UMTRA
Ground Water Project

DATA VALIDATION
SHIPROCK, NM
UMTRA SITE

September 2002
Water Sampling

Prepared by the
U.S. Department of Energy
Grand Junction Office

SHIPROCK, NEW MEXICO
Sampled September 2002

DATA PACKAGE CONTENTS

This data package includes the following information:

Item No.	Description of Contents
1.	**Site Hydrologist Summary**
2.	**Data Package Assessment,** which includes the following:
	a. Field procedures verification checklist
	b. Confirmation that chain-of-custody was maintained.
	c. Confirmation that holding time requirements were met.
	d. Evaluation of the adequacy of the QC sample results.
3.	**Data Assessment Summary,** which describes problems identified in the data validation process and summarizes the validator's findings.
4.	**Anomalous Data Review Checksheets** which list the subset of data that merits explanation or follow-up action. The "Disposition" column of this report describes the evaluator's judgments on the listed anomalies.
5.	**UMTRA Database Printouts** of analytical data organized as follows:
	a. Ground Water Quality Data (included on disk)
	b. Surface Water Quality Data (included on disk)
	c. Equipment Blank Data (included on disk)
	d. Time Versus Concentration Graphs
	e. Static Ground Water Level Measurement Data
6.	**Sampling and Analysis Work Order and Trip Reports.**

Site Hydrology Summary

Site: Shiprock, NM

Sampling Period: September 16 - 19, 2002

SUMMARY CRITERIA

1. **Did concentrations in water from any domestic wells sampled exceed a ground water standard, a primary drinking water standard, or health advisory?**

   Domestic wells were not sampled during this event.

2. **Were standards exceeded at any point-of-compliance wells?**

   No point-of-compliance wells have been established at the Shiprock site.

3. **As a result of this sampling round, is there any indication of unexpected contaminated ground water movement?**

   The distribution and rate of movement of contaminated ground water at the site was assessed in the Final Site Observational Work Plan (SOWP) issued in November 2000. Ground water sampling data from this sampling round did not indicate any unexpected movement of contaminated ground water outside of what was portrayed in the SOWP. Uranium and nitrate continue to be elevated in terrace well 817 just west of the disposal cell. Wells with sample concentrations that exceeded UMTRA ground water standards are listed in Table 1. Graphs that show nitrate, selenium, and uranium concentrations versus time for selected floodplain and terrace wells are included in this report.

4. **Is there statistical evidence that UMTRA Project related contaminants were detected in a surface body of water in greater concentrations than upstream ambient water quality?**

   Yes. Surface water concentrations were compared to statistical benchmark values derived using data from 10 samplings of locations 888 and 898, which are upstream of the site on the San Juan River. Benchmark values were not exceeded at river locations adjacent to or downstream from the site; however, benchmark values were exceeded at other surface water locations and are listed in Table 2.

   At location 655, which is a drainage channel on the floodplain, concentrations of nitrate, selenium, and uranium exceeded benchmark values (Table 2). These elevated concentrations reflect contaminated ground water from the terrace system to the south emerging as seeps along the escarpment and flowing down to the floodplain. The final SOWP indicated no unacceptable risks associated with exposure to this surface water.

   At locations 887 and 959, which are both on a distributary channel of the San Juan River, concentrations of nitrate, selenium, and uranium exceeded benchmark values. San Juan

River water flows through the distributary channel when the river stage is high; however, at the time of this sampling, the river stage was low and no river water was entering the channel. Therefore, the elevated concentrations at 887 and 959 reflect contaminated ground water emerging in seeps from the terrace system to the south. The final SOWP indicated no unacceptable risks associated with exposure to this surface water.

Additional surface water locations where benchmark values were exceeded, listed in Table 2, receive discharge of ground water from the terrace system and elevated concentrations are expected. In addition, the surface water at most of these locations is ponded; therefore, the elevated concentrations may be partly attributed to concentration by evaporation.

Table 1. Shiprock Wells Exceeding UMTRA Standards in September 2002.

Analyte	Standard [1]	Site_code	Wells (and concentrations) exceeding standard [1]
Nitrate	44.27	SHP01	608 (1970), 614 (3710), 618 (1430), 619 (47.2), 619 (47.5), 734 (104), 854 (732)
Nitrate	44.27	SHP02	602 (127), 817 (3010), 832 (2360), 835 (499), 836 (56.5), 838 (50.3), 839 (2430), 841 (2850), 846 (161), 1060 (249), 1079 (48.3)
Selenium	0.01	SHP01	614 (0.0443), 618 (0.371), 619 (0.263), 734 (0.437), 735 (0.0264), 850 (0.0182), 854 (0.0755)
Selenium	0.01	SHP02	832 (3.66), 835 (0.298), 836 (0.124), 838 (0.103), 841 (4.000), 846 (0.349), 1060 (0.442), 1079 (0.0873)
Uranium	0.044	SHP01	608 (1.72), 614 (2.15), 618 (3.11), 619 (0.534), 619 (0.539), 734 (0.402), 736 (0.438), 854 (3.57)
Uranium	0.044	SHP02	602 (0.621), 817 (8.93), 832 (0.134), 836 (0.0572), 839 (0.627), 841 (0.114)

[1] Units are in milligrams per liter.

Table 2. Locations that Exceeded Surface Water Benchmarks in September 2002.

Location Code	Site Code	Location Comments	Analyte	BENCH-MARK [1]	CONCEN-TRATION [1]
655	SHP01	Drainage Channel	Nitrate	4.55	12.20
			Selenium	0.0023	0.0044
			Uranium	0.0053	0.118
887	SHP01	Distributary Channel	Nitrate	4.55	222.0
			Selenium	0.0023	0.343
			Uranium	0.0053	0.0513
959	SHP01	Distributary Channel	Nitrate	4.55	171.0
			Selenium	0.0023	0.0926
			Uranium	0.0053	0.0825
425	SHP02	Seep	Nitrate	4.55	93.1
			Selenium	0.0023	0.0149
			Uranium	0.0053	0.733
426	SHP02	Seep	Nitrate	4.55	51.4
			Selenium	0.0023	0.0537
			Uranium	0.0053	0.177
884	SHP02	Lower irrigation return flow ditch	Nitrate	4.55	162.0
			Selenium	0.0023	0.310
			Uranium	0.0053	0.0308
886	SHP02	Many Devils Wash	Nitrate	4.55	1800
			Selenium	0.0023	0.858
			Uranium	0.0053	0.0812
889	SHP02	Many Devils Wash	Nitrate	4.55	2980
			Selenium	0.0023	1.57
			Uranium	0.0053	0.175
934	SHP02	2nd Wash	Nitrate	4.55	538
			Selenium	0.0023	0.363
			Uranium	0.0053	0.103
942	SHP02	Pond	Selenium	0.0023	0.0047
			Uranium	0.0053	0.0092

[1] Units are in milligrams per liter.

Mark Kautsky 11-12-02
Mark Kautsky Date
Site Hydrologist

Craig Goodknight 11/12/02
Craig Goodknight Date
Site Lead

DATA ASSESSMENT

SHIPROCK, NEW MEXICO
SEPTEMBER 2002 SAMPLING
DATA ASSESSMENT SUMMARY

The DOE-GJO Analytical Laboratory analyzed samples and reported results for this sampling event under requisition number 18157 for the UMTRA ground water project.

METALS AND MAJOR CATIONS ANALYSIS

The determination of calcium, magnesium, manganese, potassium, sodium, and strontium were performed by inductively coupled plasma-atomic emission spectrometry (ICP-AES). Uranium was analyzed by inductively coupled plasma-mass spectrometry (ICP-MS). Selenium was determined by hydride generation atomic absorption spectroscopy ($NaBH_4$).

Some metal results were qualified with a "U" flag because of continuing calibration blank contamination. Also, two metal results from one sample were qualified with a "J" flag for failing the serial dilution criteria. Qualified results are listed on the *Data Package Assessment* form, and the flags are listed in the data qualifiers column of the database printouts.

INORGANIC ANALYSIS

Chloride, nitrate, and sulfate were determined by ion chromatography (IC). Ammonium was determined by spectrophotometry (colorimetry).

An ammonium and a sulfate sample were qualified with a "U" flag because of continuing calibration blank contamination. Qualified results are listed on the *Data Package Assessment* form, and the flags are listed in the data qualifiers column of the database printouts.

FIELD ANALYSIS/ACTIVITIES

There were no wells with a measured pH greater than 9; therefore, "G" flags indicating potential grout contamination were not required. Two equipment blanks were collected and analyzed for the same constituents as the Shiprock environmental samples. There were no UMTRA related contaminants detected in the equipment blanks in concentrations above the contract required detection limit (CRDL); therefore, equipment blank results are considered acceptable. Three field duplicates were collected during the sampling event. Although there is no established regulatory criteria for the evaluation of field duplicates, the EPA guidance for *laboratory* duplicates was used. Duplicate sample results met these criteria and should be considered acceptable.

Results from all wells were qualified with an "F" flag in the database indicating that the well was purged and sampled using the low-flow method. Results from some wells were qualified with a "Q" flag in the database. The "Q" flag indicates that the data is qualitative because the well did not recover adequately to be sampled with the low-flow method.

SAR

Because of technical constraints, a SAR could not be generated. Instead, data from this sampling event were compared to historical minimum and maximum values. Results that were greater than 150 percent of the historical maximum value or less than 50 percent of the historical minimum value (excluding results with less than 5 historical data points) are listed on the Anomalous Data Review Checksheets.

SUMMARY

All analytical quality control criteria were met except as qualified on the Ground Water Quality Data by Parameter, Surface Water Quality by Parameter, or equipment blank/trip blank database printouts. The meaning of data qualifiers is as defined on the UMTRA database printout or as defined in the USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, Multi-Media Multi-Concentration, Document Number ILMO2.0, 1991. All data in this package are considered validated and may be treated as final results.

A disk copy of the ground water, surface water, and equipment blank database printouts with the qualifiers incorporated are included in this package.

Sam Campbell for JP 11-12-02
Jeff Price Date
Data Validation Lead

Craig Goodknight 11/12/02
Craig Goodknight Date
Site Lead

UGW Water Sampling Field Activities Verification Checklist

Project Shiprock, NM
Date(s) of Verification 10/25/02

Date(s) of Water Sampling 9/16 → 9/19/02
Name of Verifier JEFF PRICE

	Response Comments (Yes, No, N/A)	
1. Is the SAP the primary document directing field procedures?	YES	
List other documents, SOP's, instructions.		Work request.
2. Were the sampling locations specified in the planning documents sampled?	YES	Except as noted in trip report.
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?	YES	
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	Except for instrument failure on well 1060
6. Was the Category of the well documented?	YES	
7. Were the following conditions met when purging a Category I well?		
Were two pump/tubing volumes purged prior to sampling?	YES	
Did the water level stabilize prior to sampling?	YES	
Was a turbidity of less than 10 NTUs obtained 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?	YES	
8. Were the following conditions met when purging a Category II well?		
Was the flow rate less than 100 mL/min?	YES	

UGW Water Sampling Field Activities Verification Checklist (continued)

Were two pump/tubing volumes removed prior to sampling?	NA	
Were water levels documented during the purge?	YES	
9. Were duplicates taken at a frequency of one per 20 samples for ground water and surface water?	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	

DATA PACKAGE ASSESSMENT

REQUISITION NUMBERS: 18157 SITE: Shiprock NM LABORATORY: GJO ANALYSIS DATES: 9/26→10/14/02

REVIEWER: JEFF PRICE (NAME print) J. E. Price (SIGNATURE) October 24, 02 (DATE)

	ICP-MS	ICP-AES	GFAA	FAA	~~NaBH4~~ HGAAS (Se)	AS	LSc	PC	IC (Cl, NO3, SO4)	Gravimetric	Colorimetric (NH4)	Other
CHAIN OF CUSTODY	OK	OK	NA	NA	OK	NA	NA	NA	OK	NA	OK	NA
HOLDING TIME	OK	OK			OK				OK		OK	
CALIB. VERIFICATION	OK	OK			OK				OK	NA	OK	
(For AS, internal tracer) PREP. BLANKS	NA	NA			NA				NA		NA	
(Only if digestion) INT/CONT CAL. BLANKS	(1)	(1)			OK	NA	NA	NA	(3)	NA	(3)	
ICP SERIAL DILUTION	OK	(2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ICS (ICP only)	NA	OK	NA	NA	NA	NA	NA	NA	NA	NA	NA	
LAB. CONTROL SAMPLE	OK	OK			OK				OK		NA	
DUPLICATES	OK	OK			OK				OK		OK	
POSTDIGEST. SPKS.	NA	NA			NA	NA	NA	NA	NA	NA	NA	
(Only if MS fails) MATRIX SPKS.	OK	OK			OK				OK	NA	OK	
OVERALL ASSESS.	OK	OK			OK				OK		OK	

DATA REQUIRING FLAGS: (1) Blank contamination: "U" flag Ca 291168 (427), Mn ~~2915~~ 291159 (621), ~~291161 (940)~~ 291168 (427); Mg 291159 (621), 291168 (427); K 291159 (621), 291168 (427); U 291159 (621), 291168 (427). (2) Serial dilution failure for Mg & Sr 291182 (817). (3) Blank contamination: NH4 291136 (63) (736); ~~291177 ( )~~; SO4 291168 (427).

