SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0651 SURFACE WATER AND SED.
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	08/24/2001	N001	1.6	U		#	1.6444	-
Total Dissolved Solids	mg/L	11/09/1993	0001	451	H		#	10	-
	mg/L	11/09/1993	N001	449	H		#	10	-
	mg/L	06/26/2000	0001	417			#	10	-
	mg/L	11/28/2000	0001	405			#	10	-
	mg/L	03/30/2001	0001	320			#	10	-
	mg/L	03/30/2001	0002	320			#	10	-
	mg/L	06/07/2001	0001	267			#	10	-
	mg/L	08/24/2001	0001	427			#	10	-
	mg/L	08/24/2001	N001	405			#	10	-
Turbidity	NTU	06/07/2001	N001	3.2			#	-	-
Uranium	mg/L	11/09/1993	0001	0.001	U		#	0.001	-
	mg/L	11/09/1993	N001	0.001	U		#	0.001	-
	mg/L	06/26/2000	0001	0.00073	B		#	0.0001	-
	mg/L	11/28/2000	0001	0.0013			#	0.0001	-
	mg/L	03/30/2001	0001	0.00098	B		#	0.0001	-
	mg/L	03/30/2001	0002	0.00095	B		#	0.0001	-
	mg/L	06/07/2001	0001	0.001		U	#	0.0001	-
	mg/L	08/24/2001	0001	0.0012			#	0.0001	-
	mg/L	08/24/2001	N001	0.0012			#	0.00011	-
Uranium-234	pCi/L	03/30/2001	0001	0.68	B*	J	#	0.4	-
	pCi/L	03/30/2001	0002	1	*	J	#	0.4	-
Uranium-238	pCi/L	03/30/2001	0001	0.43	B		#	0.1	-
	pCi/L	03/30/2001	0002	0.43	B		#	0.1	-
Vanadium	mg/L	06/26/2000	0001	0.0013	U		#	0.0013	-
	mg/L	11/28/2000	0001	0.0015	U		#	0.0015	-
	mg/L	03/30/2001	0001	0.0004	U		#	0.0004	-
	mg/L	03/30/2001	0002	0.0004	U		#	0.0004	-
	mg/L	06/07/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/24/2001	0001	0.00032	B	U	#	0.0003	-
	mg/L	08/24/2001	N001	0.0091	B		#	0.00033	-
Zinc	mg/L	11/09/1993	0001	0.010		J	#	0.005	-
	mg/L	11/09/1993	N001	0.026		J	#	0.005	-
	mg/L	06/26/2000	0001	0.0127	U		#	0.0127	-
	mg/L	11/28/2000	0001	0.010	U		#	0.0102	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0651 SURFACE WATER AND SED.
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Zinc	mg/L	03/30/2001	0001	0.0095	U		#	0.0095	-
	mg/L	03/30/2001	0002	0.0096	B		#	0.0095	-
	mg/L	06/07/2001	0001	0.0073	U		#	0.0073	-
	mg/L	08/24/2001	0001	0.0073	U		#	0.0073	-
	mg/L	08/24/2001	N001	0.0212	B		#	0.00811	-

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0652 SURFACE WATER AND SED.
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	10/27/1995	N001	121			#	10	-
	mg/L	06/20/1997	N001	31			#	-	-
	mg/L	06/11/1998	0001	169			#	-	-
	mg/L	06/11/1998	N001	158			#	-	-
	mg/L	06/30/1999	0001	42			#	-	-
	mg/L	06/30/1999	N001	40			#	-	-
	mg/L	11/09/1999	0001	170			#	-	-
	mg/L	11/09/1999	N001	173			#	-	-
	mg/L	06/26/2000	0001	90			#	-	-
	mg/L	06/26/2000	N001	101			#	-	-
	mg/L	11/28/2000	0001	112			#	-	-
	mg/L	11/28/2000	N001	116			#	-	-
	mg/L	03/29/2001	0001	114			#	-	-
	mg/L	03/29/2001	N001	103			#	-	-
	mg/L	06/07/2001	0001	43			#	-	-
	mg/L	06/07/2001	N001	46			#	-	-
	mg/L	08/28/2001	0001	130			#	-	-
	mg/L	08/28/2001	N001	130			#	-	-
Ammonium	mg/L	06/26/2000	0001	0.0047	U		#	0.0047	-
	mg/L	11/28/2000	0001	0.0344	B		#	0.0047	-
	mg/L	03/29/2001	0001	0.0176	B		#	0.0062	-
	mg/L	06/07/2001	0001	0.0062	U		#	0.0062	-
	mg/L	08/28/2001	0001	0.0167	B		#	0.0062	-
	mg/L	08/28/2001	N001	0.0221	B		#	0.0062	-
Antimony	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/20/1997	0002	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00090	B	U	#	-	-
	mg/L	06/30/1999	0002	0.00085	B	U	#	-	-
	mg/L	11/09/1999	0001	0.00092	B	U	#	-	-
	mg/L	11/09/1999	0002	0.00063	B	U	#	-	-
	mg/L	06/26/2000	0001	0.0002	U	U	#	0.0002	-
	mg/L	11/28/2000	0001	0.0003	U		#	0.0003	-
	mg/L	03/29/2001	0001	0.00047	B	U	#	0.0003	-
	mg/L	06/07/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/28/2001	0001	0.00047	B	U	#	0.0002	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0652 SURFACE WATER AND SED.
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Antimony	mg/L	08/28/2001	N001	0.0009	B	U	#	0.00022	-
Arsenic	mg/L	11/10/1993	0001	0.005	UW		#	0.005	-
	mg/L	11/10/1993	N001	0.005	UW		#	0.005	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/20/1997	0002	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0002	0.0010	U		#	0.001	-
	mg/L	11/09/1999	0001	0.00040	UN	J	#	0.0004	-
	mg/L	11/09/1999	0002	0.00040	UN	J	#	0.0004	-
	mg/L	06/26/2000	0001	0.0003	U		#	0.0003	-
	mg/L	11/28/2000	0001	0.0002	U		#	0.0002	-
	mg/L	03/29/2001	0001	0.0005	U		#	0.0005	-
	mg/L	06/07/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/28/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/28/2001	N001	0.00057	B		#	0.00056	-
Cadmium	mg/L	11/10/1993	0001	0.001	U		#	0.001	-
	mg/L	11/10/1993	N001	0.002	S		#	0.001	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/20/1997	0002	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00053	B		#	-	-
	mg/L	06/30/1999	0002	0.00049	B		#	-	-
	mg/L	11/09/1999	0001	0.00032	B		#	-	-
	mg/L	11/09/1999	0002	0.00030	U		#	0.0003	-
	mg/L	06/26/2000	0001	0.00067	B	U	#	0.0002	-
	mg/L	11/28/2000	0001	0.00031	B		#	0.0002	-
	mg/L	03/29/2001	0001	0.00035	B		#	0.0002	-
	mg/L	06/07/2001	0001	0.0005	B		#	0.0004	-
	mg/L	08/28/2001	0001	0.00079	B	U	#	0.0003	-
	mg/L	08/28/2001	N001	0.00033	U		#	0.00033	-
Calcium	mg/L	11/10/1993	0001	93.3			#	1	-
	mg/L	11/10/1993	N001	89.5			#	1	-
	mg/L	06/20/1997	0001	18.700			#	-	-
	mg/L	06/20/1997	0002	18.700			#	-	-
	mg/L	06/11/1998	0001	59.500			#	-	-

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LOCATION: 0652 SURFACE WATER AND SED.
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Calcium	mg/L	06/30/1999	0001	21.000			#	-	-
	mg/L	06/30/1999	0002	21.200			#	-	-
	mg/L	11/09/1999	0001	79.800			#	-	-
	mg/L	11/09/1999	0002	79.900			#	-	-
	mg/L	06/26/2000	0001	55.400			#	0.0504	-
	mg/L	11/28/2000	0001	89.800			#	0.032	-
	mg/L	03/29/2001	0001	55.800			#	0.0642	-
	mg/L	06/07/2001	0001	22.100			#	0.0814	-
	mg/L	08/28/2001	0001	62.900			#	0.0814	-
	mg/L	08/28/2001	N001	66.600			#	0.09044	-
Chloride	mg/L	06/20/1997	0001	1.180			#	-	-
	mg/L	06/20/1997	0002	1.190			#	-	-
	mg/L	06/11/1998	0001	2.730			#	-	-
	mg/L	06/30/1999	0001	2.570			#	-	-
	mg/L	06/30/1999	0002	2.580			#	-	-
	mg/L	11/09/1999	0001	13.800			#	-	-
	mg/L	11/09/1999	0002	13.600			#	-	-
	mg/L	06/26/2000	0001	14.800			#	0.024	-
	mg/L	11/28/2000	0001	20.900			#	0.024	-
	mg/L	03/29/2001	0001	7.940			#	0.0149	-
	mg/L	06/07/2001	0001	2.120			#	0.0149	-
	mg/L	08/28/2001	0001	17.300			#	0.0149	-
	mg/L	08/28/2001	N001	17.300			#	0.0149	-
Chromium	mg/L	06/20/1997	0001	0.0040	U		#	0.004	-
	mg/L	06/20/1997	0002	0.0040	U		#	0.004	-
	mg/L	06/11/1998	0001	0.0042	B		#	-	-
	mg/L	06/30/1999	0001	0.0042	U		#	0.0042	-
	mg/L	06/30/1999	0002	0.0042	U		#	0.0042	-
	mg/L	11/09/1999	0001	0.0025	U		#	0.0025	-
	mg/L	11/09/1999	0002	0.0025	U		#	0.0025	-
	mg/L	06/26/2000	0001	0.0035	U		#	0.0035	-
	mg/L	11/28/2000	0001	0.0059	U		#	0.0059	-
	mg/L	03/29/2001	0001	0.0008	U		#	0.0008	-
	mg/L	06/07/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/28/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/28/2001	N001	0.00089	U		#	0.00089	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Copper	mg/L	06/26/2000	0001	0.004	U		#	0.004	-
	mg/L	11/28/2000	0001	0.0055	B		#	0.0025	-
	mg/L	03/29/2001	0001	0.0034	U		#	0.0034	-
	mg/L	06/07/2001	0001	0.0026	B		#	0.0003	-
	mg/L	08/28/2001	0001	0.0014	B	U	#	0.0003	-
	mg/L	08/28/2001	N001	0.0028	B	U	#	0.00033	-
Gross Alpha	pCi/L	06/20/1997	0001	1.71	U		#	1.71	± 0.94
	pCi/L	06/20/1997	0002	1.68	U		#	1.68	± 0.89
	pCi/L	06/11/1998	0001	2.36	U		#	2.36	± 1.22
	pCi/L	06/30/1999	0001	1.83	U		#	1.83	± 1.04
	pCi/L	06/30/1999	0002	1.83	U		#	1.83	± 0.91
	pCi/L	11/09/1999	0001	2.39	U	J	#	2.39	± 1.63
	pCi/L	11/09/1999	0002	4.08		J	#	2.43	± 2.00
	pCi/L	06/26/2000	0001	2.18	U		#	2.18	± 1.34
	pCi/L	11/28/2000	0001	3.90	U		#	3.9	± 2.21
	pCi/L	03/29/2001	0001	2.97	U	J	#	2.97	± 1.61
	pCi/L	06/07/2001	0001	2.56	U		#	2.56	± 1.41
	pCi/L	08/28/2001	0001	3.87	U		#	3.87	± 2.13
	pCi/L	08/28/2001	N001	3.88	U		#	3.88	± 1.98
Gross Beta	pCi/L	06/20/1997	0001	2.61	U		#	2.61	± 1.57
	pCi/L	06/20/1997	0002	2.61	U		#	2.61	± 1.55
	pCi/L	06/11/1998	0001	2.20	U		#	2.2	± 1.26
	pCi/L	06/30/1999	0001	2.38	U		#	2.38	± 1.44
	pCi/L	06/30/1999	0002	2.37	U		#	2.37	± 1.39
	pCi/L	11/09/1999	0001	5.61			#	2.53	± 1.71
	pCi/L	11/09/1999	0002	6.42			#	2.55	± 1.75
	pCi/L	06/26/2000	0001	4.17			#	3.09	± 1.97
	pCi/L	11/28/2000	0001	3.92	U		#	3.92	± 2.38
	pCi/L	03/29/2001	0001	3.90	U		#	3.9	± 2.32
	pCi/L	06/07/2001	0001	3.85	U		#	3.85	± 2.21
	pCi/L	08/28/2001	0001	3.96	U		#	3.96	± 2.33
	pCi/L	08/28/2001	N001	3.96	U		#	3.96	± 2.34
Iron	mg/L	11/10/1993	0001	0.03	U		#	0.03	-
	mg/L	11/10/1993	N001	0.30			#	0.03	-
	mg/L	06/26/2000	0001	0.0091	U		#	0.0091	-
	mg/L	11/28/2000	0001	0.075		U	#	0.011	-

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Iron	mg/L	03/29/2001	0001	0.0336			#	0.001	-
	mg/L	06/07/2001	0001	0.059			#	0.0008	-
	mg/L	08/28/2001	0001	0.0054	B	U	#	0.0008	-
	mg/L	08/28/2001	N001	0.436	*	J	#	0.00089	-
Lead	mg/L	11/10/1993	0001	0.003	U		#	0.003	-
	mg/L	11/10/1993	N001	0.020	W		#	0.003	-
	mg/L	06/20/1997	0001	0.0017	B		#	-	-
	mg/L	06/20/1997	0002	0.0012	B		#	-	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0010	B	U	#	-	-
	mg/L	06/30/1999	0002	0.00096	B	U	#	-	-
	mg/L	11/09/1999	0001	0.00030	U		#	0.0003	-
	mg/L	11/09/1999	0002	0.00030	U		#	0.0003	-
	mg/L	06/26/2000	0001	0.0001	U		#	0.0001	-
	mg/L	11/28/2000	0001	0.0001	U		#	0.0001	-
	mg/L	03/29/2001	0001	0.00037	B	U	#	0.0001	-
	mg/L	06/07/2001	0001	0.00072	B	U	#	0.0001	-
	mg/L	08/28/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/28/2001	N001	0.003	B	U	#	0.00011	-
Lead-210	pCi/L	06/26/2000	0001	1.18	U		#	1.18	± 0.69
	pCi/L	11/28/2000	0001	1.17	U		#	1.17	± 0.67
	pCi/L	03/29/2001	0001	1.35	U		#	1.35	± 0.75
	pCi/L	06/07/2001	0001	1.11	U		#	1.11	± 0.63
	pCi/L	08/28/2001	0001	1.29	U		#	1.29	± 0.77
	pCi/L	08/28/2001	N001	1.31	U		#	1.31	± 0.75
Magnesium	mg/L	11/10/1993	0001	12.8			#	0.1	-
	mg/L	11/10/1993	N001	13.4			#	0.1	-
	mg/L	06/20/1997	0001	2.480			#	-	-
	mg/L	06/20/1997	0002	2.510			#	-	-
	mg/L	06/11/1998	0001	17.100			#	-	-
	mg/L	06/30/1999	0001	2.680			#	-	-
	mg/L	06/30/1999	0002	2.700			#	-	-
	mg/L	11/09/1999	0001	19.900			#	-	-
	mg/L	11/09/1999	0002	19.700			#	-	-
	mg/L	06/26/2000	0001	7.960			#	0.024	-
	mg/L	11/28/2000	0001	13.400			#	0.0471	-

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Magnesium	mg/L	03/29/2001	0001	9.380			#	0.0031	-
	mg/L	06/07/2001	0001	3.060			#	0.0034	-
	mg/L	08/28/2001	0001	9.070			#	0.0034	-
	mg/L	08/28/2001	N001	9.260			#	0.00378	-
Manganese	mg/L	11/10/1993	0001	0.11			#	0.01	-
	mg/L	11/10/1993	N001	0.13			#	0.01	-
	mg/L	06/20/1997	0001	0.0343			#	-	-
	mg/L	06/20/1997	0002	0.0340			#	-	-
	mg/L	06/11/1998	0001	0.0142			#	-	-
	mg/L	06/30/1999	0001	0.0465			#	-	-
	mg/L	06/30/1999	0002	0.0470			#	-	-
	mg/L	11/09/1999	0001	0.0797			#	-	-
	mg/L	11/09/1999	0002	0.0794			#	-	-
	mg/L	06/26/2000	0001	0.0774			#	0.0015	-
	mg/L	11/28/2000	0001	0.205			#	0.003	-
	mg/L	03/29/2001	0001	0.0775			#	0.0001	-
	mg/L	06/07/2001	0001	0.043			#	0.0001	-
	mg/L	08/28/2001	0001	0.0672			#	0.0001	-
	mg/L	08/28/2001	N001	0.0802			#	0.00011	-
Mercury	mg/L	11/10/1993	0001	0.0002	U		#	0.0002	-
	mg/L	11/10/1993	N001	0.0050	*		#	0.0002	-
Molybdenum	mg/L	11/10/1993	0001	0.01	U		#	0.01	-
	mg/L	11/10/1993	N001	0.01			#	0.01	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/20/1997	0002	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0014	B		#	-	-
	mg/L	06/30/1999	0001	0.0019	B		#	-	-
	mg/L	06/30/1999	0002	0.0012	B		#	-	-
	mg/L	11/09/1999	0001	0.0012	B		#	-	-
	mg/L	11/09/1999	0002	0.0013	B		#	-	-
	mg/L	06/26/2000	0001	0.0008	U		#	0.0008	-
	mg/L	11/28/2000	0001	0.0011	B		#	0.0003	-
	mg/L	03/29/2001	0001	0.001	B	U	#	0.0004	-
	mg/L	06/07/2001	0001	0.003	U		#	0.003	-
	mg/L	08/28/2001	0001	0.003	U		#	0.003	-
	mg/L	08/28/2001	N001	0.0033	U		#	0.00333	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0652 SURFACE WATER AND SED.
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nitrate as NO3	mg/L	11/10/1993	0001	10.7		J	#	1	-
	mg/L	11/10/1993	N001	11.3		J	#	1	-
	mg/L	06/20/1997	0001	0.481	B		#	-	-
	mg/L	06/20/1997	0002	0.477	B		#	-	-
	mg/L	06/11/1998	0001	0.283	B	U	#	-	-
	mg/L	06/30/1999	0001	0.503			#	-	-
	mg/L	06/30/1999	0002	0.558			#	-	-
	mg/L	11/09/1999	0001	0.598	B		#	-	-
	mg/L	11/09/1999	0002	0.593	B		#	-	-
	mg/L	06/26/2000	0001	1.050			#	0.0314	-
	mg/L	11/28/2000	0001	0.646	B		#	0.0314	-
	mg/L	03/29/2001	0001	1.250			#	0.0171	-
	mg/L	06/07/2001	0001	0.417	B		#	0.0171	-
	mg/L	08/28/2001	0001	0.324	B		#	0.0305	-
	mg/L	08/28/2001	N001	0.332	B		#	0.0305	-
ORP of Zobell Solution	mV	06/26/2000	N001	225			#	-	-
	mV	11/28/2000	N001	256			#	-	-
	mV	03/29/2001	N001	236			#	-	-
	mV	06/07/2001	N001	225			#	-	-
	mV	08/28/2001	N001	225			#	-	-
Oxidation Reduction Potent	mV	06/20/1997	N001	51			#	-	-
	mV	06/11/1998	N001	191			#	-	-
	mV	06/30/1999	N001	61			#	-	-
	mV	11/09/1999	N001	118			#	-	-
	mV	06/26/2000	N001	56			#	-	-
	mV	11/28/2000	N001	-89			#	-	-
	mV	03/29/2001	N001	54			#	-	-
	mV	06/07/2001	N001	99			#	-	-
	mV	08/28/2001	N001	-107			#	-	-
pH	s.u.	10/27/1995	N001	7.85			#	0.1	-
	s.u.	06/20/1997	N001	7.17			#	-	-
	s.u.	06/11/1998	N001	8.53			#	-	-
	s.u.	06/30/1999	N001	6.82			#	-	-
	s.u.	11/09/1999	N001	8.20			#	-	-
	s.u.	06/26/2000	N001	7.81			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0652 SURFACE WATER AND SED.
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	11/28/2000	N001	7.91			#	-	-
	s.u.	03/29/2001	N001	7.79			#	-	-
	s.u.	06/07/2001	N001	7.82			#	-	-
	s.u.	08/28/2001	N001	7.5			#	-	-
Polonium-210	pCi/L	06/26/2000	0001	0.06	U		#	0.06	± 0.08
	pCi/L	11/28/2000	0001	0.06	B	U	#	0.05	± 0.07
	pCi/L	03/29/2001	0001	0.04	U		#	0.04	± 0.03
	pCi/L	06/07/2001	0001	0.18	U		#	0.18	± 0.08
	pCi/L	08/28/2001	0001	0.08	U		#	0.08	± 0.04
	pCi/L	08/28/2001	N001	0.09	U		#	0.09	± 0.05
Potassium	mg/L	06/20/1997	0001	0.755			#	-	-
	mg/L	06/20/1997	0002	0.711			#	-	-
	mg/L	06/11/1998	0001	1.410			#	-	-
	mg/L	06/30/1999	0001	0.707			#	-	-
	mg/L	06/30/1999	0002	0.677			#	-	-
	mg/L	11/09/1999	0001	2.570			#	-	-
	mg/L	11/09/1999	0002	2.530			#	-	-
	mg/L	06/26/2000	0001	2.300			#	0.0456	-
	mg/L	11/28/2000	0001	3.400			#	0.0359	-
	mg/L	03/29/2001	0001	1.710			#	0.0091	-
	mg/L	06/07/2001	0001	0.738			#	0.0088	-
	mg/L	08/28/2001	0001	2.610			#	0.0088	-
	mg/L	08/28/2001	N001	2.670			#	0.00978	-
Radium-226	pCi/L	06/26/2000	0001	0.12	U		#	0.12	± 0.07
	pCi/L	11/28/2000	0001	0.13	U		#	0.13	± 0.08
	pCi/L	03/29/2001	0001	0.14	U		#	0.14	± 0.08
	pCi/L	06/07/2001	0001	0.11	U		#	0.11	± 0.07
	pCi/L	08/28/2001	0001	0.1	U		#	0.1	± 0.06
	pCi/L	08/28/2001	N001	0.21			#	0.11	± 0.07
Radium-228	pCi/L	06/26/2000	0001	0.64	U		#	0.64	± 0.37
	pCi/L	11/28/2000	0001	0.72	U		#	0.72	± 0.42
	pCi/L	03/29/2001	0001	0.96	U		#	0.96	± 0.56
	pCi/L	06/07/2001	0001	0.98	U		#	0.98	± 0.56
	pCi/L	08/28/2001	0001	0.94	U		#	0.94	± 0.55
	pCi/L	08/28/2001	N001	0.97	U		#	0.97	± 0.57

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0652 SURFACE WATER AND SED.
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	11/10/1993	0001	0.005	U		#	0.005	-
	mg/L	11/10/1993	N001	0.005	U		#	0.005	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/20/1997	0002	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0002	0.0010	U		#	0.001	-
	mg/L	11/09/1999	0001	0.00041	B		#	-	-
	mg/L	11/09/1999	0002	0.00045	B		#	-	-
	mg/L	06/26/2000	0001	0.0015	U		#	0.0015	-
	mg/L	11/28/2000	0001	0.00024	B		#	0.0001	-
	mg/L	03/29/2001	0001	0.0003	U		#	0.0003	-
	mg/L	06/07/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/28/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/28/2001	N001	0.00033	U		#	0.00033	-
Sodium	mg/L	06/20/1997	0001	1.830			#	-	-
	mg/L	06/20/1997	0002	2.010			#	-	-
	mg/L	06/11/1998	0001	11.400			#	-	-
	mg/L	06/30/1999	0001	2.750			#	-	-
	mg/L	06/30/1999	0002	2.990			#	-	-
	mg/L	11/09/1999	0001	20.100			#	-	-
	mg/L	11/09/1999	0002	19.500			#	-	-
	mg/L	06/26/2000	0001	14.800			#	0.434	-
	mg/L	11/28/2000	0001	20.600			#	0.525	-
	mg/L	03/29/2001	0001	8.790			#	0.0052	-
	mg/L	06/07/2001	0001	2.930			#	0.0085	-
	mg/L	08/28/2001	0001	16.600			#	0.0085	-
	mg/L	08/28/2001	N001	15.200			#	0.00944	-
Specific Conductance	umhos/cm	10/27/1995	N001	467			#	1	-
	umhos/cm	06/20/1997	N001	138			#	-	-
	umhos/cm	06/11/1998	N001	477			#	-	-
	umhos/cm	06/30/1999	N001	172			#	-	-
	umhos/cm	11/09/1999	N001	658			#	-	-
	umhos/cm	06/26/2000	N001	417			#	-	-
	umhos/cm	11/28/2000	N001	608			#	-	-
	umhos/cm	03/29/2001	N001	430			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0652 SURFACE WATER AND SED.
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	06/07/2001	N001	169			#	-	-
	umhos/cm	08/28/2001	N001	510			#	-	-
Sulfate	mg/L	11/10/1993	0001	139	I		#	1.9	-
	mg/L	11/10/1993	N001	144	I		#	1.9	-
	mg/L	06/20/1997	0001	21.800			#	-	-
	mg/L	06/20/1997	0002	22.200			#	-	-
	mg/L	06/11/1998	0001	78.200			#	-	-
	mg/L	06/30/1999	0001	30.000			#	-	-
	mg/L	06/30/1999	0002	30.100			#	-	-
	mg/L	11/09/1999	0001	135.000			#	-	-
	mg/L	11/09/1999	0002	134.000			#	-	-
	mg/L	06/26/2000	0001	79.100			#	0.0589	-
	mg/L	11/28/2000	0001	160.000			#	0.0589	-
	mg/L	03/29/2001	0001	82.800			#	0.0253	-
	mg/L	06/07/2001	0001	30.400			#	0.0253	-
	mg/L	08/28/2001	0001	111.000			#	0.0253	-
	mg/L	08/28/2001	N001	110.000			#	0.0253	-
Temperature	C	10/27/1995	N001	10.4			#	0.1	-
	C	06/20/1997	N001	9.3			#	-	-
	C	06/11/1998	N001	10.6			#	-	-
	C	06/30/1999	N001	11.4			#	-	-
	C	11/09/1999	N001	5.3			#	-	-
	C	06/26/2000	N001	15.6			#	-	-
	C	11/28/2000	N001	3.1			#	-	-
	C	03/29/2001	N001	7			#	-	-
	C	06/07/2001	N001	11			#	-	-
	C	08/28/2001	N001	17.9			#	-	-
Temperature of Zobell Solu	C	06/26/2000	N001	22.5			#	-	-
	C	11/28/2000	N001	4.4			#	-	-
	C	03/29/2001	N001	9			#	-	-
	C	06/07/2001	N001	18.1			#	-	-
	C	08/28/2001	N001	20.6			#	-	-
Thallium	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/20/1997	0002	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0652 SURFACE WATER AND SED.
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thallium	mg/L	06/30/1999	0001	0.00037	B	U	#	-	-
	mg/L	06/30/1999	0002	0.00038	B	U	#	-	-
	mg/L	11/09/1999	0001	0.00020	U		#	0.0002	-
	mg/L	11/09/1999	0002	0.00020	U		#	0.0002	-
	mg/L	06/26/2000	0001	0.0001	U		#	0.0001	-
	mg/L	11/28/2000	0001	0.0001	U		#	0.0001	-
	mg/L	03/29/2001	0001	0.00033	B	U	#	0.0001	-
	mg/L	06/07/2001	0001	0.00019	BE	UJ	#	-	-
	mg/L	08/28/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/28/2001	N001	0.00011	U		#	0.00011	-
Thorium-230	pCi/L	06/26/2000	0001	2.6	U		#	2.6	-
	pCi/L	11/28/2000	0001	1.7	U		#	1.72	-
	pCi/L	03/29/2001	0001	0.92	U		#	0.92	-
	pCi/L	06/07/2001	0001	1.5	U		#	1.48	-
	pCi/L	08/28/2001	0001	1.5	U		#	1.48	-
	pCi/L	08/28/2001	N001	2.2	B	U	#	1.6444	-
Total Dissolved Solids	mg/L	11/10/1993	0001	413	H		#	10	-
	mg/L	11/10/1993	N001	415	H		#	10	-
	mg/L	06/20/1997	0001	105			#	-	-
	mg/L	06/20/1997	0002	85.0			#	-	-
	mg/L	06/11/1998	0001	285			#	-	-
	mg/L	06/30/1999	0001	93.0			#	-	-
	mg/L	06/30/1999	0002	97.0			#	-	-
	mg/L	11/09/1999	0001	440			#	-	-
	mg/L	11/09/1999	0002	427			#	-	-
	mg/L	06/26/2000	0001	290			#	10	-
	mg/L	11/28/2000	0001	422			#	10	-
	mg/L	03/29/2001	0001	260			#	10	-
	mg/L	06/07/2001	0001	130			#	10	-
	mg/L	08/28/2001	0001	312			#	10	-
	mg/L	08/28/2001	N001	302			#	10	-
Turbidity	NTU	06/20/1997	N001	54.5			#	-	-
	NTU	11/09/1999	N001	1.40			#	-	-
	NTU	06/07/2001	N001	17.5			#	-	-
Uranium	mg/L	11/10/1993	0001	0.001	U		#	0.001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0652 SURFACE WATER AND SED.
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	11/10/1993	N001	0.001	U		#	0.001	-
	mg/L	10/27/1995	0001	0.001			#	0.001	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/20/1997	0002	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00041	B	U	#	-	-
	mg/L	06/30/1999	0002	0.00041	B	U	#	-	-
	mg/L	11/09/1999	0001	0.00084	B	U	#	-	-
	mg/L	11/09/1999	0002	0.00086	B	U	#	-	-
	mg/L	06/26/2000	0001	0.0007	B		#	0.0001	-
	mg/L	11/28/2000	0001	0.0012			#	0.0001	-
	mg/L	03/29/2001	0001	0.001			#	0.0001	-
	mg/L	06/07/2001	0001	0.00059	B	U	#	0.0001	-
	mg/L	08/28/2001	0001	0.00087	B		#	0.0001	-
	mg/L	08/28/2001	N001	0.001	B		#	0.00011	-
Uranium-234	pCi/L	03/29/2001	0001	0.69	B*	UJ	#	0.4	-
Uranium-238	pCi/L	03/29/2001	0001	0.47	B		#	0.1	-
Vanadium	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/20/1997	0002	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00060	U		#	0.0006	-
	mg/L	06/30/1999	0002	0.00060	U		#	0.0006	-
	mg/L	11/09/1999	0001	0.0010	B		#	-	-
	mg/L	11/09/1999	0002	0.0010	U		#	0.001	-
	mg/L	06/26/2000	0001	0.0013	U		#	0.0013	-
	mg/L	11/28/2000	0001	0.0017	B		#	0.0015	-
	mg/L	03/29/2001	0001	0.0004	U		#	0.0004	-
	mg/L	06/07/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/28/2001	0001	0.00043	B	U	#	0.0003	-
	mg/L	08/28/2001	N001	0.0013	B	U	#	0.00033	-
Zinc	mg/L	11/10/1993	0001	0.051		J	#	0.005	-
	mg/L	11/10/1993	N001	0.116		J	#	0.005	-
	mg/L	06/26/2000	0001	0.0543			#	0.0127	-
	mg/L	11/28/2000	0001	0.0788			#	0.0102	-
	mg/L	03/29/2001	0001	0.046	B		#	0.0095	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0652 SURFACE WATER AND SED.
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Zinc	mg/L	06/07/2001	0001	0.0541			#	0.0073	-
	mg/L	08/28/2001	0001	0.0346	B		#	0.0073	-
	mg/L	08/28/2001	N001	0.0576			#	0.00811	-

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0690
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	04/03/1987	N001	147			#	-	-
	mg/L	09/10/1987	N001	123			#	-	-
	mg/L	11/17/1987	N001	128			#	-	-
	mg/L	04/04/1988	N001	122			#	-	-
	mg/L	07/01/1988	N001	43			#	-	-
	mg/L	10/07/1988	N001	113			#	-	-
	mg/L	01/08/1989	N001	108			#	-	-
	mg/L	04/01/1989	N001	117			#	-	-
	mg/L	04/01/1989	N002	117			#	-	-
	mg/L	04/01/1989	N003	117			#	-	-
	mg/L	04/01/1989	N004	117			#	-	-
	mg/L	04/01/1989	N005	117			#	-	-
	mg/L	07/15/1989	N001	179			#	-	-
	mg/L	11/16/1989	N001	205			#	-	-
	mg/L	05/11/1990	N001	138			#	-	-
	mg/L	07/14/1990	N001	200			#	-	-
	mg/L	06/26/2000	0001	189			#	-	-
	mg/L	06/26/2000	N001	198			#	-	-
	mg/L	11/30/2000	0001	195			#	-	-
	mg/L	11/30/2000	N001	202			#	-	-
	mg/L	04/05/2001	0001	121			#	-	-
	mg/L	04/05/2001	N001	119			#	-	-
	mg/L	08/28/2001	0001	175			#	-	-
	mg/L	08/28/2001	N001	180			#	-	-
Ammonium	mg/L	04/01/1989	0001	0.1	U		#	0.1	-
	mg/L	04/01/1989	0002	0.1	U		#	0.1	-
	mg/L	04/01/1989	0003	0.1	U		#	0.1	-
	mg/L	04/01/1989	0004	0.1	U		#	0.1	-
	mg/L	04/01/1989	0005	0.1	U		#	0.1	-
	mg/L	05/11/1990	0001	0.1	U		#	0.1	-
	mg/L	07/14/1990	0001	0.2			#	0.1	-
	mg/L	06/26/2000	0001	0.122			#	0.0047	-
	mg/L	06/26/2000	0002	0.0809	B		#	0.0047	-
	mg/L	11/30/2000	0001	0.0053	B		#	0.0047	-
	mg/L	04/05/2001	0001	0.0062	U		#	0.0062	-
	mg/L	08/28/2001	0001	0.0139	B		#	0.0062	-

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Ammonium	mg/L	08/28/2001	N001	0.0139	B		#	0.0062	-
Antimony	mg/L	07/15/1989	0001	0.003	U		#	0.003	-
	mg/L	11/16/1989	0001	0.003	U		#	0.003	-
	mg/L	05/11/1990	0001	0.003	U		#	0.003	-
	mg/L	07/14/1990	0001	0.01	UI		#	0.01	-
	mg/L	06/26/2000	0001	0.0002	U	U	#	0.0002	-
	mg/L	06/26/2000	0002	0.0002	U	U	#	0.0002	-
	mg/L	11/30/2000	0001	0.0003	U		#	0.0003	-
	mg/L	04/05/2001	0001	0.001	B	U	#	0.0003	-
	mg/L	08/28/2001	0001	0.00029	B	U	#	0.0002	-
	mg/L	08/28/2001	N001	0.00098	B	U	#	0.00022	-
Arsenic	mg/L	04/03/1987	0001	0.001	U	J	#	0.01	-
	mg/L	09/10/1987	0001	0.001	U	J	#	0.01	-
	mg/L	11/17/1987	0001	0.001	U	J	#	0.01	-
	mg/L	04/04/1988	0001	0.001	U	J	#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.01	U		#	0.01	-
	mg/L	01/08/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0002	0.01	U		#	0.01	-
	mg/L	04/01/1989	0003	0.01	U		#	0.01	-
	mg/L	04/01/1989	0004	0.01	U		#	0.01	-
	mg/L	04/01/1989	0005	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/14/1990	0001	0.03	U		#	0.03	-
	mg/L	11/10/1993	0001	0.005	UW		#	0.005	-
	mg/L	11/10/1993	N001	0.005	UW		#	0.005	-
	mg/L	06/26/2000	0001	0.0003	U		#	0.0003	-
	mg/L	06/26/2000	0002	0.0003	U		#	0.0003	-
	mg/L	11/30/2000	0001	0.0002	U		#	0.0002	-
	mg/L	04/05/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/28/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/28/2001	N001	0.00056	U		#	0.00056	-
Barium	mg/L	04/04/1988	0001	0.07		J	#	0.1	-

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Barium	mg/L	07/01/1988	0001	0.1	U		#	0.1	-
	mg/L	10/07/1988	0001	0.1	U		#	0.1	-
	mg/L	01/08/1989	0001	0.05		J	#	0.1	-
	mg/L	04/01/1989	0001	0.1	U		#	0.1	-
	mg/L	04/01/1989	0002	0.1	U		#	0.1	-
	mg/L	04/01/1989	0003	0.1	U		#	0.1	-
	mg/L	04/01/1989	0004	0.1	U		#	0.1	-
	mg/L	04/01/1989	0005	0.1	U		#	0.1	-
	mg/L	07/15/1989	0001	0.1	U		#	0.1	-
	mg/L	11/16/1989	0001	0.1	U		#	0.1	-
	mg/L	05/11/1990	0001	0.1	U		#	0.1	-
	mg/L	07/14/1990	0001	0.06			#	0.01	-
Beryllium	mg/L	01/08/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0002	0.01	U		#	0.01	-
	mg/L	04/01/1989	0003	0.01	U		#	0.01	-
	mg/L	04/01/1989	0004	0.01	U		#	0.01	-
	mg/L	04/01/1989	0005	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/14/1990	0001	0.005	U		#	0.005	-
Cadmium	mg/L	04/03/1987	0001	0.001	U		#	0.001	-
	mg/L	09/10/1987	0001	0.005	U		#	0.005	-
	mg/L	11/17/1987	0001	0.005	U		#	0.005	-
	mg/L	04/04/1988	0001	0.001	U		#	0.001	-
	mg/L	07/01/1988	0001	0.001	U		#	0.001	-
	mg/L	10/07/1988	0001	0.001	U		#	0.001	-
	mg/L	01/08/1989	0001	0.003			#	0.001	-
	mg/L	04/01/1989	0001	0.001	U		#	0.001	-
	mg/L	04/01/1989	0002	0.001	U		#	0.001	-
	mg/L	04/01/1989	0003	0.001	U		#	0.001	-
	mg/L	04/01/1989	0004	0.001	U		#	0.001	-
	mg/L	04/01/1989	0005	0.001	U		#	0.001	-
	mg/L	07/15/1989	0001	0.001	U		#	0.001	-
	mg/L	11/16/1989	0001	0.003			#	0.001	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Cadmium	mg/L	05/11/1990	0001	0.001	U		#	0.001	-
	mg/L	07/14/1990	0001	0.001	U		#	0.001	-
	mg/L	11/10/1993	0001	0.001	U		#	0.001	-
	mg/L	11/10/1993	N001	0.001	U		#	0.001	-
	mg/L	06/26/2000	0001	0.00038	B	U	#	0.0002	-
	mg/L	06/26/2000	0002	0.00029	B	U	#	0.0002	-
	mg/L	11/30/2000	0001	0.0002	U		#	0.0002	-
	mg/L	04/05/2001	0001	0.0002	U		#	0.0002	-
	mg/L	08/28/2001	0001	0.00075	B	U	#	0.0003	-
	mg/L	08/28/2001	N001	0.00033	U		#	0.00033	-
Calcium	mg/L	04/03/1987	0001	82.4			#	0.01	-
	mg/L	09/10/1987	0001	59.6			#	0.01	-
	mg/L	11/17/1987	0001	89.7			#	0.01	-
	mg/L	04/04/1988	0001	77.5			#	0.01	-
	mg/L	07/01/1988	0001	29			#	0.01	-
	mg/L	10/07/1988	0001	71.6			#	0.01	-
	mg/L	01/08/1989	0001	76.1			#	0.01	-
	mg/L	04/01/1989	0001	62.0			#	0.01	-
	mg/L	04/01/1989	0002	61.4			#	0.01	-
	mg/L	04/01/1989	0003	62.5			#	0.01	-
	mg/L	04/01/1989	0004	61.5			#	0.01	-
	mg/L	04/01/1989	0005	62.6			#	0.01	-
	mg/L	07/15/1989	0001	79.6			#	0.01	-
	mg/L	11/16/1989	0001	93.8			#	0.01	-
	mg/L	05/11/1990	0001	48.2			#	0.01	-
	mg/L	07/14/1990	0001	64.6			#	0.01	-
	mg/L	11/10/1993	0001	91.0			#	1	-
	mg/L	11/10/1993	N001	89.9			#	1	-
	mg/L	06/26/2000	0001	73.300			#	0.0504	-
	mg/L	06/26/2000	0002	73.400			#	0.0504	-
	mg/L	11/30/2000	0001	78.300			#	0.032	-
	mg/L	04/05/2001	0001	44.100			#	0.0642	-
	mg/L	08/28/2001	0001	69.400			#	0.0814	-
	mg/L	08/28/2001	N001	75.000			#	0.09044	-
Chemical Oxygen Demand	mg/L	04/01/1989	0001	4		J	#	5	-
	mg/L	04/01/1989	0002	6			#	5	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chemical Oxygen Demand	mg/L	04/01/1989	0003	20			#	5	-
	mg/L	04/01/1989	0004	36			#	5	-
	mg/L	04/01/1989	0005	4		J	#	5	-
Chloride	mg/L	04/03/1987	0001	8.0			#	1	-
	mg/L	09/10/1987	0001	17			#	1	-
	mg/L	11/17/1987	0001	22.2			#	1	-
	mg/L	04/04/1988	0001	17			#	1	-
	mg/L	07/01/1988	0001	4.1			#	1	-
	mg/L	10/07/1988	0001	21			#	1	-
	mg/L	01/08/1989	0001	17.9			#	1	-
	mg/L	04/01/1989	0001	6.9			#	1	-
	mg/L	04/01/1989	0002	6.9			#	1	-
	mg/L	04/01/1989	0003	5.6			#	1	-
	mg/L	04/01/1989	0004	5.6			#	1	-
	mg/L	04/01/1989	0005	5.6			#	1	-
	mg/L	07/15/1989	0001	16			#	1	-
	mg/L	11/16/1989	0001	15			#	1	-
	mg/L	05/11/1990	0001	0.1	U	J	#	1	-
	mg/L	07/14/1990	0001	3.5			#	1	-
	mg/L	06/26/2000	0001	7.520			#	0.024	-
	mg/L	06/26/2000	0002	7.540			#	0.024	-
	mg/L	11/30/2000	0001	8.600			#	0.024	-
	mg/L	04/05/2001	0001	4.450			#	0.0149	-
	mg/L	08/28/2001	0001	13.000			#	0.0149	-
	mg/L	08/28/2001	N001	12.600			#	0.0149	-
Chromium	mg/L	04/04/1988	0001	0.03			#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.03			#	0.01	-
	mg/L	01/08/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0002	0.01	U		#	0.01	-
	mg/L	04/01/1989	0003	0.01	U		#	0.01	-
	mg/L	04/01/1989	0004	0.01	U		#	0.01	-
	mg/L	04/01/1989	0005	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-

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Chromium	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/14/1990	0001	0.01	U		#	0.01	-
	mg/L	06/26/2000	0001	0.0035	U		#	0.0035	-
	mg/L	06/26/2000	0002	0.0035	U		#	0.0035	-
	mg/L	11/30/2000	0001	0.0059	U		#	0.0059	-
	mg/L	04/05/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/28/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/28/2001	N001	0.00089	U		#	0.00089	-
Cobalt	mg/L	04/01/1989	0001	0.05	U		#	0.05	-
	mg/L	04/01/1989	0002	0.05	U		#	0.05	-
	mg/L	04/01/1989	0003	0.05	U		#	0.05	-
	mg/L	04/01/1989	0004	0.05	U		#	0.05	-
	mg/L	04/01/1989	0005	0.05	U		#	0.05	-
	mg/L	07/15/1989	0001	0.05	U		#	0.05	-
	mg/L	11/16/1989	0001	0.05	U		#	0.05	-
	mg/L	05/11/1990	0001	0.05	U		#	0.05	-
	mg/L	07/14/1990	0001	0.03	U		#	0.03	-
Copper	mg/L	04/04/1988	0001	0.01	U	J	#	0.02	-
	mg/L	07/01/1988	0001	0.02	U		#	0.02	-
	mg/L	10/07/1988	0001	0.02	U		#	0.02	-
	mg/L	01/08/1989	0001	0.02	U		#	0.02	-
	mg/L	04/01/1989	0001	0.02	U		#	0.02	-
	mg/L	04/01/1989	0002	0.02	U		#	0.02	-
	mg/L	04/01/1989	0003	0.02	U		#	0.02	-
	mg/L	04/01/1989	0004	0.02	U		#	0.02	-
	mg/L	04/01/1989	0005	0.02	U		#	0.02	-
	mg/L	07/15/1989	0001	0.02	U		#	0.02	-
	mg/L	11/16/1989	0001	0.02	U		#	0.02	-
	mg/L	05/11/1990	0001	0.02	U		#	0.02	-
	mg/L	07/14/1990	0001	0.01	U		#	0.01	-
	mg/L	06/26/2000	0001	0.004	U		#	0.004	-
	mg/L	06/26/2000	0002	0.004	U		#	0.004	-
	mg/L	11/30/2000	0001	0.0025	U		#	0.0025	-
	mg/L	04/05/2001	0001	0.0034	U		#	0.0034	-
	mg/L	08/28/2001	0001	0.0013	B	U	#	0.0003	-
	mg/L	08/28/2001	N001	0.0021	B	U	#	0.00033	-

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Fluoride	mg/L	04/04/1988	0001	0.32			#	0.1	-
	mg/L	07/01/1988	0001	0.2			#	0.1	-
	mg/L	10/07/1988	0001	0.4			#	0.1	-
	mg/L	01/08/1989	0001	0.4			#	0.1	-
	mg/L	04/01/1989	0001	0.3			#	0.1	-
	mg/L	04/01/1989	0002	0.3			#	0.1	-
	mg/L	04/01/1989	0003	0.3			#	0.1	-
	mg/L	04/01/1989	0004	0.2			#	0.1	-
	mg/L	04/01/1989	0005	0.2			#	0.1	-
	mg/L	07/15/1989	0001	0.4			#	0.1	-
	mg/L	11/16/1989	0001	0.2			#	0.1	-
	mg/L	05/11/1990	0001	0.1			#	0.1	-
	mg/L	07/14/1990	0001	0.3			#	0.1	-
Gross Alpha	pCi/L	04/04/1988	0001	3.0			#	0.2	± 3.20
	pCi/L	07/01/1988	0001	0.0			#	0.2	± 0.10
	pCi/L	10/07/1988	0001	2.3			#	0.2	± 2.50
	pCi/L	01/08/1989	0001	0.0			#	0.2	± 2.20
	pCi/L	04/01/1989	0001	0.5			#	0.2	± 2.00
	pCi/L	04/01/1989	0002	1.0			#	0.2	± 2.10
	pCi/L	04/01/1989	0003	1.0			#	0.2	± 2.10
	pCi/L	04/01/1989	0004	3.4			#	0.2	± 2.30
	pCi/L	04/01/1989	0005	0.0			#	0.2	± 1.90
	pCi/L	07/15/1989	0001	4.8			#	1	± 3.50
	pCi/L	11/16/1989	0001	4.0			#	1	± 3.50
	pCi/L	05/11/1990	0001	0.7			#	1	± 1.40
	pCi/L	07/14/1990	0001	0.0			#	1	± 2.60
	pCi/L	06/26/2000	0001	2.91	U		#	2.91	± 1.63
	pCi/L	06/26/2000	0002	3.29			#	2.98	± 2.18
	pCi/L	11/30/2000	0001	3.92	U	J	#	3.92	± 2.05
	pCi/L	04/05/2001	0001	4.11	U	J	#	4.11	± 2.26
	pCi/L	08/28/2001	0001	3.98	U	J	#	3.98	± 1.90
	pCi/L	08/28/2001	N001	4.13	U	J	#	4.13	± 2.29
Gross Beta	pCi/L	04/04/1988	0001	2.3			#	1	± 1.60
	pCi/L	07/01/1988	0001	0.0			#	1	± 1.40
	pCi/L	10/07/1988	0001	5.2			#	1	± 1.40
	pCi/L	01/08/1989	0001	4.0			#	1	± 1.40

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Gross Beta	pCi/L	04/01/1989	0001	4.1			#	1	± 1.30
	pCi/L	04/01/1989	0002	3.4			#	1	± 1.30
	pCi/L	04/01/1989	0003	3.2			#	1	± 1.30
	pCi/L	04/01/1989	0004	4.1			#	1	± 1.30
	pCi/L	04/01/1989	0005	2.7			#	1	± 1.30
	pCi/L	07/15/1989	0001	4.6			#	0.5	± 1.80
	pCi/L	11/16/1989	0001	5.6			#	0.5	± 2.10
	pCi/L	05/11/1990	0001	2.9			#	0.5	± 1.50
	pCi/L	07/14/1990	0001	1.5			#	0.5	± 1.70
	pCi/L	06/26/2000	0001	3.21	U		#	3.21	± 1.94
	pCi/L	06/26/2000	0002	3.23	U		#	3.23	± 2.00
	pCi/L	11/30/2000	0001	3.91	U		#	3.91	± 2.41
	pCi/L	04/05/2001	0001	5.83	U		#	5.83	± 3.37
	pCi/L	08/28/2001	0001	3.96	U		#	3.96	± 2.26
	pCi/L	08/28/2001	N001	3.98	U		#	3.98	± 2.39
Iron	mg/L	04/03/1987	0001	0.03			#	0.03	-
	mg/L	09/10/1987	0001	0.01	U	J	#	0.03	-
	mg/L	11/17/1987	0001	0.03			#	0.03	-
	mg/L	04/04/1988	0001	0.03			#	0.03	-
	mg/L	07/01/1988	0001	0.03			#	0.03	-
	mg/L	10/07/1988	0001	0.03	U		#	0.03	-
	mg/L	01/08/1989	0001	0.03	U		#	0.03	-
	mg/L	04/01/1989	0001	0.03	U		#	0.03	-
	mg/L	04/01/1989	0002	0.03	U		#	0.03	-
	mg/L	04/01/1989	0003	0.03	U		#	0.03	-
	mg/L	04/01/1989	0004	0.03	U		#	0.03	-
	mg/L	04/01/1989	0005	0.03			#	0.03	-
	mg/L	07/15/1989	0001	0.03			#	0.03	-
	mg/L	11/16/1989	0001	0.04			#	0.03	-
	mg/L	05/11/1990	0001	0.03	U		#	0.03	-
	mg/L	07/14/1990	0001	0.03	U		#	0.03	-
	mg/L	11/10/1993	0001	0.03	U		#	0.03	-
	mg/L	11/10/1993	N001	0.10			#	0.03	-
	mg/L	06/26/2000	0001	0.0091	U		#	0.0091	-
	mg/L	06/26/2000	0002	0.0105	B		#	0.0091	-
	mg/L	11/30/2000	0001	0.011	U		#	0.011	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Iron	mg/L	04/05/2001	0001	0.0233	B		#	0.001	-
	mg/L	08/28/2001	0001	0.0068	B	U	#	0.0008	-
	mg/L	08/28/2001	N001	1.170	*	J	#	0.00089	-
Lead	mg/L	04/04/1988	0001	0.01	U		#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.01	U		#	0.01	-
	mg/L	01/08/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0002	0.01	U		#	0.01	-
	mg/L	04/01/1989	0003	0.01	U		#	0.01	-
	mg/L	04/01/1989	0004	0.01	U		#	0.01	-
	mg/L	04/01/1989	0005	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/14/1990	0001	0.01	U		#	0.01	-
	mg/L	11/10/1993	0001	0.003	UW		#	0.003	-
	mg/L	11/10/1993	N001	0.003	UW		#	0.003	-
	mg/L	06/26/2000	0001	0.0001	U		#	0.0001	-
	mg/L	06/26/2000	0002	0.0001	U		#	0.0001	-
	mg/L	11/30/2000	0001	0.0001	U		#	0.0001	-
	mg/L	04/05/2001	0001	0.00021	B	U	#	0.0001	-
	mg/L	08/28/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/28/2001	N001	0.0021	B	U	#	0.00011	-
Lead-210	pCi/L	06/26/2000	0001	1.19	U		#	1.19	± 0.69
	pCi/L	06/26/2000	0002	1.20	U		#	1.2	± 0.69
	pCi/L	11/30/2000	0001	1.13	U		#	1.13	± 0.66
	pCi/L	04/05/2001	0001	1.19	U		#	1.19	± 0.69
	pCi/L	08/28/2001	0001	1.3	U		#	1.3	± 0.75
	pCi/L	08/28/2001	N001	1.33	U		#	1.33	± 0.76
Magnesium	mg/L	04/03/1987	0001	12.9			#	0.001	-
	mg/L	09/10/1987	0001	11.7			#	0.001	-
	mg/L	11/17/1987	0001	12.2			#	0.001	-
	mg/L	04/04/1988	0001	11.7			#	0.001	-
	mg/L	07/01/1988	0001	3.79			#	0.001	-
	mg/L	10/07/1988	0001	11.0			#	0.001	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Magnesium	mg/L	01/08/1989	0001	10.3			#	0.001	-
	mg/L	04/01/1989	0001	9.89			#	0.001	-
	mg/L	04/01/1989	0002	9.79			#	0.001	-
	mg/L	04/01/1989	0003	9.95			#	0.001	-
	mg/L	04/01/1989	0004	9.90			#	0.001	-
	mg/L	04/01/1989	0005	9.99			#	0.001	-
	mg/L	07/15/1989	0001	26.9			#	0.001	-
	mg/L	11/16/1989	0001	30.0			#	0.001	-
	mg/L	05/11/1990	0001	11.4			#	0.001	-
	mg/L	07/14/1990	0001	19.3			#	0.001	-
	mg/L	11/10/1993	0001	19.6			#	0.1	-
	mg/L	11/10/1993	N001	21.0			#	0.1	-
	mg/L	06/26/2000	0001	27.100			#	0.024	-
	mg/L	06/26/2000	0002	27.300			#	0.024	-
	mg/L	11/30/2000	0001	25.300			#	0.0471	-
	mg/L	04/05/2001	0001	15.800			#	0.0031	-
	mg/L	08/28/2001	0001	21.000			#	0.0034	-
	mg/L	08/28/2001	N001	21.400			#	0.00378	-
Manganese	mg/L	04/03/1987	0001	0.12			#	0.01	-
	mg/L	09/10/1987	0001	0.08			#	0.01	-
	mg/L	11/17/1987	0001	0.20			#	0.01	-
	mg/L	04/04/1988	0001	0.11			#	0.01	-
	mg/L	07/01/1988	0001	0.05			#	0.01	-
	mg/L	10/07/1988	0001	0.11			#	0.01	-
	mg/L	01/08/1989	0001	0.12			#	0.01	-
	mg/L	04/01/1989	0001	0.06			#	0.01	-
	mg/L	04/01/1989	0002	0.06			#	0.01	-
	mg/L	04/01/1989	0003	0.06			#	0.01	-
	mg/L	04/01/1989	0004	0.06			#	0.01	-
	mg/L	04/01/1989	0005	0.06			#	0.01	-
	mg/L	07/15/1989	0001	0.03			#	0.01	-
	mg/L	11/16/1989	0001	0.04			#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/14/1990	0001	0.01	U		#	0.01	-
	mg/L	11/10/1993	0001	0.07			#	0.01	-
	mg/L	11/10/1993	N001	0.08			#	0.01	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	06/26/2000	0001	0.002	B		#	0.0015	-
	mg/L	06/26/2000	0002	0.0022	B		#	0.0015	-
	mg/L	11/30/2000	0001	0.0261			#	0.003	-
	mg/L	04/05/2001	0001	0.0063	B		#	0.0001	-
	mg/L	08/28/2001	0001	0.0266			#	0.0001	-
	mg/L	08/28/2001	N001	0.0444			#	0.00011	-
Mercury	mg/L	04/03/1987	0001	0.0002	U		#	0.0002	-
	mg/L	09/10/1987	0001	0.0002	U		#	0.0002	-
	mg/L	11/17/1987	0001	0.0002	U		#	0.0002	-
	mg/L	04/04/1988	0001	0.0008			#	0.0002	-
	mg/L	07/01/1988	0001	0.0002	U		#	0.0002	-
	mg/L	10/07/1988	0001	0.0002	U		#	0.0002	-
	mg/L	01/08/1989	0001	0.0002	U		#	0.0002	-
	mg/L	04/01/1989	0001	0.0002			#	0.0002	-
	mg/L	04/01/1989	0002	0.0002			#	0.0002	-
	mg/L	04/01/1989	0003	0.0002			#	0.0002	-
	mg/L	04/01/1989	0004	0.0002	U		#	0.0002	-
	mg/L	04/01/1989	0005	0.0002			#	0.0002	-
	mg/L	11/16/1989	0001	0.0002	U		#	0.0002	-
	mg/L	05/11/1990	0001	0.0002	U		#	0.0002	-
	mg/L	07/14/1990	0001	0.0002	U		#	0.0002	-
	mg/L	11/10/1993	0001	0.0002	U		#	0.0002	-
	mg/L	11/10/1993	N001	0.0002	U*		#	0.0002	-
Molybdenum	mg/L	04/03/1987	0001	0.1	U		#	0.1	-
	mg/L	09/10/1987	0001	0.01	U		#	0.01	-
	mg/L	11/17/1987	0001	0.02			#	0.01	-
	mg/L	04/04/1988	0001	0.01	U		#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.01	U		#	0.01	-
	mg/L	01/08/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0002	0.01	U		#	0.01	-
	mg/L	04/01/1989	0003	0.01	U		#	0.01	-
	mg/L	04/01/1989	0004	0.01	U		#	0.01	-
	mg/L	04/01/1989	0005	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	05/11/1990	0001	0.02			#	0.01	-
	mg/L	07/14/1990	0001	0.01	U		#	0.01	-
	mg/L	11/10/1993	0001	0.01	U		#	0.01	-
	mg/L	11/10/1993	N001	0.01	U		#	0.01	-
	mg/L	06/26/2000	0001	0.00088	B		#	0.0008	-
	mg/L	06/26/2000	0002	0.00088	B		#	0.0008	-
	mg/L	11/30/2000	0001	0.0012	B		#	0.0003	-
	mg/L	04/05/2001	0001	0.0013	B	U	#	0.0004	-
	mg/L	08/28/2001	0001	0.003	U		#	0.003	-
	mg/L	08/28/2001	N001	0.0033	U		#	0.00333	-
Nickel	mg/L	04/01/1989	0001	0.04	U		#	0.04	-
	mg/L	04/01/1989	0002	0.04	U		#	0.04	-
	mg/L	04/01/1989	0003	0.04	U		#	0.04	-
	mg/L	04/01/1989	0004	0.04	U		#	0.04	-
	mg/L	04/01/1989	0005	0.04	U		#	0.04	-
	mg/L	07/15/1989	0001	0.04	U		#	0.04	-
	mg/L	11/16/1989	0001	0.03	U	J	#	0.04	-
	mg/L	05/11/1990	0001	0.04	U		#	0.04	-
	mg/L	07/14/1990	0001	0.04	U		#	0.04	-
Nitrate + Nitrite as Nitrogen	mg/L	05/11/1990	0001	1	U		#	1	-
	mg/L	07/14/1990	0001	0.32		J	#	1	-
Nitrate as NO3	mg/L	04/04/1988	0001	0.2		J	#	1	-
	mg/L	07/01/1988	0001	8.3			#	1	-
	mg/L	10/07/1988	0001	1.4			#	1	-
	mg/L	01/08/1989	0001	1.2			#	1	-
	mg/L	04/01/1989	0001	2.3			#	1	-
	mg/L	04/01/1989	0002	2.3			#	1	-
	mg/L	04/01/1989	0003	2.5			#	1	-
	mg/L	04/01/1989	0004	3.1			#	1	-
	mg/L	04/01/1989	0005	2.9			#	1	-
	mg/L	07/15/1989	0001	5.3			#	1	-
	mg/L	11/16/1989	0001	1	U		#	1	-
	mg/L	05/11/1990	0001	1	U		#	1	-
	mg/L	07/14/1990	0001	1.3			#	1	-
	mg/L	11/10/1993	0001	11.0		J	#	1	-
	mg/L	11/10/1993	N001	11.4		J	#	1	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nitrate as NO3	mg/L	06/26/2000	0001	0.638	B		#	0.0314	-
	mg/L	06/26/2000	0002	0.935	B		#	0.0314	-
	mg/L	11/30/2000	0001	1.240			#	0.0314	-
	mg/L	04/05/2001	0001	1.160			#	0.0171	-
	mg/L	08/28/2001	0001	0.588	B		#	0.0305	-
	mg/L	08/28/2001	N001	0.590	B		#	0.0305	-
Nitrite	mg/L	05/11/1990	0001	1	U		#	1	-
ORP of Zobell Solution	mV	06/26/2000	N001	220			#	-	-
	mV	11/30/2000	N001	248			#	-	-
	mV	08/28/2001	N001	225			#	-	-
Oxidation Reduction Potent	mV	07/14/1990	N001	411.6			#	-	-
	mV	06/26/2000	N001	50			#	-	-
	mV	11/30/2000	N001	103			#	-	-
	mV	04/05/2001	N001	20			#	-	-
	mV	08/28/2001	N001	110			#	-	-
pH	s.u.	04/03/1987	N001	8.06			#	-	-
	s.u.	09/10/1987	N001	7.9			#	-	-
	s.u.	11/17/1987	N001	7.3			#	-	-
	s.u.	04/04/1988	N001	7.47			#	-	-
	s.u.	07/01/1988	N001	6.73			#	-	-
	s.u.	10/07/1988	N001	7.99			#	-	-
	s.u.	01/08/1989	N001	7.67			#	-	-
	s.u.	04/01/1989	N001	7.97			#	-	-
	s.u.	04/01/1989	N002	7.97			#	-	-
	s.u.	04/01/1989	N003	7.97			#	-	-
	s.u.	04/01/1989	N004	7.97			#	-	-
	s.u.	04/01/1989	N005	7.97			#	-	-
	s.u.	07/15/1989	N001	8.26			#	-	-
	s.u.	11/16/1989	N001	7.37			#	-	-
	s.u.	05/11/1990	N001	8.46			#	-	-
	s.u.	07/14/1990	N001	8.13			#	-	-
	s.u.	06/26/2000	N001	8.26			#	-	-
	s.u.	11/30/2000	N001	8.17			#	-	-
	s.u.	04/05/2001	N001	8.45			#	-	-
	s.u.	08/28/2001	N001	7.93			#	-	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Polonium-210	pCi/L	06/26/2000	0001	0.04	U		#	0.04	± 0.06
	pCi/L	06/26/2000	0002	0.06	U		#	0.06	± 0.08
	pCi/L	11/30/2000	0001	0.08		U	#	0.07	± 0.09
	pCi/L	04/05/2001	0001	0.07	U		#	0.07	± 0.04
	pCi/L	08/28/2001	0001	0.1	U		#	0.1	± 0.05
	pCi/L	08/28/2001	N001	0.2			#	0.06	± 0.05
Potassium	mg/L	04/03/1987	0001	2.70			#	0.01	-
	mg/L	09/10/1987	0001	2.60			#	0.01	-
	mg/L	11/17/1987	0001	4.29			#	0.01	-
	mg/L	04/04/1988	0001	2.82			#	0.01	-
	mg/L	07/01/1988	0001	0.90			#	0.01	-
	mg/L	10/07/1988	0001	3.5			#	0.01	-
	mg/L	01/08/1989	0001	2.9			#	0.01	-
	mg/L	04/01/1989	0001	1.84			#	0.01	-
	mg/L	04/01/1989	0002	1.84			#	0.01	-
	mg/L	04/01/1989	0003	2.05			#	0.01	-
	mg/L	04/01/1989	0004	1.96			#	0.01	-
	mg/L	04/01/1989	0005	2.00			#	0.01	-
	mg/L	07/15/1989	0001	3.3			#	0.01	-
	mg/L	11/16/1989	0001	2.88			#	0.01	-
	mg/L	05/11/1990	0001	1.4			#	0.01	-
	mg/L	07/14/1990	0001	1.99			#	0.01	-
	mg/L	06/26/2000	0001	1.970			#	0.0456	-
	mg/L	06/26/2000	0002	1.960			#	0.0456	-
	mg/L	11/30/2000	0001	2.020			#	0.0359	-
	mg/L	04/05/2001	0001	1.760			#	0.0091	-
	mg/L	08/28/2001	0001	2.300			#	0.0088	-
	mg/L	08/28/2001	N001	2.640			#	0.00978	-
Radium-226	pCi/L	04/03/1987	0001	0.1			#	1	± 0.20
	pCi/L	09/10/1987	0001	0.0			#	1	± 0.10
	pCi/L	11/17/1987	0001	0.0			#	1	± 0.10
	pCi/L	04/04/1988	0001	0.0			#	1	± 0.10
	pCi/L	07/01/1988	0001	0.0			#	1	± 0.10
	pCi/L	10/07/1988	0001	0.1			#	1	± 0.10
	pCi/L	01/08/1989	0001	0.8			#	1	± 0.30
	pCi/L	04/01/1989	0001	0.0			#	1	± 0.10

