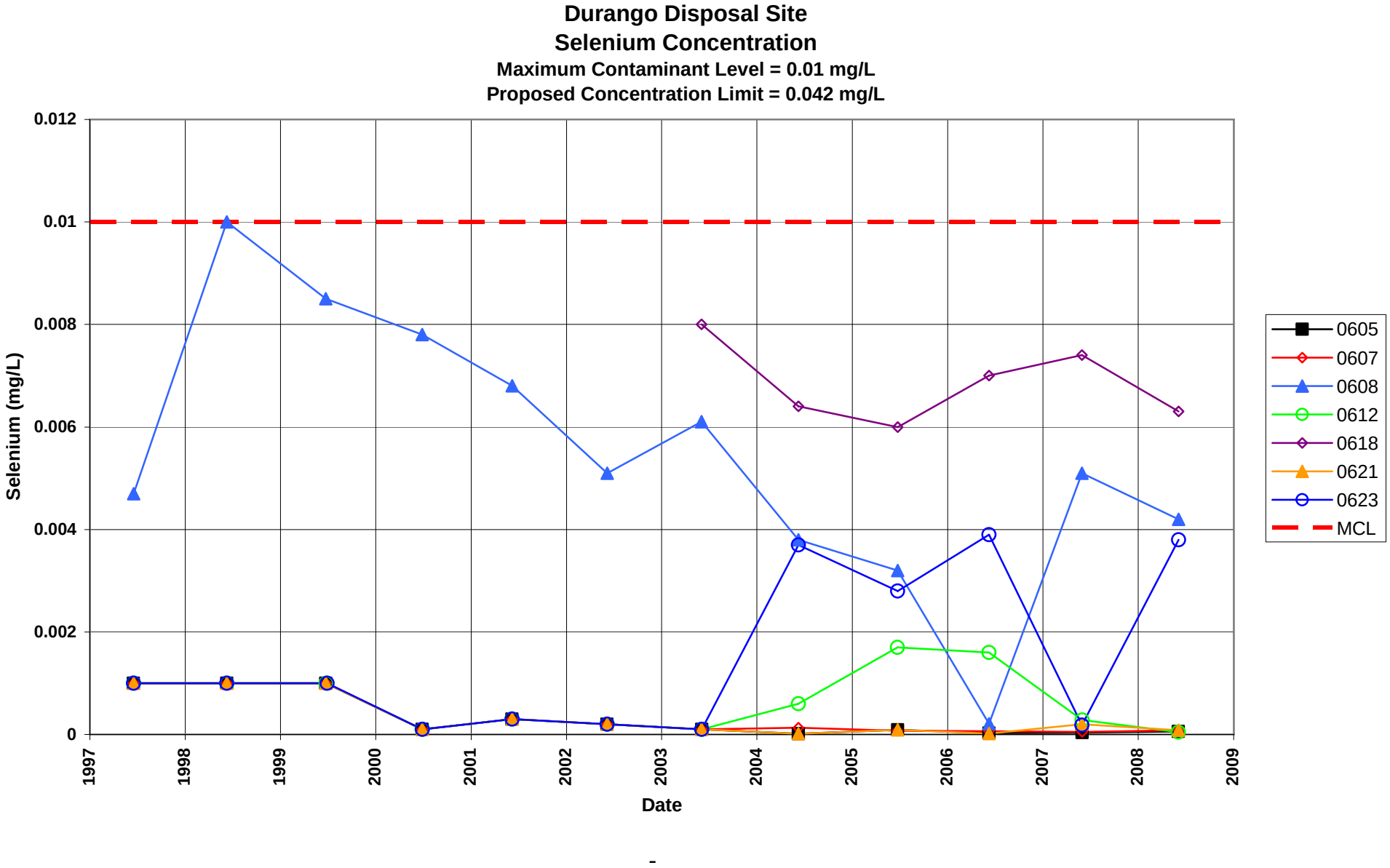
Durango Disposal Site
Selenium Concentration
Maximum Contaminant Level = 0.01 mg/L
Proposed Concentration Limit = 0.042 mg/L
Selenium (mg/L)
0.012
0.01
0.008
0.006
0.004
0.002
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Date
0605
0607
0608
0612
0618
0621
0623
