

ATTACHMENT 1

Utah Department of Environmental Quality

February 28, 1996

Water Quality Sampling Results
in Vicinity of
Atlas Uranium Mill Tailings

Utah State Health Laboratory Report

UTAH STATE HEALTH DEPARTMENT
DIVISION OF LABORATORY SERVICES
Environmental Chemistry Analysis Report

UDEQ - DWQ
ARNE HULTQUIST
288 N 1460 W
SLC

UT 84114-4870

538-6146

Description: COLORADO R AT US191 XING NEAR MOAB
Site ID: 495700 Source: 03 Date of Review and QA Validation
Cost Code: 354 Inorganic Review: 05/24/96
Lab Number: 9601425 Type: 04 Organic Review:
Sample Date: 02/28/96 Time: 10:50 Radiochemistry Review: 05/03/96
Tot. Cations: 216 Microbiology Review:
Tot. Anions: 432 mg/l Cations: 11.1 me/l
Grand Total: 648 mg/l Anions: 10.8 me/l

Laboratory Analyses

L-pH *	8.31		T.Sus.Sol	99.0 mg/l	
NO2+NO3, N	0.37 mg/l		T.K.N.	2.035 mg/l	
Ammonia N	0.232 mg/l		D-Arsenic	<5.0 ug/l	
D-Barium	49.0 ug/l		D-Cadmium	<1.0 ug/l	
D-Calcium	79 mg/l		D-Chromium	<5.0 ug/l	
D-Copper	<12.0 ug/l		D-Iron	<20.0 ug/l	
D-Lead	<3.0 ug/l		D-Magnesium	32 mg/l	
D-Mangan	39.0 ug/l		D-Nickel	<10.0 ug/l	
D-Potassium	5.1 mg/l		D-Selenium	1.0 ug/l	
D-Silver	<2.0 ug/l		D-Sodium	100.0 mg/l	
D-Zinc	<30.0 ug/l		Bicarbonate	177 mg/l	
Carb. Diox	1 mg/l		Carbonate	0 mg/l	
Chloride	102 mg/l		Fluoride	0.346 mg/l	
Hydroxide	0 mg/l		Sulfate	243.2 mg/l	
T. Phos.	0.1 mg/l		Tot. Alk.	145 mg/l	
T. Hardns.	328.8 mg/l		Turbidity	50.0 NTU	
L-Sp. Cond	1023 umhos		TDS @ 180C	646 mg/l	
Alpha, grs	6 pCi/l	+/-4.0	Beta gross	<10 pCi/l	+/-4.7
Radium 226	<0.5 pCi/l	+/-0.8	Radium 228	<1 pCi/l	+/-2.0
D-Aluminum	<30.0 ug/l		D-Beryllium	<1.0 ug/l	
D-Molybdum	6.0 ug/l		D-Vanadium	<40.0 ug/l	
T-Uranium	7.1 pCi/l	+/-2.1	D-Thallium	<11.0 ug/l	
D-Antimony	<3.0 ug/l		D-Mercury	<0.2 ug/l	
CO3 Solids	87 mg/l				

PH pH should be performed as a field test.

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Description: ATLAS MILL TAILINGS PILE SEEP

Site ID: 495657 Source: 03

Cost Code: 358

Lab Number: 9601424 Type: 04

Sample Date: 02/28/96 Time: 12:46

Tot. Cations: 9559

Tot. Anions: 6249 mg/l

Grand Total: 15808 mg/l

Cations: 427.3 me/l

Anions: 140.7 me/l

Date of Review and QA Validation

Inorganic Review: 06/19/96

Organic Review:

Radiochemistry Review: 05/03/96

Microbiology Review:

Laboratory Analyses

L-pH *	7.71		T.Sus.Sol	12910.0 mg/l	
NO2+NO3, N	136.12 mg/l		T.K.N.	256.32 mg/l	
Ammonia N	2.12 mg/l		D-Arsenic	12.0 ug/l	
D-Barium	48.0 ug/l		D-Cadmium	2.0 ug/l	
D-Calcium	330 mg/l		D-Chromium	<5.0 ug/l	
D-Copper	40.0 ug/l		D-Iron	140.0 ug/l	
D-Lead	<3.0 ug/l		D-Magnesium	270 mg/l	
D-Mangan	2000.0 ug/l		D-Nickel	12.0 ug/l	
D-Potassium	57 mg/l		D-Selenium	1.0 ug/l	
D-Silver	<22.0 ug/l		D-Sodium	8900.0 mg/l	
D-Zinc	110.0 ug/l		Bicarbonate	782 mg/l	
Carb. Diox	24 mg/l		Carbonate	0 mg/l	
Chloride	800 mg/l		Fluoride	1.92 mg/l	
Hydroxide	0 mg/l		Sulfate	5064.3 mg/l	
T. Phos.	13.783 mg/l		Tot. Alk.	641 mg/l	
T. Hardns.	1934.3 mg/l		Turbidity	400.0 NTU	
L-Sp. Cond	10990 umhos		TDS @ 180C	8380 mg/l	
Alpha, grs	900 pCi/l	+/-150.0	Beta gross	237 pCi/l	+/-17.0
Radium 226	9.7 pCi/l	+/-1.0	Radium 228	3.6 pCi/l	+/-2.0
D-Aluminum	180.0 ug/l		D-Beryllium	<1.0 ug/l	
D-Molybdum	1550.0 ug/l		D-Vanadium	278.0 ug/l	
T-Uranium	786.6 pCi/l	+/-16.4	D-Thallium *	<5.0 ug/l	
D-Antimony	<3.0 ug/l		D-Mercury	<0.2 ug/l	
CO3 Solids	385 mg/l				

CD Due to matrix interference sample results are not reliable

D-TL Due to matrix interference sample results are not reliable

PH pH should be performed as a field test.