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Radium-226	pCi/L	04/01/1989	0002	0.0			#	1	± 0.10
	pCi/L	04/01/1989	0003	0.0			#	1	± 0.10
	pCi/L	04/01/1989	0004	0.0			#	1	± 0.10
	pCi/L	04/01/1989	0005	0.0			#	1	± 0.10
	pCi/L	07/15/1989	0001	0.0			#	1	± 0.10
	pCi/L	11/16/1989	0001	0.4			#	1	± 0.20
	pCi/L	05/11/1990	0001	0.1			#	1	± 0.20
	pCi/L	07/14/1990	0001	0.1			#	1	± 0.20
	pCi/L	06/26/2000	0001	0.13	U		#	0.13	± 0.08
	pCi/L	06/26/2000	0002	0.13	U		#	0.13	± 0.08
	pCi/L	11/30/2000	0001	0.13	U		#	0.13	± 0.08
	pCi/L	04/05/2001	0001	0.13	U		#	0.13	± 0.09
	pCi/L	08/28/2001	0001	0.13			#	0.1	± 0.07
	pCi/L	08/28/2001	N001	0.28			#	0.11	± 0.08
Radium-228	pCi/L	09/10/1987	0001	1.1			#	1	± 1.40
	pCi/L	11/17/1987	0001	0.0			#	1	± 2.20
	pCi/L	04/04/1988	0001	0.0			#	1	± 0.60
	pCi/L	07/01/1988	0001	1.0			#	1	± 1.10
	pCi/L	10/07/1988	0001	0.3			#	1	± 0.80
	pCi/L	01/08/1989	0001	0.7			#	1	± 0.70
	pCi/L	04/01/1989	0001	0.4			#	1	± 0.90
	pCi/L	04/01/1989	0002	0.0			#	1	± 0.80
	pCi/L	04/01/1989	0003	0.4			#	1	± 0.80
	pCi/L	04/01/1989	0004	0.4			#	1	± 0.80
	pCi/L	04/01/1989	0005	0.0			#	1	± 0.80
	pCi/L	07/15/1989	0001	0.4			#	1	± 0.80
	pCi/L	11/16/1989	0001	0.0			#	1	± 0.70
	pCi/L	05/11/1990	0001	0.2			#	1	± 0.80
	pCi/L	07/14/1990	0001	1.7			#	1	± 2.10
	pCi/L	06/26/2000	0001	0.73	U		#	0.73	± 0.42
	pCi/L	06/26/2000	0002	0.74	U		#	0.74	± 0.43
	pCi/L	11/30/2000	0001	0.70	U		#	0.7	± 0.41
	pCi/L	04/05/2001	0001	0.93	U		#	0.93	± 0.55
	pCi/L	08/28/2001	0001	0.94	U		#	0.94	± 0.55
	pCi/L	08/28/2001	N001	0.95	U		#	0.95	± 0.56
Selenium	mg/L	04/03/1987	0001	0.002	U	J	#	0.005	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0690
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	09/10/1987	0001	0.001	U	J	#	0.005	-
	mg/L	11/17/1987	0001	0.001		J	#	0.005	-
	mg/L	04/04/1988	0001	0.001	U	J	#	0.005	-
	mg/L	07/01/1988	0001	0.005	U		#	0.005	-
	mg/L	10/07/1988	0001	0.005	U		#	0.005	-
	mg/L	01/08/1989	0001	0.001	U	J	#	0.005	-
	mg/L	04/01/1989	0001	0.005	U		#	0.005	-
	mg/L	04/01/1989	0002	0.005	U		#	0.005	-
	mg/L	04/01/1989	0003	0.005	U		#	0.005	-
	mg/L	04/01/1989	0004	0.005	U		#	0.005	-
	mg/L	04/01/1989	0005	0.005	U		#	0.005	-
	mg/L	07/15/1989	0001	0.005	U		#	0.005	-
	mg/L	11/16/1989	0001	0.008			#	0.005	-
	mg/L	05/11/1990	0001	0.005	U		#	0.005	-
	mg/L	07/14/1990	0001	0.03	U		#	0.03	-
	mg/L	11/10/1993	0001	0.005	U		#	0.005	-
	mg/L	11/10/1993	N001	0.005	U		#	0.005	-
	mg/L	06/26/2000	0001	0.0015	U		#	0.0015	-
	mg/L	06/26/2000	0002	0.0015	U		#	0.0015	-
	mg/L	11/30/2000	0001	0.00062	B		#	0.0001	-
	mg/L	04/05/2001	0001	0.00041	B	U	#	0.0003	-
	mg/L	08/28/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/28/2001	N001	0.00033	U		#	0.00033	-
Silver	mg/L	04/03/1987	0001	0.01	U		#	0.01	-
	mg/L	09/10/1987	0001	0.01	U		#	0.01	-
	mg/L	11/17/1987	0001	0.01	U		#	0.01	-
	mg/L	04/04/1988	0001	0.01	U		#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.01	U		#	0.01	-
	mg/L	01/08/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0002	0.01	U		#	0.01	-
	mg/L	04/01/1989	0003	0.01	U		#	0.01	-
	mg/L	04/01/1989	0004	0.01	U		#	0.01	-
	mg/L	04/01/1989	0005	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0690
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Silver	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/14/1990	0001	0.01	U		#	0.01	-
Sodium	mg/L	04/03/1987	0001	14.5			#	0.002	-
	mg/L	09/10/1987	0001	17.9			#	0.002	-
	mg/L	11/17/1987	0001	18.0			#	0.002	-
	mg/L	04/04/1988	0001	16.3			#	0.002	-
	mg/L	07/01/1988	0001	4.3			#	0.002	-
	mg/L	10/07/1988	0001	18.2			#	0.002	-
	mg/L	01/08/1989	0001	16.1			#	0.002	-
	mg/L	04/01/1989	0001	9.01			#	0.002	-
	mg/L	04/01/1989	0002	8.89			#	0.002	-
	mg/L	04/01/1989	0003	9.00			#	0.002	-
	mg/L	04/01/1989	0004	9.00			#	0.002	-
	mg/L	04/01/1989	0005	9.07			#	0.002	-
	mg/L	07/15/1989	0001	21.8			#	0.002	-
	mg/L	11/16/1989	0001	25.7			#	0.002	-
	mg/L	05/11/1990	0001	6.35			#	0.002	-
	mg/L	07/14/1990	0001	14			#	0.002	-
	mg/L	06/26/2000	0001	17.500			#	0.434	-
	mg/L	06/26/2000	0002	17.600			#	0.434	-
	mg/L	11/30/2000	0001	18.200			#	0.525	-
	mg/L	04/05/2001	0001	11.300			#	0.0052	-
	mg/L	08/28/2001	0001	19.000			#	0.0085	-
	mg/L	08/28/2001	N001	17.600			#	0.00944	-
Specific Conductance	umhos/cm	04/03/1987	N001	290			#	-	-
	umhos/cm	09/10/1987	N001	360			#	-	-
	umhos/cm	11/17/1987	N001	363			#	-	-
	umhos/cm	04/04/1988	N001	327			#	-	-
	umhos/cm	07/01/1988	N001	140			#	-	-
	umhos/cm	10/07/1988	N001	340			#	-	-
	umhos/cm	01/08/1989	N001	240			#	-	-
	umhos/cm	04/01/1989	N001	220			#	-	-
	umhos/cm	04/01/1989	N002	220			#	-	-
	umhos/cm	04/01/1989	N003	220			#	-	-
	umhos/cm	04/01/1989	N004	220			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0690
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/cm	04/01/1989	N005	220			#	-	-
	umhos/cm	07/15/1989	N001	315			#	-	-
	umhos/cm	11/16/1989	N001	437			#	-	-
	umhos/cm	05/11/1990	N001	250			#	-	-
	umhos/cm	07/14/1990	N001	500			#	-	-
	umhos/cm	06/26/2000	N001	565			#	-	-
	umhos/cm	11/30/2000	N001	643			#	-	-
	umhos/cm	04/05/2001	N001	418			#	-	-
	umhos/cm	08/28/2001	N001	528			#	-	-
Sulfate	mg/L	04/03/1987	0001	127			#	0.1	-
	mg/L	09/10/1987	0001	119			#	0.1	-
	mg/L	11/17/1987	0001	151			#	0.1	-
	mg/L	04/04/1988	0001	111			#	0.1	-
	mg/L	07/01/1988	0001	44			#	0.1	-
	mg/L	10/07/1988	0001	124			#	0.1	-
	mg/L	01/08/1989	0001	128			#	0.1	-
	mg/L	04/01/1989	0001	75			#	0.1	-
	mg/L	04/01/1989	0002	76			#	0.1	-
	mg/L	04/01/1989	0003	74			#	0.1	-
	mg/L	04/01/1989	0004	77			#	0.1	-
	mg/L	04/01/1989	0005	74			#	0.1	-
	mg/L	07/15/1989	0001	138			#	0.1	-
	mg/L	11/16/1989	0001	177			#	0.1	-
	mg/L	05/11/1990	0001	38			#	0.1	-
	mg/L	07/14/1990	0001	102			#	0.1	-
	mg/L	11/10/1993	0001	153			#	1	-
	mg/L	11/10/1993	N001	149	I		#	1.1	-
	mg/L	06/26/2000	0001	111.000			#	0.0589	-
	mg/L	06/26/2000	0002	112.000			#	0.0589	-
	mg/L	11/30/2000	0001	123.000			#	0.0589	-
	mg/L	04/05/2001	0001	65.100			#	0.0253	-
	mg/L	08/28/2001	0001	133.000			#	0.0253	-
	mg/L	08/28/2001	N001	134.000			#	0.0253	-
Sulfide	mg/L	04/01/1989	0001	0.1	U		#	0.1	-
	mg/L	04/01/1989	0002	0.1	U		#	0.1	-
	mg/L	04/01/1989	0003	0.1	U		#	0.1	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0690
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfide	mg/L	04/01/1989	0004	0.1	U		#	0.1	-
	mg/L	04/01/1989	0005	0.1	U		#	0.1	-
	mg/L	07/15/1989	0001	0.1	U		#	0.1	-
	mg/L	11/16/1989	0001	0.1	U		#	0.1	-
	mg/L	05/11/1990	0001	0.1	U		#	0.1	-
	mg/L	07/14/1990	0001	0.7			#	0.1	-
Temperature	C	04/03/1987	N001	7.0			#	-	-
	C	09/10/1987	N001	14.0			#	-	-
	C	11/17/1987	N001	5.1			#	-	-
	C	04/04/1988	N001	7.3			#	-	-
	C	07/01/1988	N001	13.0			#	-	-
	C	10/07/1988	N001	12.0			#	-	-
	C	01/08/1989	N001	1.0			#	-	-
	C	04/01/1989	N001	8.0			#	-	-
	C	04/01/1989	N002	8.0			#	-	-
	C	04/01/1989	N003	8.0			#	-	-
	C	04/01/1989	N004	8.0			#	-	-
	C	04/01/1989	N005	8.0			#	-	-
	C	07/15/1989	N001	20.0			#	-	-
	C	11/16/1989	N001	5.0			#	-	-
	C	05/11/1990	N001	14.0			#	-	-
	C	07/14/1990	N001	20.0			#	-	-
	C	06/26/2000	N001	18.4			#	-	-
	C	11/30/2000	N001	4.8			#	-	-
	C	04/05/2001	N001	4.4			#	-	-
	C	08/28/2001	N001	15.7			#	-	-
Temperature of Zobell Solu	C	06/26/2000	N001	19.7			#	-	-
	C	11/30/2000	N001	11.1			#	-	-
	C	04/05/2001	N001	8.5			#	-	-
	C	08/28/2001	N001	20.6			#	-	-
Thallium	mg/L	01/08/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0002	0.01	U		#	0.01	-
	mg/L	04/01/1989	0003	0.01	U		#	0.01	-
	mg/L	04/01/1989	0004	0.01	U		#	0.01	-
	mg/L	04/01/1989	0005	0.01	U		#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0690
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thallium	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/14/1990	0001	0.03	U		#	0.03	-
	mg/L	06/26/2000	0001	0.0001	U		#	0.0001	-
	mg/L	06/26/2000	0002	0.0001	U		#	0.0001	-
	mg/L	11/30/2000	0001	0.0001	U		#	0.0001	-
	mg/L	04/05/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/28/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/28/2001	N001	0.00011	U		#	0.00011	-
Thorium-230	pCi/L	04/03/1987	0001	0.0			#	1	± 0.40
	pCi/L	09/10/1987	0001	0.0			#	1	± 0.50
	pCi/L	11/17/1987	0001	0.2			#	1	± 0.50
	pCi/L	06/26/2000	0001	2.6	U		#	2.6	-
	pCi/L	06/26/2000	0002	2.6	U		#	2.6	-
	pCi/L	11/30/2000	0001	1.7	U		#	1.72	-
	pCi/L	04/05/2001	0001	0.92	U		#	0.92	-
	pCi/L	08/28/2001	0001	1.5	U		#	1.48	-
	pCi/L	08/28/2001	N001	1.6	U		#	1.6444	-
Tin	mg/L	04/01/1989	0001	0.005	U		#	0.005	-
	mg/L	04/01/1989	0002	0.005	U		#	0.005	-
	mg/L	04/01/1989	0003	0.005	U		#	0.005	-
	mg/L	04/01/1989	0004	0.005	U		#	0.005	-
	mg/L	04/01/1989	0005	0.005	U		#	0.005	-
	mg/L	07/15/1989	0001	0.005	U		#	0.005	-
	mg/L	11/16/1989	0001	0.006			#	0.005	-
	mg/L	05/11/1990	0001	0.005	U		#	0.005	-
	mg/L	07/14/1990	0001	0.05	U		#	0.05	-
Total Cyanide	mg/L	01/08/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0002	0.01	U		#	0.01	-
	mg/L	04/01/1989	0003	0.01	U		#	0.01	-
	mg/L	04/01/1989	0004	0.01	U		#	0.01	-
	mg/L	04/01/1989	0005	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0690
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Total Cyanide	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/14/1990	0001	0.01	U		#	0.01	-
Total Dissolved Solids	mg/L	04/03/1987	0001	389			#	10	-
	mg/L	09/10/1987	0001	298			#	10	-
	mg/L	11/17/1987	0001	358			#	10	-
	mg/L	04/04/1988	0001	320			#	10	-
	mg/L	07/01/1988	0001	108			#	10	-
	mg/L	10/07/1988	0001	303			#	10	-
	mg/L	01/08/1989	0001	343			#	10	-
	mg/L	04/01/1989	0001	235			#	10	-
	mg/L	04/01/1989	0002	234			#	10	-
	mg/L	04/01/1989	0003	232			#	10	-
	mg/L	04/01/1989	0004	231			#	10	-
	mg/L	04/01/1989	0005	232			#	10	-
	mg/L	07/15/1989	0001	396			#	10	-
	mg/L	11/16/1989	0001	406			#	10	-
	mg/L	05/11/1990	0001	224			#	10	-
	mg/L	07/14/1990	0001	335			#	10	-
	mg/L	11/10/1993	0001	441	H		#	10	-
	mg/L	11/10/1993	N001	437	H		#	10	-
	mg/L	06/26/2000	0001	410			#	10	-
	mg/L	06/26/2000	0002	420			#	10	-
	mg/L	11/30/2000	0001	383			#	10	-
	mg/L	04/05/2001	0001	265			#	10	-
	mg/L	08/28/2001	0001	392			#	10	-
	mg/L	08/28/2001	N001	400			#	10	-
Total Organic Carbon	mg/L	01/08/1989	0001	6.9			#	1	-
Uranium	mg/L	04/03/1987	0001	0.0015		J	#	0.003	-
	mg/L	09/10/1987	0001	0.0025		J	#	0.003	-
	mg/L	11/17/1987	0001	0.0011		J	#	0.003	-
	mg/L	04/04/1988	0001	0.0011		J	#	0.003	-
	mg/L	07/01/1988	0001	0.003	U		#	0.003	-
	mg/L	10/07/1988	0001	0.0016		J	#	0.003	-
	mg/L	01/08/1989	0001	0.0008		J	#	0.003	-
	mg/L	04/01/1989	0001	0.0013		J	#	0.003	-
	mg/L	04/01/1989	0002	0.0010		J	#	0.003	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	04/01/1989	0003	0.0009		J	#	0.003	-
	mg/L	04/01/1989	0004	0.0008		J	#	0.003	-
	mg/L	04/01/1989	0005	0.0010		J	#	0.003	-
	mg/L	07/15/1989	0001	0.0055			#	0.003	-
	mg/L	11/16/1989	0001	0.0015		J	#	0.003	-
	mg/L	05/11/1990	0001	0.0006		J	#	0.003	-
	mg/L	07/14/1990	0001	0.001	U		#	0.001	-
	mg/L	11/10/1993	0001	0.002			#	0.001	-
	mg/L	11/10/1993	N001	0.001	U		#	0.001	-
	mg/L	06/26/2000	0001	0.00072	B		#	0.0001	-
	mg/L	06/26/2000	0002	0.00073	B		#	0.0001	-
	mg/L	11/30/2000	0001	0.0013			#	0.0001	-
	mg/L	04/05/2001	0001	0.0012		U	#	0.0001	-
	mg/L	08/28/2001	0001	0.0011			#	0.0001	-
	mg/L	08/28/2001	N001	0.0011			#	0.00011	-
Uranium-234	pCi/L	04/05/2001	0001	0.44	B	UJ	#	0.4	-
Uranium-238	pCi/L	04/05/2001	0001	0.39	B		#	0.1	-
Vanadium	mg/L	04/01/1989	0001	0.01	U		#	0.01	-
	mg/L	04/01/1989	0002	0.01	U		#	0.01	-
	mg/L	04/01/1989	0003	0.01	U		#	0.01	-
	mg/L	04/01/1989	0004	0.01	U		#	0.01	-
	mg/L	04/01/1989	0005	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01			#	0.01	-
	mg/L	07/14/1990	0001	0.01	U		#	0.01	-
	mg/L	06/26/2000	0001	0.0013	U		#	0.0013	-
	mg/L	06/26/2000	0002	0.0013	U		#	0.0013	-
	mg/L	11/30/2000	0001	0.0015	U		#	0.0015	-
	mg/L	04/05/2001	0001	0.0004	U		#	0.0004	-
	mg/L	08/28/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/28/2001	N001	0.0035	B		#	0.00033	-
Zinc	mg/L	04/04/1988	0001	0.091			#	0.005	-
	mg/L	07/01/1988	0001	0.055			#	0.005	-
	mg/L	10/07/1988	0001	0.060			#	0.005	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
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Zinc	mg/L	01/08/1989	0001	0.107			#	0.005	-
	mg/L	04/01/1989	0001	0.057			#	0.005	-
	mg/L	04/01/1989	0002	0.058			#	0.005	-
	mg/L	04/01/1989	0003	0.059			#	0.005	-
	mg/L	04/01/1989	0004	0.066			#	0.005	-
	mg/L	04/01/1989	0005	0.060			#	0.005	-
	mg/L	07/15/1989	0001	0.023			#	0.005	-
	mg/L	11/16/1989	0001	0.005	U		#	0.005	-
	mg/L	05/11/1990	0001	0.007			#	0.005	-
	mg/L	07/14/1990	0001	0.006			#	0.005	-
	mg/L	11/10/1993	0001	0.016		J	#	0.005	-
	mg/L	11/10/1993	N001	0.061		J	#	0.005	-
	mg/L	06/26/2000	0001	0.0127	U		#	0.0127	-
	mg/L	06/26/2000	0002	0.0127	U		#	0.0127	-
	mg/L	11/30/2000	0001	0.010	U		#	0.0102	-
	mg/L	04/05/2001	0001	0.0095	U		#	0.0095	-
	mg/L	08/28/2001	0001	0.0182	B		#	0.0073	-
	mg/L	08/28/2001	N001	0.0355	B		#	0.00811	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0690
REPORT DATE: 12/13/2001 10:59 am

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

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0691
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	04/03/1987	N001	154			#	-	-
	mg/L	09/10/1987	N001	115			#	-	-
	mg/L	11/18/1987	N001	148			#	-	-
	mg/L	04/04/1988	N001	120			#	-	-
	mg/L	07/01/1988	N001	55			#	-	-
	mg/L	10/07/1988	N001	122			#	-	-
	mg/L	04/02/1989	N001	114			#	-	-
	mg/L	07/15/1989	N001	111			#	-	-
	mg/L	11/16/1989	N001	158			#	-	-
	mg/L	05/11/1990	N001	85			#	-	-
	mg/L	07/15/1990	N001	752			#	-	-
	mg/L	10/31/1995	N001	136			#	10	-
	mg/L	06/20/1997	N001	38			#	-	-
	mg/L	06/11/1998	0001	69			#	-	-
	mg/L	06/11/1998	N001	57			#	-	-
	mg/L	06/30/1999	0001	43			#	-	-
	mg/L	06/30/1999	N001	46			#	-	-
	mg/L	11/09/1999	0001	122			#	-	-
	mg/L	11/09/1999	N001	124			#	-	-
	mg/L	06/26/2000	0001	91			#	-	-
	mg/L	06/26/2000	N001	94			#	-	-
	mg/L	11/29/2000	0001	98			#	-	-
	mg/L	11/29/2000	N001	102			#	-	-
	mg/L	04/05/2001	0001	95			#	-	-
	mg/L	04/05/2001	N001	93			#	-	-
	mg/L	06/07/2001	0001	42			#	-	-
	mg/L	06/07/2001	N001	42			#	-	-
	mg/L	08/23/2001	0001	88			#	-	-
	mg/L	08/23/2001	N001	85			#	-	-
Ammonium	mg/L	04/02/1989	0001	0.1	U		#	0.1	-
	mg/L	05/11/1990	0001	0.1	U		#	0.1	-
	mg/L	07/15/1990	0001	0.1			#	0.1	-
	mg/L	06/26/2000	0001	0.0249	B		#	0.0047	-
	mg/L	11/29/2000	0001	0.0171	B		#	0.0047	-
	mg/L	04/05/2001	0001	0.0062	U		#	0.0062	-
	mg/L	06/07/2001	0001	0.0062	U		#	0.0062	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0691
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Ammonium	mg/L	08/23/2001	0001	0.0062	U		#	0.0062	-
	mg/L	08/23/2001	N001	0.0084	B		#	0.0062	-
Antimony	mg/L	07/15/1989	0001	0.003	U		#	0.003	-
	mg/L	11/16/1989	0001	0.003	U		#	0.003	-
	mg/L	05/11/1990	0001	0.003	U		#	0.003	-
	mg/L	07/15/1990	0001	0.01	UI		#	0.01	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0012	B	U	#	-	-
	mg/L	11/09/1999	0001	0.0019	B	U	#	-	-
	mg/L	06/26/2000	0001	0.0002	U	U	#	0.0002	-
	mg/L	11/29/2000	0001	0.00042	B	U	#	0.0003	-
	mg/L	04/05/2001	0001	0.00098	B	U	#	0.0003	-
	mg/L	06/07/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0001	0.00025	B	U	#	0.0002	-
	mg/L	08/23/2001	N001	0.0018	B	U	#	0.00022	-
Arsenic	mg/L	04/03/1987	0001	0.001	U	J	#	0.01	-
	mg/L	09/10/1987	0001	0.001	U	J	#	0.01	-
	mg/L	11/18/1987	0001	0.001	U	J	#	0.01	-
	mg/L	04/04/1988	0001	0.001	U	J	#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.01	U		#	0.01	-
	mg/L	04/02/1989	0001	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/15/1990	0001	0.03	U		#	0.03	-
	mg/L	11/10/1993	0001	0.005	UW		#	0.005	-
	mg/L	11/10/1993	0002	0.005	UW		#	0.005	-
	mg/L	11/10/1993	N001	0.005	UW		#	0.005	-
	mg/L	11/10/1993	N002	0.005	UW		#	0.005	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0010	U		#	0.001	-
	mg/L	11/09/1999	0001	0.00040	BN	J	#	-	-
	mg/L	06/26/2000	0001	0.0003	U		#	0.0003	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0691
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	11/29/2000	0001	0.0002	U		#	0.0002	-
	mg/L	04/05/2001	0001	0.0005	U		#	0.0005	-
	mg/L	06/07/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/23/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/23/2001	N001	0.00056	U		#	0.00056	-
Barium	mg/L	04/04/1988	0001	0.07		J	#	0.1	-
	mg/L	07/01/1988	0001	0.1	U		#	0.1	-
	mg/L	10/07/1988	0001	0.1	U		#	0.1	-
	mg/L	04/02/1989	0001	0.1	U		#	0.1	-
	mg/L	07/15/1989	0001	0.1	U		#	0.1	-
	mg/L	11/16/1989	0001	0.1	U		#	0.1	-
	mg/L	05/11/1990	0001	0.1	U		#	0.1	-
	mg/L	07/15/1990	0001	0.04			#	0.01	-
Beryllium	mg/L	04/02/1989	0001	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/15/1990	0001	0.005	U		#	0.005	-
Cadmium	mg/L	04/03/1987	0001	0.001	U		#	0.001	-
	mg/L	09/10/1987	0001	0.005	U		#	0.005	-
	mg/L	11/18/1987	0001	0.005	U		#	0.005	-
	mg/L	04/04/1988	0001	0.002			#	0.001	-
	mg/L	07/01/1988	0001	0.001	U		#	0.001	-
	mg/L	10/07/1988	0001	0.001	U		#	0.001	-
	mg/L	04/02/1989	0001	0.001	U		#	0.001	-
	mg/L	07/15/1989	0001	0.001	U		#	0.001	-
	mg/L	11/16/1989	0001	0.001	U		#	0.001	-
	mg/L	05/11/1990	0001	0.001	U		#	0.001	-
	mg/L	07/15/1990	0001	0.001	U		#	0.001	-
	mg/L	11/10/1993	0001	0.001	UW		#	0.001	-
	mg/L	11/10/1993	0002	0.001	U		#	0.001	-
	mg/L	11/10/1993	N001	0.001	U		#	0.001	-
	mg/L	11/10/1993	N002	0.001	U		#	0.001	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00053	B		#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0691
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Cadmium	mg/L	11/09/1999	0001	0.00054	B		#	-	-
	mg/L	06/26/2000	0001	0.0007	B	U	#	0.0002	-
	mg/L	11/29/2000	0001	0.0002	U		#	0.0002	-
	mg/L	04/05/2001	0001	0.00021	B		#	0.0002	-
	mg/L	06/07/2001	0001	0.0004	U		#	0.0004	-
	mg/L	08/23/2001	0001	0.00087	B	U	#	0.0003	-
	mg/L	08/23/2001	N001	0.00033	U		#	0.00033	-
Calcium	mg/L	04/03/1987	0001	78.8			#	0.01	-
	mg/L	09/10/1987	0001	75.8			#	0.01	-
	mg/L	11/18/1987	0001	93.5			#	0.01	-
	mg/L	04/04/1988	0001	75.9			#	0.01	-
	mg/L	07/01/1988	0001	29			#	0.01	-
	mg/L	10/07/1988	0001	72.2			#	0.01	-
	mg/L	04/02/1989	0001	59.0			#	0.01	-
	mg/L	07/15/1989	0001	69.3			#	0.01	-
	mg/L	11/16/1989	0001	99.7			#	0.01	-
	mg/L	05/11/1990	0001	44.5			#	0.01	-
	mg/L	07/15/1990	0001	56			#	0.01	-
	mg/L	11/10/1993	0001	95.6			#	1	-
	mg/L	11/10/1993	0002	94.4			#	1	-
	mg/L	11/10/1993	N001	91.1			#	1	-
	mg/L	11/10/1993	N002	90.8			#	1	-
	mg/L	06/20/1997	0001	19.100			#	-	-
	mg/L	06/11/1998	0001	39.400			#	-	-
	mg/L	06/30/1999	0001	21.800			#	-	-
	mg/L	11/09/1999	0001	82.700			#	-	-
	mg/L	06/26/2000	0001	54.500			#	0.0504	-
	mg/L	11/29/2000	0001	76.600			#	0.032	-
	mg/L	04/05/2001	0001	46.000			#	0.0642	-
	mg/L	06/07/2001	0001	22.700			#	0.0814	-
	mg/L	08/23/2001	0001	53.500			#	0.0814	-
	mg/L	08/23/2001	N001	56.600			#	0.09044	-
Chemical Oxygen Demand	mg/L	04/02/1989	0001	20			#	5	-
Chloride	mg/L	04/03/1987	0001	4.7			#	1	-
	mg/L	09/10/1987	0001	16			#	1	-
	mg/L	11/18/1987	0001	22.2			#	1	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0691
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	04/04/1988	0001	14			#	1	-
	mg/L	07/01/1988	0001	3.7			#	1	-
	mg/L	10/07/1988	0001	21			#	1	-
	mg/L	04/02/1989	0001	5.6			#	1	-
	mg/L	07/15/1989	0001	24			#	1	-
	mg/L	11/16/1989	0001	35			#	1	-
	mg/L	05/11/1990	0001	3			#	1	-
	mg/L	07/15/1990	0001	13.1			#	1	-
	mg/L	06/20/1997	0001	1.160			#	-	-
	mg/L	06/11/1998	0001	5.600			#	-	-
	mg/L	06/30/1999	0001	2.730			#	-	-
	mg/L	11/09/1999	0001	20.100			#	-	-
	mg/L	06/26/2000	0001	14.500			#	0.024	-
	mg/L	11/29/2000	0001	16.600			#	0.024	-
	mg/L	04/05/2001	0001	5.880			#	0.0149	-
	mg/L	06/07/2001	0001	3.320			#	0.0149	-
	mg/L	08/23/2001	0001	11.600			#	0.0149	-
	mg/L	08/23/2001	N001	11.700			#	0.0149	-
Chromium	mg/L	04/04/1988	0001	0.03			#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.03			#	0.01	-
	mg/L	04/02/1989	0001	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/15/1990	0001	0.01	U		#	0.01	-
	mg/L	06/20/1997	0001	0.0040	U		#	0.004	-
	mg/L	06/11/1998	0001	0.0020	U		#	0.002	-
	mg/L	06/30/1999	0001	0.0042	U		#	0.0042	-
	mg/L	11/09/1999	0001	0.0079	B		#	-	-
	mg/L	06/26/2000	0001	0.0035	U		#	0.0035	-
	mg/L	11/29/2000	0001	0.0059	U		#	0.0059	-
	mg/L	04/05/2001	0001	0.0008	U		#	0.0008	-
	mg/L	06/07/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	N001	0.00089	U		#	0.00089	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0691
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Cobalt	mg/L	04/02/1989	0001	0.05	U		#	0.05	-
	mg/L	07/15/1989	0001	0.05	U		#	0.05	-
	mg/L	11/16/1989	0001	0.05	U		#	0.05	-
	mg/L	05/11/1990	0001	0.05	U		#	0.05	-
	mg/L	07/15/1990	0001	0.03	U		#	0.03	-
Copper	mg/L	04/04/1988	0001	0.01	U	J	#	0.02	-
	mg/L	07/01/1988	0001	0.02	U		#	0.02	-
	mg/L	10/07/1988	0001	0.02	U		#	0.02	-
	mg/L	04/02/1989	0001	0.02	U		#	0.02	-
	mg/L	07/15/1989	0001	0.02	U		#	0.02	-
	mg/L	11/16/1989	0001	0.02	U		#	0.02	-
	mg/L	05/11/1990	0001	0.02			#	0.02	-
	mg/L	07/15/1990	0001	0.01	U		#	0.01	-
	mg/L	06/26/2000	0001	0.004	U		#	0.004	-
	mg/L	11/29/2000	0001	0.0025	U		#	0.0025	-
	mg/L	04/05/2001	0001	0.0034	U		#	0.0034	-
	mg/L	06/07/2001	0001	0.0029	B		#	0.0003	-
	mg/L	08/23/2001	0001	0.0012	B	U	#	0.0003	-
	mg/L	08/23/2001	N001	0.0048	B		#	0.00033	-
Fluoride	mg/L	04/04/1988	0001	0.30			#	0.1	-
	mg/L	07/01/1988	0001	0.2			#	0.1	-
	mg/L	10/07/1988	0001	0.4			#	0.1	-
	mg/L	04/02/1989	0001	0.2			#	0.1	-
	mg/L	07/15/1989	0001	0.3			#	0.1	-
	mg/L	11/16/1989	0001	0.5			#	0.1	-
	mg/L	05/11/1990	0001	0.2			#	0.1	-
	mg/L	07/15/1990	0001	0.5			#	0.1	-
Gross Alpha	pCi/L	04/04/1988	0001	2.3			#	0.2	± 3.10
	pCi/L	07/01/1988	0001	0.0			#	0.2	± 1.10
	pCi/L	10/07/1988	0001	7.6			#	0.2	± 3.00
	pCi/L	04/02/1989	0001	1.8			#	0.2	± 2.20
	pCi/L	07/15/1989	0001	0.0			#	1	± 2.10
	pCi/L	11/16/1989	0001	6.5			#	1	± 3.70
	pCi/L	05/11/1990	0001	0.5			#	1	± 1.30
	pCi/L	07/15/1990	0001	1.8			#	1	± 2.30
	pCi/L	06/20/1997	0001	1.73	U		#	1.73	± 1.02

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0691
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Gross Alpha	pCi/L	06/11/1998	0001	1.69	U		#	1.69	± 0.88
	pCi/L	06/30/1999	0001	1.86	U		#	1.86	± 1.17
	pCi/L	11/09/1999	0001	3.67		J	#	3.25	± 2.44
	pCi/L	06/26/2000	0001	2.14	U		#	2.14	± 1.35
	pCi/L	11/29/2000	0001	3.71	U		#	3.71	± 2.19
	pCi/L	04/05/2001	0001	3.40	U	J	#	3.4	± 1.92
	pCi/L	06/07/2001	0001	2.6	U		#	2.6	± 1.43
	pCi/L	08/23/2001	0001	3.41	U	J	#	3.41	± 1.74
	pCi/L	08/23/2001	N001	3.51	U	J	#	3.51	± 1.72
Gross Beta	pCi/L	04/04/1988	0001	2.9			#	1	± 1.60
	pCi/L	07/01/1988	0001	2.1			#	1	± 1.50
	pCi/L	10/07/1988	0001	7.7			#	1	± 1.50
	pCi/L	04/02/1989	0001	2.5			#	1	± 1.30
	pCi/L	07/15/1989	0001	3.2			#	0.5	± 1.40
	pCi/L	11/16/1989	0001	6.2			#	0.5	± 1.80
	pCi/L	05/11/1990	0001	3.0			#	0.5	± 1.40
	pCi/L	07/15/1990	0001	2.2			#	0.5	± 1.60
	pCi/L	06/20/1997	0001	2.61	U		#	2.61	± 1.53
	pCi/L	06/11/1998	0001	2.16	U		#	2.16	± 1.31
	pCi/L	06/30/1999	0001	2.39	U		#	2.39	± 1.42
	pCi/L	11/09/1999	0001	7.21			#	3.16	± 2.19
	pCi/L	06/26/2000	0001	3.08	U		#	3.08	± 1.87
	pCi/L	11/29/2000	0001	3.91	U		#	3.91	± 2.34
	pCi/L	04/05/2001	0001	4.68	U		#	4.68	± 2.70
	pCi/L	06/07/2001	0001	3.85	U		#	3.85	± 2.19
	pCi/L	08/23/2001	0001	3.92	U		#	3.92	± 2.30
	pCi/L	08/23/2001	N001	3.93	U		#	3.93	± 2.26
Iron	mg/L	04/03/1987	0001	0.32			#	0.03	-
	mg/L	09/10/1987	0001	0.01	U	J	#	0.03	-
	mg/L	11/18/1987	0001	0.03			#	0.03	-
	mg/L	04/04/1988	0001	0.03			#	0.03	-
	mg/L	07/01/1988	0001	0.04			#	0.03	-
	mg/L	10/07/1988	0001	0.03	U		#	0.03	-
	mg/L	04/02/1989	0001	0.03	U		#	0.03	-
	mg/L	07/15/1989	0001	0.03	U		#	0.03	-
	mg/L	11/16/1989	0001	0.04			#	0.03	-

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Iron	mg/L	05/11/1990	0001	0.07			#	0.03	-
	mg/L	07/15/1990	0001	0.03	U		#	0.03	-
	mg/L	11/10/1993	0001	0.03	U		#	0.03	-
	mg/L	11/10/1993	0002	0.03	U		#	0.03	-
	mg/L	11/10/1993	N001	0.12			#	0.03	-
	mg/L	11/10/1993	N002	0.11			#	0.03	-
	mg/L	06/26/2000	0001	0.0091	U		#	0.0091	-
	mg/L	11/29/2000	0001	0.0171	B	U	#	0.011	-
	mg/L	04/05/2001	0001	0.0355			#	0.001	-
	mg/L	06/07/2001	0001	0.0347			#	0.0008	-
	mg/L	08/23/2001	0001	0.0032	B	U	#	0.0008	-
	mg/L	08/23/2001	N001	1.110	*	J	#	0.00089	-
Lead	mg/L	04/04/1988	0001	0.01	U		#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.01	U		#	0.01	-
	mg/L	04/02/1989	0001	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/15/1990	0001	0.01	U		#	0.01	-
	mg/L	11/10/1993	0001	0.003	UW		#	0.003	-
	mg/L	11/10/1993	0002	0.003	U		#	0.003	-
	mg/L	11/10/1993	N001	0.003	UW		#	0.003	-
	mg/L	11/10/1993	N002	0.003	UW		#	0.003	-
	mg/L	06/20/1997	0001	0.0016	B		#	-	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0011	B	U	#	-	-
	mg/L	11/09/1999	0001	0.00030	U		#	0.0003	-
	mg/L	06/26/2000	0001	0.0001	U		#	0.0001	-
	mg/L	11/29/2000	0001	0.0001	U		#	0.0001	-
	mg/L	04/05/2001	0001	0.00032	B	U	#	0.0001	-
	mg/L	06/07/2001	0001	0.00098	B	U	#	0.0001	-
	mg/L	08/23/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	N001	0.0053		U	#	0.00011	-
Lead-210	pCi/L	06/26/2000	0001	1.22	U		#	1.22	± 0.69
	pCi/L	11/29/2000	0001	1.17	U		#	1.17	± 0.66

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Lead-210	pCi/L	04/05/2001	0001	1.40	U		#	1.4	± 0.80
	pCi/L	06/07/2001	0001	1.13	U		#	1.13	± 0.63
	pCi/L	08/23/2001	0001	1.23	U		#	1.23	± 0.72
	pCi/L	08/23/2001	N001	1.28	U		#	1.28	± 0.76
Magnesium	mg/L	04/03/1987	0001	17.7			#	0.001	-
	mg/L	09/10/1987	0001	9.39			#	0.001	-
	mg/L	11/18/1987	0001	13.2			#	0.001	-
	mg/L	04/04/1988	0001	13.3			#	0.001	-
	mg/L	07/01/1988	0001	4.34			#	0.001	-
	mg/L	10/07/1988	0001	11.4			#	0.001	-
	mg/L	04/02/1989	0001	10.5			#	0.001	-
	mg/L	07/15/1989	0001	10.4			#	0.001	-
	mg/L	11/16/1989	0001	15.2			#	0.001	-
	mg/L	05/11/1990	0001	6.88			#	0.001	-
	mg/L	07/15/1990	0001	6.57			#	0.001	-
	mg/L	11/10/1993	0001	13.7			#	0.1	-
	mg/L	11/10/1993	0002	13.5			#	0.1	-
	mg/L	11/10/1993	N001	14.4			#	0.1	-
	mg/L	11/10/1993	N002	14.4			#	0.1	-
	mg/L	06/20/1997	0001	2.710			#	-	-
	mg/L	06/11/1998	0001	5.470			#	-	-
	mg/L	06/30/1999	0001	2.910			#	-	-
	mg/L	11/09/1999	0001	12.300			#	-	-
	mg/L	06/26/2000	0001	7.990			#	0.024	-
	mg/L	11/29/2000	0001	10.900			#	0.0471	-
	mg/L	04/05/2001	0001	10.300			#	0.0031	-
	mg/L	06/07/2001	0001	3.290			#	0.0034	-
	mg/L	08/23/2001	0001	7.540			#	0.0034	-
	mg/L	08/23/2001	N001	7.890			#	0.00378	-
Manganese	mg/L	04/03/1987	0001	0.11			#	0.01	-
	mg/L	09/10/1987	0001	0.08			#	0.01	-
	mg/L	11/18/1987	0001	0.24			#	0.01	-
	mg/L	04/04/1988	0001	0.09			#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.09			#	0.01	-
	mg/L	04/02/1989	0001	0.04			#	0.01	-

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Manganese	mg/L	07/15/1989	0001	0.08			#	0.01	-
	mg/L	11/16/1989	0001	0.10			#	0.01	-
	mg/L	05/11/1990	0001	0.06			#	0.01	-
	mg/L	07/15/1990	0001	0.07			#	0.01	-
	mg/L	11/10/1993	0001	0.11			#	0.01	-
	mg/L	11/10/1993	0002	0.11			#	0.01	-
	mg/L	11/10/1993	N001	0.13			#	0.01	-
	mg/L	11/10/1993	N002	0.13			#	0.01	-
	mg/L	06/20/1997	0001	0.0374			#	-	-
	mg/L	06/11/1998	0001	0.0524			#	-	-
	mg/L	06/30/1999	0001	0.0459			#	-	-
	mg/L	11/09/1999	0001	0.148			#	-	-
	mg/L	06/26/2000	0001	0.0693			#	0.0015	-
	mg/L	11/29/2000	0001	0.130			#	0.003	-
	mg/L	04/05/2001	0001	0.0481			#	0.0001	-
	mg/L	06/07/2001	0001	0.0513			#	0.0001	-
	mg/L	08/23/2001	0001	0.0599			#	0.0001	-
	mg/L	08/23/2001	N001	0.147			#	0.00011	-
Mercury	mg/L	04/03/1987	0001	0.0002	U		#	0.0002	-
	mg/L	09/10/1987	0001	0.0002	U		#	0.0002	-
	mg/L	11/18/1987	0001	0.0002	U		#	0.0002	-
	mg/L	04/04/1988	0001	0.0005			#	0.0002	-
	mg/L	07/01/1988	0001	0.0002	U		#	0.0002	-
	mg/L	10/07/1988	0001	0.0002	U		#	0.0002	-
	mg/L	04/02/1989	0001	0.0002			#	0.0002	-
	mg/L	07/15/1989	0001	0.0002	U		#	0.0002	-
	mg/L	11/16/1989	0001	0.0002	U		#	0.0002	-
	mg/L	05/11/1990	0001	0.0002	U		#	0.0002	-
	mg/L	07/15/1990	0001	0.0002	U		#	0.0002	-
	mg/L	11/10/1993	0001	0.0002	U		#	0.0002	-
	mg/L	11/10/1993	0002	0.0002	U		#	0.0002	-
	mg/L	11/10/1993	N001	0.0002	U*		#	0.0002	-
	mg/L	11/10/1993	N002	0.0002	U*		#	0.0002	-
Molybdenum	mg/L	04/03/1987	0001	0.1	U		#	0.1	-
	mg/L	09/10/1987	0001	0.01	U		#	0.01	-
	mg/L	11/18/1987	0001	0.02			#	0.01	-

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Molybdenum	mg/L	04/04/1988	0001	0.01			#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.01	U		#	0.01	-
	mg/L	04/02/1989	0001	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01			#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/15/1990	0001	0.01	U		#	0.01	-
	mg/L	11/10/1993	0001	0.01	U		#	0.01	-
	mg/L	11/10/1993	0002	0.01	U		#	0.01	-
	mg/L	11/10/1993	N001	0.01			#	0.01	-
	mg/L	11/10/1993	N002	0.01	U		#	0.01	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0015	B		#	-	-
	mg/L	11/09/1999	0001	0.0013	B		#	-	-
	mg/L	06/26/2000	0001	0.0008	U		#	0.0008	-
	mg/L	11/29/2000	0001	0.00089	B		#	0.0003	-
	mg/L	04/05/2001	0001	0.00095	B	U	#	0.0004	-
	mg/L	06/07/2001	0001	0.003	U		#	0.003	-
	mg/L	08/23/2001	0001	0.003	U		#	0.003	-
	mg/L	08/23/2001	N001	0.0033	U		#	0.00333	-
Nickel	mg/L	04/02/1989	0001	0.04	U		#	0.04	-
	mg/L	07/15/1989	0001	0.04	U		#	0.04	-
	mg/L	11/16/1989	0001	0.03	U	J	#	0.04	-
	mg/L	05/11/1990	0001	0.04	U		#	0.04	-
	mg/L	07/15/1990	0001	0.04	U		#	0.04	-
Nitrate + Nitrite as Nitrogen	mg/L	05/11/1990	0001	1	U		#	1	-
	mg/L	07/15/1990	0001	0.68		J	#	1	-
Nitrate as NO3	mg/L	04/04/1988	0001	0.2		J	#	1	-
	mg/L	07/01/1988	0001	3.5			#	1	-
	mg/L	10/07/1988	0001	1.2			#	1	-
	mg/L	04/02/1989	0001	2.3			#	1	-
	mg/L	07/15/1989	0001	5.9			#	1	-
	mg/L	11/16/1989	0001	2.5			#	1	-
	mg/L	05/11/1990	0001	1	U		#	1	-

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Nitrate as NO3	mg/L	07/15/1990	0001	3.1			#	1	-
	mg/L	11/10/1993	0001	11.1		J	#	1	-
	mg/L	11/10/1993	0002	10.9		J	#	1	-
	mg/L	11/10/1993	N001	11.1		J	#	1	-
	mg/L	11/10/1993	N002	11.2		J	#	1	-
	mg/L	06/20/1997	0001	0.489	B		#	-	-
	mg/L	06/11/1998	0001	0.368	B		#	-	-
	mg/L	06/30/1999	0001	0.555			#	-	-
	mg/L	11/09/1999	0001	0.426	B		#	-	-
	mg/L	06/26/2000	0001	0.661	B		#	0.0314	-
	mg/L	11/29/2000	0001	0.621	B		#	0.0314	-
	mg/L	04/05/2001	0001	0.743	B		#	0.0171	-
	mg/L	06/07/2001	0001	0.477	B		#	0.0171	-
	mg/L	08/23/2001	0001	0.342	B		#	0.0305	-
	mg/L	08/23/2001	N001	0.346	B		#	0.0305	-
Nitrite	mg/L	05/11/1990	0001	1	U		#	1	-
ORP of Zobell Solution	mV	06/26/2000	N001	226			#	-	-
	mV	11/29/2000	N001	245			#	-	-
	mV	04/05/2001	N001	240			#	-	-
	mV	06/07/2001	N001	239			#	-	-
	mV	08/23/2001	N001	238			#	-	-
Oxidation Reduction Potent	mV	07/15/1990	N001	318.3			#	-	-
	mV	06/20/1997	N001	58			#	-	-
	mV	06/11/1998	N001	127			#	-	-
	mV	06/30/1999	N001	133			#	-	-
	mV	11/09/1999	N001	139			#	-	-
	mV	06/26/2000	N001	79			#	-	-
	mV	11/29/2000	N001	145			#	-	-
	mV	04/05/2001	N001	21			#	-	-
	mV	06/07/2001	N001	127			#	-	-
	mV	08/23/2001	N001	184			#	-	-
pH	s.u.	04/03/1987	N001	8.25			#	-	-
	s.u.	09/10/1987	N001	7.3			#	-	-
	s.u.	11/18/1987	N001	7.45			#	-	-
	s.u.	04/04/1988	N001	7.97			#	-	-

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pH	s.u.	07/01/1988	N001	6.79			#	-	-
	s.u.	10/07/1988	N001	7.87			#	-	-
	s.u.	04/02/1989	N001	7.96			#	-	-
	s.u.	07/15/1989	N001	7.76			#	-	-
	s.u.	11/16/1989	N001	7.92			#	-	-
	s.u.	05/11/1990	N001	7.82			#	-	-
	s.u.	07/15/1990	N001	7.92			#	-	-
	s.u.	10/31/1995	N001	8.24			#	0.1	-
	s.u.	06/20/1997	N001	7.21			#	-	-
	s.u.	06/11/1998	N001	7.54			#	-	-
	s.u.	06/30/1999	N001	7.16			#	-	-
	s.u.	11/09/1999	N001	8.10			#	-	-
	s.u.	06/26/2000	N001	7.62			#	-	-
	s.u.	11/29/2000	N001	8.34			#	-	-
	s.u.	04/05/2001	N001	8.02			#	-	-
	s.u.	06/07/2001	N001	7.58			#	-	-
	s.u.	08/23/2001	N001	7.7			#	-	-
Polonium-210	pCi/L	06/26/2000	0001	0.07	U		#	0.07	± 0.09
	pCi/L	11/29/2000	0001	0.08	U		#	0.08	± 0.09
	pCi/L	04/05/2001	0001	0.08			#	0.05	± 0.04
	pCi/L	06/07/2001	0001	0.19	U		#	0.19	± 0.09
	pCi/L	08/23/2001	0001	0.09	U		#	0.09	± 0.05
	pCi/L	08/23/2001	N001	0.14			#	0.06	± 0.05
Potassium	mg/L	04/03/1987	0001	3.08			#	0.01	-
	mg/L	09/10/1987	0001	2.23			#	0.01	-
	mg/L	11/18/1987	0001	4.73			#	0.01	-
	mg/L	04/04/1988	0001	2.75			#	0.01	-
	mg/L	07/01/1988	0001	0.90			#	0.01	-
	mg/L	10/07/1988	0001	3.7			#	0.01	-
	mg/L	04/02/1989	0001	1.85			#	0.01	-
	mg/L	07/15/1989	0001	3.7			#	0.01	-
	mg/L	11/16/1989	0001	4.93			#	0.01	-
	mg/L	05/11/1990	0001	1.5			#	0.01	-
	mg/L	07/15/1990	0001	2.2			#	0.01	-
	mg/L	06/20/1997	0001	0.686			#	-	-
	mg/L	06/11/1998	0001	1.300			#	-	-

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Potassium	mg/L	06/30/1999	0001	0.719			#	-	-
	mg/L	11/09/1999	0001	3.360			#	-	-
	mg/L	06/26/2000	0001	2.230			#	0.0456	-
	mg/L	11/29/2000	0001	2.830			#	0.0359	-
	mg/L	04/05/2001	0001	1.770			#	0.0091	-
	mg/L	06/07/2001	0001	0.733			#	0.0088	-
	mg/L	08/23/2001	0001	1.900			#	0.0088	-
	mg/L	08/23/2001	N001	2.040			#	0.00978	-
Radium-226	pCi/L	04/03/1987	0001	0.6			#	1	± 0.30
	pCi/L	09/10/1987	0001	0.1			#	1	± 0.20
	pCi/L	11/18/1987	0001	0.1			#	1	± 0.20
	pCi/L	04/04/1988	0001	0.2			#	1	± 0.20
	pCi/L	07/01/1988	0001	0.1			#	1	± 0.20
	pCi/L	10/07/1988	0001	0.5			#	1	± 0.20
	pCi/L	04/02/1989	0001	0.1			#	1	± 0.10
	pCi/L	07/15/1989	0001	0.1			#	1	± 0.20
	pCi/L	11/16/1989	0001	0.8			#	1	± 0.30
	pCi/L	05/11/1990	0001	0.0			#	1	± 0.10
	pCi/L	07/15/1990	0001	0			#	1	± 0.20
	pCi/L	06/26/2000	0001	0.13	U		#	0.13	± 0.07
	pCi/L	11/29/2000	0001	0.14	U		#	0.14	± 0.08
	pCi/L	04/05/2001	0001	0.12	U		#	0.12	± 0.07
	pCi/L	06/07/2001	0001	0.1	U		#	0.1	± 0.06
	pCi/L	08/23/2001	0001	0.1	U		#	0.1	± 0.06
	pCi/L	08/23/2001	N001	0.11	U		#	0.11	± 0.07
Radium-228	pCi/L	09/10/1987	0001	1.2			#	1	± 1.60
	pCi/L	11/18/1987	0001	0.0			#	1	± 2.50
	pCi/L	04/04/1988	0001	0.3			#	1	± 0.70
	pCi/L	07/01/1988	0001	1.1			#	1	± 1.20
	pCi/L	10/07/1988	0001	0.3			#	1	± 0.80
	pCi/L	04/02/1989	0001	0.3			#	1	± 0.90
	pCi/L	07/15/1989	0001	0.0			#	1	± 0.80
	pCi/L	11/16/1989	0001	0.0			#	1	± 0.70
	pCi/L	05/11/1990	0001	0.1			#	1	± 0.70
	pCi/L	07/15/1990	0001	0.3			#	1	± 2.10
	pCi/L	06/26/2000	0001	0.75	U		#	0.75	± 0.43

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Radium-228	pCi/L	11/29/2000	0001	0.77	U		#	0.77	± 0.45
	pCi/L	04/05/2001	0001	0.93	U		#	0.93	± 0.53
	pCi/L	06/07/2001	0001	0.93	U		#	0.93	± 0.53
	pCi/L	08/23/2001	0001	0.74	U		#	0.74	± 0.43
	pCi/L	08/23/2001	N001	0.87	U		#	0.87	± 0.52
Selenium	mg/L	04/03/1987	0001	0.002	U	J	#	0.005	-
	mg/L	09/10/1987	0001	0.001	U	J	#	0.005	-
	mg/L	11/18/1987	0001	0.002		J	#	0.005	-
	mg/L	04/04/1988	0001	0.001	U	J	#	0.005	-
	mg/L	07/01/1988	0001	0.005	U		#	0.005	-
	mg/L	10/07/1988	0001	0.005	U		#	0.005	-
	mg/L	04/02/1989	0001	0.005	U		#	0.005	-
	mg/L	07/15/1989	0001	0.005	U		#	0.005	-
	mg/L	11/16/1989	0001	0.007			#	0.005	-
	mg/L	05/11/1990	0001	0.005	U		#	0.005	-
	mg/L	07/15/1990	0001	0.03	U		#	0.03	-
	mg/L	11/10/1993	0001	0.005	U		#	0.005	-
	mg/L	11/10/1993	0002	0.005	U		#	0.005	-
	mg/L	11/10/1993	N001	0.005	U		#	0.005	-
	mg/L	11/10/1993	N002	0.005	U		#	0.005	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0010	U		#	0.001	-
	mg/L	11/09/1999	0001	0.00028	B		#	-	-
	mg/L	06/26/2000	0001	0.0015	U		#	0.0015	-
	mg/L	11/29/2000	0001	0.00026	B		#	0.0001	-
	mg/L	04/05/2001	0001	0.0003	U		#	0.0003	-
	mg/L	06/07/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	N001	0.00033	U		#	0.00033	-
Silver	mg/L	04/03/1987	0001	0.01	U		#	0.01	-
	mg/L	09/10/1987	0001	0.01	U		#	0.01	-
	mg/L	11/18/1987	0001	0.01	U		#	0.01	-
	mg/L	04/04/1988	0001	0.01	U		#	0.01	-
	mg/L	07/01/1988	0001	0.01	U		#	0.01	-
	mg/L	10/07/1988	0001	0.01	U		#	0.01	-

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Silver	mg/L	04/02/1989	0001	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/15/1990	0001	0.01	U		#	0.01	-
Sodium	mg/L	04/03/1987	0001	17.1			#	0.002	-
	mg/L	09/10/1987	0001	17.2			#	0.002	-
	mg/L	11/18/1987	0001	20.0			#	0.002	-
	mg/L	04/04/1988	0001	16.3			#	0.002	-
	mg/L	07/01/1988	0001	4.4			#	0.002	-
	mg/L	10/07/1988	0001	19.3			#	0.002	-
	mg/L	04/02/1989	0001	8.86			#	0.002	-
	mg/L	07/15/1989	0001	20.9			#	0.002	-
	mg/L	11/16/1989	0001	28.2			#	0.002	-
	mg/L	05/11/1990	0001	5.84			#	0.002	-
	mg/L	07/15/1990	0001	12			#	0.002	-
	mg/L	06/20/1997	0001	1.860			#	-	-
	mg/L	06/11/1998	0001	6.920			#	-	-
	mg/L	06/30/1999	0001	3.150			#	-	-
	mg/L	11/09/1999	0001	20.700			#	-	-
	mg/L	06/26/2000	0001	14.100			#	0.434	-
	mg/L	11/29/2000	0001	16.700			#	0.525	-
	mg/L	04/05/2001	0001	8.940			#	0.0052	-
	mg/L	06/07/2001	0001	3.230	E	J	#	0.0085	-
	mg/L	08/23/2001	0001	10.400			#	0.0085	-
	mg/L	08/23/2001	N001	10.700			#	0.00944	-
Specific Conductance	umhos/cm	04/03/1987	N001	305			#	-	-
	umhos/cm	09/10/1987	N001	310			#	-	-
	umhos/cm	11/18/1987	N001	343			#	-	-
	umhos/cm	04/04/1988	N001	333			#	-	-
	umhos/cm	07/01/1988	N001	145			#	-	-
	umhos/cm	10/07/1988	N001	335			#	-	-
	umhos/cm	04/02/1989	N001	215			#	-	-
	umhos/cm	07/15/1989	N001	320			#	-	-
	umhos/cm	11/16/1989	N001	430			#	-	-
	umhos/cm	05/11/1990	N001	205			#	-	-

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Specific Conductance	umhos/cm	07/15/1990	N001	330			#	-	-
	umhos/cm	10/31/1995	N001	493			#	1	-
	umhos/cm	06/20/1997	N001	143			#	-	-
	umhos/cm	06/11/1998	N001	285			#	-	-
	umhos/cm	06/30/1999	N001	179			#	-	-
	umhos/cm	11/09/1999	N001	641			#	-	-
	umhos/cm	06/26/2000	N001	403			#	-	-
	umhos/cm	11/29/2000	N001	568			#	-	-
	umhos/cm	04/05/2001	N001	390			#	-	-
	umhos/cm	06/07/2001	N001	172			#	-	-
	umhos/cm	08/23/2001	N001	423			#	-	-
Sulfate	mg/L	04/03/1987	0001	143			#	0.1	-
	mg/L	09/10/1987	0001	114			#	0.1	-
	mg/L	11/18/1987	0001	159			#	0.1	-
	mg/L	04/04/1988	0001	115			#	0.1	-
	mg/L	07/01/1988	0001	48			#	0.1	-
	mg/L	10/07/1988	0001	114			#	0.1	-
	mg/L	04/02/1989	0001	73			#	0.1	-
	mg/L	07/15/1989	0001	102			#	0.1	-
	mg/L	11/16/1989	0001	174			#	0.1	-
	mg/L	05/11/1990	0001	57			#	0.1	-
	mg/L	07/15/1990	0001	82.7			#	0.1	-
	mg/L	11/10/1993	0001	152	I		#	1.1	-
	mg/L	11/10/1993	0002	151	I		#	1.1	-
	mg/L	11/10/1993	N001	153	I		#	1.1	-
	mg/L	11/10/1993	N002	152	I		#	1.1	-
	mg/L	06/20/1997	0001	22.300			#	-	-
	mg/L	06/11/1998	0001	50.700			#	-	-
	mg/L	06/30/1999	0001	31.200			#	-	-
	mg/L	11/09/1999	0001	142.000			#	-	-
	mg/L	06/26/2000	0001	79.300			#	0.0589	-
	mg/L	11/29/2000	0001	143.000			#	0.0589	-
	mg/L	04/05/2001	0001	67.500			#	0.0253	-
	mg/L	06/07/2001	0001	29.000			#	0.0253	-
	mg/L	08/23/2001	0001	93.300			#	0.0253	-
	mg/L	08/23/2001	N001	93.500			#	0.0253	-

