

002066 - 002286 (ROCKY MOUNTAIN ARSENAL / ANALYTICAL)

W/93

**CONFIDENTIALITY  
CLAIM**

VP0059-FB-0589

RMN CC 2936

NOV 1993

11-1 - 11-17

002066

CONFIDENTIAL

5500 UP RIVER ROAD (512) 289-0300 *Datch 117*  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT

CLIENT: *RMA* WID # *50791* LAB NO. *CC 2936*  
 WASTE DESCRIPTION: VOLUME: *19,122*  
 WASTE CODE(S): LOAD # *6995* DATE: *11-3-93*

LAB ANALYSIS

ICP	PRE-SCREEN	POST-	pH	<i>5.3</i>	Color	<i>Lt BLUE/F</i>
		TREATMENT	Sp. Gr.	<i>1.16</i>	Phases	<i>S CI</i>
	ppm	<i>RMA</i> ppm	Total CN-		Acidity	<i>NO2</i>
Ag			Reac. CN-		Alkalinity	<i>Br</i>
Al	<i>30.1</i>		NH3 as N	<i>255</i>	Odor	<i>M NO3</i>
As	<i>4.4</i>	<i>3.90</i>	TOC	<i>42.6</i>	<i>RADIOACTIVE Y(N)</i>	<i>PO4</i>
Au			VOC	<i>N.D.</i>		<i>SO4</i>

Ba *0.16*

Ca *16.6* PROCESS STAGES: PARAMETERS

Cd  
 Co  
 Cr *1.5* INITIAL TOC *35.9*

Cu *2,481* *2570* SP. GR. *1.16*

Fe *24.4* *50.6* K *570*

Mg *12.0* NH3 *3.96*

Mn pH *5.48*

Na *73440* *84100* TSS *2100*

Ni *5.4* TDS *24.3*

P ~~*12960*~~ *8030* *7777*

Pb *5.3* *Off spec on phosphorus, NH3, Na*

Se *0.27*

Si

Sn *12.5* *9310145970114-01*

V *1.6*

Zn *27.3* *Phosphorus return = 7777 ⇒ 6704*

*Outside Lab No = 71000000 1-4-44*

CHEMISTS: *MZ*  
*Waco*  
 LAB MANAGER: *B. P. ...*

COMMENTS: *7' 1" = 85.0* *002067* REAGENT COST:

*11-4-93*

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Technician: HJ18/A51 Sample Name: SAMPLE # 37501 Operation: HLW

Run Time: 11/04/93 08:52:41

Operator: C-1924-91 NAME: 90791

Index: 0001 Comp. Factor: 1

Elem	As	Al	Ar	Au	Sr	U	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5648	30.17	5.039	3862	10291	16.59	5657
StDev	10214	80	1.916	10276	10008	94	10289
%RSD	3.565	2.671	5.072	7.135	57.10	5.686	7.904
#1	5991	30.36	5.679	3671	10378	15.66	3531
#2	6072	29.48	6.293	4058	10378	17.20	3962
#3	5665	29.51	6.293	4135	10254	17.58	3818
#4	5665	31.17	5.889	3582	10155	15.92	3316

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5382	1.535	1725.	24.39	11.97	6660	1703.
StDev	10316	1046	64.	1.89	1.62	10232	31.
%RSD	5.270	2.981	3.710	3.635	5.212	3.483	1.795
#1	5423	1.496	1757.	23.53	11.18	6577	1725.
#2	5590	1.562	1675.	24.94	12.32	6909	1680.
#3	5590	1.585	1669	25.34	12.59	6776	1675
#4	4923	1.496	1800.	23.75	11.79	6378	1734.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.415	9447.	5.260	4511	12.54	1.574	27.33
StDev	1356	233.	1148	10920	1.36	1053	1.35
%RSD	6.578	2.466	2.811	20.40	2.858	3.338	1.276
#1	5.115	9172.	5.130	3418	13.07	1.529	26.83
#2	5.612	9566.	5.293	4785	12.29	1.615	27.40
#3	5.818	9700.	5.455	5605	12.47	1.524	27.65
#4	5.115	9351.	5.163	4238	12.35	1.529	27.44



Method: SPTE(A5) Sample Name: AMPLE # 37526 Operator: HJM  
 Run Time: 11/04/93 08:55:24  
 Element: Cu (93e-9) MATX 5079U  
 Unit: (PPM) Corr. Factor: 100

Elem	Al	Al	As	Al	Ba	Ca	Cl
UNIT%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.863	46.35	11.17	3.326	.1257	29.00	1.514
SD	.298	6.5	1.81	.541	.0819	.79	.000
RPD	3.415	44.2	7.173	10.44	33.33	2.722	1.000
#1	3.872	46.31	12.73	3.649	.2786	29.67	1.514
#2	3.864	46.29	10.71	3.096	.1548	29.67	1.524
#3	3.864	46.98	10.71	3.041	.1548	28.14	1.524
#4	3.872	47.33	10.71	3.759	.1548	28.52	1.524

Elem	Co	Cr	Cu	Fe	Mg	Mn	<del>Na</del>
UNIT%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.920	4.530	2421	35.42	44.84	1.325	<del>48270.</del>
SD	.000	.000	15.	.35	.81	.166	<del>1.66.</del>
RPD	.0000	.0000	1.6160	.9804	1.809	12.50	<del>1.000</del>
#1	2.920	4.530	2468.	35.02	45.08	1.408	<del>48590.</del>
#2	2.920	4.530	2484.	35.71	45.55	1.408	<del>49030.</del>
#3	2.920	4.530	2501.	35.25	45.08	1.077	<del>49900.</del>
#4	2.920	4.530	2471.	35.71	43.67	1.408	<del>49400.</del>

Elem	Ni	<del>P</del>	Pb	Se	Sn	V	Zn
UNIT%	ppm	<del>ppm</del>	ppm	ppm	ppm	ppm	ppm
Avg	12.71	<del>1862.</del>	23.58	15.38	25.54	3.822	38.34
SD	.59	<del>1.57</del>	.81	4.52	3.24	.000	.52
RPD	6.633	<del>1.792</del>	3.442	29.37	12.71	.0000	1.762
#1	12.21	<del>7851.</del>	23.98	21.19	30.04	3.822	37.29
#2	12.21	<del>7894.</del>	23.98	14.35	25.54	3.822	38.79
#3	13.35	<del>7916.</del>	22.36	15.72	22.53	3.822	38.79
#4	13.06	<del>7786.</del>	33.98	10.25	24.03	3.822	37.39

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Company: ZNIFKAS1 Sample Name: TAMPK # 17525 Operation: HLU  
 Instrument: JYFLX93 QANTX 39  
 Method: 01-15-05-01 MATX 10791  
 Value: 1000 Units: 1000

Element	As	Ca	Ar	Al	Na	Si	Li
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	35.00	93.30	153.7	30.03	5.096	1.334	1.11
sDev	3.96	5.10	33.0	1.06	0.19	0.19	0.09
MSD	10.99	17.61	10.11	3.430	10.00	3.003	1.11

#1	38.70	94.16	112	39.85	4.005	130.6	11.23
#2	38.71	92.77	147.5	32.06	2.786	113.0	15.24
#3	30.57	95.70	156.5	29.85	2.786	116.8	15.24
#4	34.64	88.77	139.5	30.96	2.786	109.1	15.24

Element	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	22.95	34.21	2649.	39.36	142.8	4.970	52400.
sDev	4.17	5.02	14.	2.91	7.0	1.557	1738.
MSD	12.12	3.327	1.533	7.402	1.918	33.33	21.375
#1	20.26	37.91	2640.	42.26	151.0	4.142	56760.
#2	20.26	34.21	2647	39.94	137.0	7.455	57490.
#3	20.26	34.21	2640.	39.94	137.0	4.142	58600.
#4	29.20	30.51	2670	35.31	146.4	4.142	60750

Std off

Element	Ni	P	Pb	Se	Sr	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	42.83	7540.	162.6	307.6	206.5	21.50	45.24
sDev	5.41	77.	20.5	67.0	68.7	2.76	4.33
MSD	12.62	1.021	12.58	21.77	33.26	12.83	9.574
#1	39.26	7613.	191.1	252.9	135.2	23.89	43.63
#2	50.62	7588.	142.3	389.6	165.2	23.89	43.63
#7	39.26	7515.	158.5	252.9	285.4	19.11	44.11
#1	42.12	7440.	158.5	334.9	240.3	19.11	59.58

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Method: ENTEZAR Sample Name: SAMPLE #1 (754) Operator: HLY  
 Run Time: 11/04/93 09:58:02  
 Comment: C-149-91 MATX 50791  
 Mode: DUNK Core Factor: 100

Elem	Ag	Al	As	Co	Cr	Ca	Li
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.02	91.07	71.57	23.29	14531	25.27	2.224
StDev	1.12	3.57	5.74	1.99	1565	1.30	0.110
RPD	11.17	5.75	11.09	12.00	15.75	9.104	10.15
#1	12.59	34.03	33.69	19.15	17154	74.55	3.360
#2	15.71	45.15	7.70	25.47	9642	29.57	10.52
#3	16.40	95.37	36.66	26.54	1089	92.34	10.84
#4	15.36	98.05	32.19	23.79	9642	26.41	9.265

Elem	Cu	Cu	Cl	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.96	20.75	2509	63.05	112.3	3.266	31510.
StDev	1.89	2.29	66.	1.42	9.1	1.446	1360.
RPD	12.66	11.05	2.616	2.260	3.029	11.54	4.315
#1	12.27	17.11	2603.	60.93	99.41	3.197	33480.
#2	15.15	21.64	2469.	63.89	117.9	4.089	30700.
#3	17.42	22.62	2458.	63.50	118.8	4.089	30520.
#4	14.39	21.31	2506.	63.89	115.1	4.089	31330.