MIN / MAX
TABLE

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 10/25/02 12:44:54: PM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	RESULT	QUALIFIERS	MAXIMUM	MAXIMUM LAB	MAXIMUM DATA	MINIMUM	MINIMUM LAB	MINIMUM DATA	N	N BELOW
SHP01	0608	09/16/2002	Alkalinity, Total (As CaCO3)	812	F	1292			840		F	32	0
SHP01	0608	09/16/2002	Magnesium	1520	F	2620			1580			25	0
SHP01	0614	09/16/2002	Selenium	0.0443	F	0.575	W		0.056			20	0
SHP01	0614	09/16/2002	Sulfate	13400	F	13300	I		6630	H		20	0
SHP01	0618	09/16/2002	Alkalinity, Total (As CaCO3)	888	F	708		F	340			7	0
SHP01	0618	09/16/2002	Calcium	393	F	553			446			5	0
SHP01	0618	09/16/2002	Chloride	652	F	494		F	63.9			5	0
SHP01	0618	09/16/2002	Magnesium	1750	F	1560		F	424			5	0
SHP01	0618	09/16/2002	Potassium	110	F	94.6		F	49		J	5	0
SHP01	0618	09/16/2002	Sodium	3260	F	2600		F	524			5	0
SHP01	0618	09/16/2002	Strontium	11.2	F	10.7		F	4.5			5	0
SHP01	0618	09/16/2002	Sulfate	13100	F	11300		F	3960			5	0
SHP01	0618	09/16/2002	Uranium	3.11	F	2.1		F	0.415			5	0
SHP01	0619	09/16/2002	Alkalinity, Total (As CaCO3)	543	F	1210			604		F	28	0
SHP01	0619	09/16/2002	Magnesium	681	F	2210			685		F	24	0
SHP01	0619	09/16/2002	Sodium	2050	F	3800			2140		F	24	0
SHP01	0619	09/16/2002	Sodium	2080	F	3800			2140		F	24	0
SHP01	0619	09/16/2002	Turbidity	1.07	F	32.9			2.88			10	0
SHP01	0619	09/16/2002	Uranium	0.534	F	3.14			0.631		F	24	0
SHP01	0619	09/16/2002	Uranium	0.539	F	3.14			0.631		F	24	0
SHP01	0655	09/17/2002	Ammonium	0.277		0.107			0.01	B		9	0
SHP01	0655	09/17/2002	Manganese	3		1.16			0.0364			12	0
SHP01	0655	09/17/2002	Sodium	1380		1330			430			11	0
SHP01	0655	09/17/2002	Turbidity	210		72.5			0.46			5	0
SHP01	0655	09/17/2002	Uranium	0.118		0.111			0.0142			12	0
SHP01	0734	09/17/2002	Chloride	373	F	326			184			13	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 10/25/02 12:44:54: PM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	RESULT	QUALIFIERS	MAXIMUM	MAXIMUM LAB	MAXIMUM DATA	MINIMUM	MINIMUM LAB	MINIMUM DATA	N	N BELOW
SHP01	0734	09/17/2002	Magnesium	928	F	798			365			12	0
SHP01	0734	09/17/2002	Selenium	0.437	F	0.231			0.005	UW		16	4
SHP01	0734	09/17/2002	Sodium	3430	F	2440			1340			14	0
SHP01	0734	09/17/2002	Specific Conductance	16330	F	14850		L	1950			12	0
SHP01	0734	09/17/2002	Strontium	13.5	F	11		FQ	3.11			14	0
SHP01	0735	09/17/2002	Alkalinity, Total (As CaCO3)	315	F	652			374		J	19	0
SHP01	0735	09/17/2002	Calcium	46	F	509			95.8			16	0
SHP01	0735	09/17/2002	Chloride	43.7	F	419			99.8			14	0
SHP01	0735	09/17/2002	Magnesium	71.7	F	945			189			12	0
SHP01	0735	09/17/2002	Manganese	0.499	F	5.08			0.826			18	0
SHP01	0735	09/17/2002	Nitrate as NO3	31.5	F	2400			465			16	0
SHP01	0735	09/17/2002	Potassium	11.5	F	34.2			15.5			12	0
SHP01	0735	09/17/2002	Sodium	313	F	2250			757			16	0
SHP01	0735	09/17/2002	Specific Conductance	2035	F	13210			4060			12	0
SHP01	0735	09/17/2002	Strontium	0.908	F	9.98			2.02			16	0
SHP01	0735	09/17/2002	Sulfate	707	F	7610			1770			16	0
SHP01	0735	09/17/2002	Uranium	0.0226	F	1.25			0.0564			19	0
SHP01	0736	09/17/2002	Potassium	55.6	F	46.9			33.5		F	10	0
SHP01	0850	09/19/2002	Alkalinity, Total (As CaCO3)	289	F	366		L	298			17	0
SHP01	0850	09/19/2002	Chloride	221	F	102		L	41.2		F	8	0
SHP01	0850	09/19/2002	Magnesium	48.3	F	42		L	8.64		F	8	0
SHP01	0850	09/19/2002	Nitrate as NO3	14.6	F	0.465	B	L	0.0204	B	U	8	4
SHP01	0850	09/19/2002	Selenium	0.0182	F	0.0017	B	F	0.0001	U	L	8	7
SHP01	0850	09/19/2002	Sodium	1350	F	812		L	453		F	8	0
SHP01	0850	09/19/2002	Specific Conductance	6664	F	4040		L	2282		F	9	0
SHP01	0850	09/19/2002	Strontium	3.13	F	2.86		L	0.614		F	8	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 10/25/02 12:44:55: PM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	RESULT	QUALIFIERS	MAXIMUM	MAXIMUM LAB	MAXIMUM DATA	MINIMUM	MINIMUM LAB	MINIMUM DATA	N	N BELOW
SHP01	0850	09/19/2002	Sulfate	3200	F	1920		L	751		F	8	0
SHP01	0850	09/19/2002	Uranium	0.0344	F	0.0274		L	0.0088		L	8	0
SHP01	0854	09/17/2002	Ammonium	2.54	F	38.4			8.85		L	7	0
SHP01	0854	09/17/2002	Calcium	362	F	488		L	417			7	0
SHP01	0854	09/17/2002	Chloride	1190	F	1400			1210		F	7	0
SHP01	0854	09/17/2002	Magnesium	2820	F	3780			2990		F	7	0
SHP01	0854	09/17/2002	Manganese	4.68	F	12.8			7.61		L	8	0
SHP01	0854	09/17/2002	Nitrate as NO3	732	F	2220		L	1260		F	8	0
SHP01	0854	09/17/2002	Potassium	178	F	164			90.2			7	0
SHP01	0854	09/17/2002	Selenium	0.0755	F	0.0129		L	0.0031	B	L	8	0
SHP01	0854	09/17/2002	Turbidity	8.88	F	1000	>	L	25.3		F	8	0
SHP01	0887	09/18/2002	Manganese	0.934		0.485			0.0065	B		9	0
SHP01	0887	09/18/2002	Potassium	13.5		12.2			1.36	E	J	9	0
SHP01	0887	09/18/2002	Selenium	0.343		0.305			0.001	U		9	1
SHP01	0887	09/18/2002	Specific Conductance	5034		4640			249			10	0
SHP01	0887	09/18/2002	Turbidity	149		96.6			0.76			6	0
SHP01	0897	09/19/2002	Ammonium	0.101		0.0663	B		0.0047	U		11	3
SHP01	0897	09/19/2002	Manganese	0.0333		0.0321			0.002	U		11	2
SHP01	0897	09/19/2002	Potassium	3.05		2.55			1.52			11	0
SHP01	0897	09/19/2002	Sodium	57.7		49.5			12.4			11	0
SHP01	0897	09/19/2002	Strontium	1		0.929			0.316			11	0
SHP01	0897	09/19/2002	Sulfate	212		203			45.2			11	0
SHP01	0897	09/19/2002	Turbidity	1000	>	81.5			19			7	0
SHP01	0898	09/19/2002	Alkalinity, Total (As CaCO3)	155		147			71			17	0
SHP01	0898	09/19/2002	Ammonium	0.133		0.0388	B		0.0047	U		10	3
SHP01	0898	09/19/2002	Nitrate as NO3	3.29		2.6			0.0665	B		10	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 10/25/02 12:44:56: PM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	RESULT	QUALIFIERS	MAXIMUM	MAXIMUM LAB DATA	MINIMUM	MINIMUM LAB DATA	N	N BELOW
SHP01	0898	09/19/2002	Potassium	3.51		2.62		1.42		10	0
SHP01	0898	09/19/2002	Sodium	74		51.6		11		10	0
SHP01	0898	09/19/2002	Specific Conductance	803		767		267		9	0
SHP01	0898	09/19/2002	Strontium	0.917		0.902		0.27		10	0
SHP01	0898	09/19/2002	Sulfate	217		201		40.7		10	0
SHP01	0898	09/19/2002	Turbidity	1000	>	50.2		14.6		4	0
SHP01	0898	09/19/2002	Uranium	0.0032		0.0023		0.00032	B	10	1
SHP01	0940	09/17/2002	Turbidity	9.39		43		19.7		4	0
SHP01	0956	09/18/2002	Calcium	67.7		67.3		50.8		8	0
SHP01	0956	09/18/2002	Manganese	0.0059	B	0.468		0.0066	B	8	0
SHP01	0956	09/18/2002	Nitrate as NO3	2.2		1.73		0.0305	U	8	1
SHP01	0956	09/18/2002	Potassium	2.65		2.54		2		8	0
SHP01	0956	09/18/2002	Uranium	0.0023		0.002		0.0015		8	0
SHP01	0957	09/18/2002	Ammonium	0.0318	B	0.0303	B U	0.0047	U	8	5
SHP01	0957	09/18/2002	Chloride	16.8		16.6		11.5		8	0
SHP01	0957	09/18/2002	Nitrate as NO3	2.29		1.43		0.0305	U	8	1
SHP01	0957	09/18/2002	Potassium	2.69		2.56		2.06		8	0
SHP01	0957	09/18/2002	Specific Conductance	1049		665		469		6	0
SHP01	0957	09/18/2002	Sulfate	182		175		119		8	0
SHP01	1205	09/17/2002	Ammonium	0.0408	B	0.0262	B	0.0047	U	9	3
SHP01	1205	09/17/2002	Magnesium	9.75		13.9		9.96		7	0
SHP01	1205	09/17/2002	Nitrate as NO3	2.27		1.94		0.04	B	9	0
SHP01	1205	09/17/2002	Potassium	2.98		2.54		2.18		7	0
SHP02	0425	09/17/2002	Alkalinity, Total (As CaCO3)	899		890		376		21	0
SHP02	0425	09/17/2002	Calcium	360		530		419		18	0
SHP02	0425	09/17/2002	Chloride	390		307		127		18	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 10/25/02 12:44:56: PM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	RESULT	QUALIFIERS		MAXIMUM	MAXIMUM LAB	MAXIMUM DATA	MINIMUM	MINIMUM LAB	MINIMUM DATA	N	N BELOW
SHP02	0425	09/17/2002	Magnesium	1110			900			315			18	0
SHP02	0425	09/17/2002	Manganese	0.625			0.29			0.008	B		18	0
SHP02	0425	09/17/2002	Nitrate as NO3	93.1			390		J	164			18	0
SHP02	0425	09/17/2002	Potassium	56.8			43.7			18.9			18	0
SHP02	0425	09/17/2002	Selenium	0.0149			0.2			0.0192			19	0
SHP02	0425	09/17/2002	Sodium	1700			1670			604			18	0
SHP02	0425	09/17/2002	Specific Conductance	10990			10750			4890			13	0
SHP02	0425	09/17/2002	Sulfate	8070			6640			3220			19	0
SHP02	0425	09/17/2002	Turbidity	1000	>		134			3.47			4	0
SHP02	0426	09/17/2002	Calcium	383			521			389			16	0
SHP02	0426	09/17/2002	Nitrate as NO3	51.4			420		J	52.2			15	0
SHP02	0602	09/19/2002	Turbidity	3.86		F	17.2			4.15			10	0
SHP02	0602	09/19/2002	Uranium	0.621		F	1.37			0.653			22	0
SHP02	0662	09/19/2002	Ammonium	0.078	B		0.0672	B		0.001	U		12	4
SHP02	0832	09/18/2002	Calcium	524		F	490			360			7	0
SHP02	0832	09/18/2002	Chloride	813		F	564			114			7	0
SHP02	0832	09/18/2002	Magnesium	1340		F	1040		F	285			7	0
SHP02	0832	09/18/2002	Nitrate as NO3	2360		F	2030		L	240			9	0
SHP02	0832	09/18/2002	Potassium	30.2		F	21.9		F	11	E	J	7	0
SHP02	0832	09/18/2002	Selenium	3.66		F	2.62		L	0.444			8	0
SHP02	0832	09/18/2002	Sodium	3150		F	2610		F	756			7	0
SHP02	0832	09/18/2002	Specific Conductance	16570		F	14890		F	1225		L	9	0
SHP02	0832	09/18/2002	Strontium	9.8		F	8.17		F	3.72			7	0
SHP02	0832	09/18/2002	Sulfate	10800		F	8280		F	2760			9	0
SHP02	0832	09/18/2002	Uranium	0.134		F	0.0949		L	0.023			9	0
SHP02	0835	09/18/2002	Calcium	743		F	679			360			8	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 10/25/02 12:44:57: PM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	RESULT	QUALIFIERS	MAXIMUM	MAXIMUM LAB	MAXIMUM DATA	MINIMUM	MINIMUM LAB	MINIMUM DATA	N	N BELOW
SHP02	0835	09/18/2002	Chloride	178	F	96.7		F	13.4			8	1
SHP02	0835	09/18/2002	Magnesium	236	F	193		F	92.9			8	0
SHP02	0835	09/18/2002	Nitrate as NO3	499	F	305		F	23.2			10	0
SHP02	0835	09/18/2002	Potassium	9.22	F	8.72		F	4.29	E	J	8	0
SHP02	0835	09/18/2002	Selenium	0.298	F	0.2		F	0.037			9	0
SHP02	0835	09/18/2002	Sodium	483	F	365		F	114			8	0
SHP02	0835	09/18/2002	Strontium	7.02	F	6.46		F	3.13			8	0
SHP02	0835	09/18/2002	Sulfate	3120	F	2540		F	882			10	0
SHP02	0835	09/18/2002	Turbidity	1.32	F	12.8			2.56			8	0
SHP02	0835	09/18/2002	Uranium	0.0423	F	0.041			0.0258			10	0
SHP02	0836	09/18/2002	Manganese	2.03	F	1.9		F	1.24			9	0
SHP02	0836	09/18/2002	Nitrate as NO3	56.5	F	92			57.9			10	0
SHP02	0836	09/18/2002	Specific Conductance	8720	F	6010			3980			10	0
SHP02	0836	09/18/2002	Turbidity	4.01	F	118			7.02			9	0
SHP02	0836	09/18/2002	Uranium	0.0572	F	0.0563			0.036			10	0
SHP02	0838	09/18/2002	Chloride	34.3	F	28.6		F	12.8			7	0
SHP02	0838	09/18/2002	Magnesium	154	F	144		F	87.6			7	0
SHP02	0838	09/18/2002	Manganese	0.0245	F	0.0142			0.00035	B		9	4
SHP02	0838	09/18/2002	Nitrate as NO3	50.3	F	32.6		F	11.2			10	0
SHP02	0838	09/18/2002	Selenium	0.103	F	0.0782		F	0.0272			9	0
SHP02	0838	09/18/2002	Sodium	188	F	176			91.9			7	0
SHP02	0838	09/18/2002	Sulfate	1980	F	1901			1180			10	0
SHP02	0839	09/17/2002	Ammonium	140	Q	138	N	JL	36.8			9	0
SHP02	0839	09/17/2002	Calcium	381	Q	490			433		L	7	0
SHP02	0839	09/17/2002	Magnesium	2130	Q	2030		L	1680		L	7	0
SHP02	0839	09/17/2002	Potassium	120	Q	114		L	90.2			7	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 10/25/02 12:44:58: PM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	RESULT	QUALIFIERS	MAXIMUM	MAXIMUM LAB DATA	MINIMUM	MINIMUM LAB DATA	N	N BELOW
SHP02	0839	09/17/2002	Sulfate	11800	Q	11700	L	9210		10	0
SHP02	0839	09/17/2002	Uranium	0.627	Q	0.589	L	0.378	L	10	0
SHP02	0841	09/18/2002	Calcium	342	F	438	F	378		9	0
SHP02	0841	09/18/2002	Chloride	975	F	822		557		9	0
SHP02	0841	09/18/2002	Chloride	988	F	822		557		9	0
SHP02	0841	09/18/2002	Magnesium	1010	F	967		699		9	0
SHP02	0841	09/18/2002	Magnesium	982	F	967		699		9	0
SHP02	0841	09/18/2002	Selenium	3.97	F	3.42		2.55		10	0
SHP02	0841	09/18/2002	Selenium	4	F	3.42		2.55		10	0
SHP02	0841	09/18/2002	Sodium	6400	F	5980		5180		9	0
SHP02	0841	09/18/2002	Strontium	9.73	F	9.57		7.86		9	0
SHP02	0841	09/18/2002	Turbidity	2.56	F	337		7.44		8	0
SHP02	0846	09/18/2002	Calcium	443	F	611		453	F	7	0
SHP02	0846	09/18/2002	Chloride	52.2	F	135		94.6		7	0
SHP02	0846	09/18/2002	Magnesium	189	F	225		200		7	0
SHP02	0846	09/18/2002	Nitrate as NO3	161	F	547		253		9	0
SHP02	0846	09/18/2002	Selenium	0.349	F	0.931		0.533	F	8	0
SHP02	0846	09/18/2002	Strontium	4.89	F	6.48		5.68		7	0
SHP02	0846	09/18/2002	Uranium	0.034	F	0.047		0.0405		9	0
SHP02	0884	09/18/2002	Chloride	69.7		49.3		33.2		10	0
SHP02	0884	09/18/2002	Nitrate as NO3	162		135		28		11	0
SHP02	0884	09/18/2002	Potassium	8.7		7.9		3.39	E J	10	0
SHP02	0884	09/18/2002	Selenium	0.31		0.279		0.131		10	0
SHP02	0884	09/18/2002	Sodium	321		249		181		10	0
SHP02	0884	09/18/2002	Turbidity	51.4		35		0.4		6	0
SHP02	0886	09/19/2002	Alkalinity, Total (As CaCO3)	373		890		530		18	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 10/25/02 12:44:59: PM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	RESULT	QUALIFIERS	MAXIMUM	MAXIMUM LAB DATA	MINIMUM	MINIMUM LAB DATA	N	N BELOW
SHP02	0886	09/19/2002	Chloride	949		2700		1010		10	0
SHP02	0886	09/19/2002	Magnesium	600		3610		1000		10	0
SHP02	0886	09/19/2002	Nitrate as NO3	1800		8060		2750		11	0
SHP02	0886	09/19/2002	Sodium	4370		28300		7410		10	0
SHP02	0886	09/19/2002	Specific Conductance	19360		56700		20500		11	0
SHP02	0886	09/19/2002	Strontium	7.36		16.1		8.56		10	0
SHP02	0886	09/19/2002	Sulfate	10800		72800		16500		11	0
SHP02	0886	09/19/2002	Uranium	0.0812		0.63		0.14		11	0
SHP02	0934	09/18/2002	Chloride	233		129		27.6		8	0
SHP02	0934	09/18/2002	Magnesium	311		237		117		8	0
SHP02	0934	09/18/2002	Manganese	0.0409		0.0256		0.0012	B	8	1
SHP02	0934	09/18/2002	Nitrate as NO3	538		422		28.6		9	0
SHP02	0934	09/18/2002	Selenium	0.363		0.256		0.067		8	0
SHP02	0934	09/18/2002	Sodium	655		418		151		8	0
SHP02	0934	09/18/2002	Specific Conductance	6176		5141		353		9	0
SHP02	0934	09/18/2002	Strontium	7.07		6.73		3.41		8	0
SHP02	0934	09/18/2002	Sulfate	3360		2670		1320		9	0
SHP02	0934	09/18/2002	Uranium	0.103		0.0506		0.0303		9	0
SHP02	0942	09/18/2002	Calcium	263		556		330		8	0
SHP02	0942	09/18/2002	Chloride	16.8		102		36.6		8	0
SHP02	0942	09/18/2002	Magnesium	33.9		237		86.3		8	0
SHP02	0942	09/18/2002	Manganese	0.781		0.0644		0.0017	B	8	1
SHP02	0942	09/18/2002	Nitrate as NO3	2.75		265		34.7		9	0
SHP02	0942	09/18/2002	Selenium	0.0047	B	0.516		0.156		8	0
SHP02	0942	09/18/2002	Sodium	68.6		387		177		8	0
SHP02	0942	09/18/2002	Specific Conductance	1300		4970		1890	S	9	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 10/25/02 12:44:59: PM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	RESULT	QUALIFIERS	MAXIMUM	MAXIMUM LAB DATA	MINIMUM	MINIMUM LAB DATA	N	N BELOW
SHP02	0942	09/18/2002	Strontium	2.36		6.52		2.99		8	0
SHP02	0942	09/18/2002	Sulfate	766		2640		1220		9	0
SHP02	0942	09/18/2002	Uranium	0.0092		0.0403		0.0184		9	0
SHP02	1060	09/18/2002	Alkalinity, Total (As CaCO3)	405	Q	623	L	457		5	0
SHP02	1060	09/18/2002	Calcium	58.7	Q	492	L	138		4	0
SHP02	1060	09/18/2002	Magnesium	98.6	Q	1040	L	250		4	0
SHP02	1060	09/18/2002	Manganese	0.0022	B Q	64.6	L	0.0086	B	5	0
SHP02	1060	09/18/2002	Potassium	7.91	Q	32.3	L	13.7		4	0
SHP02	1060	09/18/2002	Sodium	971	Q	4000	L	1510		4	0
SHP02	1060	09/18/2002	Strontium	1.07	Q	9.59	FQ	2.62		4	0
SHP02	1060	09/18/2002	Uranium	0.0259	Q	0.3	L	0.0393		5	0

SAMPLING DATA VALIDATION MINIMUMS AND MAXIMUMS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 10/25/02 12:45:00: PM