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Sulfide	mg/L	04/02/1989	0001	0.1	U		#	0.1	-
	mg/L	07/15/1989	0001	0.1	U		#	0.1	-
	mg/L	11/16/1989	0001	0.1	U		#	0.1	-
	mg/L	05/11/1990	0001	0.1	U		#	0.1	-
	mg/L	07/15/1990	0001	0.1	U		#	0.1	-
Temperature	C	04/03/1987	N001	8.5			#	-	-
	C	09/10/1987	N001	11.5			#	-	-
	C	11/18/1987	N001	1.0			#	-	-
	C	04/04/1988	N001	8.1			#	-	-
	C	07/01/1988	N001	13.0			#	-	-
	C	10/07/1988	N001	13.0			#	-	-
	C	04/02/1989	N001	5.0			#	-	-
	C	07/15/1989	N001	20			#	-	-
	C	11/16/1989	N001	5.0			#	-	-
	C	05/11/1990	N001	11.0			#	-	-
	C	07/15/1990	N001	18.0			#	-	-
	C	10/31/1995	N001	11.2			#	0.1	-
	C	06/20/1997	N001	8.9			#	-	-
	C	06/11/1998	N001	8.8			#	-	-
	C	06/30/1999	N001	11.5			#	-	-
	C	11/09/1999	N001	5.9			#	-	-
	C	06/26/2000	N001	16.1			#	-	-
	C	11/29/2000	N001	5.1			#	-	-
	C	04/05/2001	N001	5.9			#	-	-
	C	06/07/2001	N001	10.5			#	-	-
	C	08/23/2001	N001	16.2			#	-	-
Temperature of Zobell Solu	C	06/26/2000	N001	16.5			#	-	-
	C	11/29/2000	N001	13.9			#	-	-
	C	04/05/2001	N001	9.2			#	-	-
	C	06/07/2001	N001	13.5			#	-	-
	C	08/23/2001	N001	14.1			#	-	-
Thallium	mg/L	04/02/1989	0001	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/15/1990	0001	0.03	U		#	0.03	-

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Thallium	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00044	B	U	#	-	-
	mg/L	11/09/1999	0001	0.00020	U		#	0.0002	-
	mg/L	06/26/2000	0001	0.0001	U		#	0.0001	-
	mg/L	11/29/2000	0001	0.0001	U		#	0.0001	-
	mg/L	04/05/2001	0001	0.0001	U		#	0.0001	-
	mg/L	06/07/2001	0001	0.00029	BE	UJ	#	-	-
	mg/L	08/23/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	N001	0.00011	U		#	0.00011	-
Thorium-230	pCi/L	04/03/1987	0001	0.8			#	1	± 0.50
	pCi/L	09/10/1987	0001	0.0			#	1	± 0.40
	pCi/L	11/18/1987	0001	0.0			#	1	± 0.30
	pCi/L	06/26/2000	0001	2.6	UB	U	#	2.6	-
	pCi/L	11/29/2000	0001	1.7	U		#	1.72	-
	pCi/L	04/05/2001	0001	0.92	U		#	0.92	-
	pCi/L	06/07/2001	0001	1.5	U		#	1.48	-
	pCi/L	08/23/2001	0001	1.5	U		#	1.48	-
	pCi/L	08/23/2001	N001	5.7			#	1.6444	-
Tin	mg/L	04/02/1989	0001	0.005	U		#	0.005	-
	mg/L	07/15/1989	0001	0.005	U		#	0.005	-
	mg/L	11/16/1989	0001	0.005			#	0.005	-
	mg/L	05/11/1990	0001	0.005	U		#	0.005	-
	mg/L	07/15/1990	0001	0.05	U		#	0.05	-
Total Cyanide	mg/L	04/02/1989	0001	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01	U		#	0.01	-
	mg/L	07/15/1990	0001	0.01	U		#	0.01	-
Total Dissolved Solids	mg/L	04/03/1987	0001	411			#	10	-
	mg/L	09/10/1987	0001	275			#	10	-
	mg/L	11/18/1987	0001	389			#	10	-
	mg/L	04/04/1988	0001	447			#	10	-
	mg/L	07/01/1988	0001	109			#	10	-
	mg/L	10/07/1988	0001	326			#	10	-

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Total Dissolved Solids	mg/L	04/02/1989	0001	238			#	10	-
	mg/L	07/15/1989	0001	319			#	10	-
	mg/L	11/16/1989	0001	448			#	10	-
	mg/L	05/11/1990	0001	196			#	10	-
	mg/L	07/15/1990	0001	234			#	10	-
	mg/L	11/10/1993	0001	421	H		#	10	-
	mg/L	11/10/1993	0002	421	H		#	10	-
	mg/L	11/10/1993	N001	426	H		#	10	-
	mg/L	11/10/1993	N002	422	H		#	10	-
	mg/L	06/20/1997	0001	82.0			#	-	-
	mg/L	06/11/1998	0001	167			#	-	-
	mg/L	06/30/1999	0001	90.0			#	-	-
	mg/L	11/09/1999	0001	423			#	-	-
	mg/L	06/26/2000	0001	285			#	10	-
	mg/L	11/29/2000	0001	345			#	10	-
	mg/L	04/05/2001	0001	243			#	10	-
	mg/L	06/07/2001	0001	127			#	10	-
	mg/L	08/23/2001	0001	253			#	10	-
	mg/L	08/23/2001	N001	253			#	10	-
Turbidity	NTU	06/20/1997	N001	71.1			#	-	-
	NTU	06/11/1998	N001	4.87			#	-	-
	NTU	11/09/1999	N001	1.44			#	-	-
	NTU	06/07/2001	N001	20.8			#	-	-
	NTU	08/23/2001	N001	6.68			#	-	-
Uranium	mg/L	04/03/1987	0001	0.0023		J	#	0.003	-
	mg/L	09/10/1987	0001	0.0010		J	#	0.003	-
	mg/L	11/18/1987	0001	0.0029		J	#	0.003	-
	mg/L	04/04/1988	0001	0.0023		J	#	0.003	-
	mg/L	07/01/1988	0001	0.003	U		#	0.003	-
	mg/L	10/07/1988	0001	0.0022		J	#	0.003	-
	mg/L	04/02/1989	0001	0.0014		J	#	0.003	-
	mg/L	07/15/1989	0001	0.0006		J	#	0.003	-
	mg/L	11/16/1989	0001	0.0008		J	#	0.003	-
	mg/L	05/11/1990	0001	0.0011		J	#	0.003	-
	mg/L	07/15/1990	0001	0.002			#	0.001	-
	mg/L	11/10/1993	0001	0.002			#	0.001	-

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Uranium	mg/L	11/10/1993	0002	0.001	U		#	0.001	-
	mg/L	11/10/1993	N001	0.001	U		#	0.001	-
	mg/L	11/10/1993	N002	0.001	U		#	0.001	-
	mg/L	10/31/1995	0001	0.001			#	0.001	-
	mg/L	10/31/1995	0002	0.001			#	0.001	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00048	B		#	-	-
	mg/L	11/09/1999	0001	0.00085	B		#	-	-
	mg/L	06/26/2000	0001	0.00044	B		#	0.0001	-
	mg/L	11/29/2000	0001	0.001			#	0.0001	-
	mg/L	04/05/2001	0001	0.0012		U	#	0.0001	-
	mg/L	06/07/2001	0001	0.00068	B	U	#	0.0001	-
	mg/L	08/23/2001	0001	0.0007	B		#	0.0001	-
	mg/L	08/23/2001	N001	0.00086	B		#	0.00011	-
Uranium-234	pCi/L	04/05/2001	0001	0.4	U	J	#	0.4	-
Uranium-238	pCi/L	04/05/2001	0001	0.37	B		#	0.1	-
Vanadium	mg/L	04/02/1989	0001	0.01	U		#	0.01	-
	mg/L	07/15/1989	0001	0.01	U		#	0.01	-
	mg/L	11/16/1989	0001	0.01	U		#	0.01	-
	mg/L	05/11/1990	0001	0.01			#	0.01	-
	mg/L	07/15/1990	0001	0.01	U		#	0.01	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/11/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00060	U		#	0.0006	-
	mg/L	11/09/1999	0001	0.0014	B		#	-	-
	mg/L	06/26/2000	0001	0.0013	U		#	0.0013	-
	mg/L	11/29/2000	0001	0.0015	U		#	0.0015	-
	mg/L	04/05/2001	0001	0.0004	U		#	0.0004	-
	mg/L	06/07/2001	0001	0.0004	B		#	0.0003	-
	mg/L	08/23/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	N001	0.0022	B		#	0.00033	-
Zinc	mg/L	04/04/1988	0001	0.068			#	0.005	-
	mg/L	07/01/1988	0001	0.058			#	0.005	-
	mg/L	10/07/1988	0001	0.067			#	0.005	-

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LOCATION: 0691
REPORT DATE: 12/13/2001 10:59 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Zinc	mg/L	04/02/1989	0001	0.044			#	0.005	-
	mg/L	07/15/1989	0001	0.080			#	0.005	-
	mg/L	11/16/1989	0001	0.131			#	0.005	-
	mg/L	05/11/1990	0001	0.039			#	0.005	-
	mg/L	07/15/1990	0001	0.054			#	0.005	-
	mg/L	11/10/1993	0001	0.012		J	#	0.005	-
	mg/L	11/10/1993	0002	0.014		J	#	0.005	-
	mg/L	11/10/1993	N001	0.083		J	#	0.005	-
	mg/L	11/10/1993	N002	0.086		J	#	0.005	-
	mg/L	06/26/2000	0001	0.0643			#	0.0127	-
	mg/L	11/29/2000	0001	0.0568			#	0.0102	-
	mg/L	04/05/2001	0001	0.0337	B		#	0.0095	-
	mg/L	06/07/2001	0001	0.0677			#	0.0073	-
	mg/L	08/23/2001	0001	0.0458	B		#	0.0073	-
	mg/L	08/23/2001	N001	0.0992			#	0.00811	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR01, DURANGO MILL TAILINGS
LOCATION: 0691
REPORT DATE: 12/13/2001 10:59 am

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

RECORDS: SELECTED FROM USEE102

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

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

Table E-2. Raffinate Ponds Area (DUR02) Surface Water

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0525
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	07/01/1983	N001	188.00			#	-	-
	mg/L	08/15/1983	N001	272.00			#	-	-
	mg/L	11/01/1983	N001	330.00			#	-	-
Arsenic	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
	mg/L	11/01/1983	0001	0.01	U		#	0.01	-
Calcium	mg/L	07/01/1983	0001	145.00			#	-	-
	mg/L	08/15/1983	0001	220.00			#	-	-
	mg/L	11/01/1983	0001	231.00			#	-	-
Chloride	mg/L	07/01/1983	0001	12.00			#	-	-
	mg/L	08/15/1983	0001	20.00			#	-	-
	mg/L	11/01/1983	0001	23.00			#	-	-
Chromium	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
	mg/L	11/01/1983	0001	0.01	U		#	0.01	-
Cobalt	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
	mg/L	11/01/1983	0001	0.01	U		#	0.01	-
Copper	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.02			#	-	-
	mg/L	11/01/1983	0001	0.01	U		#	0.01	-
Iron	mg/L	07/01/1983	0001	0.07			#	-	-
	mg/L	08/15/1983	0001	0.20	U		#	0.2	-
	mg/L	11/01/1983	0001	0.09			#	-	-
Lead	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
	mg/L	11/01/1983	0001	0.01	U		#	0.01	-
Magnesium	mg/L	07/01/1983	0001	132.00			#	-	-
	mg/L	08/15/1983	0001	180.00			#	-	-
	mg/L	11/01/1983	0001	198.00			#	-	-
Molybdenum	mg/L	07/01/1983	0001	0.02	U		#	0.02	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
	mg/L	11/01/1983	0001	0.05	U		#	0.05	-
Nickel	mg/L	07/01/1983	0001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0525
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	08/15/1983	0001	0.05	U		#	0.05	-
	mg/L	11/01/1983	0001	0.05	U		#	0.05	-
Nitrate as NO3	mg/L	07/01/1983	0001	15.00	U		#	15	-
	mg/L	08/15/1983	0001	5.00	U		#	5	-
	mg/L	11/01/1983	0001	5.00	U		#	5	-
Oxidation Reduction Potent	mV	11/01/1983	N001	170.00			#	-	-
pH	s.u.	07/01/1983	N001	8.60			#	-	-
	s.u.	08/15/1983	N001	7.80			#	-	-
	s.u.	11/01/1983	N001	8.00			#	-	-
Potassium	mg/L	07/01/1983	0001	5.70			#	-	-
	mg/L	08/15/1983	0001	8.00			#	-	-
	mg/L	11/01/1983	0001	11.20			#	-	-
Radium-226	pCi/L	11/01/1983	0001	2.00	U		#	2	± 0.00
Selenium	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
	mg/L	11/01/1983	0001	0.01	U		#	0.01	-
Silicon	mg/L	07/01/1983	0001	4.00			#	-	-
	mg/L	08/15/1983	0001	5.00			#	-	-
	mg/L	11/01/1983	0001	5.90			#	-	-
Sodium	mg/L	07/01/1983	0001	60.00			#	-	-
	mg/L	08/15/1983	0001	92.00			#	-	-
	mg/L	11/01/1983	0001	116.00			#	-	-
Specific Conductance	umhos/cm	07/01/1983	N001	1485.00			#	-	-
	umhos/cm	08/15/1983	N001	1680.00			#	-	-
	umhos/cm	11/01/1983	N001	2200.00			#	-	-
Sulfate	mg/L	07/01/1983	0001	900.00			#	-	-
	mg/L	08/15/1983	0001	1100.00			#	-	-
	mg/L	11/01/1983	0001	1200.00			#	-	-
Temperature	C	07/01/1983	N001	9.00			#	-	-
	C	08/15/1983	N001	15.00			#	-	-
	C	11/01/1983	N001	15.00			#	-	-
Uranium	mg/L	07/01/1983	0001	0.009			#	-	-
	mg/L	08/15/1983	0001	0.026			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0525
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	11/01/1983	0001	0.019			#	-	-
Vanadium	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
	mg/L	11/01/1983	0001	0.05	U		#	0.05	-
Zinc	mg/L	07/01/1983	0001	0.05	U		#	0.05	-
	mg/L	08/15/1983	0001	0.05			#	-	-
	mg/L	11/01/1983	0001	0.05	U		#	0.05	-

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0549
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	09/01/1982	N0S1	380.00			#	-	-
	mg/L	07/01/1983	N001	208.00			#	-	-
	mg/L	08/15/1983	N001	272.00			#	-	-
Aluminum	mg/L	09/01/1982	00S1	0.10	U		#	0.1	-
Arsenic	mg/L	09/01/1982	00S1	0.01	U		#	0.01	-
	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
Barium	mg/L	09/01/1982	00S1	0.10	U		#	0.1	-
Calcium	mg/L	09/01/1982	00S1	258.00			#	-	-
	mg/L	07/01/1983	0001	160.00			#	-	-
	mg/L	08/15/1983	0001	210.00			#	-	-
Chloride	mg/L	09/01/1982	00S1	25.00			#	-	-
	mg/L	07/01/1983	0001	24.00			#	-	-
	mg/L	08/15/1983	0001	22.00			#	-	-
Chromium	mg/L	09/01/1982	00S1	0.01	U		#	0.01	-
	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
Cobalt	mg/L	09/01/1982	00S1	0.01	U		#	0.01	-
	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
Copper	mg/L	09/01/1982	00S1	0.066			#	-	-
	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
Iron	mg/L	09/01/1982	00S1	0.10	U		#	0.1	-
	mg/L	07/01/1983	0001	0.05	U		#	0.05	-
	mg/L	08/15/1983	0001	0.20	U		#	0.2	-
Lead	mg/L	09/01/1982	00S1	0.01	U		#	0.01	-
	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
Magnesium	mg/L	09/01/1982	00S1	230.00			#	-	-
	mg/L	07/01/1983	0001	136.00			#	-	-
	mg/L	08/15/1983	0001	190.00			#	-	-
Molybdenum	mg/L	09/01/1982	00S1	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0549
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	07/01/1983	0001	0.02	U		#	0.02	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
Nickel	mg/L	09/01/1982	00S1	0.05	U		#	0.05	-
	mg/L	07/01/1983	0001	0.05	U		#	0.05	-
	mg/L	08/15/1983	0001	0.05	U		#	0.05	-
Nitrate as NO3	mg/L	09/01/1982	00S1	1.00	U		#	1	-
	mg/L	07/01/1983	0001	15.00	U		#	15	-
	mg/L	08/15/1983	0001	5.00	U		#	5	-
Oxidation Reduction Potent	mV	09/01/1982	N0S1	60.00			#	-	-
pH	s.u.	09/01/1982	N0S1	8.20			#	-	-
	s.u.	07/01/1983	N001	8.50			#	-	-
	s.u.	08/15/1983	N001	7.80			#	-	-
Potassium	mg/L	09/01/1982	00S1	9.00			#	-	-
	mg/L	07/01/1983	0001	6.00			#	-	-
	mg/L	08/15/1983	0001	7.70			#	-	-
Radium-226	pCi/L	09/01/1982	00S1	2.00	U		#	2	± 0.00
Selenium	mg/L	09/01/1982	00S1	0.01	U		#	0.01	-
	mg/L	07/01/1983	0001	0.03			#	-	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
Silicon	mg/L	09/01/1982	00S1	5.50			#	-	-
	mg/L	07/01/1983	0001	3.90			#	-	-
	mg/L	08/15/1983	0001	4.50			#	-	-
Sodium	mg/L	09/01/1982	00S1	123.00			#	-	-
	mg/L	07/01/1983	0001	100.00			#	-	-
	mg/L	08/15/1983	0001	92.00			#	-	-
Specific Conductance	umhos/cm	09/01/1982	N0S1	1900.00			#	-	-
	umhos/cm	07/01/1983	N001	1690.00			#	-	-
	umhos/cm	08/15/1983	N001	1680.00			#	-	-
Sulfate	mg/L	09/01/1982	00S1	1480.00			#	-	-
	mg/L	07/01/1983	0001	1000.00			#	-	-
	mg/L	08/15/1983	0001	1100.00			#	-	-
Temperature	C	09/01/1982	N0S1	8.00			#	-	-
	C	07/01/1983	N001	10.00			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0549
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	08/15/1983	N001	15.00			#	-	-
Uranium	mg/L	09/01/1982	00S1	0.032			#	-	-
	mg/L	07/01/1983	0001	0.013			#	-	-
	mg/L	08/15/1983	0001	0.02			#	-	-
Vanadium	mg/L	09/01/1982	00S1	0.05	U		#	0.05	-
	mg/L	07/01/1983	0001	0.01	U		#	0.01	-
	mg/L	08/15/1983	0001	0.01	U		#	0.01	-
Zinc	mg/L	09/01/1982	00S1	0.05	U		#	0.05	-
	mg/L	07/01/1983	0001	0.05	U		#	0.05	-
	mg/L	08/15/1983	0001	0.05	U		#	0.05	-

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0587
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	12/07/2000	0001	239			#	-	-
	mg/L	12/07/2000	N001	243			#	-	-
	mg/L	04/05/2001	0001	211			#	-	-
	mg/L	04/05/2001	N001	249			#	-	-
Ammonium	mg/L	12/07/2000	0001	0.0048	B		#	0.0047	-
	mg/L	04/05/2001	0001	0.0062	U		#	0.0062	-
Antimony	mg/L	12/07/2000	0001	0.00095	B	U	#	0.0003	-
	mg/L	04/05/2001	0001	0.0014	B	U	#	0.0003	-
Arsenic	mg/L	12/07/2000	0001	0.00079	B	U	#	0.0002	-
	mg/L	04/05/2001	0001	0.0005	U		#	0.0005	-
Cadmium	mg/L	12/07/2000	0001	0.0002	B		#	0.0002	-
	mg/L	04/05/2001	0001	0.00023	B		#	0.0002	-
Calcium	mg/L	12/07/2000	0001	173.000			#	0.032	-
	mg/L	04/05/2001	0001	98.000			#	0.0642	-
Chloride	mg/L	12/07/2000	0001	17.300			#	0.024	-
	mg/L	04/05/2001	0001	9.720			#	0.0149	-
Chromium	mg/L	12/07/2000	0001	0.0059	U		#	0.0059	-
	mg/L	04/05/2001	0001	0.0008	U		#	0.0008	-
Copper	mg/L	12/07/2000	0001	0.0025	U		#	0.0025	-
	mg/L	04/05/2001	0001	0.0034	U		#	0.0034	-
Gross Alpha	pCi/L	12/07/2000	0001	17.89		J	#	10.9	± 8.18
	pCi/L	04/05/2001	0001	7.15	U	J	#	7.15	± 4.61
Gross Beta	pCi/L	12/07/2000	0001	16.68			#	9.95	± 6.54
	pCi/L	04/05/2001	0001	7.46	U		#	7.46	± 4.58
Iron	mg/L	12/07/2000	0001	0.011	U		#	0.011	-
	mg/L	04/05/2001	0001	0.0178	B		#	0.001	-
Lead	mg/L	12/07/2000	0001	0.0001	U		#	0.0001	-
	mg/L	04/05/2001	0001	0.0001	U		#	0.0001	-
Lead-210	pCi/L	12/07/2000	0001	1.25	U		#	1.25	± 0.73
	pCi/L	04/05/2001	0001	1.18	U		#	1.18	± 0.67
Magnesium	mg/L	12/07/2000	0001	135.000			#	0.0471	-
	mg/L	04/05/2001	0001	76.800			#	0.0031	-
Manganese	mg/L	12/07/2000	0001	0.0141			#	0.003	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0587
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	04/05/2001	0001	0.0077	B		#	0.0001	-
Molybdenum	mg/L	12/07/2000	0001	0.0017	B		#	0.0003	-
	mg/L	04/05/2001	0001	0.0022	B	U	#	0.0004	-
Nitrate as NO3	mg/L	12/07/2000	0001	0.0411	B		#	0.0314	-
	mg/L	04/05/2001	0001	0.0516	B		#	0.0171	-
ORP of Zobell Solution	mV	12/07/2000	N001	257			#	-	-
	mV	04/05/2001	N001	224			#	-	-
Oxidation Reduction Potent	mV	12/07/2000	N001	-92			#	-	-
	mV	04/05/2001	N001	60			#	-	-
pH	s.u.	12/07/2000	N001	7.82			#	-	-
	s.u.	04/05/2001	N001	8.14			#	-	-
Polonium-210	pCi/L	12/07/2000	0001	0.07		U	#	0.06	± 0.08
	pCi/L	04/05/2001	0001	0.12	B	U	#	0.08	± 0.05
Potassium	mg/L	12/07/2000	0001	5.050			#	0.0359	-
	mg/L	04/05/2001	0001	4.060			#	0.0091	-
Radium-226	pCi/L	12/07/2000	0001	0.21			#	0.14	± 0.09
	pCi/L	04/05/2001	0001	0.16			#	0.12	± 0.08
Radium-228	pCi/L	12/07/2000	0001	0.73	U		#	0.73	± 0.43
	pCi/L	04/05/2001	0001	0.95	U		#	0.95	± 0.55
Selenium	mg/L	12/07/2000	0001	0.0027	B		#	0.0001	-
	mg/L	04/05/2001	0001	0.003	B		#	0.0003	-
Sodium	mg/L	12/07/2000	0001	85.000			#	0.525	-
	mg/L	04/05/2001	0001	57.000			#	0.0052	-
Specific Conductance	umhos/cm	12/07/2000	N001	1991			#	-	-
	umhos/cm	04/05/2001	N001	1216			#	-	-
Sulfate	mg/L	12/07/2000	0001	809.000			#	0.0589	-
	mg/L	04/05/2001	0001	444.000			#	0.0253	-
Temperature	C	12/07/2000	N001	3.1			#	-	-
	C	04/05/2001	N001	6.7			#	-	-
Temperature of Zobell Solu	C	12/07/2000	N001	2.5			#	-	-
	C	04/05/2001	N001	10			#	-	-
Thallium	mg/L	12/07/2000	0001	0.0001	U		#	0.0001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0587
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thallium	mg/L	04/05/2001	0001	0.0001	U		#	0.0001	-
Thorium-230	pCi/L	12/07/2000	0001	1.7	U		#	1.72	-
	pCi/L	04/05/2001	0001	1.7	B	U	#	0.92	-
Total Dissolved Solids	mg/L	12/07/2000	0001	1500			#	10	-
	mg/L	04/05/2001	0001	890			#	10	-
Uranium	mg/L	12/07/2000	0001	0.031			#	0.0001	-
	mg/L	04/05/2001	0001	0.0114	E	J	#	0.0001	-
Uranium-234	pCi/L	04/05/2001	0001	5.6	*	J	#	0.4	-
Uranium-238	pCi/L	04/05/2001	0001	4.6			#	0.1	-
Vanadium	mg/L	12/07/2000	0001	0.0017	B	U	#	0.0015	-
	mg/L	04/05/2001	0001	0.00053	B		#	0.0004	-
Zinc	mg/L	12/07/2000	0001	0.010	U		#	0.0102	-
	mg/L	04/05/2001	0001	0.0147	B		#	0.0095	-

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0588
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/20/2000	0001	288			#	-	-
	mg/L	06/20/2000	N001	290			#	-	-
	mg/L	12/04/2000	0001	330			#	-	-
	mg/L	12/04/2000	N001	341			#	-	-
	mg/L	04/05/2001	0001	209			#	-	-
	mg/L	04/05/2001	N001	210			#	-	-
	mg/L	06/08/2001	0001	311			#	-	-
	mg/L	06/08/2001	N001	305			#	-	-
	mg/L	08/23/2001	0001	308			#	-	-
	mg/L	08/23/2001	N001	307			#	-	-
Ammonium	mg/L	06/20/2000	0001	0.0085	B		#	0.0047	-
	mg/L	12/04/2000	0001	0.0047	U		#	0.0047	-
	mg/L	04/05/2001	0001	0.0062	U		#	0.0062	-
	mg/L	06/08/2001	0001	0.0062	U		#	0.0062	-
	mg/L	08/23/2001	0001	0.0062	U		#	0.0062	-
	mg/L	08/23/2001	N001	0.0062	U		#	0.0062	-
Antimony	mg/L	06/20/2000	0001	0.00042	B	U	#	0.0002	-
	mg/L	12/04/2000	0001	0.00042	B	U	#	0.0003	-
	mg/L	04/05/2001	0001	0.00063	B	U	#	0.0003	-
	mg/L	06/08/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0001	0.00044	B	U	#	0.0002	-
	mg/L	08/23/2001	N001	0.0017	B	U	#	0.00022	-
Arsenic	mg/L	06/20/2000	0001	0.00096	B		#	0.0003	-
	mg/L	12/04/2000	0001	0.00051	B		#	0.0002	-
	mg/L	04/05/2001	0001	0.0005	U		#	0.0005	-
	mg/L	06/08/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/23/2001	0001	0.00055	B		#	0.0005	-
	mg/L	08/23/2001	N001	0.0007	B		#	0.00056	-
Cadmium	mg/L	06/20/2000	0001	0.00062	B	U	#	0.0002	-
	mg/L	12/04/2000	0001	0.0002	U		#	0.0002	-
	mg/L	04/05/2001	0001	0.00033	B	U	#	0.0002	-
	mg/L	06/08/2001	0001	0.0004	U		#	0.0004	-
	mg/L	08/23/2001	0001	0.0013		U	#	0.0003	-
	mg/L	08/23/2001	N001	0.00041	B		#	0.00033	-
Calcium	mg/L	06/20/2000	0001	149.000			#	0.0504	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0588
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Calcium	mg/L	12/04/2000	0001	167.000			#	0.032	-
	mg/L	04/05/2001	0001	91.400			#	0.0642	-
	mg/L	06/08/2001	0001	134.000			#	0.0814	-
	mg/L	08/23/2001	0001	162.000			#	0.0814	-
	mg/L	08/23/2001	N001	163.000			#	0.09044	-
Chloride	mg/L	06/20/2000	0001	19.600			#	0.048	-
	mg/L	12/04/2000	0001	16.700			#	0.024	-
	mg/L	04/05/2001	0001	7.720			#	0.0149	-
	mg/L	06/08/2001	0001	11.100			#	0.0149	-
	mg/L	08/23/2001	0001	25.500			#	0.0298	-
	mg/L	08/23/2001	N001	25.500			#	0.0298	-
Chromium	mg/L	06/20/2000	0001	0.0047	B		#	0.0035	-
	mg/L	12/04/2000	0001	0.0059	U		#	0.0059	-
	mg/L	04/05/2001	0001	0.0008	U		#	0.0008	-
	mg/L	06/08/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	N001	0.00089	U		#	0.00089	-
Copper	mg/L	06/20/2000	0001	0.004	U		#	0.004	-
	mg/L	12/04/2000	0001	0.0025	U		#	0.0025	-
	mg/L	04/05/2001	0001	0.0034	U		#	0.0034	-
	mg/L	06/08/2001	0001	0.001	B	U	#	0.0003	-
	mg/L	08/23/2001	0001	0.0016	B	U	#	0.0003	-
	mg/L	08/23/2001	N001	0.0016	B		#	0.00033	-
Gross Alpha	pCi/L	06/20/2000	0001	8.69	U		#	8.69	± 5.87
	pCi/L	12/04/2000	0001	12.07	U	J	#	12.07	± 7.81
	pCi/L	04/05/2001	0001	6.73	U	J	#	6.73	± 3.79
	pCi/L	06/08/2001	0001	10.28	U		#	10.28	± 5.50
	pCi/L	08/23/2001	0001	15.21	U	J	#	15.21	± 8.79
	pCi/L	08/23/2001	N001	15.11	U	J	#	15.11	± 7.91
Gross Beta	pCi/L	06/20/2000	0001	11.63			#	10.55	± 6.60
	pCi/L	12/04/2000	0001	16.1			#	11.81	± 7.59
	pCi/L	04/05/2001	0001	7.00	U		#	7	± 4.18
	pCi/L	06/08/2001	0001	9.88	U		#	9.88	± 5.91
	pCi/L	08/23/2001	0001	14.92	U		#	14.92	± 8.91
	pCi/L	08/23/2001	N001	14.88	U		#	14.88	± 8.82

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0588
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Iron	mg/L	06/20/2000	0001	0.0091	U		#	0.0091	-
	mg/L	12/04/2000	0001	0.0144	B	U	#	0.011	-
	mg/L	04/05/2001	0001	0.0187	B	U	#	0.001	-
	mg/L	06/08/2001	0001	0.0065	B	U	#	0.0008	-
	mg/L	08/23/2001	0001	0.0073	B	U	#	0.0008	-
	mg/L	08/23/2001	N001	0.233	*	J	#	0.00089	-
Lead	mg/L	06/20/2000	0001	0.0001	U		#	0.0001	-
	mg/L	12/04/2000	0001	0.0001	U		#	0.0001	-
	mg/L	04/05/2001	0001	0.00015	B	U	#	0.0001	-
	mg/L	06/08/2001	0001	0.00062	B	U	#	0.0001	-
	mg/L	08/23/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	N001	0.0022	B	U	#	0.00011	-
Lead-210	pCi/L	06/20/2000	0001	1.17	U		#	1.17	± 0.67
	pCi/L	12/04/2000	0001	1.30	U		#	1.3	± 0.74
	pCi/L	04/05/2001	0001	1.24	U		#	1.24	± 0.71
	pCi/L	06/08/2001	0001	1.17	U		#	1.17	± 0.66
	pCi/L	08/23/2001	0001	1.35	U		#	1.35	± 0.79
	pCi/L	08/23/2001	N001	1.39	U		#	1.39	± 0.82
Magnesium	mg/L	06/20/2000	0001	137.000			#	0.024	-
	mg/L	12/04/2000	0001	133.000			#	0.0471	-
	mg/L	04/05/2001	0001	71.000			#	0.0031	-
	mg/L	06/08/2001	0001	105.000			#	0.0034	-
	mg/L	08/23/2001	0001	139.000			#	0.0034	-
	mg/L	08/23/2001	N001	141.000			#	0.00378	-
Manganese	mg/L	06/20/2000	0001	0.0129			#	0.0015	-
	mg/L	12/04/2000	0001	0.0397			#	0.003	-
	mg/L	04/05/2001	0001	0.0195			#	0.0001	-
	mg/L	06/08/2001	0001	0.0971			#	0.0001	-
	mg/L	08/23/2001	0001	0.0589			#	0.0001	-
	mg/L	08/23/2001	N001	0.073			#	0.00011	-
Molybdenum	mg/L	06/20/2000	0001	0.0017	B		#	0.0008	-
	mg/L	12/04/2000	0001	0.0016	B		#	0.0003	-
	mg/L	04/05/2001	0001	0.0025	B	U	#	0.0004	-
	mg/L	06/08/2001	0001	0.003	U		#	0.003	-
	mg/L	08/23/2001	0001	0.003	U		#	0.003	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0588
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	08/23/2001	N001	0.0033	U		#	0.00333	-
Nitrate as NO3	mg/L	06/20/2000	0001	0.0772	B		#	0.0314	-
	mg/L	12/04/2000	0001	0.0877	B		#	0.0314	-
	mg/L	04/05/2001	0001	0.046	B		#	0.0171	-
	mg/L	06/08/2001	0001	0.0291	B		#	0.0171	-
	mg/L	08/23/2001	0001	0.0305	U		#	0.0305	-
	mg/L	08/23/2001	N001	0.0305	U		#	0.0305	-
ORP of Zobell Solution	mV	06/20/2000	N001	242			#	-	-
	mV	12/04/2000	N001	229			#	-	-
	mV	04/05/2001	N001	224			#	-	-
	mV	06/08/2001	N001	216			#	-	-
	mV	08/23/2001	N001	230			#	-	-
Oxidation Reduction Potent	mV	06/20/2000	N001	111			#	-	-
	mV	12/04/2000	N001	188			#	-	-
	mV	04/05/2001	N001	77			#	-	-
	mV	06/08/2001	N001	135			#	-	-
	mV	08/23/2001	N001	150			#	-	-
pH	s.u.	06/20/2000	N001	8.42			#	-	-
	s.u.	12/04/2000	N001	7.98			#	-	-
	s.u.	04/05/2001	N001	8.01			#	-	-
	s.u.	06/08/2001	N001	8.09			#	-	-
	s.u.	08/23/2001	N001	7.06			#	-	-
Polonium-210	pCi/L	06/20/2000	0001	0.06		U	#	0.05	± 0.07
	pCi/L	12/04/2000	0001	0.09		U	#	0.05	± 0.09
	pCi/L	04/05/2001	0001	0.05	UB		#	0.05	± 0.03
	pCi/L	06/08/2001	0001	0.09	U		#	0.09	± 0.05
	pCi/L	08/23/2001	0001	0.11	U		#	0.11	± 0.05
	pCi/L	08/23/2001	N001	0.1			#	0.08	± 0.05
Potassium	mg/L	06/20/2000	0001	7.080			#	0.0456	-
	mg/L	12/04/2000	0001	5.290			#	0.0359	-
	mg/L	04/05/2001	0001	3.720			#	0.0091	-
	mg/L	06/08/2001	0001	5.250			#	0.0088	-
	mg/L	08/23/2001	0001	8.070			#	0.0088	-
	mg/L	08/23/2001	N001	8.180			#	0.00978	-
Radium-226	pCi/L	06/20/2000	0001	0.15	U		#	0.15	± 0.09

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0588
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Radium-226	pCi/L	12/04/2000	0001	0.18	U		#	0.18	± 0.11
	pCi/L	04/05/2001	0001	0.12			#	0.11	± 0.07
	pCi/L	06/08/2001	0001	0.15			#	0.12	± 0.08
	pCi/L	08/23/2001	0001	0.27			#	0.1	± 0.08
	pCi/L	08/23/2001	N001	0.29			#	0.11	± 0.09
Radium-228	pCi/L	06/20/2000	0001	0.80	U		#	0.8	± 0.46
	pCi/L	12/04/2000	0001	1.1			#	0.82	± 0.50
	pCi/L	04/05/2001	0001	0.89	U		#	0.89	± 0.52
	pCi/L	06/08/2001	0001	0.9	U		#	0.9	± 0.52
	pCi/L	08/23/2001	0001	0.72	U		#	0.72	± 0.42
	pCi/L	08/23/2001	N001	0.89	U		#	0.89	± 0.53
Selenium	mg/L	06/20/2000	0001	0.0021	B	U	#	0.0015	-
	mg/L	12/04/2000	0001	0.001	B		#	0.0001	-
	mg/L	04/05/2001	0001	0.0026	B		#	0.0003	-
	mg/L	06/08/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	0001	0.0017	B		#	0.0003	-
	mg/L	08/23/2001	N001	0.0012	B		#	0.00033	-
Sodium	mg/L	06/20/2000	0001	111.000			#	0.434	-
	mg/L	12/04/2000	0001	87.900			#	0.525	-
	mg/L	04/05/2001	0001	51.000			#	0.0052	-
	mg/L	06/08/2001	0001	76.600	E	J	#	0.0085	-
	mg/L	08/23/2001	0001	120.000			#	0.0085	-
	mg/L	08/23/2001	N001	123.000			#	0.00944	-
Specific Conductance	umhos/cm	06/20/2000	N001	1787			#	-	-
	umhos/cm	12/04/2000	N001	1992			#	-	-
	umhos/cm	04/05/2001	N001	1160			#	-	-
	umhos/cm	06/08/2001	N001	1358			#	-	-
	umhos/cm	08/23/2001	N001	2100			#	-	-
Sulfate	mg/L	06/20/2000	0001	793.000			#	0.1178	-
	mg/L	12/04/2000	0001	788.000			#	0.0589	-
	mg/L	04/05/2001	0001	404.000			#	0.0253	-
	mg/L	06/08/2001	0001	574.000			#	0.0253	-
	mg/L	08/23/2001	0001	917.000			#	0.0506	-
	mg/L	08/23/2001	N001	914.000			#	0.0506	-
Temperature	C	06/20/2000	N001	18.2			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0588
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	12/04/2000	N001	1.9			#	-	-
	C	04/05/2001	N001	6.2			#	-	-
	C	06/08/2001	N001	14.7			#	-	-
	C	08/23/2001	N001	15.8			#	-	-
Temperature of Zobell Solu	C	06/20/2000	N001	11.8			#	-	-
	C	12/04/2000	N001	10.6			#	-	-
	C	04/05/2001	N001	10			#	-	-
	C	06/08/2001	N001	24.1			#	-	-
	C	08/23/2001	N001	12.5			#	-	-
Thallium	mg/L	06/20/2000	0001	0.0001	U		#	0.0001	-
	mg/L	12/04/2000	0001	0.0001	U		#	0.0001	-
	mg/L	04/05/2001	0001	0.00032	B	U	#	0.0001	-
	mg/L	06/08/2001	0001	0.00029	BE	UJ	#	-	-
	mg/L	08/23/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	N001	0.00011	U		#	0.00011	-
Thorium-230	pCi/L	06/20/2000	0001	2.6	U		#	2.6	-
	pCi/L	12/04/2000	0001	1.7	U		#	1.72	-
	pCi/L	04/05/2001	0001	0.92	U		#	0.92	-
	pCi/L	06/08/2001	0001	1.5	U		#	1.48	-
	pCi/L	08/23/2001	0001	3.3	B		#	1.48	-
	pCi/L	08/23/2001	N001	1.6	U		#	1.6444	-
Total Dissolved Solids	mg/L	06/20/2000	0001	1530		J	#	10	-
	mg/L	12/04/2000	0001	1690			#	10	-
	mg/L	04/05/2001	0001	790			#	10	-
	mg/L	06/08/2001	0001	1210			#	10	-
	mg/L	08/23/2001	0001	1730			#	10	-
	mg/L	08/23/2001	N001	1710			#	10	-
Turbidity	NTU	12/04/2000	N001	4.15			#	-	-
	NTU	06/08/2001	N001	3.87			#	-	-
	NTU	08/23/2001	N001	10.1			#	-	-
Uranium	mg/L	06/20/2000	0001	0.0119			#	0.0001	-
	mg/L	12/04/2000	0001	0.0333			#	0.0001	-
	mg/L	04/05/2001	0001	0.0096			#	0.0001	-
	mg/L	06/08/2001	0001	0.0146			#	0.0001	-
	mg/L	08/23/2001	0001	0.012			#	0.0001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0588
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	08/23/2001	N001	0.0122			#	0.00011	-
Uranium-234	pCi/L	04/05/2001	0001	3.6			#	0.4	-
Uranium-238	pCi/L	04/05/2001	0001	4.1			#	0.1	-
Vanadium	mg/L	06/20/2000	0001	0.0013	U		#	0.0013	-
	mg/L	12/04/2000	0001	0.0015	U		#	0.0015	-
	mg/L	04/05/2001	0001	0.0004	U		#	0.0004	-
	mg/L	06/08/2001	0001	0.00033	B		#	0.0003	-
	mg/L	08/23/2001	0001	0.00058	B		#	0.0003	-
	mg/L	08/23/2001	N001	0.0017	B		#	0.00033	-
Zinc	mg/L	06/20/2000	0001	0.0127	U		#	0.0127	-
	mg/L	12/04/2000	0001	0.010	U		#	0.0102	-
	mg/L	04/05/2001	0001	0.0095	U		#	0.0095	-
	mg/L	06/08/2001	0001	0.0141	B		#	0.0073	-
	mg/L	08/23/2001	0001	0.0141	B		#	0.0073	-
	mg/L	08/23/2001	N001	0.025	B		#	0.00811	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0588
REPORT DATE: 12/13/2001 11:01 am

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

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0642 TJACKSON, SURFACE WATER SEEP
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/03/1994	N001	224		F	#	-	-
Arsenic	mg/L	06/03/1994	0001	0.005	UW	FJ	#	0.005	-
Cadmium	mg/L	06/03/1994	0001	0.001	UW	FJ	#	0.001	-
Calcium	mg/L	06/03/1994	0001	151		F	#	1	-
Chloride	mg/L	06/03/1994	0001	29.4		F	#	0.5	-
Gross Alpha	pCi/L	06/09/1994	0001	0.0			#	3.6	± 4.70
Gross Beta	pCi/L	06/09/1994	0001	2.2			#	4.8	± 3.40
Iron	mg/L	06/03/1994	0001	0.03	U*	F	#	0.03	-
Lead	mg/L	06/03/1994	0001	0.003	U	F	#	0.003	-
Magnesium	mg/L	06/03/1994	0001	138	E	FJ	#	0.5	-
Manganese	mg/L	06/03/1994	0001	0.06		F	#	0.01	-
Molybdenum	mg/L	06/03/1994	0001	0.01	U	F	#	0.01	-
pH	s.u.	06/03/1994	N001	7.38		F	#	-	-
Potassium	mg/L	06/03/1994	0001	7.25		F	#	0.1	-
Radium-226	pCi/L	06/09/1994	0001	0.1			#	0.2	± 0.20
Radium-228	pCi/L	06/09/1994	0001	1.8			#	3.8	± 1.80
Selenium	mg/L	06/03/1994	0001	0.009	S	F	#	0.005	-
Silica	mg/L	06/03/1994	0001	15.1		F	#	0.1	-
Sodium	mg/L	06/03/1994	0001	103		F	#	5	-
Specific Conductance	umhos/cm	06/03/1994	N001	1500		F	#	-	-
Sulfate	mg/L	06/03/1994	0001	785	I	F	#	5	-
Temperature	C	06/03/1994	N001	15.1		F	#	-	-
Total Dissolved Solids	mg/L	06/03/1994	0001	1520		F	#	10	-
Uranium	mg/L	06/09/1994	0001	0.004			#	0.001	-
Vanadium	mg/L	06/03/1994	0001	0.01	U	F	#	0.01	-
Zinc	mg/L	06/03/1994	0001	0.05	U	F	#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0642 TJACKSON, SURFACE WATER SEEP
REPORT DATE: 12/13/2001 11:01 am

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

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	10/31/1995	N001	135		RX	#	-	-
	mg/L	06/20/1997	N001	32			#	-	-
	mg/L	06/12/1998	0001	78			#	-	-
	mg/L	06/12/1998	N001	83			#	-	-
	mg/L	06/30/1999	0001	43			#	-	-
	mg/L	06/30/1999	N001	41			#	-	-
	mg/L	11/08/1999	0001	122			#	-	-
	mg/L	11/08/1999	N001	124			#	-	-
	mg/L	06/21/2000	0001	88			#	-	-
	mg/L	06/21/2000	N001	84			#	-	-
	mg/L	12/06/2000	0001	94			#	-	-
	mg/L	12/06/2000	N001	93			#	-	-
	mg/L	04/05/2001	0001	102			#	-	-
	mg/L	04/05/2001	N001	98			#	-	-
	mg/L	06/07/2001	0001	42			#	-	-
	mg/L	06/07/2001	N001	46			#	-	-
	mg/L	08/23/2001	0001	114			#	-	-
	mg/L	08/23/2001	N001	114			#	-	-
Ammonium	mg/L	06/21/2000	0001	0.0145	B		#	0.0047	-
	mg/L	12/06/2000	0001	0.111			#	0.0047	-
	mg/L	04/05/2001	0001	0.0148	B		#	0.0062	-
	mg/L	06/07/2001	0001	0.0062	U		#	0.0062	-
	mg/L	08/23/2001	0001	0.031	B		#	0.0062	-
	mg/L	08/23/2001	N001	0.0221	B		#	0.0062	-
Antimony	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/12/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00094	B	U	#	-	-
	mg/L	11/08/1999	0001	0.00078	B	U	#	-	-
	mg/L	06/21/2000	0001	0.0002	U	U	#	0.0002	-
	mg/L	12/06/2000	0001	0.00065	B	U	#	0.0003	-
	mg/L	04/05/2001	0001	0.0011	B	U	#	0.0003	-
	mg/L	06/07/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0001	0.00024	B	U	#	0.0002	-
	mg/L	08/23/2001	N001	0.0011	B	U	#	0.00022	-
Arsenic	mg/L	11/09/1993	0001	0.005	UW	RX	#	0.005	-
	mg/L	11/09/1993	N001	0.005	UW	RX	#	0.005	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/12/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0010	U		#	0.001	-
	mg/L	11/08/1999	0001	0.00040	UN	J	#	0.0004	-
	mg/L	06/21/2000	0001	0.0003	U		#	0.0003	-
	mg/L	12/06/2000	0001	0.0002	U		#	0.0002	-
	mg/L	04/05/2001	0001	0.0005	U		#	0.0005	-
	mg/L	06/07/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/23/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/23/2001	N001	0.00056	U		#	0.00056	-
Cadmium	mg/L	11/09/1993	0001	0.001	U	RX	#	0.001	-
	mg/L	11/09/1993	N001	0.001	UW	RX	#	0.001	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/12/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00047	B		#	-	-
	mg/L	11/08/1999	0001	0.00044	B		#	-	-
	mg/L	06/21/2000	0001	0.00071	B	U	#	0.0002	-
	mg/L	12/06/2000	0001	0.0002	U		#	0.0002	-
	mg/L	04/05/2001	0001	0.00025	B		#	0.0002	-
	mg/L	06/07/2001	0001	0.0004	U		#	0.0004	-
	mg/L	08/23/2001	0001	0.00085	B	U	#	0.0003	-
	mg/L	08/23/2001	N001	0.00033	U		#	0.00033	-
Calcium	mg/L	11/09/1993	0001	94.6		RX	#	1	-
	mg/L	11/09/1993	N001	88.6		RX	#	1	-
	mg/L	06/20/1997	0001	18.800			#	-	-
	mg/L	06/12/1998	0001	39.800			#	-	-
	mg/L	06/30/1999	0001	20.900			#	-	-
	mg/L	11/08/1999	0001	81.500			#	-	-
	mg/L	06/21/2000	0001	49.700			#	0.0504	-
	mg/L	12/06/2000	0001	74.200			#	0.032	-
	mg/L	04/05/2001	0001	49.100			#	0.0642	-
	mg/L	06/07/2001	0001	22.100			#	0.0814	-
	mg/L	08/23/2001	0001	56.600			#	0.0814	-
	mg/L	08/23/2001	N001	57.800			#	0.09044	-
Chloride	mg/L	06/20/1997	0001	1.180			#	-	-
	mg/L	06/12/1998	0001	6.310			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	06/30/1999	0001	2.520			#	-	-
	mg/L	11/08/1999	0001	20.500			#	-	-
	mg/L	06/21/2000	0001	12.600			#	0.024	-
	mg/L	12/06/2000	0001	18.100			#	0.024	-
	mg/L	04/05/2001	0001	6.650			#	0.0149	-
	mg/L	06/07/2001	0001	2.590			#	0.0149	-
	mg/L	08/23/2001	0001	14.100			#	0.0149	-
	mg/L	08/23/2001	N001	14.200			#	0.0149	-
Chromium	mg/L	06/20/1997	0001	0.0040	U		#	0.004	-
	mg/L	06/12/1998	0001	0.0020	U		#	0.002	-
	mg/L	06/30/1999	0001	0.0042	U		#	0.0042	-
	mg/L	11/08/1999	0001	0.0025	U		#	0.0025	-
	mg/L	06/21/2000	0001	0.0035	U		#	0.0035	-
	mg/L	12/06/2000	0001	0.0059	U		#	0.0059	-
	mg/L	04/05/2001	0001	0.0008	U		#	0.0008	-
	mg/L	06/07/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	N001	0.00089	U		#	0.00089	-
Copper	mg/L	06/21/2000	0001	0.004	U		#	0.004	-
	mg/L	12/06/2000	0001	0.0025	U		#	0.0025	-
	mg/L	04/05/2001	0001	0.0034	U		#	0.0034	-
	mg/L	06/07/2001	0001	0.0025	B		#	0.0003	-
	mg/L	08/23/2001	0001	0.0017	B	U	#	0.0003	-
	mg/L	08/23/2001	N001	0.0036	B		#	0.00033	-
Gross Alpha	pCi/L	06/20/1997	0001	1.70	U		#	1.7	± 1.04
	pCi/L	06/12/1998	0001	2.37	U		#	2.37	± 1.28
	pCi/L	06/30/1999	0001	1.82	U		#	1.82	± 1.09
	pCi/L	11/08/1999	0001	3.18	U	J	#	3.18	± 2.06
	pCi/L	06/21/2000	0001	2.07	U		#	2.07	± 1.00
	pCi/L	12/06/2000	0001	3.50	U	J	#	3.5	± 1.72
	pCi/L	04/05/2001	0001	3.42	U	J	#	3.42	± 2.03
	pCi/L	06/07/2001	0001	2.64	U		#	2.64	± 1.40
	pCi/L	08/23/2001	0001	3.63	U	J	#	3.63	± 1.92
	pCi/L	08/23/2001	N001	3.63	U	J	#	3.63	± 2.10
Gross Beta	pCi/L	06/20/1997	0001	2.61	U		#	2.61	± 1.52

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Gross Beta	pCi/L	06/12/1998	0001	3.58	U		#	3.58	± 2.13
	pCi/L	06/30/1999	0001	2.38	U		#	2.38	± 1.44
	pCi/L	11/08/1999	0001	7.41			#	3.14	± 2.19
	pCi/L	06/21/2000	0001	3.06	U		#	3.06	± 1.84
	pCi/L	12/06/2000	0001	3.88	U		#	3.88	± 2.41
	pCi/L	04/05/2001	0001	4.68	U		#	4.68	± 2.71
	pCi/L	06/07/2001	0001	3.85	U		#	3.85	± 2.17
	pCi/L	08/23/2001	0001	3.94	U		#	3.94	± 2.20
	pCi/L	08/23/2001	N001	3.95	U		#	3.95	± 2.33
Iron	mg/L	11/09/1993	0001	0.03	U	RX	#	0.03	-
	mg/L	11/09/1993	N001	0.12		RX	#	0.03	-
	mg/L	06/21/2000	0001	0.0091	U		#	0.0091	-
	mg/L	12/06/2000	0001	0.011	U		#	0.011	-
	mg/L	04/05/2001	0001	0.0203	B		#	0.001	-
	mg/L	06/07/2001	0001	0.0237	B		#	0.0008	-
	mg/L	08/23/2001	0001	0.0041	B	U	#	0.0008	-
	mg/L	08/23/2001	N001	0.417	*	J	#	0.00089	-
Lead	mg/L	11/09/1993	0001	0.003	U	RX	#	0.003	-
	mg/L	11/09/1993	N001	0.003	U	RX	#	0.003	-
	mg/L	06/20/1997	0001	0.0010	B		#	-	-
	mg/L	06/12/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0012	B	U	#	-	-
	mg/L	11/08/1999	0001	0.00030	U		#	0.0003	-
	mg/L	06/21/2000	0001	0.0001	U		#	0.0001	-
	mg/L	12/06/2000	0001	0.0001	U		#	0.0001	-
	mg/L	04/05/2001	0001	0.0001	U		#	0.0001	-
	mg/L	06/07/2001	0001	0.00093	B	U	#	0.0001	-
	mg/L	08/23/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	N001	0.005		U	#	0.00011	-
Lead-210	pCi/L	06/21/2000	0001	0.99	U		#	0.99	± 0.57
	pCi/L	12/06/2000	0001	1.19	U		#	1.19	± 0.70
	pCi/L	04/05/2001	0001	1.25	U		#	1.25	± 0.71
	pCi/L	06/07/2001	0001	1.15	U		#	1.15	± 0.66
	pCi/L	08/23/2001	0001	1.25	U		#	1.25	± 0.74
	pCi/L	08/23/2001	N001	1.29	U		#	1.29	± 0.74

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Magnesium	mg/L	11/09/1993	0001	13.5		RX	#	0.1	-
	mg/L	11/09/1993	N001	13.8		RX	#	0.1	-
	mg/L	06/20/1997	0001	2.550			#	-	-
	mg/L	06/12/1998	0001	5.500			#	-	-
	mg/L	06/30/1999	0001	2.700			#	-	-
	mg/L	11/08/1999	0001	12.400			#	-	-
	mg/L	06/21/2000	0001	6.930			#	0.024	-
	mg/L	12/06/2000	0001	11.200			#	0.0471	-
	mg/L	04/05/2001	0001	8.700			#	0.0031	-
	mg/L	06/07/2001	0001	3.110			#	0.0034	-
	mg/L	08/23/2001	0001	8.090			#	0.0034	-
	mg/L	08/23/2001	N001	8.100			#	0.00378	-
Manganese	mg/L	11/09/1993	0001	0.11		RX	#	0.01	-
	mg/L	11/09/1993	N001	0.12		RX	#	0.01	-
	mg/L	06/20/1997	0001	0.0367			#	-	-
	mg/L	06/12/1998	0001	0.0518			#	-	-
	mg/L	06/30/1999	0001	0.0499			#	-	-
	mg/L	11/08/1999	0001	0.135			#	-	-
	mg/L	06/21/2000	0001	0.0679			#	0.0015	-
	mg/L	12/06/2000	0001	0.118			#	0.003	-
	mg/L	04/05/2001	0001	0.0581			#	0.0001	-
	mg/L	06/07/2001	0001	0.0514			#	0.0001	-
	mg/L	08/23/2001	0001	0.0731			#	0.0001	-
	mg/L	08/23/2001	N001	0.106			#	0.00011	-
Mercury	mg/L	11/09/1993	0001	0.0002	U	RX	#	0.0002	-
	mg/L	11/09/1993	N001	0.0002	U*	RX	#	0.0002	-
Molybdenum	mg/L	11/09/1993	0001	0.01	U	RX	#	0.01	-
	mg/L	11/09/1993	N001	0.01	U	RX	#	0.01	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/12/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0013	B		#	-	-
	mg/L	11/08/1999	0001	0.0013	B		#	-	-
	mg/L	06/21/2000	0001	0.0008	U		#	0.0008	-
	mg/L	12/06/2000	0001	0.0011	B		#	0.0003	-
	mg/L	04/05/2001	0001	0.0014	B	U	#	0.0004	-
	mg/L	06/07/2001	0001	0.003	U		#	0.003	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	08/23/2001	0001	0.003	U		#	0.003	-
	mg/L	08/23/2001	N001	0.0033	U		#	0.00333	-
Nitrate as NO3	mg/L	11/09/1993	0001	12.3		RXJ	#	1	-
	mg/L	11/09/1993	N001	11.8		RXJ	#	1	-
	mg/L	06/20/1997	0001	0.483	B		#	-	-
	mg/L	06/12/1998	0001	0.285	B		#	-	-
	mg/L	06/30/1999	0001	0.537			#	-	-
	mg/L	11/08/1999	0001	0.625	B		#	-	-
	mg/L	06/21/2000	0001	0.561	B		#	0.0314	-
	mg/L	12/06/2000	0001	0.850	B		#	0.0314	-
	mg/L	04/05/2001	0001	0.426	B		#	0.0171	-
	mg/L	06/07/2001	0001	0.507	B		#	0.0171	-
	mg/L	08/23/2001	0001	0.369	B		#	0.0305	-
	mg/L	08/23/2001	N001	0.388	B		#	0.0305	-
ORP of Zobell Solution	mV	06/21/2000	N001	243			#	-	-
	mV	12/06/2000	N001	253			#	-	-
	mV	04/05/2001	N001	224			#	-	-
	mV	06/07/2001	N001	231			#	-	-
	mV	08/23/2001	N001	229			#	-	-
Oxidation Reduction Potent	mV	06/12/1998	N001	162			#	-	-
	mV	06/30/1999	N001	43			#	-	-
	mV	11/08/1999	N001	180			#	-	-
	mV	06/21/2000	N001	45			#	-	-
	mV	12/06/2000	N001	134			#	-	-
	mV	04/05/2001	N001	62			#	-	-
	mV	06/07/2001	N001	160			#	-	-
	mV	08/23/2001	N001	209			#	-	-
pH	s.u.	10/31/1995	N001	8.28		RX	#	-	-
	s.u.	06/20/1997	N001	7.53			#	-	-
	s.u.	06/12/1998	N001	8.04			#	-	-
	s.u.	06/30/1999	N001	6.68			#	-	-
	s.u.	11/08/1999	N001	8.37			#	-	-
	s.u.	06/21/2000	N001	7.89			#	-	-
	s.u.	12/06/2000	N001	8.6			#	-	-
	s.u.	04/05/2001	N001	7.68			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	06/07/2001	N001	7.71			#	-	-
	s.u.	08/23/2001	N001	7.33			#	-	-
Polonium-210	pCi/L	06/21/2000	0001	0.06	U		#	0.06	± 0.07
	pCi/L	12/06/2000	0001	0.06	U		#	0.06	± 0.08
	pCi/L	04/05/2001	0001	0.08	UB		#	0.08	± 0.04
	pCi/L	06/07/2001	0001	0.07	U		#	0.07	± 0.04
	pCi/L	08/23/2001	0001	0.1	U		#	0.1	± 0.05
	pCi/L	08/23/2001	N001	0.1			#	0.07	± 0.05
Potassium	mg/L	06/20/1997	0001	0.644			#	-	-
	mg/L	06/12/1998	0001	1.380			#	-	-
	mg/L	06/30/1999	0001	0.695			#	-	-
	mg/L	11/08/1999	0001	3.570			#	-	-
	mg/L	06/21/2000	0001	2.020			#	0.0456	-
	mg/L	12/06/2000	0001	2.960			#	0.0359	-
	mg/L	04/05/2001	0001	1.500			#	0.0091	-
	mg/L	06/07/2001	0001	0.714			#	0.0088	-
	mg/L	08/23/2001	0001	2.160			#	0.0088	-
	mg/L	08/23/2001	N001	2.140			#	0.00978	-
Radium-226	pCi/L	06/21/2000	0001	0.11	U		#	0.11	± 0.06
	pCi/L	12/06/2000	0001	0.14	U		#	0.14	± 0.08
	pCi/L	04/05/2001	0001	0.12	U		#	0.12	± 0.07
	pCi/L	06/07/2001	0001	0.12	U		#	0.12	± 0.07
	pCi/L	08/23/2001	0001	0.11	U		#	0.11	± 0.07
	pCi/L	08/23/2001	N001	0.1	U		#	0.1	± 0.07
Radium-228	pCi/L	06/21/2000	0001	0.57	U		#	0.57	± 0.33
	pCi/L	12/06/2000	0001	0.73	U		#	0.73	± 0.43
	pCi/L	04/05/2001	0001	0.96	U		#	0.96	± 0.55
	pCi/L	06/07/2001	0001	0.9	U		#	0.9	± 0.52
	pCi/L	08/23/2001	0001	0.81	U		#	0.81	± 0.48
	pCi/L	08/23/2001	N001	0.87	U		#	0.87	± 0.51
Selenium	mg/L	11/09/1993	0001	0.005	U	RX	#	0.005	-
	mg/L	11/09/1993	N001	0.005	U	RX	#	0.005	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/12/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.0010	U		#	0.001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	11/08/1999	0001	0.00032	B		#	-	-
	mg/L	06/21/2000	0001	0.0015	U		#	0.0015	-
	mg/L	12/06/2000	0001	0.00019	B		#	0.0001	-
	mg/L	04/05/2001	0001	0.00061	B		#	0.0003	-
	mg/L	06/07/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	N001	0.00033	U		#	0.00033	-
Sodium	mg/L	06/20/1997	0001	1.800			#	-	-
	mg/L	06/12/1998	0001	7.490			#	-	-
	mg/L	06/30/1999	0001	2.830			#	-	-
	mg/L	11/08/1999	0001	21.700			#	-	-
	mg/L	06/21/2000	0001	12.600			#	0.434	-
	mg/L	12/06/2000	0001	18.300			#	0.525	-
	mg/L	04/05/2001	0001	8.600			#	0.0052	-
	mg/L	06/07/2001	0001	3.240	E	J	#	0.0085	-
	mg/L	08/23/2001	0001	13.400			#	0.0085	-
	mg/L	08/23/2001	N001	13.600			#	0.00944	-
Specific Conductance	umhos/cm	10/31/1995	N001	491		RX	#	-	-
	umhos/cm	06/20/1997	N001	138			#	-	-
	umhos/cm	06/12/1998	N001	299			#	-	-
	umhos/cm	06/30/1999	N001	173			#	-	-
	umhos/cm	11/08/1999	N001	625			#	-	-
	umhos/cm	06/21/2000	N001	368			#	-	-
	umhos/cm	12/06/2000	N001	579			#	-	-
	umhos/cm	04/05/2001	N001	385			#	-	-
	umhos/cm	06/07/2001	N001	172			#	-	-
	umhos/cm	08/23/2001	N001	411			#	-	-
Sulfate	mg/L	11/09/1993	0001	168		RX	#	1	-
	mg/L	11/09/1993	N001	130		RX	#	1	-
	mg/L	06/20/1997	0001	21.700			#	-	-
	mg/L	06/12/1998	0001	53.000			#	-	-
	mg/L	06/30/1999	0001	29.700			#	-	-
	mg/L	11/08/1999	0001	138.000			#	-	-
	mg/L	06/21/2000	0001	69.800			#	0.0589	-
	mg/L	12/06/2000	0001	133.000			#	0.0589	-
	mg/L	04/05/2001	0001	70.700			#	0.0253	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	06/07/2001	0001	29.700			#	0.0253	-
	mg/L	08/23/2001	0001	103.000			#	0.0253	-
	mg/L	08/23/2001	N001	103.000			#	0.0253	-
Temperature	C	10/31/1995	N001	11.2		RX	#	-	-
	C	06/20/1997	N001	9.0			#	-	-
	C	06/12/1998	N001	8.2			#	-	-
	C	06/30/1999	N001	11.6			#	-	-
	C	11/08/1999	N001	9.5			#	-	-
	C	06/21/2000	N001	15.7			#	-	-
	C	12/06/2000	N001	2.3			#	-	-
	C	04/05/2001	N001	6.5			#	-	-
	C	06/07/2001	N001	10.9			#	-	-
	C	08/23/2001	N001	16.4			#	-	-
Temperature of Zobell Solu	C	06/21/2000	N001	14.3			#	-	-
	C	12/06/2000	N001	4.8			#	-	-
	C	04/05/2001	N001	10.2			#	-	-
	C	06/07/2001	N001	16.1			#	-	-
	C	08/23/2001	N001	17.5			#	-	-
Thallium	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/12/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00038	B	U	#	-	-
	mg/L	11/08/1999	0001	0.00020	U		#	0.0002	-
	mg/L	06/21/2000	0001	0.0001	U		#	0.0001	-
	mg/L	12/06/2000	0001	0.0001	U		#	0.0001	-
	mg/L	04/05/2001	0001	0.0001	B	U	#	0.0001	-
	mg/L	06/07/2001	0001	0.00032	BE	UJ	#	-	-
	mg/L	08/23/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	N001	0.00011	U		#	0.00011	-
Thorium-230	pCi/L	06/21/2000	0001	2.6	U		#	2.6	-
	pCi/L	12/06/2000	0001	1.7	U		#	1.72	-
	pCi/L	04/05/2001	0001	0.92	U		#	0.92	-
	pCi/L	06/07/2001	0001	1.5	U		#	1.48	-
	pCi/L	08/23/2001	0001	2.4	B		#	1.48	-
	pCi/L	08/23/2001	N001	5.5			#	1.6444	-
Total Dissolved Solids	mg/L	11/09/1993	0001	411	H	RX	#	10	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Total Dissolved Solids	mg/L	11/09/1993	N001	410	H	RX	#	10	-
	mg/L	06/20/1997	0001	78.0			#	-	-
	mg/L	06/30/1999	0001	102			#	-	-
	mg/L	11/08/1999	0001	437			#	-	-
	mg/L	06/21/2000	0001	247			#	10	-
	mg/L	12/06/2000	0001	328			#	10	-
	mg/L	04/05/2001	0001	228			#	10	-
	mg/L	06/07/2001	0001	135			#	10	-
	mg/L	08/23/2001	0001	270			#	10	-
	mg/L	08/23/2001	N001	267			#	10	-
Turbidity	NTU	06/20/1997	N001	71.8			#	-	-
	NTU	06/12/1998	N001	4.68			#	-	-
	NTU	11/08/1999	N001	1.73			#	-	-
	NTU	06/07/2001	N001	16			#	-	-
	NTU	08/23/2001	N001	5.01			#	-	-
Uranium	mg/L	11/09/1993	0001	0.001	U	RX	#	0.001	-
	mg/L	11/09/1993	N001	0.001	U	RX	#	0.001	-
	mg/L	10/31/1995	0001	0.002		RX	#	0.001	-
	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/12/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00041	B	U	#	-	-
	mg/L	11/08/1999	0001	0.00085	B		#	-	-
	mg/L	06/21/2000	0001	0.00031	B		#	0.0001	-
	mg/L	12/06/2000	0001	0.0011			#	0.0001	-
	mg/L	04/05/2001	0001	0.0013	E	UJ	#	0.0001	-
	mg/L	06/07/2001	0001	0.00068	B	U	#	0.0001	-
	mg/L	08/23/2001	0001	0.00078	B		#	0.0001	-
	mg/L	08/23/2001	N001	0.00085	B		#	0.00011	-
Uranium-234	pCi/L	04/05/2001	0001	1.2	*	UJ	#	0.4	-
Uranium-238	pCi/L	04/05/2001	0001	0.41	B		#	0.1	-
Vanadium	mg/L	06/20/1997	0001	0.0010	U		#	0.001	-
	mg/L	06/12/1998	0001	0.0010	U		#	0.001	-
	mg/L	06/30/1999	0001	0.00082	B		#	-	-
	mg/L	11/08/1999	0001	0.0012	B		#	-	-
	mg/L	06/21/2000	0001	0.0013	U		#	0.0013	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0654 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	12/06/2000	0001	0.0015	U		#	0.0015	-
	mg/L	04/05/2001	0001	0.00049	B		#	0.0004	-
	mg/L	06/07/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	N001	0.00065	B		#	0.00033	-
Zinc	mg/L	11/09/1993	0001	0.012		RXJ	#	0.005	-
	mg/L	11/09/1993	N001	0.088		RXJ	#	0.005	-
	mg/L	06/21/2000	0001	0.0422	B		#	0.0127	-
	mg/L	12/06/2000	0001	0.0548			#	0.0102	-
	mg/L	04/05/2001	0001	0.0267	B		#	0.0095	-
	mg/L	06/07/2001	0001	0.0578			#	0.0073	-
	mg/L	08/23/2001	0001	0.0399	B		#	0.0073	-
	mg/L	08/23/2001	N001	0.0812			#	0.00811	-