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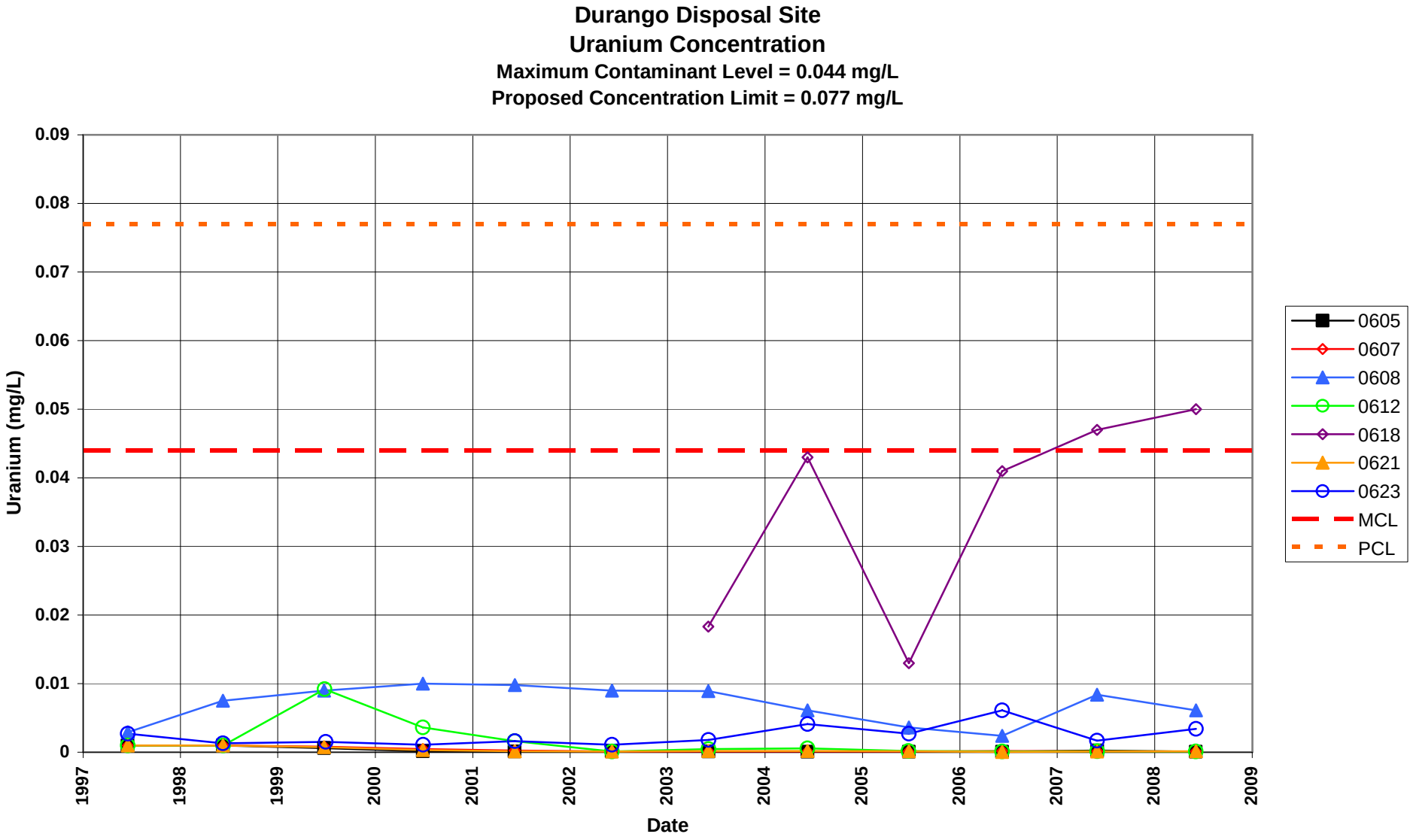
Durango Disposal Site
Uranium Concentration
Maximum Contaminant Level = 0.044 mg/L
Proposed Concentration Limit = 0.077 mg/L
Uranium (mg/L)
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Date
0605
0607
0608
0612
0618
0621
0623
MCL
PCL

