

Data Validation Package

June 2005 Surface Water and Ground Water Sampling at the Durango, Colorado, Disposal and Processing Sites

September 2005



U.S. Department of Energy
Office of Legacy Management

Contents

Sampling Event Summary	1
Durango Disposal Site Sample Location Map.....	3
Durango Processing Site Mill Tailings Area Sample Location Map.....	4
Durango Processing Site Raffinate Ponds Area Sample Location Map.....	5
Data Assessment Summary.....	6
Water Sampling Field Activities Verification Checklist.....	7
Laboratory Performance Assessment	9
Sampling Quality Control Assessment.....	18
Certification	19

Attachment 1—Assessment of Anomalous Data

Minimums and Maximums Report
Anomalous Data Review Checksheet

Attachment 2—Data Presentation

Ground Water Quality Data
Surface Water Quality Data
Equipment Blank Data
Static Water Level Data
Time Versus Concentration Graphs

Attachment 3—Sampling and Analysis Work Order

Attachment 4—Trip Report

Sampling Event Summary

Site: Durango, Colorado, Disposal and Processing Sites

Sampling Period: June 20-23, 2005

The *Long-Term Surveillance Plan (LTSP) for the Bodo Canyon Disposal Site, Durango, Colorado* (September 1996) 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* (July 2003) requires annual monitoring of ground water and surface water from the mill tailings area to determine progress of the natural flushing process in meeting compliance standards. Ground water and surface water samples were collected at the Raffinate Ponds Area as a best management practice to monitor selenium and uranium concentrations. An additional surface water sample listed as location 2913 was collected from the Bureau of Reclamation evaporation pond located just north of well 0879 to determine if water from the pond may be influencing the increasing uranium concentration previously observed in well 0879. There was no evidence of elevated contaminant concentrations at this location.

Sampling and analysis was conducted as specified in the *FY 2005 Sampling Frequencies and Analyses* (January 2005) and the *Environmental Procedures Catalog* (STO 6). The water level was measured at each sampled well.

For the ground water samples collected at the disposal site, the concentrations of the indicator parameters (molybdenum, selenium, uranium) were below their respective U.S. Environmental Protection Agency (EPA) ground water standard (40 CFR 192). The uranium concentration in well 0618 increased substantially in 2004 to 0.043 milligrams per liter (mg/L), which is just below its maximum concentration level, but has since decreased and is now 0.013 mg/L.

For the ground water samples collected at the processing site, EPA ground water standards for molybdenum and uranium were exceeded in samples collected from monitor wells listed in Table 1.

Table 1. Durango Processing Site Wells Exceeding EPA Standards in June 2005

Analyte	Standard ^a	Site Code ^b	Location	Concentration
Cadmium	0.01	DUR01	0612	0.021
Selenium	0.01	DUR01	0617	0.054
			0630	0.025
			0633	0.069
		DUR02	0598	0.23
			0607	1.0
			0879	0.84
			0884	2.0
Uranium	0.044	DUR01	0612	1.3
			0617	0.16
			0630	0.26
			0633	0.82
			0634	0.053
		DUR02	0594	0.065
			0598	0.11
			0879	0.36
			0884	0.18

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

^bDUR01 = Mill Tailings Area; DUR02 = Raffinate Ponds Area.

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 the uranium concentration at location 0879 remains at an elevated level and is increasing at location 0884. The wells with increasing concentrations of uranium (and well 618 at the disposal cell where uranium was previously elevated) are all screened across coal beds. DOE is planning for its Environmental Sciences Laboratory to conduct a study of the increasing concentrations and an evaluation of naturally occurring uranium associated with the coal deposits.

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 (0.017 mg/L) from location 0588 is an indicator of the quality of water entering the site. The surface water results for most processing site locations show contaminant concentrations near or below the method detection limit and below the respective upgradient values, which indicate that the natural flushing strategy is not adversely affecting the water quality in the Animas River.



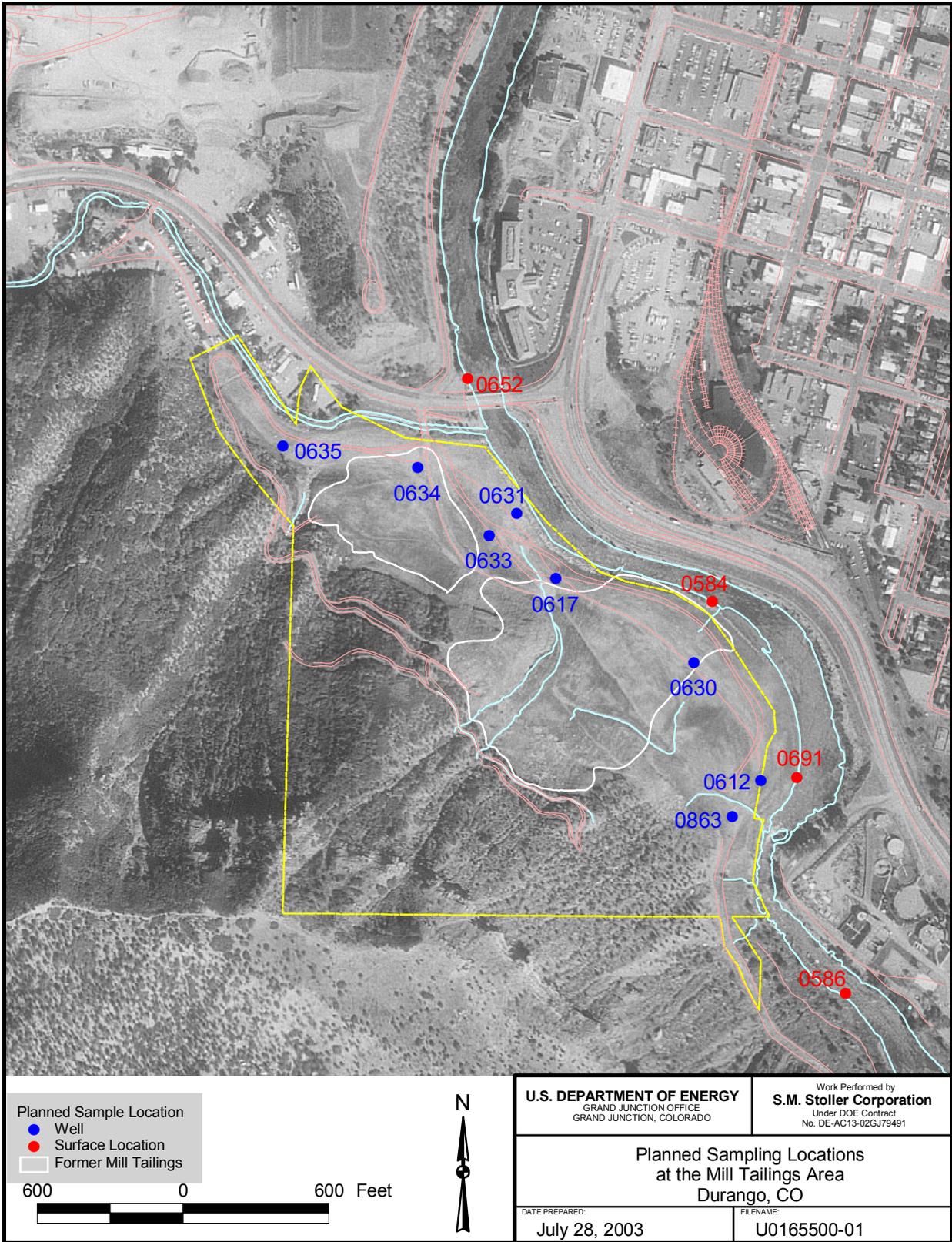
David Miller
Site Lead, S.M. Stoller

11/23/06
Date



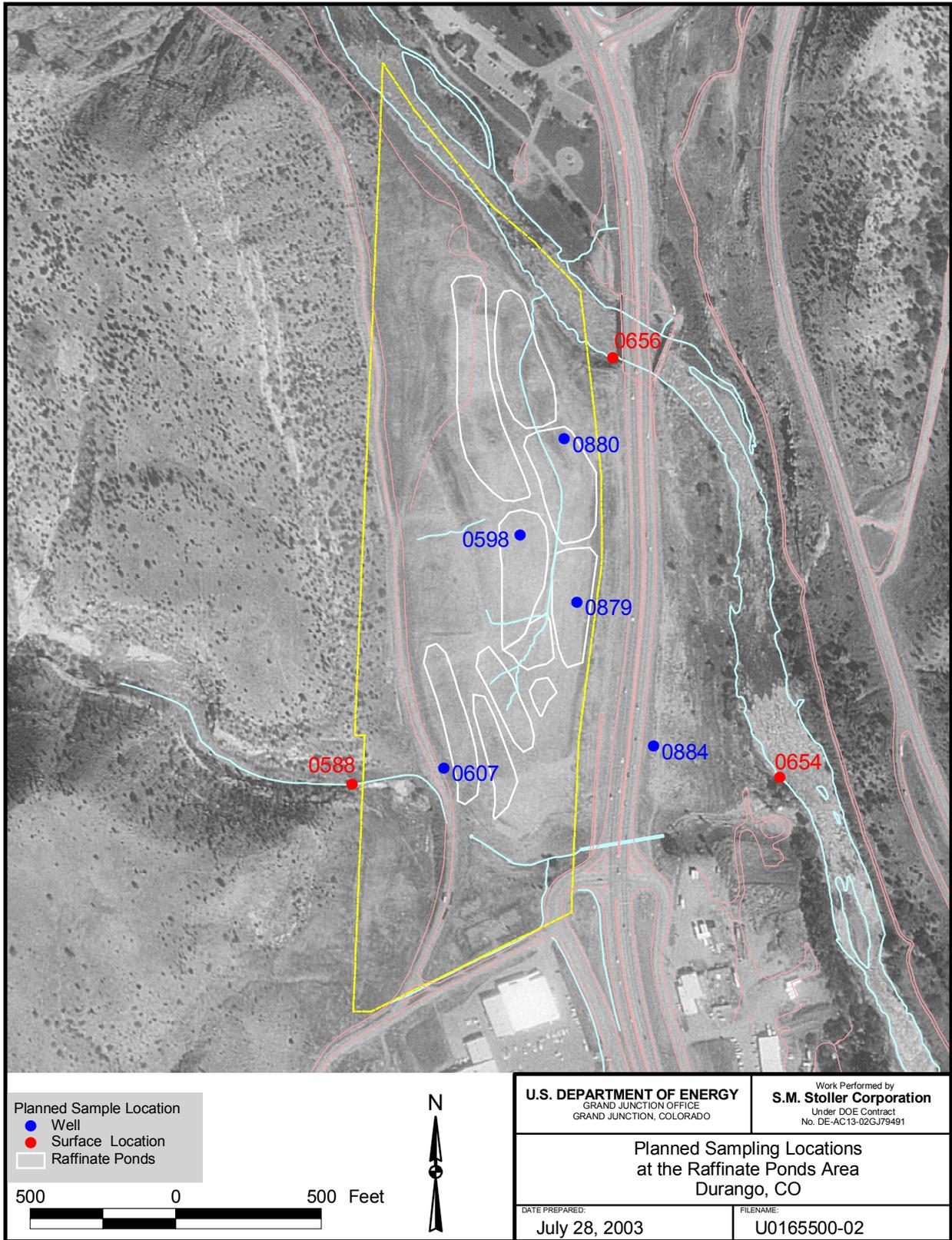
- Legend
- Existing Well
 - ▬ Fence
 - ▬ Road
 - ▬ Site Boundary
 - ▬ Stream/Ditch
 - Disposal Cell
 - Water Body
 - River/Pond

Durango Disposal Site Sample Location Map



m:\ugw\5110006\13\U01655\U0165500.apr carverh 7/28/2003, 10:50

Durango Processing Site Mill Tailings Area Sample Location Map



Durango Processing Site Raffinate Ponds Area Sample Location Map

Data Assessment Summary

Water Sampling Field Activities Verification Checklist

Project	Durango, Colorado	Date(s) of Water Sampling	June 20-23, 2005
Date(s) of Verification	September 7, 2005	Name of Verifier	Steve Donivan

	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 May 9, 2005
2. Were the sampling locations specified in the planning documents sampled?	No	Well 0880 could not be located, 0594 sampled as replacement Additional surface location listed as 2913 was sampled.
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?	Yes	
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 nondedicated 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?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Report Number (RIN): 05050192
 Sample Event: June 20-23, 2005
 Site(s): Durango, Colorado
 Laboratory: Paragon Analytics
 Work Order No.: 0506229
 Analysis: Metals and Inorganics
 Validator: Steve Donovan
 Review Date: September 6, 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 2.

Table 2. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Cadmium, Cd	MET-A-026	SW-846 3005A	SW-846 6020A
Chloride, Cl	MIS-A-039	SW-846 9056	SW-846 9056
Iron, Fe	GJO-16	SW-846 3005A	SW-846 6010B
Manganese, Mn	GJO-17	SW-846 3005A	SW-846 6010B
Metals, Ca, K, Mg, Na	MET-A-020	SW-846 3005A	SW-846 6010B
Molybdenum, Mo	GJO-15	SW-846 3005A	SW-846 6020A
Selenium, Se	GJO-14	SW-846 3005A	SW-846 6020A
Sulfate, SO ₄	MIS-A-044	SW-846 9056	SW-846 9056
Total Dissolve Solids, TDS	WCH-A-033	MCAWW 160.1	MCAWW 160.1
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020A

Data Qualifier Summary

Analytical results were qualified as listed in Table 3. Refer to the sections below for an explanation of the data qualifiers applied.