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538-6146

Description: COLORADO R BL ATLAS MILL TAILINGS PILE
Site ID: 495656 Source: 03 Date of Review and QA Validation
Cost Code: 354 Inorganic Review: 06/19/96
Lab Number: 9601423 Type: 04 Organic Review:
Sample Date: 02/28/96 Time: 12:47 Radiochemistry Review: 05/28/96
Tot. Cations: 209 Microbiology Review:
Tot. Anions: 450 mg/l Cations: 10.6 me/l
Grand Total: 659 mg/l Anions: 11.3 me/l

Laboratory Analyses

L-pH *	8.3		T.Sus.Sol	108.0 mg/l	
NO2+NO3, N	0.58 mg/l		T.K.N.	0.75 mg/l	
Ammonia N	0.326 mg/l		D-Arsenic	<5.0 ug/l	
D-Barium	63.0 ug/l		D-Cadmium	2.0 ug/l	
D-Calcium	76 mg/l		D-Chromium	<5.0 ug/l	
D-Copper	<12.0 ug/l		D-Iron	170.0 ug/l	
D-Lead	<3.0 ug/l		D-Magnesium	28 mg/l	
D-Mangan	23.0 ug/l		D-Nickel	<10.0 ug/l	
D-Potassium	4.6 mg/l		D-Selenium	2.0 ug/l	
D-Silver	<2.0 ug/l		D-Sodium	100.0 mg/l	
D-Zinc	<30.0 ug/l		Bicarbonate	180 mg/l	
Carb. Diox	1 mg/l		Carbonate	0 mg/l	
Chloride	114 mg/l		Fluoride	0.321 mg/l	
Hydroxide	0 mg/l		Sulfate	246.7 mg/l	
T. Phos.	0.11 mg/l		Tot. Alk.	148 mg/l	
T. Hardns.	304.8 mg/l		Turbidity	53.0 NTU	
L-Sp. Cond	1074 umhos		TDS @ 180C	688 mg/l	
Alpha, grs	8 pCi/l	+/-4.0	Beta gross	<10 pCi/l	+/-5.0
Radium 226	<0.5 pCi/l	+/-0.8	Radium 228	<1 pCi/l	+/-2.0
D-Aluminum	80.0 ug/l		D-Beryllium	<1.0 ug/l	
D-Molybdum	7.0 ug/l		D-Vanadium	<40.0 ug/l	
T-Uranium	23.0 pCi/l	+/-3.0	D-Thallium	<5.0 ug/l	
D-Antimony	<3.0 ug/l		D-Mercury	<0.2 ug/l	
CO3 Solids	89 mg/l				

PH pH should be performed as a field test.

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Description: ARCHES NAT PARK VISITOR CENTER WELL
Site ID: Source: 00 Date of Review and QA Validation
Cost Code: 354 Inorganic Review: 05/24/96
Lab Number: 9601432 Type: 04 Organic Review:
Sample Date: 02/28/96 Time: 11:36 Radiochemistry Review: 05/03/96
Microbiology Review:
Tot. Cations: 249
Tot. Anions: 488 mg/l Cations: 12.6 me/l
Grand Total: 737 mg/l Anions: 12.7 me/l

Laboratory Analyses

L-pH *	8.13		T.Sus.Sol	<4.0 mg/l	
NO2+NO3, N	6.46 mg/l		T.K.N.	0.27 mg/l	
Ammonia N	<0.05 mg/l		D-Arsenic	<5.0 ug/l	
D-Barium	26.0 ug/l		D-Cadmium	<1.0 ug/l	
D-Calcium	86 mg/l		D-Chromium	<5.0 ug/l	
D-Copper	<12.0 ug/l		D-Iron	92.0 ug/l	
D-Lead	<3.0 ug/l		D-Magnesium	35 mg/l	
D-Mangan	<5.0 ug/l		D-Nickel	<10.0 ug/l	
D-Potassium	8 mg/l		D-Selenium	4.0 ug/l	
D-Silver	<2.0 ug/l		D-Sodium	120.0 mg/l	
D-Zinc	160.0 ug/l		Bicarbonate	248 mg/l	
Carb. Diox	3 mg/l		Carbonate	0 mg/l	
Chloride	141 mg/l		Fluoride	0.421 mg/l	
Hydroxide	0 mg/l		Sulfate	225.0 mg/l	
T. Phos.	<0.01 mg/l		Tot. Alk.	203 mg/l	
T. Hardns.	358.6 mg/l		Turbidity	0.85 NTU	
L-Sp. Cond	1276 umhos		TDS @ 180C	794 mg/l	
Alpha, grs	9.2 pCi/l	+/-1.0	Beta gross	<10 pCi/l	+/-5.0
Radium 226	<0.5 pCi/l	+/-0.8	Radium 228	<1 pCi/l	+/-2.0
D-Aluminum	<30.0 ug/l		D-Beryllium	<0 ug/l	
D-Molybdenum	2.0 ug/l		D-Vanadium	<40.0 ug/l	
T-Uranium	9.2 pCi/l	+/-2.3	D-Thallium	<1.0 ug/l	
D-Antimony	<3.0 ug/l		D-Mercury	<0.2 ug/l	
CO3 Solids	122 mg/l				

PH pH should be performed as a field test.