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0656 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/28/2000	0001	80			#	-	-
	mg/L	06/28/2000	N001	80			#	-	-
	mg/L	12/06/2000	0001	86			#	-	-
	mg/L	12/06/2000	N001	90			#	-	-
	mg/L	03/28/2001	0001	104			#	-	-
	mg/L	03/28/2001	N001	104			#	-	-
	mg/L	06/11/2001	0001	37			#	-	-
	mg/L	06/11/2001	N001	59			#	-	-
	mg/L	08/23/2001	0001	54			#	-	-
	mg/L	08/23/2001	N001	65			#	-	-
Ammonium	mg/L	06/28/2000	0001	0.0239	B		#	0.0047	-
	mg/L	12/06/2000	0001	0.0337	B		#	0.0047	-
	mg/L	12/06/2000	0002	0.0298	B		#	0.0047	-
	mg/L	03/28/2001	0001	0.0176	B		#	0.0062	-
	mg/L	06/11/2001	0001	0.0062	U		#	0.0062	-
	mg/L	06/11/2001	0002	0.0062	U		#	0.0062	-
	mg/L	08/23/2001	0001	0.0064	B		#	0.0062	-
	mg/L	08/23/2001	0002	0.0091	B		#	0.0062	-
	mg/L	08/23/2001	N001	0.0139	B		#	0.0062	-
Antimony	mg/L	06/28/2000	0001	0.00021	B	U	#	0.0002	-
	mg/L	12/06/2000	0001	0.00087	B	U	#	0.0003	-
	mg/L	12/06/2000	0002	0.00084	B	U	#	0.0003	-
	mg/L	03/28/2001	0001	0.00046	B	U	#	0.0003	-
	mg/L	06/11/2001	0001	0.0008	U		#	0.0008	-
	mg/L	06/11/2001	0002	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0001	0.00028	B	U	#	0.0002	-
	mg/L	08/23/2001	0002	0.00026	B	U	#	0.0002	-
	mg/L	08/23/2001	N001	0.0011	B	U	#	0.00022	-
Arsenic	mg/L	11/10/1993	0001	0.005	UW	RX	#	0.005	-
	mg/L	11/10/1993	N001	0.005	UW	RX	#	0.005	-
	mg/L	06/28/2000	0001	0.0003	U		#	0.0003	-
	mg/L	12/06/2000	0001	0.00037	B		#	0.0002	-
	mg/L	12/06/2000	0002	0.0002	U		#	0.0002	-
	mg/L	03/28/2001	0001	0.0005	U		#	0.0005	-
	mg/L	06/11/2001	0001	0.0005	U		#	0.0005	-
	mg/L	06/11/2001	0002	0.0005	U		#	0.0005	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	08/23/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/23/2001	0002	0.0005	U		#	0.0005	-
	mg/L	08/23/2001	N001	0.00056	U		#	0.00056	-
Cadmium	mg/L	11/10/1993	0001	0.001	U	RX	#	0.001	-
	mg/L	11/10/1993	N001	0.001	U	RX	#	0.001	-
	mg/L	06/28/2000	0001	0.00077	B	U	#	0.0002	-
	mg/L	12/06/2000	0001	0.0002	U		#	0.0002	-
	mg/L	12/06/2000	0002	0.0002	U		#	0.0002	-
	mg/L	03/28/2001	0001	0.00033	B		#	0.0002	-
	mg/L	06/11/2001	0001	0.0004	U		#	0.0004	-
	mg/L	06/11/2001	0002	0.0004	U		#	0.0004	-
	mg/L	08/23/2001	0001	0.00082	B	U	#	0.0003	-
	mg/L	08/23/2001	0002	0.0008	B	U	#	0.0003	-
	mg/L	08/23/2001	N001	0.00033	U		#	0.00033	-
Calcium	mg/L	11/10/1993	0001	96.4		RX	#	1	-
	mg/L	11/10/1993	N001	90.3		RX	#	1	-
	mg/L	06/28/2000	0001	52.200			#	0.0504	-
	mg/L	12/06/2000	0001	76.700			#	0.032	-
	mg/L	12/06/2000	0002	76.400			#	0.032	-
	mg/L	03/28/2001	0001	56.800			#	0.0642	-
	mg/L	06/11/2001	0001	20.700			#	0.0814	-
	mg/L	06/11/2001	0002	20.700			#	0.0814	-
	mg/L	08/23/2001	0001	55.900			#	0.0814	-
	mg/L	08/23/2001	0002	56.100			#	0.0814	-
	mg/L	08/23/2001	N001	57.100			#	0.09044	-
Chloride	mg/L	06/28/2000	0001	13.600			#	0.024	-
	mg/L	12/06/2000	0001	17.900			#	0.024	-
	mg/L	12/06/2000	0002	18.000			#	0.024	-
	mg/L	03/28/2001	0001	8.110			#	0.0149	-
	mg/L	06/11/2001	0001	2.410			#	0.0149	-
	mg/L	06/11/2001	0002	2.400			#	0.0149	-
	mg/L	08/23/2001	0001	13.200			#	0.0149	-
	mg/L	08/23/2001	0002	12.900			#	0.0149	-
	mg/L	08/23/2001	N001	13.200			#	0.0149	-
Chromium	mg/L	06/28/2000	0001	0.0035	U		#	0.0035	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chromium	mg/L	12/06/2000	0001	0.0059	U		#	0.0059	-
	mg/L	12/06/2000	0002	0.0059	U		#	0.0059	-
	mg/L	03/28/2001	0001	0.0008	U		#	0.0008	-
	mg/L	06/11/2001	0001	0.0008	U		#	0.0008	-
	mg/L	06/11/2001	0002	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0002	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	N001	0.00089	U		#	0.00089	-
Copper	mg/L	06/28/2000	0001	0.004	U		#	0.004	-
	mg/L	12/06/2000	0001	0.0025	U		#	0.0025	-
	mg/L	12/06/2000	0002	0.0025	U		#	0.0025	-
	mg/L	03/28/2001	0001	0.0034	U		#	0.0034	-
	mg/L	06/11/2001	0001	0.0023	B	U	#	0.0003	-
	mg/L	06/11/2001	0002	0.0028	B		#	0.0003	-
	mg/L	08/23/2001	0001	0.0012	B	U	#	0.0003	-
	mg/L	08/23/2001	0002	0.0015	B	U	#	0.0003	-
	mg/L	08/23/2001	N001	0.004	B		#	0.00033	-
Gross Alpha	pCi/L	06/28/2000	0001	2.13	U		#	2.13	± 1.27
	pCi/L	12/06/2000	0001	3.51	U	J	#	3.51	± 1.92
	pCi/L	12/06/2000	0002	3.51	U	J	#	3.51	± 1.69
	pCi/L	03/28/2001	0001	3.06	U	J	#	3.06	± 1.77
	pCi/L	06/11/2001	0001	2.62	U		#	2.62	± 1.39
	pCi/L	06/11/2001	0002	2.6	U		#	2.6	± 1.43
	pCi/L	08/23/2001	0001	3.58	U	J	#	3.58	± 2.09
	pCi/L	08/23/2001	0002	3.58	U	J	#	3.58	± 1.78
	pCi/L	08/23/2001	N001	3.65	U	J	#	3.65	± 1.69
Gross Beta	pCi/L	06/28/2000	0001	3.57			#	3.08	± 1.93
	pCi/L	12/06/2000	0001	3.89	U		#	3.89	± 2.37
	pCi/L	12/06/2000	0002	3.88	U		#	3.88	± 2.31
	pCi/L	03/28/2001	0001	3.92	U		#	3.92	± 2.35
	pCi/L	06/11/2001	0001	3.85	U		#	3.85	± 2.21
	pCi/L	06/11/2001	0002	3.85	U		#	3.85	± 2.18
	pCi/L	08/23/2001	0001	3.95	U		#	3.95	± 2.27
	pCi/L	08/23/2001	0002	3.93	U		#	3.93	± 2.35
	pCi/L	08/23/2001	N001	3.93	U		#	3.93	± 2.29

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Iron	mg/L	11/10/1993	0001	0.03	U	RX	#	0.03	-
	mg/L	11/10/1993	N001	0.12		RX	#	0.03	-
	mg/L	06/28/2000	0001	0.0091	U		#	0.0091	-
	mg/L	12/06/2000	0001	0.011	U		#	0.011	-
	mg/L	12/06/2000	0002	0.011	U		#	0.011	-
	mg/L	03/28/2001	0001	0.0227	B		#	0.001	-
	mg/L	06/11/2001	0001	0.0119	B		#	0.0008	-
	mg/L	06/11/2001	0002	0.0123	B		#	0.0008	-
	mg/L	08/23/2001	0001	0.003	B	U	#	0.0008	-
	mg/L	08/23/2001	0002	0.0054	B	U	#	0.0008	-
	mg/L	08/23/2001	N001	0.640	*	J	#	0.00089	-
Lead	mg/L	11/10/1993	0001	0.003	UW	RX	#	0.003	-
	mg/L	11/10/1993	N001	0.003	U	RX	#	0.003	-
	mg/L	06/28/2000	0001	0.0001	U		#	0.0001	-
	mg/L	12/06/2000	0001	0.0001	U		#	0.0001	-
	mg/L	12/06/2000	0002	0.0001	U		#	0.0001	-
	mg/L	03/28/2001	0001	0.00024	B	U	#	0.0001	-
	mg/L	06/11/2001	0001	0.00085	B	U	#	0.0001	-
	mg/L	06/11/2001	0002	0.0009	B	U	#	0.0001	-
	mg/L	08/23/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	0002	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	N001	0.0055		U	#	0.00011	-
Lead-210	pCi/L	06/28/2000	0001	1.22	U		#	1.22	± 0.70
	pCi/L	12/06/2000	0001	1.17	U		#	1.17	± 0.68
	pCi/L	12/06/2000	0002	1.35	U		#	1.35	± 0.81
	pCi/L	03/28/2001	0001	1.33	U		#	1.33	± 0.77
	pCi/L	06/11/2001	0001	1.12	U		#	1.12	± 0.66
	pCi/L	06/11/2001	0002	1.22	U		#	1.22	± 0.69
	pCi/L	08/23/2001	0001	1.2	U		#	1.2	± 0.71
	pCi/L	08/23/2001	0002	1.25	U		#	1.25	± 0.73
	pCi/L	08/23/2001	N001	1.32	U		#	1.32	± 0.77
Magnesium	mg/L	11/10/1993	0001	13.7		RX	#	0.1	-
	mg/L	11/10/1993	N001	14.0		RX	#	0.1	-
	mg/L	06/28/2000	0001	7.380			#	0.024	-
	mg/L	12/06/2000	0001	11.100			#	0.0471	-
	mg/L	12/06/2000	0002	10.900			#	0.0471	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Magnesium	mg/L	03/28/2001	0001	10.800			#	0.0031	-
	mg/L	06/11/2001	0001	2.990			#	0.0034	-
	mg/L	06/11/2001	0002	3.030			#	0.0034	-
	mg/L	08/23/2001	0001	7.680			#	0.0034	-
	mg/L	08/23/2001	0002	7.660			#	0.0034	-
	mg/L	08/23/2001	N001	7.790			#	0.00378	-
Manganese	mg/L	11/10/1993	0001	0.11		RX	#	0.01	-
	mg/L	11/10/1993	N001	0.12		RX	#	0.01	-
	mg/L	06/28/2000	0001	0.0593			#	0.0015	-
	mg/L	12/06/2000	0001	0.123			#	0.003	-
	mg/L	12/06/2000	0002	0.124			#	0.003	-
	mg/L	03/28/2001	0001	0.0676			#	0.0001	-
	mg/L	06/11/2001	0001	0.0496			#	0.0001	-
	mg/L	06/11/2001	0002	0.0495			#	0.0001	-
	mg/L	08/23/2001	0001	0.062			#	0.0001	-
	mg/L	08/23/2001	0002	0.0617			#	0.0001	-
	mg/L	08/23/2001	N001	0.0913			#	0.00011	-
Mercury	mg/L	11/10/1993	0001	0.0002	U	RX	#	0.0002	-
	mg/L	11/10/1993	N001	0.0002	U*	RX	#	0.0002	-
Molybdenum	mg/L	11/10/1993	0001	0.01	U	RX	#	0.01	-
	mg/L	11/10/1993	N001	0.01	U	RX	#	0.01	-
	mg/L	06/28/2000	0001	0.0013	B		#	0.0008	-
	mg/L	12/06/2000	0001	0.001	B		#	0.0003	-
	mg/L	12/06/2000	0002	0.0011	B		#	0.0003	-
	mg/L	03/28/2001	0001	0.0011	B	U	#	0.0004	-
	mg/L	06/11/2001	0001	0.003	U		#	0.003	-
	mg/L	06/11/2001	0002	0.003	U		#	0.003	-
	mg/L	08/23/2001	0001	0.003	U		#	0.003	-
	mg/L	08/23/2001	0002	0.003	U		#	0.003	-
	mg/L	08/23/2001	N001	0.0033	U		#	0.00333	-
Nitrate as NO3	mg/L	11/10/1993	0001	14.6		RXJ	#	1	-
	mg/L	11/10/1993	N001	11.5		RXJ	#	1	-
	mg/L	06/28/2000	0001	0.854	B		#	0.0314	-
	mg/L	12/06/2000	0001	0.662	B		#	0.0314	-
	mg/L	12/06/2000	0002	0.662	B		#	0.0314	-

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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nitrate as NO3	mg/L	03/28/2001	0001	0.639	B		#	0.0171	-
	mg/L	06/11/2001	0001	0.567	B		#	0.0171	-
	mg/L	06/11/2001	0002	0.549	B		#	0.0171	-
	mg/L	08/23/2001	0001	0.363	B		#	0.0305	-
	mg/L	08/23/2001	0002	0.356	B		#	0.0305	-
	mg/L	08/23/2001	N001	0.356	B		#	0.0305	-
ORP of Zobell Solution	mV	06/28/2000	N001	221			#	-	-
	mV	12/06/2000	N001	247			#	-	-
	mV	03/28/2001	N001	235			#	-	-
	mV	06/11/2001	N001	235			#	-	-
	mV	08/23/2001	N001	229			#	-	-
Oxidation Reduction Potent	mV	06/28/2000	N001	33			#	-	-
	mV	12/06/2000	N001	153			#	-	-
	mV	03/28/2001	N001	69			#	-	-
	mV	06/11/2001	N001	198			#	-	-
	mV	08/23/2001	N001	128			#	-	-
pH	s.u.	06/28/2000	N001	7.66			#	-	-
	s.u.	12/06/2000	N001	8.03			#	-	-
	s.u.	03/28/2001	N001	8.18			#	-	-
	s.u.	06/11/2001	N001	7.6			#	-	-
	s.u.	08/23/2001	N001	7.98			#	-	-
Polonium-210	pCi/L	06/28/2000	0001	0.05	U		#	0.05	± 0.06
	pCi/L	12/06/2000	0001	0.07	U		#	0.07	± 0.09
	pCi/L	12/06/2000	0002	0.06	U		#	0.06	± 0.06
	pCi/L	03/28/2001	0001	0.07			#	0.06	± 0.04
	pCi/L	06/11/2001	0001	0.09	U		#	0.09	± 0.04
	pCi/L	06/11/2001	0002	0.05			#	0.03	± 0.03
	pCi/L	08/23/2001	0001	0.08	U		#	0.08	± 0.04
	pCi/L	08/23/2001	0002	0.07	U		#	0.07	± 0.04
	pCi/L	08/23/2001	N001	0.08	U		#	0.08	± 0.04
Potassium	mg/L	06/28/2000	0001	2.120			#	0.0456	-
	mg/L	12/06/2000	0001	3.020			#	0.0359	-
	mg/L	12/06/2000	0002	2.980			#	0.0359	-
	mg/L	03/28/2001	0001	1.890			#	0.0091	-
	mg/L	06/11/2001	0001	0.711			#	0.0088	-

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Potassium	mg/L	06/11/2001	0002	0.733			#	0.0088	-
	mg/L	08/23/2001	0001	2.070			#	0.0088	-
	mg/L	08/23/2001	0002	2.050			#	0.0088	-
	mg/L	08/23/2001	N001	2.170			#	0.00978	-
Radium-226	pCi/L	06/28/2000	0001	0.13	U		#	0.13	± 0.08
	pCi/L	12/06/2000	0001	0.18	U		#	0.18	± 0.10
	pCi/L	12/06/2000	0002	0.15	U		#	0.15	± 0.09
	pCi/L	03/28/2001	0001	0.14	U		#	0.14	± 0.08
	pCi/L	06/11/2001	0001	0.12			#	0.09	± 0.06
	pCi/L	06/11/2001	0002	0.11	U		#	0.11	± 0.07
	pCi/L	08/23/2001	0001	0.11	U		#	0.11	± 0.06
	pCi/L	08/23/2001	0002	0.11	U		#	0.11	± 0.06
	pCi/L	08/23/2001	N001	0.14			#	0.1	± 0.07
Radium-228	pCi/L	06/28/2000	0001	0.73	U		#	0.73	± 0.42
	pCi/L	12/06/2000	0001	0.94	U		#	0.94	± 0.55
	pCi/L	12/06/2000	0002	0.80	U		#	0.8	± 0.47
	pCi/L	03/28/2001	0001	0.93	U		#	0.93	± 0.55
	pCi/L	06/11/2001	0001	0.74	U		#	0.74	± 0.42
	pCi/L	06/11/2001	0002	0.9	U		#	0.9	± 0.51
	pCi/L	08/23/2001	0001	0.73	U		#	0.73	± 0.43
	pCi/L	08/23/2001	0002	0.74	U		#	0.74	± 0.44
	pCi/L	08/23/2001	N001	0.89	U		#	0.89	± 0.51
Selenium	mg/L	11/10/1993	0001	0.005	U	RX	#	0.005	-
	mg/L	11/10/1993	N001	0.005	U	RX	#	0.005	-
	mg/L	06/28/2000	0001	0.0015	U		#	0.0015	-
	mg/L	12/06/2000	0001	0.00033	B		#	0.0001	-
	mg/L	12/06/2000	0002	0.00028	B		#	0.0001	-
	mg/L	03/28/2001	0001	0.00096	B		#	0.0003	-
	mg/L	06/11/2001	0001	0.0003	U		#	0.0003	-
	mg/L	06/11/2001	0002	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	0002	0.00043	B		#	0.0003	-
	mg/L	08/23/2001	N001	0.00033	U		#	0.00033	-
Sodium	mg/L	06/28/2000	0001	13.200			#	0.434	-
	mg/L	12/06/2000	0001	17.500			#	0.525	-

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Sodium	mg/L	12/06/2000	0002	17.400			#	0.525	-
	mg/L	03/28/2001	0001	11.000			#	0.0052	-
	mg/L	06/11/2001	0001	3.280	E	J	#	0.0085	-
	mg/L	06/11/2001	0002	3.320	E	J	#	0.0085	-
	mg/L	08/23/2001	0001	11.400			#	0.0085	-
	mg/L	08/23/2001	0002	11.500			#	0.0085	-
	mg/L	08/23/2001	N001	11.700			#	0.00944	-
Specific Conductance	umhos/cm	06/28/2000	N001	395			#	-	-
	umhos/cm	12/06/2000	N001	583			#	-	-
	umhos/cm	03/28/2001	N001	443			#	-	-
	umhos/cm	06/11/2001	N001	175			#	-	-
	umhos/cm	08/23/2001	N001	417			#	-	-
Sulfate	mg/L	11/10/1993	0001	147		RX	#	1	-
	mg/L	11/10/1993	N001	149		RX	#	1	-
	mg/L	06/28/2000	0001	79.100			#	0.0589	-
	mg/L	12/06/2000	0001	144.000			#	0.0589	-
	mg/L	12/06/2000	0002	144.000			#	0.0589	-
	mg/L	03/28/2001	0001	93.700			#	0.0253	-
	mg/L	06/11/2001	0001	28.700			#	0.0253	-
	mg/L	06/11/2001	0002	29.200			#	0.0253	-
	mg/L	08/23/2001	0001	96.600			#	0.0253	-
	mg/L	08/23/2001	0002	96.400			#	0.0253	-
	mg/L	08/23/2001	N001	97.100			#	0.0253	-
Temperature	C	06/28/2000	N001	14			#	-	-
	C	12/06/2000	N001	4.5			#	-	-
	C	03/28/2001	N001	5.5			#	-	-
	C	06/11/2001	N001	12.4			#	-	-
	C	08/23/2001	N001	15.6			#	-	-
Temperature of Zobell Solu	C	06/28/2000	N001	16			#	-	-
	C	12/06/2000	N001	10			#	-	-
	C	03/28/2001	N001	6.3			#	-	-
	C	06/11/2001	N001	13.8			#	-	-
	C	08/23/2001	N001	17.5			#	-	-
Thallium	mg/L	06/28/2000	0001	0.0001	U		#	0.0001	-
	mg/L	12/06/2000	0001	0.0001	U		#	0.0001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0656 RESERVED FOR CDAY
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thallium	mg/L	12/06/2000	0002	0.0001	U		#	0.0001	-
	mg/L	03/28/2001	0001	0.00033	B	U	#	0.0001	-
	mg/L	06/11/2001	0001	0.00032	BE	UJ	#	-	-
	mg/L	06/11/2001	0002	0.00035	BE	UJ	#	-	-
	mg/L	08/23/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	0002	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	N001	0.00011	U		#	0.00011	-
Thorium-230	pCi/L	06/28/2000	0001	2.6	U		#	2.6	-
	pCi/L	12/06/2000	0001	1.7	U		#	1.72	-
	pCi/L	12/06/2000	0002	1.7	U		#	1.72	-
	pCi/L	03/28/2001	0001	0.92	U		#	0.92	-
	pCi/L	06/11/2001	0001	1.5	U		#	1.48	-
	pCi/L	06/11/2001	0002	1.5	U		#	1.48	-
	pCi/L	08/23/2001	0001	1.6	B		#	1.48	-
	pCi/L	08/23/2001	0002	6.5			#	1.48	-
	pCi/L	08/23/2001	N001	2.6	B		#	1.6444	-
Total Dissolved Solids	mg/L	11/10/1993	0001	421	H	RX	#	10	-
	mg/L	11/10/1993	N001	415	H	RX	#	10	-
	mg/L	06/28/2000	0001	265			#	10	-
	mg/L	12/06/2000	0001	347			#	10	-
	mg/L	12/06/2000	0002	338			#	10	-
	mg/L	03/28/2001	0001	285			#	10	-
	mg/L	06/11/2001	0001	120			#	10	-
	mg/L	06/11/2001	0002	105			#	10	-
	mg/L	08/23/2001	0001	275			#	10	-
	mg/L	08/23/2001	0002	270			#	10	-
	mg/L	08/23/2001	N001	273			#	10	-
Turbidity	NTU	06/11/2001	N001	30.4			#	-	-
	NTU	08/23/2001	N001	6.08			#	-	-
Uranium	mg/L	11/10/1993	0001	0.001	U	RX	#	0.001	-
	mg/L	11/10/1993	N001	0.001	U	RX	#	0.001	-
	mg/L	06/28/2000	0001	0.0011			#	0.0001	-
	mg/L	12/06/2000	0001	0.0011			#	0.0001	-
	mg/L	12/06/2000	0002	0.0011			#	0.0001	-
	mg/L	03/28/2001	0001	0.0011			#	0.0001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0656 RESERVED FOR CDAY
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	06/11/2001	0001	0.0007	B	U	#	0.0001	-
	mg/L	06/11/2001	0002	0.00072	B	U	#	0.0001	-
	mg/L	08/23/2001	0001	0.00067	B		#	0.0001	-
	mg/L	08/23/2001	0002	0.00071	B		#	0.0001	-
	mg/L	08/23/2001	N001	0.00085	B		#	0.00011	-
Uranium-234	pCi/L	03/28/2001	0001	0.72	B*	UJ	#	0.4	-
Uranium-238	pCi/L	03/28/2001	0001	0.49	B		#	0.1	-
Vanadium	mg/L	06/28/2000	0001	0.0013	U		#	0.0013	-
	mg/L	12/06/2000	0001	0.0016	B		#	0.0015	-
	mg/L	12/06/2000	0002	0.0015	U		#	0.0015	-
	mg/L	03/28/2001	0001	0.0004	U		#	0.0004	-
	mg/L	06/11/2001	0001	0.0003	U		#	0.0003	-
	mg/L	06/11/2001	0002	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	0002	0.00037	B	U	#	0.0003	-
	mg/L	08/23/2001	N001	0.0011	B		#	0.00033	-
Zinc	mg/L	11/10/1993	0001	0.019		RXJ	#	0.005	-
	mg/L	11/10/1993	N001	0.088		RXJ	#	0.005	-
	mg/L	06/28/2000	0001	0.0659			#	0.0127	-
	mg/L	12/06/2000	0001	0.0517			#	0.0102	-
	mg/L	12/06/2000	0002	0.0523			#	0.0102	-
	mg/L	03/28/2001	0001	0.0374	B		#	0.0095	-
	mg/L	06/11/2001	0001	0.0567			#	0.0073	-
	mg/L	06/11/2001	0002	0.0594			#	0.0073	-
	mg/L	08/23/2001	0001	0.0402	B		#	0.0073	-
	mg/L	08/23/2001	0002	0.0425	B		#	0.0073	-
	mg/L	08/23/2001	N001	0.0702			#	0.00811	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0656 RESERVED FOR CDAY
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0657 RESERVED FOR CDAY
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/20/2000	0001	70			#	-	-
	mg/L	06/20/2000	N001	78			#	-	-
	mg/L	11/30/2000	0001	106			#	-	-
	mg/L	11/30/2000	N001	93			#	-	-
	mg/L	03/28/2001	0001	104			#	-	-
	mg/L	03/28/2001	N001	103			#	-	-
	mg/L	06/08/2001	0001	46			#	-	-
	mg/L	06/08/2001	N001	44			#	-	-
	mg/L	08/23/2001	0001	91			#	-	-
	mg/L	08/23/2001	N001	98			#	-	-
Ammonium	mg/L	06/20/2000	0001	0.0047	U		#	0.0047	-
	mg/L	11/30/2000	0001	0.0151	B		#	0.0047	-
	mg/L	03/28/2001	0001	0.0148	B		#	0.0062	-
	mg/L	06/08/2001	0001	0.0062	U		#	0.0062	-
	mg/L	08/23/2001	0001	0.0064	B		#	0.0062	-
	mg/L	08/23/2001	N001	0.0084	B		#	0.0062	-
Antimony	mg/L	06/20/2000	0001	0.00052	B	U	#	0.0002	-
	mg/L	11/30/2000	0001	0.0003	U		#	0.0003	-
	mg/L	03/28/2001	0001	0.00049	B	U	#	0.0003	-
	mg/L	06/08/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0001	0.0003	B	U	#	0.0002	-
	mg/L	08/23/2001	N001	0.001	B	U	#	0.00022	-
Arsenic	mg/L	11/10/1993	0001	0.005	UW	RX	#	0.005	-
	mg/L	11/10/1993	N001	0.005	UW	RX	#	0.005	-
	mg/L	06/20/2000	0001	0.0003	U		#	0.0003	-
	mg/L	11/30/2000	0001	0.0002	U		#	0.0002	-
	mg/L	03/28/2001	0001	0.0005	U		#	0.0005	-
	mg/L	06/08/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/23/2001	0001	0.0005	U		#	0.0005	-
	mg/L	08/23/2001	N001	0.00056	U		#	0.00056	-
Cadmium	mg/L	11/10/1993	0001	0.001	U	RX	#	0.001	-
	mg/L	11/10/1993	N001	0.001	U	RX	#	0.001	-
	mg/L	06/20/2000	0001	0.0011		U	#	0.0002	-
	mg/L	11/30/2000	0001	0.0002	U		#	0.0002	-
	mg/L	03/28/2001	0001	0.0003	B		#	0.0002	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0657 RESERVED FOR CDAY
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Cadmium	mg/L	06/08/2001	0001	0.0004	U		#	0.0004	-
	mg/L	08/23/2001	0001	0.0009	B	U	#	0.0003	-
	mg/L	08/23/2001	N001	0.00033	U		#	0.00033	-
Calcium	mg/L	11/10/1993	0001	94.7		RX	#	1	-
	mg/L	11/10/1993	N001	90.7		RX	#	1	-
	mg/L	06/20/2000	0001	45.900			#	0.0504	-
	mg/L	11/30/2000	0001	74.100			#	0.032	-
	mg/L	03/28/2001	0001	56.200			#	0.0642	-
	mg/L	06/08/2001	0001	22.900			#	0.0814	-
	mg/L	08/23/2001	0001	55.200			#	0.0814	-
	mg/L	08/23/2001	N001	56.000			#	0.09044	-
Chloride	mg/L	06/20/2000	0001	10.800			#	0.024	-
	mg/L	11/30/2000	0001	15.200			#	0.024	-
	mg/L	03/28/2001	0001	8.140			#	0.0149	-
	mg/L	06/08/2001	0001	2.460			#	0.0149	-
	mg/L	08/23/2001	0001	12.400			#	0.0149	-
	mg/L	08/23/2001	N001	12.700			#	0.0149	-
Chromium	mg/L	06/20/2000	0001	0.0035	U		#	0.0035	-
	mg/L	11/30/2000	0001	0.0059	U		#	0.0059	-
	mg/L	03/28/2001	0001	0.0008	U		#	0.0008	-
	mg/L	06/08/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	0001	0.0008	U		#	0.0008	-
	mg/L	08/23/2001	N001	0.00089	U		#	0.00089	-
Copper	mg/L	06/20/2000	0001	0.004	U		#	0.004	-
	mg/L	11/30/2000	0001	0.0025	U		#	0.0025	-
	mg/L	03/28/2001	0001	0.0034	U		#	0.0034	-
	mg/L	06/08/2001	0001	0.0023	B	U	#	0.0003	-
	mg/L	08/23/2001	0001	0.0015	B		#	0.0003	-
	mg/L	08/23/2001	N001	0.0049	B		#	0.00033	-
Gross Alpha	pCi/L	06/20/2000	0001	1.97	U		#	1.97	± 1.18
	pCi/L	11/30/2000	0001	3.47	U	J	#	3.47	± 1.84
	pCi/L	03/28/2001	0001	3.04	U	J	#	3.04	± 1.69
	pCi/L	06/08/2001	0001	2.65	U		#	2.65	± 1.44
	pCi/L	08/23/2001	0001	3.51	U	J	#	3.51	± 2.05
	pCi/L	08/23/2001	N001	3.54	U	J	#	3.54	± 2.00

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0657 RESERVED FOR CDAY
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Gross Beta	pCi/L	06/20/2000	0001	3.05	U		#	3.05	± 1.84
	pCi/L	11/30/2000	0001	3.88	U		#	3.88	± 2.38
	pCi/L	03/28/2001	0001	3.91	U		#	3.91	± 2.34
	pCi/L	06/08/2001	0001	3.85	U		#	3.85	± 2.20
	pCi/L	08/23/2001	0001	3.94	U		#	3.94	± 2.29
	pCi/L	08/23/2001	N001	3.94	U		#	3.94	± 2.37
Iron	mg/L	11/10/1993	0001	0.03	U	RX	#	0.03	-
	mg/L	11/10/1993	N001	0.11		RX	#	0.03	-
	mg/L	06/20/2000	0001	0.0091	U		#	0.0091	-
	mg/L	11/30/2000	0001	0.0126	B	U	#	0.011	-
	mg/L	03/28/2001	0001	0.0147	B		#	0.001	-
	mg/L	06/08/2001	0001	0.0542			#	0.0008	-
	mg/L	08/23/2001	0001	0.0207	B	U	#	0.0008	-
	mg/L	08/23/2001	N001	0.675	*	J	#	0.00089	-
Lead	mg/L	11/10/1993	0001	0.003	UW	RX	#	0.003	-
	mg/L	11/10/1993	N001	0.003	U	RX	#	0.003	-
	mg/L	06/20/2000	0001	0.0001	U		#	0.0001	-
	mg/L	11/30/2000	0001	0.0001	U		#	0.0001	-
	mg/L	03/28/2001	0001	0.00024	B	U	#	0.0001	-
	mg/L	06/08/2001	0001	0.0011	B	U	#	0.0001	-
	mg/L	08/23/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	N001	0.0041		U	#	0.00011	-
Lead-210	pCi/L	06/20/2000	0001	1.05	U		#	1.05	± 0.60
	pCi/L	11/30/2000	0001	1.12	U		#	1.12	± 0.63
	pCi/L	03/28/2001	0001	1.38	U		#	1.38	± 0.77
	pCi/L	06/08/2001	0001	1.18	U		#	1.18	± 0.67
	pCi/L	08/23/2001	0001	1.21	U		#	1.21	± 0.69
	pCi/L	08/23/2001	N001	1.33	U		#	1.33	± 0.74
Magnesium	mg/L	11/10/1993	0001	13.4		RX	#	0.1	-
	mg/L	11/10/1993	N001	14.0		RX	#	0.1	-
	mg/L	06/20/2000	0001	6.280			#	0.024	-
	mg/L	11/30/2000	0001	10.300			#	0.0471	-
	mg/L	03/28/2001	0001	10.700			#	0.0031	-
	mg/L	06/08/2001	0001	3.210			#	0.0034	-
	mg/L	08/23/2001	0001	7.560			#	0.0034	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0657 RESERVED FOR CDAY
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Magnesium	mg/L	08/23/2001	N001	7.630			#	0.00378	-
Manganese	mg/L	11/10/1993	0001	0.11		RX	#	0.01	-
	mg/L	11/10/1993	N001	0.12		RX	#	0.01	-
	mg/L	06/20/2000	0001	0.065			#	0.0015	-
	mg/L	11/30/2000	0001	0.139			#	0.003	-
	mg/L	03/28/2001	0001	0.0684			#	0.0001	-
	mg/L	06/08/2001	0001	0.0445			#	0.0001	-
	mg/L	08/23/2001	0001	0.0613			#	0.0001	-
	mg/L	08/23/2001	N001	0.0997			#	0.00011	-
Mercury	mg/L	11/10/1993	0001	0.0002	U	RX	#	0.0002	-
	mg/L	11/10/1993	N001	0.0004	*	RX	#	0.0002	-
Molybdenum	mg/L	11/10/1993	0001	0.01	U	RX	#	0.01	-
	mg/L	11/10/1993	N001	0.01	U	RX	#	0.01	-
	mg/L	06/20/2000	0001	0.0017	B		#	0.0008	-
	mg/L	11/30/2000	0001	0.00093	B		#	0.0003	-
	mg/L	03/28/2001	0001	0.0011	B	U	#	0.0004	-
	mg/L	06/08/2001	0001	0.003	U		#	0.003	-
	mg/L	08/23/2001	0001	0.003	U		#	0.003	-
	mg/L	08/23/2001	N001	0.0033	U		#	0.00333	-
Nitrate as NO3	mg/L	11/10/1993	0001	11.2		RXJ	#	1	-
	mg/L	11/10/1993	N001	10.9		RXJ	#	1	-
	mg/L	06/20/2000	0001	0.452	B		#	0.0314	-
	mg/L	11/30/2000	0001	0.651	B		#	0.0314	-
	mg/L	03/28/2001	0001	0.627	B		#	0.0171	-
	mg/L	06/08/2001	0001	0.439	B		#	0.0171	-
	mg/L	08/23/2001	0001	0.369	B		#	0.0305	-
	mg/L	08/23/2001	N001	0.368	B		#	0.0305	-
ORP of Zobell Solution	mV	06/20/2000	N001	244			#	-	-
	mV	11/30/2000	N001	245			#	-	-
	mV	03/28/2001	N001	235			#	-	-
	mV	06/08/2001	N001	234			#	-	-
	mV	08/23/2001	N001	226			#	-	-
Oxidation Reduction Potent	mV	06/20/2000	N001	88			#	-	-
	mV	11/30/2000	N001	146			#	-	-
	mV	03/28/2001	N001	78			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
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PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Oxidation Reduction Potent	mV	06/08/2001	N001	137			#	-	-
	mV	08/23/2001	N001	174			#	-	-
pH	s.u.	06/20/2000	N001	7.83			#	-	-
	s.u.	11/30/2000	N001	7.99			#	-	-
	s.u.	03/28/2001	N001	7.65			#	-	-
	s.u.	06/08/2001	N001	7.82			#	-	-
	s.u.	08/23/2001	N001	7.85			#	-	-
Polonium-210	pCi/L	06/20/2000	0001	0.07	U		#	0.07	± 0.08
	pCi/L	11/30/2000	0001	0.06	U		#	0.06	± 0.08
	pCi/L	03/28/2001	0001	0.07			#	0.05	± 0.03
	pCi/L	06/08/2001	0001	0.09	U		#	0.09	± 0.05
	pCi/L	08/23/2001	0001	0.12	U		#	0.12	± 0.05
	pCi/L	08/23/2001	N001	0.11			#	0.07	± 0.05
Potassium	mg/L	06/20/2000	0001	1.760			#	0.0456	-
	mg/L	11/30/2000	0001	2.570			#	0.0359	-
	mg/L	03/28/2001	0001	1.860			#	0.0091	-
	mg/L	06/08/2001	0001	0.727			#	0.0088	-
	mg/L	08/23/2001	0001	1.990			#	0.0088	-
	mg/L	08/23/2001	N001	2.130			#	0.00978	-
Radium-226	pCi/L	06/20/2000	0001	0.12	U		#	0.12	± 0.07
	pCi/L	11/30/2000	0001	0.12	U		#	0.12	± 0.07
	pCi/L	03/28/2001	0001	0.13	U		#	0.13	± 0.07
	pCi/L	06/08/2001	0001	0.12	U		#	0.12	± 0.07
	pCi/L	08/23/2001	0001	0.1	U		#	0.1	± 0.06
	pCi/L	08/23/2001	N001	0.11			#	0.1	± 0.07
Radium-228	pCi/L	06/20/2000	0001	0.60	U		#	0.6	± 0.36
	pCi/L	11/30/2000	0001	0.67	U		#	0.67	± 0.39
	pCi/L	03/28/2001	0001	0.88	U		#	0.88	± 0.51
	pCi/L	06/08/2001	0001	0.9	U		#	0.9	± 0.52
	pCi/L	08/23/2001	0001	0.74	U		#	0.74	± 0.43
	pCi/L	08/23/2001	N001	0.87	U		#	0.87	± 0.51
Selenium	mg/L	11/10/1993	0001	0.005	U	RX	#	0.005	-
	mg/L	11/10/1993	N001	0.005	U	RX	#	0.005	-
	mg/L	06/20/2000	0001	0.0015	U		#	0.0015	-
	mg/L	11/30/2000	0001	0.00021	B		#	0.0001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0657 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	03/28/2001	0001	0.0003	U		#	0.0003	-
	mg/L	06/08/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	N001	0.00033	U		#	0.00033	-
Sodium	mg/L	06/20/2000	0001	10.400			#	0.434	-
	mg/L	11/30/2000	0001	16.000			#	0.525	-
	mg/L	03/28/2001	0001	10.100			#	0.0052	-
	mg/L	06/08/2001	0001	3.200	E	J	#	0.0085	-
	mg/L	08/23/2001	0001	10.900			#	0.0085	-
	mg/L	08/23/2001	N001	11.200			#	0.00944	-
Specific Conductance	umhos/cm	06/20/2000	N001	333			#	-	-
	umhos/cm	11/30/2000	N001	556			#	-	-
	umhos/cm	03/28/2001	N001	441			#	-	-
	umhos/cm	06/08/2001	N001	177			#	-	-
	umhos/cm	08/23/2001	N001	438			#	-	-
Sulfate	mg/L	11/10/1993	0001	148		RX	#	1	-
	mg/L	11/10/1993	N001	149		RX	#	1	-
	mg/L	06/20/2000	0001	65.300			#	0.0589	-
	mg/L	11/30/2000	0001	145.000			#	0.0589	-
	mg/L	03/28/2001	0001	91.800			#	0.0253	-
	mg/L	06/08/2001	0001	30.900			#	0.0253	-
	mg/L	08/23/2001	0001	94.700			#	0.0253	-
	mg/L	08/23/2001	N001	94.800			#	0.0253	-
Temperature	C	06/20/2000	N001	16.2			#	-	-
	C	11/30/2000	N001	5.2			#	-	-
	C	03/28/2001	N001	5.1			#	-	-
	C	06/08/2001	N001	10.2			#	-	-
	C	08/23/2001	N001	16			#	-	-
Temperature of Zobell Solu	C	06/20/2000	N001	11			#	-	-
	C	11/30/2000	N001	12.4			#	-	-
	C	03/28/2001	N001	6.3			#	-	-
	C	06/08/2001	N001	11.9			#	-	-
	C	08/23/2001	N001	21.2			#	-	-
Thallium	mg/L	06/20/2000	0001	0.0001	U		#	0.0001	-
	mg/L	11/30/2000	0001	0.0001	U		#	0.0001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0657 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thallium	mg/L	03/28/2001	0001	0.00033	B	U	#	0.0001	-
	mg/L	06/08/2001	0001	0.0003	BE	UJ	#	-	-
	mg/L	08/23/2001	0001	0.0001	U		#	0.0001	-
	mg/L	08/23/2001	N001	0.00011	U		#	0.00011	-
Thorium-230	pCi/L	06/20/2000	0001	4.1			#	2.6	-
	pCi/L	11/30/2000	0001	1.7	U		#	1.72	-
	pCi/L	03/28/2001	0001	0.92	U		#	0.92	-
	pCi/L	06/08/2001	0001	1.5	U		#	1.48	-
	pCi/L	08/23/2001	0001	2.6	B		#	1.48	-
	pCi/L	08/23/2001	N001	1.9	B		#	1.6444	-
Total Dissolved Solids	mg/L	11/10/1993	0001	420	H	RX	#	10	-
	mg/L	11/10/1993	N001	417	H	RX	#	10	-
	mg/L	06/20/2000	0001	247		J	#	10	-
	mg/L	11/30/2000	0001	355			#	10	-
	mg/L	03/28/2001	0001	285			#	10	-
	mg/L	06/08/2001	0001	133			#	10	-
	mg/L	08/23/2001	0001	265			#	10	-
	mg/L	08/23/2001	N001	260			#	10	-
Turbidity	NTU	06/08/2001	N001	15.7			#	-	-
	NTU	08/23/2001	N001	7.24			#	-	-
Uranium	mg/L	11/10/1993	0001	0.001		RX	#	0.001	-
	mg/L	11/10/1993	N001	0.001	U	RX	#	0.001	-
	mg/L	06/20/2000	0001	0.00088	B		#	0.0001	-
	mg/L	11/30/2000	0001	0.0011			#	0.0001	-
	mg/L	03/28/2001	0001	0.0011			#	0.0001	-
	mg/L	06/08/2001	0001	0.00068	B	U	#	0.0001	-
	mg/L	08/23/2001	0001	0.00072	B		#	0.0001	-
	mg/L	08/23/2001	N001	0.0008	B		#	0.00011	-
Uranium-234	pCi/L	03/28/2001	0001	0.56	B*	UJ	#	0.4	-
Uranium-238	pCi/L	03/28/2001	0001	0.46	B		#	0.1	-
Vanadium	mg/L	06/20/2000	0001	0.0013	U		#	0.0013	-
	mg/L	11/30/2000	0001	0.0015	U		#	0.0015	-
	mg/L	03/28/2001	0001	0.0004	U		#	0.0004	-
	mg/L	06/08/2001	0001	0.0003	U		#	0.0003	-
	mg/L	08/23/2001	0001	0.0003	U		#	0.0003	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0657 RESERVED FOR CDAY
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	08/23/2001	N001	0.0016	B		#	0.00033	-
Zinc	mg/L	11/10/1993	0001	0.008		RXJ	#	0.005	-
	mg/L	11/10/1993	N001	0.093		RXJ	#	0.005	-
	mg/L	06/20/2000	0001	0.0664			#	0.0127	-
	mg/L	11/30/2000	0001	0.0641			#	0.0102	-
	mg/L	03/28/2001	0001	0.0265	B		#	0.0095	-
	mg/L	06/08/2001	0001	0.0603			#	0.0073	-
	mg/L	08/23/2001	0001	0.0444	B		#	0.0073	-
	mg/L	08/23/2001	N001	0.073			#	0.00811	-

RECORDS: SELECTED FROM USEE102

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

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

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0692
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	04/04/1987	N001	202		RX	#	-	-
	mg/L	09/13/1987	N001	250		RX	#	-	-
	mg/L	11/18/1987	N001	87		RX	#	-	-
	mg/L	04/04/1988	N001	68		RX	#	-	-
	mg/L	07/01/1988	N001	184		RX	#	-	-
	mg/L	10/07/1988	N001	237		RX	#	-	-
	mg/L	04/02/1989	N001	254		RX	#	-	-
Ammonium	mg/L	04/02/1989	0001	0.1	U	RX	#	0.1	-
Arsenic	mg/L	04/04/1987	0001	0.001	U	RXJ	#	0.01	-
	mg/L	09/13/1987	0001	0.001	U	RXJ	#	0.01	-
	mg/L	11/18/1987	0001	0.050		RX	#	0.01	-
	mg/L	04/04/1988	0001	0.001	U	RXJ	#	0.01	-
	mg/L	07/01/1988	0001	0.01	U	RX	#	0.01	-
	mg/L	10/07/1988	0001	0.02		RX	#	0.01	-
	mg/L	04/02/1989	0001	0.01	U	RX	#	0.01	-
Barium	mg/L	04/04/1988	0001	0.03		RXJ	#	0.1	-
	mg/L	07/01/1988	0001	0.1	U	RX	#	0.1	-
	mg/L	10/07/1988	0001	0.1	U	RX	#	0.1	-
	mg/L	04/02/1989	0001	0.1	U	RX	#	0.1	-
Beryllium	mg/L	04/02/1989	0001	0.01	U	RX	#	0.01	-
Cadmium	mg/L	04/04/1987	0001	0.001	U	RX	#	0.001	-
	mg/L	09/13/1987	0001	0.005	U	RX	#	0.005	-
	mg/L	11/18/1987	0001	0.005	U	RX	#	0.005	-
	mg/L	04/04/1988	0001	0.001		RX	#	0.001	-
	mg/L	07/01/1988	0001	0.001	U	RX	#	0.001	-
	mg/L	10/07/1988	0001	0.001	U	RX	#	0.001	-
	mg/L	04/02/1989	0001	0.002		RX	#	0.001	-
Calcium	mg/L	04/04/1987	0001	104		RX	#	0.01	-
	mg/L	09/13/1987	0001	213		RX	#	0.01	-
	mg/L	11/18/1987	0001	367		RX	#	0.01	-
	mg/L	04/04/1988	0001	52.7		RX	#	0.01	-
	mg/L	07/01/1988	0001	188		RX	#	0.01	-
	mg/L	10/07/1988	0001	211		RX	#	0.01	-
	mg/L	04/02/1989	0001	189		RX	#	0.01	-
Chemical Oxygen Demand	mg/L	04/02/1989	0001	16		RX	#	5	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0692
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	04/04/1987	0001	10		RX	#	1	-
	mg/L	09/13/1987	0001	29		RX	#	1	-
	mg/L	11/18/1987	0001	12		RX	#	1	-
	mg/L	04/04/1988	0001	2.0		RX	#	1	-
	mg/L	07/01/1988	0001	17.6		RX	#	1	-
	mg/L	10/07/1988	0001	24		RX	#	1	-
	mg/L	04/02/1989	0001	20		RX	#	1	-
Chromium	mg/L	04/04/1988	0001	0.04		RX	#	0.01	-
	mg/L	07/01/1988	0001	0.01	U	RX	#	0.01	-
	mg/L	10/07/1988	0001	0.09		RX	#	0.01	-
	mg/L	04/02/1989	0001	0.01	U	RX	#	0.01	-
Cobalt	mg/L	04/02/1989	0001	0.05	U	RX	#	0.05	-
Copper	mg/L	04/04/1988	0001	0.01	U	RXJ	#	0.02	-
	mg/L	07/01/1988	0001	0.02	U	RX	#	0.02	-
	mg/L	10/07/1988	0001	0.02	U	RX	#	0.02	-
	mg/L	04/02/1989	0001	0.02	U	RX	#	0.02	-
Fluoride	mg/L	04/04/1988	0001	0.52		RX	#	0.1	-
	mg/L	07/01/1988	0001	0.3		RX	#	0.1	-
	mg/L	10/07/1988	0001	0.3		RX	#	0.1	-
	mg/L	04/02/1989	0001	0.3		RX	#	0.1	-
Gross Alpha	pCi/L	04/04/1988	0001	4.7		RX	#	0.2	± 3.30
	pCi/L	07/01/1988	0001	4.3		RX	#	0.2	± 12.0
	pCi/L	10/07/1988	0001	85		RX	#	0.2	± 19.0
	pCi/L	04/02/1989	0001	10		RX	#	0.2	± 10.0
Gross Beta	pCi/L	04/04/1988	0001	2.8		RX	#	1	± 1.60
	pCi/L	07/01/1988	0001	11		RX	#	1	± 8.90
	pCi/L	10/07/1988	0001	45		RX	#	1	± 8.00
	pCi/L	04/02/1989	0001	11		RX	#	1	± 5.00
Iron	mg/L	04/04/1987	0001	0.08		RX	#	0.03	-
	mg/L	09/13/1987	0001	0.01	U	RXJ	#	0.03	-
	mg/L	11/18/1987	0001	0.07		RX	#	0.03	-
	mg/L	04/04/1988	0001	0.03		RX	#	0.03	-
	mg/L	07/01/1988	0001	0.03	U	RX	#	0.03	-
	mg/L	10/07/1988	0001	0.07		RX	#	0.03	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0692
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Iron	mg/L	04/02/1989	0001	0.06		RX	#	0.03	-
Lead	mg/L	04/04/1988	0001	0.01	U	RX	#	0.01	-
	mg/L	07/01/1988	0001	0.01	U	RX	#	0.01	-
	mg/L	10/07/1988	0001	0.01	U	RX	#	0.01	-
	mg/L	04/02/1989	0001	0.01	U	RX	#	0.01	-
Magnesium	mg/L	04/04/1987	0001	79.1		RX	#	0.001	-
	mg/L	09/13/1987	0001	204		RX	#	0.001	-
	mg/L	11/18/1987	0001	54.9		RX	#	0.001	-
	mg/L	04/04/1988	0001	32.0		RX	#	0.001	-
	mg/L	07/01/1988	0001	192		RX	#	0.001	-
	mg/L	10/07/1988	0001	206		RX	#	0.001	-
	mg/L	04/02/1989	0001	166		RX	#	0.001	-
Manganese	mg/L	04/04/1987	0001	0.03		RX	#	0.01	-
	mg/L	09/13/1987	0001	0.01	U	RX	#	0.01	-
	mg/L	11/18/1987	0001	0.13		RX	#	0.01	-
	mg/L	04/04/1988	0001	0.03		RX	#	0.01	-
	mg/L	07/01/1988	0001	0.01	U	RX	#	0.01	-
	mg/L	10/07/1988	0001	0.03		RX	#	0.01	-
	mg/L	04/02/1989	0001	0.09	U	RX	#	0.09	-
Mercury	mg/L	04/04/1987	0001	0.0002	U	RX	#	0.0002	-
	mg/L	09/13/1987	0001	0.0002	U	RX	#	0.0002	-
	mg/L	11/18/1987	0001	0.0002	U	RX	#	0.0002	-
	mg/L	04/04/1988	0001	0.0008		RX	#	0.0002	-
	mg/L	07/01/1988	0001	0.0002	U	RX	#	0.0002	-
	mg/L	10/07/1988	0001	0.0002	U	RX	#	0.0002	-
	mg/L	04/02/1989	0001	0.0002		RX	#	0.0002	-
Molybdenum	mg/L	04/04/1987	0001	0.1	U	RX	#	0.1	-
	mg/L	09/13/1987	0001	0.10		RX	#	0.01	-
	mg/L	11/18/1987	0001	0.29		RX	#	0.01	-
	mg/L	04/04/1988	0001	0.02		RX	#	0.01	-
	mg/L	07/01/1988	0001	0.01	U	RX	#	0.01	-
	mg/L	10/07/1988	0001	0.06		RX	#	0.01	-
	mg/L	04/02/1989	0001	0.01	U	RX	#	0.01	-
Nickel	mg/L	04/02/1989	0001	0.04	U	RX	#	0.04	-
Nitrate as NO3	mg/L	04/04/1988	0001	0.1	U	RXJ	#	1	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0692
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nitrate as NO3	mg/L	07/01/1988	0001	3.8		RX	#	1	-
	mg/L	10/07/1988	0001	1.0	U	RX	#	1	-
	mg/L	04/02/1989	0001	2.9		RX	#	1	-
pH	s.u.	04/04/1987	N001	8.46		RX	#	-	-
	s.u.	09/13/1987	N001	8.1		RX	#	-	-
	s.u.	11/18/1987	N001	8.00		RX	#	-	-
	s.u.	04/04/1988	N001	7.65		RX	#	-	-
	s.u.	07/01/1988	N001	8.29		RX	#	-	-
	s.u.	10/07/1988	N001	8.46		RX	#	-	-
	s.u.	04/02/1989	N001	8.38		RX	#	-	-
Potassium	mg/L	04/04/1987	0001	3.37		RX	#	0.01	-
	mg/L	09/13/1987	0001	8.20		RX	#	0.01	-
	mg/L	11/18/1987	0001	5.18		RX	#	0.01	-
	mg/L	04/04/1988	0001	1.76		RX	#	0.01	-
	mg/L	07/01/1988	0001	6.5		RX	#	0.01	-
	mg/L	10/07/1988	0001	10.4		RX	#	0.01	-
	mg/L	04/02/1989	0001	6.07		RX	#	0.01	-
Radium-226	pCi/L	04/04/1987	0001	0.1		RX	#	1	± 0.20
	pCi/L	09/13/1987	0001	0.3		RX	#	1	± 0.20
	pCi/L	11/18/1987	0001	1.1		RX	#	1	± 0.40
	pCi/L	04/04/1988	0001	0.1		RX	#	1	± 0.20
	pCi/L	07/01/1988	0001	6.0		RX	#	1	± 1.00
	pCi/L	10/07/1988	0001	4.2		RX	#	1	± 0.60
	pCi/L	04/02/1989	0001	0.7		RX	#	1	± 0.30
Radium-228	pCi/L	09/13/1987	0001	0.9		RX	#	1	± 1.50
	pCi/L	11/18/1987	0001	0.3		RX	#	1	± 1.50
	pCi/L	04/04/1988	0001	0.0		RX	#	1	± 0.70
	pCi/L	07/01/1988	0001	1.0		RX	#	1	± 1.20
	pCi/L	10/07/1988	0001	0.7		RX	#	1	± 0.70
	pCi/L	04/02/1989	0001	0.2		RX	#	1	± 0.90
Selenium	mg/L	04/04/1987	0001	0.002	U	RXJ	#	0.005	-
	mg/L	09/13/1987	0001	0.001	U	RXJ	#	0.005	-
	mg/L	11/18/1987	0001	0.026		RX	#	0.005	-
	mg/L	04/04/1988	0001	0.001	U	RXJ	#	0.005	-
	mg/L	07/01/1988	0001	0.005	U	RX	#	0.005	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0692
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	10/07/1988	0001	0.015		RX	#	0.005	-
	mg/L	04/02/1989	0001	0.026		RX	#	0.005	-
Silver	mg/L	04/04/1987	0001	0.01	U	RX	#	0.01	-
	mg/L	09/13/1987	0001	0.01	U	RX	#	0.01	-
	mg/L	11/18/1987	0001	0.01		RX	#	0.01	-
	mg/L	04/04/1988	0001	0.01	U	RX	#	0.01	-
	mg/L	07/01/1988	0001	0.01	U	RX	#	0.01	-
	mg/L	10/07/1988	0001	0.01	U	RX	#	0.01	-
	mg/L	04/02/1989	0001	0.01	U	RX	#	0.01	-
Sodium	mg/L	04/04/1987	0001	77.9		RX	#	0.002	-
	mg/L	09/13/1987	0001	133		RX	#	0.002	-
	mg/L	11/18/1987	0001	72.1		RX	#	0.002	-
	mg/L	04/04/1988	0001	18.1		RX	#	0.002	-
	mg/L	07/01/1988	0001	93		RX	#	0.002	-
	mg/L	10/07/1988	0001	109		RX	#	0.002	-
	mg/L	04/02/1989	0001	92.0		RX	#	0.002	-
Specific Conductance	umhos/cm	04/04/1987	N001	800		RX	#	-	-
	umhos/cm	09/13/1987	N001	2400		RX	#	-	-
	umhos/cm	11/18/1987	N001	1078		RX	#	-	-
	umhos/cm	04/04/1988	N001	411		RX	#	-	-
	umhos/cm	07/01/1988	N001	1625		RX	#	-	-
	umhos/cm	10/07/1988	N001	1600		RX	#	-	-
	umhos/cm	04/02/1989	N001	1000		RX	#	-	-
Sulfate	mg/L	04/04/1987	0001	518		RX	#	0.1	-
	mg/L	09/13/1987	0001	1220		RX	#	0.1	-
	mg/L	11/18/1987	0001	1170		RX	#	0.1	-
	mg/L	04/04/1988	0001	214		RX	#	0.1	-
	mg/L	07/01/1988	0001	1210		RX	#	0.1	-
	mg/L	10/07/1988	0001	1320		RX	#	0.1	-
	mg/L	04/02/1989	0001	1040		RX	#	0.1	-
Sulfide	mg/L	04/02/1989	0001	0.1	U	RX	#	0.1	-
Temperature	C	04/04/1987	N001	13.5		RX	#	-	-
	C	09/13/1987	N001	18.5		RX	#	-	-
	C	11/18/1987	N001	1.7		RX	#	-	-
	C	04/04/1988	N001	12.3		RX	#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0692
REPORT DATE: 12/13/2001 11:01 am

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Temperature	C	07/01/1988	N001	16.0		RX	#	-	-
	C	10/07/1988	N001	12.0		RX	#	-	-
	C	04/02/1989	N001	4.0		RX	#	-	-
Thallium	mg/L	04/02/1989	0001	0.01	U	RX	#	0.01	-
Thorium-230	pCi/L	04/04/1987	0001	0.0		RX	#	1	± 0.40
	pCi/L	09/13/1987	0001	0.0		RX	#	1	± 0.50
	pCi/L	11/18/1987	0001	0.1		RX	#	1	± 0.50
Tin	mg/L	04/02/1989	0001	0.005	U	RX	#	0.005	-
Total Cyanide	mg/L	04/02/1989	0001	0.01	U	RX	#	0.01	-
Total Dissolved Solids	mg/L	04/04/1987	0001	970		RX	#	10	-
	mg/L	09/13/1987	0001	2560		RX	#	10	-
	mg/L	11/18/1987	0001	1720		RX	#	10	-
	mg/L	04/04/1988	0001	366		RX	#	10	-
	mg/L	07/01/1988	0001	1890		RX	#	10	-
	mg/L	10/07/1988	0001	2210		RX	#	10	-
	mg/L	04/02/1989	0001	1730		RX	#	10	-
Uranium	mg/L	04/04/1987	0001	0.0033		RX	#	0.003	-
	mg/L	09/13/1987	0001	0.0079		RX	#	0.003	-
	mg/L	11/18/1987	0001	0.311		RX	#	0.003	-
	mg/L	04/04/1988	0001	0.0017		RXJ	#	0.003	-
	mg/L	07/01/1988	0001	0.021		RX	#	0.003	-
	mg/L	10/07/1988	0001	0.0370		RX	#	0.003	-
	mg/L	04/02/1989	0001	0.0156		RX	#	0.003	-
Vanadium	mg/L	04/02/1989	0001	0.03		RX	#	0.01	-
Zinc	mg/L	04/04/1988	0001	0.011		RX	#	0.005	-
	mg/L	07/01/1988	0001	0.005	U	RX	#	0.005	-
	mg/L	10/07/1988	0001	0.005	U	RX	#	0.005	-
	mg/L	04/02/1989	0001	0.029		RX	#	0.005	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE DUR02, DURANGO RAFFINATE PONDS
LOCATION: 0692
REPORT DATE: 12/13/2001 11:01 am

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

RECORDS: SELECTED FROM USEE102

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

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

Appendix F

Aquifer Pumping Test Calculation

Technical Task Cover Sheet

Discipline: Hydrology **Number of Sheets** 12

Project:

UMTRA Ground Water

Site:

Durango

Subject:

Slug Tests

Sources of Data:

U.S. Department of Interior Bureau of Reclamation Durango Projects Office, 1990. *Durango Pumping Plant Animas La Plata Project Hydrogeochemical Site Characterization,* Volumes I and II, November.