SITE CODE	LOCATION CODE	SAMPLE DATE	ANALYTE	RESULT	QUALIFIERS	MAXIMUM	MAXIMUM LAB DATA	MINIMUM	MINIMUM LAB DATA	N	N BELOW

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

LAB QUALIFIERS:

	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
C	Pesticide result confirmed by GC-MS.
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
D	Analyte determined in diluted sample.
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
>	Result above upper detection limit.
J	Estimated

DATA QUALIFIERS:

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

DATA REVIEW CHECKSHEET

ANOMALOUS DATA REVIEW CHECKSHEET

SITE: Shiprock, NM SAMPLING DATA: September 2002

REVIEWER(s): JEFF PRICE (NAME print) J.E. Price (SIGNATURE) 10/25/02 (DATE)

SITE HYDROLOGIST: Mark Kautsky (NAME print) Mark Kautsky (SIGNATURE) 11-12-02 (DATE)

DATE OF REVIEW: October 25, 02

LOC. NO.	ANALYTE	TYPE OF ANOMALY	DISPOSITION
655	NH_4	High	Compare to other rounds.
655	Turbidity	High	
734	Se	High	
735	Ca	Low	
↓	Cl	↓	
	Mg		
	NO_3		
	Na		
	Sr		
	SO_4		
↓	U	↓	
850	Cl	High	
↓	NO_3	↓	
	Se		
	Na		
	Conductance		
↓	SO_4	↓	
854	NH_4	Low	
↓	Se	High	
	Turbidity	Low	
887	Mn	High	

ANOMALOUS DATA REVIEW CHECKSHEET

SITE: Shiprock, NM SAMPLING DATA: September 2002

REVIEWER(s): JEFF PRICE (NAME print) J. E. Price (SIGNATURE) 10/25/02 (DATE)

SITE HYDROLOGIST: Mark Kautsky (NAME print) Mark Kautsky (SIGNATURE) 11-12-02 (DATE)

DATE OF REVIEW: October 25, 02

LOC. NO.	ANALYTE	TYPE OF ANOMALY	DISPOSITION
897	Turbidity	High	Compare to other rounds.
997	↓	↓	
898	NH_4	High	
957	Conductance	High	
1205	NH_4	High	
425	Mn	High	
835	Cl	High	
835	NO_3	High	
838	Mn	High	
838	NO_3	High	
841	Turbidity	Low	
984	↓	High	
886	NO_3	Low	
934	Mn	High	
↓	Na	High	
↓	U	High	
942	Cl	Low	
↓	Mg	Low	
↓	Mn	High	
↓	NO_3	Low	
↓	Se	Low	

ANOMALOUS DATA REVIEW CHECKSHEET

SITE: Shiprock, NM SAMPLING DATA: September 2002

REVIEWER(s): Jeff Price (NAME print) J.E. Price (SIGNATURE) 10/25/02 (DATE)

SITE HYDROLOGIST: Mark Kautsky (NAME print) Mark Kautsky (SIGNATURE) 11-12-02 (DATE)

DATE OF REVIEW: October 25, 02

LOC. NO.	ANALYTE	TYPE OF ANOMALY	DISPOSITION
942	Na	Low	Compare to other rounds
942	U	Low	↓
1060	Mn	Low	

WATER QUALITY DATA

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:04 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	SAMPLE: ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3	mg/L	0608	WL	09/16/2002	0001	KM		812		F	#	-	-
	mg/L	0614	WL	09/16/2002	0001	AL		620		F	#	-	-
	mg/L	0618	WL	09/16/2002	0001	AL		888		F	#	-	-
	mg/L	0619	WL	09/16/2002	0001	AL		543		F	#	-	-
	mg/L	0734	WL	09/17/2002	0001	AL		895		F	#	-	-
	mg/L	0735	WL	09/17/2002	0001	AL		315		F	#	-	-
	mg/L	0736	WL	09/17/2002	0001	AL		598		F	#	-	-
	mg/L	0797	WL	09/19/2002	0001	AL		342		F	#	-	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	289		F	#	-	-
	mg/L	0854	WL	09/17/2002	0001	AL		1325		F	#	-	-
Ammonium	mg/L	0608	WL	09/16/2002	0001	KM		374.000		F	#	0.004	-
	mg/L	0614	WL	09/16/2002	0001	AL		60.200		F	#	0.004	-
	mg/L	0618	WL	09/16/2002	0001	AL		97.300		F	#	0.004	-
	mg/L	0619	WL	09/16/2002	0001	AL		3.840		F	#	0.004	-
	mg/L	0619	WL	09/16/2002	0002	AL		3.960		F	#	0.004	-
	mg/L	0734	WL	09/17/2002	0001	AL		0.0476	B	F	#	0.004	-
	mg/L	0735	WL	09/17/2002	0001	AL		5.230		F	#	0.004	-
	mg/L	0736	WL	09/17/2002	0001	AL		0.014	B	UF	#	0.004	-
	mg/L	0797	WL	09/19/2002	0001	AL		0.0959	B	F	#	0.004	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	0.0512	B	F	#	0.004	-
	mg/L	0854	WL	09/17/2002	0001	AL		2.540		F	#	0.004	-
Calcium	mg/L	0608	WL	09/16/2002	0001	KM		392.000		F	#	0.0446	-
	mg/L	0614	WL	09/16/2002	0001	AL		415.000		F	#	0.0446	-
	mg/L	0618	WL	09/16/2002	0001	AL		393.000		F	#	0.0446	-
	mg/L	0619	WL	09/16/2002	0001	AL		349.000		F	#	0.0446	-
	mg/L	0619	WL	09/16/2002	0002	AL		348.000		F	#	0.0446	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:04 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Calcium	mg/L	0734	WL	09/17/2002	0001	AL		380.000		F	#	0.0446	-
	mg/L	0735	WL	09/17/2002	0001	AL		46.000		F	#	0.0446	-
	mg/L	0736	WL	09/17/2002	0001	AL		428.000		F	#	0.0446	-
	mg/L	0797	WL	09/19/2002	0001	AL		99.300		F	#	0.0446	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	223.000		F	#	0.0446	-
	mg/L	0854	WL	09/17/2002	0001	AL		362.000		F	#	0.0446	-
Chloride	mg/L	0608	WL	09/16/2002	0001	KM		356.000		F	#	4.01	-
	mg/L	0614	WL	09/16/2002	0001	AL		546.000		F	#	8.02	-
	mg/L	0618	WL	09/16/2002	0001	AL		652.000		F	#	8.02	-
	mg/L	0619	WL	09/16/2002	0001	AL		307.000		F	#	4.01	-
	mg/L	0619	WL	09/16/2002	0002	AL		310.000		F	#	4.01	-
	mg/L	0734	WL	09/17/2002	0001	AL		373.000		F	#	8.02	-
	mg/L	0735	WL	09/17/2002	0001	AL		43.700		F	#	0.401	-
	mg/L	0736	WL	09/17/2002	0001	AL		222.000		F	#	4.01	-
	mg/L	0797	WL	09/19/2002	0001	AL		60.800		F	#	0.802	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	221.000		F	#	2.005	-
	mg/L	0854	WL	09/17/2002	0001	AL		1190.000		F	#	20.05	-
Magnesium	mg/L	0608	WL	09/16/2002	0001	KM		1520.000		F	#	0.22	-
	mg/L	0614	WL	09/16/2002	0001	AL		2480.000		F	#	0.22	-
	mg/L	0618	WL	09/16/2002	0001	AL		1750.000		F	#	0.22	-
	mg/L	0619	WL	09/16/2002	0001	AL		685.000		F	#	0.22	-
	mg/L	0619	WL	09/16/2002	0002	AL		681.000		F	#	0.22	-
	mg/L	0734	WL	09/17/2002	0001	AL		928.000		F	#	0.22	-
	mg/L	0735	WL	09/17/2002	0001	AL		71.700		F	#	0.011	-
	mg/L	0736	WL	09/17/2002	0001	AL		406.000		F	#	0.011	-
	mg/L	0797	WL	09/19/2002	0001	AL		20.900		F	#	0.011	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:04 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Magnesium	mg/L	0850	WL	09/19/2002	0001	AL	B	48.300		F	#	0.011	-
	mg/L	0854	WL	09/17/2002	0001	AL		2820.000		F	#	0.22	-
Manganese	mg/L	0608	WL	09/16/2002	0001	KM		5.640		F	#	0.0002	-
	mg/L	0614	WL	09/16/2002	0001	AL		5.540		F	#	0.0002	-
	mg/L	0618	WL	09/16/2002	0001	AL		10.400		F	#	0.0002	-
	mg/L	0619	WL	09/16/2002	0001	AL		3.440		F	#	0.0002	-
	mg/L	0619	WL	09/16/2002	0002	AL		3.420		F	#	0.0002	-
	mg/L	0734	WL	09/17/2002	0001	AL		0.0055	B	F	#	0.0002	-
	mg/L	0735	WL	09/17/2002	0001	AL		0.499		F	#	0.0002	-
	mg/L	0736	WL	09/17/2002	0001	AL		3.100		F	#	0.0002	-
	mg/L	0797	WL	09/19/2002	0001	AL		0.411		F	#	0.0002	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	0.802		F	#	0.0002	-
	mg/L	0854	WL	09/17/2002	0001	AL		4.680		F	#	0.0002	-
Nitrate as NO3	mg/L	0608	WL	09/16/2002	0001	KM		1970.000		F	#	1	-
	mg/L	0614	WL	09/16/2002	0001	AL		3710.000		F	#	1	-
	mg/L	0618	WL	09/16/2002	0001	AL		1430.000		F	#	0.4	-
	mg/L	0619	WL	09/16/2002	0001	AL		47.200		F	#	0.02	-
	mg/L	0619	WL	09/16/2002	0002	AL		47.500		F	#	0.02	-
	mg/L	0734	WL	09/17/2002	0001	AL		104.000		F	#	0.04	-
	mg/L	0735	WL	09/17/2002	0001	AL		31.500		F	#	0.02	-
	mg/L	0736	WL	09/17/2002	0001	AL		0.125	B	F	#	0.02	-
	mg/L	0797	WL	09/19/2002	0001	AL		0.497	B	F	#	0.02	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	14.600		F	#	0.02	-
	mg/L	0854	WL	09/17/2002	0001	AL		732.000		F	#	0.2	-
Oxidation Reduction Potent	mV	0608	WL	09/16/2002	N001	KM		252		F	#	-	-
	mV	0614	WL	09/16/2002	N001	AL		218		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:04 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	SAMPLE: ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potent	mV	0618	WL	09/16/2002	N001	AL		232		F	#	-	-
	mV	0619	WL	09/16/2002	N001	AL		221		F	#	-	-
	mV	0734	WL	09/17/2002	N001	AL		66		F	#	-	-
	mV	0735	WL	09/17/2002	N001	AL		125		F	#	-	-
	mV	0736	WL	09/17/2002	N001	AL		-60		F	#	-	-
	mV	0797	WL	09/19/2002	N001	AL		106		F	#	-	-
	mV	0850	WL	09/19/2002	N001	AL	B	156		F	#	-	-
	mV	0854	WL	09/17/2002	N001	AL		276		F	#	-	-
pH	s.u.	0608	WL	09/16/2002	N001	KM		6.76		F	#	-	-
	s.u.	0614	WL	09/16/2002	N001	AL		6.85		F	#	-	-
	s.u.	0618	WL	09/16/2002	N001	AL		6.73		F	#	-	-
	s.u.	0619	WL	09/16/2002	N001	AL		7		F	#	-	-
	s.u.	0734	WL	09/17/2002	N001	AL		7.15		F	#	-	-
	s.u.	0735	WL	09/17/2002	N001	AL		7.17		F	#	-	-
	s.u.	0736	WL	09/17/2002	N001	AL		7.21		F	#	-	-
	s.u.	0797	WL	09/19/2002	N001	AL		7.29		F	#	-	-
	s.u.	0850	WL	09/19/2002	N001	AL	B	7.2		F	#	-	-
	s.u.	0854	WL	09/17/2002	N001	AL		7.07		F	#	-	-
Potassium	mg/L	0608	WL	09/16/2002	0001	KM		153.000		F	#	0.0259	-
	mg/L	0614	WL	09/16/2002	0001	AL		144.000		F	#	0.0259	-
	mg/L	0618	WL	09/16/2002	0001	AL		110.000		F	#	0.0259	-
	mg/L	0619	WL	09/16/2002	0001	AL		57.800		F	#	0.0259	-
	mg/L	0619	WL	09/16/2002	0002	AL		57.600		F	#	0.0259	-
	mg/L	0734	WL	09/17/2002	0001	AL		28.700		F	#	0.0259	-
	mg/L	0735	WL	09/17/2002	0001	AL		11.500		F	#	0.0259	-
	mg/L	0736	WL	09/17/2002	0001	AL		55.600		F	#	0.0259	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:04 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Potassium	mg/L	0797	WL	09/19/2002	0001	AL		3.340		F	#	0.0259	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	5.490		F	#	0.0259	-
	mg/L	0854	WL	09/17/2002	0001	AL		178.000		F	#	0.0259	-
Selenium	mg/L	0608	WL	09/16/2002	0001	KM		0.007		F	#	0.0001	-
	mg/L	0614	WL	09/16/2002	0001	AL		0.0443		F	#	0.0005	-
	mg/L	0618	WL	09/16/2002	0001	AL		0.371		F	#	0.005	-
	mg/L	0619	WL	09/16/2002	0001	AL		0.263		F	#	0.002	-
	mg/L	0619	WL	09/16/2002	0002	AL		0.263		F	#	0.002	-
	mg/L	0734	WL	09/17/2002	0001	AL		0.437		F	#	0.005	-
	mg/L	0735	WL	09/17/2002	0001	AL		0.0264		F	#	0.0002	-
	mg/L	0736	WL	09/17/2002	0001	AL		0.0068		F	#	0.0001	-
	mg/L	0797	WL	09/19/2002	0001	AL		0.0072		F	#	0.0001	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	0.0182		F	#	0.0001	-
	mg/L	0854	WL	09/17/2002	0001	AL		0.0755		F	#	0.001	-
Sodium	mg/L	0608	WL	09/16/2002	0001	KM		2160.000		F	#	17.9	-
	mg/L	0614	WL	09/16/2002	0001	AL		2740.000		F	#	17.9	-
	mg/L	0618	WL	09/16/2002	0001	AL		3260.000		F	#	17.9	-
	mg/L	0619	WL	09/16/2002	0001	AL		2050.000		F	#	17.9	-
	mg/L	0619	WL	09/16/2002	0002	AL		2080.000		F	#	17.9	-
	mg/L	0734	WL	09/17/2002	0001	AL		3430.000		F	#	17.9	-
	mg/L	0735	WL	09/17/2002	0001	AL		313.000		F	#	0.895	-
	mg/L	0736	WL	09/17/2002	0001	AL		2590.000		F	#	17.9	-
	mg/L	0797	WL	09/19/2002	0001	AL		524.000		F	#	8.95	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	1350.000		F	#	8.95	-
	mg/L	0854	WL	09/17/2002	0001	AL		6230.000		F	#	17.9	-
Specific Conductance	umhos/cm	0608	WL	09/16/2002	N001	KM		16250		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:04 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	SAMPLE: ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	0614	WL	09/16/2002	N001	AL		19640		F	#	-	-
	umhos/cm	0618	WL	09/16/2002	N001	AL		18260		F	#	-	-
	umhos/cm	0619	WL	09/16/2002	N001	AL		10720		F	#	-	-
	umhos/cm	0734	WL	09/17/2002	N001	AL		16330		F	#	-	-
	umhos/cm	0735	WL	09/17/2002	N001	AL		2035		F	#	-	-
	umhos/cm	0736	WL	09/17/2002	N001	AL		11630		F	#	-	-
	umhos/cm	0797	WL	09/19/2002	N001	AL		2600		F	#	-	-
	umhos/cm	0850	WL	09/19/2002	N001	AL	B	6664		F	#	-	-
	umhos/cm	0854	WL	09/17/2002	N001	AL		27860		F	#	-	-
Strontium	mg/L	0608	WL	09/16/2002	0001	KM		12.100		F	#	0.01	-
	mg/L	0614	WL	09/16/2002	0001	AL		13.700		F	#	0.01	-
	mg/L	0618	WL	09/16/2002	0001	AL		11.200		F	#	0.01	-
	mg/L	0619	WL	09/16/2002	0001	AL		8.540		F	#	0.01	-
	mg/L	0619	WL	09/16/2002	0002	AL		8.500		F	#	0.01	-
	mg/L	0734	WL	09/17/2002	0001	AL		13.500		F	#	0.01	-
	mg/L	0735	WL	09/17/2002	0001	AL		0.908		F	#	0.0005	-
	mg/L	0736	WL	09/17/2002	0001	AL		10.600		F	#	0.01	-
	mg/L	0797	WL	09/19/2002	0001	AL		1.750		F	#	0.0005	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	3.130		F	#	0.0005	-
	mg/L	0854	WL	09/17/2002	0001	AL		15.300		F	#	0.01	-
Sulfate	mg/L	0608	WL	09/16/2002	0001	KM		11100.000		F	#	7.88	-
	mg/L	0614	WL	09/16/2002	0001	AL		13400.000		F	#	7.88	-
	mg/L	0618	WL	09/16/2002	0001	AL		13100.000		F	#	7.88	-
	mg/L	0619	WL	09/16/2002	0001	AL		7650.000		F	#	3.94	-
	mg/L	0619	WL	09/16/2002	0002	AL		7610.000		F	#	3.94	-
	mg/L	0734	WL	09/17/2002	0001	AL		11100.000		F	#	7.88	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:04 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	0735	WL	09/17/2002	0001	AL		707.000		F	#	0.394	-
	mg/L	0736	WL	09/17/2002	0001	AL		8400.000		F	#	3.94	-
	mg/L	0797	WL	09/19/2002	0001	AL		1060.000		F	#	0.788	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	3200.000		F	#	1.97	-
	mg/L	0854	WL	09/17/2002	0001	AL		23700.000		F	#	19.7	-
Temperature	C	0608	WL	09/16/2002	N001	KM		21.15		F	#	-	-
	C	0614	WL	09/16/2002	N001	AL		19.91		F	#	-	-
	C	0618	WL	09/16/2002	N001	AL		20.75		F	#	-	-
	C	0619	WL	09/16/2002	N001	AL		19.64		F	#	-	-
	C	0734	WL	09/17/2002	N001	AL		17.72		F	#	-	-
	C	0735	WL	09/17/2002	N001	AL		18		F	#	-	-
	C	0736	WL	09/17/2002	N001	AL		19.74		F	#	-	-
	C	0797	WL	09/19/2002	N001	AL		21.03		F	#	-	-
	C	0850	WL	09/19/2002	N001	AL	B	19.29		F	#	-	-
	C	0854	WL	09/17/2002	N001	AL		21.77		F	#	-	-
Turbidity	NTU	0608	WL	09/16/2002	N001	KM		6.73		F	#	-	-
	NTU	0614	WL	09/16/2002	N001	AL		2.01		F	#	-	-
	NTU	0618	WL	09/16/2002	N001	AL		5.15		F	#	-	-
	NTU	0619	WL	09/16/2002	N001	AL		1.07		F	#	-	-
	NTU	0734	WL	09/17/2002	N001	AL		3.71		F	#	-	-
	NTU	0735	WL	09/17/2002	N001	AL		2.88		F	#	-	-
	NTU	0736	WL	09/17/2002	N001	AL		4.56		F	#	-	-
	NTU	0797	WL	09/19/2002	N001	AL		6.21		F	#	-	-
	NTU	0850	WL	09/19/2002	N001	AL	B	8.78		F	#	-	-
	NTU	0854	WL	09/17/2002	N001	AL		8.88		F	#	-	-
Uranium	mg/L	0608	WL	09/16/2002	0001	KM		1.720		F	#	0.001	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:04 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0614	WL	09/16/2002	0001	AL		2.150		F	#	0.001	-
	mg/L	0618	WL	09/16/2002	0001	AL		3.110		F	#	0.001	-
	mg/L	0619	WL	09/16/2002	0001	AL		0.534		F	#	0.0001	-
	mg/L	0619	WL	09/16/2002	0002	AL		0.539		F	#	0.0001	-
	mg/L	0734	WL	09/17/2002	0001	AL		0.402		F	#	0.0001	-
	mg/L	0735	WL	09/17/2002	0001	AL		0.0226		F	#	0.0001	-
	mg/L	0736	WL	09/17/2002	0001	AL		0.438		F	#	0.0001	-
	mg/L	0797	WL	09/19/2002	0001	AL		0.0163		F	#	0.0001	-
	mg/L	0850	WL	09/19/2002	0001	AL	B	0.0344		F	#	0.0001	-
	mg/L	0854	WL	09/17/2002	0001	AL		3.570		F	#	0.001	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:04 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='SHP01' AND quality_assurance = TRUE AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #9/1/2002# and #9/30/2002#