Elem	Ni	P	Pb	Se	Sn	V	Zr
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	28.82	12960.	103.5	1.3202	53.11	15.64	58.11
StDev	2.69	34.	9.2	3.982	2.19	1.50	1.23
RPD	9.349	6473	8.858	1244.	4.126	9.622	1.3968
#1	25.35	12840.	91.01	<.0500	54.31	13.66	57.91
#2	28.23	13000	104.2	2.241	50.71	16.30	57.91
#3	31.63	13020.	113.0	<.0500	55.51	17.18	58.31
#4	30.06	12990.	105.7	4.203	51.91	15.42	58.31

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Method: ENTEXAS) Sample Name: SAMPLE # 37537 Operator: HLW  
 Run Time: 11/04/93 09:45:10  
 Comment: GC-3936-91 NATX 5079)  
 Core: 0100 Core Factor: 1

Elem	Ag	Al	As	Au	Ba	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5086	40.06	4.413	1734	0031	8.677	12054
StDev	0345	3.87	216	0161	0064	740	1113
%RSD	6.790	9.668	4.943	8.178	158.6	8.409	6.009

#1	5086	39.82	4.327	1659	0019	8.087	11973
#2	4809	37.20	4.147	1771	0093	8.746	12038
#3	4878	37.66	4.627	1895	0019	9.682	12274
#4	5572	45.63	4.552	1569	<0010	8.193	11973

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12764	1.056	2540.	15.00	6.942	14208	1786.
StDev	10076	032	188.	1.01	1491	10270	78.
%RSD	2.740	3.077	7.411	6.750	5.486	6.426	4.387

#1	12726	1.032	2550.	14.28	8.410	13970	1825.
#2	12726	1.025	2383.	15.16	9.055	14268	1755.
#3	12878	1.090	2426.	16.37	9.563	14563	1693.
#4	12726	1.077	2802.	14.19	6.742	14030	1871.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.067	7206.	3.765	10768	6.805	1.082	23.55
StDev	1320	300.	1197	10897	1324	1053	1.75
%RSD	10.44	4.157	5.226	116.7	4.762	4.905	3.198

#1	2.907	6926.	3.611	<0500	6.823	1.031	22.87
#2	3.199	7151	3.582	1729	6.607	1.084	22.93
#3	3.445	7630.	3.963	1217	7.255	1.154	24.16
#4	2.718	7117.	3.905	<0500	6.535	1.057	24.25

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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 117

Laboratory Sample ID: 931014SOI0114-01

Date/Time Collected: 10-13-93/09:40

Date/Time Analyzed: 10-14-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	35.9	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_  
\_\_\_\_\_

## ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 117Laboratory Sample ID: 931014SQI0114-01Date/Time Collected: 10-13-93/09:40Date/Time Analyzed: 10-14-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.90	mg/L	0.10
Barium	0.16	mg/L	0.10
Copper	2570	mg/L	1.00
Iron	50.6	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.27	mg/L	0.20
Sodium	84100	mg/L	1000
Phosphorous	8030	mg/L	10.0
Potassium	570	mg/L	50.0
Ammonia	396	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.48	pH Units	----
TSS	2100	mg/L	10.0
TDS	24.3	%(mg/L)	0.10

Comments: NR = Not requested

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	-25.0
AL	30.1	25.95	-40.0
AS	4.4	3.79	-5.0
AU	-0.1	-0.09	-5.0
BA	-0.1	-0.09	-5.0
CA	16.6	14.31	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.5	1.29	-3.0
CU	2481	2138.79	G1,000
FE	24.4	21.03	-30.0
MG	12	10.34	-30.0
MN	-0.1	-0.09	-1.0
NA	7340 31510	<del>27163.79</del>	-60000.0
NI	5.4	4.66	-5.0
P	12960	11172.41	-8500.0
PB	5.3	4.57	-10.0
SE	-0.1	-0.09	-1.0
SN	12.5	10.78	-10.0
V	1.6	1.38	-3.0
ZN	27.3	23.53	-30.0
NH3 AS N	255	219.83	-50
TOC	42.6	36.72	-200
VOC	-0.1	-0.09	-200
PH	5.3		5.0 TO 7.0

63310

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Method: PNTFRAS1 Sample Name: SAMPLE # 37554

Operator: HLW

Run Time: 11/04/93 13:13:23

Comment: CC-2936-91 NATX 50791

Mode: UNC Corr Factor: 1000

Elem	As	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	58.41	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
SD	5.25	11.04	38.20	2.034	.0000	11.32	.0000
%RSD	10.71	3.505	86.99	7.042	.0000	7.270	.0000
#1	57.16	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#2	67.11	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#3	57.16	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#4	52.19	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	<.0050	2298.	59.77	<.0200	<.0010	73440.
SD	5.766	2.364	47.	7.85	9.476	2.035	2127
%RSD	20.49	3.333	2.045	13.13	11.30	40.00	2.896
#1	<.0030	<.0050	2237.	48.60	<.0200	<.0010	70950.
#2	<.0030	<.0050	2290.	61.74	<.0200	<.0010	73150.
#3	<.0030	<.0050	2317.	67.00	<.0200	<.0010	73550.
#4	<.0030	<.0050	2348.	61.74	<.0200	<.0010	76130.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0100	7777.	<.0250	84.62	345.7	<.0020	30.97
SD	8.759	181.	23.46	72.47	130.7	2.764	.00
%RSD	132.07	2.324	18.64	85.64	37.82	12.50	.0000
#1	<.0100	7960.	<.0250	110.4	520.4	<.0020	30.97
#2	<.0100	7529.	<.0250	139.8	360.3	<.0020	30.97
#3	<.0100	7830.	<.0250	110.4	287.5	<.0020	30.97
#4	<.0100	7787.	<.0250	<.0500	214.7	<.0020	30.97

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5500 UP RIVER ROAD (512) 289-0300  
P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

Batch 116 REPORT JWC, JKL, GV, mZ, BP,

CLIENT: RMA WID # 50832 LAB NO. CC 2936

WASTE DESCRIPTION: VOLUME: 19,349

WASTE CODE(S): LOAD # 6994 DATE: 11-3-93

LAB ANALYSIS

ICP PRE-SCREEN	POST-	pH	5.4	Color	Lt. BLUE F
	TREATMENT	Sp. Gr.	1.15	Phases	S Cl
	RMA	Total CN-		Acidity	NO2
	ppm	ppm		Alkalinity	Br
Ag		Reac. CN-		Odor	M NO3
Al	25.7	NH3 as N	200	TOC	37.6
As	4.3	3.4		VOC	M.D.
Au					
Ba		0.19			

PROCESS STAGES:

PARAMETERS

		RMA		pH	REDOX	TEMP. C
Cr	1.6	INITIAL	TOC	33.0		
Cu	1,899		Sp. gr.	1.16		
Fe	24.8		K	601		
Mg	13.7		NH3	363		
Mn			pH	5.47		
Na	5,935	63500	TSS	5250		
Ni	5.7		TDS	22.9		
P	9,557	6060				
Pb	5.4					
Se						
Si						
Sn	9.6					
V	1.6					
Zn	24.1					

Off spec NH3, Na

931013591 0113-01

76,000 ppm Na outside lab - 1-4-94

CHEMISTS: JWC  
HJW

COMMENTS: M<sup>2</sup> = 86.0

REAGENT COST: 002077

LAB MANAGER: R. P. ...

11-4-93

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Method: ENTE (AS) Sample Name: SAMPLE # 37501

Operator: RLW

Run Time: 11/04/93 09:12:57

Comment: CC-1036-91 NATX 50932

Unit: CONC Comp. Factor: 1

Elem	Ca	Al	As	Au	Ba	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.189	25.67	5.689	4729	0.14	21.90	2476
SDev	0.024	1.01	5.84	0623	0.032	1.68	1072
%RSD	0.460	3.930	8.697	13.36	22.45	6.776	43.29
#1	5.176	25.74	5.275	4325	0.105	20.98	3245
#2	5.257	25.97	5.210	4334	0.130	20.96	3245
#3	5.339	26.20	5.453	4611	0.155	21.57	3788
#4	5.665	24.18	6.019	5650	0.180	24.08	3813

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14965	1.575	1364.	24.76	13.69	5186	1683.
SDev	10551	0.068	99.	1.56	1.62	10223	14.
%RSD	11.01	4.326	7.231	2.263	4.988	4.302	2.012
#1	14589	1.533	1434.	24.50	13.02	5053	1702.
#2	14589	1.526	1401.	24.28	13.41	5053	1708.
#3	14923	1.570	1403.	24.70	13.71	5119	1690.
#4	15757	1.673	1218.	25.56	14.62	5517	1634.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.679	8936.	5.374	14101	9.576	1.598	24.07
SDev	1.301	102.	1.296	11149	1.475	0.050	1.13
%RSD	5.306	1.140	5.513	28.02	4.956	3.140	1.5346
#1	5.421	8984.	5.260	12871	9.974	1.567	24.13
#2	5.424	8796.	5.163	14785	8.982	1.567	23.39
#3	5.726	8934.	5.260	13418	9.603	1.526	24.19
#4	6.026	9032.	5.813	15332	9.944	1.672	24.06

002078

CONFIDENTIAL

Method: ENTE-431 Sample Name: SAMPLE # 37530 Operator: HJW  
 Run Time: 11-04-93 09:10:56  
 Comment: (04-1936-9) MATX 50832  
 Code: (000) Comp. Factor: 1.00

Elem	Ag	Al	As	Au	Ca	Cd	Cu
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.51	78.15	17.78	20.59	18978	100.5	8.604
StDev	1.14	97	4.78	54	0000	1.4	1.179
%RSD	2.250	1.187	25.86	2.607	0000	1.405	2.083
#1	15.51	77.99	16.37	20.90	8978	102.4	8.694
#2	15.10	77.12	17.18	19.79	18978	98.98	8.694
#3	15.91	78.15	24.45	20.90	18978	100.5	8.336
#4	16.91	79.37	13.14	20.79	18978	100.1	8.694

Elem	Co	Cr	Cu	Fe	Mn	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.39	20.43	1899.	53.72	99.29	3.148	30600
StDev	1.62	1.30	19.	1.77	1.45	1.66	217.
%RSD	2.899	1.478	1.011	1.424	1.4516	5.263	1.7103
#1	14.60	20.43	1927.	54.70	98.93	3.065	30890.
#2	14.60	20.06	1887.	53.77	99.87	3.396	30440.
#3	13.77	20.43	1898.	53.54	99.40	3.065	30650.
#4	14.60	20.80	1886.	52.85	98.93	3.065	30420.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.63	9557.	93.50	<.0500	46.19	13.98	45.58
StDev	1.95	99.	3.84	6.460	7.60	1.24	1.37
%RSD	3.845	1.041	4.109	14e9	15.45	1.709	1.8104
#1	23.91	9702.	93.90	<.0500	52.57	14.33	45.58
#2	23.91	9540.	90.65	4.785	52.57	13.86	45.13
#3	24.77	9481.	90.65	<.0500	37.55	13.86	46.03
#4	25.91	9505.	98.78	4.785	42.06	13.86	45.58

002079

CONFIDENTIAL

Method: ENTEKAS1 Sample Name: SAMPLE # 17539 Operator: HLLW  
 Run Time: 11/04/93 09:49:34  
 Comment: CC-2936-41 NATX 40832  
 Mode: CONC Units: Factors: 1

Elem	Ag	Al	As	Au	Fe	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5034	42.24	4.315	1617	<.0010	10.52	1859
SDev	0508	7.37	1.541	00405	00012	2.35	3153
%RSD	10.10	17.69	12.54	25.04	2466	21.49	3.272
#1	5572	50.43	4.028	1378	<.0010	8.595	1777
#2	5364	46.43	3.848	1390	<.0010	9.056	1777
#3	4500	37.60	4.312	1479	<.0010	10.85	1777
#4	4600	34.44	5.076	1220	0019	13.58	2103

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2348	1.087	2525	14.62	10.21	3197	58143.
SDev	0315	059	315.	2.68	1.40	0541	3917.
%RSD	13.43	5.411	12.47	18.35	13.69	16.92	76.16
#1	2272	1.051	2851.	12.23	8.769	2721	58534.
#2	1969	1.058	2722.	12.88	9.508	2840	58534.
#3	2423	1.064	2351.	15.23	10.57	3316	1346.
#4	2726	1.175	2176.	18.15	11.99	3911	1657.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.935	7078.	3.626	<.0500	5.047	1.075	22.03
SDev	.716	668.	1.210	1.598	.246	1.130	.67
%RSD	24.38	9.442	3.783	1248.	4.866	12.10	3.053
#1	2.279	6513.	3.464	0961	5.263	09605	21.63
#2	2.504	6651	3.464	1473	4.758	09957	21.66
#3	3.074	7159	3.670	<.0500	4.926	1.093	21.81
#4	3.884	7990.	3.905	<.0500	5.239	1.251	23.04



116

SQI OPERATIONS • P.O. BOX 1857 • COMMERCE CITY, CO 80037-1857 • (303) 288-8548 • (303) 288-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0116

Laboratory Sample ID: 931013SQI0113-01

Date/Time Collected: 10-13-93/05:00

Date/Time Analyzed: 10-13-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	33.0	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_

002081



SGI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-8548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0116

Laboratory Sample ID: 931013SGI0113-01

Date/Time Collected: 10-13-93/05:00

Date/Time Analyzed: 10-13-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.40	mg/L	0.10
Barium	0.19	mg/L	0.10
Copper	1970	mg/L	1.00
Iron	41.3	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	63500	mg/L	1000
Phosphorous	6060	mg/L	10.0
Potassium	601	mg/L	50.0
Ammonia	363	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.47	pH Units	---
TSS	5250	mg/L	10.0
TDS	22.9	%(mg/L)	0.10

Comments: NR = Not requested

002082



SQI OPERATIONS • P.O. BOX 1637 • COMMERCE CITY, CO 80037-1637 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY REPORT

#### CASE NARRATIVE

Sample ID: 931013SQI0113

Date: 10/14/93

1. The sample was analyzed using methods outlined in the SQI Laboratory Standard Operating Procedures.
2. All quality control values were within SQI Laboratory QAPP limits.
3. All TOCs were analyzed as NPOC (nonpurgable organic carbon).