Bouwer, H. and R.C. Rice, 1976. "A slug test for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells," *Water Resources Research,* 12:423–428.

Bouwer, Herman, 1989. "The Bouwer and Rice Slug Test—An Update," *Ground Water Journal,* 27(3):304–309, May–June.

Environmental Simulations, Inc., 1997–2000. AquiferWin32 Version 2.31 software, Developed by Doug Rumbaugh and Jim Rumbaugh, Herndon, Virginia (703) 834-3054.

Kearl, Peter, John Ludlam, Verner Johnson, and Don Diego Gonzalez, 1983. *Preliminary Hydrogeochemical Characterization of the Durango, Colorado, Tailings and Raffinate Ponds Areas,* GJ-03(83), prepared for the U.S. Department of Energy, Uranium Mill Tailings Remedial Action Project Technology Development, contract DE-AC07-76GJO1664, U.S. Department of Energy Grand Junction Area Office, Grand Junction, Colorado, April.

Task Order No. MAC01-05 File Index No. GWDUR 1.1

Proj. No. UGW-511-0006-08-000 Calc. No. U0133300 Supersedes Calc. No. N/A

Calculated by	Date	Checked by	Date	Approved by	Date	DOE Concurrence (if required)	Date
Mark Kautsky	7-03-01	Craig Goodlight	7/5/01 7/9/01		05/16/01		

Problem Statement

Estimates of hydraulic conductivity are required for site characterization at UMTRA Ground Water Project sites. The estimates are used to make modeling predictions of the flushing rate of contamination in ground water from beneath former tailings sites.

Method of Solution

The Durango UMTRA Project site is composed of two sites: the former tailings area and the raffinate ponds. Hydrogeologic units in the tailings area consists of Animas River and Lightner Creek alluvial deposits resting on Mancos Shale bedrock. The saturated alluvium is up to 5 feet (ft) thick, and the maximum thickness of saturation occurs during spring-runoff in May and June. The depth to water ranges from less than 5 ft to more than 50 ft. Pumping tests were considered as a means to characterize the alluvium but were ruled out because of a thin saturated zone. In addition, where the depth to water exceeds 25 ft, centrifugal pumps cannot be used. Near well 631 the saturated alluvium is only about 2 ft thick; therefore, it is impractical to perform a multiple-well pumping test at that location. In other locations, the depth to water exceeds 25 ft. At these locations, a submersible pump is required but cannot be used effectively because the pump is too long to adequately stress a thin aquifer. Consequently, the technical team recommended using slug tests to characterize the alluvial aquifer at the mill tailings site. Slug tests were performed at wells 612, 622, 630, 631, 633, 634, and 863 (Figure 1).

Ground water at the raffinate ponds site occurs in bedrock units of the Menefee Formation and the Point Lookout Sandstone. Except where the Bodo Fault crosses the raffinate ponds area, the low hydraulic conductivity of the bedrock formations makes it difficult to measure drawdown in observation wells. Along the Bodo Fault, Kearl and others (1983) successfully performed a pumping test, and the findings from that test are included in Appendix A and in the statistical summary (Table 2) of this calculation. Because of the anticipated low hydraulic conductivity of the bedrock formations, slug tests were recommended for characterizing the hydraulic conductivity at the raffinate ponds area. Slug tests were performed at wells 602, 876, 878, 879, 881, 882, 883, 888, 889, 890, and 902 (Figure 1).

In November 1990, the U.S. Bureau of Reclamation also performed slug tests and packer tests at the former raffinate ponds site as part of the design of the pumping plant for the Animas La-Plata water project. Results of those tests are in the U.S. Department of Interior Bureau of Reclamation Durango Projects Office and are included in Appendix B and the statistical summary (Table 2) of this calculation.

Assumptions

As presented in Bouwer and Rice (1976), the analyses of slug test data are based on the assumptions that

(1) Drawdown of the water table around the well is negligible.
(2) Flow above the water table (in the capillary fringe) can be ignored.
(3) Head losses as water enters the well (well losses) are negligible.
(4) The aquifer is homogeneous and isotropic.

Sources of Formulas and References:

The two primary references on slug testing are Bouwer and Rice (1976) and Bouwer (1989).

In situ MiniTroll data loggers were used to collect the water level data during the slug tests. WinSitu 2000 software was used to program the data loggers, download the field data, and export the data files to Microsoft Excel Worksheet files. Excel software was used to format the data prior to analysis. AquiferWin32 software (ESI, Inc. 1997–2000) was used to analyze the field data, solve for the hydraulic conductivity, and create data reports in Windows Metafile format.

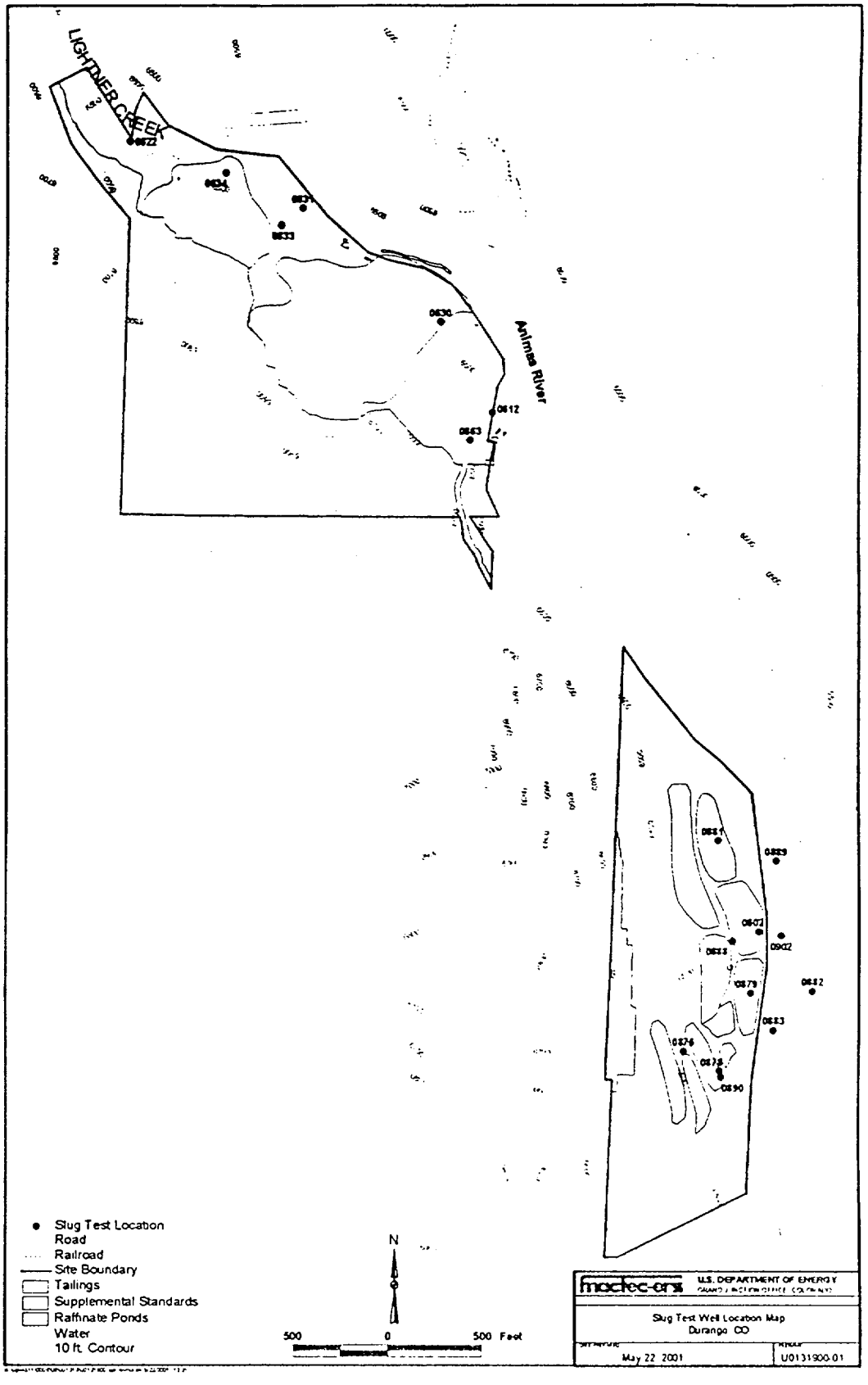

Figure 1. Slug Test Well Location Map

Calculation

Hydraulic conductivity (K) is calculated from the following equation:

$$K = \frac{r_c^2 \ln(R_e / r_w)}{2L_e t} \ln(y_0 / y_t)$$

where

r_c is the radius of the casing or other section of the well where the rise of the water level is measured,
R_e is the effective radial distance over which the water level change is dissipated,
r_w is the radial distance from the centerline of the well to the undisturbed portion of the aquifer,
L_e is the screen length of the well,
y_0 is the water level decline in the well at time 0,
y_t is the water level decline in the well at any time t, and
t is the time elapsed since the beginning of the test.

In some cases, the water level decline takes place inside the screened zone of the well. In these cases, r_w includes the open section of the well plus the radial thickness of the sand or gravel pack and the developed zone around the well. A porosity of 30 percent is assumed for the gravel and sand pack surrounding the well screen.

The field data are used to create an input file for the analysis software. The field data are formatted in two columns: the left column contains the elapsed time since the test began; the right column contains the values of the water level depression since the test began. Appendix C contains the time and water level data for each of the tests performed. Table 1 presents a summary of the slug tests.

Table 1. Summary of Slug Tests Performed at the Durango Site by MACTEC-ERS

	Well	Hydraulic Conductivity (ft/day)	Formation		Well	Hydraulic Conductivity (ft/day)	Formation
DUR-01 Tailings Area	612	10	Alluvium	DUR-02 Raffinate Ponds Area	602	0.26	Menefee
	612-dup	13	Alluvium		876	0.09	Menefee
	622	66	Lightner Cr. Alluvium		878	1	Menefee
	630	13	Alluvium		879	0.043	Menefee
	631	27	Alluvium		881	0.016	Point Lookout
	631-dup	26	Alluvium		882	4.7	Menefee (coal)
	633	1	Alluvium		882-dup	5.3	Menefee (coal)
	634	8	Alluvium		883	0.017	Menefee
	863	26	Alluvium		888	6.4	Menefee (Fault)
	863-dup	28	Alluvium		889	0.014	Point Lookout
					890	0.3	Menefee
					902	0.003	Menefee

Note: All alluvium is derived from the Animas River unless noted otherwise.

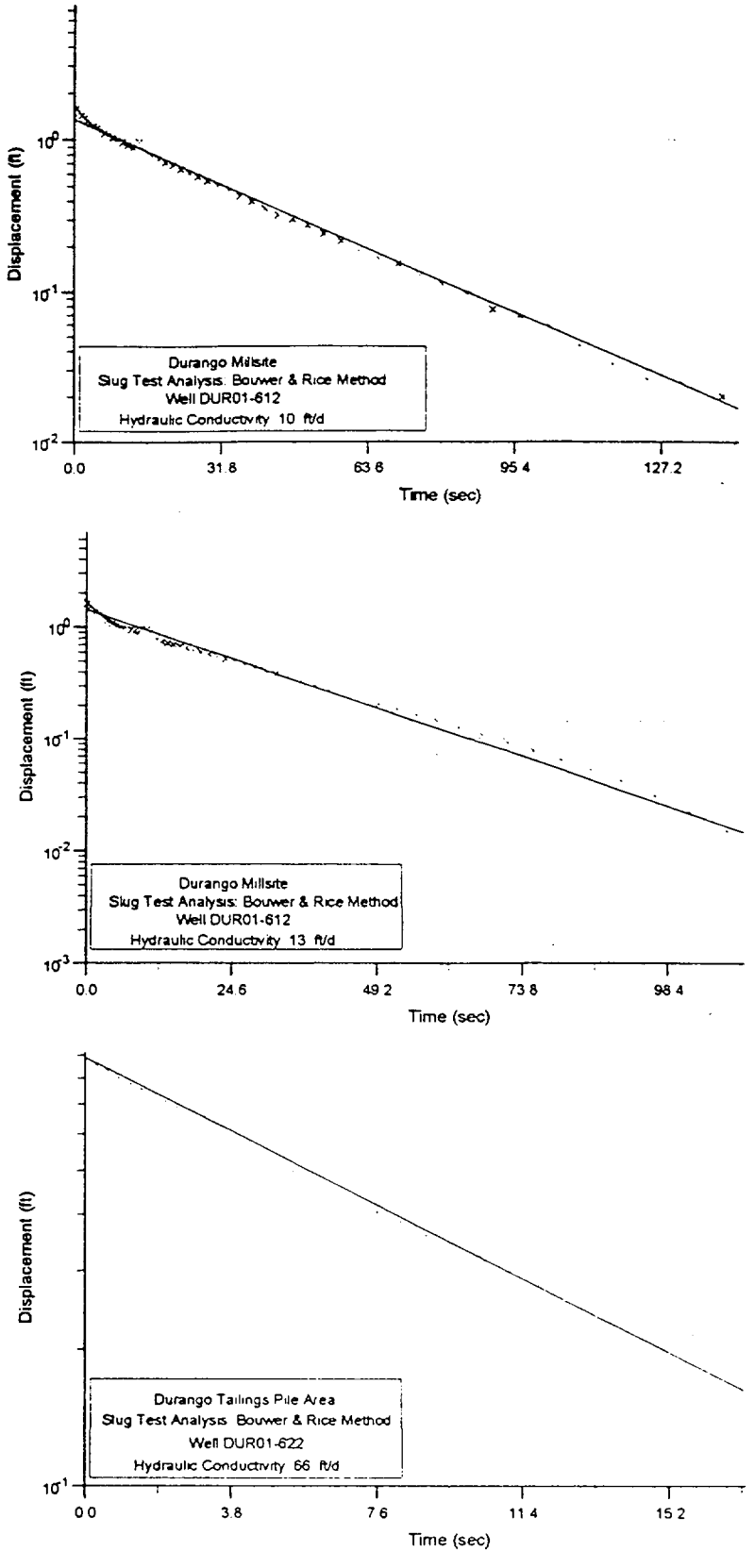

Figure 2. Plots of Displacement Versus Time for Durango Millsite Wells

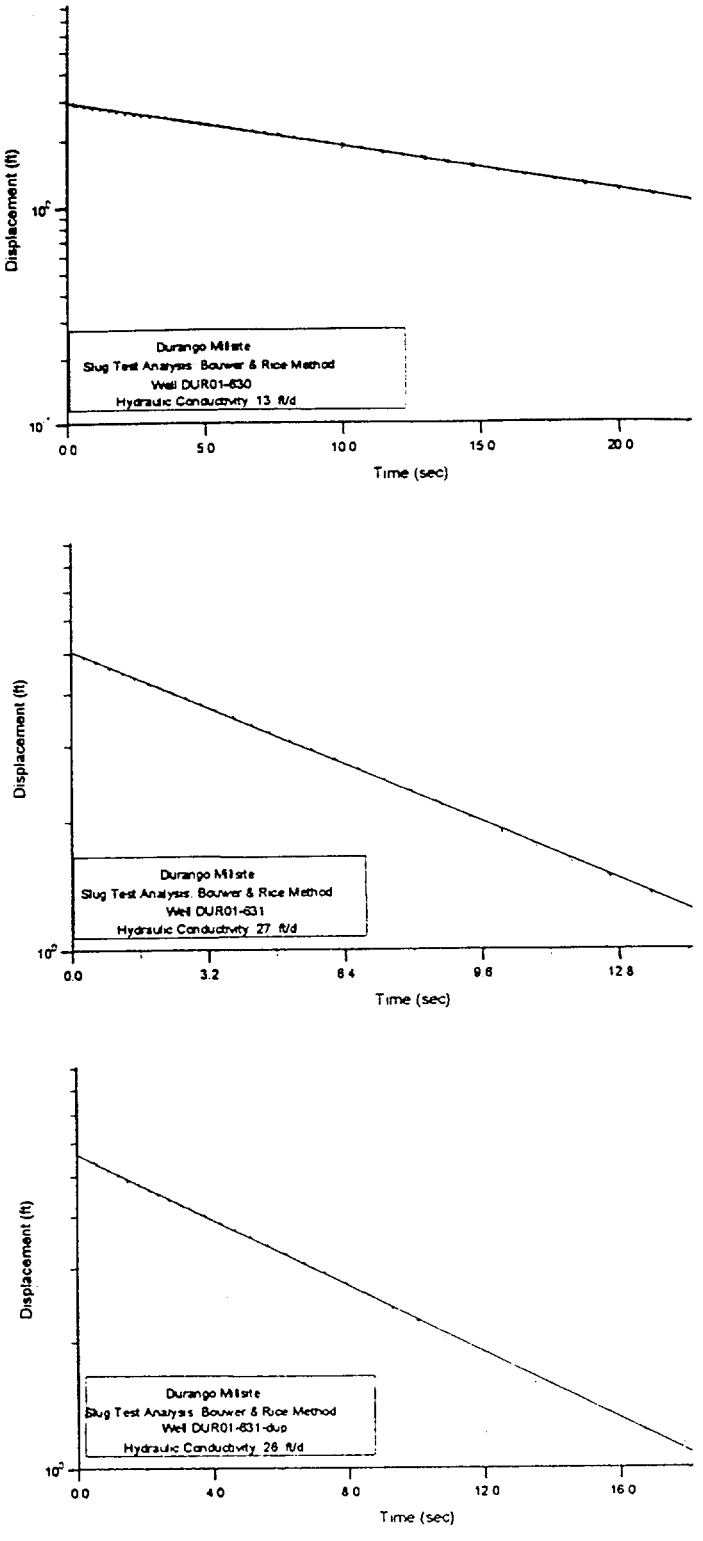

Figure 2 (continued). Plots of Displacement Versus Time for Durango Millsite Wells

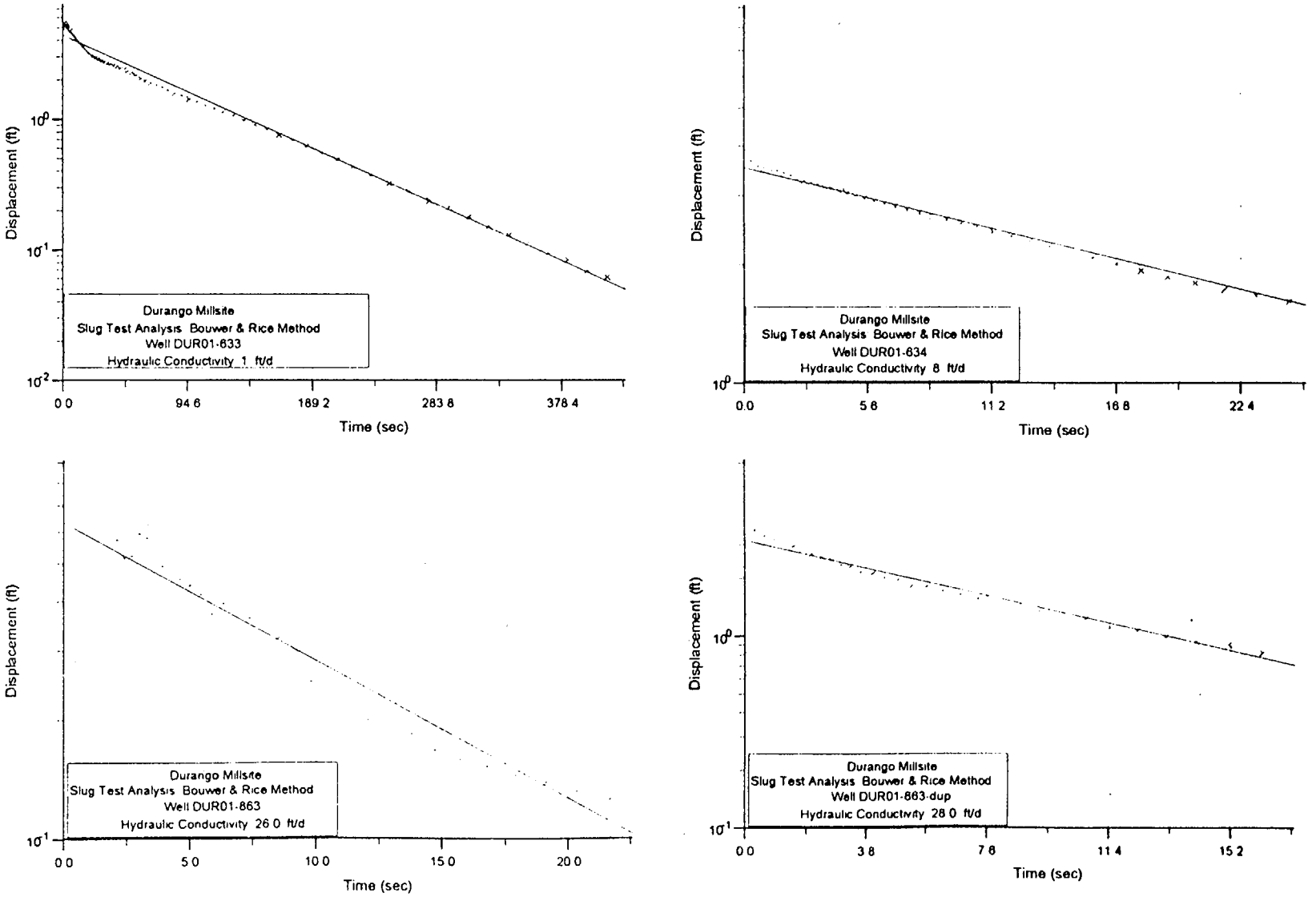

Figure 2 (continued). Plots of Displacement Versus Time for Durango Millsite Wells

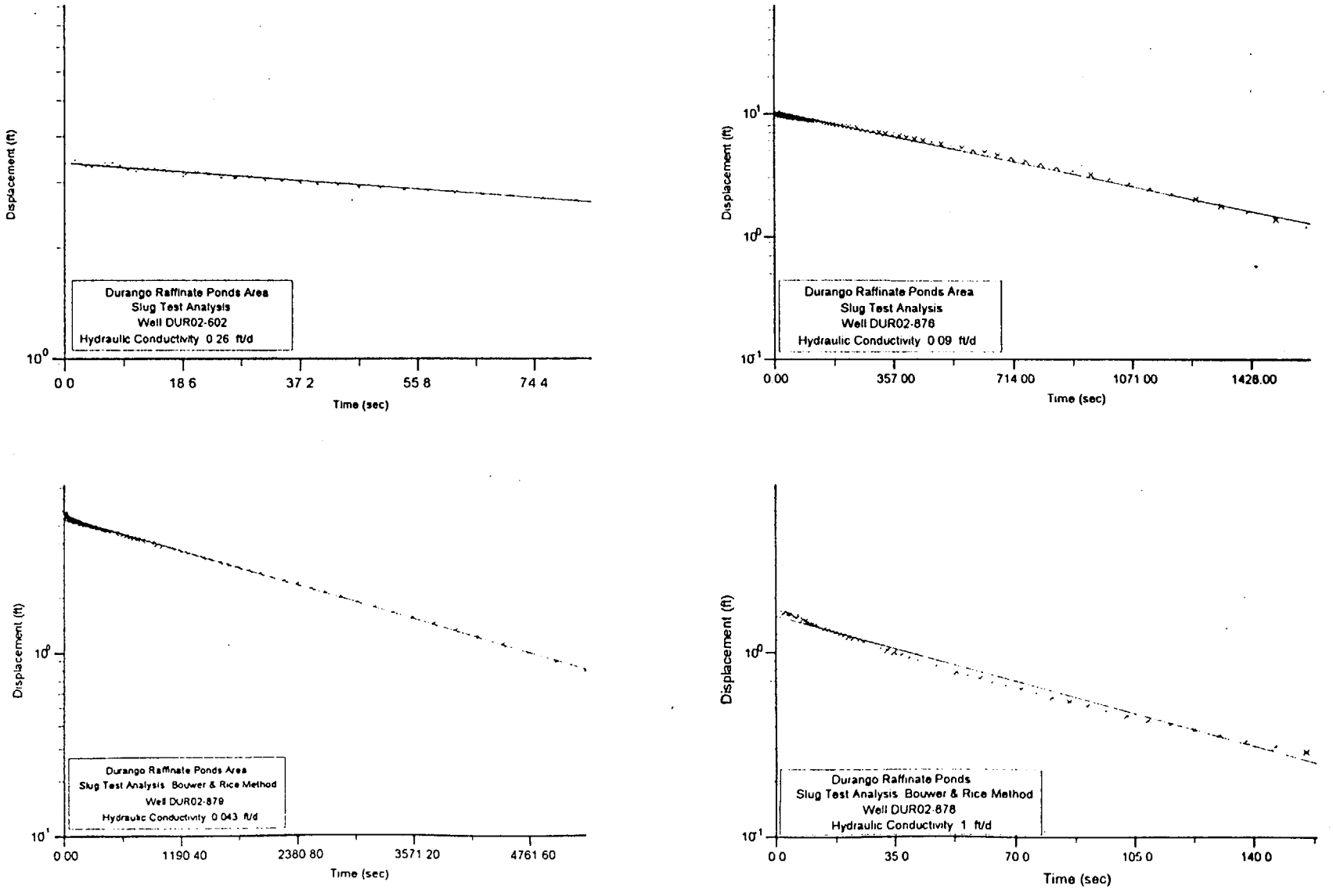

Figure 3. Plots of Displacement Versus Time for Durango Raffinate Ponds Wells

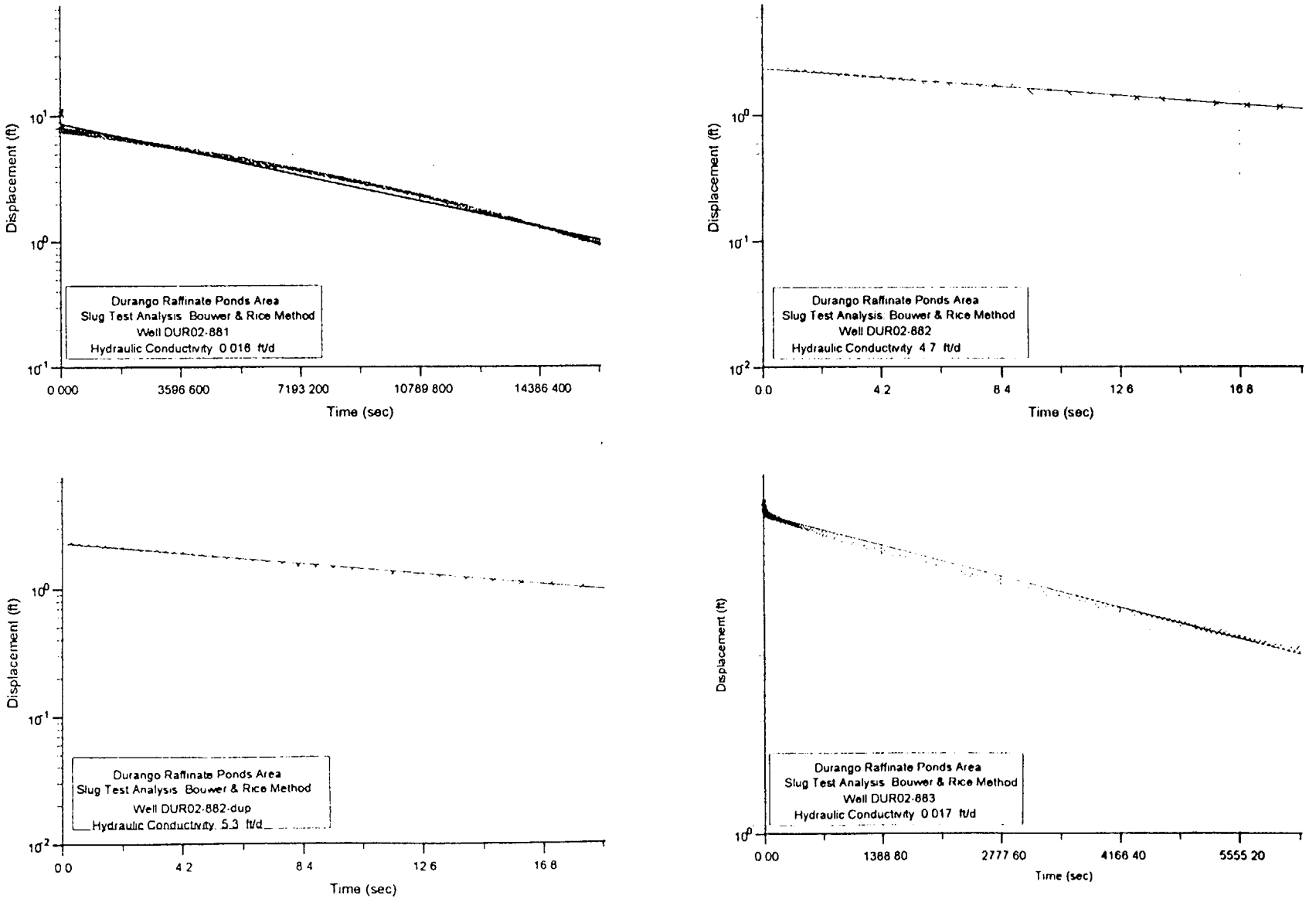

Figure 3 (continued). Plots of Displacement Versus Time for Durango Raffinate Ponds Wells

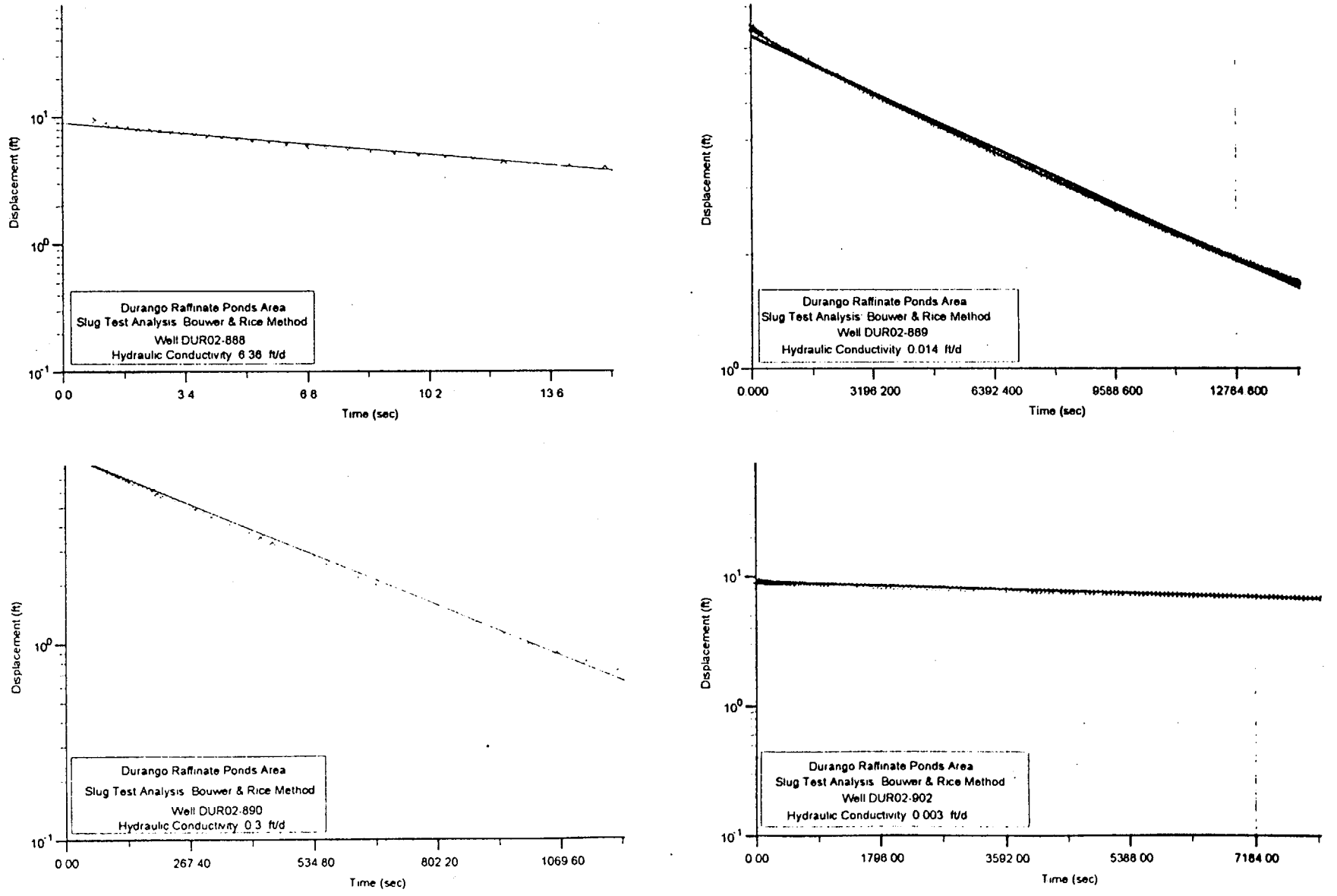

Figure 3 (continued). Plots of Displacement Versus Time for Durango Raffinate Ponds Wells

Discussion

Tailings Area

MACTEC–ERS performed slug tests at seven locations in the tailings area of the site. The hydraulic conductivity ranged from 1 to 28 ft/day for the Animas River alluvium and was 66 ft/day for the Lightner Creek alluvium (Table 1).

The investigation by Kearl and others (1983) reported results at four Animas River alluvium locations and one Lightner Creek alluvium location (Appendix A). The tests were conducted in triplicate, however, one of the results was reported in duplicate. The Lightner Creek alluvium test had the highest hydraulic conductivities and the highest variability. Results for the Animas River alluvium were comparable to the range of values determined by MACTEC–ERS. Results for the Lightner Creek alluvium, however, were much greater than the results obtained by MACTEC–ERS. Because the equipment used by MACTEC–ERS is more responsive to quickly recovering water levels than the equipment used by the Kearl investigation, it is our opinion that the MACTEC–ERS results have less bias, more precision, and are therefore more accurate.

The "Trial 1" results of the duplicate and triplicate results of the Kearl investigation were selected and combined with MACTEC–ERS results to evaluate the basic statistics of the alluvial deposits. The results are presented in Table 2. Using one significant figure accuracy, the median hydraulic conductivity for the Animas Creek and Lightner Creek alluvium is 20 ft/d and 70 ft/d, respectively.

Raffinate Ponds Area

MACTEC–ERS performed slug tests at eleven locations at the Raffinate Ponds area. The slug tests indicate that the hydraulic conductivity of the Menefee Formation ranges from a minimum of 0.003 ft/day at well 902 to 5.3 ft/day for the duplicate test at well 882. Lithologic data obtained during drilling indicate that the relatively high hydraulic conductivity for the Menefee Formation at well 882 was apparently obtained from a coal bed at a depth of 27 to 34.5 ft. This result strengthens the belief that coal deposits within the Menefee Formation are important conduits for ground water flow.

The two slug tests performed by MACTEC–ERS on the Basal Member Point Lookout Sandstone indicate that the hydraulic conductivity is in the range of 0.014 to 0.016 ft/day. Low hydraulic conductivity values in the Basal Member Point Lookout Sandstone were also reported in earlier reports. [Kearl (1983) and U.S. Bureau of Reclamation (1990)].

Within the Bodo Fault, the slug test for well 888 indicates a hydraulic conductivity of 6.4 ft/day. The result for the Bodo Fault confirms earlier tests by Kearl and others (1983) when a value of 4.4 ft/day was determined. The slug test results support the belief that the Bodo Fault is an important conduit for ground water flow at the site.

Results of slug tests, packer tests, and pumping tests performed previously by others (Appendix A and Appendix B) were combined with the slug test results obtained during this investigation. The basic statistics for the combined results are presented by formation in Table 2. The combination of all these results reveals that the Basal Member Point Lookout Sandstone has a uniformly low hydraulic conductivity. Except in zones where coal seams are present, the Menefee Formation also has a relatively low hydraulic conductivity.

Table 2. Basic Statistics of Hydraulic Conductivity by Geologic Formation at the Durango site

Statistical Parameter	Basal Member Point Lookout Sandstone	Menefee Formation	Bodo Fault	Qal Animas River	Qal Lightner Creek
No. of cases	16	12	10	11	2
Minimum	0.006	0.003	0.120	1	66
Maximum	0.304	5.3	6.98	28.6	260
Range	0.298	5.297	6.86	27.6	194
Sum	1.089	12.73	23.394	190.5	326
Median	0.050	0.175	0.623	20.6	163
Mean	0.068	1.061	2.339	17.318	163
Std. Error	0.018	0.541	0.866	2.898	97.000
Standard Dev.	0.074	1.874	2.738	9.612	137.179
Variance	0.005	3.513	7.498	92.398	18,818.000
C.V.	1.083	1.767	1.170	0.555	0.842

Note: All hydraulic conductivity calculations are reported in feet per day.

Conclusion and Recommendations

In the tailings area, the alluvial deposits are thin but conductive. Alluvium along Lightner Creek is apparently more hydraulically conductive than that of the Animas River.

In the raffinate ponds area west and northwest of the Bodo Fault, the Point Lookout Sandstone has consistently low hydraulic conductivity. The Menefee Formation contains sandstone beds that are more conductive if fractured. Along the trace of the Bodo Fault, the hydraulic conductivity of the Menefee Formation is significantly higher than in other areas. The Menefee Formation also contains coal beds that function as zones of higher hydraulic conductivity.

Representative hydraulic conductivities for each hydrostratigraphic unit are presented in Table 3. The values are weighted toward the statistical median value in all cases except for the Lightner Creek alluvium, where the minimum value is more heavily weighted.

Table 3. Representative Hydraulic Conductivities of Hydrostratigraphic Units at the Durango UMTRA sites

Representative Hydraulic Conductivity (ft/d)				
Animas River Alluvium	Lightner Creek Alluvium	Menefee Formation	Bodo Canyon Fault Zone	Basal Member Point Lookout Sandstone
20	70	0.2	0.6	0.05

Computer Source:

Environmental Simulations, Inc., 1997–2000. AquiferWin32 Version 2.31 software, Developed by Doug Rumbaugh and Jim Rumbaugh, Herndon, Virginia (703) 834-3054.

Appendix A

Hydraulic Conductivity Results from Kearl and Others (1983)

HYDRAULIC EVALUATION OF AQUIFERS

Bail tests were used primarily to determine hydraulic conductivity (K) values for the study area. A 24-hour pump test was attempted in the tailings pile area. However, a pumping rate of only 2 gpm (8 l/m) was available before drawdown levels reached the pump intake. Response in the observation wells was minimal. Storativity values for the unconfined aquifer were therefore assumed to be equal to the porosity.

Air lifting was the method used to remove water from the well bore for the bail tests. An air hose attached to a stainless steel nozzle was placed down the well. The air hose was attached to a nitrogen bottle. A small-diameter air line was attached to the air hose and the end placed near the nozzle. The other end was attached to another nitrogen bottle and a pressure gauge. The valve on the nitrogen bottle was opened, air lifting the water from the well bore. Recovery-versus-time was then recorded, using the air line and pressure gauge.

Using the Hvorslev method (1951) for bail tests in unconfined aquifers, values of hydraulic conductivity (K) were determined (Table 2). The highest K values (DR-82-21) are found in the Lightner Creek alluvium (383.2 ft/d or 0.13 cm/s). Animas River alluvium K values (DR-82-12, -15, -16, and -19) range between 6.1 ft/d (0.0022 cm/s) and 35.3 ft/d (0.012 cm/s). The Menefee Formation and Point Lookout Sandstone units (DR-82-02 and -03) show values of 0.89 ft/d (0.00031 cm/s) and 0.0062 ft/d (0.0000022 cm/s), respectively. Well DR-82-10, completed in the fault, has an average K value of 4.4 ft/d (0.0016 cm/s), four times greater than adjacent wells completed in the bedrock.

Table 2. Hydraulic Conductivity Values Determined from Bail-Test Data

Well Number	Hydraulic Conductivity					
	Trial 1		Trial 2		Trial 3	
	ft/d	cm/s	ft/d	cm/s	ft/d	cm/s
DR-82-02	0.89	0.00031	-	-	-	-
DR-82-03	0.0062	0.0000022	-	-	-	-
DR-82-06	22.9	0.0081	22.0	0.0077	22.9	0.0081
DR-82-10	4.5	0.0016	4.2	0.0015	4.4	0.0016
DR-82-12	7.8	0.0027	6.1	0.0022	6.1	0.0022
DR-82-15	20.6	0.0073	35.3	0.012	-	-
DR-82-16	25.8	0.0091	21.8	0.0077	26.3	0.0093
DR-82-19	28.6	0.010	27.9	0.0098	30.4	0.011
DR-82-21	260.6	0.092	369.9	0.130	383.2	0.135
DR-82-23	22.7	0.0080	19.9	0.0070	21.9	0.0077
DR-82-24	0.12	0.000041	-	-	-	-

Appendix B

Hydraulic Conductivity Results from U.S. Bureau of Reclamation (1990)

Table 3
Durango Pumping Plant Site
Bailout/Slug Test Results

Well	Formation	Date	Type	Hydraulic Conductivity Values Based on 2-inch Casing (ft/day) Unconfined Conditions	Average
110	Fault	8/22	Bail	0.203	
				0.355	0.352
				0.459	
111	Pt Lookout	8/22	Bail	0.152	
		8/22	Bail	0.056	
		8/22	Bail	0.095	0.083
		8/22	Bail	0.076	
		8/22	Slug	0.036	
112	Pt Lookout	8/22	Bail	0.068	
		8/22	Bail	0.304	0.135
		8/22	Slug	0.034	
113	Pt Lookout	8/22	Bail	0.066	0.079
		8/24	Slug	0.089	
114	Pt Lookout	8/23	Bail/Board 0.042	0.020	
115	Pt Lookout	8/23	Slug/Board 0.011	0.014	0.029
		8/23	Bail/Board 0.033	0.043	
116	Menefee	8/23	Bail 0.053		0.059
117	Menefee	8/23	Bail 0.048		0.068
118	Fault	8/24	Bail/Board 0.690		0.787

Average Values

Pt. Lookout	0.081
Menefee	0.063
Fault	0.352

Values Corrected for sandpack and 4.9-inch hole.

Pt. Lookout	0.187
Menefee	0.147
Fault	0.813

Appendix C

Time versus Water Level Data
Slug Tests Performed by MACTEC–ERS

Well DUR01-612

Time (sec)	Displacement (ft)
0.498	1.596
1.038	1.517
1.59	1.442
2.19	1.38
2.82	1.327
3.48	1.28
4.17	1.229
4.92	1.189
5.718	1.15
6.558	1.11
7.452	1.072
8.388	1.035
9.39	0.995
10.44	0.962
11.568	0.924
12.762	0.889
14.01	0.968
15.348	0.849
16.758	0.787
18.24	0.749
19.74	0.714
21.348	0.681
23.052	0.643
24.852	0.61
26.742	0.577
28.848	0.539
31.05	0.502
33.348	0.473
35.85	0.431
38.448	0.398
41.238	0.356
44.142	0.323
47.238	0.305
50.55	0.278
54.048	0.245
57.75	0.219
61.638	0.188
65.85	0.168
70.248	0.155
74.94	0.13
79.938	0.112
85.248	0.097
90.852	0.077
96.75	0.07
103.05	0.059
109.638	0.044
116.64	0.033
124.152	0.026
132.042	0.024
140.442	0.02
149.352	0.015
158.748	0.017

Well DUR01-612dup

Time (sec)	Displacement (ft)
0.3	1.632
0.6	1.588
0.888	1.535
1.2	1.488
1.5	1.439
1.788	1.391
2.1	1.349
2.4	1.307
2.7	1.269
3	1.234
3.348	1.196
3.708	1.161
4.11	1.132
4.53	1.097
4.962	1.072
5.43	1.044
5.928	1.019
6.468	0.995
7.02	0.968
7.62	0.951
8.25	0.922
8.91	0.898
9.6	0.991
10.35	0.957
11.148	0.933
11.988	0.785
12.882	0.75
13.818	0.725
14.82	0.701
15.87	0.674
16.998	0.65
18.192	0.623
19.44	0.597
20.778	0.57
22.188	0.544
23.67	0.517
25.17	0.491
26.778	0.464
28.482	0.438
30.282	0.409
32.172	0.382
34.278	0.356
36.48	0.329
38.778	0.305
41.28	0.278
43.878	0.256
46.668	0.232
49.572	0.208
52.668	0.186
55.98	0.166
59.478	0.146
63.18	0.126
67.068	0.108
71.28	0.093
75.678	0.077
80.37	0.064
85.368	0.053
90.678	0.042
96.282	0.031
102.18	0.022
108.48	0.015
115.068	0.009
122.07	0.004

Well DUR01-622

Time (sec)	Displacement (ft)
0.3	0.858
0.6	0.832
0.888	0.803
1.2	0.776
1.5	0.754
1.788	0.732
2.1	0.712
2.4	0.69
2.7	0.668
3	0.646
3.348	0.621
3.708	0.599
4.11	0.575
4.53	0.548
4.962	0.524
5.43	0.498
5.928	0.475
6.468	0.451
7.02	0.429
7.62	0.405
8.25	0.385
8.91	0.36
9.6	0.34
10.35	0.321
11.148	0.303
11.988	0.281
12.882	0.265
13.818	0.245
14.82	0.232
15.87	0.217
16.998	0.201
18.192	0.19

Well DUR01-630

Time (sec)	Displacement (ft)
0.312	2.922
0.612	2.849
0.912	2.803
1.2	2.779
1.512	2.743
1.812	2.706
2.112	2.657
2.412	2.621
2.7	2.584
3.012	2.562
3.312	2.575
3.6	2.537
3.912	2.482
4.212	2.46
4.512	2.422
4.812	2.38
5.16	2.358
5.52	2.325
5.922	2.281
6.342	2.239
6.774	2.201
7.242	2.152
7.74	2.099
8.28	2.06
8.832	1.995
9.432	1.94
10.062	1.889
10.722	1.841
11.412	1.765
12.162	1.706
12.96	1.644
13.8	1.579
14.694	1.52
15.63	1.453
16.632	1.385
17.682	1.318
18.81	1.25
20.004	1.181
21.252	1.117
22.59	1.053
24	0.998

Well DUR01-631

Time (sec)	Displacement (ft)
0.3	4.867
0.588	4.73
0.9	4.584
1.2	4.458
1.488	4.347
1.8	4.232
2.1	4.119
2.4	4.002
2.7	3.903
3.048	3.781
3.408	3.646
3.81	3.526
4.23	3.389
4.662	3.25
5.13	3.108
5.628	2.962
6.168	2.812
6.72	2.659
7.32	2.502
7.95	2.343
8.61	2.19
9.3	2.038
10.05	1.885
10.848	1.741
11.688	1.602
12.582	1.471
13.518	1.352
14.52	1.246
15.57	1.155

Well DUR01-631dup

Time (sec)	Displacement (ft)
0.588	5.35
0.9	5.17
1.2	5.02
1.488	4.874
1.8	4.77
2.1	4.633
2.4	4.511
2.7	4.396
3.048	4.27
3.408	4.135
3.81	4.002
4.23	3.863
4.662	3.719
5.13	3.571
5.628	3.416
6.168	3.257
6.72	3.093
7.32	2.925
7.95	2.752
8.61	2.58
9.3	2.403
10.05	2.23
10.848	2.062
11.688	1.9
12.582	1.741
13.518	1.593
14.52	1.456
15.57	1.334
16.698	1.23
17.892	1.144
19.14	1.073

Well DUR01-633

Time (sec)	Displacement (ft)
0.288	5.528
0.6	5.506
0.9	5.382
1.188	5.375
1.5	5.291
1.8	5.258
2.1	5.194
2.4	5.136
2.748	5.092
3.108	5.019
3.51	4.961
3.93	4.902
4.362	4.837
4.83	4.773
5.328	4.705
5.868	4.634
6.42	4.563
7.02	4.483
7.65	4.402
8.31	4.318
9	4.22
9.75	4.134
10.548	4.034
11.388	3.941
12.282	3.84
13.218	3.738
14.22	3.634
15.27	3.532
16.398	3.433
17.592	3.335
18.84	3.242
20.178	3.156
21.588	3.079
23.07	3.006
24.57	2.944
26.178	2.891
27.882	2.84
29.682	2.787
31.572	2.742
33.678	2.689
35.88	2.641
38.178	2.585
40.68	2.528
43.278	2.47
46.068	2.408
48.972	2.344
52.068	2.265
55.38	2.163
58.878	2.057
62.58	1.968
66.468	1.891
70.68	1.831
75.078	1.754
79.77	1.663
84.768	1.574
90.078	1.501
95.682	1.431
101.58	1.358
107.88	1.282
114.468	1.209
121.47	1.137
128.982	1.061
136.872	0.984
145.272	0.909
154.182	0.838
163.578	0.763
173.58	0.692
184.182	0.623
195.378	0.555
207.27	0.491
219.882	0.435
233.178	0.376
247.272	0.325
262.182	0.281
277.968	0.239
292.968	0.214
307.968	0.179
322.968	0.152
337.968	0.13
352.968	0.115
367.968	0.095
382.968	0.084
397.968	0.07
412.968	0.062
427.968	0.053
442.968	0.046
457.968	0.035
472.968	0.033

Well DUR01-634

Time (sec)	Displacement (ft)
0.288	5.528
0.6	5.506
0.9	5.382
1.188	5.375
1.5	5.291
1.8	5.258
2.1	5.194
2.4	5.136
2.748	5.092
3.108	5.019
3.51	4.961
3.93	4.902
4.362	4.837
4.83	4.773
5.328	4.705
5.868	4.634
6.42	4.563
7.02	4.483
7.65	4.402
8.31	4.318
9	4.22
9.75	4.134
10.548	4.034
11.388	3.941
12.282	3.84
13.218	3.738
14.22	3.634
15.27	3.532
16.398	3.433
17.592	3.335
18.84	3.242
20.178	3.156
21.588	3.079
23.07	3.006
24.57	2.944
26.178	2.891
27.882	2.84
29.682	2.787
31.572	2.742
33.678	2.689
35.88	2.641
38.178	2.585
40.68	2.528
43.278	2.47
46.068	2.408
48.972	2.344
52.068	2.265
55.38	2.163
58.878	2.057
62.58	1.968
66.468	1.891
70.68	1.831
75.078	1.754
79.77	1.663
84.768	1.574
90.078	1.501
95.682	1.431
101.58	1.358
107.88	1.282
114.468	1.209
121.47	1.137
128.982	1.061
136.872	0.984
145.272	0.909
154.182	0.838
163.578	0.763
173.58	0.692
184.182	0.623
195.378	0.555
207.27	0.491
219.882	0.435
233.178	0.376
247.272	0.325
262.182	0.281
277.968	0.239
292.968	0.214
307.968	0.179
322.968	0.152
337.968	0.13
352.968	0.115
367.968	0.095
382.968	0.084
397.968	0.07
412.968	0.062
427.968	0.053
442.968	0.046
457.968	0.035
472.968	0.033

Well DUR01-863

Time (sec)	Displacement (ft)
2.1	0.573
2.4	0.517
2.688	0.523
3	0.595
3.3	0.581
3.6	0.581
3.9	0.491
4.248	0.507
4.608	0.456
5.01	0.44
5.43	0.418
5.862	0.372
6.33	0.396
6.828	0.283
7.368	0.364
7.92	0.309
8.52	0.324
9.15	0.303
9.81	0.251
10.5	0.255
11.25	0.227
12.048	0.201
12.888	0.181
13.782	0.185
14.718	0.168
15.72	0.159
16.77	0.153
17.898	0.145
19.092	0.139
20.34	0.132
21.678	0.126
23.088	0.12
24.57	0.114

Well DUR01-863dup

Time (sec)	Displacement (ft)
0.3	3.569
0.6	3.334
0.9	3.189
1.188	3.064
1.5	2.937
1.8	2.847
2.088	2.692
2.4	2.591
2.7	2.494
3	2.355
3.3	2.299
3.648	2.16
4.008	2.126
4.41	2.025
4.83	1.971
5.262	1.844
5.73	1.832
6.228	1.725
6.768	1.654
7.32	1.576
7.92	1.499
8.55	1.427
9.21	1.348
9.9	1.278
10.65	1.228
11.448	1.111
12.288	1.067
13.182	0.99
14.118	0.93
15.12	0.902
16.17	0.821
17.298	0.771
18.492	0.718

Well DUR02-602

Time (sec)	Displacement (ft)
0.75	3.531
1.548	3.458
2.388	3.374
3.282	3.314
4.218	3.303
5.22	3.345
6.27	3.398
7.398	3.405
8.592	3.345
9.84	3.257
11.178	3.221
12.588	3.248
14.07	3.288
15.57	3.252
17.178	3.175
18.882	3.162
20.682	3.19
22.572	3.175
24.678	3.1
26.88	3.091
29.178	3.106
31.68	3.044
34.278	3.033
37.068	3.031
39.972	2.974
43.068	2.973
46.38	2.929
49.878	2.914
53.58	2.876
57.468	2.859
61.68	2.821
66.078	2.801
70.77	2.768
75.768	2.737
81.078	2.708
86.682	2.679
92.58	2.651

Well DUR02-876

Time (sec)	Displacement (ft)
5.928	10.194
6.468	10.123
7.02	10.194
7.62	10.091
8.25	10.076
8.91	10.076
9.6	10.056
10.35	9.999
11.148	9.962
11.988	9.945
12.882	9.94
13.818	9.915
14.82	9.893
15.87	9.864
16.998	9.854
18.192	9.817
19.44	9.802
20.778	9.777
22.188	9.757
23.67	9.753
25.17	9.725
26.778	9.688
28.482	9.661
30.282	9.639
32.172	9.614
34.278	9.587
36.48	9.56
38.778	9.533
41.28	9.503
43.878	9.471
46.668	9.439
49.572	9.407
52.668	9.373
55.98	9.336
59.478	9.296
63.18	9.257
67.068	9.217
71.28	9.173
75.678	9.126
80.37	9.079
85.368	9.03
90.678	8.975
96.282	8.919
102.18	8.862
108.48	8.8
115.068	8.736
122.07	8.667
129.582	8.598
137.472	8.524
145.872	8.445
154.782	8.363
164.178	8.277
174.18	8.186
184.782	8.092
195.978	7.991
207.87	7.887

220.482	7.778
233.778	7.665
247.872	7.544
262.782	7.421
278.568	7.29
295.368	7.154
313.182	7.014
331.98	6.863
351.87	6.71
372.978	6.55
395.37	6.382
419.07	6.209
444.18	6.032
470.778	5.844
498.978	5.652
528.87	5.452
560.478	5.247
593.982	5.037
629.478	4.823
667.08	4.601
706.872	4.374
749.082	4.142
793.77	3.905
841.182	3.663
891.372	3.426
944.478	3.187
1000.77	2.948
1060.38	2.708
1123.57	2.472
1190.48	2.242
1261.38	2.018
1336.48	1.798
1415.98	1.591
1500.27	1.389
1589.57	1.201
1684.07	1.028
1784.18	0.868

Well DUR01-879

Time (sec)	Displacement (ft)
6.186	5.964
7.026	5.932
7.92	5.855
8.856	5.781
9.858	5.759
10.908	5.714
12.036	5.69
13.23	5.663
14.478	5.638
15.816	5.621
17.226	5.603
18.708	5.589
20.208	5.576
21.816	5.566
23.52	5.554
25.32	5.544
27.21	5.534
29.316	5.522
31.518	5.512
33.816	5.502
36.318	5.492
38.916	5.482
41.706	5.473
44.61	5.465
47.706	5.458
51.018	5.448
54.516	5.438
58.218	5.425
62.106	5.416
66.318	5.403
70.716	5.413
75.408	5.376
80.406	5.364
85.716	5.349
91.32	5.334
97.218	5.319
103.518	5.305
110.106	5.29
117.108	5.272
124.62	5.258
132.51	5.238
140.91	5.22
149.82	5.201
159.216	5.169
169.218	5.149
179.82	5.127
191.016	5.104
202.908	5.082
215.52	5.057
228.816	5.033
242.91	5.006
257.82	4.978
273.606	4.949
290.406	4.919
308.22	4.887
327.018	4.855
346.908	4.82
368.016	4.783
390.408	4.744
414.108	4.704
439.218	4.665
465.816	4.62
494.016	4.573
523.908	4.529
555.516	4.48
589.02	4.428
624.516	4.376
662.118	4.319
701.91	4.262
744.12	4.201
788.808	4.139
836.22	4.072
886.41	4.003
939.516	3.932
995.808	3.855
1055.42	3.774
1118.61	3.692
1185.52	3.608
1256.42	3.52
1331.52	3.431
1411.02	3.337
1495.31	3.241
1584.61	3.142
1679.11	3.043
1779.22	2.937
1885.31	2.833
1997.72	2.725
2116.71	2.614
2242.82	2.5
2376.42	2.387
2517.92	2.268
2667.82	2.152
2826.61	2.034
2994.82	1.915
3172.92	1.794
3361.61	1.676
3561.52	1.56
3773.22	1.441
3997.52	1.333
4235.11	1.219
4486.72	1.111
4753.31	1.002
5035.72	0.898
5334.81	0.797
5651.61	0.706
5951.61	0.632

Well DUR02-878

Time (sec)	Displacement (ft)
1.5	1.691
2.088	1.654
2.7	1.667
3.3	1.652
4.008	1.647
4.41	1.627
5.262	1.593
5.73	1.558
6.228	1.622
6.768	1.59
7.32	1.558
7.92	1.528
8.55	1.501
9.21	1.481
9.9	1.462
10.65	1.447
11.448	1.43
12.288	1.407
13.182	1.388
14.118	1.365
15.12	1.343
16.17	1.321
17.298	1.296
18.492	1.272
19.74	1.247
21.078	1.225
22.488	1.198
23.97	1.17
25.47	1.146
27.078	1.121
28.782	1.094
30.582	1.064
32.472	1.037
34.578	1.008
36.78	0.978
39.078	0.946
41.58	0.916
44.178	0.887
46.968	0.854
49.872	0.822
52.968	0.79
56.28	0.761
59.778	0.729
63.48	0.696
67.368	0.667
71.58	0.635
75.978	0.605
80.67	0.573
85.668	0.546
90.978	0.516
96.582	0.486
102.48	0.457
108.78	0.432
115.368	0.407
122.37	0.383
129.882	0.358
137.772	0.333
146.172	0.311
155.082	0.291
164.478	0.272
174.48	0.254

Well DUR02-881

Time (sec)	Displacement (ft)
0.3	11.416
0.588	10.377
0.9	8.704
1.2	10.605
1.5	10.919
1.8	10.828
2.148	10.503
2.508	11.26
2.91	10.636
3.33	10.658
4.23	9.199
4.728	7.493
5.268	8.644
5.82	7.915
6.42	8.178
7.05	8.107
7.71	8.074
8.4	8.072
9.15	8.045
9.948	8.014
10.788	8.056
11.682	8.014
12.618	7.979
13.62	7.959
14.67	7.937
15.798	7.93
16.992	7.924
18.24	7.917
19.578	7.908
20.988	7.901
22.47	7.895
23.97	7.89
25.578	7.886
27.282	7.882
29.082	7.875
30.972	7.873
33.078	7.868
35.28	7.864
37.578	7.859
40.08	7.857
42.678	7.853
45.468	7.851
48.372	7.844
51.468	7.844
54.78	7.84
58.278	7.835
61.98	7.831
65.868	7.826
70.08	7.824
74.478	7.817
79.17	7.813
84.168	7.809
89.478	7.804
95.082	7.798
100.98	7.793
107.28	7.786