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

LOCATION TYPES: WL WELL

ZONES OF COMPLETION:

AL ALLUVIUM
KM MANCOS SHALE

FLOW CODES: B BACKGROUND

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
>	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
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Z	Laboratory defined (USEPA CLP organic) 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.

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3	mg/L	0602	WL	09/19/2002	0001	KM		2146		F	#	-	-
	mg/L	0817	WL	09/19/2002	0001	KM		1341		F	#	-	-
	mg/L	0832	WL	09/18/2002	0001	AL		384		F	#	-	-
	mg/L	0835	WL	09/18/2002	0001	AL		325		F	#	-	-
	mg/L	0836	WL	09/18/2002	0001	AL		388		F	#	-	-
	mg/L	0838	WL	09/18/2002	0001	AL		297		F	#	-	-
	mg/L	0839	WL	09/17/2002	0001	AL		926		Q	#	-	-
	mg/L	0841	WL	09/18/2002	0001	AL		796		F	#	-	-
	mg/L	0846	WL	09/18/2002	0001	AL		254		F	#	-	-
	mg/L	1060	WL	09/18/2002	0001	AL		405		Q	#	-	-
	mg/L	1079	WL	09/18/2002	0001			275		F	#	-	-
Ammonium	mg/L	0602	WL	09/19/2002	0001	KM		530.000		F	#	0.004	-
	mg/L	0817	WL	09/19/2002	0001	KM		923.000		F	#	0.004	-
	mg/L	0832	WL	09/18/2002	0001	AL		0.0286	B	F	#	0.004	-
	mg/L	0835	WL	09/18/2002	0001	AL		0.0398	B	F	#	0.004	-
	mg/L	0836	WL	09/18/2002	0001	AL		0.035	B	F	#	0.004	-
	mg/L	0838	WL	09/18/2002	0001	AL		0.0094	B	F	#	0.004	-
	mg/L	0839	WL	09/17/2002	0001	AL		140.000		Q	#	0.004	-
	mg/L	0841	WL	09/18/2002	0001	AL		1.780		F	#	0.004	-
	mg/L	0841	WL	09/18/2002	0002	AL		1.770		F	#	0.004	-
	mg/L	0846	WL	09/18/2002	0001	AL		0.011	B	F	#	0.004	-
	mg/L	1060	WL	09/18/2002	0001	AL		0.0507	B	Q	#	0.004	-
	mg/L	1079	WL	09/18/2002	0001			0.0747	B	F	#	0.004	-
Calcium	mg/L	0602	WL	09/19/2002	0001	KM		404.000		F	#	0.0446	-
	mg/L	0817	WL	09/19/2002	0001	KM		476.000		F	#	0.0446	-
	mg/L	0832	WL	09/18/2002	0001	AL		524.000		F	#	0.446	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	SAMPLE: ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Calcium	mg/L	0835	WL	09/18/2002	0001	AL		743.000		F	#	0.446	-
	mg/L	0836	WL	09/18/2002	0001	AL		545.000		F	#	0.446	-
	mg/L	0838	WL	09/18/2002	0001	AL		538.000		F	#	0.446	-
	mg/L	0839	WL	09/17/2002	0001	AL		381.000		Q	#	0.0446	-
	mg/L	0841	WL	09/18/2002	0001	AL		342.000		F	#	0.0446	-
	mg/L	0841	WL	09/18/2002	0002	AL		422.000		F	#	0.0446	-
	mg/L	0846	WL	09/18/2002	0001	AL		443.000		F	#	0.0446	-
	mg/L	1060	WL	09/18/2002	0001	AL		58.700		Q	#	0.0446	-
	mg/L	1079	WL	09/18/2002	0001			567.000		F	#	0.446	-
Chloride	mg/L	0602	WL	09/19/2002	0001	KM		794.000		F	#	8.02	-
	mg/L	0817	WL	09/19/2002	0001	KM		455.000		F	#	4.01	-
	mg/L	0832	WL	09/18/2002	0001	AL		813.000		F	#	4.01	-
	mg/L	0835	WL	09/18/2002	0001	AL		178.000		F	#	8.02	-
	mg/L	0836	WL	09/18/2002	0001	AL		36.200		F	#	0.802	-
	mg/L	0838	WL	09/18/2002	0001	AL		34.300		F	#	0.802	-
	mg/L	0839	WL	09/17/2002	0001	AL		459.000		Q	#	8.02	-
	mg/L	0841	WL	09/18/2002	0001	AL		988.000		F	#	8.02	-
	mg/L	0841	WL	09/18/2002	0002	AL		975.000		F	#	8.02	-
	mg/L	0846	WL	09/18/2002	0001	AL		52.200		F	#	2.005	-
	mg/L	1060	WL	09/18/2002	0001	AL		83.500		Q	#	2.005	-
	mg/L	1079	WL	09/18/2002	0001			35.700		F	#	2.005	-
Magnesium	mg/L	0602	WL	09/19/2002	0001	KM		2690.000		F	#	0.11	-
	mg/L	0817	WL	09/19/2002	0001	KM		1660.000	E	JF	#	0.11	-
	mg/L	0832	WL	09/18/2002	0001	AL		1340.000		F	#	0.11	-
	mg/L	0835	WL	09/18/2002	0001	AL		236.000		F	#	0.011	-
	mg/L	0836	WL	09/18/2002	0001	AL		265.000		F	#	0.011	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Magnesium	mg/L	0838	WL	09/18/2002	0001	AL		154.000		F	#	0.011	-
	mg/L	0839	WL	09/17/2002	0001	AL		2130.000		Q	#	0.11	-
	mg/L	0841	WL	09/18/2002	0001	AL		982.000		F	#	0.22	-
	mg/L	0841	WL	09/18/2002	0002	AL		1010.000		F	#	0.11	-
	mg/L	0846	WL	09/18/2002	0001	AL		189.000		F	#	0.011	-
	mg/L	1060	WL	09/18/2002	0001	AL		98.600		Q	#	0.011	-
	mg/L	1079	WL	09/18/2002	0001			106.000		F	#	0.011	-
Manganese	mg/L	0602	WL	09/19/2002	0001	KM		2.060		F	#	0.0002	-
	mg/L	0817	WL	09/19/2002	0001	KM		2.000		F	#	0.0002	-
	mg/L	0832	WL	09/18/2002	0001	AL		0.0039	B	F	#	0.0002	-
	mg/L	0835	WL	09/18/2002	0001	AL		0.0002	U	F	#	0.0002	-
	mg/L	0836	WL	09/18/2002	0001	AL		2.030		F	#	0.0002	-
	mg/L	0838	WL	09/18/2002	0001	AL		0.0245		F	#	0.0002	-
	mg/L	0839	WL	09/17/2002	0001	AL		0.854		Q	#	0.0002	-
	mg/L	0841	WL	09/18/2002	0001	AL		0.0341		F	#	0.0002	-
	mg/L	0841	WL	09/18/2002	0002	AL		0.039		F	#	0.0002	-
	mg/L	0846	WL	09/18/2002	0001	AL		0.0002	U	F	#	0.0002	-
	mg/L	1060	WL	09/18/2002	0001	AL		0.0022	B	Q	#	0.0002	-
	mg/L	1079	WL	09/18/2002	0001			0.220		F	#	0.0002	-
Nitrate as NO3	mg/L	0602	WL	09/19/2002	0001	KM		127.000		F	#	0.04	-
	mg/L	0817	WL	09/19/2002	0001	KM		3010.000		F	#	1	-
	mg/L	0832	WL	09/18/2002	0001	AL		2360.000		F	#	1	-
	mg/L	0835	WL	09/18/2002	0001	AL		499.000		F	#	0.2	-
	mg/L	0836	WL	09/18/2002	0001	AL		56.500		F	#	0.02	-
	mg/L	0838	WL	09/18/2002	0001	AL		50.300		F	#	0.02	-
	mg/L	0839	WL	09/17/2002	0001	AL		2430.000		Q	#	1	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nitrate as NO3	mg/L	0841	WL	09/18/2002	0001	AL		2850.000		F	#	1	-
	mg/L	0841	WL	09/18/2002	0002	AL		2830.000		F	#	1	-
	mg/L	0846	WL	09/18/2002	0001	AL		161.000		F	#	0.04	-
	mg/L	1060	WL	09/18/2002	0001	AL		249.000		Q	#	0.1	-
	mg/L	1079	WL	09/18/2002	0001			48.300		F	#	0.02	-
Oxidation Reduction Potent	mV	0602	WL	09/19/2002	N001	KM		246		F	#	-	-
	mV	0817	WL	09/19/2002	N001	KM		270		F	#	-	-
	mV	0832	WL	09/18/2002	N001	AL		227		F	#	-	-
	mV	0835	WL	09/18/2002	N001	AL		171		F	#	-	-
	mV	0836	WL	09/18/2002	N001	AL		217		F	#	-	-
	mV	0838	WL	09/18/2002	N001	AL		226		F	#	-	-
	mV	0839	WL	09/17/2002	N001	AL		225		Q	#	-	-
	mV	0841	WL	09/18/2002	N001	AL		254		F	#	-	-
	mV	0846	WL	09/18/2002	N001	AL		193		F	#	-	-
	mV	1079	WL	09/18/2002	N001			163		F	#	-	-
pH	s.u.	0602	WL	09/19/2002	N001	KM		6.5		F	#	-	-
	s.u.	0817	WL	09/19/2002	N001	KM		6.49		F	#	-	-
	s.u.	0832	WL	09/18/2002	N001	AL		7.18		F	#	-	-
	s.u.	0835	WL	09/18/2002	N001	AL		6.78		F	#	-	-
	s.u.	0836	WL	09/18/2002	N001	AL		6.61		F	#	-	-
	s.u.	0838	WL	09/18/2002	N001	AL		6.52		F	#	-	-
	s.u.	0839	WL	09/17/2002	N001	AL		6.75		Q	#	-	-
	s.u.	0841	WL	09/18/2002	N001	AL		7.11		F	#	-	-
	s.u.	0846	WL	09/18/2002	N001	AL		6.94		F	#	-	-
	s.u.	1079	WL	09/18/2002	N001			6.75		F	#	-	-
Potassium	mg/L	0602	WL	09/19/2002	0001	KM		208.000		F	#	0.0259	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Potassium	mg/L	0817	WL	09/19/2002	0001	KM		200.000		F	#	0.0259	-
	mg/L	0832	WL	09/18/2002	0001	AL		30.200		F	#	0.0259	-
	mg/L	0835	WL	09/18/2002	0001	AL		9.220		F	#	0.0259	-
	mg/L	0836	WL	09/18/2002	0001	AL		4.670		F	#	0.0259	-
	mg/L	0838	WL	09/18/2002	0001	AL		5.960		F	#	0.0259	-
	mg/L	0839	WL	09/17/2002	0001	AL		120.000		Q	#	0.0259	-
	mg/L	0841	WL	09/18/2002	0001	AL		57.800		F	#	0.0259	-
	mg/L	0841	WL	09/18/2002	0002	AL		58.100		F	#	0.0259	-
	mg/L	0846	WL	09/18/2002	0001	AL		8.360		F	#	0.0259	-
	mg/L	1060	WL	09/18/2002	0001	AL		7.910		Q	#	0.0259	-
	mg/L	1079	WL	09/18/2002	0001			4.900		F	#	0.0259	-
Selenium	mg/L	0602	WL	09/19/2002	0001	KM		0.0036	B	F	#	0.0001	-
	mg/L	0817	WL	09/19/2002	0001	KM		0.0024	B	F	#	0.0001	-
	mg/L	0832	WL	09/18/2002	0001	AL		3.660		F	#	0.05	-
	mg/L	0835	WL	09/18/2002	0001	AL		0.298		F	#	0.002	-
	mg/L	0836	WL	09/18/2002	0001	AL		0.124		F	#	0.001	-
	mg/L	0838	WL	09/18/2002	0001	AL		0.103		F	#	0.001	-
	mg/L	0839	WL	09/17/2002	0001	AL		0.0011	B	Q	#	0.0001	-
	mg/L	0841	WL	09/18/2002	0001	AL		3.970		F	#	0.05	-
	mg/L	0841	WL	09/18/2002	0002	AL		4.000		F	#	0.05	-
	mg/L	0846	WL	09/18/2002	0001	AL		0.349		F	#	0.005	-
	mg/L	1060	WL	09/18/2002	0001	AL		0.442		Q	#	0.005	-
	mg/L	1079	WL	09/18/2002	0001			0.0873		F	#	0.001	-
Sodium	mg/L	0602	WL	09/19/2002	0001	KM		3020.000		F	#	8.95	-
	mg/L	0817	WL	09/19/2002	0001	KM		1500.000		F	#	8.95	-
	mg/L	0832	WL	09/18/2002	0001	AL		3150.000		F	#	8.95	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sodium	mg/L	0835	WL	09/18/2002	0001	AL		483.000		F	#	8.95	-
	mg/L	0836	WL	09/18/2002	0001	AL		348.000		F	#	0.895	-
	mg/L	0838	WL	09/18/2002	0001	AL		188.000		F	#	0.895	-
	mg/L	0839	WL	09/17/2002	0001	AL		2090.000		Q	#	8.95	-
	mg/L	0841	WL	09/18/2002	0001	AL		5930.000		F	#	17.9	-
	mg/L	0841	WL	09/18/2002	0002	AL		6400.000		F	#	17.9	-
	mg/L	0846	WL	09/18/2002	0001	AL		486.000		F	#	8.95	-
	mg/L	1060	WL	09/18/2002	0001	AL		971.000		Q	#	8.95	-
	mg/L	1079	WL	09/18/2002	0001			115.000		F	#	0.895	-
Specific Conductance	umhos/cm	0602	WL	09/19/2002	N001	KM		22989		F	#	-	-
	umhos/cm	0817	WL	09/19/2002	N001	KM		18866		F	#	-	-
	umhos/cm	0832	WL	09/18/2002	N001	AL		16570		F	#	-	-
	umhos/cm	0835	WL	09/18/2002	N001	AL		5648		F	#	-	-
	umhos/cm	0836	WL	09/18/2002	N001	AL		8720		F	#	-	-
	umhos/cm	0838	WL	09/18/2002	N001	AL		3150		F	#	-	-
	umhos/cm	0839	WL	09/17/2002	N001	AL		16550		Q	#	-	-
	umhos/cm	0841	WL	09/18/2002	N001	AL		23210		F	#	-	-
	umhos/cm	0846	WL	09/18/2002	N001	AL		4110		F	#	-	-
	umhos/cm	1079	WL	09/18/2002	N001			3058		F	#	-	-
Strontium	mg/L	0602	WL	09/19/2002	0001	KM		12.800		F	#	0.005	-
	mg/L	0817	WL	09/19/2002	0001	KM		11.500	E	JF	#	0.005	-
	mg/L	0832	WL	09/18/2002	0001	AL		9.800		F	#	0.005	-
	mg/L	0835	WL	09/18/2002	0001	AL		7.020		F	#	0.005	-
	mg/L	0836	WL	09/18/2002	0001	AL		6.590		F	#	0.005	-
	mg/L	0838	WL	09/18/2002	0001	AL		5.230		F	#	0.005	-
	mg/L	0839	WL	09/17/2002	0001	AL		11.000		Q	#	0.005	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Strontium	mg/L	0841	WL	09/18/2002	0001	AL		9.510		F	#	0.01	-
	mg/L	0841	WL	09/18/2002	0002	AL		9.730		F	#	0.005	-
	mg/L	0846	WL	09/18/2002	0001	AL		4.890		F	#	0.0005	-
	mg/L	1060	WL	09/18/2002	0001	AL		1.070		Q	#	0.0005	-
	mg/L	1079	WL	09/18/2002	0001			4.730		F	#	0.0005	-
Sulfate	mg/L	0602	WL	09/19/2002	0001	KM		17200.000		F	#	7.88	-
	mg/L	0817	WL	09/19/2002	0001	KM		9890.000		F	#	3.94	-
	mg/L	0832	WL	09/18/2002	0001	AL		10800.000		F	#	7.88	-
	mg/L	0835	WL	09/18/2002	0001	AL		3120.000		F	#	7.88	-
	mg/L	0836	WL	09/18/2002	0001	AL		2800.000		F	#	1.97	-
	mg/L	0838	WL	09/18/2002	0001	AL		1980.000		F	#	0.788	-
	mg/L	0839	WL	09/17/2002	0001	AL		11800.000		Q	#	7.88	-
	mg/L	0841	WL	09/18/2002	0001	AL		14600.000		F	#	7.88	-
	mg/L	0841	WL	09/18/2002	0002	AL		14600.000		F	#	7.88	-
	mg/L	0846	WL	09/18/2002	0001	AL		2630.000		F	#	1.97	-
	mg/L	1060	WL	09/18/2002	0001	AL		1980.000		Q	#	1.97	-
	mg/L	1079	WL	09/18/2002	0001			1790.000		F	#	1.97	-
Temperature	C	0602	WL	09/19/2002	N001	KM		16.12		F	#	-	-
	C	0817	WL	09/19/2002	N001	KM		18.16		F	#	-	-
	C	0832	WL	09/18/2002	N001	AL		15.51		F	#	-	-
	C	0835	WL	09/18/2002	N001	AL		17.15		F	#	-	-
	C	0836	WL	09/18/2002	N001	AL		16		F	#	-	-
	C	0838	WL	09/18/2002	N001	AL		15.5		F	#	-	-
	C	0839	WL	09/17/2002	N001	AL		18.3		Q	#	-	-
	C	0841	WL	09/18/2002	N001	AL		15.51		F	#	-	-
	C	0846	WL	09/18/2002	N001	AL		16.9		F	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	SAMPLE: ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	1079	WL	09/18/2002	N001			17.25		F	#	-	-
Turbidity	NTU	0602	WL	09/19/2002	N001	KM		3.86		F	#	-	-
	NTU	0817	WL	09/19/2002	N001	KM		3.01		F	#	-	-
	NTU	0832	WL	09/18/2002	N001	AL		8.59		F	#	-	-
	NTU	0835	WL	09/18/2002	N001	AL		1.32		F	#	-	-
	NTU	0836	WL	09/18/2002	N001	AL		4.01		F	#	-	-
	NTU	0838	WL	09/18/2002	N001	AL		2.06		F	#	-	-
	NTU	0839	WL	09/17/2002	N001	AL		17.6		Q	#	-	-
	NTU	0841	WL	09/18/2002	N001	AL		2.56		F	#	-	-
	NTU	0846	WL	09/18/2002	N001	AL		5.18		F	#	-	-
	NTU	1060	WL	09/18/2002	N001	AL		9.7		Q	#	-	-
	NTU	1079	WL	09/18/2002	N001			7		F	#	-	-
Uranium	mg/L	0602	WL	09/19/2002	0001	KM		0.621		F	#	0.0001	-
	mg/L	0817	WL	09/19/2002	0001	KM		8.930		F	#	0.0025	-
	mg/L	0832	WL	09/18/2002	0001	AL		0.134		F	#	0.0001	-
	mg/L	0835	WL	09/18/2002	0001	AL		0.0423		F	#	0.0001	-
	mg/L	0836	WL	09/18/2002	0001	AL		0.0572		F	#	0.0001	-
	mg/L	0838	WL	09/18/2002	0001	AL		0.0335		F	#	0.0001	-
	mg/L	0839	WL	09/17/2002	0001	AL		0.627		Q	#	0.0001	-
	mg/L	0841	WL	09/18/2002	0001	AL		0.114		F	#	0.0001	-
	mg/L	0841	WL	09/18/2002	0002	AL		0.114		F	#	0.0001	-
	mg/L	0846	WL	09/18/2002	0001	AL		0.034		F	#	0.0001	-
	mg/L	1060	WL	09/18/2002	0001	AL		0.0259		Q	#	0.0001	-
	mg/L	1079	WL	09/18/2002	0001			0.0272		F	#	0.0001	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	LOCATION TYPE	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE200 WHERE site_code='SHP02' AND quality_assurance = TRUE AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #9/1/2002# and #9/30/2002#