*Anthony B. Rubin*  
Laboratory Manager

10/14/93  
Date

*William A. Rak*  
QA/QC Manager

10-14-93  
Date

cc: File H.14  
SQI Lab File

002083

ELEMENT SPECIFIC GRAVITY

1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	-25.0
AL	25.7	22.35	-40.0
AS	4.3	3.74	-5.0
AU	-0.1	-0.09	-5.0
BA	-0.1	-0.09	-5.0
CA	21.9	19.04	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.6	1.39	-3.0
CU	1899	1651.30	G1,000
FE	24.8	21.57	-30.0
MG	13.7	11.91	-30.0
MN	-0.1	-0.09	-1.0
NA	69920	<del>30600</del> <sup>60% 00</sup> 26608.70	-60000.0
NI	5.7	4.96	-5.0
P	9557	8310.43	-8500.0
PB	5.4	4.70	-10.0
SE	-0.1	-0.09	-1.0
SN	9.6	8.35	-10.0
V	1.6	1.39	-3.0
ZN	24.1	20.96	-30.0
NH3 AS N	200	173.91	-50
TOC	37.6	32.70	-200
VOC	-0.1	-0.09	-200
PH	5.4		5.0 TO 7.0

002084

CONFIDENTIAL



Method: ENTEXA3 Sample Name: SAMPLE # 37555 Operator: HLW  
 Run Time: 11/04/93 13:15:38  
 Comment: CC-297b-91 NATX 50332  
 Code: LONC Corr. Factor: 1000

Elem	Aq	Al	As	Au	Ba	Ca	Cd
Units	bpm	bpm	bpm	bpm	bpm	bpm	bpm
Avg	27.34	<.0250	15.37	<.0060	<.0010	<.0100	<.0040
SDev	7.00	3.904	42.43	1.313	.0000	2.552	2.093
%RSD	.0000	1.974	276.0	4.739	.0000	1.695	10.50

#1	27.34	<.0250	0500	<.0060	<.0010	<.0100	<.0040
#2	27.34	<.0250	5.588	<.0060	<.0010	<.0100	<.0040
#3	27.34	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#4	27.34	<.0250	76.86	<.0060	<.0010	<.0100	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	bpm	bpm	bpm	bpm	bpm	bpm	bpm
Avg	<.0030	<.0050	2111.	42.69	<.0200	<.0010	69920.
SDev	.0000	.0000	11.	10.59	5.780	2.035	718.
%RSD	.0000	.0000	.5243	24.81	7.698	40.00	1.027

#1	<.0030	<.0050	2113.	27.59	<.0200	<.0010	69650.
#2	<.0030	<.0050	2102.	48.60	<.0200	<.0010	69330.
#3	<.0030	<.0050	2104.	51.23	<.0200	<.0010	69720.
#4	<.0030	<.0050	2126.	43.35	<.0200	<.0010	70970.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	bpm	bpm	bpm	bpm	bpm	bpm	bpm
Avg	<.0100	6835.	<.0250	55.19	54.59	<.0020	25.07
SDev	8.706	143.	10.77	74.44	42.85	2.764	.00
%RSD	32.87	2.091	6.415	134.9	78.50	14.29	.0000

#1	<.0100	6897.	<.0250	80.94	98.25	<.0020	25.07
#2	<.0100	6782.	<.0250	<.0500	69.14	<.0020	25.07
#3	<.0100	6997.	<.0250	36.79	54.59	<.0020	25.07
#4	<.0100	6667	<.0250	139.8	<.0200	<.0020	25.07

002085

CONFIDENTIAL

5500 UP RIVER ROAD (512) 289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

*Batch 95*

REPORT

CLIENT: *RMA* *50848* LAB NO: *CC 2936*

WASTE DESCRIPTION: \_\_\_\_\_ VOLUME: *18.88g*

WASTE CODE(S): \_\_\_\_\_ LOAD # *4985* DATE: *11-3-93*

LAB ANALYSIS

ICP	PRE-SCREEN	POST-TREATMENT	pH	Color	F
	ppm	ppm	<i>5.5</i>	<i>4 BLUE</i>	
			Sp. Gr.	Phases	Cl
			<i>1.15</i>	<i>S</i>	
			Total CN-	Acidity	NO2
Ag			Reac. CN-	Alkalinity	Br
Al	<i>30.0</i>		NH3 as N	Odor	NO3
As	<i>5.5</i>	<i>331</i>	TOC	<i>36.5</i>	<i>RADIOACTIVE (M)</i>
Au			VOC	<i>N.D.</i>	SO4

PROCESS STAGES:

PARAMETERS

<i>RMA</i>			pH	REDOX	TEMP. C
Cr	<i>1.2</i>		INITIAL	TOC	<i>36.3</i>
Cu	<i>2.066</i>	<i>1920</i>	SPG		<i>1.17</i>
Fe	<i>13.9</i>		K		<i>124</i>
Mg	<i>12.1</i>		NH3		<i>658</i>
Mn			pH		<i>559</i>
Na	<i>78660</i>	<i>75900</i>	TSS		<i>2950</i>
Ni	<i>4.3</i>		TDS		<i>225</i>
P	<i>6.829</i>	<i>6100</i>			
Pb	<i>4.0</i>		<i>Off spec NH3, Na</i>		
Se		<i>0.19</i>			
Si					
Sn	<i>7.0</i>				
V	<i>1.4</i>				
Zn	<i>22.4</i>				

*93.0929 SQ.I 0103-01*

*53000 Rockwell attached*

*1-4-94*

CHEMISTS: *K/E*  
*K/R*  
 LAB MANAGER: *K/R*

COMMENTS:  
*4.0' = 84.0*  
*11-V-92*

REAGENT COST:

Method: FNTFXAS1 Sample Name: SAMPLE # 11-004793-09-54-000  
 Sample Type: 11-004793-09-54-000  
 Element: Cu-228-91 NATY-500-03  
 Scale: CONC Units: Factor: 1

Elem	As	Al	As	Al	Co	Cr	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.4409	30.00	5.529	1.2657	0.0019	0	2201
StDev	0.0441	1.01	0.22	0.0685	0.0001	0	0.0004
SRSD	3.0756	13.066	1.037	25.07	0.0534	0	13.79
#1	1.8209	34.30	5.390	1.2067	0.0011	0	1902
#2	1.4392	30.37	5.345	1.2355	0.0019	0	2103
#3	1.4461	30.70	5.540	1.2566	0.0019	0	2169
#4	1.3975	24.61	5.839	1.3635	0.0024	0	2625

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	0.711	1.235	1976.	14.90	12.11	5019.	1580.
StDev	0.0587	0.022	320	1.67	1.37	0.0577	110
SRSD	15.81	6.616	16.18	11.20	11.35	0.091	7.124
#1	1.3181	1.155	2289.	13.03	10.49	6565.	1718.
#2	1.3484	1.194	2030.	14.39	11.32	5041	1603.
#3	1.3635	1.246	2054.	15.16	12.28	5553	1552.
#4	1.4544	1.344	1529	17.03	13.83	5437	1447.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.344	8229.	4.037	<.0500	6.991	1.353	22.42
StDev	0.783	433.	0.341	0.1046	0.630	0.113	0.41
SRSD	18.02	5.260	8.450	326.6	9.010	3.171	1.834
#1	3.513	7717.	3.728	<.0500	6.607	1.228	22.36
#2	4.093	8072.	3.905	<.0500	6.487	1.313	22.33
#3	4.376	8405	3.993	<.0500	6.991	1.766	22.99
#4	5.390	8723.	4.521	<.0500	7.879	1.547	22.01

002087

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37536

Operator: HLW

Run Time: 11/04/93 09:43:20

Comment: CC-2936-91 NATX 50842

Mode: LINC Corr. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.562	34.91	2.422	1.1067	.5288	12.69	1.225
SDev	.437	.52	3.932	.312	.3868	.87	.326
%RSD	27.96	1.477	46.68	30.20	73.16	6.831	26.67
#1	1.476	35.16	5.989	.720	.4665	12.27	1.060
#2	1.476	35.50	14.22	1.109	.3421	11.94	1.060
#3	2.170	34.33	5.989	.8842	1.089	13.92	1.712
#4	1.128	34.67	7.486	1.502	.2177	12.60	1.060
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.515	2.441	2066.	24.16	34.83	1.338	39210.
SDev	.0000	.460	29.	.48	1.00	.446	580
%RSD	.0000	18.86	1.416	2.004	2.861	33.33	1.479
#1	1.515	2.441	2062.	23.57	34.83	1.115	39190.
#2	1.515	2.115	2087.	24.56	33.91	1.115	39620.
#3	1.515	3.091	2025.	24.56	36.21	2.007	38400.
#4	1.515	2.115	2088.	23.97	34.37	1.115	39640.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.214	6829.	10.28	3.842	11.10	3.194	29.96
SDev	.446	80.	2.108	4.232	4.60	.554	.00
%RSD	4.845	1.177	20.20	110.1	41.40	17.36	.0000
#1	9.410	6820.	8.807	8.646	7.501	3.084	29.96
#2	9.149	6899.	8.807	6.084	17.10	3.084	29.96
#3	8.626	6719.	13.21	.9676	7.501	3.965	29.96
#4	9.671	6878.	10.28	<.0500	12.30	2.643	29.96