113.868	7.78
120.87	7.778
128.382	7.771
136.272	7.764
144.672	7.758
153.582	7.749
162.978	7.742
172.98	7.733
183.582	7.725
194.778	7.716
206.67	7.707
219.282	7.696
232.578	7.687
246.672	7.676
261.582	7.665
277.368	7.654
294.168	7.641
311.982	7.627
330.78	7.614
350.67	7.599
371.778	7.583
394.17	7.568
417.87	7.55
442.98	7.532
469.578	7.512
497.778	7.492
527.67	7.47
559.278	7.448
592.782	7.426
628.278	7.4
665.88	7.375
705.672	7.349
747.882	7.318
792.57	7.287
839.982	7.256
890.172	7.223
943.278	7.185
999.57	7.15
1059.18	7.11
1122.37	7.068
1182.37	7.026
1242.37	6.986
1302.37	6.949
1362.37	6.909
1422.37	6.871
1482.37	6.834
1542.37	6.794
1602.37	6.756
1662.37	6.717
1722.37	6.681
1782.37	6.641
1842.37	6.606
1902.37	6.566
1962.37	6.529
2022.38	6.493
2082.37	6.456
2142.37	6.42
2202.37	6.381
2262.37	6.345
2322.37	6.308
2382.37	6.272
2442.37	6.235
2502.37	6.199
2562.37	6.164
2622.37	6.129
2682.37	6.091
2742.37	6.056
2802.37	6.02
2862.37	5.985
2922.37	5.95
2982.37	5.914
3042.37	5.881
3102.37	5.846
3162.37	5.81
3222.37	5.777
3282.37	5.742
3342.37	5.706
3402.37	5.673
3462.37	5.638
3522.37	5.603
3582.37	5.569
3642.37	5.536
3702.37	5.501
3762.37	5.468
3822.37	5.435
3882.37	5.401
3942.37	5.368
4002.37	5.335
4062.37	5.302
4122.37	5.269
4182.37	5.236
4242.37	5.202
4302.37	5.171
4362.37	5.138
4422.37	5.105
4482.37	5.072
4542.37	5.043
4602.37	5.01
4662.37	4.979
4722.37	4.948
4782.37	4.917
4842.37	4.886
4902.37	4.855
4962.37	4.824
5022.37	4.794
5082.37	4.765
5142.37	4.732
5202.37	4.701
5262.37	4.672
5322.37	4.641
5382.37	4.612
5442.37	4.581
5502.37	4.55
5562.37	4.522
5622.37	4.491
5682.37	4.462
5742.37	4.431
5802.37	4.402
5862.37	4.374
5922.37	4.343
5982.37	4.314
6042.37	4.285
6102.37	4.259
6162.37	4.228
6222.37	4.199
6282.37	4.17
6342.37	4.142
6402.37	4.115
6462.37	4.084
6522.37	4.058
6582.37	4.029
6642.37	4.002
6702.37	3.974
6762.37	3.943
6822.37	3.918
6882.37	3.89
6942.37	3.861
7002.37	3.834
7062.37	3.806
7122.37	3.779
7182.37	3.753
7242.37	3.728
7302.37	3.7
7362.37	3.673
7422.37	3.646
7482.37	3.62
7542.37	3.596
7602.37	3.569
7662.37	3.543
7722.37	3.518
7782.37	3.492
7842.37	3.467
7902.37	3.441
7962.37	3.414
8022.37	3.392
8082.37	3.366
8142.37	3.341
8202.37	3.319
8262.37	3.293
8322.37	3.269
8382.37	3.244
8442.37	3.22
8502.37	3.196
8562.37	3.171
8622.37	3.147
8682.37	3.123
8742.37	3.098
8802.37	3.074
8862.37	3.05
8922.37	3.025
8982.37	3.001
9042.37	2.977
9102.37	2.955
9162.37	2.93
9222.37	2.908
9282.37	2.884
9342.37	2.862

9402.37	2.838
9462.37	2.815
9522.37	2.791
9582.37	2.771
9642.37	2.747
9702.37	2.725
9762.37	2.703
9822.37	2.681
9882.37	2.659
9942.37	2.636
10002.4	2.612
10062.4	2.592
10122.4	2.57
10182.4	2.548
10242.4	2.526
10302.4	2.506
10362.4	2.484
10422.4	2.464
10482.4	2.444
10542.4	2.422
10602.4	2.402
10662.4	2.382
10722.4	2.362
10782.4	2.343
10842.4	2.323
10902.4	2.303
10962.4	2.283
11022.4	2.263
11082.4	2.243
11142.4	2.225
11202.4	2.203
11262.4	2.188
11322.4	2.168
11382.4	2.148
11442.4	2.128
11502.4	2.11
11562.4	2.091
11622.4	2.073
11682.4	2.053
11742.4	2.035
11802.4	2.015
11862.4	1.998
11922.4	1.98
11982.4	1.962
12042.4	1.943
12102.4	1.925
12162.4	1.907
12222.4	1.889
12282.4	1.872
12342.4	1.854
12402.4	1.836
12462.4	1.819
12522.4	1.803
12582.4	1.786
12642.4	1.768
12702.4	1.75
12762.4	1.735
12822.4	1.717
12882.4	1.702
12942.4	1.686
13002.4	1.668
13062.4	1.651
13122.4	1.635
13182.4	1.62
13242.4	1.604
13302.4	1.589
13362.4	1.571
13422.4	1.556
13482.4	1.54
13542.4	1.525
13602.4	1.509
13662.4	1.494
13722.4	1.478
13782.4	1.463
13842.4	1.45
13902.4	1.434
13962.4	1.419
14022.4	1.405
14082.4	1.39
14142.4	1.375
14202.4	1.361
14262.4	1.348
14322.4	1.335
14382.4	1.319
14442.4	1.306
14502.4	1.293
14562.4	1.277
14622.4	1.266
14682.4	1.249
14742.4	1.238
14802.4	1.227
14862.4	1.211
14922.4	1.2
14982.4	1.184
15042.4	1.173
15102.4	1.162
15162.4	1.149
15222.4	1.138
15282.4	1.125
15342.4	1.112
15402.4	1.1
15462.4	1.089
15522.4	1.076
15582.4	1.065
15642.4	1.054
15702.4	1.043
15762.4	1.03
15822.4	1.019
15882.4	1.008
15942.4	0.997
16002.4	0.986
16062.4	0.975
16122.4	0.963
16182.4	0.955
16242.4	0.944
16302.4	0.933
16362.4	0.921
16422.4	0.913
16482.4	0.902
16542.4	0.893
16602.4	0.882
16662.4	0.873
16722.4	0.862
16782.4	0.853
16842.4	0.844
16902.4	0.833
16962.4	0.822
17022.4	0.815
17082.4	0.804
17142.4	0.796
17202.4	0.787
17262.4	0.778
17322.4	0.769
17382.4	0.76
17442.4	0.751
17502.4	0.743
17562.4	0.734
17622.4	0.725
17682.4	0.716
17742.4	0.707
17802.4	0.698
17862.4	0.689
17922.4	0.681
17982.4	0.674

Well DUR02-882

Time (sec)	Displacement (ft)
0.9	2.381
1.2	2.3
1.5	2.296
1.8	2.248
2.088	2.226
2.4	2.117
2.7	2.069
2.988	2.101
3.3	2.071
3.6	2.051
3.9	2.039
4.2	2.032
4.548	1.988
4.908	1.964
5.31	1.944
5.73	1.787
6.162	1.859
6.63	1.725
7.128	1.741
7.668	1.712
8.22	1.755
8.82	1.747
9.45	1.529
10.11	1.576
10.8	1.503
11.55	1.465
12.348	1.404
13.188	1.372
14.082	1.336
15.018	1.302
16.02	1.234
17.07	1.189
18.198	1.153
19.392	1.125
20.64	1.101

Well DUR02-882dup

Time (sec)	Displacement (ft)
0.3	2.351
0.588	2.274
0.9	2.27
1.2	2.25
1.5	2.206
1.8	2.153
2.088	2.099
2.4	2.093
2.7	2.026
2.988	2.038
3.3	2.017
3.6	1.984
3.9	1.954
4.2	1.938
4.548	1.886
4.908	1.845
5.31	1.815
5.73	1.743
6.162	1.708
6.63	1.664
7.128	1.62
7.668	1.574
8.22	1.533
8.82	1.491
9.45	1.449
10.11	1.406
10.8	1.36
11.55	1.314
12.348	1.266
13.188	1.225
14.082	1.181
15.018	1.143
16.02	1.109
17.07	1.081
18.198	1.058
19.392	1.036
20.64	1.02

Well DUR02-883

Time (sec)	Displacement (ft)
0.3	7.758
0.588	7.705
0.9	7.667
1.2	7.611
1.488	7.516
1.8	7.453
2.1	7.439
2.4	7.469
2.7	7.496
3.048	7.443
3.408	7.423
3.81	7.421
4.23	7.421
4.662	7.397
5.13	7.385
5.628	7.401
6.168	7.367
6.72	7.365
7.32	7.463
7.95	7.397
8.61	7.385
9.3	7.381
10.05	7.351
10.848	7.31
11.688	7.298
12.582	7.284
13.518	7.278
14.52	7.268
15.57	7.26
16.698	7.254
17.892	7.244
19.14	7.236
20.478	7.228
21.888	7.212
23.37	7.194
24.87	7.186
26.478	7.178
28.182	7.174
29.982	7.169
31.872	7.163
33.978	7.157
36.18	7.151
38.478	7.145
40.98	7.139
43.578	7.133
46.368	7.125
49.272	7.121
52.368	7.113
55.68	7.105
59.178	7.097
62.88	7.091
66.768	7.083
70.98	7.075
75.378	7.067
80.07	7.059
85.068	7.049

90.378	7.041
95.982	7.033
101.88	7.023
108.18	7.011
114.768	7.001
121.77	6.992
129.282	6.982
137.172	6.968
145.572	6.958
154.482	6.944
163.878	6.93
173.88	6.916
184.482	6.9
195.678	6.886
207.57	6.87
220.182	6.852
233.478	6.837
247.572	6.819
262.482	6.801
278.268	6.781
295.068	6.757
312.882	6.735
331.68	6.711
351.57	6.684
372.678	6.66
395.07	6.633
418.77	6.607
443.88	6.579
470.478	6.549
498.678	6.517
528.57	6.483
560.178	6.451
593.682	6.415
629.178	6.382
666.78	6.342
706.572	6.304
748.782	6.26
793.47	6.221
840.882	6.175
891.072	6.129
944.178	6.082
1000.47	6.03
1060.08	5.978
1123.27	5.923
1183.27	5.871
1243.27	5.819
1303.27	5.768
1363.27	5.718
1423.27	5.67
1483.27	5.623
1543.27	5.575
1603.27	5.527
1663.27	5.48
1723.27	5.434
1783.27	5.388
1843.27	5.345
1903.27	5.299
1963.27	5.255
2023.28	5.211
2083.27	5.168
2143.27	5.126
2203.27	5.084
2263.27	5.043
2323.27	5.003
2383.27	4.961
2443.27	4.921
2503.27	4.884
2563.27	4.842
2623.27	4.804
2683.27	4.764
2743.27	4.727
2803.27	4.689
2863.27	4.653
2923.27	4.616
2983.27	4.58
3043.27	4.544
3103.27	4.508
3163.27	4.475
3223.27	4.439
3283.27	4.405
3343.27	4.371
3403.27	4.337
3463.27	4.306
3523.27	4.274
3583.27	4.24
3643.27	4.21
3703.27	4.178
3763.27	4.147
3823.27	4.115
3883.27	4.085
3943.27	4.055
4003.27	4.026
4063.27	3.996
4123.27	3.968
4183.27	3.938
4243.27	3.908
4303.27	3.881
4363.27	3.853
4423.27	3.827
4483.27	3.799
4543.27	3.771
4603.27	3.744
4663.27	3.718
4723.27	3.694
4783.27	3.668
4843.27	3.642
4903.27	3.616
4963.27	3.593
5023.27	3.567
5083.27	3.543
5143.27	3.517
5203.27	3.493
5263.27	3.469
5323.27	3.446
5383.27	3.422
5443.27	3.398
5503.27	3.374
5563.27	3.35
5623.27	3.328
5683.27	3.305
5743.27	3.283
5803.27	3.261
5863.27	3.239
5923.27	3.215
5983.27	3.193
6043.27	3.172
6103.27	3.152
6163.27	3.132
6223.27	3.11
6283.27	3.09
6343.27	3.068
6403.27	3.046
6463.27	3.027
6523.27	3.007
6583.27	2.987
6643.27	2.965
6703.27	2.949
6763.27	2.929
6823.27	2.909
6883.27	2.889
6943.27	2.872

Well DUR02-888

Time (sec)	Displacement (ft)
0.9	9.494
1.188	9.018
1.5	8.673
1.8	8.438
2.088	8.155
2.4	8.014
2.7	7.81
3	7.605
3.3	7.43
3.648	7.274
4.008	7.05
4.41	6.907
4.83	6.692
5.262	6.471
5.73	6.298
6.228	6.091
6.768	5.931
7.32	5.718
7.92	5.541
8.55	5.353
9.21	5.188
9.9	5.003
10.65	4.836
11.448	4.68
12.288	4.527
13.182	4.382
14.118	4.246
15.12	4.116
16.17	3.995

Well DUR02-889

Time (sec)	Displacement (ft)
12.288	8.02
13.182	8.006
14.118	7.986
15.12	7.956
16.17	7.951
17.298	7.942
18.492	7.925
19.74	7.92
21.078	7.914
22.488	7.907
23.97	7.9
25.47	7.896
27.078	7.889
28.782	7.885
30.582	7.878
32.472	7.874
34.578	7.867
36.78	7.863
39.078	7.856
41.58	7.852
44.178	7.845
46.968	7.841
49.872	7.834
52.968	7.829
56.28	7.823
59.778	7.816
63.48	7.81
67.368	7.803
71.58	7.796
75.978	7.792
80.67	7.785
85.668	7.776
90.978	7.77
96.582	7.763
102.48	7.754
108.78	7.745
115.368	7.737
122.37	7.728
129.882	7.717
137.772	7.708
146.172	7.697
155.082	7.688
164.478	7.675
174.48	7.664
185.082	7.65
196.278	7.637
208.17	7.624
220.782	7.613
234.078	7.597
248.172	7.582
263.082	7.564
278.868	7.549
295.668	7.529
313.482	7.511
332.28	7.489
352.17	7.469
373.278	7.442
395.67	7.422
419.37	7.396
444.48	7.374
471.078	7.354
499.278	7.327
529.17	7.299
560.778	7.268
590.778	7.241
620.778	7.212
650.778	7.186
680.778	7.157
710.778	7.131
740.778	7.104
770.778	7.077
800.778	7.049
830.778	7.024
860.778	6.998
890.778	6.971
920.778	6.945
950.778	6.92
980.778	6.894
1010.78	6.87
1040.78	6.843
1070.78	6.819
1100.78	6.792
1130.78	6.768
1160.78	6.744
1190.78	6.719
1220.78	6.695
1250.78	6.671
1280.78	6.644
1310.78	6.622
1340.78	6.598
1370.78	6.573
1400.78	6.551
1430.78	6.527
1460.78	6.505
1490.78	6.48
1520.78	6.456
1550.78	6.434
1580.78	6.41
1610.78	6.387
1640.78	6.365
1670.78	6.343
1700.78	6.319
1730.78	6.297
1760.78	6.275
1790.78	6.253
1820.78	6.228
1850.78	6.208
1880.78	6.184
1910.78	6.162
1940.78	6.14
1970.78	6.12
2000.78	6.098
2030.78	6.076
2060.78	6.056
2090.78	6.034

2120.78	6.012
2150.78	5.992
2180.78	5.97
2210.78	5.947
2240.78	5.928
2270.78	5.908
2300.78	5.886
2330.78	5.866
2360.78	5.846
2390.78	5.824
2420.78	5.804
2450.78	5.786
2480.78	5.764
2510.78	5.744
2540.78	5.722
2570.78	5.704
2600.78	5.684
2630.78	5.664
2660.78	5.645
2690.78	5.625
2720.78	5.605
2750.78	5.587
2780.78	5.567
2810.78	5.547
2840.78	5.53
2870.78	5.51
2900.78	5.49
2930.78	5.472
2960.78	5.452
2990.78	5.432
3020.78	5.415
3050.78	5.395
3080.78	5.377
3110.78	5.359
3140.78	5.339
3170.78	5.322
3200.78	5.304
3230.78	5.286
3260.78	5.266
3290.78	5.249
3320.78	5.231
3350.78	5.213
3380.78	5.196
3410.78	5.176
3440.78	5.16
3470.78	5.143
3500.78	5.123
3530.78	5.107
3560.78	5.09
3590.78	5.074
3620.78	5.054
3650.78	5.036
3680.78	5.019
3710.78	5.003
3740.78	4.986
3770.78	4.97
3800.78	4.952
3830.78	4.937
3860.78	4.919
3890.78	4.902
3920.78	4.886
3950.78	4.871
3980.78	4.853
4010.78	4.837
4040.78	4.822
4070.78	4.804
4100.78	4.789
4130.78	4.771
4160.78	4.756
4190.78	4.74
4220.78	4.722
4250.78	4.709
4280.78	4.691
4310.78	4.676
4340.78	4.661
4370.78	4.643
4400.78	4.63
4430.78	4.614
4460.78	4.599
4490.78	4.583
4520.78	4.568
4550.78	4.552
4580.78	4.537
4610.78	4.521
4640.78	4.506
4670.78	4.49
4700.78	4.477
4730.78	4.461
4760.78	4.446
4790.78	4.431
4820.78	4.417
4850.78	4.402
4880.78	4.389
4910.78	4.373
4940.78	4.358
4970.78	4.344
5000.78	4.331
5030.78	4.316
5060.78	4.302
5090.78	4.287
5120.78	4.274
5150.78	4.258
5180.78	4.245
5210.78	4.232
5240.78	4.216
5270.78	4.203
5300.78	4.19
5330.78	4.174
5360.78	4.161
5390.78	4.148
5420.78	4.134
5450.78	4.119
5480.78	4.106
5510.78	4.092
5540.78	4.079
5570.78	4.066
5600.78	4.052
5630.78	4.039
5660.78	4.026
5690.78	4.013
5720.78	3.999
5750.78	3.988
5780.78	3.975
5810.78	3.962
5840.78	3.946
5870.78	3.935
5900.78	3.922
5930.78	3.909
5960.78	3.895
5990.78	3.882
6020.78	3.871
6050.78	3.86
6080.78	3.847
6110.78	3.834
6140.78	3.82
6170.78	3.809
6200.78	3.798
6230.78	3.785
6260.78	3.772
6290.78	3.761
6320.78	3.747
6350.78	3.736
6380.78	3.723
6410.78	3.71
6440.78	3.699
6470.78	3.688
6500.78	3.674
6530.78	3.663
6560.78	3.652
6590.78	3.639
6620.78	3.63
6650.78	3.617
6680.78	3.606
6710.78	3.595
6740.78	3.582
6770.78	3.57
6800.78	3.559
6830.78	3.548
6860.78	3.537
6890.78	3.526
6920.78	3.513
6950.78	3.502
6980.78	3.493
7010.78	3.48
7040.78	3.469
7070.78	3.46
7100.78	3.447
7130.78	3.436
7160.78	3.425
7190.78	3.413
7220.78	3.405
7250.78	3.391
7280.78	3.383
7310.78	3.371
7340.78	3.36
7370.78	3.352
7400.78	3.338

7430.78	3.329
7460.78	3.318
7490.78	3.307
7520.78	3.296
7550.78	3.285
7580.78	3.274
7610.78	3.265
7640.78	3.254
7670.78	3.245
7700.78	3.237
7730.78	3.226
7760.78	3.214
7790.78	3.203
7820.78	3.195
7850.78	3.186
7880.78	3.175
7910.78	3.164
7940.78	3.155
7970.78	3.146
8000.78	3.135
8030.78	3.126
8060.78	3.115
8090.78	3.104
8120.78	3.095
8150.78	3.086
8180.78	3.077
8210.77	3.069
8240.77	3.057
8270.77	3.049
8300.77	3.04
8330.77	3.029
8360.77	3.022
8390.77	3.011
8420.77	3.002
8450.77	2.991
8480.77	2.982
8510.77	2.973
8540.77	2.965
8570.77	2.956
8600.77	2.945
8630.77	2.938
8660.77	2.929
8690.77	2.916
8720.77	2.909
8750.77	2.901
8780.77	2.889
8810.77	2.883
8840.77	2.876
8870.77	2.865
8900.77	2.856
8930.77	2.847
8960.77	2.836
8990.77	2.83
9020.77	2.819
9050.77	2.812
9080.77	2.803
9110.77	2.794
9140.77	2.786
9170.77	2.779
9200.77	2.768
9230.77	2.761
9260.77	2.752
9290.77	2.744
9320.77	2.735
9350.77	2.726
9380.77	2.719
9410.77	2.71
9440.77	2.704
9470.77	2.695
9500.77	2.686
9530.77	2.677
9560.77	2.666
9590.77	2.662
9620.77	2.655
9650.77	2.646
9680.77	2.637
9710.77	2.629
9740.77	2.622
9770.77	2.615
9800.77	2.606
9830.77	2.6
9860.77	2.591
9890.77	2.584
9920.77	2.576
9950.77	2.569
9980.77	2.56
10010.8	2.551
10040.8	2.547
10070.8	2.538
10100.8	2.529
10130.8	2.522
10160.8	2.516
10190.8	2.507
10220.8	2.5
10250.8	2.494
10280.8	2.485
10310.8	2.476
10340.8	2.472
10370.8	2.465
10400.8	2.456
10430.8	2.449
10460.8	2.443
10490.8	2.434
10520.8	2.427
10550.8	2.419
10580.8	2.412
10610.8	2.405
10640.8	2.399
10670.8	2.392
10700.8	2.383
10730.8	2.377
10760.8	2.37
10790.8	2.363
10820.8	2.357
10850.8	2.35
10880.8	2.341
10910.8	2.337
10940.8	2.328
10970.8	2.321
11000.8	2.315
11030.8	2.308
11060.8	2.301
11090.8	2.293
11120.8	2.288
11150.8	2.281
11180.8	2.275
11210.8	2.27
11240.8	2.264
11270.8	2.255
11300.8	2.248
11330.8	2.242
11360.8	2.235
11390.8	2.228
11420.8	2.224
11450.8	2.217
11480.8	2.211
11510.8	2.204
11540.8	2.197
11570.8	2.191
11600.8	2.186
11630.8	2.18
11660.8	2.173
11690.8	2.167
11720.8	2.162
11750.8	2.155
11780.8	2.147
11810.8	2.142
11840.8	2.136
11870.8	2.131
11900.8	2.124
11930.8	2.118
11960.8	2.113
11990.8	2.105
12020.8	2.1
12050.8	2.094
12080.8	2.087
12110.8	2.083
12140.8	2.076
12170.8	2.071
12200.8	2.065
12230.8	2.06
12260.8	2.054
12290.8	2.047
12320.8	2.043
12350.8	2.036
12380.8	2.029
12410.8	2.025
12440.8	2.018
12470.8	2.014
12500.8	2.007
12530.8	2.003
12560.8	1.996
12590.8	1.99
12620.8	1.985
12650.8	1.981
12680.8	1.972
12710.8	1.968

12740.8	1.963
12770.8	1.959
12800.8	1.952
12830.8	1.945
12860.8	1.941
12890.8	1.937
12920.8	1.93
12950.8	1.926
12980.8	1.919
13010.8	1.914
13040.8	1.91
13070.8	1.903
13100.8	1.899
13130.8	1.895
13160.8	1.888
13190.8	1.884
13220.8	1.877
13250.8	1.872
13280.8	1.87
13310.8	1.861
13340.8	1.859
13370.8	1.853
13400.8	1.848
13430.8	1.844
13460.8	1.839
13490.8	1.833
13520.8	1.826
13550.8	1.822
13580.8	1.817
13610.8	1.813
13640.8	1.808
13670.8	1.804
13700.8	1.8
13730.8	1.795
13760.8	1.791
13790.8	1.784
13820.8	1.78
13850.8	1.775
13880.8	1.769
13910.8	1.764
13940.8	1.755
13970.8	1.755
14000.8	1.751
14030.8	1.749
14060.8	1.742
14090.8	1.738
14120.8	1.733
14150.8	1.729
14180.8	1.722
14210.8	1.718
14240.8	1.713
14270.8	1.709
14300.8	1.707
14330.8	1.702
14360.8	1.696
14390.8	1.691
14420.8	1.687
14450.8	1.685
14480.8	1.678
14510.8	1.676
14540.8	1.671
14570.8	1.665
14600.8	1.66
14630.8	1.658
14660.8	1.651
14690.8	1.647
14720.8	1.643
14750.8	1.638
14780.8	1.634
14810.8	1.631
14840.8	1.625
14870.8	1.623
14900.8	1.618
14930.8	1.614
14960.8	1.609
14990.8	1.607
15020.8	1.603
15050.8	1.598
15080.8	1.594
15110.8	1.589
15140.8	1.587
15170.8	1.583
15200.8	1.578
15230.8	1.574
15260.8	1.57
15290.8	1.567
15320.8	1.561
15350.8	1.552
15380.8	1.554
15410.8	1.55
15440.8	1.547
15470.8	1.543
15500.8	1.541
15530.8	1.534
15560.8	1.532
15590.8	1.525
15620.8	1.523
15650.8	1.519
15680.8	1.514
15710.8	1.51
15740.8	1.508
15770.8	1.503
15800.8	1.501
15830.8	1.497
15860.8	1.492
15890.8	1.49
15920.8	1.483
15950.8	1.483
15980.8	1.479

Well DUR02-890

Time (sec)	Displacement (ft)
12.288	9.982
13.182	9.933
14.118	9.849
15.12	9.775
16.17	9.713
17.298	9.642
18.492	9.555
19.74	9.486
21.078	9.412
22.488	9.358
23.97	9.294
25.47	9.232
27.078	9.178
28.782	9.121
30.582	9.064
32.472	9.007
34.578	8.946
36.78	8.887
39.078	8.827
41.58	8.761
44.178	8.694
46.968	8.625
49.872	8.556
52.968	8.484
56.28	8.408
59.778	8.334
63.48	8.253
67.368	8.169
71.58	8.08
75.978	7.981
80.67	7.885
85.668	7.786
90.978	7.682
96.582	7.574
102.48	7.463
108.78	7.347
115.368	7.228
122.37	7.108
129.882	6.979
137.772	6.848
146.172	6.71
155.082	6.569
164.478	6.424
174.48	6.273
185.082	6.118
196.278	5.958
208.17	5.792
220.782	5.622
234.078	5.449
248.172	5.274
263.082	5.092
278.868	4.907
295.668	4.717
313.482	4.524
332.28	4.332
352.17	4.134
373.278	3.935
395.67	3.735
419.37	3.537
444.48	3.338
471.078	3.14
499.278	2.95
529.17	2.755
560.778	2.565
594.282	2.378
629.778	2.198
667.38	2.02
707.172	1.852
749.382	1.692
794.07	1.539
841.482	1.394
891.672	1.26
944.778	1.134
1001.07	1.019
1060.68	0.912
1123.87	0.816
1190.78	0.73
1261.68	0.651
1336.78	0.579

Well DUR02-902

Time (sec)	Displacement (ft)
0.432	9.5
0.9	9.464
1.398	9.407
1.938	9.349
2.49	9.407
3.09	9.376
3.72	9.394
4.38	9.349
5.07	9.374
5.82	9.352
6.618	9.305
7.458	9.341
8.352	9.318
9.288	9.276
10.29	9.294
11.34	9.296
12.468	9.338
13.662	9.314
14.91	9.316
16.248	9.287
17.658	9.272
19.14	9.265
20.64	9.265
22.248	9.261
23.952	9.254
25.752	9.252
27.642	9.248
29.748	9.243
31.95	9.241
34.248	9.234
36.75	9.234
39.348	9.23
42.138	9.226
45.042	9.221
48.138	9.217
51.45	9.212
54.948	9.208
58.65	9.206
62.538	9.201
66.75	9.195
71.148	9.19
75.84	9.186
80.838	9.179
86.148	9.175
91.752	9.17
97.65	9.161
103.95	9.157
110.538	9.152
117.54	9.146
125.052	9.137
132.942	9.13
141.342	9.128
150.252	9.124
159.648	9.113
169.65	9.106
180.252	9.099

191.448	9.093
203.34	9.082
215.952	9.075
229.248	9.066
243.342	9.06
258.252	9.046
274.038	9.026
290.838	9.02
308.652	9.011
327.45	9
347.34	8.991
368.448	8.98
390.84	8.967
414.54	8.956
439.65	8.945
466.248	8.931
494.448	8.918
524.34	8.905
555.948	8.889
589.452	8.874
624.948	8.858
662.55	8.843
702.342	8.825
744.552	8.807
789.24	8.787
836.652	8.768
886.842	8.748
939.948	8.726
996.24	8.703
1055.85	8.679
1119.04	8.655
1179.04	8.63
1239.04	8.608
1299.04	8.586
1359.04	8.564
1419.04	8.542
1479.04	8.522
1539.04	8.498
1599.04	8.48
1659.04	8.456
1719.04	8.436
1779.04	8.414
1839.04	8.392
1899.04	8.374
1959.04	8.352
2019.05	8.332
2079.04	8.312
2139.04	8.292
2199.04	8.272
2259.04	8.254
2319.04	8.235
2379.04	8.215
2439.04	8.195
2499.04	8.177
2559.04	8.157
2619.04	8.139
2679.04	8.122
2739.04	8.102
2799.04	8.084
2859.04	8.066
2919.04	8.049
2979.04	8.029
3039.04	8.013
3099.04	7.996
3159.04	7.978
3219.04	7.963
3279.04	7.945
3339.04	7.927
3399.04	7.909
3459.04	7.892
3519.04	7.876
3579.04	7.856
3639.04	7.841
3699.04	7.823
3759.04	7.808
3819.04	7.792
3879.04	7.775
3939.04	7.757
3999.04	7.741
4059.04	7.726
4119.04	7.71
4179.04	7.693
4239.04	7.677
4299.04	7.662
4359.04	7.646
4419.04	7.631
4479.04	7.613
4539.04	7.598
4599.04	7.582
4659.04	7.567
4719.04	7.551
4779.04	7.536
4839.04	7.522
4899.04	7.507
4959.04	7.491
5019.04	7.478
5079.04	7.46
5139.04	7.447
5199.04	7.434
5259.04	7.418
5319.04	7.405
5379.04	7.39
5439.04	7.376
5499.04	7.363
5559.04	7.345
5619.04	7.332
5679.04	7.319
5739.04	7.303
5799.04	7.29
5859.04	7.277
5919.04	7.264
5979.04	7.25
6039.04	7.235
6099.04	7.222
6159.04	7.208
6219.04	7.195
6279.04	7.182
6339.04	7.166
6399.04	7.153
6459.04	7.142
6519.04	7.129
6579.04	7.115
6639.04	7.102
6699.04	7.089
6759.04	7.078
6819.04	7.065
6879.04	7.051
6939.04	7.038
6999.04	7.027
7059.04	7.016
7119.04	7.003
7179.04	6.989
7239.04	6.978
7299.04	6.967
7359.04	6.954
7419.04	6.943
7479.04	6.932
7539.04	6.921
7599.04	6.908
7659.04	6.897
7719.04	6.885
7779.04	6.874
7839.04	6.863
7899.04	6.852
7959.04	6.839
8019.04	6.828
8079.04	6.817
8139.04	6.806
8199.04	6.795
8259.04	6.782
8319.04	6.77
8379.04	6.762
8439.04	6.751
8499.04	6.74
8559.04	6.728
8619.04	6.717
8679.04	6.706
8739.04	6.693
8799.04	6.684
8859.04	6.673
8919.04	6.664
8979.04	6.651

Appendix G

Ground Water Flow and Transport Modeling

Technical Task Cover Sheet

Discipline Hydrology/Hydrogeology

Project:

UMTRA Ground Water Project

Site:

Durango, Colorado

Subject:

Durango Mill Tailings Site Ground Water Modeling Calculation

Sources of Data:

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Task Order No. MAC02-05 **File Index No.** GWDUR13.02

Proj. No. UGW-511-0006-11 **Calc. No.** U0149900 **Supersedes Calc. No.** NA

Calculated by	Date	Checked by	Date	Approved by	Date	DOE Concurrence (if required)	Date
Ken Pill							

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1.1 Modeling Objective 1
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1.0 Introduction

1.1 Modeling Objective

As part of the final compliance strategy for the cleanup of contaminated ground water at the Durango, Colorado, Uranium Mill Tailings Remedial Action (UMTRA) Project Mill Tailings Site, it is necessary to develop a computer ground water model. This model, which consist of ground water flow and contaminant transport components, is designed to assist in forecasting whether natural flushing of various contaminants is a viable remediation alternative.

This document presents the development of steady state stochastic hydrologic flow and contaminant transport models to predict future contaminant concentrations. The various flow and transport parameters that affect the hydraulic head and contaminant distribution for the models are described. Contaminants that are modeled include cadmium, manganese, molybdenum, selenium, sulfate, and uranium.

The steps used for obtaining calibrated flow and transport models for the sites follow the ASTM Standard Guides D5447–93 and D5718–95. The specific steps are to: (1) evaluate the hydrogeologic setting and develop a conceptual model, (2) select the code to be used in the analysis, (3) establish the relationship between the conceptual and numerical models, (4) perform flow model calibration and sensitivity analysis on transport parameters, and (5) complete predictive simulations.

Stochastic simulations for the steady state models were performed, varying both flow and transport parameters, to evaluate the uncertainty in the predicted concentrations. These stochastic simulations were used to calculate mean concentrations and the probability of contamination remaining above acceptable levels across the site at specific times.

1.2 Model Function

This model will be used to investigate the steady-state ground water flow conditions and contaminant transport associated with the surficial aquifer at the Mill Tailings Site. In addition, the model can assess the impact of various hydraulic stresses on the surficial aquifer which may need to be examined, such as pumping, artificial recharge, and river stage elevation changes.

1.3 General Setting

The Durango UMTRA Project Site consists of two geographically contiguous, but hydrogeologically distinct, areas: The Mill Tailings Site and the Raffinate Ponds Site. Modeling was completed only for the Mill Tailings Site, and will be the focus of this document. Located on the west bank of the Animas River southwest of the city of Durango, in La Plata County, Colorado (Figure 1), the Mill Tailings Site lies immediately southwest of the intersection of Routes 160 and 550, at the confluence of Lightner Creek and the Animas River. The site encompasses an area of approximately 40 acres and lies at an elevation of approximately 6,500 feet (ft) above mean sea level (MSL). Surface remediation of tailings and mill related contamination was completed in 1991, with the contaminated material placed in the Bodo Canyon disposal cell located 1.5 miles southwest of the Durango sites.

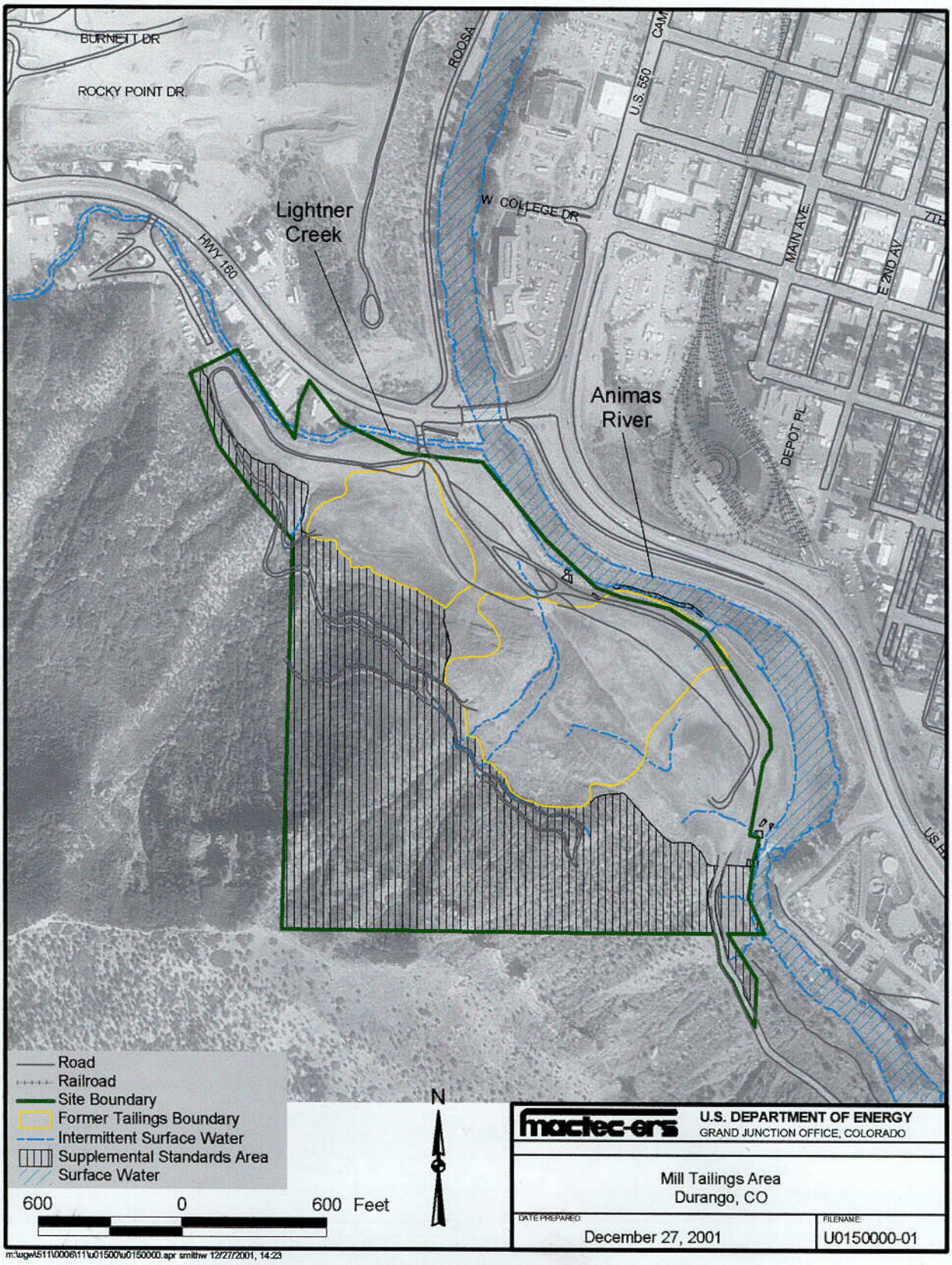

Figure 1. Durango Mill Tailings Site Location Map

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2.0 Conceptual Model

2.1 Aquifer System Framework

The Mill Tailings Site hydrostratigraphic units include the Mancos Shale that is overlain by unconsolidated colluvial and alluvial deposits. In the vicinity of the site, the Mancos Shale is believed to be approximately 500 ft thick. None of the ground water monitoring wells drilled onsite have fully penetrated this bedrock unit.

Along the base of Smelter Mountain, which is located southwest of the site, the Mancos Shale is directly overlain by colluvium that consists of up to 25 ft of poorly sorted, silty soil that originated from Smelter Mountain. Closer to Lightner Creek and the Animas River, an alluvial deposit of river-lain sand and gravel up to 15 ft thick occurs between the colluvium and the Mancos Shale. These sands and gravels are well sorted and much more conductive compared to the colluvium. In addition to the alluvium and colluvium overlying the Mancos Shale, in the southeast corner of the site there is a layer of lead smelter slag (up to 25 ft thick in some locations) along the western bank of the Animas River.

The colluvium and alluvium combined comprise what will be referred to (for modeling purposes) in this document as the surficial aquifer. This aquifer is unconfined, while the Mancos Shale aquifer appears to be unconfined near the top of the unit and most likely semi-confined or confined near the bottom of the unit.

Average water level elevations measured in the wells screened in the surficial aquifer are displayed in Figure 2. This map shows that the ground water flow trends to the southeast, and generally follows the Animas River flow direction. The colluvium component of the surficial aquifer receives recharge from runoff from Smelter Mountain and infiltration of precipitation. The alluvium component receives recharge from Lightner Creek and the Animas River.

Water that migrates through the entire thickness of the colluvium, and reaches the surface of the Mancos, eventually discharges into the Animas River. Other sources of colluvium discharge include evapotranspiration. Discharge from the alluvium component includes ground water flow into the Animas River when the stage is low.

2.2 Hydrologic Boundaries

Due to the low hydraulic conductivity (K) of the Mancos Shale (estimated to be less than 0.01 ft/day), this underlying unit is considered to be impermeable. As a result, the ground water model for the Mill Tailing Site consists of only one layer representing the previously mentioned surficial aquifer.

Lightner Creek and the Animas River represent the dominant natural hydrologic boundaries associated with the site (Figure 1). In the case of the Animas River, the river channel cuts through the entire thickness of the surficial deposits, with the bed of the river on the surface of the Mancos Shale. In addition, the high topographic relief and associated high ground water elevations in wells located on the east side of the river indicate that the ground water on the east side flows toward and discharges into the Animas River. Such a flow pattern on the east side prevents ground water migration under the river to the other side.

Figure 2. Alluvial Aquifer Ground Water Surface Contour Map, Based on the Average Ground Water Elevation

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The extent of the alluvial aquifer in the southwest portion of the site is controlled by Smelter Mountain, where the colluvium component of the surficial aquifer pinches out.

2.3 Hydrologic Properties

Slug tests were completed at eight different locations on the Mill Tailings Site to determine the hydraulic parameters of the surficial aquifer. These tests were performed on wells screened over the various deposits (both colluvium and alluvium) within the surficial aquifer. Test procedures, analysis of these data, and test results are presented in Calculation No. U0133300. Results indicate the horizontal hydraulic conductivity (K_x) of the colluvium ranges approximately from 1 to 10 ft/day. Data collected from wells completed in the Animas River alluvium suggest the K_x ranges from 10 to 28 ft/day, while the single test completed in a well screened in the Lightner Creek alluvium indicates the K_x is 66 ft/day.

2.4 Sources and Sinks

The Animas River, Lightner Creek, and precipitation are the main sources of recharge to the surficial aquifer. The Animas River is considered to be both a sink and a source (i.e., the surficial aquifer discharges water to the river along some reaches, and the river recharges the aquifer along other reaches). The discharge and recharge flows are seasonal in nature.

2.4.1 Sources

Three sources of recharge to the surficial aquifer have been identified. These include recharge from (1) precipitation and snowmelt, (2) Lightner Creek, and (3) the Animas River.

Historical meteorological data from the Fort Lewis Weather Station (station number 053016) located in Durango, Colorado, was used as a source of precipitation data for the site. Data collected from this station are the most representative because this station is within 5 miles of the site and has recorded monthly precipitation data more than 50 years. Data collected from 1948 through 2001 indicate there is on average 18.36 inches of annual precipitation in the Durango area, with July through October being the wettest months. Of this amount of precipitation, only a percentage is available to recharge the aquifer.

Lightner Creek is a main source of recharge to the alluvium component of the surficial aquifer along the banks of the creek during the spring runoff time period. Water flows from the creek into the conductive alluvium when the creek stage is high, generally between April through June.

The Animas River is the main source of recharge to the alluvium deposited along the banks of the river. Similar to the alluvium along Lightner Creek, the Animas River recharges the alluvium during time periods when the river stage is high.

2.4.2 Sinks

Two main sources of discharge from the surficial aquifer have been identified as evapotranspiration and ground water discharge into the Animas River.

Evapotranspiration is accounted for by the use of a net recharge estimate (which includes the loss due to evapotranspiration).

Ground water flows from the surficial aquifer into the Animas River during low river stage periods. Precipitation that migrates through the surficial aquifer and reaches the Mancos Shale also eventually discharges into the Animas River.

2.5 Conceptual Water Budget

A conceptual water budget that is estimated from the hydraulic properties of the alluvial deposits, interpolations of alluvial thickness from geologic logs, and projections of subcropping bedrock is presented in Calculation Set No. U0133800. This information is also presented in Section 5.1 of the site observational work plan. This document describes in detail each flow component associated with the Mill Tailings site, and their estimated inflows or outflows into or out of the modeled area. Table 1 presents the results of the water budget, while Figure 3 graphically shows the potential areas influenced by the flow components.

Table 1. Water Budget Estimated Inflows and Outflows for the Mill Tailings Site

Flow Component	Inflow (ft^3/day)	Outflow (ft^3/day)
Lightner Creek	990	840
Animas River	190	640
Areal Recharge	300	0
Total	1,480	1,480

3.0 Computer Code Description

MODFLOW (McDonald and Harbaugh 1988), a modular three-dimensional finite-difference ground water flow model published by the U.S. Geological Survey (USGS) was selected as the flow code for this project. MT3DMS (Zheng and Wang 1999), a modular three-dimensional transport model for simulation of advection, dispersion, and chemical reaction of contaminants in ground water systems was selected as the transport code for this project. Each of these codes is divided into a main program and a group of independent subroutines called *modules*. Each module is made up of *packages* that deal with a single aspect of the simulation. The user of either MODFLOW or MT3DMS need only use those modules that simulate the stresses placed upon the flow and transport systems. This version of MT3DMS contains a new transport solver that is very efficient and makes multiple long simulation runs feasible.

Groundwater Vistas (Environmental Simulations, Inc. 1997), a Windows-driven, graphical, pre- and post-processor for MODFLOW and MT3DMS is used in conjunction with the site model to facilitate data entry, data-file modification, program execution, and analysis of modeling results.

3.1 Assumptions

A finite-difference model, such as MODFLOW, is based upon the continuity equation that states that the sum of all flows into and out of the cell is equal to the rate of change in storage in the cell, which relies on the assumption that the density of ground water is constant. Another assumption is that the numerical equations used by MODFLOW are good approximations to actual partial derivative equations. Other assumptions associated with MODFLOW include flow from a well is independent of head, and stream-aquifer interconnection is treated as a simple

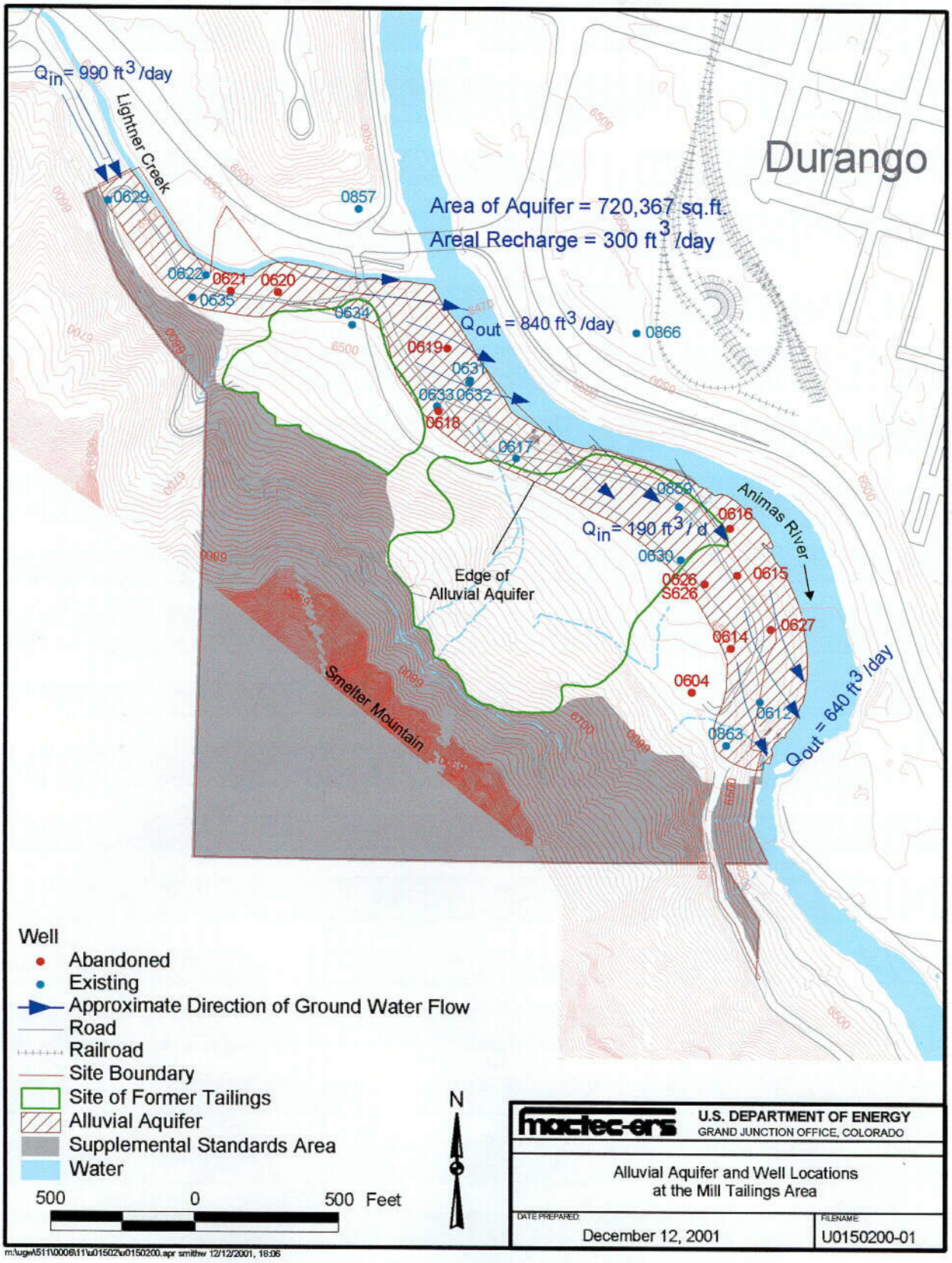

Figure 3. Water Budget Flow Components for the Mill Tailings Site

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conductance term. A detailed description of the MODFLOW code formulation, approach, and assumptions is provided by McDonald and Harbaugh (1988).

3.2 Limitations

MODFLOW is based on the fundamental equation of ground water flow. For water table aquifers the head distribution along the exposed surface also equals or defines the upper physical boundary of the aquifer that may be rising or falling. As the head rises or falls, so does the physical boundary. This is described mathematically as a moving boundary value problem for which exact solutions are impossible due to the non-linear, quadratic head derivatives in the surface boundary condition (Cleary 2001).

In addition, MODFLOW is a finite difference model, where a continuous system as described by the fundamental equation is replaced by a finite set of discrete points in space and time. The partial derivatives are replaced by terms calculated from the differences in head values at these points. This process leads to a system of simultaneous linear algebraic difference equations which are solved for head at specific points and times (McDonald and Harbaugh 1988). As a result, an iterative process calculates the approximated head values.

Because we are dealing with a finite difference model, the model computes a value for the head at the node that is also the average head for the cell that surrounds the node. No assumption is made about the form of the variation of head from one node to the next (Anderson and Woessner 1992). As a result, in large cell areas (or areas of a high hydraulic gradient) the computed head will be an average value for the area within the cell. Groundwater Vistas, the graphic use interface software used for this modeling effort, does allow to interpolate between nodes; however, these resulting values should be considered an estimate.

3.3 Solution Techniques

MODFLOW offers several options for solving the flow equations, one of which is the Preconditioned Conjugate Gradient method, or PCG2. The PCG2 was the solver chosen for this model because of its ability to solve head matrices efficiently and generally converges quickly without oscillation problems.

3.4 Effects on Model

The use of a finite difference model may limit the representation of certain boundaries, such as stream or river traces. However, the use of the MODFLOW computer code for the Mill Tailings Site does not negatively influence the model representation because of the small scale of this model and the small grid size used.

4.0 Model Construction

4.1 Model Domain

The x-axis of the model is oriented in the east/west direction, centered over the location of the Mill Tailings Site. The modeled area consists of 160 rows and 160 columns of a 25 ft by 25 ft

orthogonal grid. Of the modeled 16,000,000 sq ft area, only 1,434 (or 896,250 sq ft) cells are active, with the remaining cells set as no-flow cells (Figure 4).

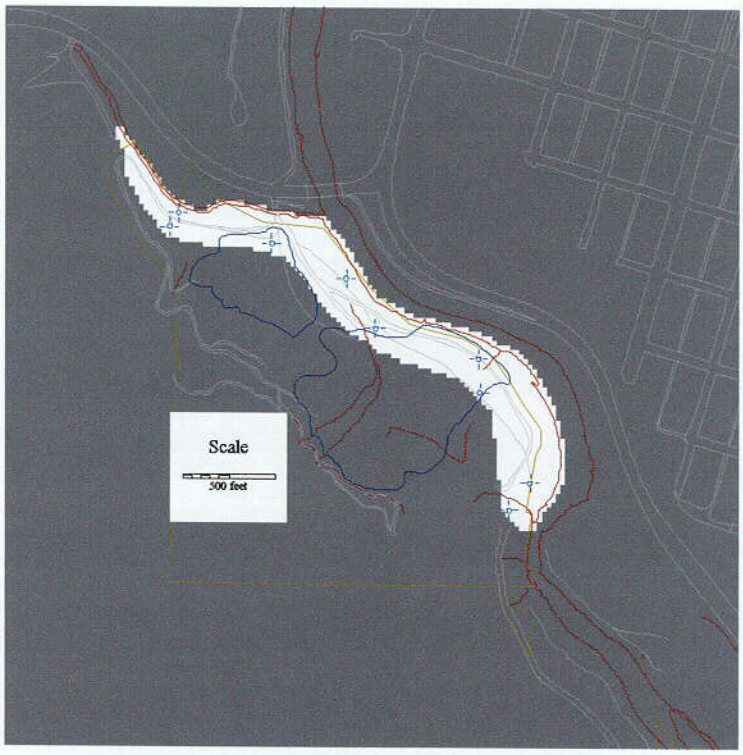

Figure 4. Extent of the Mill Tailings Ground Water Model

The western boundary of the grid was set arbitrarily and extended to a point west of the base of Smelter Mountain, which represents the extent of the surficial aquifer. Similarly, the eastern extent of the model grid was also set to include the Animas River. The northern boundary of the grid was set such that the modeled area included the extent of Lightner Creek, while the southern edge of the grid extended beyond the point where the surficial aquifer pinches out where the Animas River intersects the base of Smelter Mountain, in between the Mill Tailings and the Raffinate Ponds sites.

This model consists of a single layer representing the surficial deposits overlying the Mancos Shale. The Mancos Shale represents a no-flow boundary beneath the layer because of its low conductivity (less than 0.01 ft/day). The thickness of the surficial aquifer increases trending from the base of Smelter Mountain, where the surficial deposits pinch out, towards the river. In the vicinity of well 612, which is located in the very southern extent of the modeled area, the model layer reaches a maximum thickness of 55 ft.

Daily mean streamflow data (in cubic feet per second [cfs]) for the Animas River are collected at USGS Gaging Station #09361500, located 0.8 mile upstream from the Lightner Creek and Animas confluence. River elevation data are collected from two stilling wells located on the banks of the Animas River. Stilling well 868 is located just northeast of the 631/632 cluster, and stilling well 867 is located on the banks of the Animas River just northeast of well 859 (Figure 5). No streamflow or elevation data are available from Lightner Creek.

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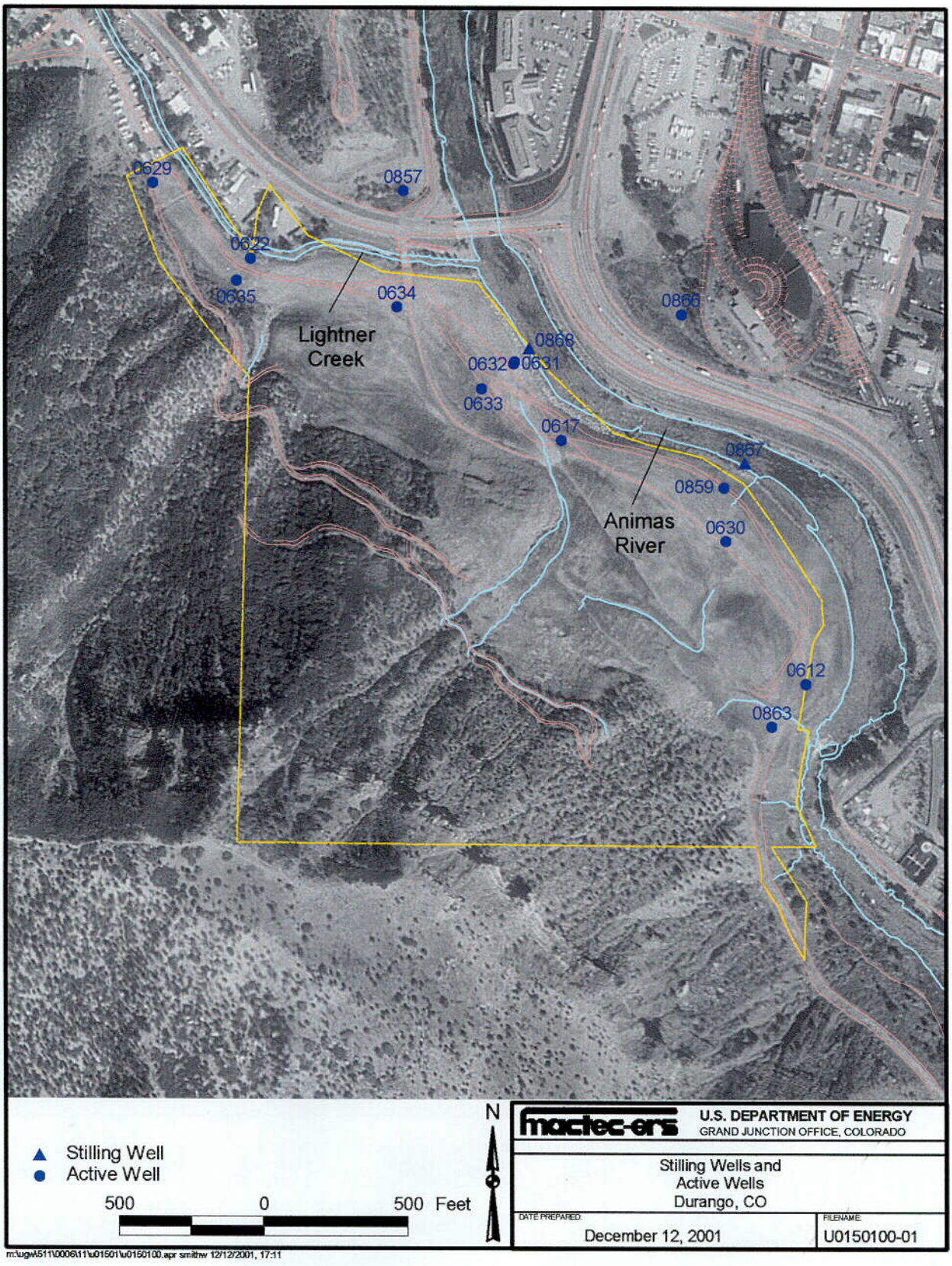

Figure 5. Animas River Surface Elevation Measuring Point Locations

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4.2 Hydraulic Parameters

The surficial aquifer was divided into three hydraulic conductivity zones to reflect the various components of this layer (Section 2.1). The distribution of these zones is shown on Figure 6. Zone 1 represents the colluvium deposit originating from the slopes of Smelter Mountain. As previously discussed, this material has the lowest hydraulic conductivity measured during the Mill Tailings site field investigation. Zone 2 represents the alluvium deposited by the Animas River that overlies the colluvium, and Zone 3 represents the Lightner Creek alluvium and the alluvium located directly along the banks of the Animas River, which has the highest measured hydraulic conductivity.

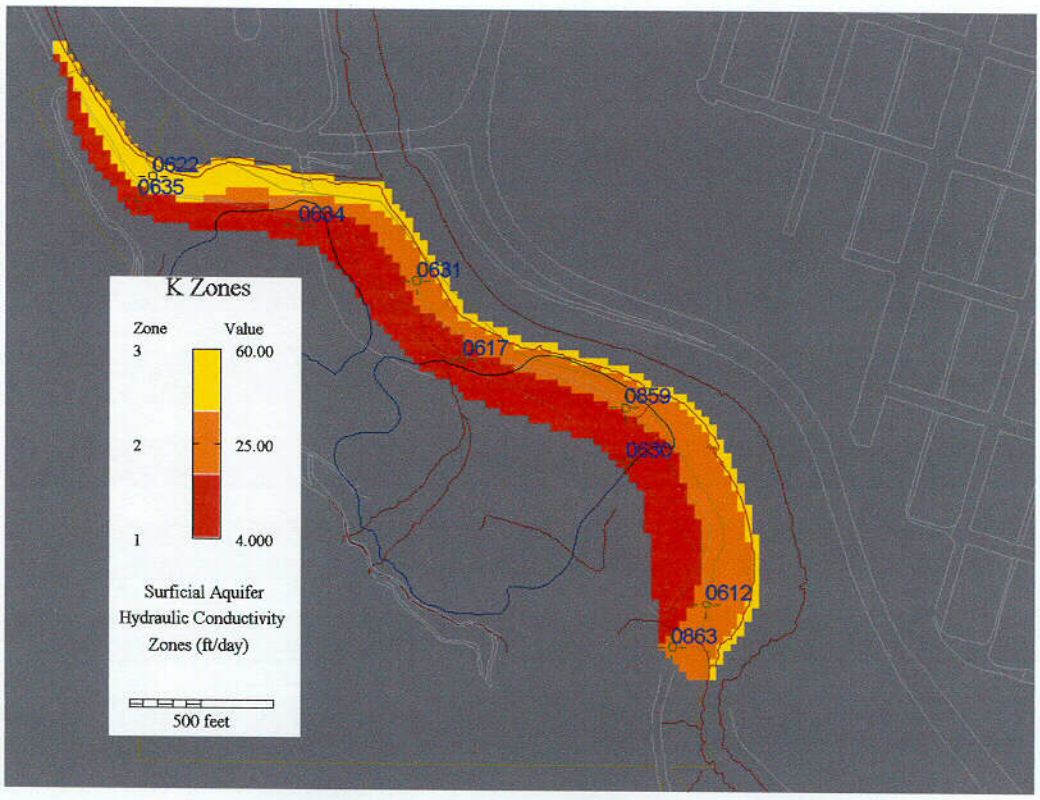

Figure 6. Surficial Aquifer Hydraulic Conductivity Zones

Based on the data collected in the field (including historical data), a range for the various hydraulic conductivity zones was established. These ranges are included in Table 2, which also presents the initial model input values.