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

LOCATION TYPES: WL WELL

ZONES OF COMPLETION:

AL ALLUVIUM
KM MANCOS SHALE

FLOW CODES:

LAB QUALIFIERS:

	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
>	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
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3	mg/L	0425	09/17/2002	0001	899			#	-	-
	mg/L	0426	09/17/2002	0001	263			#	-	-
	mg/L	0662	09/19/2002	0001	106			#	-	-
	mg/L	0884	09/18/2002	0001	285			#	-	-
	mg/L	0886	09/19/2002	0001	373			#	-	-
	mg/L	0889	09/19/2002	0001	617			#	-	-
	mg/L	0934	09/18/2002	0001	344			#	-	-
	mg/L	0942	09/18/2002	0001	255			#	-	-
Ammonium	mg/L	0425	09/17/2002	0001	0.246			#	0.004	-
	mg/L	0426	09/17/2002	0001	0.0244	B		#	0.004	-
	mg/L	0662	09/19/2002	0001	0.078	B		#	0.004	-
	mg/L	0884	09/18/2002	0001	0.0844	B		#	0.004	-
	mg/L	0886	09/19/2002	0001	0.281			#	0.004	-
	mg/L	0889	09/19/2002	0001	0.141			#	0.004	-
	mg/L	0934	09/18/2002	0001	0.110			#	0.004	-
	mg/L	0942	09/18/2002	0001	0.437			#	0.004	-
Calcium	mg/L	0425	09/17/2002	0001	360.000			#	0.0446	-
	mg/L	0426	09/17/2002	0001	383.000			#	0.0446	-
	mg/L	0662	09/19/2002	0001	114.000			#	0.0446	-
	mg/L	0884	09/18/2002	0001	482.000			#	0.0446	-
	mg/L	0886	09/19/2002	0001	462.000			#	0.0446	-
	mg/L	0889	09/19/2002	0001	370.000			#	0.0446	-
	mg/L	0934	09/18/2002	0001	656.000			#	0.446	-
	mg/L	0942	09/18/2002	0001	263.000			#	0.0446	-
Chloride	mg/L	0425	09/17/2002	0001	390.000			#	4.01	-
	mg/L	0426	09/17/2002	0001	102.000			#	2.005	-
	mg/L	0662	09/19/2002	0001	58.000			#	0.802	-
	mg/L	0884	09/18/2002	0001	69.700			#	2.005	-
	mg/L	0886	09/19/2002	0001	949.000			#	4.01	-
	mg/L	0889	09/19/2002	0001	1770.000			#	8.02	-
	mg/L	0934	09/18/2002	0001	233.000			#	2.005	-
	mg/L	0942	09/18/2002	0001	16.800			#	0.401	-
Magnesium	mg/L	0425	09/17/2002	0001	1110.000			#	0.11	-
	mg/L	0426	09/17/2002	0001	143.000			#	0.011	-
	mg/L	0662	09/19/2002	0001	14.300			#	0.011	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Magnesium	mg/L	0884	09/18/2002	0001	159.000			#	0.011	-
	mg/L	0886	09/19/2002	0001	600.000			#	0.22	-
	mg/L	0889	09/19/2002	0001	1200.000			#	0.22	-
	mg/L	0934	09/18/2002	0001	311.000			#	0.011	-
	mg/L	0942	09/18/2002	0001	33.900			#	0.011	-
Manganese	mg/L	0425	09/17/2002	0001	0.625			#	0.0002	-
	mg/L	0426	09/17/2002	0001	0.0032 B			#	0.0002	-
	mg/L	0662	09/19/2002	0001	0.0309			#	0.0002	-
	mg/L	0884	09/18/2002	0001	0.0027 B			#	0.0002	-
	mg/L	0886	09/19/2002	0001	0.0386			#	0.0002	-
	mg/L	0889	09/19/2002	0001	0.0109			#	0.0002	-
	mg/L	0934	09/18/2002	0001	0.0409			#	0.0002	-
	mg/L	0942	09/18/2002	0001	0.781			#	0.0002	-
Nitrate as NO3	mg/L	0425	09/17/2002	0001	93.100			#	0.04	-
	mg/L	0426	09/17/2002	0001	51.400			#	0.02	-
	mg/L	0662	09/19/2002	0001	1.080			#	0.02	-
	mg/L	0884	09/18/2002	0001	162.000			#	0.04	-
	mg/L	0886	09/19/2002	0001	1800.000			#	1	-
	mg/L	0889	09/19/2002	0001	2980.000			#	1	-
	mg/L	0934	09/18/2002	0001	538.000			#	0.2	-
	mg/L	0942	09/18/2002	0001	2.750			#	0.02	-
Oxidation Reduction Potent	mV	0425	09/17/2002	N001	203			#	-	-
	mV	0426	09/17/2002	N001	191			#	-	-
	mV	0662	09/19/2002	N001	167			#	-	-
	mV	0884	09/18/2002	N001	225			#	-	-
	mV	0886	09/19/2002	N001	189			#	-	-
	mV	0889	09/19/2002	N001	182			#	-	-
	mV	0934	09/18/2002	N001	139			#	-	-
	mV	0942	09/18/2002	N001	171			#	-	-
pH	s.u.	0425	09/17/2002	N001	7.64			#	-	-
	s.u.	0426	09/17/2002	N001	7.1			#	-	-
	s.u.	0662	09/19/2002	N001	7.92			#	-	-
	s.u.	0884	09/18/2002	N001	8.06			#	-	-
	s.u.	0886	09/19/2002	N001	8.18			#	-	-
	s.u.	0889	09/19/2002	N001	8.44			#	-	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	0934	09/18/2002	N001	7.61			#	-	-
	s.u.	0942	09/18/2002	N001	7.55			#	-	-
Potassium	mg/L	0425	09/17/2002	0001	56.800			#	0.0259	-
	mg/L	0426	09/17/2002	0001	15.300			#	0.0259	-
	mg/L	0662	09/19/2002	0001	8.050			#	0.0259	-
	mg/L	0884	09/18/2002	0001	8.700			#	0.0259	-
	mg/L	0886	09/19/2002	0001	42.600			#	0.0259	-
	mg/L	0889	09/19/2002	0001	64.500			#	0.0259	-
	mg/L	0934	09/18/2002	0001	10.900			#	0.0259	-
	mg/L	0942	09/18/2002	0001	7.390			#	0.0259	-
Selenium	mg/L	0425	09/17/2002	0001	0.0149			#	0.0001	-
	mg/L	0426	09/17/2002	0001	0.0537			#	0.001	-
	mg/L	0662	09/19/2002	0001	0.0001 U			#	0.0001	-
	mg/L	0884	09/18/2002	0001	0.310			#	0.002	-
	mg/L	0886	09/19/2002	0001	0.858			#	0.005	-
	mg/L	0889	09/19/2002	0001	1.570			#	0.02	-
	mg/L	0934	09/18/2002	0001	0.363			#	0.002	-
	mg/L	0942	09/18/2002	0001	0.0047 B			#	0.0001	-
Sodium	mg/L	0425	09/17/2002	0001	1700.000			#	8.95	-
	mg/L	0426	09/17/2002	0001	1040.000			#	8.95	-
	mg/L	0662	09/19/2002	0001	837.000			#	8.95	-
	mg/L	0884	09/18/2002	0001	321.000			#	0.895	-
	mg/L	0886	09/19/2002	0001	4370.000			#	17.9	-
	mg/L	0889	09/19/2002	0001	8980.000			#	89.5	-
	mg/L	0934	09/18/2002	0001	655.000			#	8.95	-
	mg/L	0942	09/18/2002	0001	68.600			#	0.895	-
Specific Conductance	umhos/cm	0425	09/17/2002	N001	10990			#	-	-
	umhos/cm	0426	09/17/2002	N001	5807			#	-	-
	umhos/cm	0662	09/19/2002	N001	3957			#	-	-
	umhos/cm	0884	09/18/2002	N001	3758			#	-	-
	umhos/cm	0886	09/19/2002	N001	19360			#	-	-
	umhos/cm	0889	09/19/2002	N001	32480			#	-	-
	umhos/cm	0934	09/18/2002	N001	6176			#	-	-
	umhos/cm	0942	09/18/2002	N001	1300			#	-	-
Strontium	mg/L	0425	09/17/2002	0001	8.510			#	0.005	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Strontium	mg/L	0426	09/17/2002	0001	9.150			#	0.005	-
	mg/L	0662	09/19/2002	0001	11.800			#	0.005	-
	mg/L	0884	09/18/2002	0001	5.400			#	0.005	-
	mg/L	0886	09/19/2002	0001	7.360			#	0.01	-
	mg/L	0889	09/19/2002	0001	10.800			#	0.01	-
	mg/L	0934	09/18/2002	0001	7.070			#	0.005	-
	mg/L	0942	09/18/2002	0001	2.360			#	0.0005	-
Sulfate	mg/L	0425	09/17/2002	0001	8070.000			#	3.94	-
	mg/L	0426	09/17/2002	0001	3690.000			#	1.97	-
	mg/L	0662	09/19/2002	0001	2090.000			#	1.97	-
	mg/L	0884	09/18/2002	0001	2190.000			#	1.97	-
	mg/L	0886	09/19/2002	0001	10800.000			#	7.88	-
	mg/L	0889	09/19/2002	0001	20700.000			#	15.76	-
	mg/L	0934	09/18/2002	0001	3360.000			#	1.97	-
	mg/L	0942	09/18/2002	0001	766.000			#	0.394	-
Temperature	C	0425	09/17/2002	N001	18.66			#	-	-
	C	0426	09/17/2002	N001	15.99			#	-	-
	C	0662	09/19/2002	N001	19.8			#	-	-
	C	0884	09/18/2002	N001	17			#	-	-
	C	0886	09/19/2002	N001	18.8			#	-	-
	C	0889	09/19/2002	N001	25.8			#	-	-
	C	0934	09/18/2002	N001	16.9			#	-	-
	C	0942	09/18/2002	N001	18.07			#	-	-
Turbidity	NTU	0425	09/17/2002	N001	1000	>		#	-	-
	NTU	0426	09/17/2002	N001	5.55			#	-	-
	NTU	0662	09/19/2002	N001	28.7			#	-	-
	NTU	0884	09/18/2002	N001	51.4			#	-	-
	NTU	0886	09/19/2002	N001	16.9			#	-	-
	NTU	0889	09/19/2002	N001	34.4			#	-	-
	NTU	0934	09/18/2002	N001	48.5			#	-	-
	NTU	0942	09/18/2002	N001	1000	>		#	-	-
Uranium	mg/L	0425	09/17/2002	0001	0.733			#	0.0001	-
	mg/L	0426	09/17/2002	0001	0.177			#	0.0001	-
	mg/L	0662	09/19/2002	0001	0.0006	B		#	0.0001	-
	mg/L	0884	09/18/2002	0001	0.0308			#	0.0001	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:05 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	0886	09/19/2002	0001	0.0812			#	0.0001	-
	mg/L	0889	09/19/2002	0001	0.175			#	0.0005	-
	mg/L	0934	09/18/2002	0001	0.103			#	0.0001	-
	mg/L	0942	09/18/2002	0001	0.0092			#	0.0001	-

RECORDS: SELECTED FROM USEE800 WHERE site_code='SHP02' AND quality_assurance = TRUE AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #9/1/2002# and #9/30/2002#

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

LAB QUALIFIERS:

	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
>	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
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.