002088

CONFIDENTIAL

ELEMENT SPECIFIC GRAVITY 1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	-25.0
AL	30	26.09	-40.0
AS	5.5	4.78	-5.0
AU	-0.1	-0.09	-5.0
BA	-0.1	-0.09	-5.0
CA	15	13.04	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.2	1.04	-3.0
CU	2066	1796.52	G1,000
FE	13.9	12.09	-30.0
MG	12.1	10.52	-30.0
MN	-0.1	-0.09	-1.0
NA	<del>7860</del> 39210	<del>68400</del> 34095.05	-60000.0
NI	4.3	3.74	-5.0
P	6829	5938.26	-8500.0
PB	4	3.48	-10.0
SE	-0.1	-0.09	-1.0
SN	7	6.09	-10.0
V	1.4	1.22	-3.0
ZN	22.4	19.48	-30.0
NH3 AS N	255	221.74	-50
TOC	36.5	31.74	-200
VOC	-0.1	-0.09	-200
PH	5.5		5.0 TO 7.0

002089

CONFIDENTIAL



95

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0095

Laboratory Sample ID: 930929SQI0103-01

Date/Time Collected: 09-28-93/13:00

Date/Time Analyzed: 09-29-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
TOC	36.3	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: None



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 288-9548 • (303) 288-7912 (FAX)

ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0095

Laboratory Sample ID: 930929SQI0103-01

Date/Time Collected: 09-28-93/13:00

Date/Time Analyzed: 09-29-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	3.31	mg/L	0.10
Barium	0.12	mg/L	0.10
Copper	1920	mg/L	1.00
Iron	38.5	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.19	mg/L	0.20
Sodium	75700	mg/L	1000
Phosphorous	6700	mg/L	10.0
Potassium	624	mg/L	50.0
Ammonia	658	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.59	pH Units	----
TSS	2950	mg/L	10.0
TDS	22.5	%(mg/L)	0.10

Comments: NR = Not requested

Method: ENTFXAS1 Sample Name: SAMPLE # 37557 Operator: HLW  
 Run Time: 11/04/93 13:21:07  
 Comment: CC-2935-91 NATX 50848  
 Unit: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
SDev	2.423	5.753	31.57	3.033	.0000	.0000	4.186
%RSD	28.57	2.820	239.6	11.43	.0000	.0000	23.53

#1	<.0030	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#2	<.0030	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#3	<.0030	<.0250	32.94	<.0060	<.0010	<.0100	<.0040
#4	<.0030	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	<.0050	2007.	<.0050	<.0200	<.0010	78660.
SDev	.0000	3.861	1.	4.290	4.087	.0000	792.
%RSD	.0000	12.10	.0638	36.29	5.832	.0000	1.007

#1	<.0030	<.0050	2006.	<.0050	<.0200	<.0010	79490.
#2	<.0030	<.0050	2009.	<.0050	<.0200	<.0010	79000.
#3	<.0030	<.0050	2006.	<.0050	<.0200	<.0010	77620.
#4	<.0030	<.0050	2009.	<.0050	<.0200	<.0010	78540.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0100	6451.	<.0250	14.72	10.92	<.0020	16.22
SDev	1.655	89.	10.77	42.48	41.17	2.764	5.90
%RSD	4.762	1.373	6.415	288.7	377.1	14.29	36.36

#1	<.0100	6566.	<.0250	66.23	10.92	<.0020	13.27
#2	<.0100	6437.	<.0250	22.08	40.03	<.0020	13.27
#3	<.0100	6351.	<.0250	7.358	40.03	<.0020	25.07
#4	<.0100	6451.	<.0250	<.0500	<.0200	<.0020	13.27

002092

CONFIDENTIAL



5500 UPRIVER ROAD (512)289-0300  
P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL	BATCH# 110	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 4' 1 3/4' 85.75	VOLUME: 19 302
WASTE CODE(S): F039	LOAD# 50829	DATE: 11-17-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	BLUE
	MG/L	PPM	PPM	pH		PHASES	S
				SP.GR.		ACIDITY	
Ag				TOTAL CN-		ALKALINITY	
Al	46.6	40.88		REAC. CN-		ODOR	M
As	4.5	3.95	3.37	NH3 AS N	560 740	RADIO-	Y (N)
Au				TOC	29.1 31.2	ACTIVE	
Ba			0.15	VOC	N.D.		
Ca	17.2	15.09		PROCESS STAGES PARAMETERS			
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr							
Cu	2080	1825	2200	RMA			
Fe	21.4	18.77	34.7	TSS 3000			
Mg	20.7	18.16		TDS 22.4			
Mn				Encycle PPM			
Na	79520	79404	81900	NH3 491			
Ni	5.6	4.91		TOC 25.5			
P	6.519	5718	7263				
Pb	3.2	2.81					
Se			0.22				
Si				Off spec Al, Na, NH3			
Sn	4.7	4.12					
V	1.4	1.23					
Zn	11.1	9.74					
K			562				

DC  
GV  
RG  
BP  
MZ  
Jwo  
JKL

ANALYSTS: *[Signature]*

COMMENTS: LOAD 6998

REAGENT COST: 002093

MANAGER: B. Calmody  
DATE: 11-17-92

CONFIDENTIAL

Sample Name: SAMPLE # 17755  
 Operation: HLL  
 Date: 11/13/17 15:24:17  
 Element: Na 7 50309  
 ID: 2936-91  
 Unit: UIND  
 Conc. Factor: 1000

Unit	Ag	Al	As	Ca	Co	Cr	Cd
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
#1	55.54	566.7	55.77	47.74	6.751	31.29	1.87
#2	55.54	566.7	55.77	47.74	6.751	31.29	1.87
#3	91.513	339.5	49.76	1.627	17.76	22.32	406
Avg	55.54	336.7	79.68	133.6	6.670	32.55	11.67
StDev	64.26	356.0	77.72	91.62	6.670	32.55	36.27
#1	52.21	312.4	22.98	84.90	4.891	10.92	30.41
#2	58.13	339.5	42.53	90.58	4.891	13.13	32.99
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	41.28	48.55	2208.	62.11	469.6	7.276	40520.
StDev	3.21	1.10	30.	2.71	43.4	1.364	1228
#PSD	7.306	2.273	1.381	3.713	9.247	3.000	1.357
#1	45.85	50.21	2176.	64.65	526.9	7.458	39210
#2	40.75	48.00	2232.	63.45	481.6	7.458	41740.
#3	39.06	48.00	2236.	59.36	426.3	6.730	41360
#4	39.06	48.00	2188.	60.46	465.5	7.458	39740
Elem	Ni	P	Pb	Se	Sn	V	Zn
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	48.67	6950.	290.4	11.51	93.04	42.40	22.87
StDev	5.39	71.	23.4	21.82	13.62	12.32	1.40
#PSD	11.07	1.025	8.060	189.5	14.64	5.465	5.137
#1	52.91	6902.	306.1	1.919	91.38	45.45	21.34
#2	48.23	7053.	310.1	21.11	111.0	42.74	23.64
#3	52.32	6946.	286.4	36.44	78.17	40.03	24.41
#4	41.32	6902.	258.9	110500	91.38	41.33	22.11

002094

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Element: Cd (ppm) Sample Name: SAMPLE 11  
 Sample: 11-17-91  
 Method: MATZ (NIST) Unit: ppm  
 Value: 0.000000

Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.410	49.61	7.771	3.141	1.000	11.94	1.041
StDev	5.070	70.74	8.661	8.809	1.002	20.63	1.170
#1	5.221	71.09	8.359	8.420	1.402	20.76	1.299
#2	4.332	65.31	5.250	7.484	4.002	20.99	1.656

Element	Co	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.321	5.205	2080.	33.22	69.32	1.310
StDev	.294	.303	26.	38	4.40	.036
#1	7.698	6.328	1.245	1.081	6.353	2.773
#2	4.075	5.241	2043.	32.30	68.84	1.328
#3	3.906	5.241	2082.	33.52	73.17	1.328
#4	3.906	5.576	2078.	33.52	71.97	1.328
#5	3.396	4.800	2111.	33.24	63.31	1.255

Element	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.39	6519	29.83	<.0500	9.964	5.393	14.13
StDev	.13	.67	3.24	4.331	.350	.204	.22
#1	11.139	6031	12.89	2257	8.535	3.774	1.539
#2	11.31	6433.	29.04	<.0500	10.90	5.495	13.82
#3	11.55	6543.	32.98	<.0500	9.138	5.495	14.28
#4	11.43	6591.	32.58	5.569	10.46	5.495	14.28
#5	11.25	6505.	34.71	<.0500	9.359	5.088	14.13

002095

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Client: RMTB (45) Sample Name: SAMPLE # 37772 Location: PLW  
 Job Number: 07A-015-015-01  
 Element: NAT (5082%) CO-093-91  
 Unit: mg Comp: Fraction

Elem	Unit	Al	As	Au	Ba	Ca	Co
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.13	56.60	4.526	.1006	.0010	17.70	1.967
SD	0.102	1.30	1.140	.0951	.0037	1.104	1.174
RPD	13.14	381.8	4.106	54.78	43.40	61.766	31.15
#1	11	56.29	4.328	.10261	.0010	15.40	1.951
#2	154.2	36.34	4.426	.0967	0.0010	16.91	1.831
#3	1666	36.47	4.526	.1246	0.0010	17.49	1.976
#4	1614	36.29	4.762	.1550	0.0010	13.59	1.476
Elem	Unit	Cr	Cu	Fe	Mg	Mn	Na
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.07	1.7673	2120.	21.37	20.67	.522%	613850.
SD	0.014	.0547	41	.97	1.35	.0243	
RPD	10.40	7.126	1.925	4.549	6.507	4.647	1000
#1	13445	.7007	2179.	20.27	19.01	.4951	613850.
#2	2319	7522	2091.	21.05	20.41	.6155	613850.
#3	2387	.7860	2096.	21.57	21.02	.5271	613850.
#4	3112	3302	2113.	22.59	22.25	.6533	613850.
Elem	Unit	P	Pb	Se	Sn	V	Zn
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.632	515670.	3.156	.2571	4.727	1.397	11.07
SD	.313	17793.	.287	.0785	.153	.071	.133
RPD	5.562	113.5	9.089	30.54	3.241	5.087	2.077
#1	5.049	6703.	2.786	.1881	4.935	1.312	10.87
#2	5.567	6743.	3.132	.2648	4.666	1.380	10.94
#3	5.715	6881.	3.227	.2111	4.574	1.412	11.07
#4	6.001	642360	3.479	.3646	4.732	1.480	11.39

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-10.0			
V	1.4	1.23	-3.0
ZN	11.1	9.74	-30.0
NH3 AS N	560	491.23	-50
TOC	29.1	25.53	-200
VOC	-0.1	-0.09	-200
PH	5.7		5.0 TO 7.

ROCKY MOUNTAIN ARSENAL

ELEMENT SPECIFIC GRAVITY 1.14

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	-25.0
AL	46.6	40.88	-40.0
AS	4.5	3.95	-5.0
AU	-0.1	-0.09	-5.0
BA	-0.1	-0.09	-5.0
CA	17.2	15.09	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2080	1824.56	G1,000
FE	21.4	18.77	-30.0
MG	20.7	18.16	-30.0
MN	-0.1	-0.09	-1.0

NA	90520	79403.51	-60000.0
NI	5.6	4.91	-5.0
P	6519	5718.42	-8500.0
PB	3.2	2.81	-10.0
SE	-0.1	-0.09	-1.0
SN	4.7	4.12	-10.0
V	1.4	1.23	-3.0
ZN	11.1	9.74	-30.0
NH3 AS N	560	491.23	-50
TOC	29.1	25.53	-200
VOC	-0.1	-0.09	-200
PH	5.7		5.0 TO 7.

