Dave -

11/7/85

STATE OF UTAH
DEPARTMENT OF HEALT[redacted]

Sent per your request

LARRY SCANLAN
Manager / Compliance Program
Bureau of Public Water Supplies
Division of Environmental Health

Today. Larry

560 S. 300 E. Salt Lake City, UT 84111 - 801-533-4207

[redacted]

F HEALTH

November 6, 1985

MEMORANDUM

Coordinator, CERCLA Section
d Hazardous Waste

RECEIVED
NOV 08 1985
DIVISION OF OIL
GAS & MINING

RE: Kennecott Suspected Groundwater Pollution

FROM: Larry Scanlan, Manager
Compliance Program
Bureau of Public Water Supplies

Larry

In accordance with Dale Parker's memorandum of September 16, 1985, circulated to all Bureau directors, I am transmitting this analysis to you for appropriate action. Your Bureau has been given primary responsibility for participation in Kennecott Mineral Company's Groundwater Study at the Kennecott site.

Enclosed is a copy of chemical analysis No. 85-4413 from our State Health Laboratory. This is a complete chemical analysis of a newly drilled well located 100 feet south of the intersection of Highway U-111 and the Bingham Highway. This well was drilled with the intent to use it for culinary purposes and industrial use by the South Valley Water Reclamation facility. Apparently South Valley is planning a sludge farm operation in the vicinity of this well.

The depth of this 12-inch well is reported to be approximately 350 feet, with perfor ations from 275 to 350 feet. The well is unequipped at the present time. These results are quite alarming.

This analysis indicates that the water is pH 5 and with its high sulfate content exhibits the characteristics of acid mine drainage. This source has been rejected as a possible source of public water supply by our Bureau.

The chemical analysis indicates the following elements exceed Utah drinking water standards:

Substance	Concentration in Sample	Utah Drinking Water Standard
Total Dissolved Solids	4360 mg/l	1000 mg/l
pH	5.0	6.5 - 8.5
Fluoride	5.18 mg/l	2.0 mg/l
Sulphate	3000 mg/l	500 mg/l
Turbidity	75 NTU	5.0 NTU
Cadmium	85 ug/l	10 ug/l
Copper	12.7 mg/l	1.0 mg/l
Total Iron	1.19 mg/l	.3 mg/l
Manganese	12.30 mg/l	0.05 mg/l
Zinc	1.10 mg/l	5 mg/l

0007

Because Manganese exceeds the drinking water limit by a factor of 246 and because Cadmium exceeds the drinking water limit by a factor of 8, this inadvertent discovery indicates a serious potential water pollution problem for the Salt Lake Valley if this is a recharge area.

By copy of this letter, we are alerting those concerned with the Kennecott groundwater study. I am aware that West Jordan City operates a well (well No. 3) along the Bingham Highway northeast of this well's location. Care should be taken to include this well in future sampling plans.

Please advise me within the next thirty days whether this is near sites already known to your Bureau which are showing evidence of sulphuric acid contamination. Also, advise us of your intended course of action.

enclosure
cc: Ken Alkema
Mary Maxell
Gayle Smith
Dale Parker
Cal Sudweeks
Bill Lund UGMS
Stephen D. Richtel
Terry Vandell, Kennecott Corporation
R. Terry Holzworth SL County Flood Control
Joseph S. Gates, USGS
West Jordan City

Attachment
2341
bn

Pest. Util + Bingham
Rad. Highway
Bact. Date Recd.
Spec. Received By:
5 Nut
BOD

UTAH STATE DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH
WATER ANALYSES

AUG 28 85 854413
Sample No. 701

Water Syst. No. Source No. 703 704
Date Collected 702: 5 08 27 (yr. mo. dy.)
Time Collected 710: 1600 (24-hour clock)
Water Rights No. 707

Exact Description of sampling Point 646:
So. Valley Wat. Rec.
Fac. 005 - Culinary
Well

Supply Owned by 712: So. Valley Wat. Rec
Sample Type 710

Sample Collected by 713: Steven D. Richte

SEND REPORT TO: Phone 363 2661
715: L. M. MONTGOMERY ENG.
648: 124 NORTH 300 WEST
717: Salt Lake Utah 84103
zip code

719 Sample Source: 02
01 Spring, 02 Well, 03 Stream, 04 Lake, 06 Dist. syst., 07 Effluent, 08 Storm sewer, 14 Other, 15 Tunnel, 18 Artesian well, 19 Swimming pool