Table 3. Data Qualifier Summary

Sample Number	Location	Analyte(s)	Flag	Reason
0506229-1	0634	TDS	J	Missed holding time
0506229-2	0635	Mo	U	Less than 5 times cal. blank
0506229-2	0635	TDS	J	Missed holding time
0506229-3	0652	Cd	U	Less than 5 times cal. blank

Table 3 (continued). Data Qualifier Summary

Sample Number	Location	Analyte(s)	Flag	Reason
0506229-3	0652	Mo	U	Less than 5 times cal. blank
0506229-3	0652	U	U	Less than 5 times cal. blank
0506229-5	0633	Mo	U	Less than 5 times cal. blank
0506229-6	0617	Mo	U	Less than 5 times cal. blank
0506229-8	0584	Cd	U	Less than 5 times cal. blank
0506229-8	0584	Mo	U	Less than 5 times cal. blank
0506229-8	0584	U	U	Less than 5 times cal. blank
0506229-9	0863	Cd	U	Less than 5 times cal. blank
0506229-9	0863	Mo	U	Less than 5 times cal. blank
0506229-9	0863	U	U	Less than 5 times cal. blank
0506229-12	0691	Cd	U	Less than 5 times cal. blank
0506229-12	0691	Mo	U	Less than 5 times cal. blank
0506229-12	0691	U	U	Less than 5 times cal. blank
0506229-13	0656	Cd	U	Less than 5 times cal. blank
0506229-13	0656	Mo	U	Less than 5 times cal. blank
0506229-13	0656	U	U	Less than 5 times cal. blank
0506229-15	2913	Cd	U	Less than 5 times cal. blank
0506229-15	2913	Mo	U	Less than 5 times cal. blank
0506229-17	0586	Cd	U	Less than 5 times cal. blank
0506229-17	0586	Mo	U	Less than 5 times cal. blank
0506229-17	0586	U	U	Less than 5 times cal. blank
0506229-20	0588	Cd	U	Less than 5 times cal. blank
0506229-20	0588	Mo	U	Less than 5 times cal. blank
0506229-21	0607	Fe	U	Less than 5 times cal. blank
0506229-21	0607	Mo	U	Less than 5 times cal. blank
0506229-21	0607	U	U	Less than 5 times cal. blank
0506229-22	0612	Fe	U	Less than 5 times cal. blank
0506229-22	0612	Mo	U	Less than 5 times cal. blank
0506229-22	0612	U	U	Less than 5 times cal. blank
0506229-23	0654	Cd	U	Less than 5 times cal. blank
0506229-23	0654	Mo	U	Less than 5 times cal. blank
0506229-23	0654	U	U	Less than 5 times cal. blank
0506229-24	0605	Fe	U	Less than 5 times cal. blank
0506229-24	0605	Mo	U	Less than 5 times cal. blank
0506229-24	0605	U	U	Less than 5 times cal. blank
0506229-25	0618	Fe	U	Less than 5 times cal. blank
0506229-25	0618	Mo	U	Less than 5 times cal. blank
0506229-26	0621	Mo	U	Less than 5 times cal. blank
0506229-26	0621	U	U	Less than 5 times cal. blank
0506229-27	0608	Fe	U	Less than 5 times cal. blank
0506229-27	0608	Mo	U	Less than 5 times cal. blank
0506229-28	2912 (0605 dup)	Fe	U	Less than 5 times cal. blank
0506229-28	2912 (0605 dup)	Mo	U	Less than 5 times cal. blank
0506229-28	2912 (0605 dup)	U	U	Less than 5 times cal. blank
0506229-29	0623	Fe	U	Less than 5 times cal. blank
0506229-29	0623	Mo	U	Less than 5 times cal. blank

Table 3 (continued). Data Qualifier Summary

Sample Number	Location	Analyte(s)	Flag	Reason
0506229-31	2914 (equip blank)	Ca	U	Less than 5 times cal. blank
0506229-31	2914 (equip blank)	Mg	U	Less than 5 times cal. blank
0506229-31	2914 (equip blank)	Mo	U	Less than 5 times cal. blank
0506229-31	2914 (equip blank)	K	U	Less than 5 times cal. blank
0506229-31	2914 (equip blank)	Na	U	Less than 5 times cal. blank
0506229-31	2914 (equip blank)	U	U	Less than 5 times cal. blank

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 31 water samples on June 25, 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 with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt.

The entry on the COC form for location 0594 did not list how many bottles were collected. The sample submittal documents including the COC form, the Sample Submittal form, and the sample tickets had no other errors or omissions.

Preservation and Holding Times

The sample shipment was received cool and intact with the temperature within the iced cooler of 1.2 °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 with the exception of 0634 and 0635. The TDS analysis for these samples was performed after the holding time had expired. The samples were collected on June 20, 2005, but not received until June 25, 2005, with less than four days of holding time remaining.

Laboratory Instrument Calibration

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

Method SW-846 6020A

Calibrations for cadmium, molybdenum and uranium were performed on July 13, 2005, and July 19, 2005; and for selenium on July 11, 2005. The initial calibrations were performed using six calibration standards resulting in calibration curves with correlation coefficient (r^2) values greater than 0.995. The absolute values of the intercept of the calibration curves were less than 3 times the 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 13 CCVs for cadmium, molybdenum, and uranium, and 12 CCVs for selenium. All calibration checks met the acceptance criteria with the exception of molybdenum CCV1. There were no sample results associated with this CCV. 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 results met the acceptance criteria for all analytes. 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 9056

Initial calibrations were performed for sulfate using five calibration standards on June 6, 2005. The calibration curve r^2 values were greater than 0.995 and intercepts less than 3 times the MDL. Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in fifteen CCVs. All calibration checks met the acceptance criteria.

Method SW-846 6010B

Calibration for calcium, iron, magnesium, manganese, potassium, and sodium was performed on July 6, 2005, using three 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 CCV checks were made at the required frequency resulting in ten 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 method blanks, initial and continuing calibration blank results were below the practical quantitation limits for method 6010B and 6020A metals, chloride, and sulfate with the exception of CCB1 for molybdenum. There were no sample results associated with this CCB. In cases where blank concentration exceeded the instrument detection limit, 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 method 6010B and 6020A metals, chloride, and sulfate as a measure of method performance in the sample matrix. The MS/MSD analyses resulted in acceptable recovery and precision for all analytes.

The MS/MSD results for sodium were not evaluated because the analyte concentration in the unspiked sample was greater than four times the spike concentration.

Laboratory Replicate Analysis

The laboratory replicate sample results demonstrate acceptable laboratory precision. The relative percent difference (RPD) values for the laboratory replicate samples and matrix spike duplicate sample results for all analytes were less than 20 percent.

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 all analysis categories.

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. All of the serial dilution results met the acceptance criteria. The serial dilution data were not evaluated for location 0652 because the analyte concentration in the undiluted sample was less than 100 times the reporting 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.

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 revised EDD file arrived on July 22, 2005 and the data was loaded into SEEPro on August 28, 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. The data for surface location 2913 was not loaded into SEEPro because this location is not defined for the site sampling at the location will not be repeated.

General Data Validation Worksheet

RIN: 05050192 Lab Code: PAR Validator: Steve Donivan Validation Date: 9/6/2005
 Site: DURANGO Analysis Type: Metals General Chem Rad Organics
 # of Samples: 31 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
EPA 160.1	AL DISSOLVED SOL	0634	NDS 072	06/20/2005	06/28/2005	06/29/2005	1	No	NA
EPA 160.1	AL DISSOLVED SOL	0635	NDS 073	06/20/2005	06/28/2005	06/29/2005	1	No	NA

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

GRAND JUNCTION SITE Metals Data Validation Worksheet

RIN: 05050192 **Lab Code:** PAR **Date Due:** 7/23/2005
Matrix: Water **Site Code:** DUR **Date Completed:** 7/28/2005

Analyte	Date Analyzed	CALIBRATION						Method	LCS %R	MS %R	MSD %R	MS/MSD RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
Cadmium	06/29/2005	0.0000	0.9995	OK	OK	OK	OK		100.0	100.0	0.0	106.0		99.0	
Cadmium	07/19/2005	0.0000	0.9996	OK	OK	OK	OK		113.0	114.0	1.0	109.0		119.0	
Calcium	07/06/2005	0.0000	1.0000	OK	OK	OK	OK		75.0	84.0	1.0	99.0	3.0	94.9	
Calcium	07/06/2005											96.0		93.1	
Calcium	07/06/2005													94.8	
Iron	07/06/2005	0.0000	1.0000	OK	OK	OK	OK		77.0	79.0	2.0	99.0		94.4	
Iron	07/06/2005											100.0		96.3	
Iron	07/06/2005													99.9	
Magnesium	07/06/2005	0.0000	1.0000	OK	OK	OK	OK		83.0	86.0	1.0	100.0	1.0	97.1	
Magnesium	07/06/2005											96.0		93.6	
Magnesium	07/06/2005													93.4	
Manganese	07/06/2005	0.0000	1.0000	OK	OK	OK	OK		90.0	90.0	0.0	87.0	5.0	105.0	
Manganese	07/06/2005								93.0	94.0	1.0	89.0	6.0	107.0	
Manganese	07/06/2005													109.0	
Molybdenum	06/29/2005	0.0010	0.9998	OK	OK	OK	OK		113.0	114.0	1.0	115.0		88.0	
Molybdenum	07/19/2005	0.0010	0.9999	OK	OK	OK	OK		116.0	118.0	1.0	110.0		119.0	
Potassium	07/06/2005	0.0000	1.0000	OK	OK	OK	OK		105.0	105.0	0.0		4.0	89.2	
Potassium	07/06/2005													87.4	

Comments: _____

GRAND JUNCTION SITE

Metals Data Validation Worksheet

RIN: 05050192 Lab Code: PAR Date Due: 7/23/2005
 Matrix: Water Site Code: DUR Date Completed: 7/28/2005

Analyte	Date Analyzed	CALIBRATION						Method	LCS %R	MS %R	MSD %R	MS/MSD RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
Potassium	07/06/2005														86.0
Selenium	07/11/2005	0.0010	0.9999	OK	OK	OK	OK	OK	102.0	101.0	100.0	1.0	97.0		104.0
Selenium	07/11/2005							OK	102.0	86.0	84.0	2.0			
Sodium	07/06/2005	0.0000	1.0000	OK	OK	OK	OK			57.0	62.0	1.0		5.0	90.2
Sodium	07/06/2005														88.6
Sodium	07/06/2005														86.4
Uranium	06/29/2005	0.0020	0.9999	OK	OK	OK	OK			90.0	87.0	1.0	107.0	2.0	87.8
Uranium	07/19/2005	0.0010	0.9999	OK	OK	OK	OK			112.0	115.0	3.0	107.0	142.0	97.7

Comments: _____

GRAND JUNCTION SITE
Inorganics Data Validation Worksheet

RIN: 05050192 Lab Code: PAR Date Due: 7/23/2005
 Matrix: Water Site Code: DUR Date Completed: 7/28/2005

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	06/28/2005	0.028	1.0000	OK	OK	OK	OK	OK	93.0	91.0	93.0	1.00	
Chloride	06/28/2005							OK	92.0				
Sulfate	06/28/2005	0.196	1.0000	OK	OK	OK	OK	OK	96.0	99.0	100.0	0	
Sulfate	06/28/2005							OK	95.0				
Total Dissolved Solids	06/29/2005							OK	98.0				
Total Dissolved Solids	06/29/2005							OK	101.0			2.00	

Comments: _____

Sampling Quality Control Assessment

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

Sampling Protocol

Results from all monitor wells were qualified with an “F” flag in the database indicating that the wells were purged and sampled using the low-flow method.

The drawdown specification in the low-flow procedure was exceeded at wells 0612, 0623, 0634, and 0635, because of the low yield of these wells. Therefore, results from these wells were qualified with a “Q” flag in the database indicating that the data is qualitative because of the sampling technique.

Equipment Blank Assessment

One equipment blank was collected for the locations sampled using non-dedicated equipment. The results for the equipment blank that was collected during this sampling event were all less than 10 times the required detection limits and are acceptable.

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 0605 and 0630. The duplicate results met the EPA recommended laboratory duplicate criteria of having an RPD of less than 20 percent for results that are greater than 5 times the practical quantitation limit and are acceptable.

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 10-25-05
Steve Donivan Date

Data Validation Lead: Steve Donivan 10-25-05
Steve Donivan 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 (DataVal) used to query the SEEPro database. DataVal 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.

The uranium result for location 0884 is anomalously high, and is listed on the Anomalous Data Review Checksheet for further review. All other results met the criteria and no additional action is required.

The contaminant concentrations that had been previously noted as anomalously high or low in 2004 returned to between the historical low and high values with the following exceptions. The chloride concentration at location 0621 previously noted as anomalously high, and the manganese concentration previously noted as anomalously low, remained at their respective values and are listed on the Anomalous Data Review Checksheet for continuing review.

Anomalous Data Review Checksheet

Data Validation Minimums and Maximums Report - No Field Parameters
 Laboratory: PARAGON (Fort Collins, CO)
 RIN: 05050192
 Comparison: All Historical Data
 Report Date: 9/8/2005

Site Code	Location Code	Sample Date	Analyte	Current Qualifiers			Historical Maximum Qualifiers			Historical Minimum Qualifiers			Count	
				Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect
DUR01	0612	6/21/2005	Molybdenum	0.087		F	0.47			0.0989		F	46	2
DUR01	0612	6/21/2005	Uranium	1.3		F	4.67			1.34			45	0
DUR01	0630	6/21/2005	Selenium	0.022		F	0.0178		F	0.0001	U	L	16	6
DUR01	0630	6/21/2005	Selenium	0.025		F	0.0178		F	0.0001	U	L	16	6
DUR01	0630	6/21/2005	Uranium	0.28		F	0.26		F	0.0344			16	0
DUR01	0635	6/20/2005	Sulfate	1600		FQ	1470		F	854		QF	15	0
DUR01	0635	6/20/2005	Total Dissolved Solids	2800		FQJ	2590		F	1790		F	11	0
DUR01	0863	6/21/2005	Sulfate	680		F	678			544			8	0
DUR02	0598	6/22/2005	Total Dissolved Solids	9000		F	18000	H		9280			17	0
DUR02	0884	6/21/2005	Uranium	0.18		F	0.107		F	0.04		F	8	0
DUR03	0607	6/22/2005	Chloride	14		F	62			16.4		F	30	0
DUR03	0607	6/22/2005	Potassium	9.6		F	9.4		F	4.32		F	30	0
DUR03	0618	6/23/2005	Calcium	220		F	337			249		F	7	0
DUR03	0618	6/23/2005	Chloride	27		F	47.5			37.1		F	7	0
DUR03	0618	6/23/2005	Magnesium	120		F	198	E	J	139			7	0
DUR03	0618	6/23/2005	Manganese	0.00016	U	F	0.01	U		0.0011	B	F	7	5
DUR03	0618	6/23/2005	Selenium	0.006		F	0.03	U		0.0064		F	7	2
DUR03	0618	6/23/2005	Sodium	71		F	122			100		F	7	0

Data Validation Minimums and Maximums Report - No Field Parameters
 Laboratory: PARAGON (Fort Collins, CO)
 RIN: 05050192
 Comparison: All Historical Data
 Report Date: 9/8/2005

Site Code	Location Code	Sample Date	Analyte	Current Qualifiers			Historical Maximum Qualifiers			Historical Minimum Qualifiers			Count	
				Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect
DUR03	0618	6/23/2005	Sulfate	740		F	1180	I		948			6	0
DUR03	0618	6/23/2005	Total Dissolved Solids	1500		F	2280			1840			5	0
DUR03	0621	6/23/2005	Magnesium	310		F	449			332		F	19	0
DUR03	0621	6/23/2005	Sodium	89		F	199		F	95		F	19	0
DUR03	0621	6/23/2005	Sulfate	2900		F	4000	I		3060			18	0
DUR03	0621	6/23/2005	Total Dissolved Solids	4300		F	5770			4720		F	16	0
DUR03	0623	6/23/2005	Calcium	200		FQ	284			210		Q	29	0
DUR03	0623	6/23/2005	Magnesium	170		FQ	245		L	180			29	0
DUR03	0623	6/23/2005	Sodium	95		FQ	176			100		Q	29	0
DUR03	0623	6/23/2005	Sulfate	920		FQ	1520		QF	1060			27	0
DUR03	0623	6/23/2005	Total Dissolved Solids	1800		FQ	2690		L	1980			24	0

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.		