002097

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0110

Laboratory Sample ID: 931011SOI0111-01

Date/Time Collected: 10-08-93/09:35

Date/Time Analyzed: 10-11-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	31.2	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_  
\_\_\_\_\_



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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0110

Laboratory Sample ID: 931011SQI0111-01

Date/Time Collected: 10-08-93/09:35

Date/Time Analyzed: 10-11-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.37	mg/L	0.10
Barium	0.15	mg/L	0.10
Copper	2200	mg/L	1.00
Iron	34.7	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.22	mg/L	0.20
Sodium	81900	mg/L	1000
Phosphorous	7263	mg/L	10.0
Potassium	562	mg/L	50.0
Ammonia	740	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.34	pH Units	----
TSS	3000	mg/L	10.0
TDS	22.4	%(mg/L)	0.10

Comments: NR = Not requested

ENCYCLE / TEXAS, INC.  
 5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID CYCLE  
**REPORT - RMA**

CLIENT: ROCKY MTN. ARSENAL	BATCH# 128	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7' 2 1/2" 80.5'	VOLUME: 19451
WASTE CODE(S): F039	LOAD# 50799	DATE: 11-17-93

**LAB ANALYSIS**

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	BLUE	
	MG/L	PPM	PPM	PH		PHASES	5	
Ag				SP.GR.	1.15	1.16	ACIDITY	
Al	39.0	33.91		TOTAL CN-			ALKALINITY	
As	4.2	3.65	3.66	REAC. CN-			ODOR M	
Au				NH3 AS N	250	379	RADIO- Y (N)	
Ba			0.22	TOC	30.6	38.6	ACTIVE	
Ca	17.9	15.57		VOC	M.D			
Cd				PROCESS STAGES				PARAMETERS
Co						PH	REDOX	TEMP C
Cr				INITIAL				
Cu	3087	1814.78	1870					
Fe	261	22.70	45.3					
Mg	236	20.52						
Mn								
Na	88,520	76974	64600					
Ni	63	5.48						
P	6779	5895	6690					
Pb	3.1	2.70						
Se			0.27					
Si								
Sn	3.4	2.96						
V	1.4	1.22						
Zn	12.7	11.04						
K			595					

*Encycle ppm*  
 NH3 217  
 TOC 26.6

*RMA*

*TSS 2520*

*TDS 22.4*

*Off spec Na, Ni, NH3*  
 931021 SQ ± 0119-01

ANALYSTS: H.X.  
 HKM

COMMENTS: LOAD 7010

REAGENT COST: 002100

MANAGER: B. Comedy  
 DATE: 11-17-92

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Method: ENTEK451      Sample Name: SAMPLE #4      175g  
 Run Time: 11/17/2011 03:27:01  
 Element: NA      40799      4290500  
 Unit: UMC      Form Factor: 100

Elem	Ag	Al	As	Ca	Fe	Cu	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.257	75.12	6.53	4.81	1291	25.51	1.267
StDev	1.171	1.11	1.112	1.024	1.17	1.13	1.17
%RSD	2.733	1.11	16.74	21.09	90.71	1.164	1.584
#1	6.109	75.21	5.075	4.81	1291	25.53	1.127
#2	6.109	74.71	11.10	9.091	1002	25.31	2.170
#3	6.406	74.51	10.51	9.033	1002	25.20	2.234
#4	6.406	76.18	8.359	9.939	10670	26.03	2.556

Elem	Cr	Co	Pb	Pt	Hg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.075	5.205	2087.	36.74	31.23	1.273	85890.
StDev	.000	.125	.18	1.26	1.76	.036	762.
%RSD	.0000	3.557	.8422	.7026	5.629	2.857	.8945
#1	4.075	5.241	2070.	36.69	33.03	1.255	85100.
#2	4.075	4.947	2110	36.63	30.39	1.255	86900
#3	4.075	5.241	2078.	36.51	29.13	1.255	85560.
#4	4.075	5.369	2091.	37.11	32.31	1.328	86000.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.54	6779.	34.75	1.223	9.799	6.106	15.74
StDev	.89	47.	2.88	5.115	1.048	.136	.14
%RSD	7.060	.6944	8.301	280.5	10.70	2.222	.8917
#1	13.13	6744.	38.49	1.0500	9.132	6.173	15.59
#2	11.25	6859.	31.79	4.798	9.579	5.902	15.90
#3	13.13	6738.	35.54	7.484	9.132	6.173	15.67
#4	12.66	6794.	33.57	1.0500	11.34	6.173	15.80

002101

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Method: ENTE/AB1 Sample Name: SAMPLE\_4\_1125  
 Run Time: 11/17/97 15:14:19  
 Element: NATA 50799  
 Unit: OMC Comp Factor: 1000

Overshoot: NLLW

Elem	As	At	Ca	Co	Br	Cr	Cu
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	57.00	338.1	66.4	19.26	5.781	17.12	21.32
SDev	5.70	14.8	10.87	1.24	0.705	2.48	1.25
RPSD	6.441	4.064	15.97	5.975	12.55	17.55	5.759
#1	51.11	345.6	73.41	22.52	8.731	17.71	15.41
#2	56.85	352.5	65.99	33.26	6.670	16.45	20.41
#3	61.09	354.7	75.77	31.62	4.391	17.59	21.70
#4	58.13	379.6	62.30	21.97	5.781	20.92	22.99

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	38.21	38.20	2199	37.71	455.7	5.321	33520.
SDev	2.19	2.44	18.1	2.24	16.4	1.364	697
RPSD	5.733	6.287	8.103	5.939	3.589	6.250	7873
#1	35.66	36.23	2211.	34.72	433.5	5.275	33980.
#2	39.06	38.44	2188.	37.71	455.1	6.003	33150.
#3	37.36	38.44	2179.	33.31	472.0	6.003	37730.
#4	40.75	42.11	2216.	40.11	452.4	6.003	39210.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	41.80	7120	288.4	19.19	78.72	41.38	21.34
SDev	14.84	98	21.7	19.95	18.98	1.11	1.66
RPSD	11.54	1.380	7.519	108.2	24.10	2.677	7.735
#1	34.79	7008.	266.3	1500	58.35	41.38	19.80
#2	42.97	7151.	274.6	67.17	97.99	40.03	20.57
#3	45.39	7082.	314.0	9.595	91.38	41.38	21.34
#4	43.56	7238	298.3	28.79	67.16	42.74	23.64

002102

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Job: 01-50799A Sample Name: WMP1.5 # 00711 Operator: HLLJ  
 Run Time: 11/11/93 10:03:11  
 Comment: MATZ 50799 CC-0506-91  
 Analyte: OXIDE Units: % Oxide

Elem	Co	Cu	As	Sr	Se	Ca	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1737	29.02	4.177	11137	10010	17.26	2193
SD	2127	1.17	1.10e	165e	1017	1.10	6133
%RSD	12.26	4.07e	2.63e	40.20	25.55	6.281	27.97

#1	1992	29.51	4.410	11645	10010	15.47	1333
#2	1483	40.41	4.156	10540	10010	17.17	1064
#3	1755	38.52	3.988	11221	10010	17.20	1206
#4	1696	37.65	3.937	11126	10010	17.01	1128

Elem	Co	Cu	Cr	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	125e9	19243	2260.	26.14	23.56	5377	518850.
SD	10285	10562	101	1.20	1.05	10271	
%RSD	12.02	5.533	4.432	4.597	4.472	5.0e6	10000
#1	12751	1.005	2284.	27.83	25.04	157e6	518850.
#2	12106	1.8954	2339.	25.72	22.96	15271	518850.
#3	12411	1.9184	2216.	26.01	23.52	15330	518850.
#4	12208	1.8802	2153.	25.01	22.62	15140	518850.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.275	6803.	3.079	12015	3.367	1.394	12.69
SD	1.367	306	240	1401	208	1069	1.44
%RSD	5.856	4.502	7.801	69.51	6.186	4.930	3.476
#1	6.309	7198.	3.408	12571	3.666	1.491	13.18
#2	6.118	6835.	2.864	10500	3.327	1.361	12.89
#3	6.193	6720.	3.101	12412	3.288	1.391	12.55
#4	5.972	6460.	2.943	13109	3.166	1.334	12.16

002103

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 128

Laboratory Sample ID: 931021SOI0119-01

Date/Time Collected: 10-21-93/05:30

Date/Time Analyzed: 10-21-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
TOC	38.6	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_



SOI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 288-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 128

Laboratory Sample ID: 931021SOI0119-01

Date/Time Collected: 10-21-93/05:30

Date/Time Analyzed: 10-21-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	3.60	mg/L	0.10
Barium	0.22	mg/L	0.10
Copper	1870	mg/L	1.00
Iron	45.3	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.27	mg/L	0.20
Sodium	64600	mg/L	1000
Phosphorous	6690	mg/L	10.0
Potassium	595	mg/L	50.0
Ammonia	379	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.73	pH Units	----
TSS	2520	mg/L	10.0
TDS	22.4	%(mg/L)	0.10

Comments: NR = Not requested

8500.0

PB	3.1	2.70	-10.0
SE	-0.1	-0.09	-1.0
SN	3.4	2.96	-10.0
V	1.4	1.22	-3.0
ZN	12.7	11.04	-30.0
NH3 AS N	250	217.39	-50
TOC	30.6	26.61	-200
VOC	-0.1	-0.09	-200
PH	6		5.0 TO 7.

ROCKY MOUNTAIN ARSENAL

ELEMENT SPECIFIC GRAVITY 1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	-25.0
AL	39	33.91	-40.0
AS	4.2	3.65	-5.0
AU	-0.1	-0.09	-5.0
BA	-0.1	-0.09	-5.0
CA	17.9	15.57	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2087	1814.78	G1,000
FE	26.1	22.70	-30.0
MG	23.6	20.52	-30.0
MN	-0.1	-0.09	-1.0

NA	88520	76973.91	-60000.0
NI	6.3	5.48	-5.0
P	6779	5894.78	-8500.0
PB	3.1	2.70	-10.0
SE	-0.1	-0.09	-1.0
SN	3.4	2.96	-10.0
V	1.4	1.22	-3.0
ZN	12.7	11.04	-30.0
NH3 AS N	250	217.39	-50
TOC	30.6	26.61	-200
VOC	-0.1	-0.09	-200
PH	6		5.0 TO 7.