611 County: 18
01 Beaver, 02 Box Elder, 03 Cache, 04 Carbon, 05 Daggett, 06 Davis, 07 Duchesne, 08 Emery, 09 Garfield, 10 Grand, 11 Iron, 12 Juab, 13 Kane, 14 Millard, 15 Morgan, 16 Piute, 17 Rich, 18 Salt Lake, 19 San Juan, 20 Sanpete, 21 Sevier, 22 Summit, 23 Tooele, 24 Uintah, 25 Utah, 26 Wasatch, 27 Washington, 28 Wayne, 29 Weber

Current use: 4 708
Proposed use: 1 709
1. Culinary
2. Agriculture
3. Industrial
4. Other

Cost Code: 361 B 770

1 FIELD TESTS

Temperature (°C)	18	792	CO_2, mg/l	572
D.O., mg/l		793	Depth, m	609
Sp. Cond. µmhos	3450	653	Cl Resid., mg/l	753
pH	7.50	651	Flow, MGD	652
Sp. Gravity		608	Flow, GPM	1000 604
Transparency, m		649	Flow, cfs	659

Temperature (°C) 650 | pH 782 | WASTEWATER ANALYSIS | BACT. LAB. No.

	mg/l			mg/l			
B.O.D.$_5$		794	T.O.C.		671	M.P.N. Total Coliforms/100ml	658
Tot. Sus. Solids		787	C.O.D.		777	M.P.N. Fecal Coliforms/100ml	657
NO_2+NO_3-N		602	Cyanide		775	Fecal Strep C/100ml.	656
T.K.N.		778	Phenolics		783	M.F. Total Coliforms/100ml.	654
Oil & Grease		780	Sulfide		672	M.F. Fecal Coliforms/100ml.	655
						Plate Count-Org./ml.	599

4 CHEMICAL ANALYSIS — pH, units: 4.7

Filtered	Unfiltered	CATIONS	mg/l	ug/l (ppb)	
		Ammonia as N	<.01		722
		Arsenic			723
		Barium			724
		Boron			725
		Cadmium			727
		Calcium	476		728
		Chromium			729
		Chromium, Hex. as Cr		<5	730
		Copper			732
		Iron, dissolved			733
		Lead			734
		Magnesium	315		737
		Manganese			738
		Nickel			740
		Potassium	9		742
		Selenium			743
		Silver			744
		Sodium	102		745
		Zinc			749
		TOTAL CATIONS			

me/l	ANIONS	mg/l	
	Bicarbonate	6	758
	Carbon Dioxide	191	759
	Carbonate	0	760
3.46	Chloride	122	763
.09	CO_3 Solids	2	
	Fluoride	5.15	765
	Hydroxide	00	767
	Nitrate as N	1.53	605
	Nitrite as N	<0.01	606
	Phosphorus, Ortho as P	.005	607
	Silica, dissolved as SiO_2	35	750
62.50	Sulfate	3000	772
65			
	TOTAL ANIONS		
	GRAND TOTAL		

Tot. Phosphorus		785
Total Alk. as $CaCO_3$	4	752
T. Hdns. as $CaCO_3$	2486	754
Surfactant as MBAS		773
Turbidity, as NTU	75	757
Sp. Gravity		608

TOTAL METALS ANALYSIS

5 CATIONS	mg/l	ug/l (ppb)	
Aluminum			800
Arsenic		<5	660
Barium	<.05		661
Beryllium			801
Cadmium		8.5	662
Chromium		<5	663
Cobalt			804
Copper	12,700	99999	664
Gold			700
Iron	1.19		665
Lead		<5	665
Manganese	12,300	99999	666
Mercury		<.1	739
Molybdenum			802
Nickel			667
Selenium		<5	668
Silver		<2	669
Uranium			601
Vanadium			803
Zinc	11,100	99999	670

Sp. Cond. µmhos/cm.	4710	762
TDS @ 180°C	4360	786

RADIOLOGICS

	pCi/l			pCi/l	
Alpha, gross		621	^{89}Sr		633
Beta, gross		623	^{131}I		635
Tritium, ^3H		625	^{134}Cs		637
^{226}Radium		627	^{137}Cs		639
^{228}Radium		629			
^{90}Sr		631			

INTERPRETATION OF ANALYSES:
Remarks: TDS, SULFATE, FLUORIDE, COPPER, MANGANESE, ZINC, TURBIDITY

Based on State Standards, this sample was:

	Satisfactory	Conditional	Unsatisfactory
Tot. Sus. Solids			
M.P.N. Total Coliform			
M.P.N. Fecal Coliform			

Analyses Approved By: REJ Date: 8 29 85

By Ralph A. Helfer
ENVIRONMENTAL HEALTH