Attachment 2
Data Presentation

Ground Water Quality Data

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
 REPORT DATE: 9/7/2005
 Location: 0612 (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	6/21/2005	0001	37.41	-	57.41		F	#		
Cadmium	mg/L	6/21/2005	0001	37.41	-	57.41	0.021	F	#	0.0013	
Manganese	mg/L	6/21/2005	0001	37.41	-	57.41	3.4	F	#	0.00031	
Molybdenum	mg/L	6/21/2005	0001	37.41	-	57.41	0.087	F	#	0.0087	
Oxidation Reduction Potential	mV	6/21/2005	N001	37.41	-	57.41	120	F	#		
pH	s.u.	6/21/2005	N001	37.41	-	57.41	6.77	F	#		
Selenium	mg/L	6/21/2005	0001	37.41	-	57.41	0.0033	F	#	0.000068	
Specific Conductance	umhos/cm	6/21/2005	N001	37.41	-	57.41	3848	F	#		
Sulfate	mg/L	6/21/2005	0001	37.41	-	57.41	1700	F	#	25	
Temperature	C	6/21/2005	N001	37.41	-	57.41	13.35	F	#		
Total Dissolved Solids	mg/L	6/21/2005	0001	37.41	-	57.41	3400	F	#	80	
Turbidity	NTU	6/21/2005	N001	37.41	-	57.41	27.6	F	#		
Uranium	mg/L	6/21/2005	0001	37.41	-	57.41	1.3	F	#	0.00019	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site

REPORT DATE: 9/7/2005

Location: 0617 (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	6/21/2005	0001	14	-	29	364		F	#		
Manganese	mg/L	6/21/2005	0001	14	-	29	0.0017	B	F	#	0.00016	
Molybdenum	mg/L	6/21/2005	0001	14	-	29	0.0013		UF	#	0.00021	
Oxidation Reduction Potential	mV	6/21/2005	N001	14	-	29	58		F	#		
pH	s.u.	6/21/2005	N001	14	-	29	6.74		F	#		
Selenium	mg/L	6/21/2005	0001	14	-	29	0.054		F	#	0.00068	
Specific Conductance	umhos/cm	6/21/2005	N001	14	-	29	3190		F	#		
Sulfate	mg/L	6/21/2005	0001	14	-	29	1700		F	#	25	
Temperature	C	6/21/2005	N001	14	-	29	11.9		F	#		
Total Dissolved Solids	mg/L	6/21/2005	0001	14	-	29	3100		F	#	40	
Turbidity	NTU	6/21/2005	N001	14	-	29	0.54		F	#		
Uranium	mg/L	6/21/2005	0001	14	-	29	0.16		F	#	0.000022	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
 REPORT DATE: 9/7/2005
 Location: 0630 (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	6/21/2005	0001	28.3	-	38.3	278	F	#		
Manganese	mg/L	6/21/2005	0001	28.3	-	38.3	1.1	F	#	0.00016	
Molybdenum	mg/L	6/21/2005	0001	28.3	-	38.3	0.0054	F	#	0.00021	
Molybdenum	mg/L	6/21/2005	0002	28.3	-	38.3	0.0055	F	#	0.00017	
Oxidation Reduction Potential	mV	6/21/2005	N001	28.3	-	38.3	-8.2	F	#		
pH	s.u.	6/21/2005	N001	28.3	-	38.3	6.81	F	#		
Selenium	mg/L	6/21/2005	0001	28.3	-	38.3	0.025	F	#	0.00034	
Selenium	mg/L	6/21/2005	0002	28.3	-	38.3	0.022	F	#	0.00034	
Specific Conductance	umhos/cm	6/21/2005	N001	28.3	-	38.3	3387	F	#		
Sulfate	mg/L	6/21/2005	0001	28.3	-	38.3	1900	F	#	25	
Sulfate	mg/L	6/21/2005	0002	28.3	-	38.3	1900	F	#	25	
Temperature	C	6/21/2005	N001	28.3	-	38.3	12.88	F	#		
Total Dissolved Solids	mg/L	6/21/2005	0001	28.3	-	38.3	3300	F	#	40	
Total Dissolved Solids	mg/L	6/21/2005	0002	28.3	-	38.3	3300	F	#	40	
Turbidity	NTU	6/21/2005	N001	28.3	-	38.3	3.23	F	#		
Uranium	mg/L	6/21/2005	0001	28.3	-	38.3	0.26	F	#	0.000022	
Uranium	mg/L	6/21/2005	0002	28.3	-	38.3	0.28	F	#	0.000019	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site

REPORT DATE: 9/7/2005

Location: 0631 (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	6/21/2005	0001	6	-	16	336		F	#		
Manganese	mg/L	6/21/2005	0001	6	-	16	0.48		F	#	0.00016	
Molybdenum	mg/L	6/21/2005	0001	6	-	16	0.0064		F	#	0.00021	
Oxidation Reduction Potential	mV	6/21/2005	N001	6	-	16	-96.2		F	#		
pH	s.u.	6/21/2005	N001	6	-	16	7.02		F	#		
Selenium	mg/L	6/21/2005	0001	6	-	16	0.00028		F	#	0.000068	
Specific Conductance	umhos/cm	6/21/2005	N001	6	-	16	1886		F	#		
Sulfate	mg/L	6/21/2005	0001	6	-	16	690		F	#	10	
Temperature	C	6/21/2005	N001	6	-	16	13.64		F	#		
Total Dissolved Solids	mg/L	6/21/2005	0001	6	-	16	1500		F	#	40	
Turbidity	NTU	6/21/2005	N001	6	-	16	1.84		F	#		
Uranium	mg/L	6/21/2005	0001	6	-	16	0.24		F	#	0.000011	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site

REPORT DATE: 9/7/2005

Location: 0633 (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	6/21/2005	0001	4	-	14	438		F	#		
Manganese	mg/L	6/21/2005	0001	4	-	14	0.083		F	#	0.00031	
Molybdenum	mg/L	6/21/2005	0001	4	-	14	0.0015		UF	#	0.00021	
Oxidation Reduction Potential	mV	6/21/2005	N001	4	-	14	25.7		F	#		
pH	s.u.	6/21/2005	N001	4	-	14	6.59		F	#		
Selenium	mg/L	6/21/2005	0001	4	-	14	0.069		F	#	0.00034	
Specific Conductance	umhos/cm	6/21/2005	N001	4	-	14	5104		F	#		
Sulfate	mg/L	6/21/2005	0001	4	-	14	2900		F	#	25	
Temperature	C	6/21/2005	N001	4	-	14	14.65		F	#		
Total Dissolved Solids	mg/L	6/21/2005	0001	4	-	14	5200		F	#	80	
Turbidity	NTU	6/21/2005	N001	4	-	14	1.26		F	#		
Uranium	mg/L	6/21/2005	0001	4	-	14	0.82		F	#	0.00011	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site

REPORT DATE: 9/7/2005

Location: 0634 (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	6/20/2005	0001	8	-	18	409	FQ	#		
Manganese	mg/L	6/20/2005	0001	8	-	18	0.2	FQ	#	0.00031	
Molybdenum	mg/L	6/20/2005	0001	8	-	18	0.0021	FQ	#	0.00021	
Oxidation Reduction Potential	mV	6/20/2005	N001	8	-	18	68.7	FQ	#		
pH	s.u.	6/20/2005	N001	8	-	18	6.9	FQ	#		
Selenium	mg/L	6/20/2005	0001	8	-	18	0.0017	FQ	#	0.000068	
Specific Conductance	umhos/cm	6/20/2005	N001	8	-	18	4326	FQ	#		
Sulfate	mg/L	6/20/2005	0001	8	-	18	2300	FQ	#	25	
Temperature	C	6/20/2005	N001	8	-	18	17.32	FQ	#		
Total Dissolved Solids	mg/L	6/20/2005	0001	8	-	18	4100	FQJ	#	80	
Turbidity	NTU	6/20/2005	N001	8	-	18	0.75	FQ	#		
Uranium	mg/L	6/20/2005	0001	8	-	18	0.053	FQ	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
 REPORT DATE: 9/7/2005
 Location: 0635 (WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
								Lab	Data		
Alkalinity, Total (As CaCO3)	mg/L	6/20/2005	0001	5.5	-	15.5	365		FQ	#	
Manganese	mg/L	6/20/2005	0001	5.5	-	15.5	0.45		FQ	#	0.00016
Molybdenum	mg/L	6/20/2005	0001	5.5	-	15.5	0.0019		UFQ	#	0.00021
Oxidation Reduction Potential	mV	6/20/2005	N001	5.5	-	15.5	-62.2		FQ	#	
pH	s.u.	6/20/2005	N001	5.5	-	15.5	6.75		FQ	#	
Selenium	mg/L	6/20/2005	0001	5.5	-	15.5	0.00055		FQ	#	0.000068
Specific Conductance	umhos/cm	6/20/2005	N001	5.5	-	15.5	2953		FQ	#	
Sulfate	mg/L	6/20/2005	0001	5.5	-	15.5	1600		FQ	#	25
Temperature	C	6/20/2005	N001	5.5	-	15.5	13.12		FQ	#	
Total Dissolved Solids	mg/L	6/20/2005	0001	5.5	-	15.5	2800		FQJ	#	40
Turbidity	NTU	6/20/2005	N001	5.5	-	15.5	2.22		FQ	#	
Uranium	mg/L	6/20/2005	0001	5.5	-	15.5	0.011		FQ	#	0.0000022

Ground Water Quality Data by Location (USEE100) FOR SITE DUR01, Durango Mill Tailings Process Site
 REPORT DATE: 9/7/2005
 Location: 0863 (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	6/21/2005	0001	58	-	67.5	498		F	#		
Cadmium	mg/L	6/21/2005	0001	58	-	67.5	0.00018	B	UF	#	0.000025	
Manganese	mg/L	6/21/2005	0001	58	-	67.5	0.11		F	#	0.00016	
Molybdenum	mg/L	6/21/2005	0001	58	-	67.5	0.00073	B	UF	#	0.00017	
Oxidation Reduction Potential	mV	6/21/2005	N001	58	-	67.5	-58.8		F	#		
pH	s.u.	6/21/2005	N001	58	-	67.5	6.85		F	#		
Selenium	mg/L	6/21/2005	0001	58	-	67.5	0.000068	U	F	#	0.000068	
Specific Conductance	umhos/cm	6/21/2005	N001	58	-	67.5	2197		F	#		
Sulfate	mg/L	6/21/2005	0001	58	-	67.5	680		F	#	10	
Temperature	C	6/21/2005	N001	58	-	67.5	13.9		F	#		
Total Dissolved Solids	mg/L	6/21/2005	0001	58	-	67.5	1700		F	#	40	
Turbidity	NTU	6/21/2005	N001	58	-	67.5	9.54		F	#		
Uranium	mg/L	6/21/2005	0001	58	-	67.5	0.00014		UF	#	0.0000038	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR02, Durango Raffinate Pond Process Site

REPORT DATE: 9/7/2005

Location: 0594 (WELL) Original location DH-116.

Parameter	Units	Sample		Depth Range			Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID	(Ft BLS)				Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	6/23/2005	0001	8.5	-	38.5	348		F	#		
Oxidation Reduction Potential	mV	6/23/2005	N001	8.5	-	38.5	164.3		F	#		
pH	s.u.	6/23/2005	N001	8.5	-	38.5	6.77		F	#		
Selenium	mg/L	6/23/2005	0001	8.5	-	38.5	0.0086		F	#	0.000068	
Specific Conductance	umhos/cm	6/23/2005	N001	8.5	-	38.5	3386		F	#		
Temperature	C	6/23/2005	N001	8.5	-	38.5	13.91		F	#		
Total Dissolved Solids	mg/L	6/23/2005	0001	8.5	-	38.5	2700		F	#	40	
Turbidity	NTU	6/23/2005	N001	8.5	-	38.5	8.83		F	#		
Uranium	mg/L	6/23/2005	0001	8.5	-	38.5	0.065		F	#	0.0000038	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR02, Durango Raffinate Pond Process Site

REPORT DATE: 9/7/2005

Location: 0598 (WELL) Original location Bureau of Rec well DH-110.

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Qualifiers		Detection Limit	Uncertainty
							Lab	Data QA		
Alkalinity, Total (As CaCO3)	mg/L	6/22/2005	0001	66.2	- 96.2	430		F #		
Oxidation Reduction Potential	mV	6/22/2005	N001	66.2	- 96.2	6.9		F #		
pH	s.u.	6/22/2005	N001	66.2	- 96.2	6.7		F #		
Selenium	mg/L	6/22/2005	0001	66.2	- 96.2	0.23		F #	0.0034	
Specific Conductance	umhos/cm	6/22/2005	N001	66.2	- 96.2	9487		F #		
Temperature	C	6/22/2005	N001	66.2	- 96.2	16.67		F #		
Total Dissolved Solids	mg/L	6/22/2005	0001	66.2	- 96.2	9000		F #	200	
Turbidity	NTU	6/22/2005	N001	66.2	- 96.2	2.84		F #		
Uranium	mg/L	6/22/2005	0001	66.2	- 96.2	0.11		F #	0.0000075	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR02, Durango Raffinate Pond Process Site

REPORT DATE: 9/7/2005

Location: 0607 (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	6/22/2005	0001	35	-	55	332		F	#		
Oxidation Reduction Potential	mV	6/22/2005	N001	35	-	55	183		F	#		
pH	s.u.	6/22/2005	N001	35	-	55	6.92		F	#		
Selenium	mg/L	6/22/2005	0001	35	-	55	1		F	#	0.0068	
Specific Conductance	umhos/cm	6/22/2005	N001	35	-	55	3510		F	#		
Temperature	C	6/22/2005	N001	35	-	55	19.05		F	#		
Total Dissolved Solids	mg/L	6/22/2005	0001	35	-	55	3200		F	#	40	
Turbidity	NTU	6/22/2005	N001	35	-	55	4.03		F	#		
Uranium	mg/L	6/22/2005	0001	35	-	55	0.0051		F	#	0.0000038	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR02, Durango Raffinate Pond Process Site

REPORT DATE: 9/7/2005

Location: 0879 (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	6/22/2005	0001	27	-	36.9	394		F	#		
Oxidation Reduction Potential	mV	6/22/2005	N001	27	-	36.9	167.3		F	#		
pH	s.u.	6/22/2005	N001	27	-	36.9	6.77		F	#		
Selenium	mg/L	6/22/2005	0001	27	-	36.9	0.84		F	#	0.0068	
Specific Conductance	umhos/cm	6/22/2005	N001	27	-	36.9	9077		F	#		
Temperature	C	6/22/2005	N001	27	-	36.9	12.41		F	#		
Total Dissolved Solids	mg/L	6/22/2005	0001	27	-	36.9	8000		F	#	200	
Turbidity	NTU	6/22/2005	N001	27	-	36.9	1.08		F	#		
Uranium	mg/L	6/22/2005	0001	27	-	36.9	0.36		F	#	0.000019	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR02, Durango Raffinate Pond Process Site

REPORT DATE: 9/7/2005

Location: 0884 (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	6/21/2005	0001	36.5	-	46.5		F	#		
Oxidation Reduction Potential	mV	6/21/2005	N001	36.5	-	46.5	172.7		F	#	
pH	s.u.	6/21/2005	N001	36.5	-	46.5	7.04		F	#	
Selenium	mg/L	6/21/2005	0001	36.5	-	46.5	2		F	#	0.034
Specific Conductance	umhos/cm	6/21/2005	N001	36.5	-	46.5	5636		F	#	
Temperature	C	6/21/2005	N001	36.5	-	46.5	13.54		F	#	
Total Dissolved Solids	mg/L	6/21/2005	0001	36.5	-	46.5	5300		F	#	80
Turbidity	NTU	6/21/2005	N001	36.5	-	46.5	1.34		F	#	
Uranium	mg/L	6/21/2005	0001	36.5	-	46.5	0.18		F	#	0.0000075