DATA QUALIFIERS:

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

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:06 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity, Total (As CaCO3	mg/L	0655	09/17/2002	0001	327			#	-	-
	mg/L	0887	09/18/2002	0001	309			#	-	-
	mg/L	0897	09/19/2002	0001	130			#	-	-
	mg/L	0898	09/19/2002	0001	155			#	-	-
	mg/L	0940	09/17/2002	0001	112			#	-	-
	mg/L	0956	09/18/2002	0001	116			#	-	-
	mg/L	0957	09/18/2002	0001	134			#	-	-
	mg/L	0959	09/18/2002	0001	472			#	-	-
	mg/L	1205	09/17/2002	0001	117			#	-	-
Ammonium	mg/L	0655	09/17/2002	0001	0.277			#	0.004	-
	mg/L	0887	09/18/2002	0001	0.302			#	0.004	-
	mg/L	0897	09/19/2002	0001	0.101			#	0.004	-
	mg/L	0898	09/19/2002	0001	0.133			#	0.004	-
	mg/L	0940	09/17/2002	0001	0.0271	B		#	0.004	-
	mg/L	0940	09/17/2002	0002	0.0797	B		#	0.004	-
	mg/L	0956	09/18/2002	0001	0.0381	B		#	0.004	-
	mg/L	0957	09/18/2002	0001	0.0318	B		#	0.004	-
	mg/L	0959	09/18/2002	0001	0.133			#	0.004	-
	mg/L	1205	09/17/2002	0001	0.0408	B		#	0.004	-
Calcium	mg/L	0655	09/17/2002	0001	312.000			#	0.0446	-
	mg/L	0887	09/18/2002	0001	462.000			#	0.0446	-
	mg/L	0897	09/19/2002	0001	69.000			#	0.0446	-
	mg/L	0898	09/19/2002	0001	64.100			#	0.0446	-
	mg/L	0940	09/17/2002	0001	62.700			#	0.0446	-
	mg/L	0940	09/17/2002	0002	60.300			#	0.0446	-
	mg/L	0956	09/18/2002	0001	67.700			#	0.0446	-
	mg/L	0957	09/18/2002	0001	67.100			#	0.0446	-
	mg/L	0959	09/18/2002	0001	401.000			#	0.0446	-
	mg/L	1205	09/17/2002	0001	63.900			#	0.0446	-
Chloride	mg/L	0655	09/17/2002	0001	115.000			#	2.005	-
	mg/L	0887	09/18/2002	0001	149.000			#	2.005	-
	mg/L	0897	09/19/2002	0001	14.700			#	0.2005	-
	mg/L	0898	09/19/2002	0001	14.400			#	0.2005	-
	mg/L	0940	09/17/2002	0001	15.200			#	0.2005	-
	mg/L	0940	09/17/2002	0002	15.400			#	0.2005	-
	mg/L	0956	09/18/2002	0001	15.900			#	0.2005	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:06 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	0957	09/18/2002	0001	16.800			#	0.2005	-
	mg/L	0959	09/18/2002	0001	172.000			#	2.005	-
	mg/L	1205	09/17/2002	0001	15.400			#	0.2005	-
Magnesium	mg/L	0655	09/17/2002	0001	122.000			#	0.011	-
	mg/L	0887	09/18/2002	0001	253.000			#	0.011	-
	mg/L	0897	09/19/2002	0001	8.840			#	0.011	-
	mg/L	0898	09/19/2002	0001	7.830			#	0.011	-
	mg/L	0940	09/17/2002	0001	9.730			#	0.011	-
	mg/L	0940	09/17/2002	0002	9.180			#	0.011	-
	mg/L	0956	09/18/2002	0001	10.500			#	0.011	-
	mg/L	0957	09/18/2002	0001	10.900			#	0.011	-
	mg/L	0959	09/18/2002	0001	545.000			#	0.11	-
	mg/L	1205	09/17/2002	0001	9.750			#	0.011	-
Manganese	mg/L	0655	09/17/2002	0001	3.000			#	0.0002	-
	mg/L	0887	09/18/2002	0001	0.934			#	0.0002	-
	mg/L	0897	09/19/2002	0001	0.0333			#	0.0002	-
	mg/L	0898	09/19/2002	0001	0.003	B		#	0.0002	-
	mg/L	0940	09/17/2002	0001	0.0037	B		#	0.0002	-
	mg/L	0940	09/17/2002	0002	0.0045	B		#	0.0002	-
	mg/L	0956	09/18/2002	0001	0.0059	B		#	0.0002	-
	mg/L	0957	09/18/2002	0001	0.0152			#	0.0002	-
	mg/L	0959	09/18/2002	0001	0.0305			#	0.0002	-
	mg/L	1205	09/17/2002	0001	0.0076	B		#	0.0002	-
Nitrate as NO3	mg/L	0655	09/17/2002	0001	12.200			#	0.02	-
	mg/L	0887	09/18/2002	0001	222.000			#	0.1	-
	mg/L	0897	09/19/2002	0001	2.490	B		#	0.1	-
	mg/L	0898	09/19/2002	0001	3.290			#	0.02	-
	mg/L	0940	09/17/2002	0001	2.350			#	0.02	-
	mg/L	0940	09/17/2002	0002	2.260			#	0.02	-
	mg/L	0956	09/18/2002	0001	2.200			#	0.02	-
	mg/L	0957	09/18/2002	0001	2.290			#	0.02	-
	mg/L	0959	09/18/2002	0001	171.000			#	0.04	-
	mg/L	1205	09/17/2002	0001	2.270			#	0.02	-
Oxidation Reduction Potent	mV	0655	09/17/2002	N001	216			#	-	-
	mV	0887	09/18/2002	N001	239			#	-	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:06 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potent	mV	0897	09/19/2002	N001	141			#	-	-
	mV	0898	09/19/2002	N001	160			#	-	-
	mV	0940	09/17/2002	N001	199			#	-	-
	mV	0956	09/18/2002	N001	188			#	-	-
	mV	0957	09/18/2002	N001	205			#	-	-
	mV	0959	09/18/2002	N001	157			#	-	-
	mV	1205	09/17/2002	N001	159			#	-	-
pH	s.u.	0655	09/17/2002	N001	7.74			#	-	-
	s.u.	0887	09/18/2002	N001	7.88			#	-	-
	s.u.	0897	09/19/2002	N001	8.1			#	-	-
	s.u.	0898	09/19/2002	N001	8.17			#	-	-
	s.u.	0940	09/17/2002	N001	8.29			#	-	-
	s.u.	0956	09/18/2002	N001	7.78			#	-	-
	s.u.	0957	09/18/2002	N001	8.26			#	-	-
	s.u.	0959	09/18/2002	N001	7.72			#	-	-
	s.u.	1205	09/17/2002	N001	8.2			#	-	-
Potassium	mg/L	0655	09/17/2002	0001	17.200			#	0.0259	-
	mg/L	0887	09/18/2002	0001	13.500			#	0.0259	-
	mg/L	0897	09/19/2002	0001	3.050			#	0.0259	-
	mg/L	0898	09/19/2002	0001	3.510			#	0.0259	-
	mg/L	0940	09/17/2002	0001	2.960			#	0.0259	-
	mg/L	0940	09/17/2002	0002	2.830			#	0.0259	-
	mg/L	0956	09/18/2002	0001	2.650			#	0.0259	-
	mg/L	0957	09/18/2002	0001	2.690			#	0.0259	-
	mg/L	0959	09/18/2002	0001	18.500			#	0.0259	-
	mg/L	1205	09/17/2002	0001	2.980			#	0.0259	-
Selenium	mg/L	0655	09/17/2002	0001	0.0044 B			#	0.0001	-
	mg/L	0887	09/18/2002	0001	0.343			#	0.002	-
	mg/L	0897	09/19/2002	0001	0.0007 B			#	0.0001	-
	mg/L	0898	09/19/2002	0001	0.0009 B			#	0.0001	-
	mg/L	0940	09/17/2002	0001	0.0007 B			#	0.0001	-
	mg/L	0940	09/17/2002	0002	0.0007 B			#	0.0001	-
	mg/L	0956	09/18/2002	0001	0.0007 B			#	0.0001	-
	mg/L	0957	09/18/2002	0001	0.0008 B			#	0.0001	-
	mg/L	0959	09/18/2002	0001	0.0926			#	0.001	-
	mg/L	1205	09/17/2002	0001	0.0007 B			#	0.0001	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:06 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sodium	mg/L	0655	09/17/2002	0001	1380.000			#	8.95	-
	mg/L	0887	09/18/2002	0001	562.000			#	8.95	-
	mg/L	0897	09/19/2002	0001	57.700			#	0.895	-
	mg/L	0898	09/19/2002	0001	74.000			#	0.895	-
	mg/L	0940	09/17/2002	0001	38.300			#	0.895	-
	mg/L	0940	09/17/2002	0002	36.400			#	0.895	-
	mg/L	0956	09/18/2002	0001	37.200			#	0.895	-
	mg/L	0957	09/18/2002	0001	39.500			#	0.895	-
	mg/L	0959	09/18/2002	0001	903.000			#	8.95	-
	mg/L	1205	09/17/2002	0001	37.500			#	0.895	-
Specific Conductance	umhos/cm	0655	09/17/2002	N001	5953			#	-	-
	umhos/cm	0887	09/18/2002	N001	5034			#	-	-
	umhos/cm	0897	09/19/2002	N001	707			#	-	-
	umhos/cm	0898	09/19/2002	N001	803			#	-	-
	umhos/cm	0940	09/17/2002	N001	595			#	-	-
	umhos/cm	0956	09/18/2002	N001	613			#	-	-
	umhos/cm	0957	09/18/2002	N001	1049			#	-	-
	umhos/cm	0959	09/18/2002	N001	7215			#	-	-
	umhos/cm	1205	09/17/2002	N001	535			#	-	-
Strontium	mg/L	0655	09/17/2002	0001	10.100			#	0.005	-
	mg/L	0887	09/18/2002	0001	6.460			#	0.005	-
	mg/L	0897	09/19/2002	0001	1.000			#	0.0005	-
	mg/L	0898	09/19/2002	0001	0.917			#	0.0005	-
	mg/L	0940	09/17/2002	0001	0.856			#	0.0005	-
	mg/L	0940	09/17/2002	0002	0.817			#	0.0005	-
	mg/L	0956	09/18/2002	0001	0.870			#	0.0005	-
	mg/L	0957	09/18/2002	0001	0.895			#	0.0005	-
	mg/L	0959	09/18/2002	0001	7.300			#	0.005	-
	mg/L	1205	09/17/2002	0001	0.854			#	0.0005	-
Sulfate	mg/L	0655	09/17/2002	0001	4150.000			#	1.97	-
	mg/L	0887	09/18/2002	0001	2910.000			#	1.97	-
	mg/L	0897	09/19/2002	0001	212.000			#	0.197	-
	mg/L	0898	09/19/2002	0001	217.000			#	0.197	-
	mg/L	0940	09/17/2002	0001	159.000			#	0.197	-
	mg/L	0940	09/17/2002	0002	161.000			#	0.197	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:06 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	0956	09/18/2002	0001	168.000			#	0.197	-
	mg/L	0957	09/18/2002	0001	182.000			#	0.197	-
	mg/L	0959	09/18/2002	0001	4620.000			#	1.97	-
	mg/L	1205	09/17/2002	0001	160.000			#	0.197	-
Temperature	C	0655	09/17/2002	N001	19.77			#	-	-
	C	0887	09/18/2002	N001	15			#	-	-
	C	0897	09/19/2002	N001	18.29			#	-	-
	C	0898	09/19/2002	N001	18.8			#	-	-
	C	0940	09/17/2002	N001	17.85			#	-	-
	C	0956	09/18/2002	N001	15.34			#	-	-
	C	0957	09/18/2002	N001	16.1			#	-	-
	C	0959	09/18/2002	N001	14.95			#	-	-
	C	1205	09/17/2002	N001	19.36			#	-	-
Turbidity	NTU	0655	09/17/2002	N001	210			#	-	-
	NTU	0887	09/18/2002	N001	149			#	-	-
	NTU	0897	09/19/2002	N001	1000	>		#	-	-
	NTU	0898	09/19/2002	N001	1000	>		#	-	-
	NTU	0940	09/17/2002	N001	9.39			#	-	-
	NTU	0956	09/18/2002	N001	319			#	-	-
	NTU	0957	09/18/2002	N001	281			#	-	-
	NTU	0959	09/18/2002	N001	21.8			#	-	-
	NTU	1205	09/17/2002	N001	968			#	-	-
Uranium	mg/L	0655	09/17/2002	0001	0.118			#	0.0001	-
	mg/L	0887	09/18/2002	0001	0.0513			#	0.0001	-
	mg/L	0897	09/19/2002	0001	0.0022			#	0.0001	-
	mg/L	0898	09/19/2002	0001	0.0032			#	0.0001	-
	mg/L	0940	09/17/2002	0001	0.003			#	0.0001	-
	mg/L	0940	09/17/2002	0002	0.0023			#	0.0001	-
	mg/L	0956	09/18/2002	0001	0.0023			#	0.0001	-
	mg/L	0957	09/18/2002	0001	0.0023			#	0.0001	-
	mg/L	0959	09/18/2002	0001	0.0825			#	0.0001	-
	mg/L	1205	09/17/2002	0001	0.0022			#	0.0001	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:06 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE800 WHERE site_code='SHP01' AND quality_assurance = TRUE AND (data_validation_qualifiers IS NULL OR data_validation_qualifiers NOT LIKE '%R%' AND data_validation_qualifiers NOT LIKE '%X%') AND DATE_SAMPLED between #9/1/2002# and #9/30/2002#

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

LAB QUALIFIERS:

	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
>	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
M	**GFAA dup**licate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
X	**Laboratory defined (USEPA CLP organic) qualifier, see case narrative.**
Y	**Laboratory defined (USEPA CLP organic) qualifier, see case narrative.**
Z	Laboratory defined (USEPA CLP organic) 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.

STATIC GROUND WATER LEVELS (USEE700) FOR SITE SHP01, SHIPROCK
REPORT DATE: 10/25/2002 3:06 pm

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT NGVD)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	GROUND WATER ELEVATION (FT NGVD)	WATER LEVEL FLAG
			DATE	TIME			
0608		4893.35	09/16/2002	15:07	5.70	4887.65	
0614		4892.79	09/16/2002	15:45	8.10	4884.69	
0618		4891.51	09/16/2002	16:55	7.55	4883.96	
0619		4892.19	09/16/2002	17:23	8.04	4884.15	
0734		4886.55	09/17/2002	10:46	5.65	4880.90	
0735		4895.85	09/17/2002	13:03	5.82	4890.03	
0736		4887.99	09/17/2002	10:06	6.25	4881.74	
0797		4908.04	09/19/2002	14:24	8.21	4899.83	
0850	B	4907.51	09/19/2002	13:24	6.92	4900.59	
0854		4890.75	09/17/2002	08:28	8.42	4882.33	

RECORDS: SELECTED FROM USEE700 WHERE site_code='SHP01' AND LOG_DATE between #9/1/2002# and #9/30/2002#

FLOW CODES: B BACKGROUND

WATER LEVEL FLAGS:

STATIC GROUND WATER LEVELS (USEE700) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 10/25/2002 3:06 pm

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT NGVD)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	GROUND WATER ELEVATION (FT NGVD)	WATER LEVEL FLAG
			DATE	TIME			
0602		4956.89	09/19/2002	08:36	20.07	4936.82	
0728		4964.46	09/17/2002	10:26	24.75	4939.71	
0812		5004.98	09/17/2002	08:45	60.67	4944.31	
0813		4984.37	09/17/2002	08:35	43.50	4940.87	
0814		4968.12	09/17/2002	10:31	41.91	4926.21	
0815		4953.67	09/17/2002	10:40	25.96	4927.71	
0817		4957.34	09/19/2002	09:29	18.87	4938.47	
0818		4998.25	09/17/2002	08:57	53.40	4944.85	
0832		4964.65	09/18/2002	10:48	27.93	4936.72	
0835		4930.48	09/18/2002	17:24	20.06	4910.42	
0836		4901.74	09/18/2002	15:25	19.81	4881.93	
0838		4937.70	09/18/2002	13:47	25.89	4911.81	
0839		4943.21	09/17/2002		25.81	4917.40	
		4943.21	09/17/2002	17:00	25.81	4917.40	
0841		4984.05	09/18/2002	09:40	45.11	4938.94	
0846		4934.57	09/18/2002	14:44	19.80	4914.77	
1007		4962.01	09/17/2002	10:20	44.75	4917.26	
1057		4980.89	09/17/2002	09:23	37.06	4943.83	
1060		4970.62	09/18/2002		34.38	4936.24	
		4970.62	09/18/2002	13:13	34.38	4936.24	

RECORDS: SELECTED FROM USEE700 WHERE site_code='SHP02' AND LOG_DATE between #9/1/2002# and #9/30/2002#

FLOW CODES:

WATER LEVEL FLAGS:

BLANKS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 11/04/02 02:17:41: PM

PARAMETER	SITE CODE	LOCATION ID	SAMPLE DATE	SAMPLE ID	UNITS	RESULT	QUALIFIERS LAB	QUALIFIERS DATA	DETECTION LIMIT	UNCERTAINTY	SAMPLE TYPE
Ammonium	SHP01	0999	09/16/2002	0001	mg/L	0.0353	B		0.004		E
Calcium	SHP01	0999	09/16/2002	0001	mg/L	0.109	B		0.0446		E
Chloride	SHP01	0999	09/16/2002	0001	mg/L	0.0401	U		0.0401		E
Magnesium	SHP01	0999	09/16/2002	0001	mg/L	0.0354	B	U	0.011		E
Manganese	SHP01	0999	09/16/2002	0001	mg/L	0.00059	B	U	0.0002		E
Nitrate as NO3	SHP01	0999	09/16/2002	0001	mg/L	0.02	U		0.02		E
Potassium	SHP01	0999	09/16/2002	0001	mg/L	0.0429	B	U	0.0259		E
Selenium	SHP01	0999	09/16/2002	0001	mg/L	0.0001	U		0.0001		E
Sodium	SHP01	0999	09/16/2002	0001	mg/L	0.895	U		0.895		E
Strontium	SHP01	0999	09/16/2002	0001	mg/L	0.0005	U		0.0005		E
Sulfate	SHP01	0999	09/16/2002	0001	mg/L	0.0394	U		0.0394		E
Uranium	SHP01	0999	09/16/2002	0001	mg/L	0.0001	B	U	0.0001		E

BLANKS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 11/04/02 02:17:42: PM

PARAMETER	SITE CODE	LOCATION ID	SAMPLE DATE	ID	UNITS	RESULT	QUALIFIERS LAB	QUALIFIERS DATA	DETECTION LIMIT	UNCERTAINTY	SAMPLE TYPE

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

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
C	Pesticide result confirmed by GC-MS.
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
D	Analyte determined in diluted sample.
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
>	Result above upper detection limit.
J	Estimated

DATA QUALIFIERS:

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

SAMPLE TYPES:

AK	ANALYTICAL KNOWN	D	DUPLICATE	E	EQUIPMENT BLANK
F	FIELD SAMPLE	FB	FIELD BLANK	FR	FIELD SAMPLE WITH REPLICATES
K	KNOWN	L	LABORATORY	N	NOT KNOWN
R	REPLICATE	TB	TRIP BLANK	TK	THEORETICAL KNOWN
XB	EXTRACTION BLANK				

Ammonium	SHP02	0999	09/17/2002	0001	mg/L	0.0832	B		0.004		E
Calcium	SHP02	0999	09/17/2002	0001	mg/L	0.0616	B	U	0.0446		E
Chloride	SHP02	0999	09/17/2002	0001	mg/L	0.0401	U		0.0401		E

BLANKS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 11/04/02 02:17:43: PM

PARAMETER	SITE CODE	LOCATION ID	SAMPLE DATE	SAMPLE ID	UNITS	RESULT	QUALIFIERS LAB	QUALIFIERS DATA	DETECTION LIMIT	UNCERTAINTY	SAMPLE TYPE
Magnesium	SHP02	0999	09/17/2002	0001	mg/L	0.0573	B	U	0.011		E
Manganese	SHP02	0999	09/17/2002	0001	mg/L	0.00061	B	U	0.0002		E
Nitrate as NO3	SHP02	0999	09/17/2002	0001	mg/L	0.02	U		0.02		E
Potassium	SHP02	0999	09/17/2002	0001	mg/L	0.0903	B	U	0.0259		E
Selenium	SHP02	0999	09/17/2002	0001	mg/L	0.0001	U		0.0001		E
Sodium	SHP02	0999	09/17/2002	0001	mg/L	0.895	U		0.895		E
Strontium	SHP02	0999	09/17/2002	0001	mg/L	0.0005	U		0.0005		E
Sulfate	SHP02	0999	09/17/2002	0001	mg/L	0.122	B	U	0.0394		E
Uranium	SHP02	0999	09/17/2002	0001	mg/L	0.0004	B	U	0.0001		E

BLANKS REPORT
LAB REQUISITION(S): 18157
REPORT DATE: 11/04/02 02:17:43: PM

PARAMETER	SITE CODE	LOCATION ID	SAMPLE DATE	ID	UNITS	RESULT	QUALIFIERS LAB	QUALIFIERS DATA	DETECTION LIMIT	UNCERTAINTY	SAMPLE TYPE

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

LAB QUALIFIERS:

*	Replicate analysis not within control limits.
+	Correlation coefficient for MSA < 0.995.
A	TIC is a suspected aldol-condensation product.
B	Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
E	Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
Z	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
H	Holding time expired, value suspect.
I	Increased detection limit due to required dilution.
C	Pesticide result confirmed by GC-MS.
M	GFAA duplicate injection precision not met.
N	Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compund (TIC).
S	Result determined by method of standard addition (MSA).
U	Analytical result below detection limit.
W	Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
D	Analyte determined in diluted sample.
P	> 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
X	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
Y	Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
>	Result above upper detection limit.
J	Estimated

DATA QUALIFIERS:

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

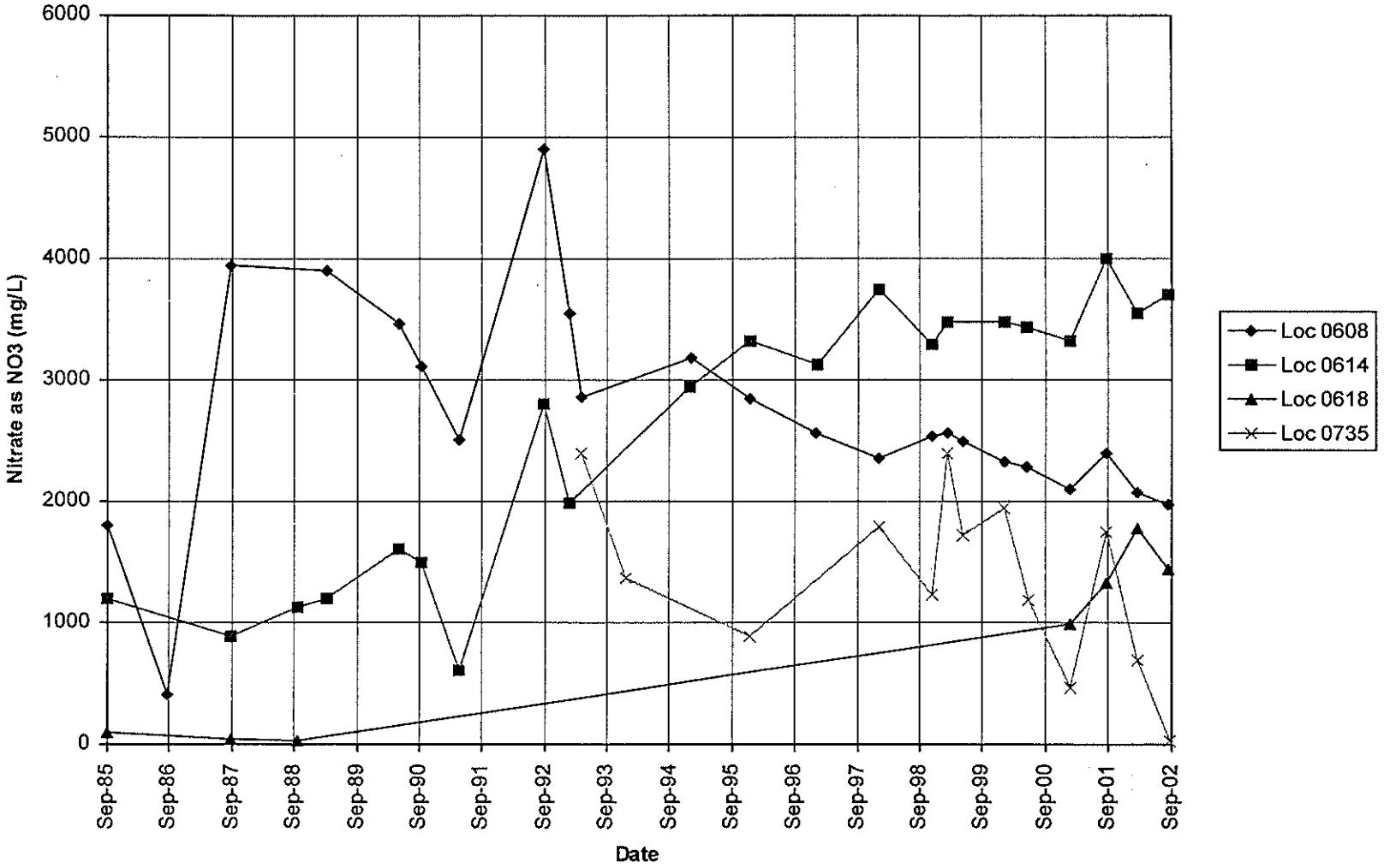
SAMPLE TYPES:

AK	ANALYTICAL KNOWN	D	DUPLICATE	E	EQUIPMENT BLANK
F	FIELD SAMPLE	FB	FIELD BLANK	FR	FIELD SAMPLE WITH REPLICATES
K	KNOWN	L	LABORATORY	N	NOT KNOWN
R	REPLICATE	TB	TRIP BLANK	TK	THEORETICAL KNOWN
XB	EXTRACTION BLANK				

TIME VERSUS CONCENTRATION GRAPHS

SHIPROCK (SHP01)

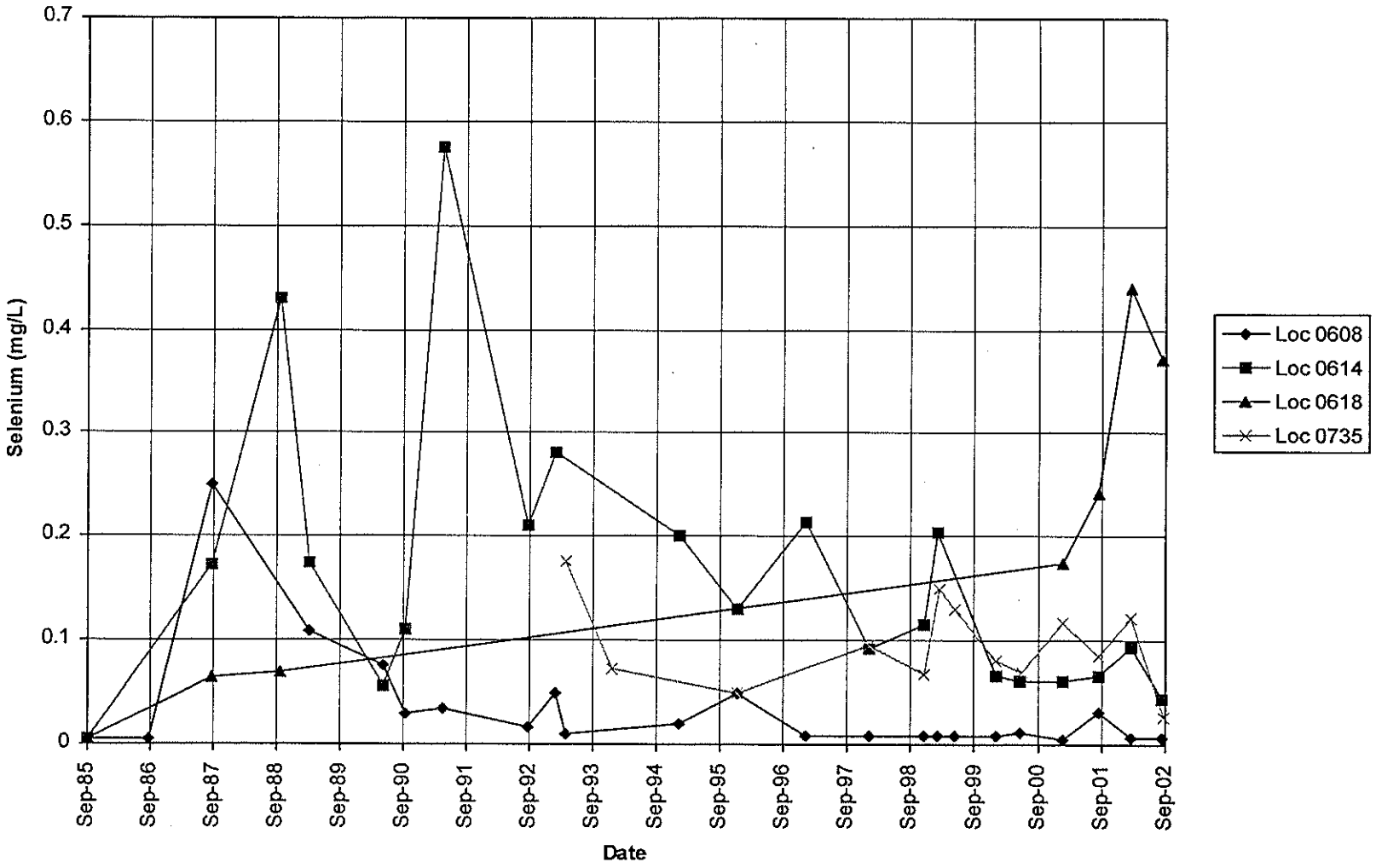
Nitrate as NO3 Concentration



11/8/2002 11:27 am

SHIPROCK (SHP01)

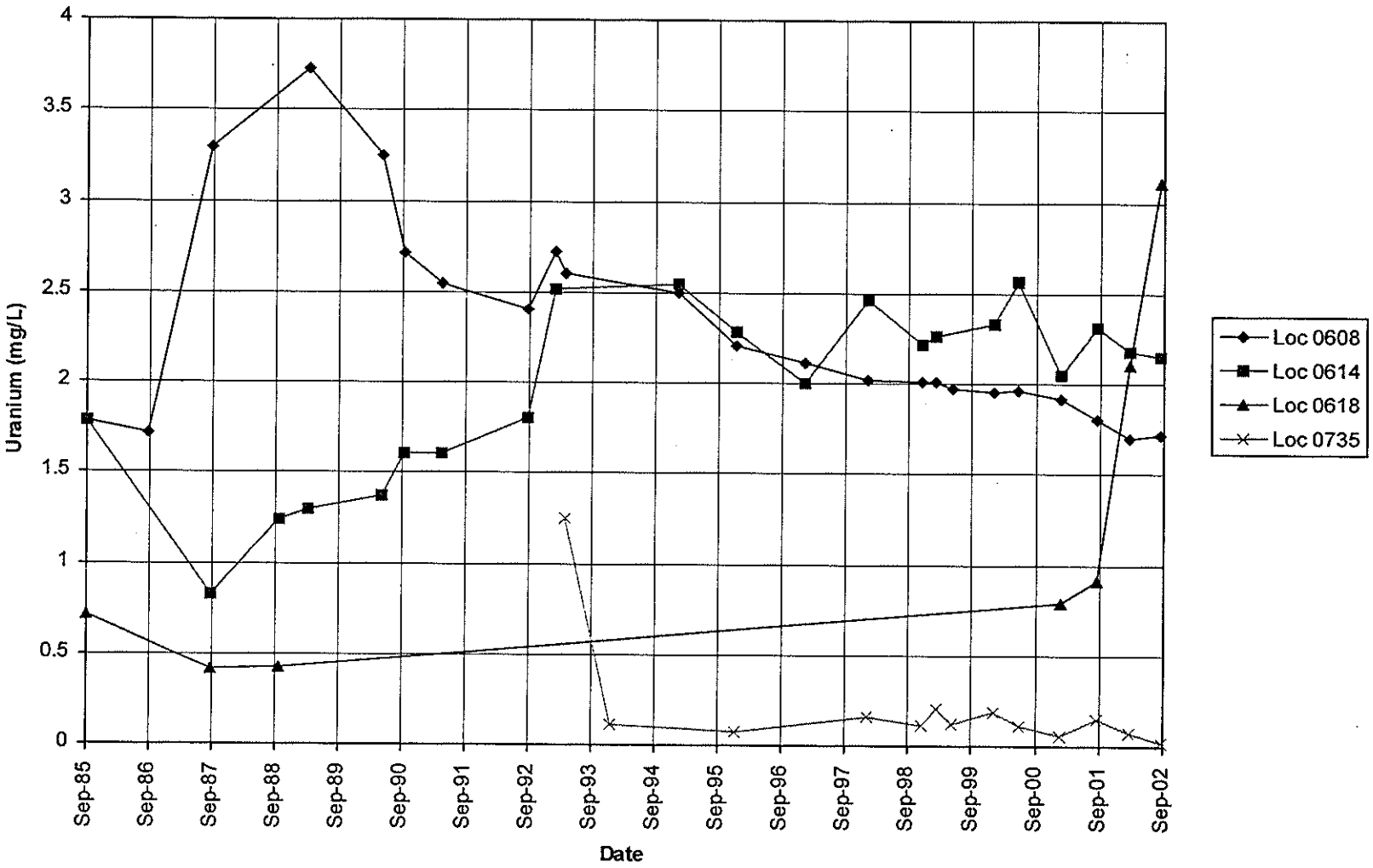
Selenium Concentration



11/8/2002 11:29 am

SHIPROCK (SHP01)

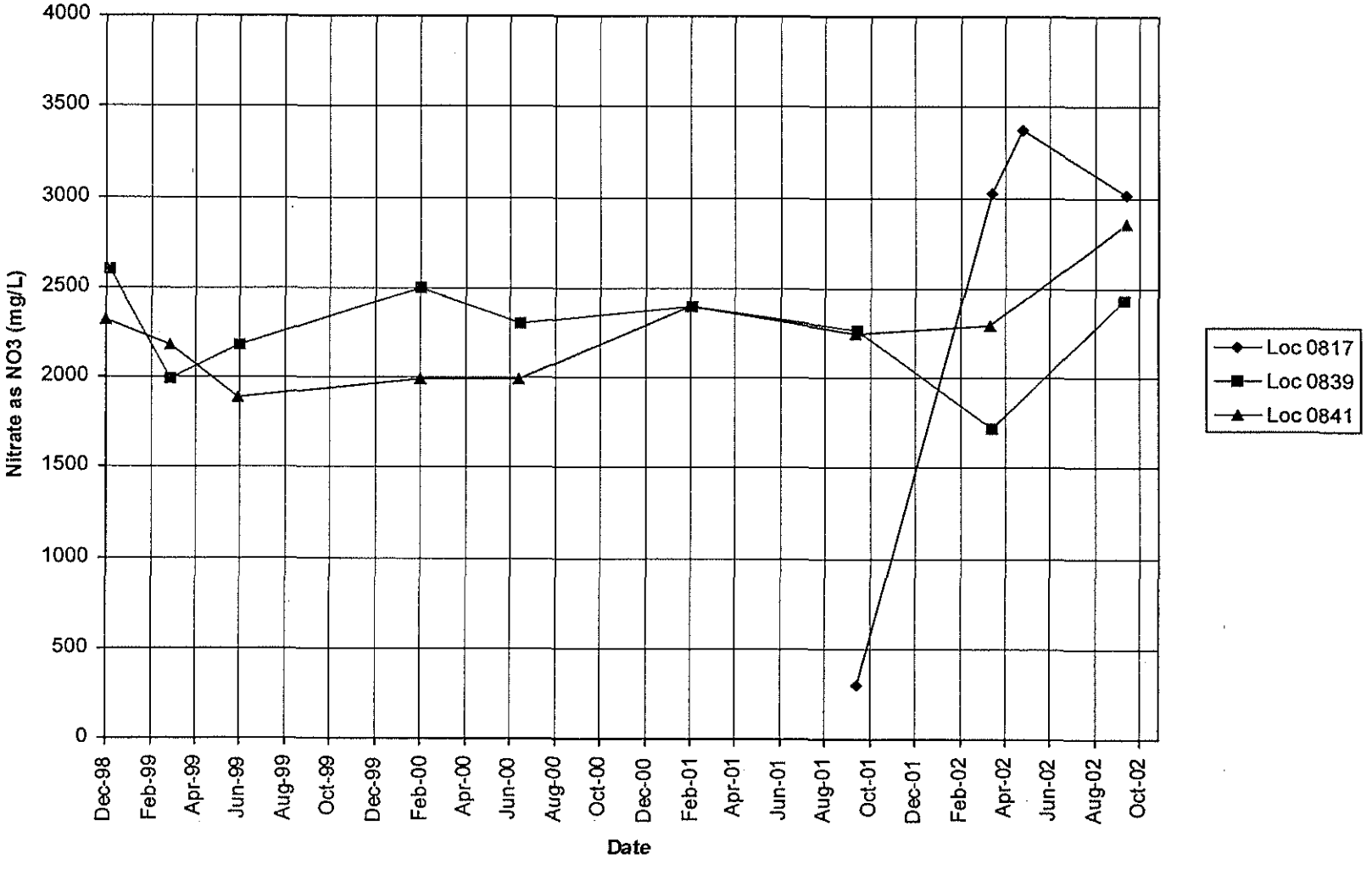
Uranium Concentration



11/8/2002 11:30 am

SHIPROCK (TAILINGS AREA) (SHP02)