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Attachment 3
Sampling and Analysis Work Order

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Stoller established 1959

Task Order LM00-501
Control Number: 08-0242

May 6, 2008

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

SUBJECT: Contract No. DE-AM01-07LM00060, Stoller
June 2008 Environmental Sampling at Durango, Colorado

REFERENCE: Task Order LM00-501-02-104-402, Durango, Colorado, Site

Dear Mr. Desormeau:

The purpose of this letter is to inform you of the upcoming sampling at Durango, Colorado. Enclosed are the maps and tables specifying sample locations and analytes for monitoring at the Durango, Colorado, processing and disposal sites. Water quality data will be collected from monitor wells and surface water locations at these sites as part of the routine environmental sampling currently scheduled to begin the week of June 2, 2008.

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

Monitor Wells*

DUR01 Mill Site

612 Al/Km	630 Al/Km	631 Al/Km	633 Km	634 Km	635 Km	863 Al
617 Al						

DUR02 Raffinate Pond

594 Mf	598 Mf/Pl	607 Al	879 Mf	884 Al		

DUR03 Bodo Canyon

605 Cf	607 Cf	608 Al	612 Km	618 Al	621 Cf	623 Al

*NOTE: Al = Alluvium; Cf = Cliff House Formation; Km = Mancos Shale; Mf = Menefee Formation; Pl = Point Lookout Formation

The S.M. Stoller Corporation 2597 B ¾ Road Grand Junction, CO 81503 (970) 248-6000 Fax: (970) 248-6040

Surface Locations

DUR01

584	586	652	691

DUR02

588	654	656

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.

If you have any questions, please call me at extension 6652.

Sincerely,

David Miller
Site Lead

DM/lcg/hc
Enclosures (3)

cc: Cheri Bahrke, Stoller
Steve Donivan, Stoller (e)
Bev Gallagher, Stoller (e)
Lauren Goodknight, Stoller (e)
David Miller, Stoller (e)
EDD Delivery (e)

cc w/o enclosures:
Correspondence Control File (Thru Dee Dee Crawford/Christi Weston)
Records DUR 410.02 (rc-grand.junction)

\\Condor\home\L40048\My Documents\Ground Water\DUR\0806dur-ltr.doc

Constituent Sampling Breakdown

Site	Durango				
Analyte	**Ground Water**	**Surface Water**	**Required Detection Limit (mg/L)**	**Analytical Method**	**Line Item Code**
Approx. No. Samples/yr	20	7			
Field Measurements					
Alkalinity	X	X			
Dissolved Oxygen					
Redox Potential	X	X			
pH	X	X			
Specific Conductance	X	X			
Turbidity	X				
Temperature	X	X			
Laboratory Measurements					
Aluminum					
Beryllium					
Bromide					
Cadmium	0612 & 0863 only	X	0.001	SW-846 6020	LMM-02
Calcium	DUR03 only		5	SW-846 6010	LMM-01
Chloride	DUR03 only		0.5	SW-846 9056	MIS-A-039
Chromium					
Cobalt					
Copper					
Fluoride					
Iron	DUR03 only		0.1	SW-846 6020	LMM-01
Lead					
Lead-210					
Magnesium	DUR03 only		5	SW-846 6010	LMM-01
Manganese	All Mill Tailings Areas and Bodo Canyon locations		0.005	SW-846 6010	LMM-01
Molybdenum	All Mill Tailings Areas and Bodo Canyon locations	X	0.003	SW-846 6020	LMM-02
Nickel					
Nickel-63					
Nitrate + Nitrite as N (NO3+NO2)-N					
Potassium	DUR03 only		1	SW-846 6010	LMM-01
Radium-226					
Radium-228					
Selenium	X	X	0.0001	SW-846 6020	LMM-02
Silica					
Sodium	DUR03 only		1	SW-846 6010	LMM-01
Strontium					
Sulfate	All Mill Tailings Areas and Bodo Canyon locations		0.5	SW-846 9056	MIS-A-044
Sulfide					
Thallium					
Total Dissolved Solids	X		10	SM2540 C	WCH-A-033
Total Organic Carbon					

Constituent Sampling Breakdown

Site	Durango				
Analyte	**Ground Water**	**Surface Water**	**Required Detection Limit (mg/L)**	**Analytical Method**	**Line Item Code**
Uranium	X	X	0.0001	SW-846 6020	LMM-02
Vanadium					
Zinc					
Total No. of Analytes	13	4			

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.

Attachment 4
Trip Report

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Stoller established 1959
Grand Junction Office

Memorandum

Control Number N/A

DATE: June 18, 2008

TO: David E. Miller

FROM: Gretchen R. Baer

SUBJECT: Sampling Trip Report

Site: Durango, Colorado, Processing and Disposal Sites

Date of Sampling Event: June 2-4, 2008

Team Members: Gretchen Baer and Joe Trevino

Number of Locations Sampled: 19 well locations, 7 surface water locations, 2 duplicate samples, and 1 equipment blank for a total of 29 samples.

Locations Not Sampled/Reason: Well 0879 (DUR02) could not be sampled because it had been damaged by construction activities.