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
 REPORT DATE: 9/7/2005
 Location: 0605 (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	6/23/2005	0001	36	-	56	715		F	#		
Calcium	mg/L	6/23/2005	0001	36	-	56	150		F	#	0.006	
Calcium	mg/L	6/23/2005	0002	36	-	56	150		F	#	0.006	
Chloride	mg/L	6/23/2005	0001	36	-	56	31		F	#	4	
Chloride	mg/L	6/23/2005	0002	36	-	56	33		F	#	4	
Iron	mg/L	6/23/2005	0001	36	-	56	0.088		UF	#	0.0068	
Iron	mg/L	6/23/2005	0002	36	-	56	0.094		UF	#	0.0068	
Magnesium	mg/L	6/23/2005	0001	36	-	56	120		F	#	0.0064	
Magnesium	mg/L	6/23/2005	0002	36	-	56	120		F	#	0.0064	
Manganese	mg/L	6/23/2005	0001	36	-	56	0.037		F	#	0.00016	
Manganese	mg/L	6/23/2005	0002	36	-	56	0.038		F	#	0.00016	
Molybdenum	mg/L	6/23/2005	0001	36	-	56	0.00033	B	UF	#	0.00017	
Molybdenum	mg/L	6/23/2005	0002	36	-	56	0.00034	B	UF	#	0.00017	
Oxidation Reduction Potential	mV	6/23/2005	N001	36	-	56	-107.7		F	#		
pH	s.u.	6/23/2005	N001	36	-	56	6.83		F	#		
Potassium	mg/L	6/23/2005	0001	36	-	56	11		F	#	0.072	
Potassium	mg/L	6/23/2005	0002	36	-	56	11		F	#	0.072	
Selenium	mg/L	6/23/2005	0001	36	-	56	0.000091	B	F	#	0.000068	
Selenium	mg/L	6/23/2005	0002	36	-	56	0.000081	B	F	#	0.000068	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
 REPORT DATE: 9/7/2005
 Location: 0605 (WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers			Detection Limit	Uncertainty
								Lab	Data	QA		
Sodium	mg/L	6/23/2005	0001	36	-	56	270		F	#	0.37	
Sodium	mg/L	6/23/2005	0002	36	-	56	270		F	#	0.37	
Specific Conductance	umhos/cm	6/23/2005	N001	36	-	56	2544		F	#		
Sulfate	mg/L	6/23/2005	0001	36	-	56	820		F	#	10	
Sulfate	mg/L	6/23/2005	0002	36	-	56	830		F	#	10	
Temperature	C	6/23/2005	N001	36	-	56	13.94		F	#		
Total Dissolved Solids	mg/L	6/23/2005	0001	36	-	56	2000		F	#	40	
Total Dissolved Solids	mg/L	6/23/2005	0002	36	-	56	1900		F	#	40	
Turbidity	NTU	6/23/2005	N001	36	-	56	8.78		F	#		
Uranium	mg/L	6/23/2005	0001	36	-	56	0.000073	B	UF	#	0.0000038	
Uranium	mg/L	6/23/2005	0002	36	-	56	0.000075	B	UF	#	0.0000038	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
 REPORT DATE: 9/7/2005
 Location: 0607 (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	6/22/2005	0001	36.7	-	56.7		F	#		
Calcium	mg/L	6/22/2005	0001	36.7	-	56.7		F	#	0.012	
Chloride	mg/L	6/22/2005	0001	36.7	-	56.7		F	#	1	
Iron	mg/L	6/22/2005	0001	36.7	-	56.7	0.11	N	UF	#	0.014
Magnesium	mg/L	6/22/2005	0001	36.7	-	56.7	170		F	#	0.013
Manganese	mg/L	6/22/2005	0001	36.7	-	56.7	0.082		F	#	0.00031
Molybdenum	mg/L	6/22/2005	0001	36.7	-	56.7	0.00035	B	UF	#	0.00017
Oxidation Reduction Potential	mV	6/22/2005	N001	36.7	-	56.7	-78.9		F	#	
pH	s.u.	6/22/2005	N001	36.7	-	56.7	6.74		F	#	
Potassium	mg/L	6/22/2005	0001	36.7	-	56.7	9.6		F	#	0.14
Selenium	mg/L	6/22/2005	0001	36.7	-	56.7	0.000072	B	F	#	0.000068
Sodium	mg/L	6/22/2005	0001	36.7	-	56.7	310		F	#	0.37
Specific Conductance	umhos/cm	6/22/2005	N001	36.7	-	56.7	3405		F	#	
Sulfate	mg/L	6/22/2005	0001	36.7	-	56.7	1700		F	#	25
Temperature	C	6/22/2005	N001	36.7	-	56.7	11.97		F	#	
Total Dissolved Solids	mg/L	6/22/2005	0001	36.7	-	56.7	3100		F	#	40
Turbidity	NTU	6/22/2005	N001	36.7	-	56.7	3.02		F	#	
Uranium	mg/L	6/22/2005	0001	36.7	-	56.7	0.00011		UF	#	0.0000038

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
 REPORT DATE: 9/7/2005
 Location: 0608 (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	6/23/2005	0001	29	-	39	339		F	#		
Calcium	mg/L	6/23/2005	0001	29	-	39	180		F	#	0.006	
Chloride	mg/L	6/23/2005	0001	29	-	39	16		F	#	2	
Iron	mg/L	6/23/2005	0001	29	-	39	0.069		UF	#	0.0068	
Magnesium	mg/L	6/23/2005	0001	29	-	39	110		F	#	0.0064	
Manganese	mg/L	6/23/2005	0001	29	-	39	0.0027	B	F	#	0.00016	
Molybdenum	mg/L	6/23/2005	0001	29	-	39	0.00082	B	UF	#	0.00017	
Oxidation Reduction Potential	mV	6/23/2005	N001	29	-	39	57.8		F	#		
pH	s.u.	6/23/2005	N001	29	-	39	6.8		F	#		
Potassium	mg/L	6/23/2005	0001	29	-	39	5.1		F	#	0.072	
Selenium	mg/L	6/23/2005	0001	29	-	39	0.0032		F	#	0.000068	
Sodium	mg/L	6/23/2005	0001	29	-	39	62		F	#	0.0074	
Specific Conductance	umhos/cm	6/23/2005	N001	29	-	39	1537		F	#		
Sulfate	mg/L	6/23/2005	0001	29	-	39	570		F	#	5	
Temperature	C	6/23/2005	N001	29	-	39	10.51		F	#		
Total Dissolved Solids	mg/L	6/23/2005	0001	29	-	39	1200		F	#	40	
Turbidity	NTU	6/23/2005	N001	29	-	39	2.73		F	#		
Uranium	mg/L	6/23/2005	0001	29	-	39	0.0036		F	#	0.0000038	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
 REPORT DATE: 9/7/2005
 Location: 0612 (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	6/22/2005	0001	98.09	- 108.09	2225		FQ #		
Calcium	mg/L	6/22/2005	0001	98.09	- 108.09	5.5		FQ #	0.012	
Chloride	mg/L	6/22/2005	0001	98.09	- 108.09	49		FQ #	1	
Iron	mg/L	6/22/2005	0001	98.09	- 108.09	0.03	B	UFQ #	0.014	
Magnesium	mg/L	6/22/2005	0001	98.09	- 108.09	3.5		FQ #	0.013	
Manganese	mg/L	6/22/2005	0001	98.09	- 108.09	0.01		FQ #	0.00031	
Molybdenum	mg/L	6/22/2005	0001	98.09	- 108.09	0.00034	B	UFQ #	0.00017	
Oxidation Reduction Potential	mV	6/22/2005	N001	98.09	- 108.09	-351.9		FQ #		
pH	s.u.	6/22/2005	N001	98.09	- 108.09	7.56		FQ #		
Potassium	mg/L	6/22/2005	0001	98.09	- 108.09	11		FQ #	0.14	
Selenium	mg/L	6/22/2005	0001	98.09	- 108.09	0.0017		FQ #	0.000068	
Sodium	mg/L	6/22/2005	0001	98.09	- 108.09	890		FQ #	0.37	
Specific Conductance	umhos/cm	6/22/2005	N001	98.09	- 108.09	3877		FQ #		
Sulfate	mg/L	6/22/2005	0001	98.09	- 108.09	33		FQ #	2.5	
Temperature	C	6/22/2005	N001	98.09	- 108.09	15.89		FQ #		
Total Dissolved Solids	mg/L	6/22/2005	0001	98.09	- 108.09	2700		FQ #	80	
Turbidity	NTU	6/22/2005	N001	98.09	- 108.09	4.03		FQ #		
Uranium	mg/L	6/22/2005	0001	98.09	- 108.09	0.00016		UFQ #	0.0000038	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
 REPORT DATE: 9/7/2005
 Location: 0618 (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	6/23/2005	0001	29.77	- 49.77	335		F	#		
Calcium	mg/L	6/23/2005	0001	29.77	- 49.77	220		F	#	0.006	
Chloride	mg/L	6/23/2005	0001	29.77	- 49.77	27		F	#	4	
Iron	mg/L	6/23/2005	0001	29.77	- 49.77	0.016	B	UF	#	0.0068	
Magnesium	mg/L	6/23/2005	0001	29.77	- 49.77	120		F	#	0.0064	
Manganese	mg/L	6/23/2005	0001	29.77	- 49.77	0.00016	U	F	#	0.00016	
Molybdenum	mg/L	6/23/2005	0001	29.77	- 49.77	0.00065	B	UF	#	0.00017	
Oxidation Reduction Potential	mV	6/23/2005	N001	29.77	- 49.77	-1.8		F	#		
pH	s.u.	6/23/2005	N001	29.77	- 49.77	6.83		F	#		
Potassium	mg/L	6/23/2005	0001	29.77	- 49.77	3.5		F	#	0.072	
Selenium	mg/L	6/23/2005	0001	29.77	- 49.77	0.006		F	#	0.000068	
Sodium	mg/L	6/23/2005	0001	29.77	- 49.77	71		F	#	0.0074	
Specific Conductance	umhos/cm	6/23/2005	N001	29.77	- 49.77	1820		F	#		
Sulfate	mg/L	6/23/2005	0001	29.77	- 49.77	740		F	#	10	
Temperature	C	6/23/2005	N001	29.77	- 49.77	10.41		F	#		
Total Dissolved Solids	mg/L	6/23/2005	0001	29.77	- 49.77	1500		F	#	40	
Turbidity	NTU	6/23/2005	N001	29.77	- 49.77	1.95		F	#		
Uranium	mg/L	6/23/2005	0001	29.77	- 49.77	0.013		F	#	0.0000038	

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
 REPORT DATE: 9/7/2005
 Location: 0621 (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	6/23/2005	0001	78.46	-	88.46		F	#		
Calcium	mg/L	6/23/2005	0001	78.46	-	88.46		F	#	0.012	
Chloride	mg/L	6/23/2005	0001	78.46	-	88.46		F	#	1	
Iron	mg/L	6/23/2005	0001	78.46	-	88.46		F	#	0.014	
Magnesium	mg/L	6/23/2005	0001	78.46	-	88.46		F	#	0.013	
Manganese	mg/L	6/23/2005	0001	78.46	-	88.46		F	#	0.00031	
Molybdenum	mg/L	6/23/2005	0001	78.46	-	88.46	0.00059	B	UF	#	0.00017
Oxidation Reduction Potential	mV	6/23/2005	N001	78.46	-	88.46	77.3		F	#	
pH	s.u.	6/23/2005	N001	78.46	-	88.46	5.36		F	#	
Potassium	mg/L	6/23/2005	0001	78.46	-	88.46	12		F	#	0.14
Selenium	mg/L	6/23/2005	0001	78.46	-	88.46	0.00009	B	F	#	0.000068
Sodium	mg/L	6/23/2005	0001	78.46	-	88.46	89		F	#	0.015
Specific Conductance	umhos/cm	6/23/2005	N001	78.46	-	88.46	3820		F	#	
Sulfate	mg/L	6/23/2005	0001	78.46	-	88.46	2900		F	#	25
Temperature	C	6/23/2005	N001	78.46	-	88.46	14.57		F	#	
Total Dissolved Solids	mg/L	6/23/2005	0001	78.46	-	88.46	4300		F	#	80
Turbidity	NTU	6/23/2005	N001	78.46	-	88.46	2.48		F	#	
Uranium	mg/L	6/23/2005	0001	78.46	-	88.46	0.00013		UF	#	0.0000038

Ground Water Quality Data by Location (USEE100) FOR SITE DUR03, Durango Disposal Site
 REPORT DATE: 9/7/2005
 Location: 0623 (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	6/23/2005	0001	19.35	- 39.35	378		FQ	#		
Calcium	mg/L	6/23/2005	0001	19.35	- 39.35	200		FQ	#	0.006	
Chloride	mg/L	6/23/2005	0001	19.35	- 39.35	16		FQ	#	4	
Iron	mg/L	6/23/2005	0001	19.35	- 39.35	0.044	B	UFQ	#	0.0068	
Magnesium	mg/L	6/23/2005	0001	19.35	- 39.35	170		FQ	#	0.0064	
Manganese	mg/L	6/23/2005	0001	19.35	- 39.35	0.016		FQ	#	0.00016	
Molybdenum	mg/L	6/23/2005	0001	19.35	- 39.35	0.00094	B	UFQ	#	0.00017	
Oxidation Reduction Potential	mV	6/23/2005	N001	19.35	- 39.35	35.6		FQ	#		
pH	s.u.	6/23/2005	N001	19.35	- 39.35	6.91		FQ	#		
Potassium	mg/L	6/23/2005	0001	19.35	- 39.35	3.3		FQ	#	0.072	
Selenium	mg/L	6/23/2005	0001	19.35	- 39.35	0.0028		FQ	#	0.000068	
Sodium	mg/L	6/23/2005	0001	19.35	- 39.35	95		FQ	#	0.037	
Specific Conductance	umhos/cm	6/23/2005	N001	19.35	- 39.35	2062		FQ	#		
Sulfate	mg/L	6/23/2005	0001	19.35	- 39.35	920		FQ	#	10	
Temperature	C	6/23/2005	N001	19.35	- 39.35	12.68		FQ	#		
Total Dissolved Solids	mg/L	6/23/2005	0001	19.35	- 39.35	1800		FQ	#	40	
Turbidity	NTU	6/23/2005	N001	19.35	- 39.35	2.54		FQ	#		
Uranium	mg/L	6/23/2005	0001	19.35	- 39.35	0.0027		FQ	#	0.0000038	

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

LAB QUALIFIERS:

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

DATA QUALIFIERS:

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

QA QUALIFIER:

- # Validated according to quality assurance guidelines.