002106

CONFIDENTIAL

ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300

P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID SAMPLES

REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL	BATCH# 129	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'4"	VOLUME: 19,843
WASTE CODE(S): F039	LOAD# 50811	DATE: 11-16-93

LAB ANALYSIS

ICP	PRE-	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	BLUE
	SCREEN			pH		PHASES	5
	MG/L	PPM	PPM	SP.GR.		ACIDITY	
Ag				TOTAL CN-		ALKALINITY	
Al	40.9	35.88		REAC. CN-		ODOR	M
As	4.1	3.60		NH3 AS N	370	RADIO-	Y (N)
Au				TOC	34.5	ACTIVE	
Ba				VOC	N.D		
Ca	15.1	13.25		PROCESS STAGES PARAMETERS			
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr							
Cu	2010	1763					
Fe	29.0	25.44					
Mg	22.6	19.82					
Mn							
Na	84930	74500					
Ni	6.6	5.79					
P	6.590	5780.70					
Pb	3.0	2.63					
Se							
Si							
Sn	5.0	4.39					
V	1.3	1.14					
Zn	12.6	11.05					

Encycle ppm  
 NH3 324.56  
 TOC 30.26

Off spec Na, Ni, NH3

931022 SQI 0120-01

ANALYSTS: *MZ*  
*AKL*  
 MANAGER: *B. Camodey*  
 DATE: *11-17-93*

COMMENTS: 7011 LOAD

REAGENT COST: 002107

CONFIDENTIAL

Sample Name: SAMPLE # 37750  
 Operator: RLK  
 Date: 11-17-93 15:11:05  
 Sample ID: 80811 (C-2945-91)  
 Weight: 0.0000 gm Factor: 100

Element	Unit	Al	As	At	Ba	Ca	Cd
UNITEDS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.24	73.127	12.07	7.912	40.17	20.94	1.009
RDV	0.0001	1.46	1.70	1.45	0.90	0.27	0.03
RPSD	0.0001	2.189	32.32	4.747	0.000	1.787	34.9
#1	1.000	72.15	9.923	7.767	40.02	10.43	1.977
#2	1.000	74.98	15.20	8.173	40.02	21.32	2.041
#3	1.000	74.27	13.44	8.367	40.02	21.04	1.977
#4	1.000	71.68	9.728	7.343	40.02	21.04	2.041
Element	Unit	Cr	Cu	Fe	Mg	Mn	Na
UNITEDS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.24	4.359	2010.	41.75	74.49	1.437	84750.
RDV	0.0001	127	18.	1.45	1.80	1.073	780.
RPSD	0.0001	2.851	8878	1.082	1.071	5.063	9202
#1	1.000	4.432	2000.	41.18	75.10	1.328	84480.
#2	1.000	4.653	1990.	41.66	73.41	1.473	83840.
#3	1.000	4.432	2020.	42.26	75.10	1.473	85030.
#4	1.000	4.359	2029	41.90	74.37	1.473	85670.
Element	Unit	P	Pb	Se	Sn	V	Zn
UNITEDS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.24	6590.	29.14	15.16	8.973	5.393	16.09
RDV	0.0001	53.	1.93	3.79	1.719	1.063	1.28
RPSD	0.0001	8083	3.193	24.98	19.15	1.258	1.767
#1	1.000	6538.	29.83	10.94	6.496	5.359	15.74
#2	1.000	6552	29.83	14.78	10.02	5.359	15.97
#3	1.000	6625.	27.86	20.15	9.138	5.359	16.36
#4	1.000	6646.	29.04	14.78	10.24	5.495	16.28

002108

CONFIDENTIAL



Analysis Report

Wed Jul 17 03:13:58 AM

Page 1

Method: ENTE(XAS) Sample Name: SAMPLE # 47749 Operator: HLW  
 Run Time: 7/17/93 15:12:31  
 Comment: NATX 50319 CC-2936-91  
 Mode: CONC Conc Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	50.73	285.6	183.3	72.02	4.002	< 0.0100	17.68
SDev	2.91	11.3	11.1	5.3	0.10	2.766	1.66
%RSD	7.907	4.321	7.129	11.50	0.000	75.79	5.455
#1	49.24	273.5	191.1	72.19	4.003	< 0.0100	19.13
#2	56.65	299.4	189.2	73.07	4.002	< 0.0100	17.20
#3	49.24	277.0	189.2	71.13	4.002	< 0.0100	17.20
#4	47.76	292.4	163.8	71.66	4.002	< 0.0100	17.20

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	30.99	29.79	2059.	40.85	366.3	4.911	84930.
SDev	2.90	2.36	3.	1.65	7.9	0.420	270.
%RSD	9.358	7.905	1.3701	4.035	2.167	8.553	3124
#1	27.17	27.40	2056.	38.91	358.9	4.547	84960.
#2	30.57	31.82	2052.	42.50	375.3	5.275	84590.
#3	32.26	31.82	2059.	41.90	371.0	4.547	84910.
#4	33.96	28.14	2070.	40.11	361.4	5.275	35250.

Elem	Nb	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	39.46	6610.	223.4	344.5	56.15	37.31	20.18
SDev	2.94	143.	5.6	28.3	4.76	1.92	1.47
%RSD	7.457	2.162	2.492	8.207	8.472	5.143	7.295
#1	40.05	6441.	227.4	312.8	51.75	37.31	18.26
#2	40.05	6600.	223.4	355.0	62.76	40.03	21.34
#3	35.37	6608.	215.6	332.0	56.15	35.96	19.80
#4	42.39	6791.	227.4	378.0	53.95	35.96	21.34

002109

CONFIDENTIAL

Analysis Report

Wed Jul 17 1993 04:00:25 PM

Page 1

Method: ENTEKAS1    Sample Name: SAMPLE # 37269    Operator: MLW  
 Run Time: 11/17/93 15:53:57  
 Comment: NAT (5021)    C-2405-91  
 Mode: CONC    Corr. Factor: 1

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1105	40.92	4.111	0.490	<.0010	14.15	11.58
SDev	0113	1.19	1.45	0.0237	0.0022	.89	0.081
%RSD	10.14	2.908	5.954	4.8.33	20.13	4.564	7.109
#1	1044	40.15	4.061	0.321	<.0010	14.24	11.6
#2	1281	41.53	4.371	0.840	<.0010	15.08	12.57
#3	1044	39.67	5.796	0.423	<.0010	14.46	11.03
#4	1044	42.05	4.215	0.377	<.0010	15.17	10.77

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2687	8916	2086.	29.01	22.55	6471	518850.
SDev	10164	10466	.69	1.09	.93	10252	
%RSD	6.115	5.231	3.294	3.762	4.133	3.392	0.000
#1	2649	8640	2045.	28.52	21.91	6348	518850.
#2	2921	9582	2135.	30.44	23.22	6814	518850.
#3	2547	8552	2011.	27.88	21.79	6233	518850
#4	2615	8890	2153.	29.19	22.66	6494	518850.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.561	515640.	3.002	1.1458	4.974	1.304	12.58
SDev	1.310	17813.	.178	0.1242	.281	.052	.41
%RSD	4.731	114.0	5.937	85.14	5.653	4.018	3.244
#1	6.427	6750.	2.912	0.806	5.384	1.271	12.32
#2	7.003	542360.	3.266	1.3032	4.851	1.374	13.05
#3	6.289	6546.	2.880	<.0500	4.913	1.258	12.16
#4	6.524	6834.	2.951	1.1804	4.750	1.312	12.79

002110

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VOC	-0.1	-0.09	-200
PH	5.8		5.0 TO 7.

## ROCKY MOUNTAIN ARSENAL

ELEMENT	SPECIFIC GRAVITY 1.14		
	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	-25.0
AL	40.9	35.88	-40.0
AS	4.1	3.60	-5.0
AU	-0.1	-0.09	-5.0
BA	-0.1	-0.09	-5.0
CA	15.1	13.25	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2010	1763.16	G1,000
FE	29	25.44	-30.0
MG	22.6	19.82	-30.0
MN	-0.1	-0.09	-1.0
NA	84930	74500.00	-60000.0
NI	6.6	5.79	-5.0
P	6590	5780.70	-8500.0
PB	3	2.63	-10.0
SE	-0.1	-0.09	-1.0
SN	5	4.39	-10.0
V	1.3	1.14	-3.0
ZN	12.6	11.05	-30.0
NH3 AS N	370	324.56	-50
TOC	34.5	30.26	-200
VOC	-0.1	-0.09	-200
PH	5.8		5.0 TO 7.

002111

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ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300

P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID SHIPMENT

REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL	BATCH# 127	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 4' 1/4"	VOLUME: 18909
WASTE CODE(S): F039	LOAD# 50823	DATE: 11-16-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	PHASES
	MG/L	PPM	PPM	SP.GR.		ALKALINITY	
Ag				TOTAL CN-			
Al	46.3	40.61	-	REAC. CN-		ODOR	M
As	4.5	3.95	4.02	NH3 AS N	320	RADIO-	Y (N)
Au				TOC	29.5	ACTIVE	
Ba				VOC	M.D		
Ca	12.9	11.32		PROCESS STAGES			
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr							
Cu	2,172	1905	2360				
Fe	31.1	27.3	54.6				
Mg	21.9	19.2					
Mn							
Na	9,1010	79833	84900				
Ni	66	5.79					
P	7,142	6265	8640				
Pb	2.8	2.46					
Se			0.26				
Si							
Sn	5.8	5.09					
V	1.4	1.23					
Zn	13.7	12.02					
K			611				

*Encycle ppm*  
*NH3 280.70*  
*TOC 25.88*

*RMA*  
*TSS 2570*  
*TDS 24.3*

*Off spec on Al, Na, Ni, NH3*

*931020 SQJ 018-01*

ANALYSTS: *Hz*

COMMENTS:

*LOAD 7009*

REAGENT COST:

002112

MANAGER:

*B. Cannady*

DATE:

*11-17-93*

CONFIDENTIAL

Analysis Report

ENTR-17497-10-00012-PM

Page 1

Method: ENTRA-1 Sample Name: SWRPL # 4 (75%)

Operator: HLLW

Run Time: 11/17/97 15:17:40

Comment: MAT4-FRIG- (0-45-94)

Code: 11100 Comp: Random: 100

Elem	Ag	Al	As	Au	Pb	Cd	Cr
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.984	75.85	8.602	564	14467	18.24	11358
SD	.305	1.440	1.740	174	1829	1.81	150
RPD	6.156	1.645	14.42	3.690	20.00	4.447	6.442
#1	4.984	74.51	8.157	710	4002	17.22	11741
#2	4.924	75.22	10.31	757	14002	17.51	11341
#3	4.626	75.22	7.521	7102	14002	18.27	11913
#4	5.359	77.69	8.555	7943	5781	19.38	2134
Elem	Co	Cu	Fe	Mn	Mg	Ni	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.651	4.322	2171.	56.4%	74.98	1.455	91520.
SD	.294	.326	20.	1.97	3.05	.092	763.
RPD	8.056	7.548	19347	3.492	4.062	6.292	12392
#1	3.566	4.064	2150.	54.23	73.41	1.328	90760.
#2	3.396	4.211	2160	55.61	72.69	1.473	91140.
#3	3.566	4.211	2190.	57.23	74.37	1.473	92460.
#4	4.075	4.300	2189	58.72	79.43	1.546	91940.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.18	7142.	27.76	7.675	10.62	5.258	17.15
SD	.62	110.	3.39	2.292	2.12	.257	1.38
RPD	4.721	1.341	12.22	29.86	19.98	4.895	2.238
#1	12.77	7047.	27.46	6.717	7.817	5.224	16.32
#2	13.59	7065.	27.46	8.252	10.24	5.088	16.90
#3	12.54	7171.	23.92	5.181	11.78	5.088	17.10
#4	13.87	7285.	32.19	10.35	12.66	5.631	17.66