Location Specific Information:

Ticket Number	Sample Date	Project Location	Location	Comments	Water Level (ft)
NFE 126	6/2/08	DUR01	0634	Cat II Peristaltic	12.99
NFE 127	6/2/08	DUR01	0635	Cat II Peristaltic	12.35
NFE 128	6/2/08	DUR01	0633	Cat I Peristaltic; black specks in water; cleared up before sampling.	6.29
NFE 129	6/3/08	DUR01	0631	Cat I Peristaltic	5.53
NFE 130	6/3/08	DUR01	0617	Cat I Bladder	27.01
NFE 131	6/3/08	DUR01	0630	Cat I Bladder	31.89
NFE 132	6/3/08	DUR01	0612	Cat I Bladder	39.52
NFE 133	6/3/08	DUR01	0863	Cat I Bladder	54.82
NFE 134	6/3/08	DUR01	0691	Surface water	N/A
NFE 135	6/3/08	DUR01	0584	Surface water	N/A
NFE 136	6/3/08	DUR01	0652	Surface water	N/A
NFE 137	6/3/08	DUR01	0586	Surface water Sample taken from east bank, upstream from the sewage treatment plant	N/A
NFE 138	6/3/08	DUR02	0656	Surface water	N/A
NFE 139	6/3/08	DUR02	0594	Cat II Peristaltic	18.04
NFE 140	6/3/08	DUR02	0884	Cat I Bladder	15.62
NFE 141	6/3/08	DUR02	0654	Surface water	N/A

Ticket Number	Sample Date	Project Location	Location	Comments	Water Level (ft)
NFE 142	6/3/08	DUR02	0607	Cat II Bladder	49.79
NFE 143	6/3/08	DUR02	0588	Surface water	N/A
NFE 145	6/3/08	DUR03	0605	Cat I Bladder	38.41
NFE 146	6/3/08	DUR03	0607	Cat I Bladder	39.81
NFE 147	6/3/08	DUR03	0612	Cat II Bladder	74.33
NFE 149	6/4/08	DUR03	0618	Cat I Bladder	29.33
NFE 150	6/4/08	DUR03	0621	Cat I Bladder Rusty specks in purge water; difficult to meet pH stabilization criteria: pH changed from 3.0 to 5.6 to 5.0 during purge.	44.35
NFE 102	6/4/08	DUR03	0608	Cat I Bladder	27.24
NFE 103	6/4/08	DUR03	0623	Cat II Bladder	21.12
NFE 104	6/4/08	DUR02	0598	Cat I Bladder	20.85

NOTE: Ticket for NFE 101 has DUR01 on it; it should be DUR03

Field Variance: None.

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

False ID	True ID	Sample Type	Associated Matrix	Ticket Number
2627	N/A	Equipment Blank for tubing used to collect all surface water samples	DI Water	NFE 144
2626	0605	Field Duplicate	Groundwater	NFE 148
2642	0621	Field Duplicate	Groundwater	NFE 101

RIN Number Assigned: All samples were assigned to RIN 08051595.

Sample Shipment: All samples were shipped overnight to Paragon Analytics, Inc. from Grand Junction on June 5, 2008.

Well Inspection Summary: Well inspections were conducted at all sampled wells.

- Well 0607 (DUR02) is in a mound of dirt that was left around the well after the surface was excavated. It is above the current surface level (~6 ft).
- Well 0879 (DUR02) has been severely damaged: the exterior casing and cover were missing, several inches of tubing were exposed, and several inches of the interior PVC casing were broken off. This well is located in a gravel parking area and is near a large pile of dirt that suggests that the damage was caused by construction activities.

All other wells were in good condition.

Equipment: All wells have dedicated tubing and were sampled using the low-flow procedure. Dedicated bladder pumps were used to collect groundwater at 14 well locations and a peristaltic pump was used to collect groundwater at five well locations. Surface water samples were collected using a hose-reel that was decontaminated before and after each use. An equipment blank was collected to monitor the decontamination.

Water Level Measurements: Water level measurements were collected in all sampled wells.

Institutional Controls: All gates were appropriately closed and locked during the sampling event. Employees of Pride Weed Control were observed to be working at the Disposal site on June 4, 2008, and have keys to the two vehicle gates at the site.

Fences, Gates, Locks: All were in good condition.
Signs: No missing signs.
Trespassing/Site Disturbances: None observed.

Site Issues:

Disposal Cell/Drainage Structure Integrity: N/A
Vegetation/Noxious Weed Concerns: Several employees from Pride Weed Control were on the Bodo Canyon site (Disposal site) to spray for weeds.
Maintenance Requirements:

- Well 0607 (DUR02) may need to be secured and modified to the current surface level.
- Well 0879 (DUR02) needs to be repaired. Jeff Price was sent to the site (on June 10-12, 2008) to repair the well.

Corrective Action Taken: None.

(GRB/lcg)

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

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