Surface Water Quality Data

Surface Water Quality Data by Location (USEE102) FOR SITE DUR01, Durango Mill Tailings Process Site

REPORT DATE: 9/7/2005

Location: 0584 (surface location)

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	6/21/2005	0001	73			#		
Cadmium	mg/L	6/21/2005	0001	0.00023	B	U	#	0.000025	
Molybdenum	mg/L	6/21/2005	0001	0.00062	B	U	#	0.00017	
Oxidation Reduction Potential	mV	6/21/2005	N001	10			#		
pH	s.u.	6/21/2005	N001	7.43			#		
Selenium	mg/L	6/21/2005	0001	0.00018			#	0.000068	
Specific Conductance	umhos/cm	6/21/2005	N001	165			#		
Temperature	C	6/21/2005	N001	12.64			#		
Turbidity	NTU	6/21/2005	N001	20.7			#		
Uranium	mg/L	6/21/2005	0001	0.00026		U	#	0.000038	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR01, Durango Mill Tailings Process Site

REPORT DATE: 9/7/2005

Location: 0586 (surface location)

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	6/22/2005	0001	38			#		
Cadmium	mg/L	6/22/2005	0001	0.00023	B	U	#	0.000025	
Molybdenum	mg/L	6/22/2005	0001	0.00064	B	U	#	0.00017	
Oxidation Reduction Potential	mV	6/22/2005	N001	114			#		
pH	s.u.	6/22/2005	N001	7.69			#		
Selenium	mg/L	6/22/2005	0001	0.00012			#	0.000068	
Specific Conductance	umhos/cm	6/22/2005	N001	157			#		
Temperature	C	6/22/2005	N001	10.4			#		
Turbidity	NTU	6/22/2005	N001	41.1			#		
Uranium	mg/L	6/22/2005	0001	0.00025		U	#	0.000038	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR01, Durango Mill Tailings Process Site

REPORT DATE: 9/7/2005

Location: 0652 (surface location)

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	6/21/2005	0001	46			#		
Cadmium	mg/L	6/21/2005	0001	0.00024	B	U	#	0.000042	
Molybdenum	mg/L	6/21/2005	0001	0.00052	B	U	#	0.00021	
Oxidation Reduction Potential	mV	6/21/2005	N001	166.6			#		
pH	s.u.	6/21/2005	N001	7.39			#		
Selenium	mg/L	6/21/2005	0001	0.00015			#	0.000068	
Specific Conductance	umhos/cm	6/21/2005	N001	161			#		
Temperature	C	6/21/2005	N001	11.13			#		
Turbidity	NTU	6/21/2005	N001	22.7			#		
Uranium	mg/L	6/21/2005	0001	0.00015	E	U	#	0.000022	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR01, Durango Mill Tailings Process Site

REPORT DATE: 9/7/2005

Location: 0691 (surface location)

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	6/21/2005	0001	43			#		
Cadmium	mg/L	6/21/2005	0001	0.00024	B	U	#	0.000025	
Molybdenum	mg/L	6/21/2005	0001	0.00065	B	U	#	0.00017	
Oxidation Reduction Potential	mV	6/21/2005	N001	108			#		
pH	s.u.	6/21/2005	N001	7.51			#		
Selenium	mg/L	6/21/2005	0001	0.00015			#	0.000068	
Specific Conductance	umhos/cm	6/21/2005	N001	167			#		
Temperature	C	6/21/2005	N001	12.97			#		
Turbidity	NTU	6/21/2005	N001	16.4			#		
Uranium	mg/L	6/21/2005	0001	0.00022		U	#	0.000038	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR02, Durango Raffinate Pond Process Site

REPORT DATE: 9/7/2005

Location: 0588 (surface location)

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	6/22/2005	0001	295			#		
Cadmium	mg/L	6/22/2005	0001	0.00021	B	U	#	0.000025	
Molybdenum	mg/L	6/22/2005	0001	0.0012		U	#	0.00017	
Oxidation Reduction Potential	mV	6/22/2005	N001	172			#		
pH	s.u.	6/22/2005	N001	8.03			#		
Selenium	mg/L	6/22/2005	0001	0.00067			#	0.000068	
Specific Conductance	umhos /cm	6/22/2005	N001	1615			#		
Temperature	C	6/22/2005	N001	23.13			#		
Turbidity	NTU	6/22/2005	N001	122			#		
Uranium	mg/L	6/22/2005	0001	0.017			#	0.0000038	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR02, Durango Raffinate Pond Process Site

REPORT DATE: 9/7/2005

Location: 0654 (surface location)

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	6/22/2005	0001	30			#		
Cadmium	mg/L	6/22/2005	0001	0.00024	B	U	#	0.000025	
Molybdenum	mg/L	6/22/2005	0001	0.00059	B	U	#	0.00017	
Oxidation Reduction Potential	mV	6/22/2005	N001	-102			#		
pH	s.u.	6/22/2005	N001	7.29			#		
Selenium	mg/L	6/22/2005	0001	0.00026			#	0.000068	
Specific Conductance	umhos/cm	6/22/2005	N001	154			#		
Temperature	C	6/22/2005	N001	10.18			#		
Uranium	mg/L	6/22/2005	0001	0.00017		U	#	0.000038	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR02, Durango Raffinate Pond Process Site

REPORT DATE: 9/7/2005

Location: 0656 (surface location)

Parameter	Units	Sample Date	Sample ID	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/21/2005	0001	46			#		
Cadmium	mg/L	6/21/2005	0001	0.00027	B	U	#	0.000025	
Molybdenum	mg/L	6/21/2005	0001	0.00066	B	U	#	0.00017	
Oxidation Reduction Potential	mV	6/21/2005	N001	121			#		
pH	s.u.	6/21/2005	N001	7.21			#		
Selenium	mg/L	6/21/2005	0001	0.00013			#	0.000068	
Specific Conductance	umhos/cm	6/21/2005	N001	163			#		
Temperature	C	6/21/2005	N001	12.89			#		
Turbidity	NTU	6/21/2005	N001	18.4			#		
Uranium	mg/L	6/21/2005	0001	0.00018		U	#	0.000038	

Surface Water Quality Data by Location (USEE102) FOR SITE DUR02, Durango Raffinate Pond Process Site
 REPORT DATE: 9/7/2005
 Location: 2913 (Bureau of Reclamation evaporation pond)

Parameter	Units	Sample		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID		Lab	Data	QA		
Alkalinity, Total (As CaCO3)	mg/L	6/22/2005	0001	99			#		
Cadmium	mg/L	6/22/2005	0001	0.00020	B	U	#	0.000025	
Molybdenum	mg/L	6/22/2005	0001	0.0023	B	U	#	0.00017	
Oxidation Reduction Potential	mV	6/22/2005	N001	162			#		
pH	s.u.	6/22/2005	N001	8.15			#		
Selenium	mg/L	6/22/2005	0001	0.0042			#	0.000068	
Specific Conductance	umhos /cm	6/22/2005	N001	618			#		
Temperature	C	6/22/2005	N001	17.13			#		
Turbidity	NTU	6/22/2005	N001	113			#		
Uranium	mg/L	6/22/2005	0001	0.0016			#	0.0000038	

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. | 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. | | |

Equipment Blank Data

BLANKS REPORT

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

RIN: 05050192

Report Date: 9/7/2005

Parameter	Site Code	Location ID	Sample Date		Units	Result	Qualifiers		Detection Limit	Uncertainty	Sample Type
			Lab	Data			Lab	Data			
Calcium	DUR03	0999	6/23/2005	0001	mg/L	0.061	B		0.006		E
Chloride	DUR03	0999	6/23/2005	0001	mg/L	0.2	U		0.2		E
Iron	DUR03	0999	6/23/2005	0001	mg/L	0.0068	U		0.0068		E
Magnesium	DUR03	0999	6/23/2005	0001	mg/L	0.0095	B		0.0064		E
Manganese	DUR03	0999	6/23/2005	0001	mg/L	0.00016	U		0.00016		E
Molybdenum	DUR03	0999	6/23/2005	0001	mg/L	0.00031	B	U	0.00017		E
Potassium	DUR03	0999	6/23/2005	0001	mg/L	0.22	B		0.072		E
Selenium	DUR03	0999	6/23/2005	0001	mg/L	0.000068	U		0.000068		E
Sodium	DUR03	0999	6/23/2005	0001	mg/L	0.034	B		0.0074		E
Sulfate	DUR03	0999	6/23/2005	0001	mg/L	0.5	U		0.5		E
Total Dissolved Solids	DUR03	0999	6/23/2005	0001	mg/L	20	U		20		E
Uranium	DUR03	0999	6/23/2005	0001	mg/L	0.000073	B	U	0.000038		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.

Static Water Level Data

STATIC WATER LEVELS (USEE700) FOR SITE DUR01, Durango Mill Tailings Process Site
 REPORT DATE: 9/8/2005

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
0612	D	6500.94	6/21/2005	14:37:00	39.47	6461.47	
0617	D	6498.11	6/21/2005	10:20:00	27.57	6470.54	
0630	D	6494.44	6/21/2005	10:58:00	31.31	6463.13	
0631	D	6477.91	6/21/2005	08:32:00	6.55	6471.36	
0633	D	6481.81	6/21/2005	09:20:00	6.53	6475.28	
0634	D	6491.75	6/20/2005	14:57:00	12.98	6478.77	
0635	D	6497.68	6/20/2005	16:06:00	12.8	6484.88	
0863		6513.32	6/21/2005	13:42:00	54.95	6458.37	

STATIC WATER LEVELS (USEE700) FOR SITE DUR02, Durango Raffinate Pond Process Site
 REPORT DATE: 9/8/2005

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
0594	O	6472.49	6/23/2005	14:14:00	20.1	6452.39	
0598	O	6479.09	6/22/2005	11:10:00	24.43	6454.66	
0607	U	6527.95	6/22/2005	13:13:00	50.62	6477.33	
0879		6473.91	6/22/2005	08:35:00	17.82	6456.09	
0884		6476.37	6/21/2005	17:26:00	16.86	6459.51	

STATIC WATER LEVELS (USEE700) FOR SITE DUR03, Durango Disposal Site
 REPORT DATE: 9/8/2005

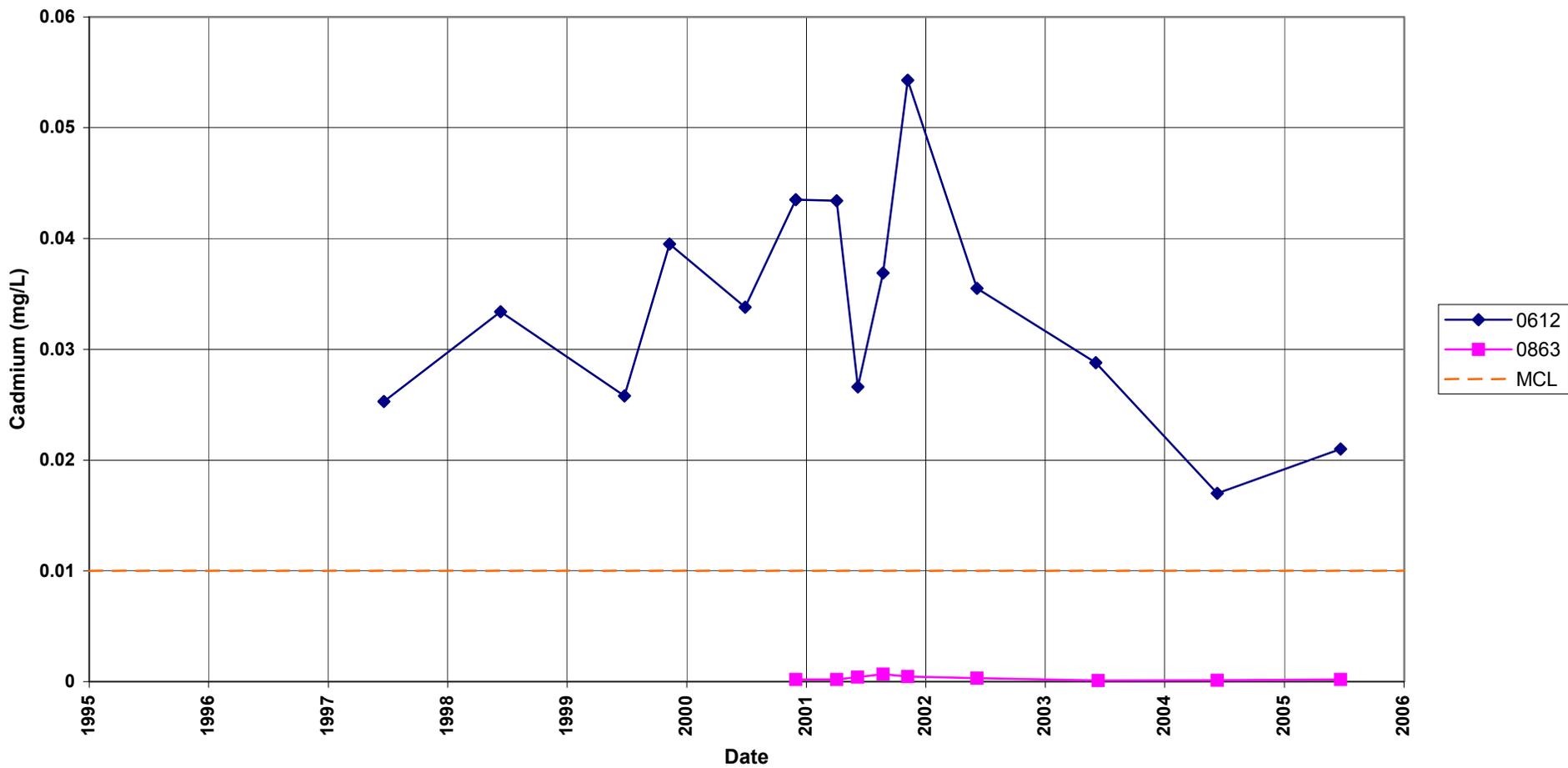
Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0605	U	7189.6	6/23/2005	08:45:00	38.83	7150.77	
0607	D	7099.1	6/22/2005	15:02:00	38.39	7060.71	
0608	D	7035	6/23/2005	11:40:00	24.16	7010.84	
0612	D	7109.8	6/22/2005	16:15:00	88.78	7021.02	
0618	D	7036.41	6/23/2005	10:03:00	26.33	7010.08	
0621	U	7035.77	6/23/2005	10:32:00	39.53	6996.24	
0623	U	7048.67	6/23/2005	12:10:00	20.33	7028.34	