Table 2. Hydraulic Conductivity Values for the Surficial Aquifer

K Zone Number	K Initial Model Input Value (ft/day)	K Initial Model Range (ft/day)
1	4	1 to 14
2	25	5 to 50
3	60	40 to 100

C06

4.3 Sources and Sinks

4.3.1 Sources

Weather Service data indicate there is an average of 18.36 inches per year of precipitation in the vicinity of the site. The amount of precipitation available for recharge can be estimated by the Thronthwaite method (Thronthwaite and Mather 1957). This method, which provides a range of potential recharge, takes into account the mean monthly air temperature, annual precipitation, potential evaporation, and potential runoff to determine the amount of precipitation available for recharge to the aquifer.

Of the 18.36 inches per year of precipitation, an estimated 0.01 to 6.61 inches per year is available for aquifer recharge. This translates into a net recharge flux of 0.000002 to 0.00151 ft/day. The potential runoff parameter is based on the rock type in the vicinity of the site. With the site located at the base of Smelter Mountain, which has the potential to provide a large volume of recharge to the site, the actual recharge flux is expected to be near the higher end of this range.

Lightner Creek and the Animas River are the main sources of recharge to the surficial aquifer alluvium deposited along the banks of the creek and river.

4.3.2 Sinks

The main sources of discharge from the surficial aquifer have been identified as evapotranspiration and ground water discharge into the Animas River. The amount of potential evapotranspiration has been accounted for by the use of the Thronthwaite method.

Ground water discharges from the surficial aquifer in various areas into the Animas River during low river stage periods.

In addition, any recharge from precipitation that migrates through the surficial aquifer and reaches the Mancos Shale is expected to eventually discharge into the Animas River.

4.4 Boundary Conditions

As previously mentioned, the surficial deposits within the model are limited to the area between the base of Smelter Mountain, Lightner Creek, and the Animas River. No-flow cells are assigned to areas beyond the extent of the surficial deposits (Figure 7).

Along the northern extent of the surficial aquifer, Lightner Creek is represented as a constant head boundary. As a result of the lack of streamflow or elevation data associated with Lightner Creek, the head values assigned to the constant head cells representing Lightner Creek were based on the surface topography. Based on the topography, along the extent of the alluvium, the head drops from an elevation of approximately 6,495 ft MSL to 6,470 ft MSL in the area adjacent to the active model cells.

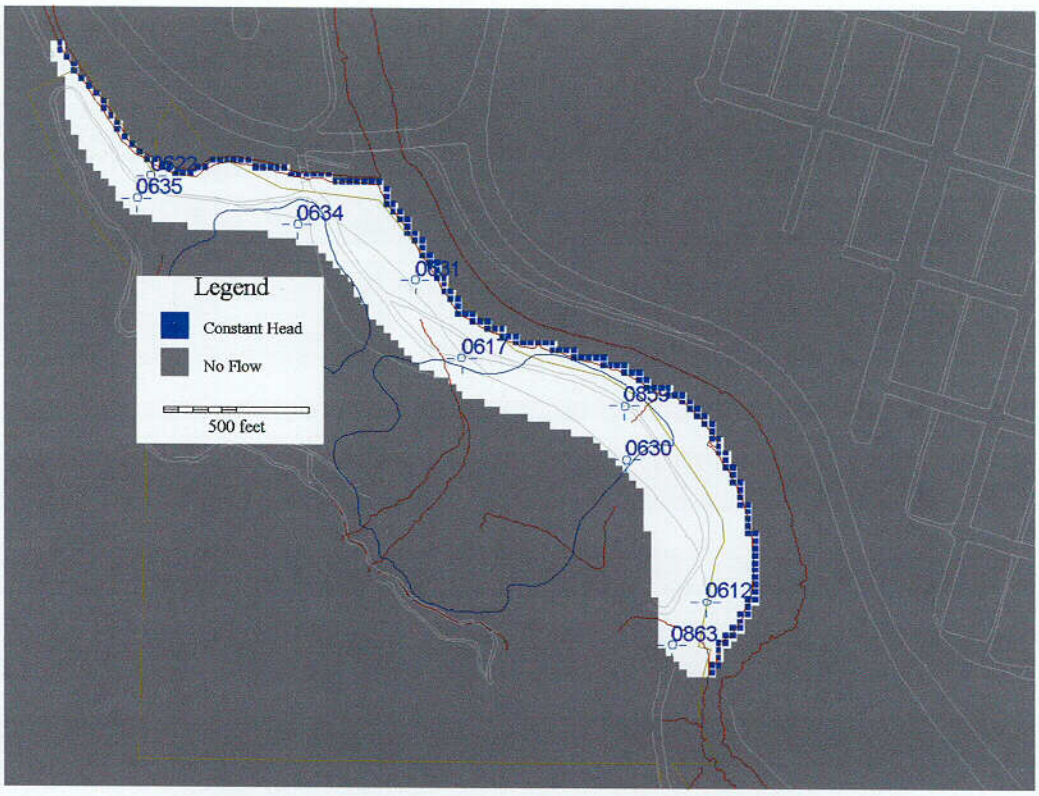

Figure 7. Boundary Conditions Assigned to the Model

The Animas River is also represented by a constant head boundary. River elevation survey data were collected during March 16, 2001, at the two stilling well locations. Based on this data the river has a hydraulic gradient of 0.0058 ft/ft. Over the past 10 years, the Animas River daily streamflow statistical mode was 250 cfs, and on March 16, 2001, the streamflow was 258 cfs. As a result, the survey data collected at this time are representative of the gradient typically encountered during the year.

The river elevations measured during the survey were assigned to the two stilling well locations, and the remaining constant head cells were assigned elevations based on a linear interpolated gradient. As a result, the elevation assigned to the constant head cells associated with the Animas River range from 6,470 ft MSL at the confluence of Lightner Creek to 6,455 ft MSL to the south of well 863, where the surficial deposits pinch out where the Animas River intersects the base of Smelter Mountain.

4.5 Selection of Calibration Targets

Despite the fact that 15 wells are associated with the Mill Tailings Site, only nine wells were chosen as calibration targets within the modeled area. Wells were either eliminated because they were (1) located outside of the modeled area, (2) not screened entirely over the surficial aquifer, or (3) the standard deviation based on the historical water level data was excessively high. The locations of the nine wells used for calibration targets are shown on Figure 8.

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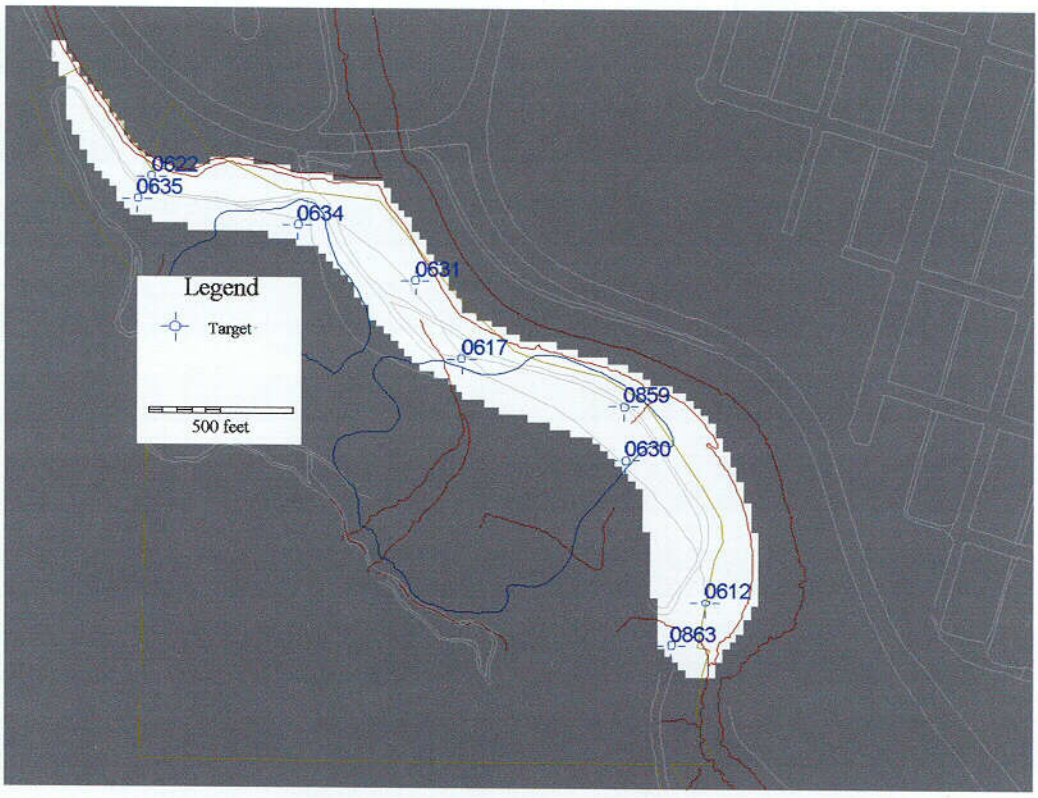

Figure 8. Calibration Target Locations

The target values are based on historical average water level data, as shown in Table 3. This table also provides the standard deviation and the number of measurements contained within the database used to determine the average ground water elevation.

Table 3. Target Ground water Elevation Data

Well	Historical Average Ground Water Elevation (ft MSL)	Standard Deviation	Number of Measurements
0612	6,459.67	1.41	36
0617	6,469.64	4.15	36
0622	6,484.83	0.86	35
0630	6,461.41	1.15	15
0631	6,468.97	1.55	15
0634	6,478.46	0.59	15
0635	6,484.59	0.74	16
0859	6,463.39	1.12	4
0863	6,455.57	1.75	4

Wells 0612, 0617, and 0622 (installed in 1983), and wells 0630, 0631, 0634, and 0635 (installed in 1993) were installed prior to the 2000 field investigation, and as a result the average water level for these locations was based on a larger database. The remaining two targets (0859 and 0863) were installed in September or October 2000, with the average water level based on the available data since installation.

C08

5.0 Calibration of Flow Model

The steps required to develop the flow model and subsequent calibration are presented in the flow chart in Figure 9. Section 5.1 addresses the calibration process, while Sections 5.2, 5.3, 5.4, and 5.5 discuss the calibration goals, sensitivity analysis, stochastic MODFLOW results, and the qualitative and quantitative analysis, respectively.

5.1 Calibration Process

The initial flow model was based on the parameter input values presented in Section 4.2, Table 2. A sensitivity analysis for the four flow model parameters (hydraulic conductivity of zones 1, 2, and 3, and recharge) was completed to determine if the parameter is sensitive and the optimal value for each parameter based on calibration statistics.

Once the sensitivity analysis of the flow model is complete, the sensitive parameters are assigned a range of values. This range is based on the sensitivity analysis as well as field observations. For example, if the sensitivity analysis results indicate that the optimal recharge value is greater than the amount of precipitation available to the site, then the range assigned will only reflect the data that is most representative of actual site conditions.

The flow model is then re-run, using a stochastic version of MODFLOW (Ruskauff and Environmental Simulations, Inc. 1998). This version allows the user to assign a range of values to each sensitive parameter (or any parameters in which the value was obtained from the literature) as opposed to a single value. Results obtained from a stochastic run address the uncertainty associated with simulations in which parameters are assigned only a 'best guess' value.

Once the stochastic MODFLOW results are analyzed, a base flow model is generated which is compared to the calibration goals. If the calibration goals are achieved, this base flow model is used to develop the transport model for each of the contaminants, and provide the final simulation results.

5.2 Calibration Goals

Prior to beginning model calibration, it is important to decide upon the acceptance criteria for the calibration process. The acceptance criteria chosen for this project are:

- The model must be able to simulate the general flow directions observed at the site.
- The numerical model should not have any inherent bias. In other words, because the model will either over or under predict the measured hydraulic heads, the arithmetic mean of the residuals should be as close to 0.0 as possible and fairly evenly distributed above and below 0.0.
- The mass balance error should be less than 5 percent.

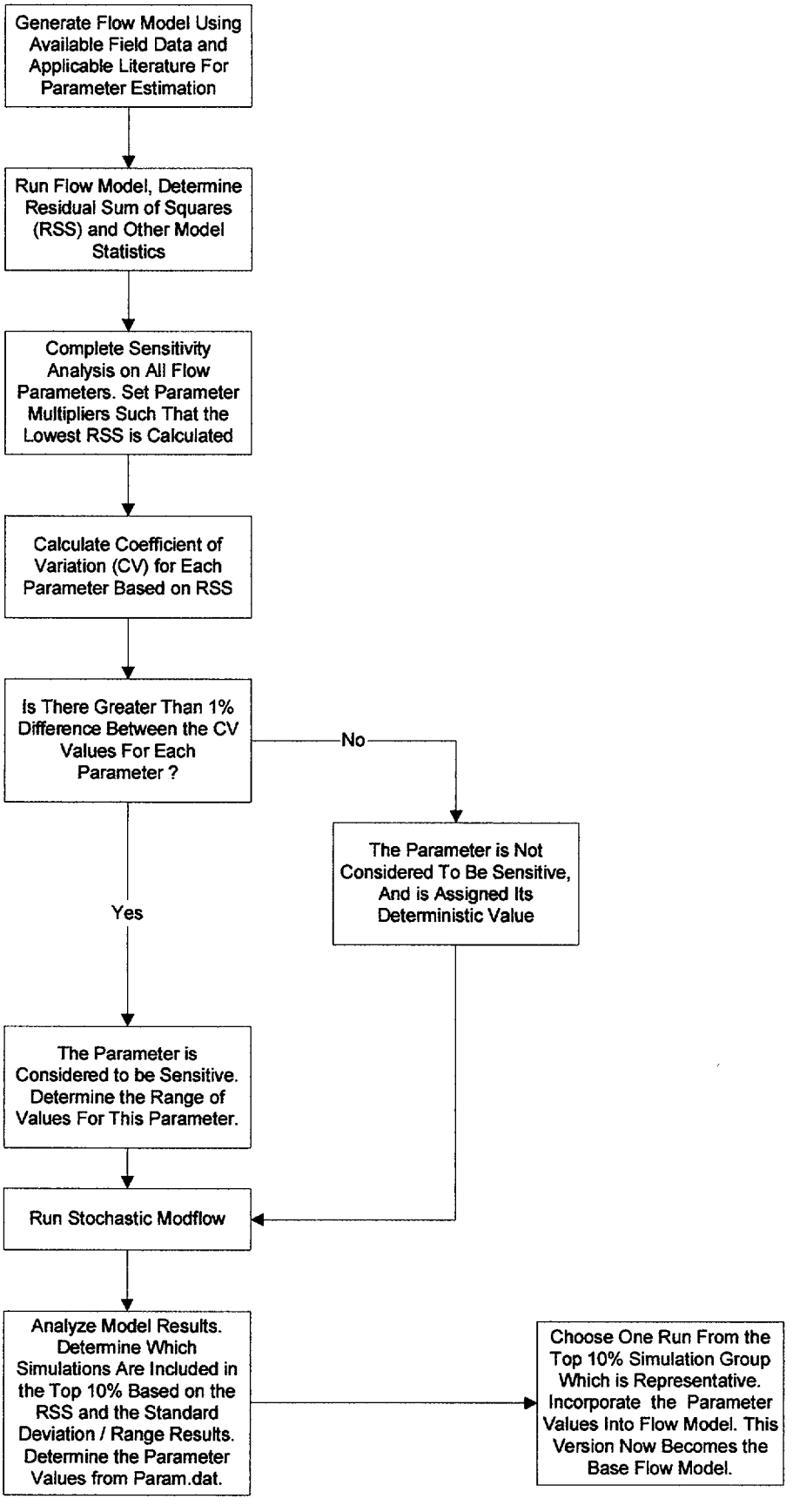

Figure 9. Flow Model Development

In addition, several flow model calibration objectives based on the result statistics were set prior to calibrating the model. The objectives for the steady state model are shown in Table 4.

Table 4. Flow Model Calibration Objectives

	Residual Mean (ft)	Absolute Residual Mean (ft)	Sum of Squares (ft^2)	Minimum Residual (ft)	Maximum Residual (ft)	Standard Deviation/Range (%)
Objective	0	< 1.	< 20.	> -2.0	< 2.0	< 5.0

5.3 Flow Model Sensitivity Analysis

A sensitivity analysis is useful to evaluate the effects that variations in flow parameters have on the final predicted results. Highly sensitive parameters can be treated as uncertain for stochastic simulations. GWVistas contains an auto sensitivity package that allows the user to run the flow model using up to fifteen different values for the parameter to be tested, and compares the residual sum of squares (Section 5.4) result from each run. Generally, only the results from five variations of the parameter are adequate in order to determine if the parameter is sensitive. The flow parameters selected for the sensitivity analysis are horizontal hydraulic conductivity of zones 1, 2, and 3, and recharge. Table 5 presents the initial values assigned to each flow parameter for the sensitivity analysis.

Table 5. Flow Model Sensitivity Analysis Parameter Values

Parameter (units)	Flow Parameter Values				
Kx, Zone 1 (ft/day)	0.4	0.8	4	6	12
Kx, Zone 2 (ft/day)	0.75	1.25	2.5	12.5	25
Kx, Zone 3 (ft/day)	0.3	0.6	1.2	3	6
Recharge (ft/day)	0.001142	0.002284	0.003426	0.004568	0.00571

The criteria used for the sensitivity analysis for these flow parameters is the residual sum of squares, (i.e., the difference between the computed head and observed head at the 9 target wells). The results of the sensitivity analysis for these four parameters are shown in Figure 10 through Figure 13. Visually, this qualitative (subjective) analysis indicates that the model is sensitive to changes in each of the four parameters.

It should be noted that the range assigned to the sensitivity analysis parameters may fall outside the initial range. This is a result of the attempt to determine the optimal value of the parameter. For all four of these flow parameters, the optimal value was encountered outside of the initial range.

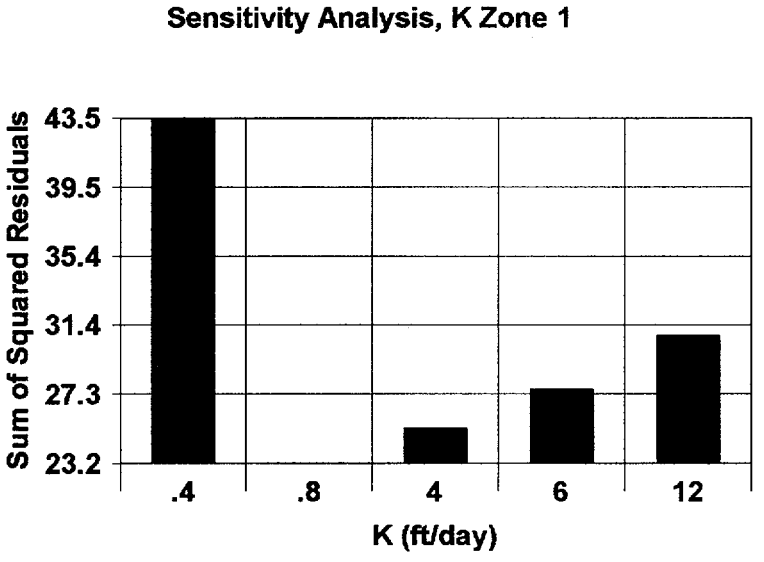

Figure 10. Hydraulic Conductivity—Zone 1 Sensitivity Analysis Results

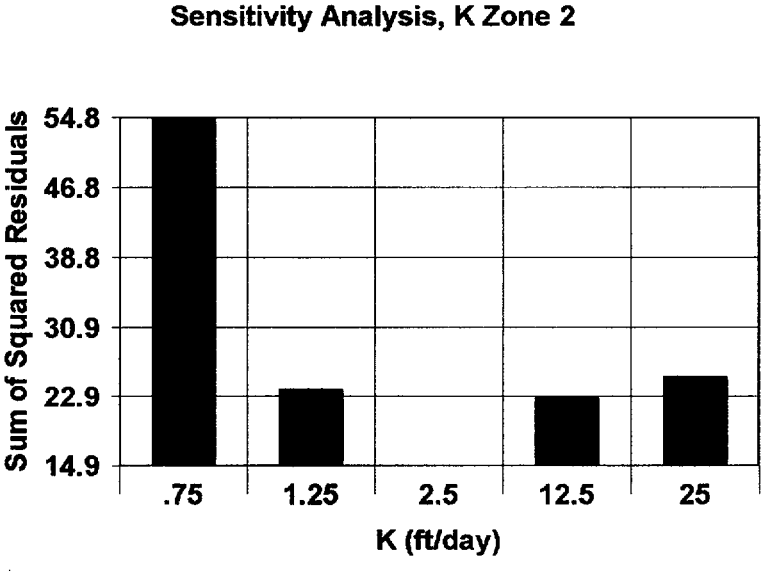

Figure 11. Hydraulic Conductivity—Zone 2 Sensitivity Analysis Results

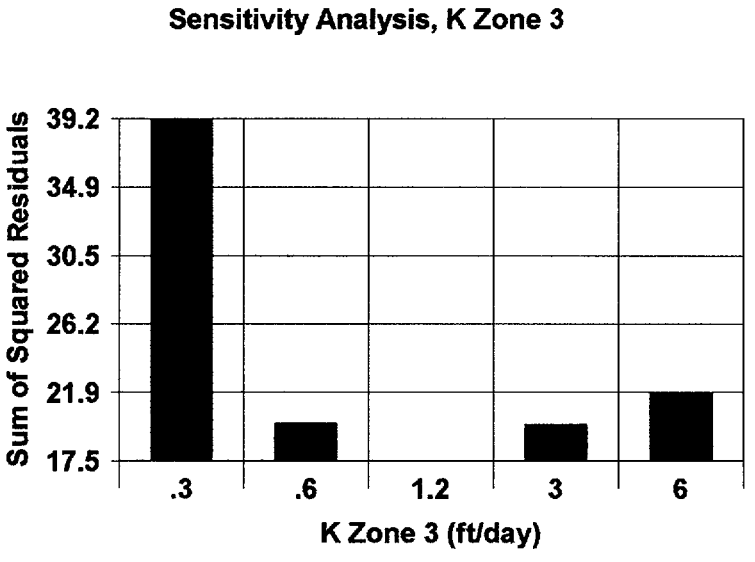

Figure 12. Hydraulic Conductivity—Zone 3 Sensitivity Analysis Results

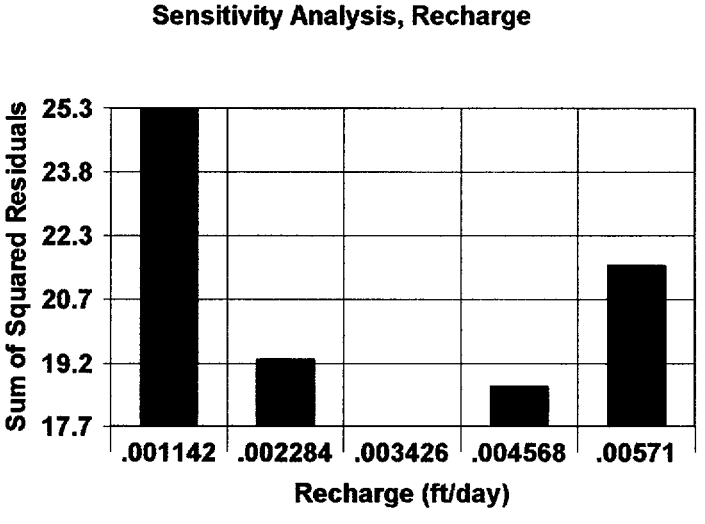

Figure 13. Recharge Sensitivity Analysis Results

As an additional quantitative (objective) check, the coefficient of variation (CV) of the residual sum of squares was calculated for each of these parameters. The CV is defined as the standard deviation (σ) divided by the mean ($\bar{x}$). Parameters resulting in a CV greater than 1 percent are considered sensitive. The CV has been calculated using an unbiased estimate of the standard deviation (σ) adjusted for sample size (Dixon and Massey 1957). The results of the CV analysis are shown in Table 6. Based on these criteria, the model is shown to be sensitive to each of the four parameters.

Table 6. Flow Parameter Coefficient of Variation Analysis

Flow Parameter	Mean	Standard Deviation	Adjusted Standard Deviation	Coefficient of Variation
Horizontal Hydraulic Conductivity, Zone 1	30.10	8.01	8.50	0.2827
Horizontal Hydraulic Conductivity, Zone 2	28.32	15.34	16.28	0.5747
Horizontal Hydraulic Conductivity, Zone 3	23.68	8.81	9.35	0.3947
Recharge	20.52	3.03	3.22	0.1568

5.4 Stochastic MODFLOW

Table 7 presents the flow parameters and associated ranges assigned to each parameter for the stochastic MODFLOW run. These ranges were established based on the sensitivity analyses results and the available field data. The model was designed to perform a total of 100 realizations.

Table 7. Stochastic MODFLOW Parameter Ranges

Flow Parameter	Determinsitic Value (ft/day)	Stochastic Range (ft/day)	Distribution
Horizontal Hydraulic Conductivity, Zone 1	4	1 to 14	Triangular
Horizontal Hydraulic Conductivity, Zone 2	25	5 to 50	Uniform
Horizontal Hydraulic Conductivity, Zone 3	60	40 to 100	Uniform
Recharge	0.001142	0.001 to 0.002	Triangular

The results were analyzed by reviewing the output files and the param.dat file that is produced by stochastic MODFLOW to provide the value of each parameter for each of the 100 realizations. The output file was exported into a spreadsheet and the data were sorted to determine which of the 100 simulations provided the statistically best model.

The data generated by the results were analyzed to determine the statistically optimal run using two criteria: (1) the residual sum of squares, and (2) the standard deviation divided by the range. The top ten percent statistically best realizations were determined for each criteria. These realizations are shown in Table 8 for comparison. Any realizations that were included in the top ten percent based on each criterion are considered to be acceptable base flow models.

Realizations 20, 85, 23, 10, 39, and 34 are found in the upper 10 percent of the results based on both criteria. The param.dat file was reviewed to determine the flow parameter values for each of these realizations. This information is presented in Table 9.

Comparing these values to the parameter value of the deterministic flow model (prior to the sensitivity analysis), the results in Table 9 suggest realization #23 provides a statistically acceptable model based upon flow parameter values that are representative of the data collected during the field investigation.

Table 8. Comparison of Modeling Results Based on the Standard Devation/Range and RRS

Top 10% Realizations Based On the Standard Deviation / Range		**Top 10 % Realizations Based on the Residual Sum of Squares**	
Realization #	Result	Realization #	Result
20	0.042933	34	15.0434
85	0.043033	85	15.5846
23	0.043266	20	16.552
10	0.043426	80	17.6201
39	0.043556	79	17.9399
34	0.043569	38	18.0679
24	0.043616	10	18.3879
60	0.043626	23	19.1843
12	0.04363	14	19.4009
76	0.043711	39	19.4155

Table 9. Parameter Values for the Statistically Best Realizations

Realization #	**K Zone 1 (ft/day)**	**K Zone 2 (ft/day)**	**K Zone 3 (ft/day)**	**Recharge (ft/day)**
20	5.3	6.6	40.7	0.001636
85	5.9	5.9	52.9	0.001821
23	4.6	11.4	49.6	0.001541
10	6.1	5.4	68.9	0.001255
39	9.1	8.5	86.7	0.001736
34	4.6	5.1	91.5	0.001847

5.5 Qualitative and Quantitative Analysis

As a result, the steady state base model contains the following flow parameter values:

- Hydraulic Conductivity of Zone 1 = 4.6 ft/day
- Hydraulic Conductivity of Zone 2 = 11.4 ft/day
- Hydraulic Conductivity of Zone 3 = 49.6 ft/day
- Recharge = 0.001541 ft/day

The calibration goals presented in Section 5.1 were compared to the results obtained from the model based on these parameter values. Figure 14 presents the ground water surface contour map generated by the flow model. When comparing this map to Figure 2 (the ground water contour map based on the observed water level data), the ground water flow directions are similar.

Figure 15 displays the observed hydraulic heads versus residuals for the steady state model. The plot shows there is a positive bias, in other words, the model tends to underestimate the water levels compared to the measured water levels.

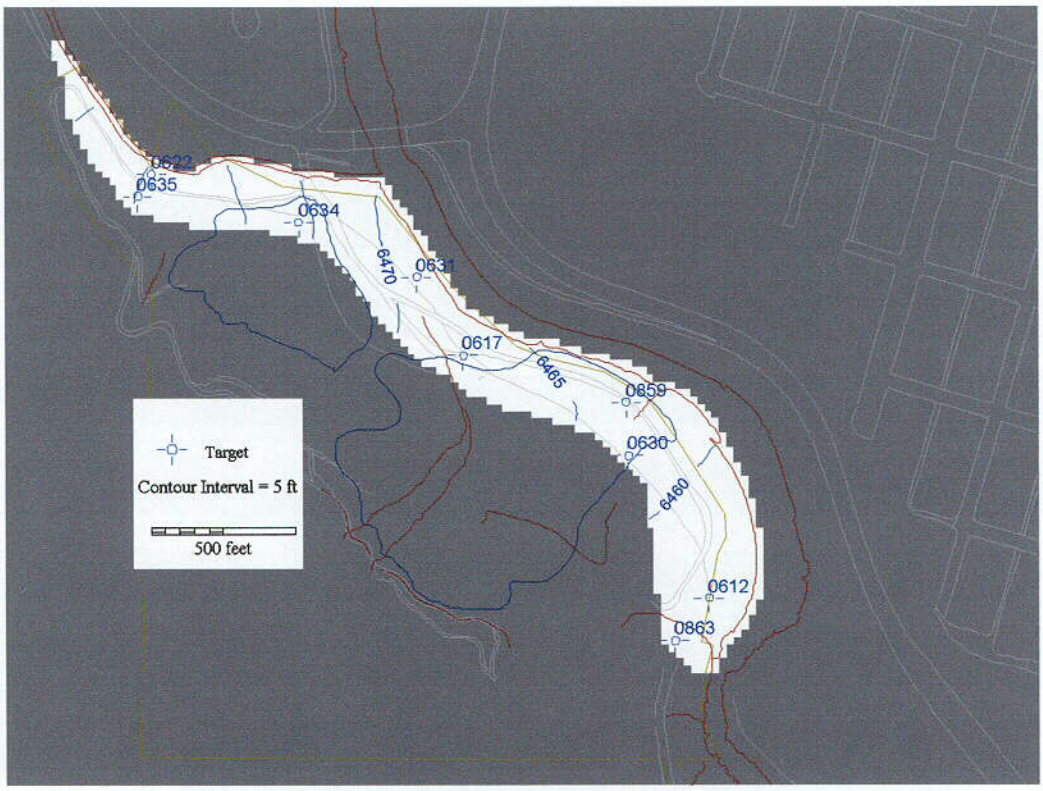

Figure 14. Simulated Surficial Aquifer Ground Water Surface Contour Map

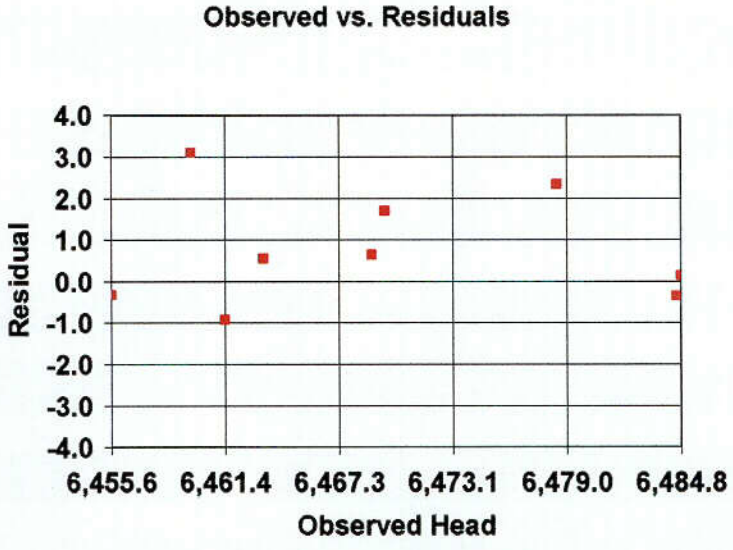

Figure 15. Comparison of Residual versus Observed Head

C09

The mass balance error for the steady state model is 0.00015 percent, which is well below the 5 percent goal. Additional calibration goals and results are presented in Table 10. Although some of the criteria are not met (residual mean, absolute residual mean, and maximum residual), they are not exceeded by a significant amount.

Table 10. Calibration Objectives and Results

	Residual Mean (ft)	Absolute Residual Mean (ft)	Sum of Squares (ft^2)	Minimum Residual (ft)	Maximum Residual (ft)	Standard Deviation/Range (%)
Objective	0	< 1.	< 20.	> -2.0	< 2.0	< 5.0
Results	0.77	1.12	19.8	-0.92	3.10	4.3

The target residual values are shown on Figure 16. A positive residual value indicates the simulated head is less than the observed head.

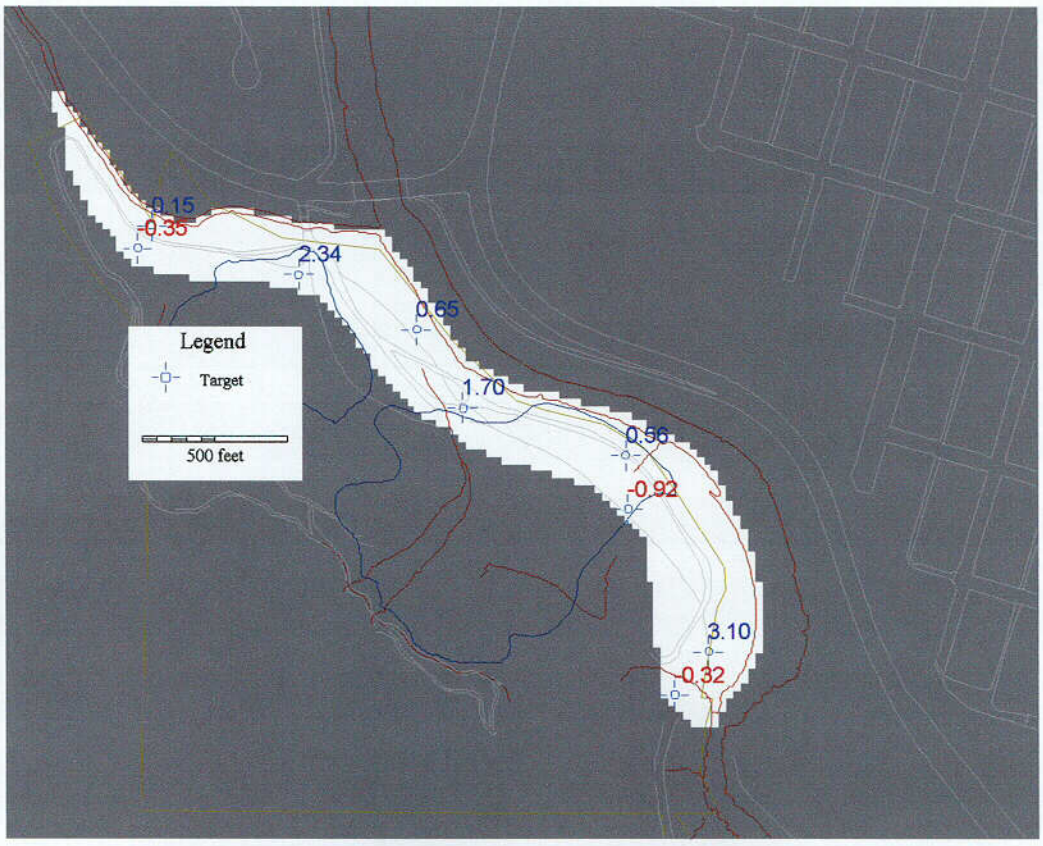

Figure 16. Target Residual Value

The steady state calibrated model results and the residual at each target are shown in Table 11. A plot of predicted (computed) hydraulic head versus observed hydraulic head would fall on a straight line for a calibrated model. Figure 17 demonstrates that the model accurately predicts field measurements.

C10

Table 11. Calibration Target Residuals

Well	Observed Head (ft MSL)	Computed Head (ft MSL)	Residual (ft)
612	6459.67	6456.63	3.04
617	6469.64	6467.43	2.20
622	6484.83	6484.67	0.16
630	6461.41	6461.83	-0.42
631	6468.97	6468.37	0.60
634	6478.46	6475.80	2.66
635	6484.59	6484.83	-0.24
859	6463.39	6462.73	0.66
863	6455.57	6456.00	-0.43

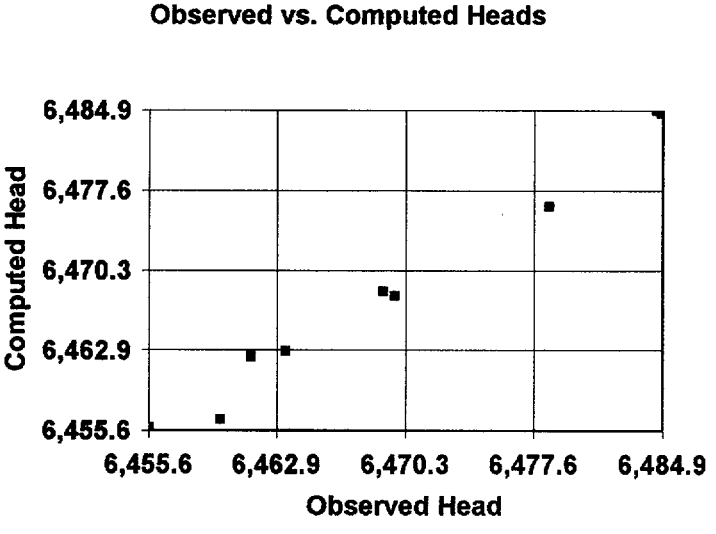

Figure 17. Comparison of Computed Head versus Observed Head

6.0 Transport Modeling

As shown in Figure 18 subsequent to the completion of the calibration of the flow model is the development of the transport model. Initial concentration files are generated from the data, and the transport parameters are assigned values based on the field data or the literature. The computer code MT3DMS allows for the predictive simulations to be computed at various time intervals in the future. Another sensitivity analysis to determine which of the transport parameters are sensitive is completed, and ultimately a stochastic transport model is created to predict the contaminant concentrations. Section 6.1 describes the steps followed to develop the transport model, and Section 6.2 details the transport model sensitivity analysis.

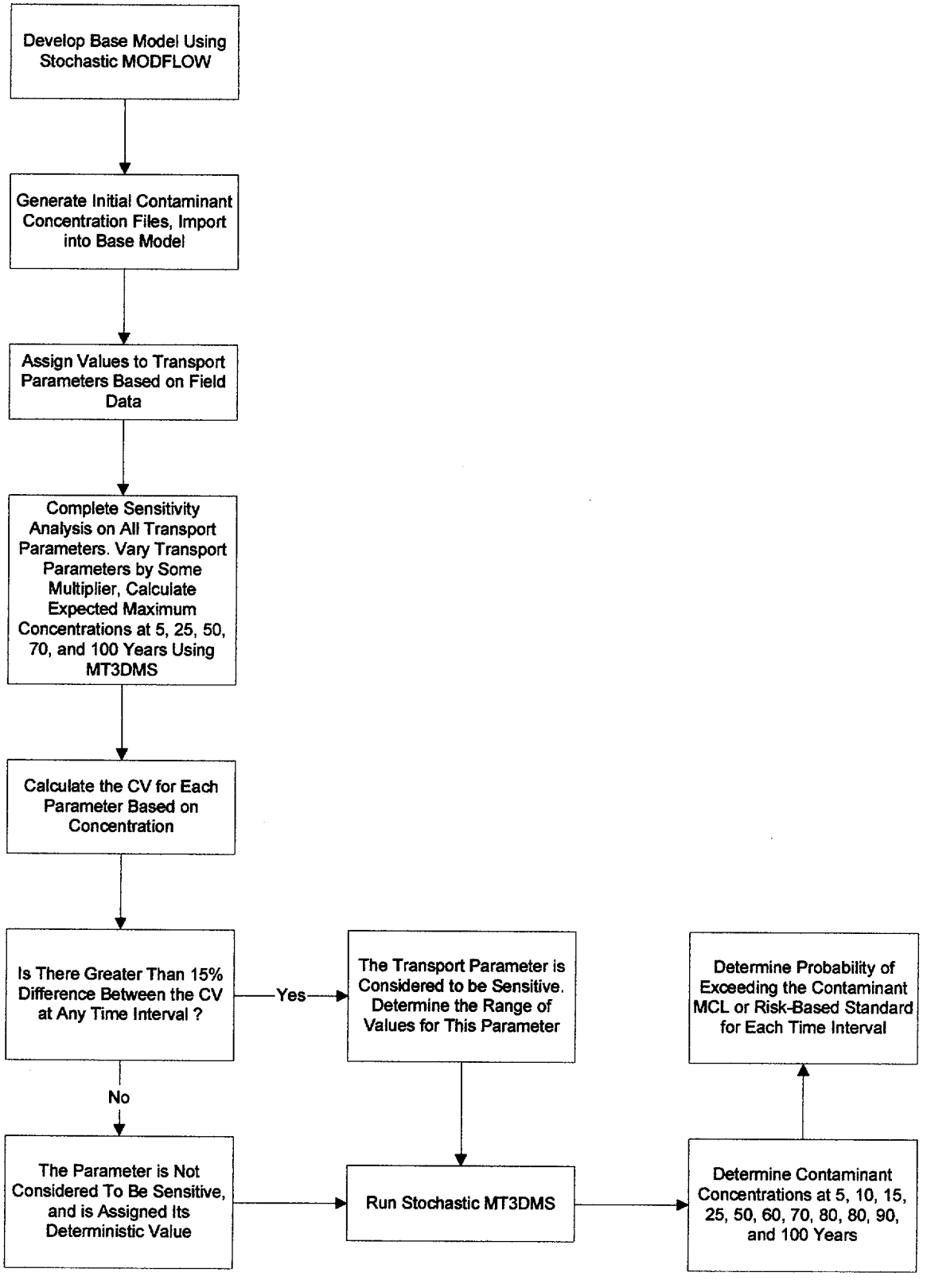

Figure 18. Procedure Used for Transport Modeling

6.1 Development of the Transport Model

The contaminant transport parameters of interest are the initial contaminant concentration distribution, longitudinal, transverse, and vertical dispersivity, effective porosity, bulk density, and the distribution coefficient (K_d). Each parameter and the source of the parameter values are discussed separately.

6.1.1 Initial Contaminant Concentration Distribution

Initial contaminant concentration plumes were developed in **Surfer®** for the model using the average concentration based on the November 2000, March 2001, June 2001, and August 2001 data (Table 12).

Table 12. Contaminant Ground water Concentrations from November 2000 Through August 2001

Cadmium					
well no	**Nov-00**	**Mar-01**	**Jun-01**	**Aug-01**	**avg**
0612	0.0435	0.0434	0.0266	0.0369	0.0376
0617	0.0010	0.0002	0.0004	0.0008	0.0006
0622	0.0002	0.0007	0.0004	0.0009	0.0006
0629	0.0002	0.0002	0.0004	0.0007	0.0004
0630	0.0167	0.0019	0.0004	0.0007	0.0049
0631	0.0002	0.0002	0.0004	0.0007	0.0004
0633	0.0002	0.0009	0.0004	0.0008	0.0006
0634	0.0002	0.0003	0.0004	0.0007	0.0004
0635	0.0002	0.0003	0.0004	0.0008	0.0004
0859	0.0002	0.0004	0.0004	0.0007	0.0004
0863	0.0002	0.0002	0.0004	0.0007	0.0004
Manganese					
well no	**Nov-00**	**Mar-01**	**Jun-01**	**Aug-01**	**avg**
0612	5.4000	5.2700	2.8600	4.3100	4.4600
0617	0.0068	0.0138	0.0070	0.0097	0.0093
0622	0.0159	0.0023	0.0025	0.0050	0.0064
0629	0.1790	0.1370	0.0731	0.1260	0.1288
0630	0.8750	1.7100	0.9450	2.6800	1.5525
0631	0.2600	0.2390	0.3880	0.4840	0.3428
0633	0.1680	0.0169	0.0050	0.0962	0.0715
0634	0.1800	0.1670	0.0861	0.0397	0.1182
0635	0.0954	0.0215	0.0032	0.0545	0.0437
0859	1.4100	1.5000	1.2500	0.8030	1.2408
0863	0.1830	0.0614	0.0980	0.0941	0.1091

Table 12 (continued). Contaminant Ground water Concentrations from November 2000 Through August 2001

Molybdenum					
well no	**Nov-00**	**Mar-01**	**Jun-01**	**Aug-01**	**avg**
0612	0.1330	0.1160	0.1020	0.1160	0.1168
0617	0.0014	0.0017	0.0030	0.0030	0.0023
0622	0.0021	0.0021	0.0030	0.0030	0.0026
0629	0.0009	0.0004	0.0030	0.0030	0.0018
0630	0.0033	0.0067	0.0030	0.0034	0.0041
0631	0.0108	0.0119	0.0030	0.0068	0.0081
0633	0.0012	0.0017	0.0030	0.0030	0.0022
0634	0.0016	0.0027	0.0030	0.0030	0.0026
0635	0.0027	0.0021	0.0030	0.0030	0.0027
0859	0.0032	0.0038	0.0030	0.0030	0.0033
0863	0.0074	0.0025	0.0030	0.0030	0.0040
Selenium					
well no	**Nov-00**	**Mar-01**	**Jun-01**	**Aug-01**	**avg**
0612	0.0060	0.0059	0.0009	0.0004	0.0033
0617	0.0577	0.0515	0.0643	0.0501	0.0559
0622	0.0001	0.0325	0.0003	0.0003	0.0083
0629	0.0002	0.0003	0.0003	0.0003	0.0003
0630	0.0003	0.0033	0.0178	0.0003	0.0054
0631	0.0003	0.0005	0.0035	0.0003	0.0012
0633	0.0362	0.1080	0.1230	0.0445	0.0779
0634	0.0001	0.0016	0.0003	0.0003	0.0006
0635	0.0092	0.0145	0.0200	0.0155	0.0148
0859	0.0001	0.0003	0.0003	0.0003	0.0003
0863	0.0001	0.0003	0.0003	0.0003	0.0003
Sulfate					
well no	**Nov-00**	**Mar-01**	**Jun-01**	**Aug-01**	**avg**
0612	2280	2370	2030	2300	2245
0617	1980	2030	1960	1810	1945
0622	204	379	132	205	230
0629	2120	2090	2070	2190	2118
0630	2280	1930	1830	1990	2008
0631	409	354	945	981	672
0633	3250	2990	2670	3510	3105
0634	2110	1840	2070	2090	2028
0635	980	924	1280	1470	1164
0859	878	1110	NS	723	904
0863	662	544	678	656	635

Table 12 (continued). Contaminant Ground water Concentrations from November 2000 Through August 2001

Uranium					
well no	**Nov-00**	**Mar-01**	**Jun-01**	**Aug-01**	**avg**
0612	2.1200	2.1200	1.5600	1.9700	1.9425
0617	0.2440	0.2440	0.2150	0.2110	0.2285
0622	0.0171	0.0290	0.0176	0.0173	0.0203
0629	0.0008	0.0007	0.0010	0.0006	0.0008
0630	0.0819	0.1970	0.2140	0.2030	0.1740
0631	0.2310	0.2570	0.3310	0.3440	0.2908
0633	1.2200	0.9420	0.8900	1.2700	1.0805
0634	0.0334	0.1840	0.0597	0.0585	0.0839
0635	0.0062	0.0065	0.0079	0.0076	0.0071
0859	0.0477	0.0547	0.0437	0.0439	0.0475
0863	0.0005	0.0016	0.0014	0.0007	0.0010

Each set of data were kriged in **Surfer®** and interpolated to approximately a 12.5 ft grid spacing, or one-half of the model grid size. This surface was then interpolated to all active model grid cell centers and imported as the initial concentration plume into the model. The plots presented in Figure 19 through Figure 24 show the initial concentration plumes for cadmium, manganese, molybdenum, selenium, sulfate, and uranium, respectively.

It should be noted that the highest average concentration values for each contaminant listed in Table 12 (far right column) do not exactly match the maximum concentration presented on Figure 19 through Figure 24. Even with the 12.5 ft grid spacing used in the kriging process, the values do not match up exactly; however, they are very close. Because the maximum concentrations are within 98 percent of each other, the impact on the final results is negligible.

6.1.2 Dispersivity

The literature on dispersivity as it relates to large-scale models is vague and often contradictory (Gelhar, Welty, and Rehfeldt 1992), with longitudinal values ranging from 2 percent to 30 percent of the length of the plume or maximum flow path length. In addition, dispersivity is almost impossible to measure in the field for large sites.

The primary (or longitudinal) flow direction for this site is to the southeast. The flow direction generated from the MODFLOW model dictate the longitudinal and transverse dispersivity directions. The length of the flowline that the contaminant follows is dependent upon the location on the site. As a result, the longitudinal dispersivity was assigned values that ranged from 5 to 80 ft for the stochastic simulation.

6.1.3 Effective Porosity

No data were collected to measure the effective porosity in the field. Based on the soil type, the literature suggests the effective porosity may range from 15 to 55 percent. This range was assigned to this transport parameter.

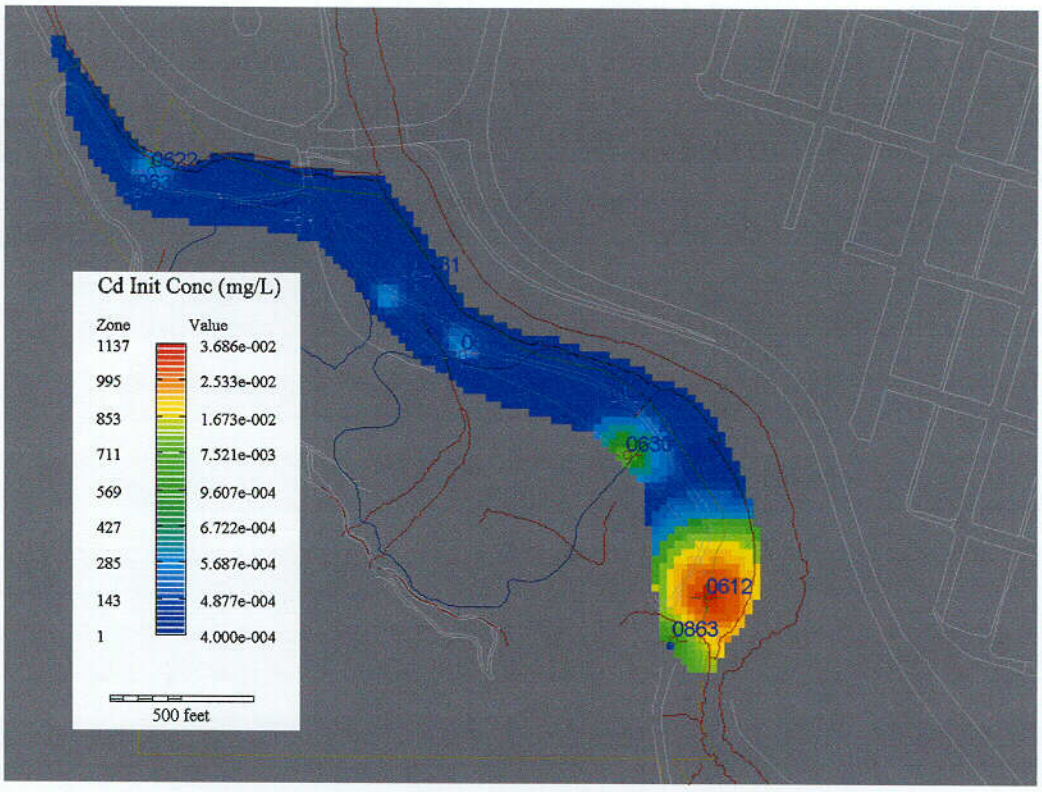

Figure 19. Cadmium Initial Concentration Distribution

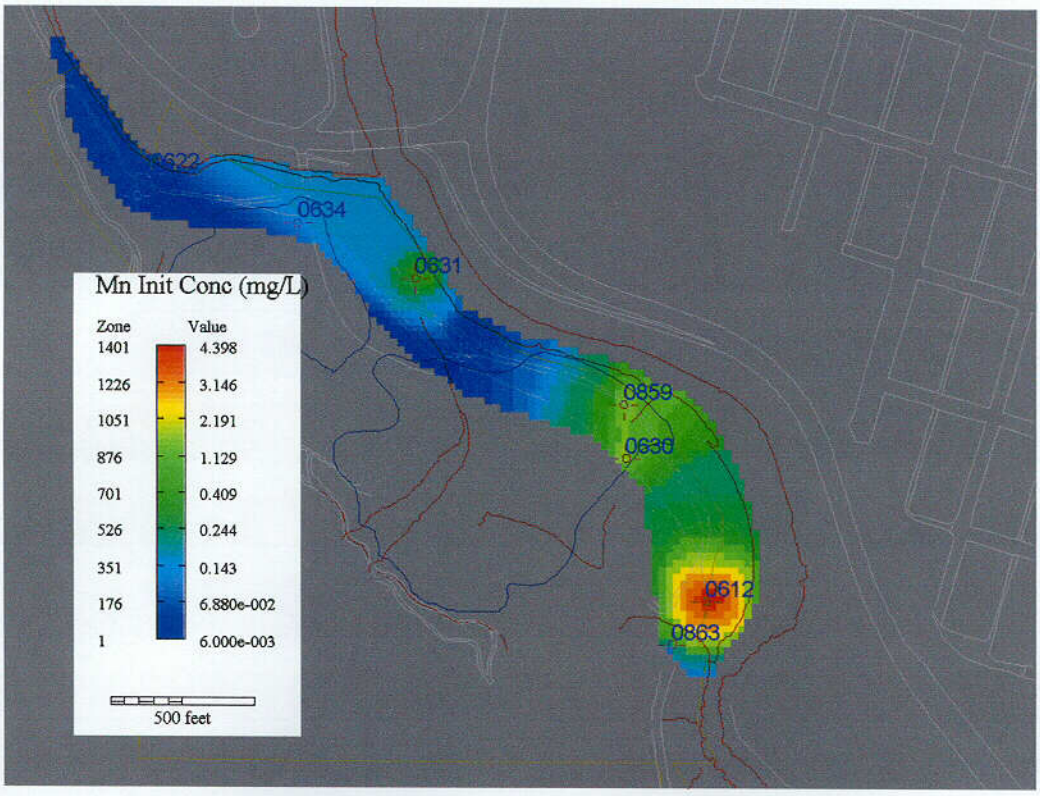

Figure 20. Manganese Initial Concentration Distribution

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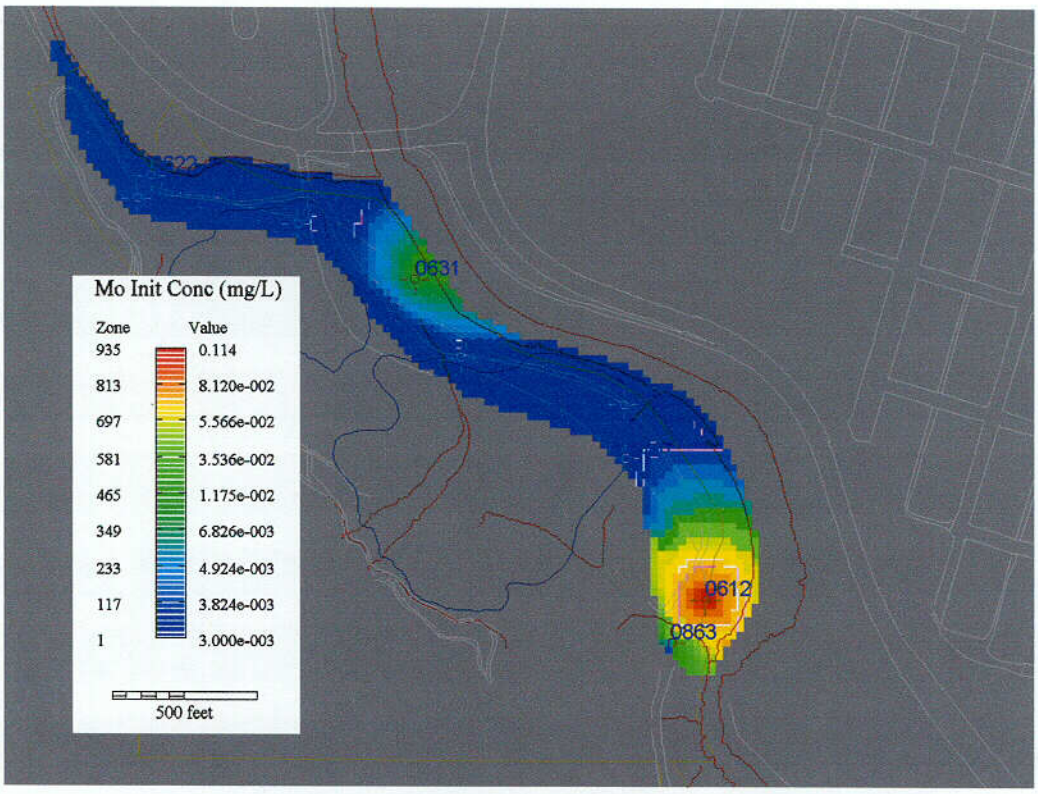

Figure 21. Molybdenum Initial Concentration Distribution

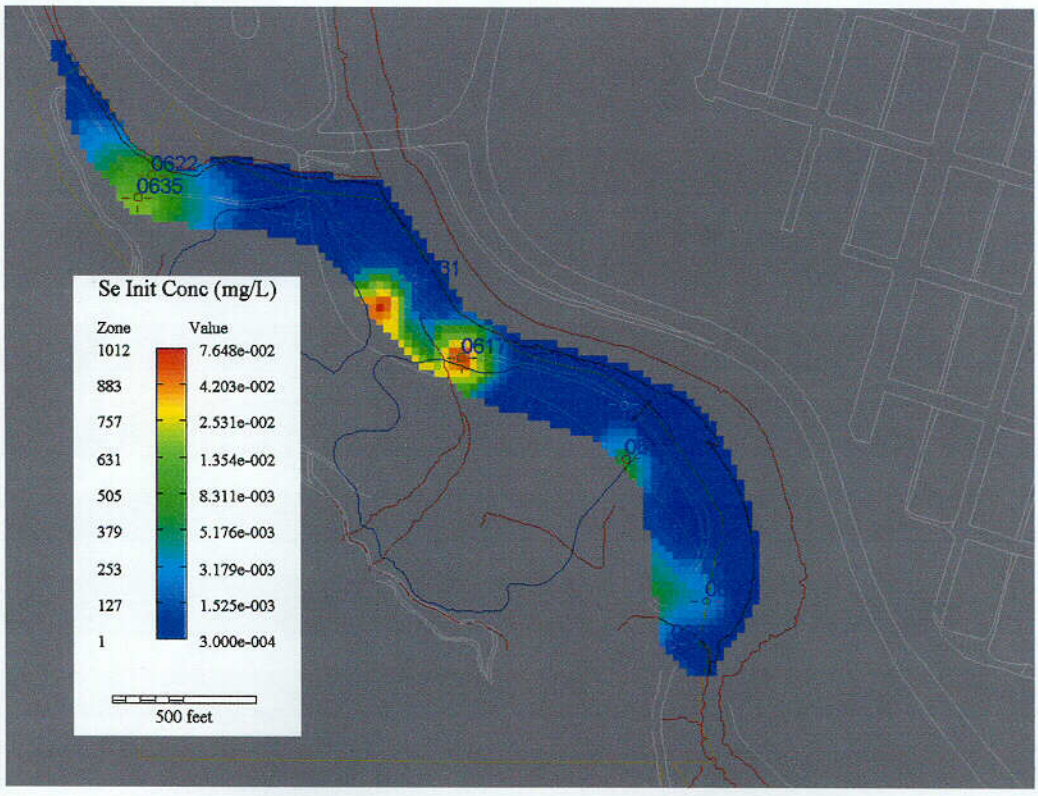

Figure 22. Selenium Initial Concentration Distribution

C12

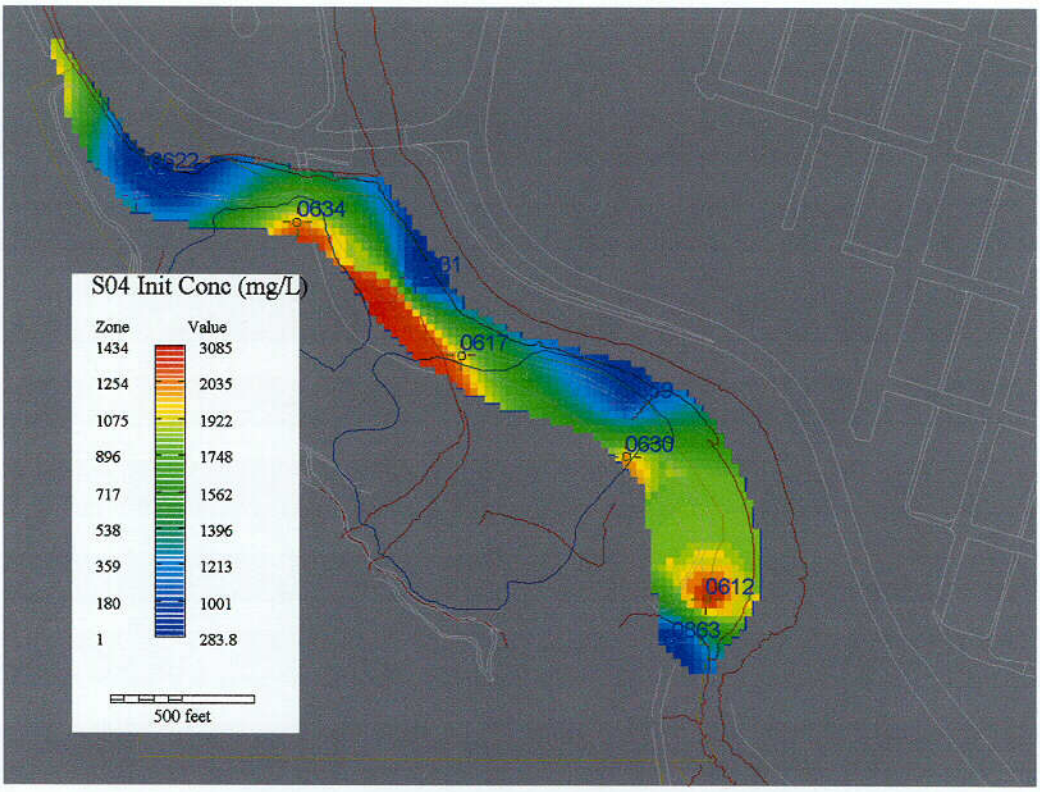

Figure 23. Sulfate Initial Concentration Distribution

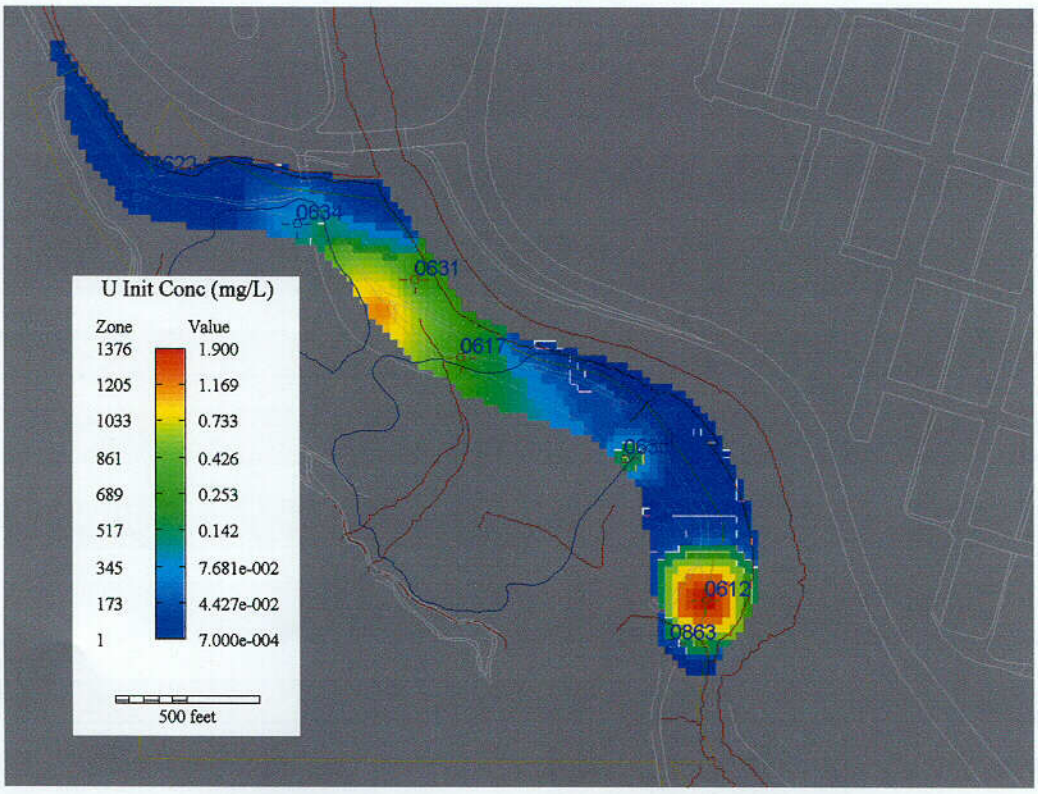

Figure 24. Uranium Initial Concentration Distribution

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6.1.4 Bulk Density

Similar to the effective porosity, this parameter was not measured in the field and was assigned a value from the applicable literature based on the soil type. For the stochastic transport modeling, this parameter was assigned a value of 1.55 grams per cubic centimeter (g/cc). The bulk density parameter was not assigned a range because it is not considered to be a stochastic parameter in the stochastic MT3DMS code.