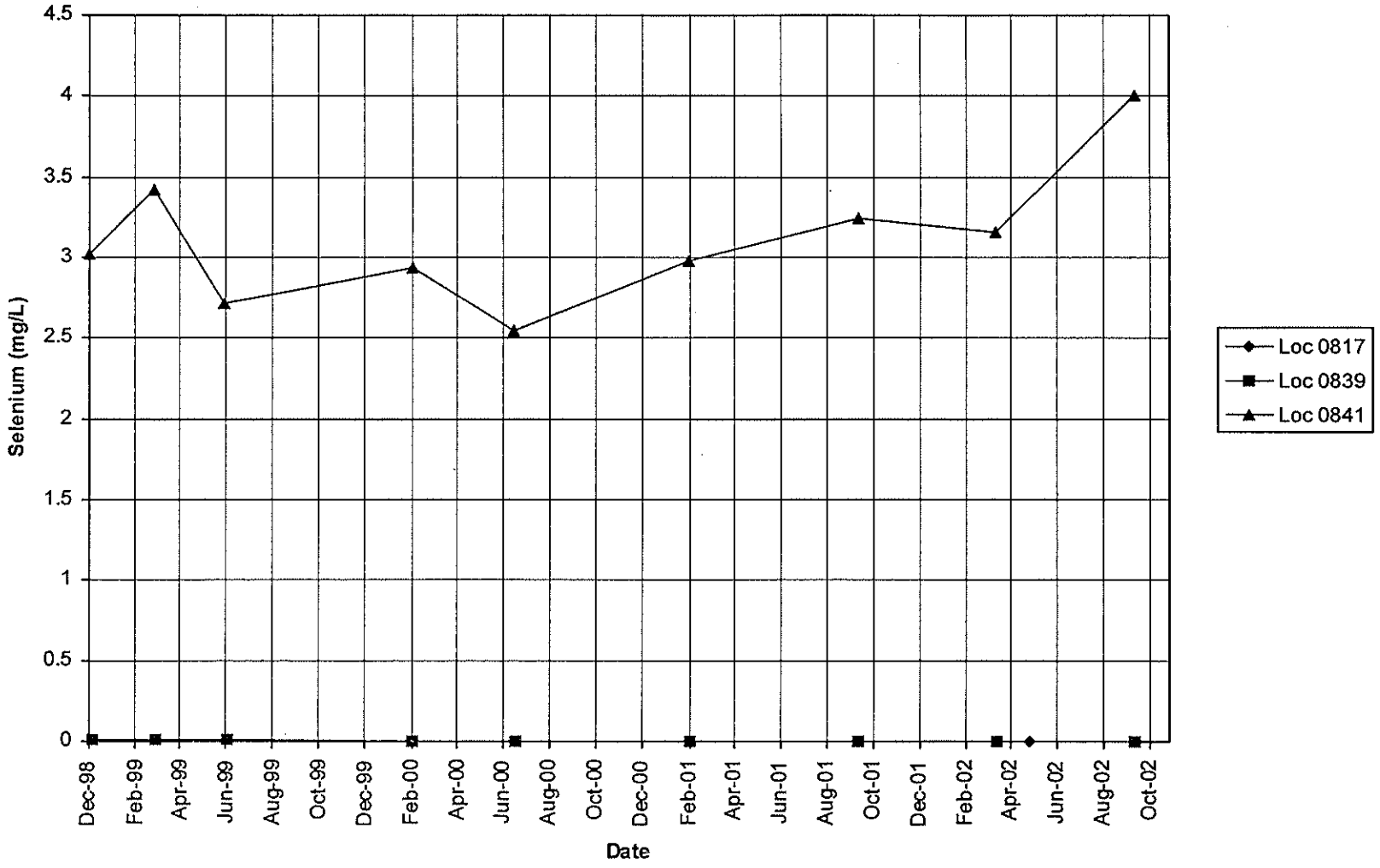
Nitrate as NO3 Concentration



11/8/2002 11:38 am

SHIPROCK (TAILINGS AREA) (SHP02)

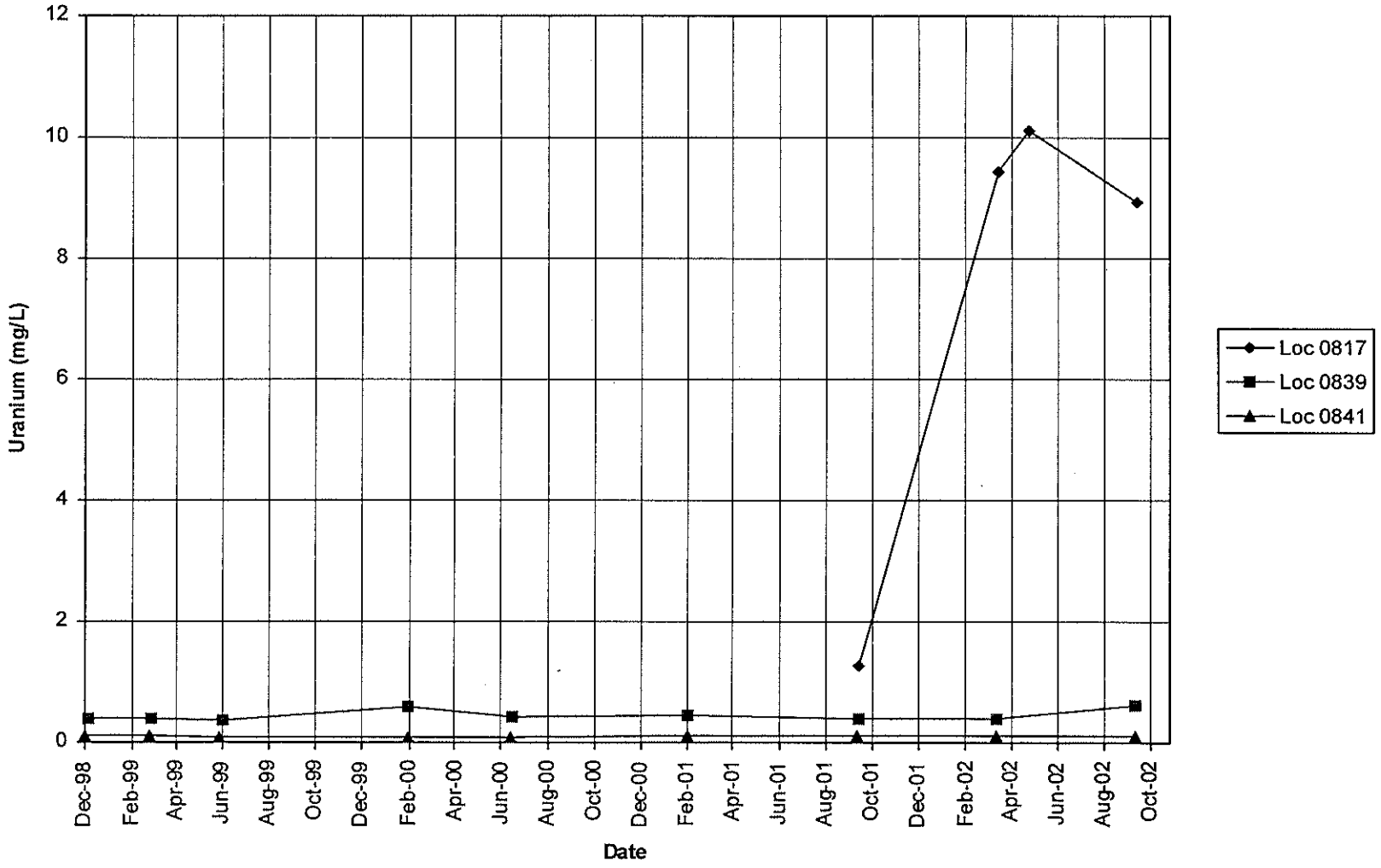
Selenium Concentration



11/8/2002 11:37 am

SHIPROCK (TAILINGS AREA) (SHP02)

Uranium Concentration



11/8/2002 11:36 am

WATER LEVELS

STATIC GROUND WATER LEVELS (USEE700) FOR SITE SHP01, SHIPROCK
REPORT DATE: 11/5/2002 8:51 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT NGVD)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	GROUND WATER ELEVATION (FT NGVD)	WATER LEVEL FLAG
			DATE	TIME			
0608		4893.35	09/16/2002	15:07	5.70	4887.65	
0614		4892.79	09/16/2002	15:45	8.10	4884.69	
0618		4891.51	09/16/2002	16:55	7.55	4883.96	
0619		4892.19	09/16/2002	17:23	8.04	4884.15	
0734		4886.55	09/17/2002	10:46	5.65	4880.90	
0735		4895.85	09/17/2002	13:03	5.82	4890.03	
0736		4887.99	09/17/2002	10:06	6.25	4881.74	
0797		4908.04	09/19/2002	14:24	8.21	4899.83	
0850	B	4907.51	09/19/2002	13:24	6.92	4900.59	
0854		4890.75	09/17/2002	08:28	8.42	4882.33	

RECORDS: SELECTED FROM USEE700 WHERE site_code='SHP01' AND LOG_DATE between #9/1/2002# and #9/30/2002#

FLOW CODES: B BACKGROUND

WATER LEVEL FLAGS:

STATIC GROUND WATER LEVELS (USEE700) FOR SITE SHP02, SHIPROCK (TAILINGS AREA)
REPORT DATE: 11/5/2002 8:52 am

LOCATION CODE	FLOW CODE	TOP OF CASING ELEVATION (FT NGVD)	MEASUREMENT		DEPTH FROM TOP OF CASING (FT)	GROUND WATER ELEVATION (FT NGVD)	WATER LEVEL FLAG
			DATE	TIME			
0602		4956.89	09/19/2002	08:36	20.07	4936.82	
0728		4964.46	09/17/2002	10:26	24.75	4939.71	
0812		5004.98	09/17/2002	08:45	60.67	4944.31	
0813		4984.37	09/17/2002	08:35	43.50	4940.87	
0814		4968.12	09/17/2002	10:31	41.91	4926.21	
0815		4953.67	09/17/2002	10:40	25.96	4927.71	
0817		4957.34	09/19/2002	09:29	18.87	4938.47	
0818		4998.25	09/17/2002	08:57	53.40	4944.85	
0832		4964.65	09/18/2002	10:48	27.93	4936.72	
0835		4930.48	09/18/2002	17:24	20.06	4910.42	
0836		4901.74	09/18/2002	15:25	19.81	4881.93	
0838		4937.70	09/18/2002	13:47	25.89	4911.81	
0839		4943.21	09/17/2002		25.81	4917.40	
		4943.21	09/17/2002	17:00	25.81	4917.40	
0841		4984.05	09/18/2002	09:40	45.11	4938.94	
0846		4934.57	09/18/2002	14:44	19.80	4914.77	
1007		4962.01	09/17/2002	10:20	44.75	4917.26	
1057		4980.89	09/17/2002	09:23	37.06	4943.83	
1060		4970.62	09/18/2002		34.38	4936.24	
		4970.62	09/18/2002	13:13	34.38	4936.24	

RECORDS: SELECTED FROM USEE700 WHERE site_code='SHP02' AND LOG_DATE between #9/1/2002# and #9/30/2002#

FLOW CODES:

WATER LEVEL FLAGS:

SAMPLING WORK ORDER AND TRIP REPORT

Stoller

Grand Junction Office

established 1959

CONTRACT NO.: DE-AC13-02GJ79491
TASK ORDER NO.: STO02-109
CONTROL NO.: N/A

MEMO TO: Sam Marutzky

FROM: D. Miller

DATE: September 24, 2002

SUBJECT: UMTRA Ground Water Trip Report

SITE: Shiprock, New Mexico

Dates of Sampling Event: September 16 through September 20, 2002

Team Members: Dave Miller, Steve Back, and Sam Campbell

Number of Locations Sampled: Twenty-two ground water monitor wells and seventeen surface water locations.

Locations Not Sampled/Reason: Well 615 was not sampled because the water level was below an obstruction (roots) in the well. Well 1079 was sampled instead of well 847, at the direction of the project manager. Surface locations 786, 885, 933, and 936 were not sampled because they were did not contain enough water to collect a sample.

Field Variance: None.

Well/Location Specific Information: Low Flow sampling was performed at all wells. Well 1079 was developed the day prior to sampling. Surface locations 934 and 959 were not flowing, and the samples were collected from small stagnant pools. Surface location 942 was a small pool of flowing water; however, the water was very murky due to many cows wallowing in the water and the water contained a very large amount of excrement from the cows. The sample for locations 426 was collected at the pipe; sample location 655 was collected in the ditch where it meets the river downstream from the regular sample point. The regular sample point was not accessible due to flooding and muddy conditions. Dedicated tubing was installed in wells 602, 608, 614, 618, 619, and 854.

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

False ID	True ID	Sample Type	Associated Matrix	Ticket Number
620	619	Duplicate	Ground Water	NDP 244
621	619	Equipment Blank	Ground Water	NDP 245
941	940	Duplicate	Surface Water	NDP 248
427	425	Equipment Blank	Surface Water	NDM 613
842	841	Duplicate	Ground Water	NDM 618

Requisition Numbers Assigned: The UMTRA requisition number is 18157.

Water Level Measurements: Water levels were measured on all sampled wells and on the following wells: 728, 812, 813, 814, 815, 818, 1007, 1057, 1070, 1071, 1072, 1073, 1074, 1075, 1077, and 1078. Water levels were not measured on wells 1065, 1066, 1067, 1068, and 1069 because the wells could not be located. They were apparently destroyed by flash flooding.

Well Inspection Summary: Well inspections were conducted on all sampled wells and where water levels were measured. All wells were in good shape, with the following exceptions: well 728 is also labeled 560, the dedicated bladder pump in well 818 needs a 4-inch cap, well 615 is obstructed by roots.

Data Loggers: All dataloggers were downloaded during this sampling event except for well 814 — a datalogger is not installed in well 814.

Corrective Action: Well 1070 was not labeled, the well was marked on the outside of the casing.

Equipment: The YSI malfunctioned at well 1060 and no field measurements were collected. The pH and ORP meter malfunctioned at well 836.

Regulatory Issues: None.

Site Issues: None.

Additional Action Required/Taken: None

DM/lcg

Distribution:

cc: C. Goodknight
D. Metzler
K. Miller
Project Record File GWSHP 14.12 thru K. Sutton

CONTRACT NO.: DE-AC13-02GJ79491
TASK ORDER NO.: ST02-109-05
CONTROL NO.: 3100-T02-0831

August 15, 2002

Program Manager
Department of Energy
Grand Junction Office
2597 B3/4 Road
Grand Junction, CO 81503
ATTN: Donald Metzler

SUBJECT: Contract No. DE-AC13-02GJ79491—September 2002 UMTRA Ground Water Sampling at Shiprock, New Mexico

Dear Mr. Metzler:

Attached are the map and tables specifying sample locations and analytes for routine monitoring at the Shiprock, New Mexico, UMTRA site. Water quality data will be collected from monitor wells and surface locations at this site as part of the routine UMTRA Ground Water sampling that is scheduled to begin the week of September 9, 2002.

The following lists show the Ground Water Project monitor well and surface water locations that will be sampled during this sampling event.

Ground Water Project Monitor Wells (filtered)*

SHP01

608 Km	615 Al	619 Al	735 Al	797 Al	850 Al	854 Al
614 Al	618 Al	734 Al	736 Al			

SHP02

602 Km	832 Al	836 Al	839 Al	846 Al	1060 Al	1079 Al
817 Km	835 Al	838 Al	841 Al	847 Al		

*NOTE: Al = Alluvium; Km = Mancos Shale

Surface Water (filtered)

SHP01

655	897	940	956	957	959	1205
887	898					

SHP02

425	662	884	886	933	936
426	786	885	889	934	942

Data loggers will be downloaded from the following locations:

SHP01

617	857					

SHP02

602	730	826	830	841	843	848
728	731	827	837			

In addition, water levels will be collected at the following wells:

SHP02

728	813	815	1007	1065	1067	1069
812	814	818	1057	1066	1068	

QA/QC samples will be collected as directed in the *Sampling and Analysis Plan for the UMTRA Ground Water Project.* Samples collected for alkalinity will be filtered only. Access agreements are covered under the cooperative agreement.

If you have any questions, please call me at extension 6059 or Dave Traub at extension 6557.

Sincerely,

Sam Marutzky
Project Manager

SM/lcg/ld
Attachments

cc w/o att: K. Miller
Contract File (V. Creagar)
cc w/att: C. Goodknight
R. Chessmore
D. Traub
Project Record File GWSHP 14.06 thru K. Sutton