FLOW CODES: B BACKGROUND C CROSS GRADIENT D DOWN GRADIENT O ON SITE
 U UPGRADIENT

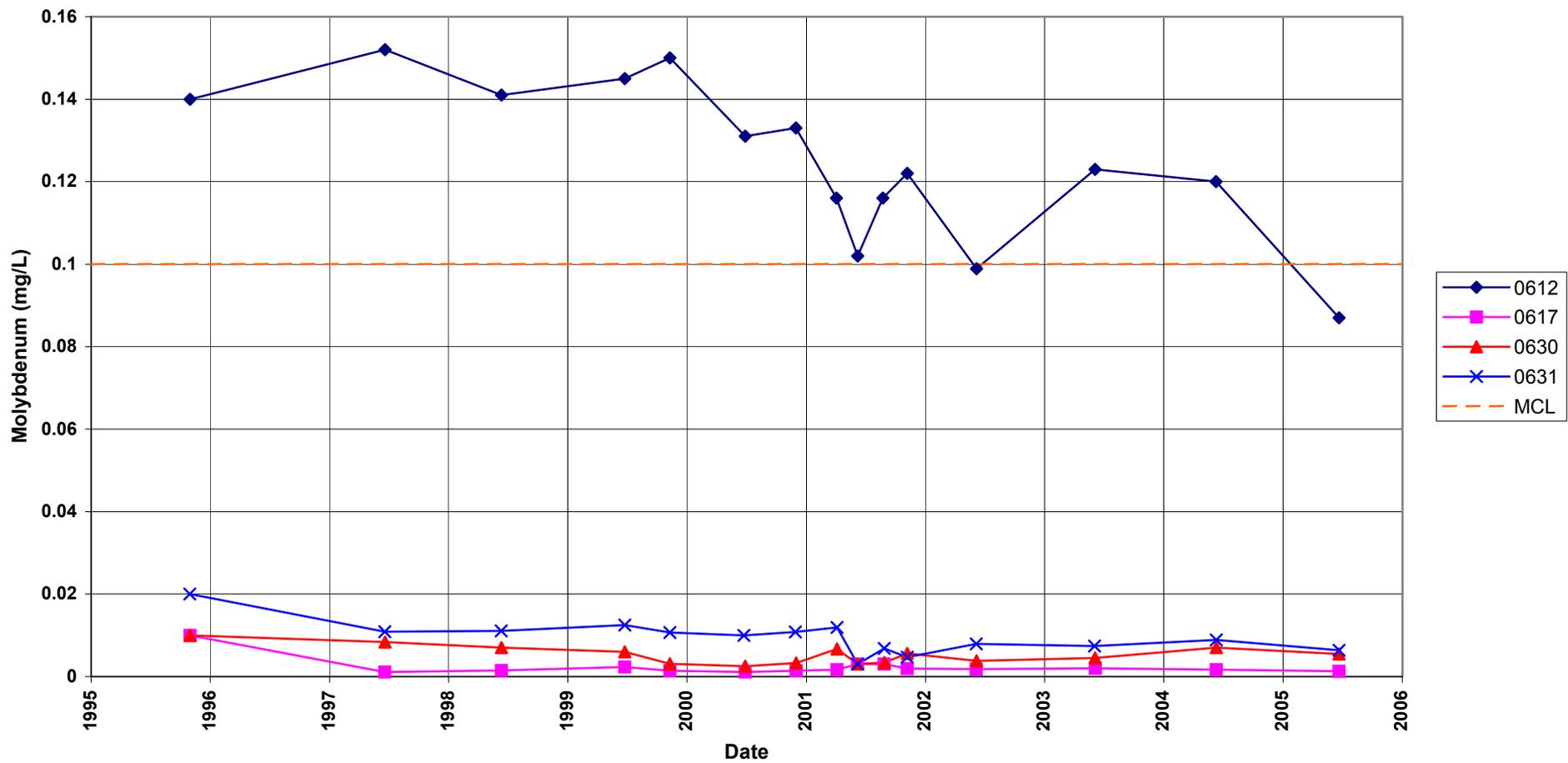
WATER LEVEL FLAGS: D Dry

Time Versus Concentration Graphs

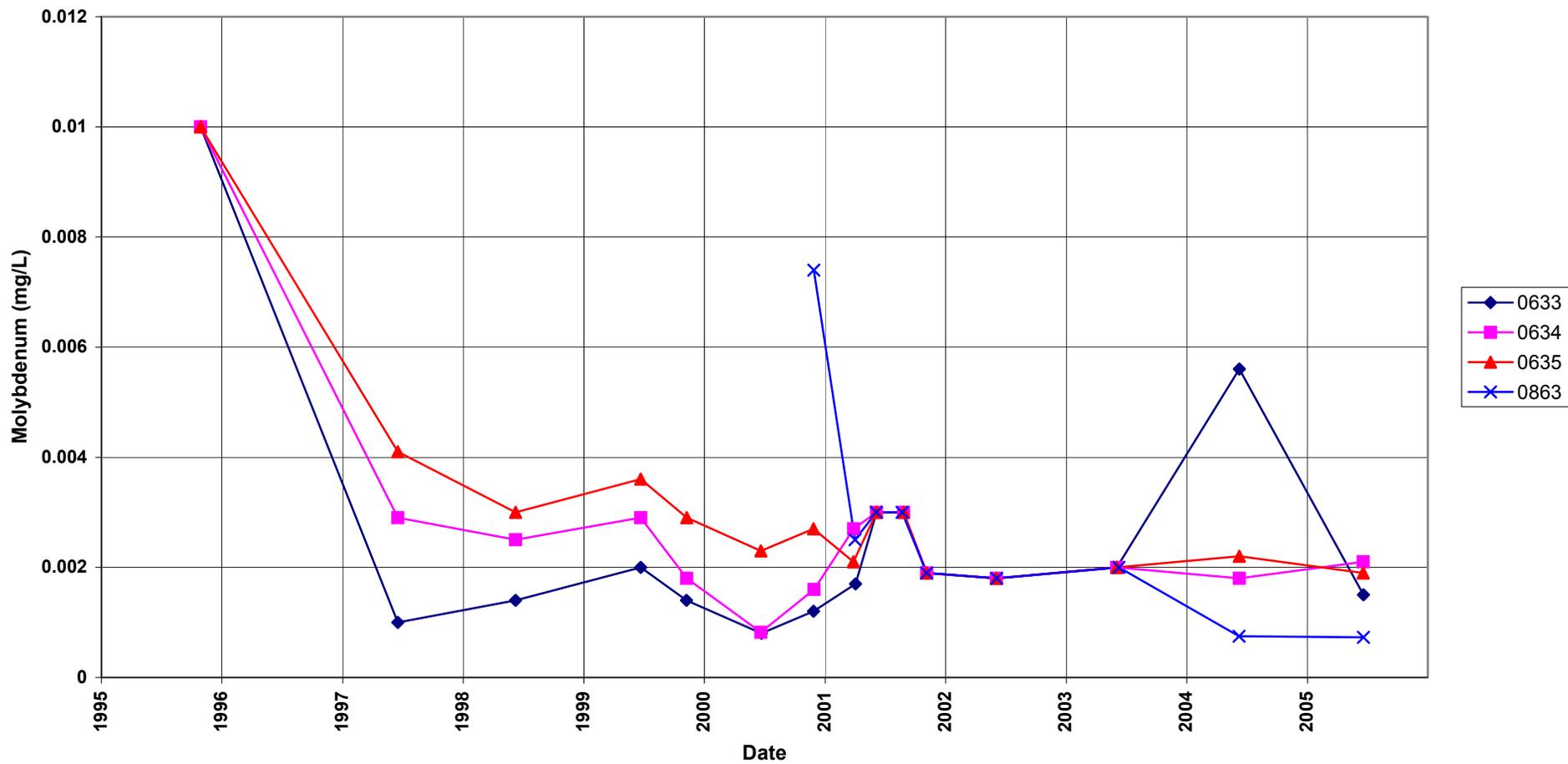
Durango Mill Tailings Process Site
Cadmium Concentration
MCL = 0.01 mg/L



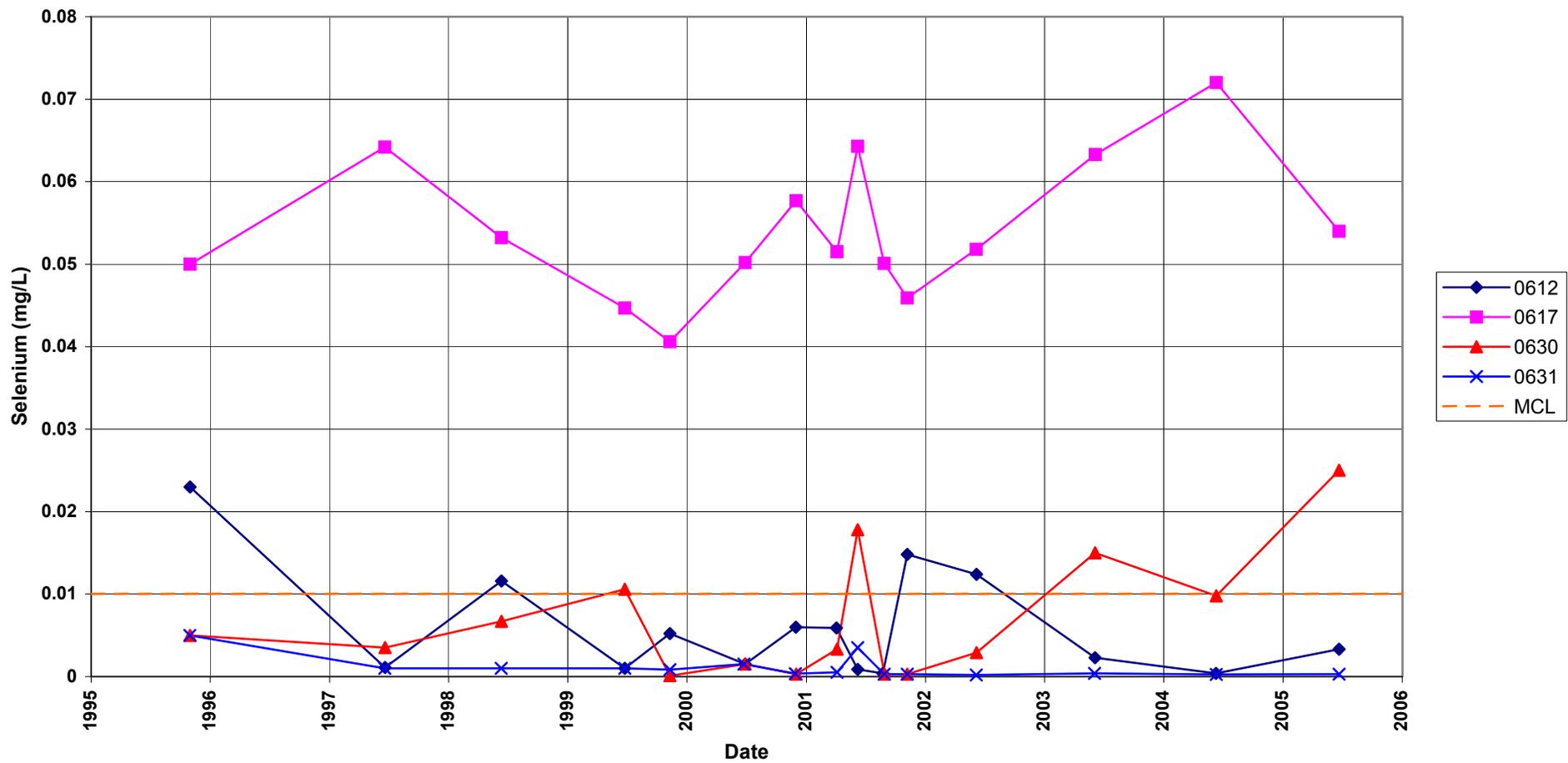
Durango Mill Tailings Process Site
Molybdenum Concentration
MCL = 0.1 mg/L



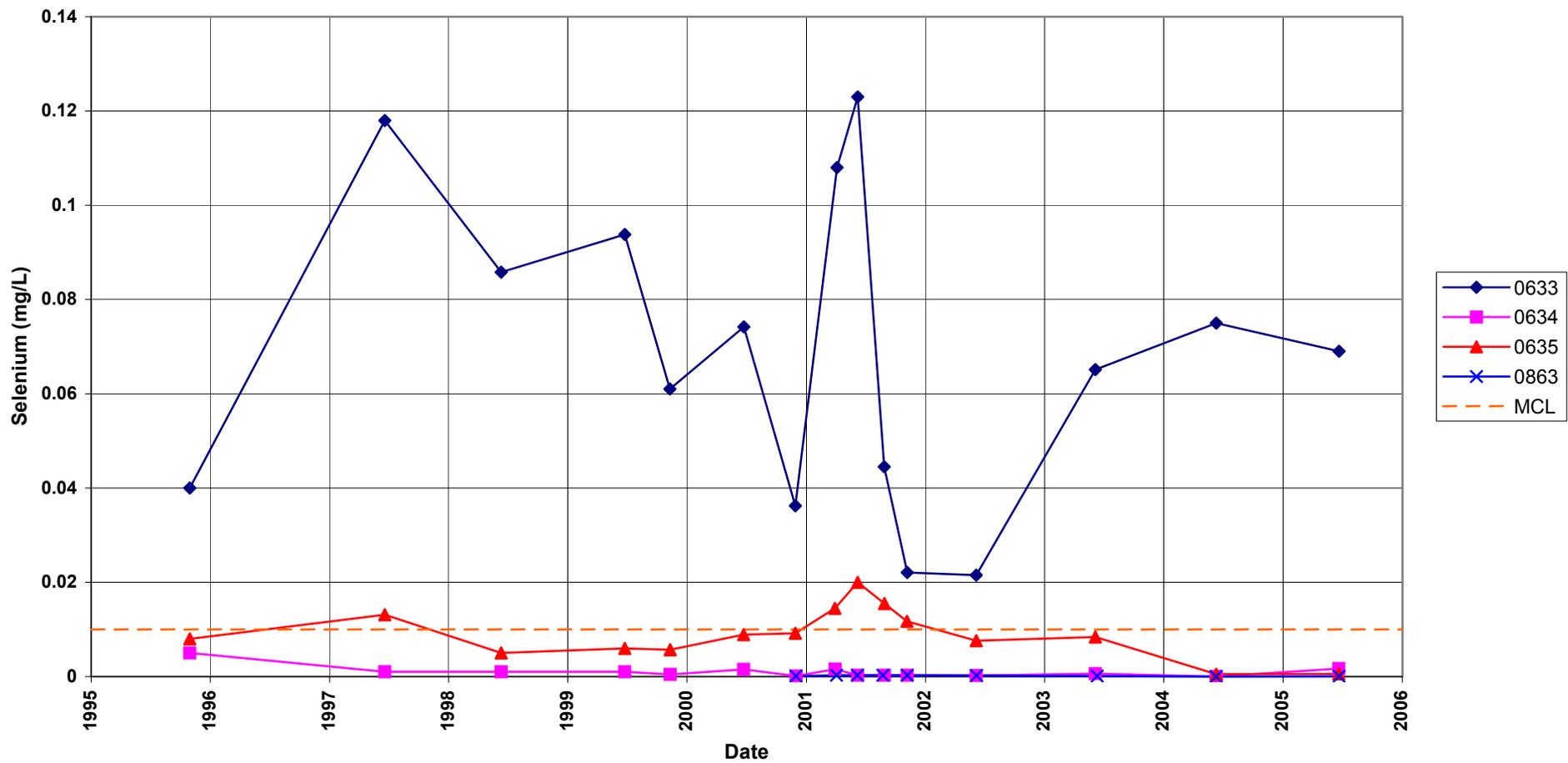
Durango Mill Tailings Process Site
Molybdenum Concentration
MCL = 0.1 mg/L