6.1.5 K_d

The distribution coefficient (K_d) will have the greatest impact on the amount of time required for natural flushing to reduce the contamination level below the required standard. Average values and associated ranges for cadmium, molybdenum, selenium, and uranium were obtained from the Environmental Sciences Laboratory (ESL) (DOE 2001).

Of the reported values for the Mill Tailings site, only those associated with locations 857, 859, 863, and 866 are considered to be representative of the surficial aquifer. As a result, the range of K_d values associated with these locations was used for parameter inputs.

The K_d values for manganese were obtained from the literature, and there are no values reported for sulfate in the literature due to the complex geochemical reactions associated with sulfate in groundwater. Table 13 presents the average K_d value, range, and data source for each of the contaminants.

Table 13. Contaminant K_d Values

Contaminant	K_d Average value / Range (mL/g)	Source
Cadmium	60.4 / 17 to 418	ESL Report (DOE 2001)
Manganese	5 / 0.2 to 10,000[a]	Baes and Sharp 1983
Molybdenum	0.86 / 0.19 to 3.01	ESL Report (DOE 2001)
Selenium	14.8 / 6.3 to 50.6	ESL Report (DOE 2001)
Sulfate	1 / 1 to 10	[b]
Uranium	1.4 / 0.69 to 3.2	ESL Report (DOE 2001)

[a] Even though the literature reports a range of 0.2 to 10,000, simulations were completed using a range of 1 to 10.
[b] No K_d values associated with sulfate are reported in the literature

6.1.6 Transport Parameter Summary

Table 14 provides a summary of the transport parameters and associated values assigned to each parameter for the stochastic simulations.

Table 14. Transport Parameter Value Ranges

Parameter (units)	Range of values	Source
Initial Conc. (mg/L)	See Table 12	Ground water Sampling Results
Dispersivity (ft)	5 to 80	Literature / Field Conditions
Effective Porosity	0.15 to 0.55	Literature
Bulk Density (g/cc)	1.55[a]	Literature
K_d (mL/g)	See Table 13	ESL Report (DOE 2001), Literature

[a] No range assigned to parameter, not considered a stochastic parameter by the MT3DMS code.

6.2 Transport Model Sensitivity Analysis

The sensitivity analysis procedure for the transport parameters is not as straight forward compared to the sensitivity analysis associated with flow model and flow parameters. The sensitivity analysis for the flow model is based on the residual sum of squares of observed head minus computed head. Similarly, the sensitivity analysis for the transport model could be based on the residual sum of squares of observed concentration minus computed concentration.

The sensitivity analysis for the transport modeling parameters was completed using selenium as the contaminant. The transport parameters selected for sensitivity analysis are effective porosity, K_d, longitudinal dispersivity, transverse dispersivity, and vertical dispersivity. Transport parameters were simulated at five different values that range from the lowest to the highest expected value.

The sensitivity analysis for the longitudinal, transverse, and vertical dispersivity was accomplished in such a manner that the sensitivity of the individual parameters could be evaluated. As shown in Table 15, when determining the sensitivity of the longitudinal dispersivity, the values for the transverse and vertical dispersivity did not change. The same procedure was used to determine the sensitivity of the transverse and vertical dispersivity parameters.

Parameter values for the sensitivity analyses are contained in Table 15.

Table 15. Sensitivity Parameter Values

Parameter (units)	**Flow Parameter Values**				
Effective Porosity	0.15	0.25	0.35	0.45	0.55
K_d (mL/g)	6.3	14.8	28.5	39.5	50.6
Long. Disp. (ft) (long / transv / vert)[a]	5 / 2 / 0.2	20 / 2/ 0.2	40 / 2 / 0.2	60 / 2 / 0.2	80 / 2 / 0.2
Trans. Disp. (ft) (long / transv / vert)[a]	20 / 0.5 / 0.2	20 / 2 / 0.2	20 / 4 / 0.2	20 / 6 / 0.2	20 / 8 / 0.2
Vert. Disp. (ft) (long / transv / vert)[a]	20 / 2 / 0.05	20 / 2 / 0.2	20 / 2 / 0.4	20 / 2 / 0.6	20 / 2 / 0.8

[a]long / transv / vert represents longitudinal, transverse, and vertical dispersivity estimates, respectively

A quantitative procedure similar to the one described for flow model parameters (Section 5.3) was also used to determine if the parameter tested is sensitive. As a result, the coefficient of variation (CV) of the difference in predicted selenium concentration at each selected time interval (5, 25, 50, 70, 100 years) was calculated. Any parameter resulting in a CV greater than 15 percent between the predicted selenium concentration at any time interval is considered sensitive and will be treated as stochastic. The results are presented in Table 16.

Table 16. Transport Parameter Coefficient of Variation Analysis

Effective Porosity				
Year	**Mean**	**Stdev**	**Adj Stdev**	**CV**
5	0.0688	0.0001	0.0001	0.0009
25	0.0476	0.0001	0.0001	0.0029
50	0.0336	0.0001	0.0001	0.0036
70	0.0268	0.0002	0.0002	0.0063
100	0.0191	0.0001	0.0001	0.0072
K_d				
Year	**Mean**	**Stdev**	**Adj Stdev**	**CV**
5	0.0698	0.0056	0.0059	0.085
25	0.0531	0.0142	0.0151	**0.2841**
50	0.0412	0.0164	0.0174	**0.4225**
70	0.0349	0.0164	0.0175	**0.5007**
100	0.0281	0.0157	0.0166	**0.5917**
Longitudinal Dispersivity				
Year	**Mean**	**Stdev**	**Adj Stdev**	**CV**
5	0.0655	0.0051	0.0054	0.0822
25	0.0438	0.0078	0.0083	**0.189**
50	0.031	0.0059	0.0062	**0.2014**
70	0.0251	0.005	0.0053	**0.2104**
100	0.0183	0.0036	0.0039	**0.2105**
Transverse Dispersivity				
Year	**Mean**	**Stdev**	**Adj Stdev**	**CV**
5	0.0683	0.0007	0.0007	0.0106
25	0.0465	0.0016	0.0017	0.0369
50	0.0323	0.0019	0.0021	0.0634
70	0.0257	0.0018	0.0019	0.0746
100	0.0187	0.0012	0.0012	0.066
Vertical Dispersivity				
Year	**Mean**	**Stdev**	**Adj Stdev**	**CV**
5	0.0688	0	0	0
25	0.0476	0	0	0
50	0.0336	0	0	0
70	0.0268	0	0	0
100	0.0191	0	0	0

Notes: Mean = mean Se concentration for each time interval
Stdev = Standard Deviation
Adj Stdev = Adjusted Standard Deviation
CV = Coefficient of Variation

The results indicate that the transport model is not sensitive to effective porosity, transverse dispersivity, or vertical dispersivity. However, the transport model is highly sensitive to K_d and longitudinal dispersivity.

7.0 Steady State Stochastic Transport Modeling

Based on the results of the sensitivity analysis, the K_d, and longitudinal dispersivity transport parameters were assigned ranges of values for the stochastic transport modeling. The effective porosity value assigned to the deterministic model was derived from the literature; therefore it was also treated as a sensitive parameter and assigned a range of values for the stochastic modeling, despite the fact it is an insensitive parameter.

Table 17 provides the range of values and distribution assigned to the longitudinal dispersivity and porosity for the stochastic transport modeling. The MT3DMS code automatically assigns the transverse and vertical dispersivity values a percentage of the longitudinal dispersivity, as set by the user in the deterministic transport model. In the Durango Mill Tailings Site deterministic transport model, the longitudinal, transverse, and vertical dispersivity parameters were assigned values of 20, 2, and 0.2 ft, respectively. As a result, during the stochastic transport modeling when the code randomly chooses a value to assign to the longitudinal dispersivity, the code will automatically assign transverse and vertical dispersivity values that are 10 percent and 1 percent of the longitudinal dispersivity, respectively.

Table 17. Ranges and Distribution Types Assigned to Longitudinal Dispersivity and Effective Posrosity Parameters

Parameter	Range	Distribution
Longitudinal Dispersivity	5 to 80 ft	Triangular
Effective Porosity	0.15 to 0.55	Uniform

Table 13 presents the K_d range assigned for each of the contaminants, and the source for each range.

7.1 Transport Model Development

One of the problems associated with stochastic simulations is to determine how many realizations (individual simulations) are sufficient. From a strict mathematical standpoint, hundreds or even thousands of realizations may be necessary to truly represent the uncertainty when random samples are drawn from distributions for a number of parameters. A qualitative or subjective justification to determine if enough realizations were simulated can be obtained by looking at a plot of cumulative average residual sum of squares versus realization number. If there is limited change in the cumulative average as the number of realizations increases, then it can be safely concluded that enough simulations have been run. The plot in Figure 25 indicates that the cumulative average residual sum of squares becomes relatively stable at approximately 25 square feet (ft^2) after 50 realizations. Therefore, 100 realizations should be adequate to account for the uncertainty in the stochastic parameters.

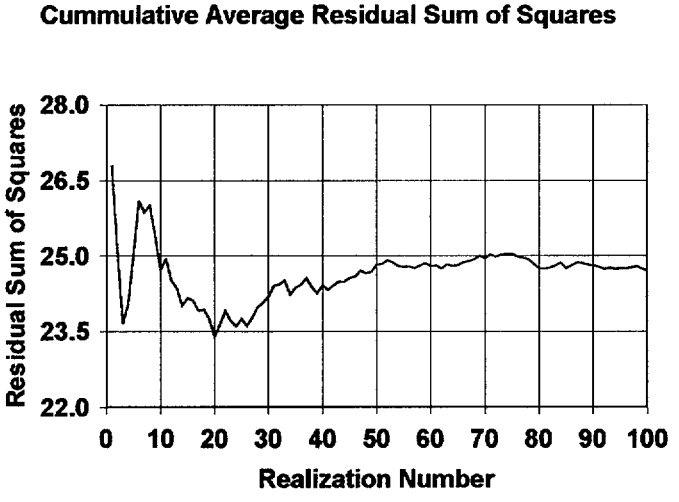

Figure 25. Cumulative Average Residual Sum of Squares versus Realization Number

Another useful evaluation tool is to look at how the individual realizations compare to the calibrated flow model results. The plot in Figure 26 shows the residual sum of squares for each of the 100 realizations. About 12 percent of the realizations are below the calibrated model residual sum of squares value of 19.8 ft^2.

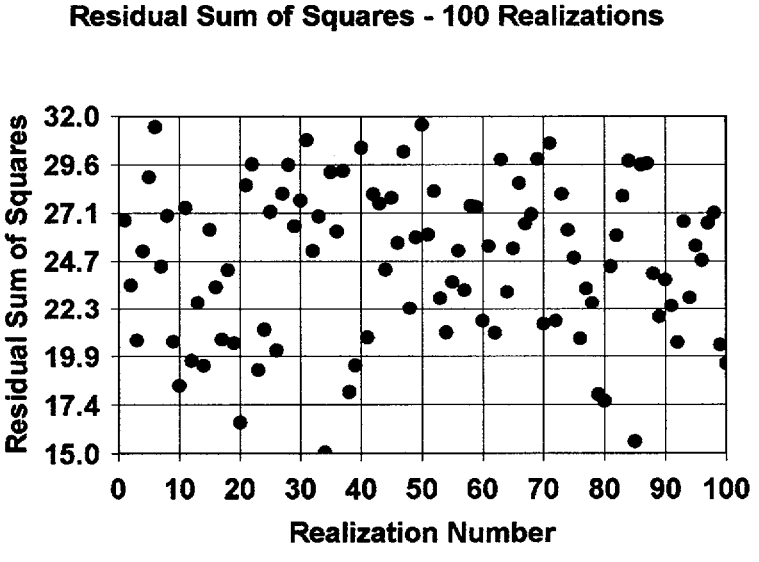

Figure 26. Residual Sum of Squares versus Realization Number

7.2 Transport Modeling Results

Average contaminant concentration results are provided by stochastic MT3DMS. The computer code calculates the contaminant concentration of each active cell for each realization, and then calculates an average concentration based on the 100 realizations. The code calculates the probability of exceeding a standard in a similar fashion. Once the model is finished, the code allows the user to calculate the number of times a standard was exceeded within the total number of realizations. For example, within a single cell, if a standard is exceeded 22 times within a total

of 100 realizations, then a 22 percent probability exists that this standard will be exceeded in that particular cell. The computer code provides both results in tabular and graphical forms.

As a result, even though the maximum average contaminant concentration (at a specific time) may not exceed the standard, there may still be some probability that the standard will be exceeded at that same time period. In addition, the areas within the model where the results indicate a standard is exceeded and the area where the probability of exceeding a standard may occur not coincide.

Table 18 presents the predicted maximum average concentrations (milligrams per liter [mg/L]) for cadmium (Cd), manganese (Mn), molybdenum (Mo), selenium (Se), sulfate (SO_4), and uranium (U) at 5, 10, 15, 25, 50, 60, 70, 80, 80, 90, and 100 years into the future. The distribution and probability of exceeding the applicable standard are discussed separately for each contaminant. These average concentrations and associated uncertainty at each time period of interest are based on 100 computer simulations

Table 18. Predicted Contaminant Maximum Average Concentrations (mg/L) at 5, 10, 15, 25, 50, 60, 70, 80, 90, and 100 Years

	Contaminant											
	Cadmium		**Manganese**		**Molybdenum**		**Selenium**		**Sulfate**		**Uranium**	
Concentration Goal	0.01 mg/L		1.7 mg/L		0.1 mg/L		0.05 mg/L		1,276 mg/L		0.044 mg/L	
Source	MCL		Risk-based		MCL		EPA–SDWS[c]		Background		MCL	
Time (yrs)	**Conc[a] (mg/L)**	**Prob[b] (%)**	**Conc[a] (mg/L)**	**Prob[b] (%)**	**Conc[a] (mg/L)**	**Prob[b] (%)**	**Conc[a] (mg/L)**	**Prob[b] (%)**	**Conc[a] (mg/L)**	**Prob[b] (%)**	**Conc[a] (mg/L)**	**Prob[b] (%)**
5	0.0365	100	3.848	100	0.0812	0	0.0686	100	2,792	100	1.3650	100
10	0.0363	100	3.505	100	0.0652	0	0.0625	100	2,537	100	1.0820	100
15	0.0362	100	3.234	100	0.0519	0	0.0576	86	2,310	100	0.8628	100
25	0.0357	100	2.794	100	0.0318	0	0.0500	54	1,919	100	0.5311	100
50	0.0347	100	1.916	99	0.0094	0	0.0379	2	1,571	100	0.1301	100
60	0.0343	100	1.630	17	0.0061	0	0.0345	0	1,471	100	0.0726	100
70	0.0340	100	1.388	0	0.0038	0	0.0315	0	1,374	99	0.0442	51
80	0.0336	100	1.167	0	0.003	0	0.0289	0	1,280	54	0.0287	1
90	0.0333	100	0.973	0	0.003	0	0.0266	0	1,190	2	0.0185	0
100	0.033	100	0.815	0	0.003	0	0.0246	0	1,105	0	0.0118	0

[a]Value represents the predicted maximum average contaminant concentration (mg/L)
[b]Value represents the probability (%) the applicable standard will be exceeded
[c]EPA Safe Drinking Water Standard

7.2.1 Cadmium

As a result of the high K_d associated with cadmium (average K_d of 60.4 milliliters per gram [mL/g] and a range from 17 to 418 mL/g), the concentration only reduces 0.0039 mg/L (from a starting concentration of 0.0369 mg/L) over 100 years. Figure 27 and Figure 28 present the average cadmium concentration distribution at 10 and 100 years. After 100 years the probability of exceeding the 0.01 mg/L UMTRA standard is 100 percent (Figure 29).

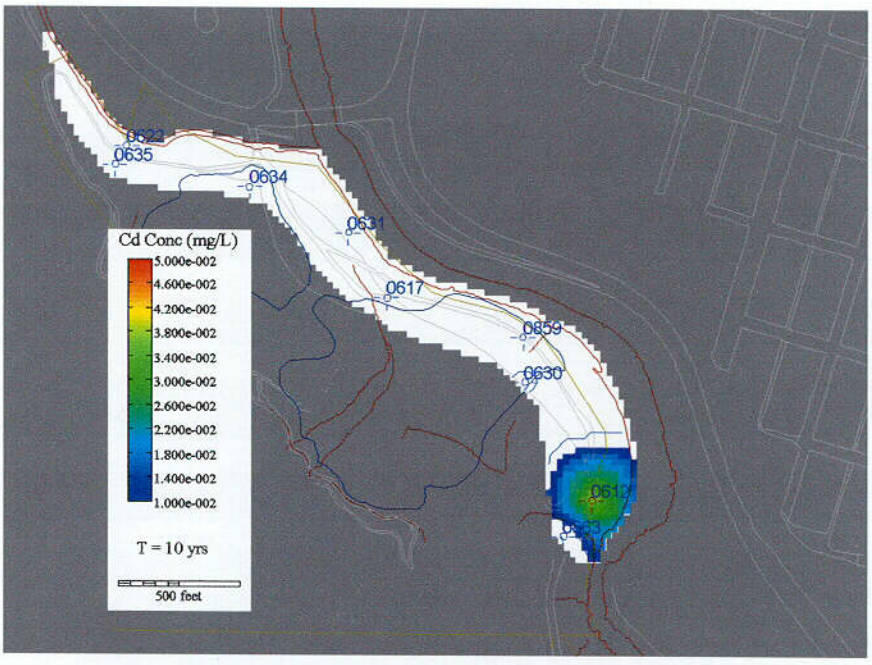

Figure 27. Predicted Average Cadmium Concentration at 10 Years

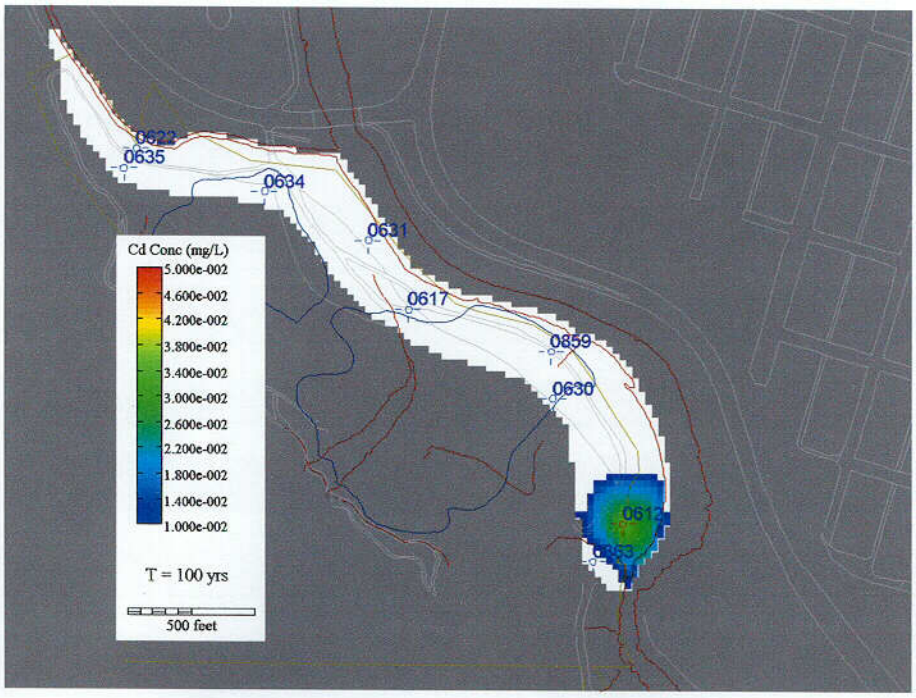

Figure 28. Predicted Average Cadmium Concentration at 100 Years

C14

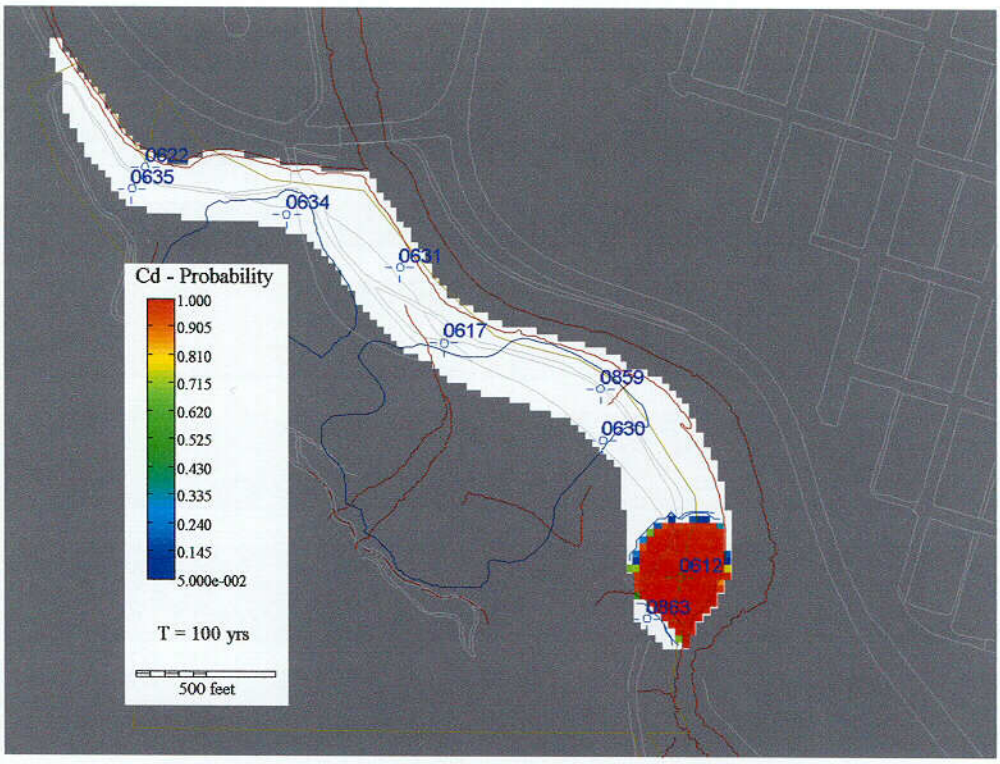

Figure 29. Probability of Cadmium Exceeding 0.01 mg/L After 100 Years

7.2.2 Manganese

As shown in Table 18 the maximum average manganese concentration falls below the risk-based standard of 1.7 mg/L between 50 and 60 years. Figure 30 and Figure 31 present the manganese distribution and at 10 and 50 years, respectively.

The probability of exceeding the 1.7 mg/L risk-based standard is 99 percent after 50 years (Figure 32) and drops to 17 percent after 60 years (Figure 33). At 70 years the probability of exceeding the standard drops to 0 percent

7.2.3 Molybdenum

As shown on Figure 21, the initial concentration maximum is just above the UMTRA Project standard of 0.1 mg/L. Having a low initial concentration, in conjunction with a low K_d, results in the maximum average concentration falling below the standard prior to 5 years. The probability of exceeding the standard after 5 years is 0 percent.

7.2.4 Selenium

A high K_d range (6.3 to 50.6 mL/g) measured onsite for selenium resulted in this contaminant's inability to naturally flush below the UMTRA Project standard of 0.01 mg/L within the 100-year timeframe. As a result, DOE defers to the EPA Safe Drinking Water standard of 0.05 mg/L. As shown in Table 18, the maximum average selenium concentration drops below this 0.05 mg/L standard after 25 years.

After 10 years of flushing, the model predicts that selenium concentrations above the standard will be limited to one cell southwest of well 631 (Figure 34). At 25 years, there is a 54 percent

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probability the maximum average selenium concentration will exceed 0.05 mg/L (Figure 35), with the probability dropping to 0 percent after 60 years.

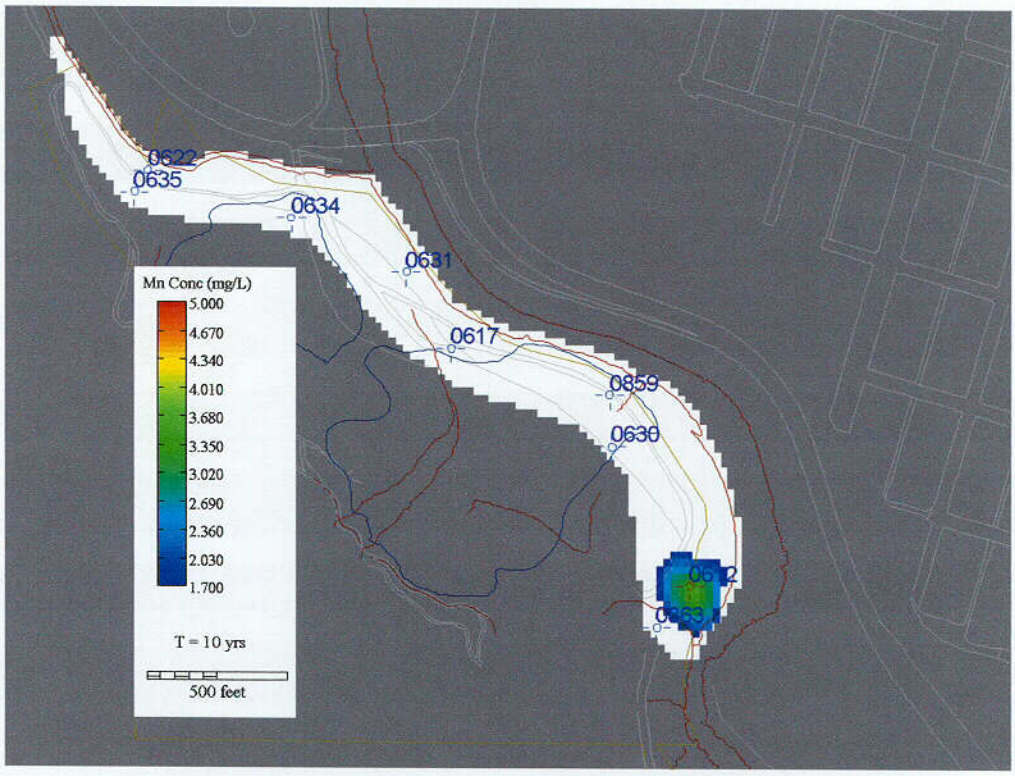

Figure 30. Predicted Average Manganese Concentration at 10 Years

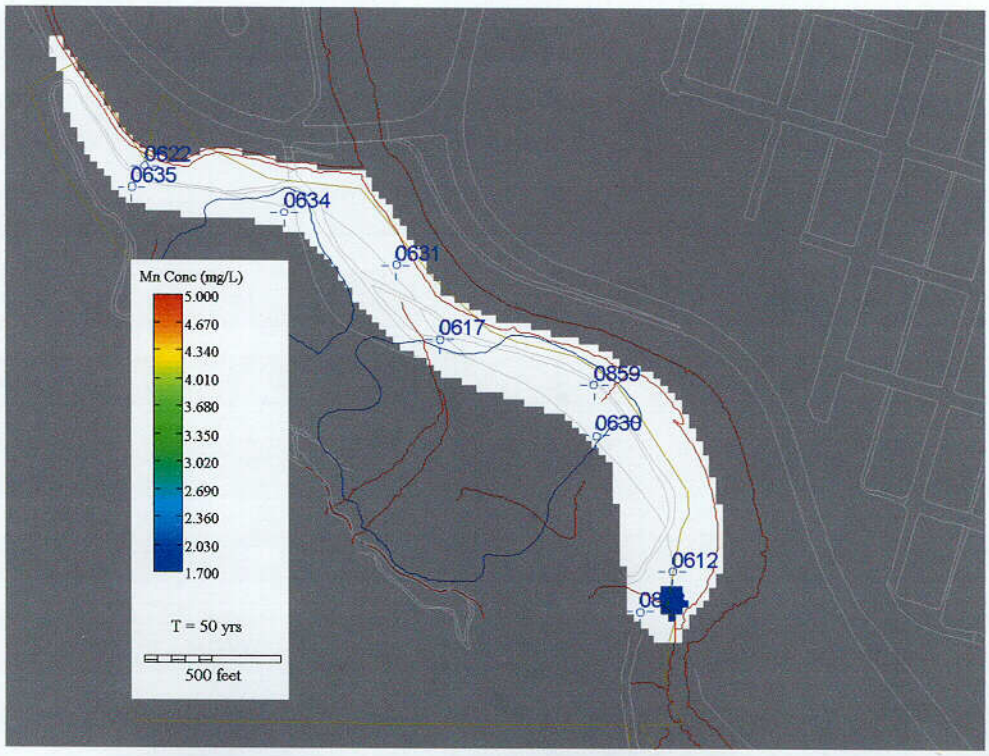

Figure 31. Predicted Average Manganese Concentration at 50 Years

C16

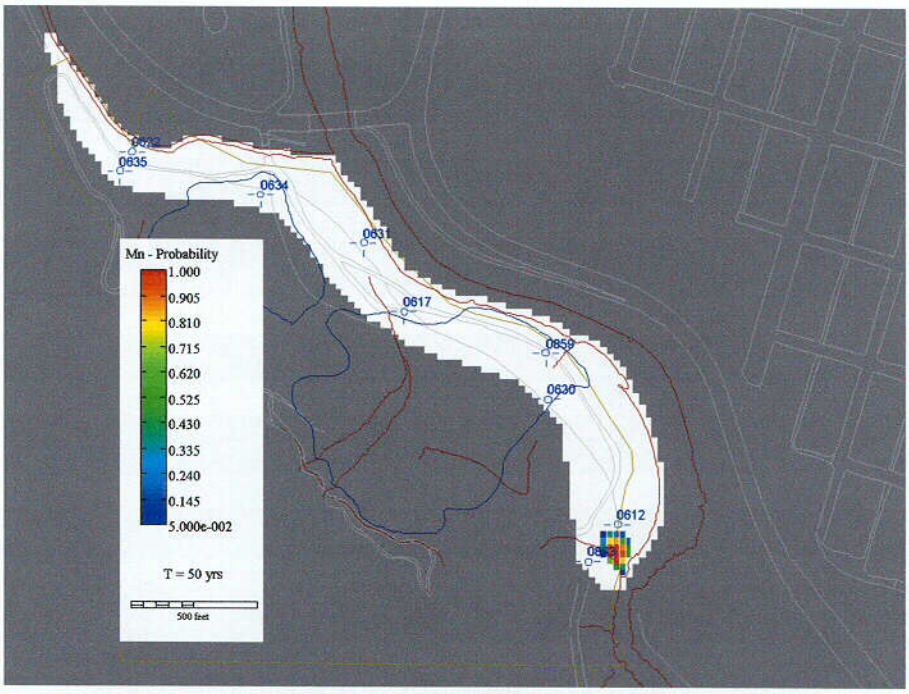

Figure 32. Probability of Manganese Exceeding 1.7 mg/L After 50 Years

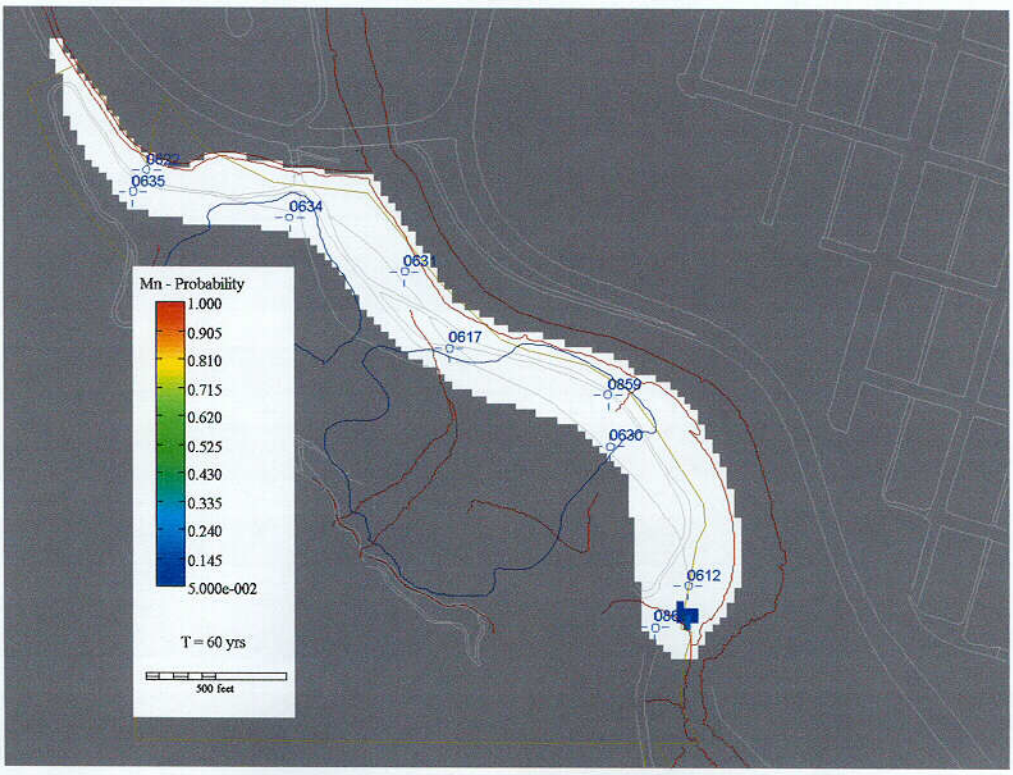

Figure 33. Probability of Manganese Exceeding 1.7 mg/L After 60 Years

C17

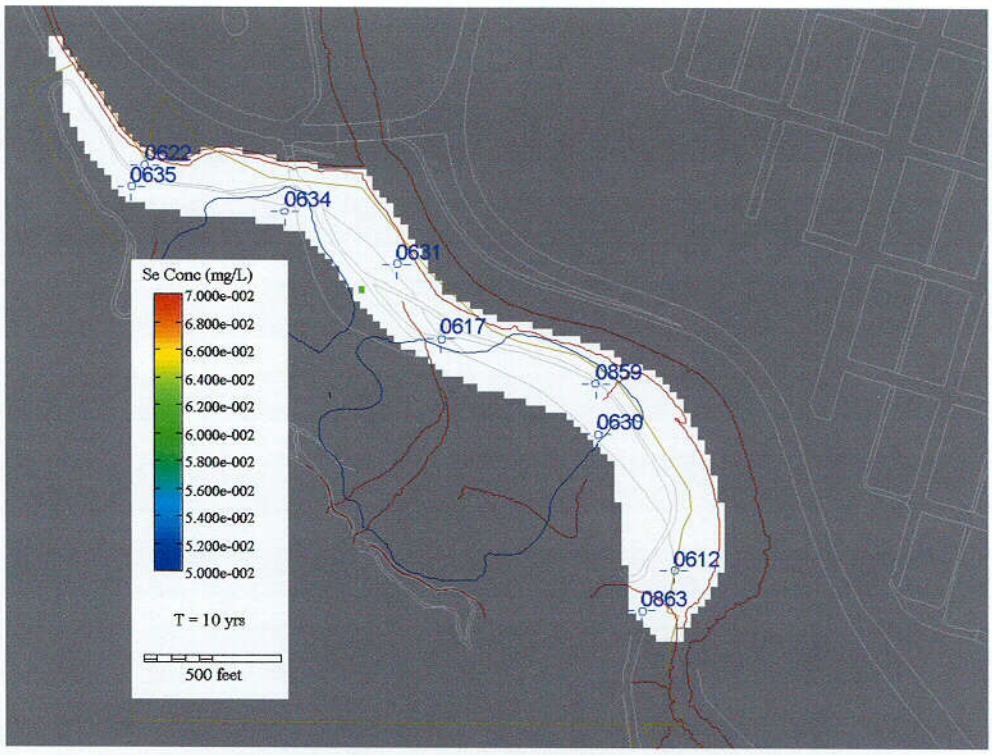

Figure 34. Predicted Average Selenium Concentration at 10 Years

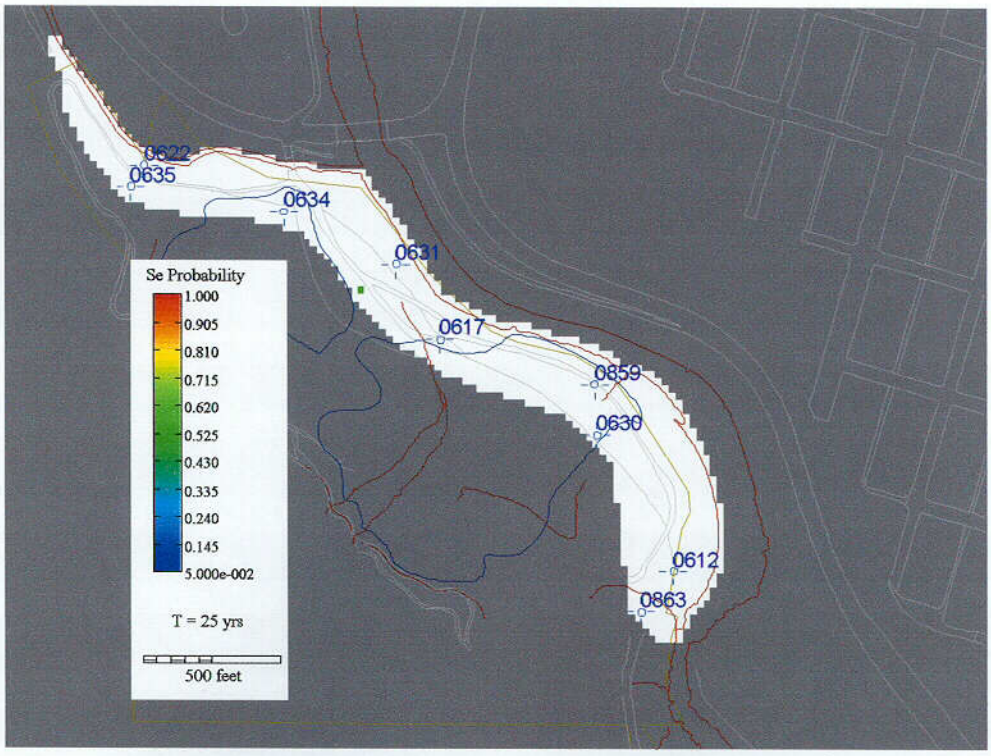

Figure 35. Probability of Selenium Exceeding 0.05 mg/L after 25 Years

C14

7.2.5 Sulfate

The predicted sulfate distribution at 25, 50, and 70 years is shown as Figure 36, Figure 37, and Figure 38, respectively. Modeling results indicate the maximum average sulfate concentration will drop below the mean background concentration of 1,276 mg/L between 80 and 90 years. At 80 years there is a 54 percent probability the maximum average concentration will exceed 1,276 mg/L (Figure 39). By 100 years, there is 0 percent probability the background concentration will be exceeded.

7.2.6 Uranium

Predicted uranium average concentrations above the UMTRA Project standard of 0.044 mg/L at 10, 25, and 60 years into the future are presented in Figure 39 through Figure 41, respectively. After 70 years, the model predicts the maximum average concentration is at the standard concentration. Prior to 80 years, the maximum uranium average concentration present will be below the 0.044 mg/L standard. At 60 year, the probability is 100 percent that the maximum average concentration exceeds the standard (Figure 42), and at 70 years the model predicts the probability drops to 51 percent (Figure 43). At 80 years the probability is only 1 percent and is 0 percent at 90 years.

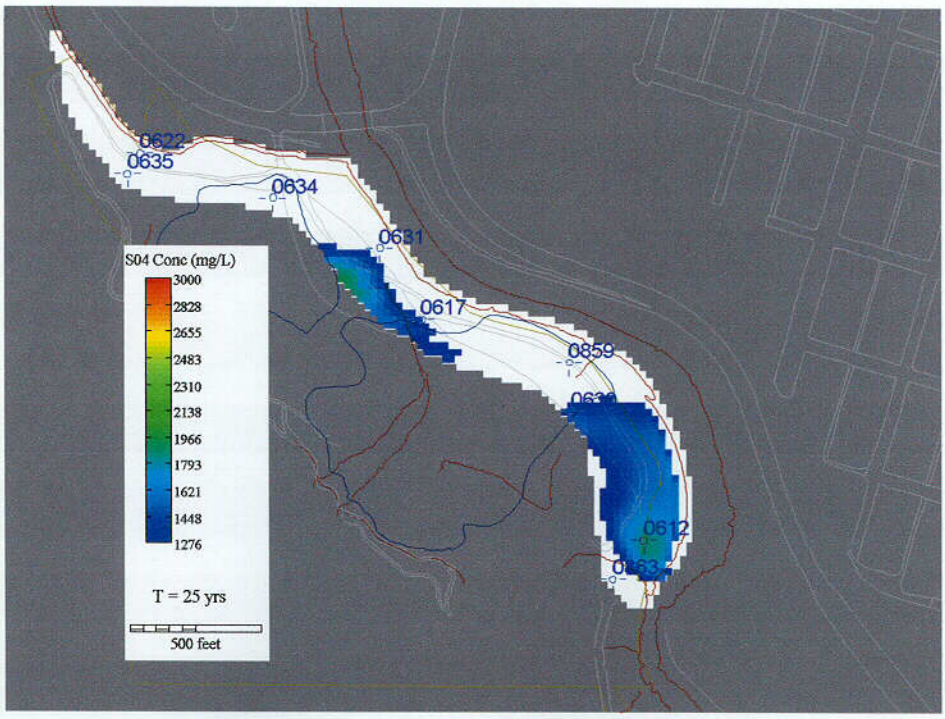

Figure 36. Predicted Steady State Sulfate Concentration at 25 Years

C19

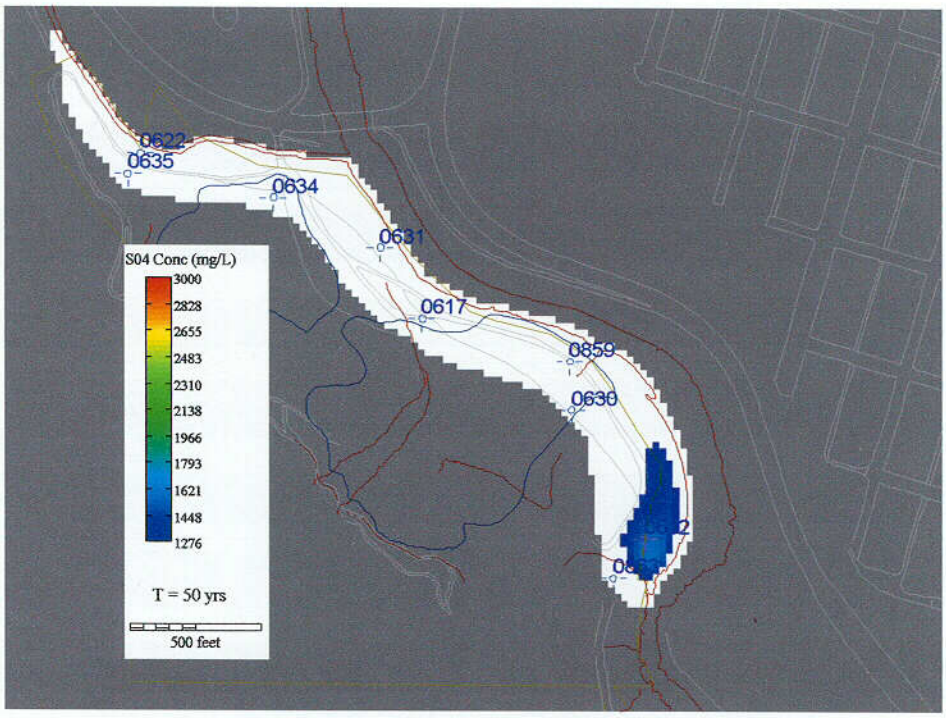

Figure 37. Predicted Steady State Sulfate Contamination at 50 Years

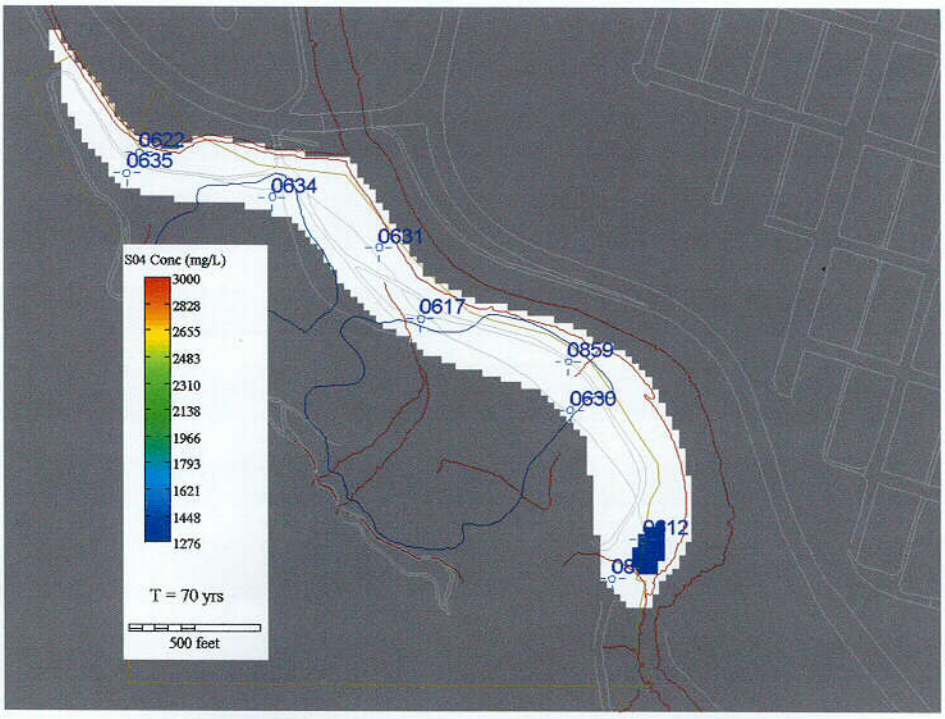

Figure 38. Predicted Steady State Sulfate Concentration at 70 Years

C20

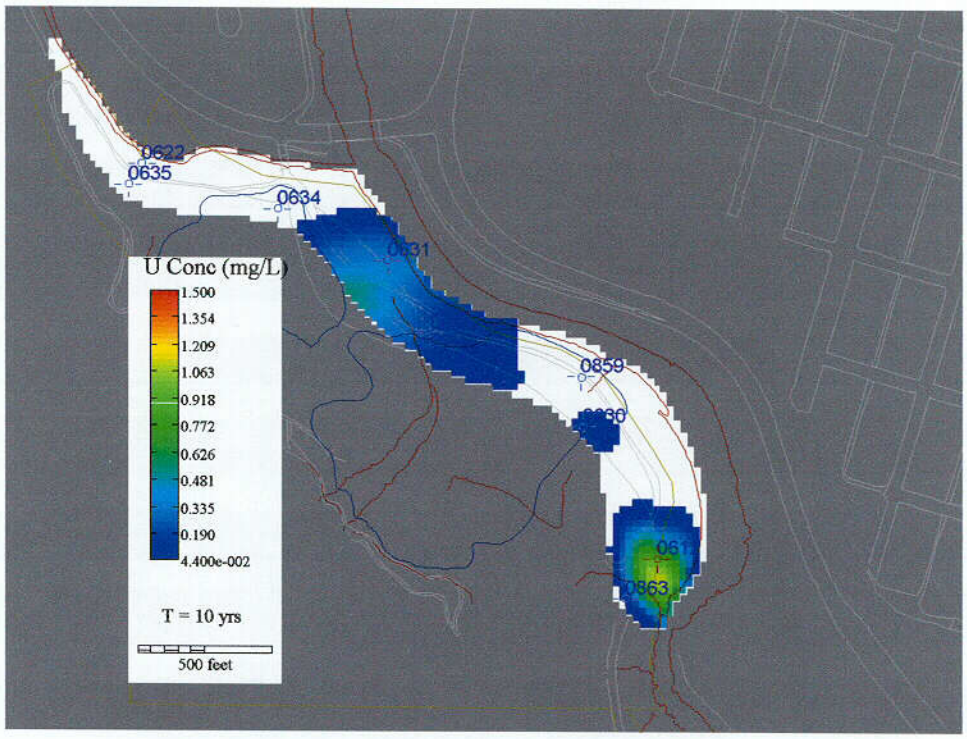

Figure 39. Predicted Average Uranium Concentration at 10 Years

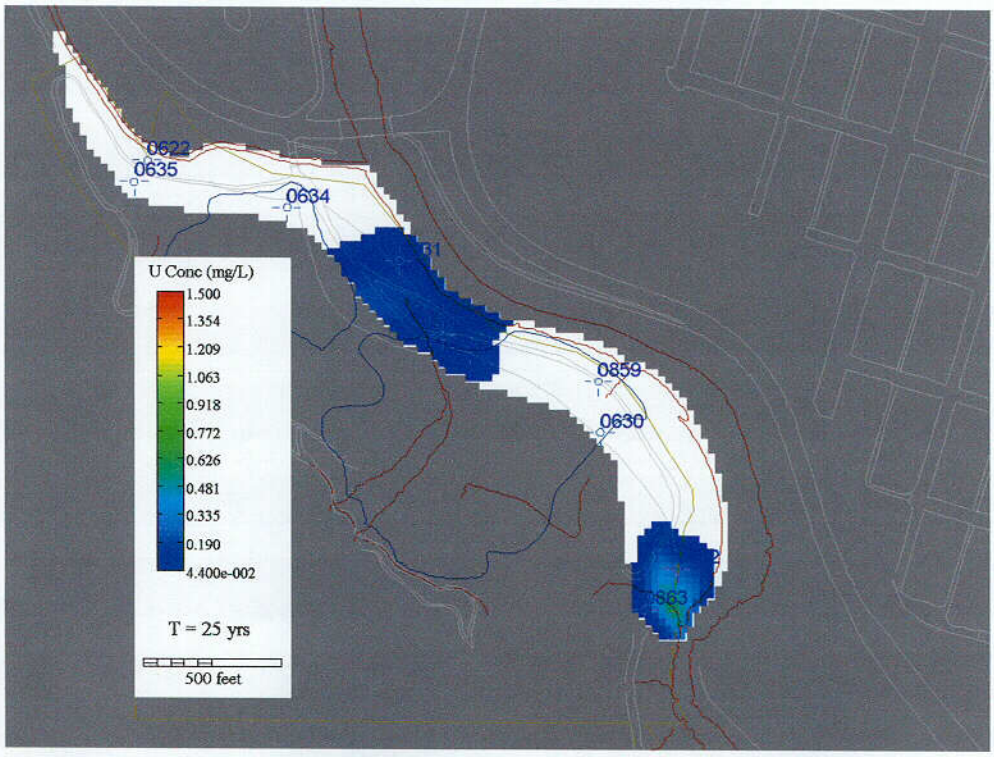

Figure 40. Predicted Average Uranium Concentration at 25 Years

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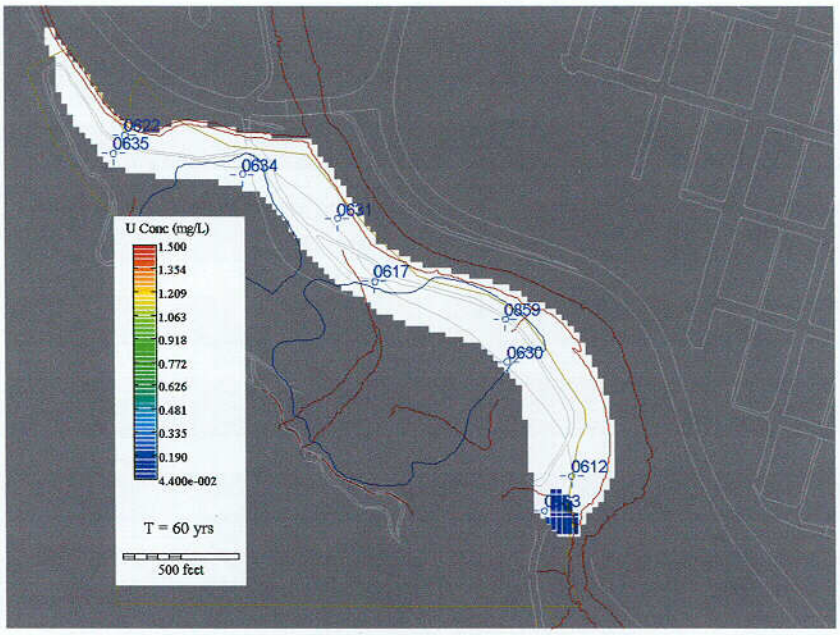

Figure 41. Predicted Average Uranium Concentration at 60 Years

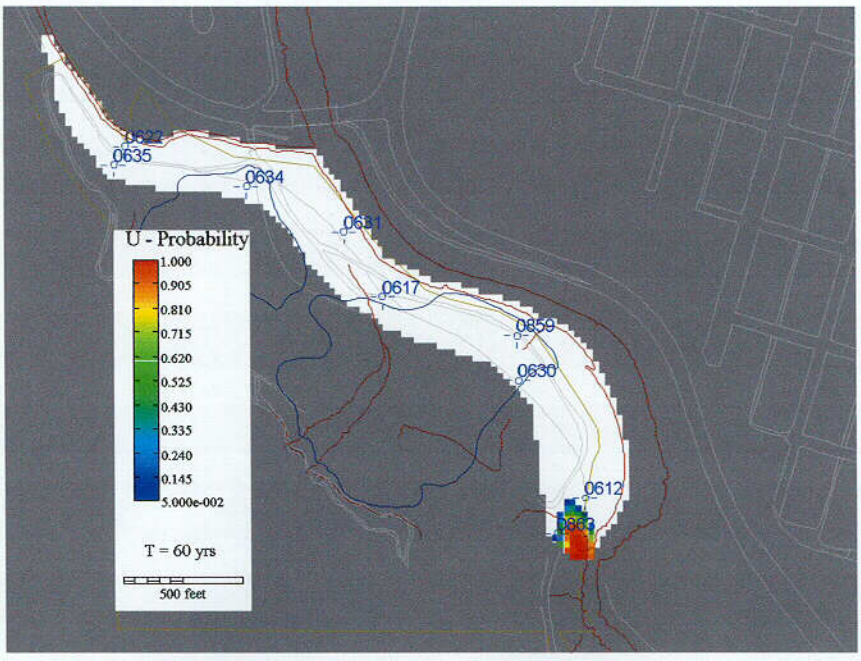

Figure 42. Probability of Uranium Exceeding 0.044 mg/L After 60 Years

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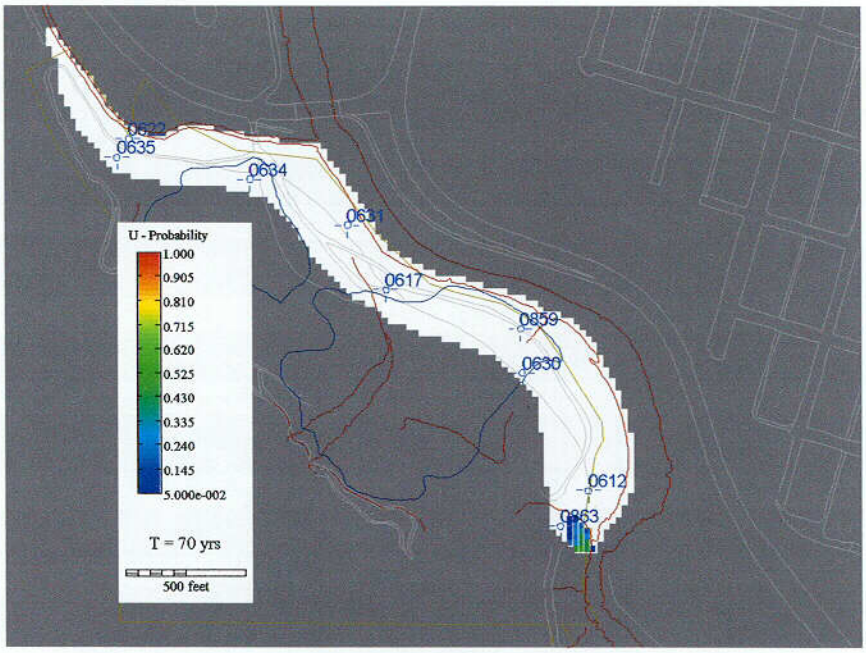

Figure 43. Probability of Uranium Exceeding 0.044 mg/L After 70 Years

8.0 Summary and Conclusions

A ground water flow and transport model was developed to evaluate if natural processes will reduce site-related contaminant concentrations to regulatory levels in the alluvial aquifer within 100 years. Contaminants modeled during this investigation include cadmium, manganese, molybdenum, selenium, sulfate, and uranium. A steady state stochastic flow and transport model was used to quantify the uncertainty in flow and transport parameters. Based on modeling results, natural flushing appears to be an acceptable compliance strategy which results in contaminant concentrations below applicable standards, risk-based standards, or background concentrations after the 100 year time frame for cadmium, manganese, molybdenum, selenium, sulfate, and uranium.

8.1 Qualitative Analysis

Ground water flow patterns predicted by the steady state stochastic flow model (Figure 14) closely resemble the ground water gradient measured in April 2001 (Figure 2). This visual analysis suggests that the calibrated flow model adequately and accurately predicts the observed water level elevations.

8.2 Quantitative Analysis

Data presented in Table 10 and Figure 15 and Figure 17 indicate that the calibrated steady state flow model satisfies the acceptance criteria and calibration objectives established prior to the modeling process. Calibration results presented in Figure 15 demonstrate that the flow model has a slight bias of underestimating water levels across the site. However, this bias is not large

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enough to influence the modeling results, as shown by a mean residual of 0.77 ft and an absolute mean residual of 1.12 ft. Results presented in Figure 17 demonstrate that the predicted hydraulic heads versus the observed heads fall on a straight line, as expected. According to the flow model results, the total inflow and outflow for the surficial aquifer of the model is 1,926 ft^3/day. These values are higher compared to the estimated flow from the conceptual water budget (1,480 ft^3/day). Modifications to the conceptual model during the modeling process can explain this difference.

8.3 Model Predictions

- After 100 years of natural flushing, the maximum average cadmium concentration decreases only 0.0039 mg/L. A K_d range from 17 to 418 mL/g (average 60.4 mL/g) is the main factor contributing to the ineffectiveness of natural flushing for this contaminant. The maximum average cadmium concentration does not drop below the 0.01 mg/L standard after 100 years.

- After 60 years, the maximum predicted manganese concentration is 1.63 mg/L, which is below the risk-based standard of 1.7 mg/L.

- Molybdenum concentrations drop below the 0.1 mg/L UMTRA Project standard prior to 5 years of natural flushing.

- Initial selenium concentrations are below the 0.18 mg/L risk-based standard. The maximum predicted selenium concentration after 100 years is 0.0246 mg/L, which is above the 0.01 mg/L UMTRA Project standard.

- After 60 years of natural flushing the maximum average sulfate concentration drops below the risk-based standard of 1,500 mg/L.

- Uranium concentrations drop below the UMTRA Project standard of 0.044 mg/L prior to 80 years of natural flushing.