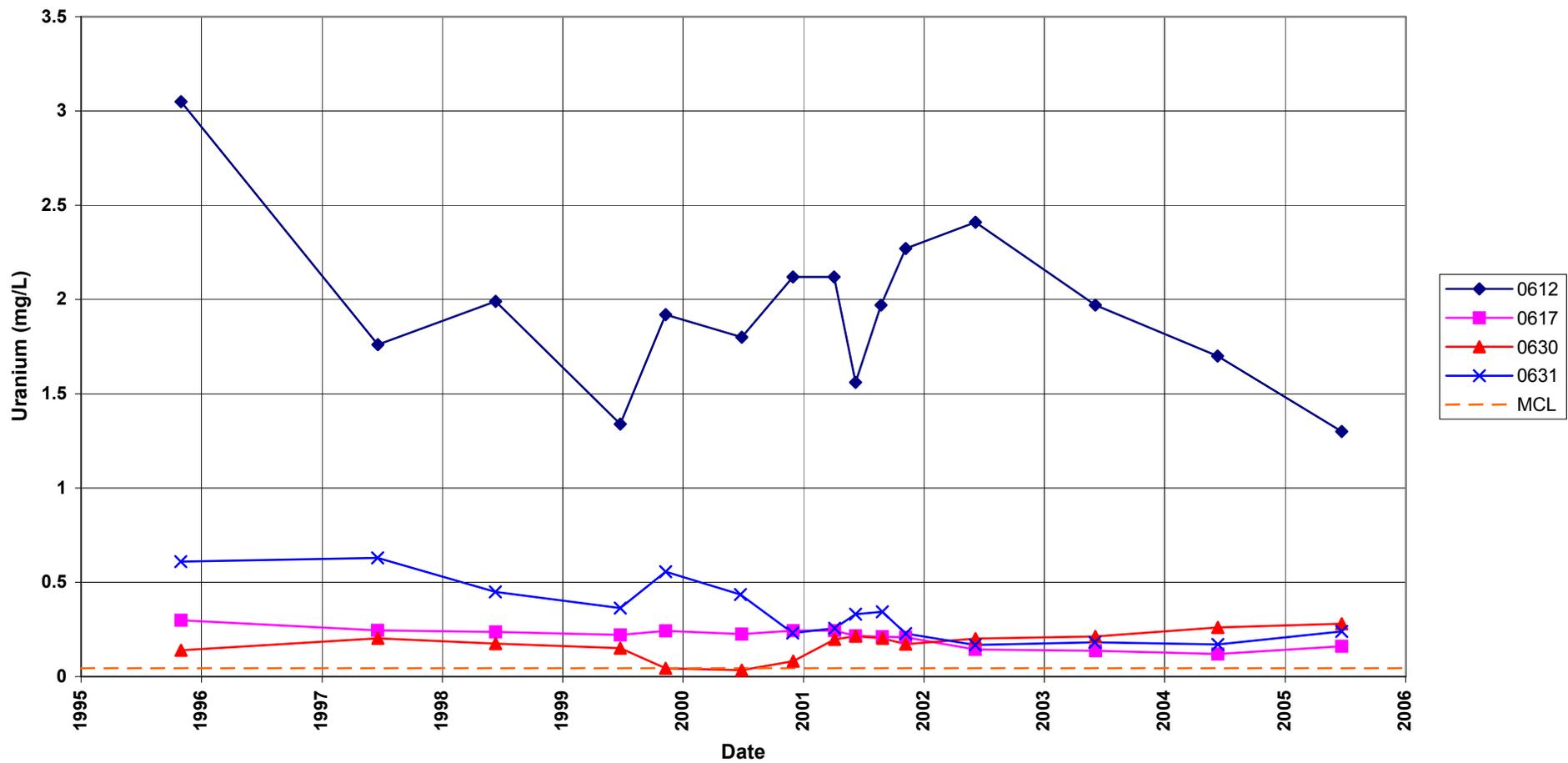
Durango Mill Tailings Process Site
Selenium Concentration
MCL = 0.01 mg/L



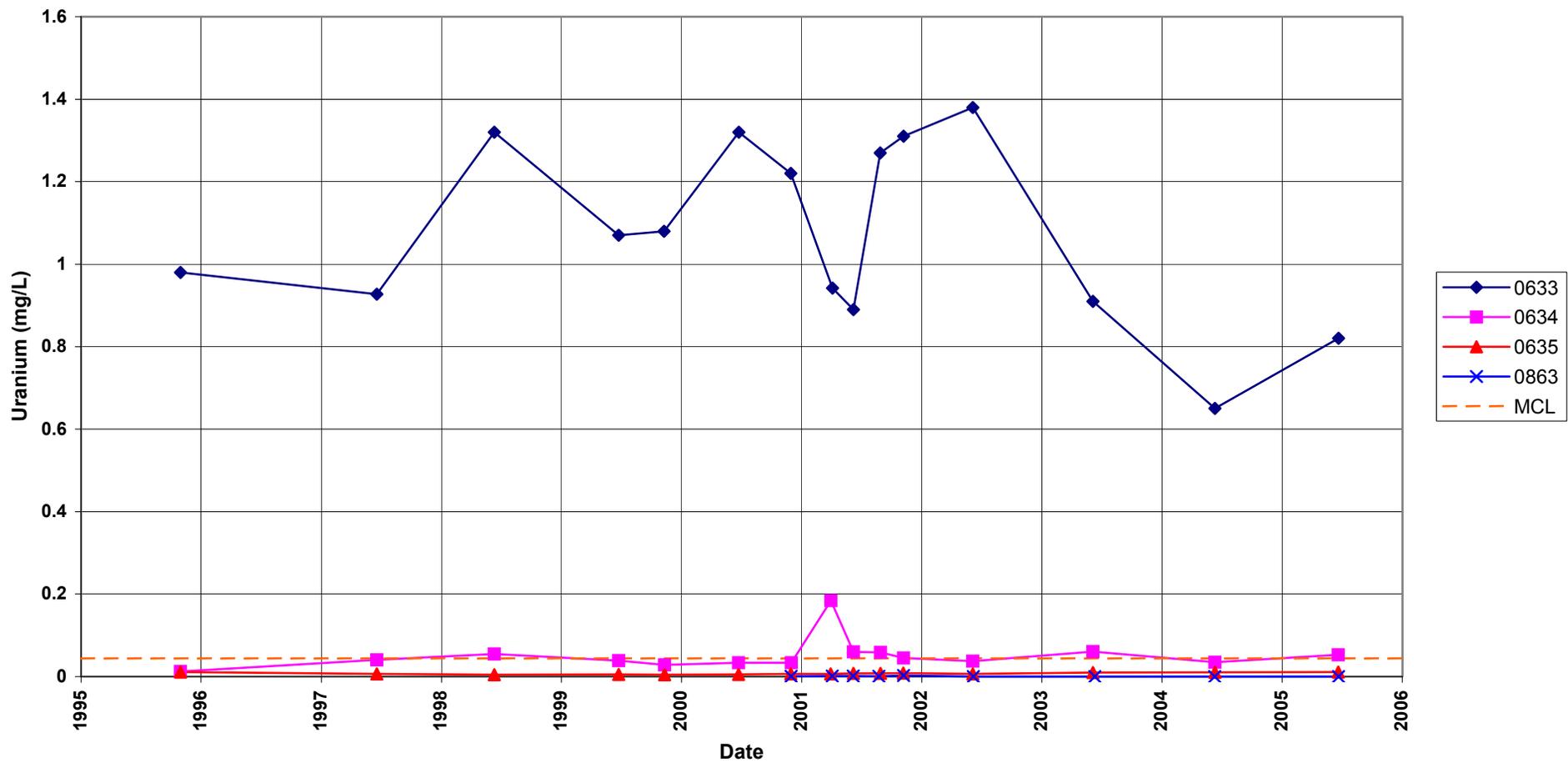
Durango Mill Tailings Process Site
Selenium Concentration
MCL = 0.01 mg/L



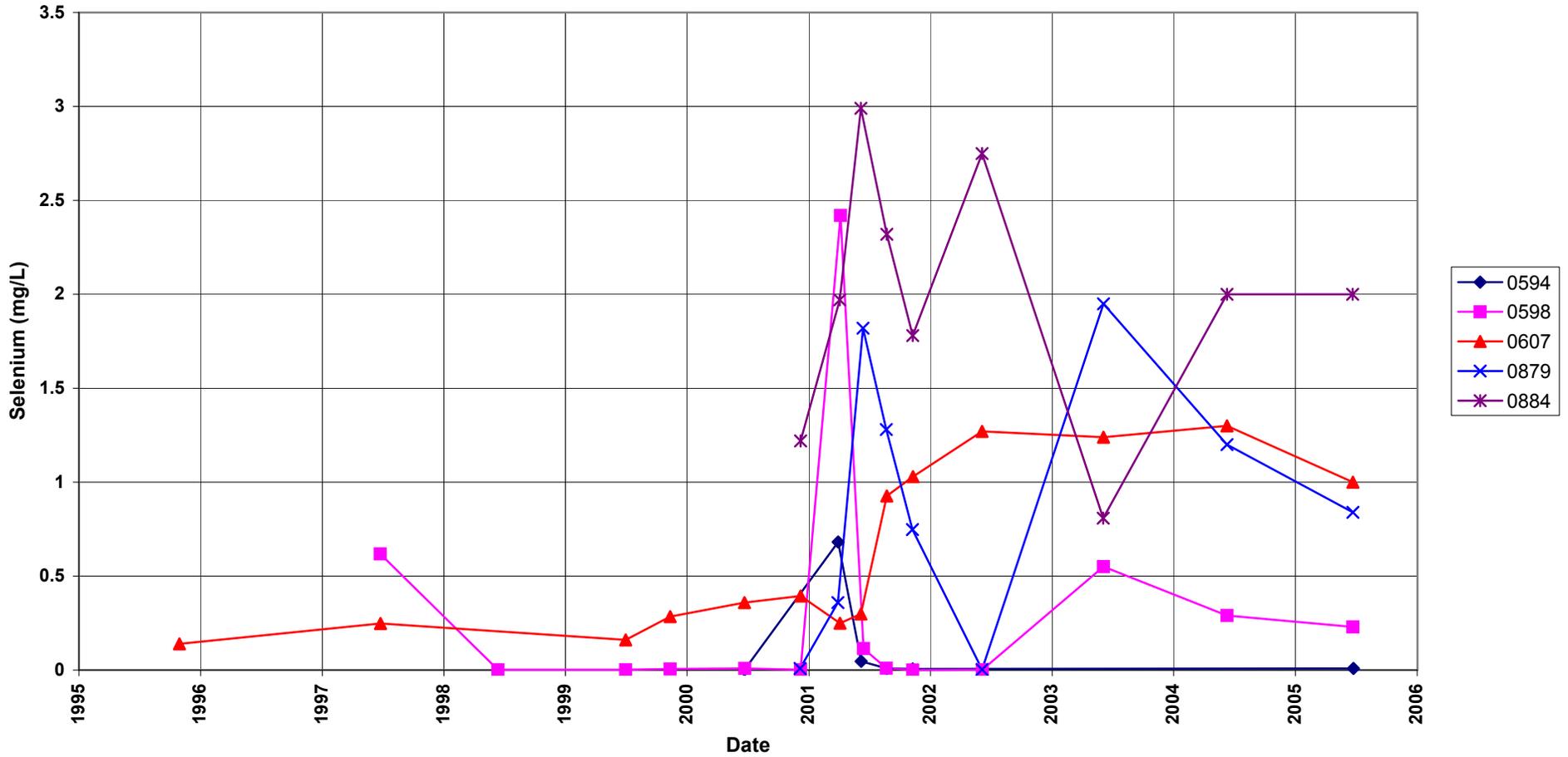
Durango Mill Tailings Process Site
Uranium Concentration
MCL = 0.044 mg/L



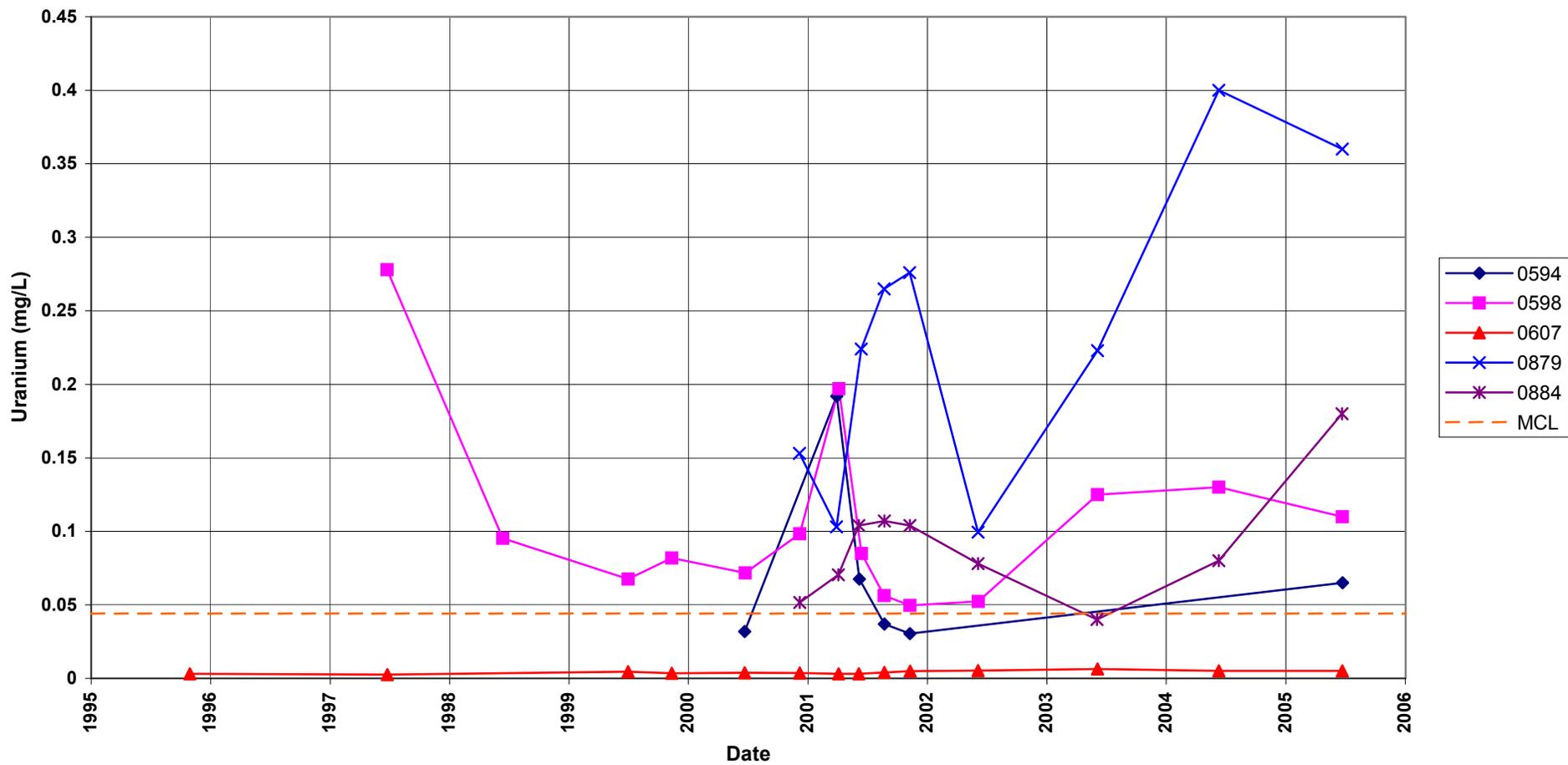
Durango Mill Tailings Process Site
Uranium Concentration
MCL = 0.044 mg/L



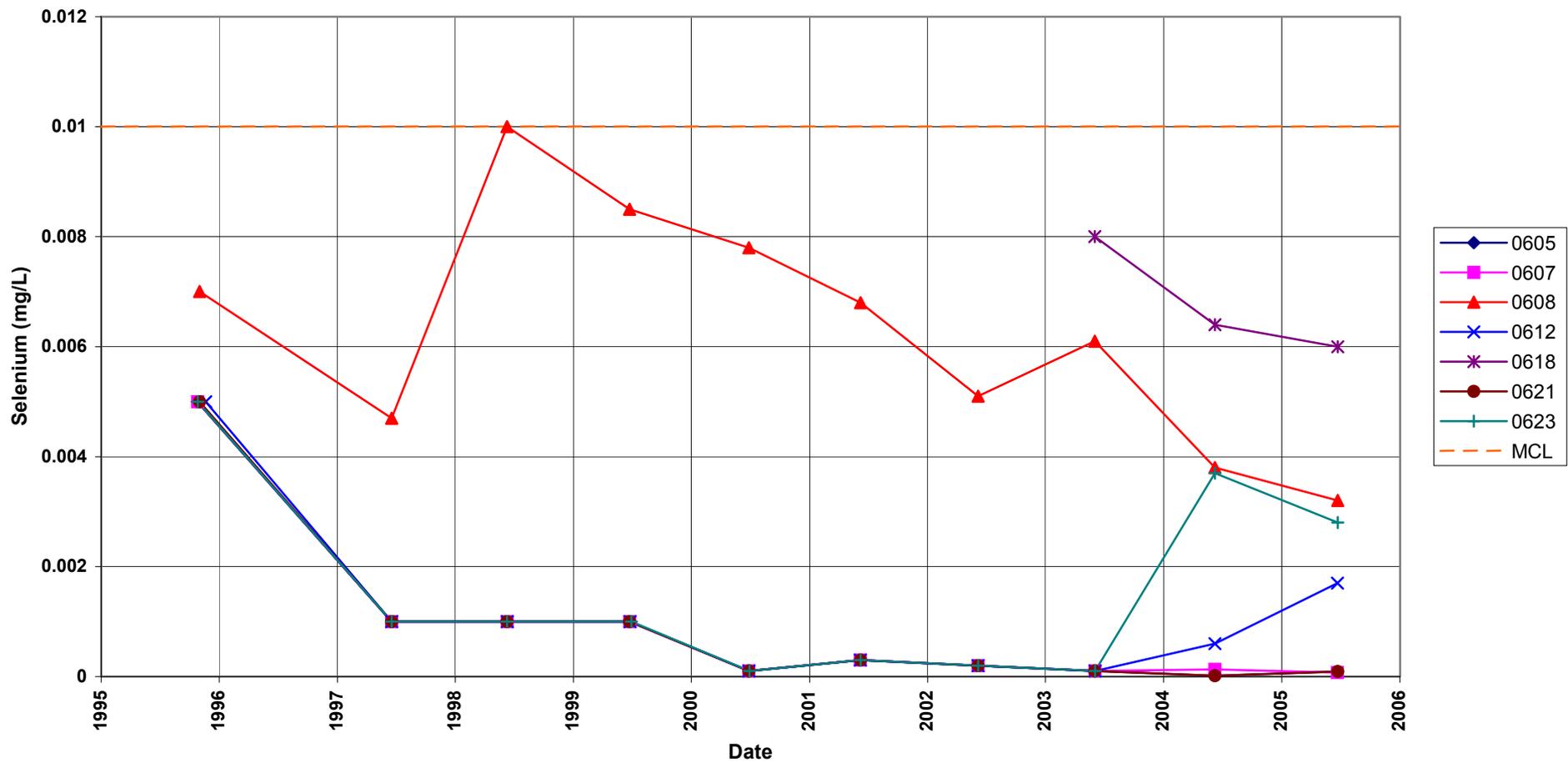
Durango Raffinate Pond Process Site
Selenium Concentration
MCL = 0.01 mg/L



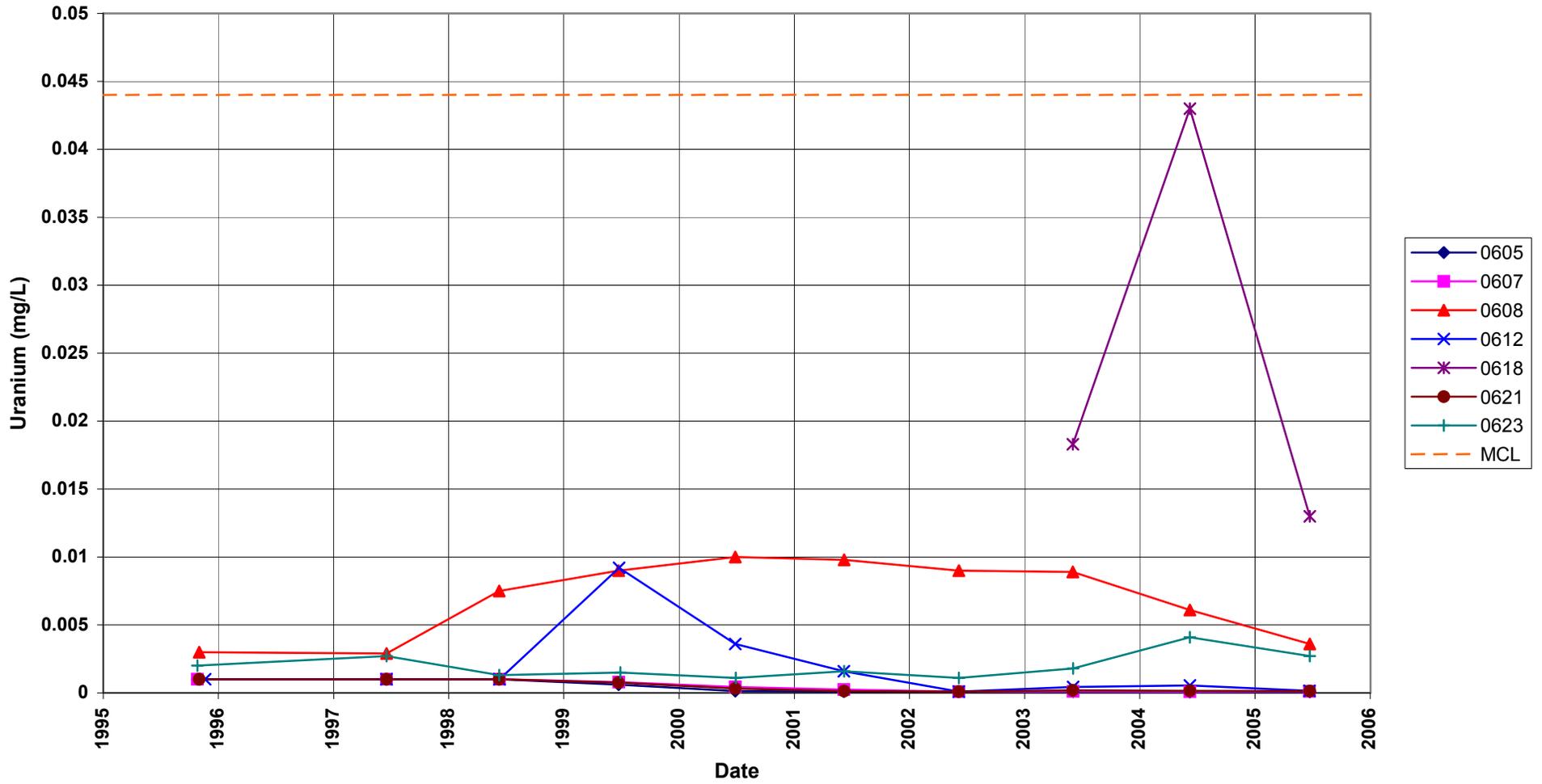
Durango Raffinate Pond Process Site
Uranium Concentration
MCL = 0.044 mg/L



Durango Disposal Site
Selenium Concentration
MCL = 0.01 mg/L



Durango Disposal Site
Uranium Concentration
MCL = 0.044 mg/L



Attachment 3
Sampling and Analysis Work Order



established 1959

Task Order ST05-102
Control Number 1000-T05-1337

May 9, 2005

Michael Tucker
Program Manager
U.S. Department of Energy
Office of Legacy Management
2597 B ³/₄ Road
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AC01-02GJ79491, Stoller
June 2005 Environmental Sampling at Durango, Colorado, Processing and
Disposal Sites

Reference: FY 2005 LM Task Order No. ST05-102-07

Dear Mr. Tucker:

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 6, 2005.

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

Monitor Wells (filtered)*

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

598 Mf/Pl 607 Al 879 Mf 880 Nr 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

Surface Locations (filtered)

DUR01

584	586	652	691
-----	-----	-----	-----

DUR02

588	654	656
-----	-----	-----

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 Dave Miller at extension 6652.

Sincerely,

Signature on original

Clay Carpenter
Project Manager

CC/lcg/lac
Enclosures (3)

cc: C. I. Bahrke, Stoller
S. E. Donovan, Stoller (e)
L. C. Goodknight, Stoller (e)
D. E. Miller, Stoller (e)
K. E. Miller, Stoller
D. G. Traub, Stoller (e)

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

**Constituent Sampling
Breakdown
For Individual Sites**

Site	Durango	
	Ground Water	Surface Water
Approx. No. Samples/yr	20	7
<i>Field Measurements</i>		
Alkalinity	X	X
Dissolved Oxygen		
Redox Potential	X	X
pH	X	X
Specific Conductance	X	X
Turbidity	X	
Temperature	X	X
<i>Laboratory Measurements</i>		
Aluminum		
Ammonia as N (NH ₃ -N)		
Antimony		
Arsenic		
Beryllium		
Bromide		
Cadmium	612 & 863 only	X
Calcium	DUR03 only	
Chloride	DUR03 only	
Chromium		
Cobalt		
Copper		
Fluoride		
Gamma Spec		
Gross Alpha		
Gross Beta		
Iron	DUR03 only	
Lead		
Lead-210		
Magnesium	DUR03 only	
Manganese	All Mill Tailings Area and Bodo Canyon locations	
Molybdenum	All Mill Tailings Area and Bodo Canyon locations	X
Nickel		
Nickel-63		
Nitrate + Nitrite as N (NO ₃ +NO ₂)-N		
PCBs		

Analyte	Ground Water	Surface Water
Phosphate		
Polonium-210		
Potassium	DUR03 only	
Radium-226		
Radium-228		
Selenium	X	X
Silica		
Sodium	DUR03 only	
Strontium		
Sulfate	All Mill Tailings Area and Bodo Canyon locations	
Sulfide		
Thallium		
Thorium-230		
Tin		
Total Dissolved Solids	X	
Total Organic Carbon		
Uranium	X	X
Vanadium		
Zinc		
Total No. of Analytes	13	4

Attachment 4
Trip Report

Memorandum

DATE: July 11, 2005
TO: David E. Miller
FROM: David G. Traub
SUBJECT: Durango Trip Report

Site: Durango, Colorado

Date of Sampling Event: June 20 – 23, 2005.

Samplers: Dave Traub and Emil Bettez.

Number of Locations Sampled: Twenty ground water wells were sampled and eight surface water samples were collected during this event. Data loggers from two wells at the Bodo Canyon disposal cell were downloaded. An additional surface water sample was collected from the Bureau of Reclamation evaporation pond located just north of our well 0879-02. This sample was labeled 2913-02. The sample was taken from the center south end of the pond at a depth of about one foot.

The Animas River was running fairly fast compared to recent years and surface water samples taken near the bank were all collected from water that was flowing fast.

Locations Not Sampled/Reason: Well 0880, if it still exists, is in the footprint of the Animas LaPlata Project work area. If the well exists it has been covered with soil or gravel and the constant heavy equipment make sampling this well very risky. Because we could not find well 0880, we were directed to sample the Bureau of Reclamation well number 0594 instead. Well 0594 is approximately 150 feet to the east of the 0880 location.

Field Variance: None.

Quality Control Sample Cross Reference:

Sample ID	Date	Location	Sample Type	Comment
NDS 616	6/21/05	2911-01	Sample DUP.	Well 630-01
NDU 162	6/23/05	2912-03	Sample DUP.	Well 605-03
NDU 165	6/23/05	2914-02	Equipt. Blank	Pump used for surf. water and shallow wells.

RIN Number Assigned: All samples were assigned to RIN 05050192.

Sample Shipment: Samples were shipped FedEx to Paragon Analytical on June 24, 2005.

Water Level Measurements: Water levels were only measured in the sampled wells.

Well Inspection Summary: All wells sampled were in good condition. A data logger was removed from well 0857. The logger was not functioning and battery replacement did not revive it. It will be returned for repair.

Equipment: All equipment functioned properly.

Location Specific Information:

Ticket Number	Sample Date	Location	Comments
NDS 072	6/20/05	634-01	
NDS 073	6/20/05	635-01	
NDS 074	6/21/05	652-01	
NDS 075	6/21/05	631-01	
NDS 610	6/21/05	633-01	
NDS 611	6/21/05	617-01	
NDS 612	6/21/05	630-01	
NDS 613	6/21/05	584-01	
NDS 614	6/21/05	863-01	
NDS 615	6/21/05	612-01	
NDS 616	6/21/05	2911-01	Duplicate of 0630-01
NDS 617	6/21/05	691-01	
NDS 618	6/21/05	656-02	
NDS 619	6/21/05	884-02	(NDS 620 not used)
NDS 621	6/22/05	2913-02	South end of evap pond located ~40' north of well 0879.
NDS 622	6/22/05	879-02	
NDS 623	6/22/05	586-01	
NDS 624	6/22/05	598-02	Well labeled 110, BOR well.
NDS 625	6/22/05	607-02	Top of PVC is bent ~30°; top is 1' off center line.
NDU 154	6/22/05	588-02	Flowing at ~2 gpm; clear.
NDU 155	6/22/05	607-03	
NDU 156	6/22/05	612-03	Strong H ₂ S odor
NDU 157	6/22/05	654-02	
NDU 158	6/23/05	605-03	H ₂ S odor
NDU 159	6/23/05	618-03	
NDU 160	6/23/05	621-03	
NDU 161	6/23/05	608-03	
NDU 162	6/23/05	2912-03	Duplicate of 0605-03
NDU 163	6/23/05	623-03	
NDU 164	6/23/05	594-02	Sampled instead of 0880.
NDU 165	6/23/05	2914-02	Equipment blank

Regulatory: No issues. We sampled the Bureau of Reclamation well 0594 instead of our well 0880. This action had been discussed earlier with State regulators due to the uncertainty of well 0880 access.

Site Issues: The site map needs to be updated such that all existing wells are placed on the map. Wells 0889 and another south of it are not on our maps. We should also change our numbering to indicate what is actually marked on the BOR wells. Our well 0594 is actually BOR 116 and has 116 stamped on the well. At the least, the label on the maps could be changed to show locations as “0593 (117)” so the proper well can be found easily.

The wooden shed at the Bodo Canyon cell needs to be repaired or modified such that rodents can't get inside. Something is building a nest inside and is bringing in stalks a foot or so long.

Corrective Action Required/Taken/ Needed: None.

(DGT/lcg)

cc: M. K. Tucker, LM-50 (e)
C. I. Bahrke, Stoller (e)
S. E. Donovan, Stoller (e)
K. E. Miller, Stoller