002113

CONFIDENTIAL

Method: RTE/AS1 Sample Name: SAIR1.d (7751) Generation: #1  
 Run Date: 11/27/93 15:16:13  
 Comment: NATX-40802? (C-2937-91)  
 Note: UNCL - Comp. Factor: 1000

Elem	As	Al	Ag	Ar	Br	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	48.57	401.4	51.27	21.55	4.002	10.03	18.15
SD	1.17	12.5	17.35	5.1	0.001	1.33	1.13
SRSD	1.515	1.479	57.75	3.151	1.0000	55.17	6.776
#1	49.14	294.7	21.02	68.66	4.002	10.00	18.56
#2	49.24	300.6	57.50	77.44	4.002	10.00	19.13
#3	47.76	304.2	56.22	64.03	4.002	10.00	19.13
#4	49.24	304.2	42.53	76.08	4.002	10.00	17.34

Elem	Co	Cu	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	31.43	41.56	2206	38.74	398.6	6.003	91010
SD	2.94	2.20	9	1.72	13.2	0.00	479
SRSD	9.362	5.285	4096	1.957	3.523	1.0000	5258
#1	32.26	39.17	2211	39.19	385.4	6.003	91360
#2	27.17	44.32	2197	37.40	414.3	6.003	90560
#3	32.26	42.11	2201	39.00	404.6	6.003	90640
#4	33.96	40.64	2216	37.40	390.2	6.003	91490

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	41.51	7108.	234.3	77.72	73.77	34.94	20.57
SD	1.22	63.	9.8	22.68	5.96	1.71	1.39
SRSD	2.932	1.8801	4.202	29.18	8.084	4.687	4.317
#1	41.22	7077.	223.4	86.36	72.17	33.24	19.80
#2	41.80	7201.	247.1	101.7	75.97	37.31	21.34
#3	40.05	7085.	231.3	47.98	64.36	34.60	21.34
#4	42.97	7069	235.3	74.84	75.97	34.60	19.80

002114

CONFIDENTIAL

Method: INTELKAS1 Sample Name: SAMPLE # 00770 Operator: RLH  
 Run Time: 11/17/93 16:01:21  
 Comment: NATY 50823 CC-2936-91  
 Analyte: UINC Corr. Factor: 1.0

Elem	Ag	Al	As	Sr	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	0960	66.27	4.528	< 0060	< 0010	12.86	.1154
SD	0143	1.15	16.7	< 013	< 0020	.35	.0074
%RSD	15.75	2.927	3.625	> 99.0	17.60	2.626	6.340
#1	10748	45.83	4.500	10060	< 0010	12.50	.1103
#2	0985	48.07	4.752	< 0060	< 0010	13.02	.1154
#3	0926	46.54	4.359	< 0060	< 0010	12.64	.1128
#4	1103	44.83	4.490	10221	< 0010	13.25	.1270

Elem	Co	Cr	Cu	Pb	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17403	19416	2453.	31.08	21.39	1.61e3	\$12850.
SD	0119	1.02e3	96.	57	.58	1.0106	.
%RSD	4.947	2.216	3.923	1.800	2.689	1.713	.0000
#1	12343	19155	2434.	30.42	21.19	6057	\$18850.
#2	12343	19582	2577.	31.61	22.28	6261	\$18850.
#3	12343	19229	2458.	30.71	21.63	6086	\$18850.
#4	12581	19699	2433.	31.50	22.45	6246	\$18850.

Elem	Ni	P	Pb	Se	Sr	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.630	542360.	2.805	1631	5.796	1.351	13.66
SD	1.156	.	1.084	0511	1.264	1.023	1.28
%RSD	2.353	.0000	2.993	31.30	4.550	1.668	2.021
#1	6.487	542360.	2.723	1190	6.177	1.323	13.47
#2	6.696	542360.	2.896	1190	5.763	1.369	14.06
#3	6.518	542360.	2.746	2111	5.653	1.342	13.58
#4	6.819	542360.	2.257	2034	5.591	1.369	13.51

002115

CONFIDENTIAL

NI	6.6	5.79	-5.0
P	7142	6264.91	-8500.0
PB	2.8	2.46	-10.0
SE	-0.1	-0.09	-1.0
SN	5.8	5.09	-10.0

V	1.4	1.23	-3.0
ZN	13.7	12.02	-30.0
NH3 AS N	320	280.70	-50
TOC	29.5	25.88	-200
VOC	-0.1	-0.09	-200
PH	5.8		5.0 TO 7.

ROCKY MOUNTAIN ARSENAL

ELEMENT	SPECIFIC GRAVITY	1.14
---------	------------------	------

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	-25.0
AL	46.3	40.61	-40.0
AS	4.5	3.95	-5.0
AU	-0.1	-0.09	-5.0
BA	-0.1	-0.09	-5.0
CA	12.9	11.32	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2172	1905.26	G1,000
FE	31.1	27.28	-30.0
MG	21.9	19.21	-30.0
MN	-0.1	-0.09	-1.0
NA	91010	79833.33	-60000.0
NI	6.6	5.79	-5.0
P	7142	6264.91	-8500.0
PB	2.8	2.46	-10.0
SE	-0.1	-0.09	-1.0
SN	5.8	5.09	-10.0
V	1.4	1.23	-3.0
ZN	13.7	12.02	-30.0
NH3 AS N	320	280.70	-50
TOC	29.5	25.88	-200
VOC	-0.1	-0.09	-200
PH	5.8		5.0 TO 7.

002116

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127

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 127

Laboratory Sample ID: 931020SQI0118-01

Date/Time Collected: 10-20-93/05:15

Date/Time Analyzed: 10-20-93/08:00

ANALYTE	RESULT	UNITS	POL
TOC	45.7	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

002117



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 127

Laboratory Sample ID: 931020SOI0118-01

Date/Time Collected: 10-20-93/05:15

Date/Time Analyzed: 10-20-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	4.02	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	2360	mg/L	1.00
Iron	54.6	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.26	mg/L	0.20
Sodium	84900	mg/L	1000
Phosphorous	8640	mg/L	10.0
Potassium	611	mg/L	50.0
Ammonia	387	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.59	pH Units	---
TSS	2570	mg/L	10.0
TDS	24.3	%(mg/L)	0.10

Comments: NR = Not requested

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID EFFLUENT  
 REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL	BATCH# 123	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7' 1/4" = 81.25	VOLUME: 18,909
WASTE CODE(S): F039	LOAD# 50743	DATE: 11-15-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	Lt Blue
				pH	5.5	5.62	PHASES S
	MG/L	PPM	PPM	SP.GR.	1.15	1.16	ACIDITY
Ag				TOTAL CN-			ALKALINITY
Al	37.3	32.43		REAC. CN-			ODOR M
As	4.6	4.00	3.83	NH3 AS N	110.0	183	RADIO- Y (N)
Au				TOC	24.1	50.9	ACTIVE
Ba			0.14	VOC	N.D		
Ca	11.8	10.26		PROCESS STAGES		PARAMETERS	
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr							
Cu	2190	1904.35	2150				
Fe	18.8	16.35	44.0				
Mg	19.5	16.96					
Mn				Encycle ppm			
Na	85800	74609	80100	NH3	95.7		
Ni	5.7	4.96		TOC	21.0		
P			7420	Cu, Na = by AA **			
Pb	2.9	2.52		RMA			
Se				TSS	1910		
Si				TDS	22.2		
Sn	4.4	3.57					
V	1.4	1.22					
Zn	12.6	10.96					
K			546				

UPDATED  
 11-18-93

ANALYSTS: *AZ*  
*AW*

COMMENTS: LOAD 7005

REAGENT COST: 002119

MANAGER: *S. Casmody*  
 DATE: 11-15-93

93-018-5012 0116-05 **CONFIDENTIAL**

123



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 123

Laboratory Sample ID: 931018SQI0116-05

Date/Time Collected: 10-18-93/08:50

Date/Time Analyzed: 10-18-93/10:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	50.9	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_



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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 123

Laboratory Sample ID: 931018SQI0116-05

Date/Time Collected: 10-18-93/08:50

Date/Time Analyzed: 10-18-93/10:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.83	mg/L	0.10
Barium	0.14	mg/L	0.10
Copper	2150	mg/L	1.00
Iron	44.0	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	80100	mg/L	1000
Phosphorous	7420	mg/L	10.0
Potassium	546	mg/L	50.0
Ammonia	183	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.62	pH Units	---
TSS	1910	mg/L	10.0
TDS	22.2	%(mg/L)	0.10

Comments: NR = Not requested

Method: ENTEXAS1 Sample Name: SAMPLE # 37767

Operator: HLW

Run Time: 11/17/93 15:54:59

Comment: NATX 50743 CC-293e-91

Mode: QDNC Corr Factor: 2

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.602	37.17	4.607	0.311	<.0010	11.78	.2006
SDev	.0024	1.34	.274	.0171	.0018	.61	.0095
%RSD	6.787	4.123	5.945	54.39	9.091	5.166	4.750
#1	.1581	37.16	4.653	.0292	<.0010	11.87	.2029
#2	.1281	35.45	4.359	.0317	<.0010	11.18	.1939
#3	.1429	39.21	4.973	.0525	<.0010	12.59	.2131
#4	.1222	37.25	4.442	.0109	<.0010	11.48	.1926

Elem	Co	Cr	Cu	Fe	Mn	Nb	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2437	.8287	2393.	18.80	19.50	5872	\$18850.
SDev	.0169	.0425	126.	.87	.90	0271	
%RSD	6.957	5.129	5.262	4.607	4.609	4.612	.0000
#1	.2547	.8346	2388.	18.90	19.44	.5897	\$18850.
#2	.2309	.7846	2238.	17.89	18.65	.5592	\$18850.
#3	.2615	.8846	2546.	19.94	20.75	.6232	\$18850.
#4	.2275	.8110	2401.	18.48	19.14	.5766	\$18850.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.740	\$15750.	2.853	.1612	4.411	1.383	12.60
SDev	.261	17744.	.149	.1468	.260	.065	.56
%RSD	4.552	112.7	5.221	91.06	5.894	4.682	4.481
#1	5.786	7082.	2.857	<.0500	4.781	1.391	12.60
#2	5.469	6636	2.699	.3262	4.362	1.317	11.95
#3	6.081	\$42360.	3.053	.2264	4.173	1.469	13.33
#4	5.625	6911	2.801	.1036	4.327	1.355	12.52

002122

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	-30.0			
NH3 AS N	110	95.65	-50	
TOC	24.1	20.96	-200	
VOC	-0.1	-0.09	-200	
PH	5.5		5.0 TO 7.	

ELEMENT SPECIFIC GRAVITY 1.15

ELEMENT	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	-25.0
AL	37.3	32.43	-40.0
AS	4.6	4.00	-5.0
AU	-0.1	-0.09	-5.0
BA	-0.1	-0.09	-5.0
CA	11.8	10.26	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2190	1904.35	G1,000
FE	18.8	16.35	-30.0
MG	19.5	16.96	-30.0
MN	-0.1	-0.09	-1.0
NA	85800	74608.70	-60000.0
NI	5.7	4.96	-5.0
P	-0.1	-0.09	-8500.0
PB	2.9	2.52	-10.0
SE	-0.1	-0.09	-1.0
SN	4.1	3.57	-10.0
V	1.4	1.22	-3.0
ZN	12.6	10.96	-30.0
NH3 AS N	110	95.65	-50
TOC	24.1	20.96	-200
VOC	-0.1	-0.09	-200
PH	5.5		5.0 TO 7.

ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID SHIPMENT  
 REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 122	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'2" = 86	VOLUME: 19,324
WASTE CODE(S): F039	LOAD# 50,744	DATE: 11-13-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	Lt Blue	
				pH	5.4	5.53	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.16	1.17	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	56.4	48.62		REAC. CN-			ODOR	M
As	4.3	3.71	3.36	NH3 AS N	155	287	RADIO-	(Y) (N)
Au				TOC	26.1	66.5	ACTIVE	
Ba				VOC	N.D.			
Ca	14.5	12.50		PROCESS STAGES		PARAMETERS		
Cd					pH	REDOX	TEMP C	
Co				INITIAL				
Cr								
Cu	1900	1638	2050	Cu, Ni by AA				
Fe	28.4	24.48	36.5					
Mg	24.4	21.03		ENCYCLE PPM				
Mn				NH3	134			
Na	81,500	70259	78400	TOC	22.5			
Ni	6.7	5.78						
P			6700	RMA				
Pb	2.8	2.41		TSS	1800			
Se			0.21	TDS	23.8			
Si								
Sn	4.5	3.88						
V	1.4	1.21						
Zn	12.6	10.86						
K			513					

Updated  
 11-18-93

ANALYSTS: *AE*  
*AKW*

COMMENTS: LOAD 7004

REAGENT COST:

002124

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MANAGER: *[Signature]*





122

SOI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 288-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 122

Laboratory Sample ID: 931018SOI0116-03

Date/Time Collected: 10-17-93/14:20

Date/Time Analyzed: 10-18-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	66.5	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

\_\_\_\_\_



SQI OPERATIONS • P.O. BOX 1857 • COMMERCE CITY, CO 80037-1857 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 122

Laboratory Sample ID: 931018SOI0116-03

Date/Time Collected: 10-17-93/14:20

Date/Time Analyzed: 10-18-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.31	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	2050	mg/L	1.00
Iron	36.5	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.21	mg/L	0.20
Sodium	78400	mg/L	1000
Phosphorous	6700	mg/L	10.0
Potassium	513	mg/L	50.0
Ammonia	287	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.53	pH Units	---
TSS	1800	mg/L	10.0
TDS	23.8	%(mg/L)	0.10

Comments: NR = Not requested

Method: ENTEK/AS1 Sample Name: SAMPLE # 07758

Operator: HLD

Run Time: 11-17-93 15:31:18

Element: NATL 50744 (C-2935-9)

Code: UNIC Corr. Factor: 0

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.744	56.23	4.284	0.356	<0.010	14.57	11.35
SD	0.044	1.75	0.64	0.154	0.014	1.30	0.063
%RSD	2.571	3.136	1.036	43.82	3.606	2.072	5.591

#1	1.91	56.33	4.316	0.547	<0.010	14.95	12.13
#2	1.1281	56.15	4.242	0.317	<0.010	14.44	11.28
#3	1.1192	57.26	4.250	0.176	<0.010	14.25	10.64
#4	1.1222	56.63	4.328	0.306	<0.010	14.42	11.28

Elem	Co	Cr	Cu	Fe	Mg	Mn	Nb
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2403	8515	2349.	28.36	24.39	6290	518850.
SD	10131	10133	45.	74	27	10088	
%RSD	5.459	1.561	1.898	1.209	1.116	1.401	0.000

#1	2581	8684	2296.	28.86	24.76	6421	518850.
#2	2411	8522	2331.	28.19	24.37	6246	518850.
#3	2343	8360	2398.	28.11	24.12	6232	518850.
#4	2275	8493	2371.	28.30	24.28	6261	518850.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.708	533570.	2.825	1689	4.546	1.368	12.62
SD	145	17592.	115	1251	1240	1019	06
%RSD	2.161	52.41	4.084	74.09	5.287	1.387	4741

#1	6.924	542360.	2.990	1497	4.886	1.393	12.62
#2	6.664	7178.	2.786	10652	4.543	1.366	12.54
#3	6.619	542360.	2.723	1113	4.358	1.347	12.67
#4	6.627	542360.	2.801	13493	4.397	1.366	12.66

0.1	-0.09	-1.0		
SN	4.5	3.88	-10.0	
V	1.4	1.21	-3.0	
ZN	12.6	10.86	-30.0	
NH3 AS N	155	133.62	-50	
TOC	26.1	22.50	-200	
VOC	-0.1	-0.09	-200	
PH	5.4		5.0 TO 7.	

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.086	-25.0
AL	56.4	48.62	-40.0
AS	4.3	3.71	-5.0
AU	-0.100	-0.086	-5.0
BA	-0.1	-0.09	-5.0
CA	14.5	12.50	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	1900	1637.93	G1,000
FE	28.4	24.48	-30.0
MG	24.4	21.03	-30.0
MN	-0.1	-0.09	-1.0
NA	81500	70258.62	-60000.0
NI	6.7	5.78	-5.0
P	-0.1	-0.09	-8500.0
PB	2.8	2.41	-10.0
SE	-0.1	-0.09	-1.0
SN	4.5	3.88	-10.0
V	1.4	1.21	-3.0
ZN	12.6	10.86	-30.0
NH3 AS N	155	133.62	-50
TOC	26.1	22.50	-200
VOC	-0.1	-0.09	-200
PH	5.4		5.0 TO 7.

-3.0			
ZN	10.9	9.48	-30.0
NH3 AS N	460	400.00	-50
TOC	33.4	29.04	-200
VOC	-0.1	-0.09	-200
PH	5.3		5.0 TO 7.

002128

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# ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

# LIQUID SHIPMENT REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 125	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 6 11 1/2" = 83.5	VOLUME: 18,787
WASTE CODE(S): F039	LOAD# 50826	DATE: 11-13-93

## LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	Blue	
				pH	5.4	5.54	PHASES	5
	MG/L	PPM	PPM	SP.GR.	1.15	1.17	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	44.9	39.04		REAC. CN-			ODOR	
As	4.4	3.83	3.53	NH3 AS N	120	218	RADIO-	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Au				TOC	23.8	49.1	ACTIVE	
Ba				VOC	M.D.			
Ca	14.3	12.43		PROCESS STAGES		PARAMETERS		
Cd					pH	REDOX	TEMP C	
Co				INITIAL				
Cr								
Cu	1900	1652	2160	AA results = Cu, Na				
Fe	2.9	19.04	41.0					
Mg	20.3	17.65		Encycle	PPM			
Mn				NH3	104			
Na	79500	67391	79000	TOC	20.7			
Ni	5.6	4.87						
P			7670	RMA				
Pb	2.9	2.52		TSS	2070			
Se			0.24	TDS	21.7			
Si								
Sn	4.5	3.91						
V	1.4	1.22						
Zn	11.4	9.91						
K			531					

Updated  
 11-18-93

93101950-10117-01  
 Off spec. Na, NH3

ANALYSTS: *WZ*  
*AKW*

COMMENTS: LOAD 7007

REAGENT COST:

002129

MANAGER: *Blair*

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 125

Laboratory Sample ID: 931019SOI0117-01

Date/Time Collected: 10-18-93/17:00

Date/Time Analyzed: 10-19-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	49.1	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

002130

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SQI OPERATIONS • P.O. BOX 1857 • COMMERCE CITY, CO 80037-1857 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 125

Laboratory Sample ID: 931019SQI0117-01

Date/Time Collected: 10-18-93/17:00

Date/Time Analyzed: 10-19-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	3.53	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	2160	mg/L	1.00
Iron	41.0	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.24	mg/L	0.20
Sodium	79000	mg/L	1000
Phosphorous	7670	mg/L	10.0
Potassium	531	mg/L	50.0
Ammonia	218	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.54	pH Units	----
TSS	2070	mg/L	10.0
TDS	21.7	%(mg/L)	0.10

Comments: NR = Not requested

002131

Method: ENTEXA51 Sample Name: SAMPLE # 37765 Operator: HLLW  
 Run Time: 11/17/93 15:50:50  
 Comment: NATX 40815 00-0306-91  
 Mode: CONC Corr Factor: 7

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.777	44.098	4.354	0.549	<.0010	14.06	11.67
SDev	0.135	1.85	1%	0.004	0.034	.38	0.077
%RSD	9.855	4.112	4.455	55.77	21.28	1.976	6.612
#1	1.659	44.42	4.481	0.617	.0010	14.63	12.51
#2	1.818	42.74	4.074	0.921	<.0010	14.32	11.231
#3	1.711	45.15	4.371	.0465	<.0010	14.07	11.28
#4	1.222	47.30	4.488	0.193	<.0010	14.01	10.77

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2462	.7478	2257	21.94	20.28	.5399	618850.
SDev	.0179	.0121	126.	.27	.23	.0066	.
%RSD	7.255	1.622	5.586	1.221	1.126	1.213	1.000
#1	.2615	.7610	2228.	22.30	20.58	.5490	618850.
#2	.2615	.7551	2111.	21.70	20.35	.5359	618850.
#3	.2343	.7375	2274	21.78	20.13	.5344	618850.
#4	.2275	.7375	2416.	21.97	20.08	.5402	618850.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.648	6868.	2.890	.2073	4.506	1.368	11.37
SDev	.094	137.	.121	.1895	.235	.017	.29
%RSD	1.670	1.993	4.194	91.45	5.218	1.269	2.580
#1	5.779	6974.	2.967	.4030	4.820	1.393	11.42
#2	5.650	6688.	3.006	<.0500	4.552	1.366	11.00
#3	5.567	6835.	2.849	.1804	4.349	1.355	11.36
#4	5.593	6974.	2.738	.2879	4.305	1.358	11.71



91	-30.0			
NH3 AS N	120	104.35	-50	
TOC	23.8	20.70	-200	
VOC	-0.1	-0.09	-200	
PH	5.4		5.0 TO 7.	

ELEMENT SPECIFIC GRAVITY 1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.087	-25.0
AL	44.9	39.04	-40.0
AS	4.4	3.83	-5.0
AU	-0.100	-0.087	-5.0
BA	-0.1	-0.09	-5.0
CA	14.3	12.43	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	1900	1652.17	G1,000
FE	21.9	19.04	-30.0
MG	20.3	17.65	-30.0
MN	-0.1	-0.09	-1.0
NA	77500	67391.30	-60000.0
NI	5.6	4.87	-5.0
P	-0.1	-0.09	-8500.0
PB	2.9	2.52	-10.0
SE	-0.1	-0.09	-1.0
SN	4.5	3.91	-10.0
V	1.4	1.22	-3.0
ZN	11.4	9.91	-30.0
NH3 AS N	120	104.35	-50
TOC	23.8	20.70	-200
VOC	-0.1	-0.09	-200
PH	5.4		5.0 TO 7.

002133

CONFIDENTIAL

# ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

# LIQUID SHIPMENT REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 111	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7' 2" = 86	VOLUME: 19,361
WASTE CODE(S): F039	LOAD# 50855	DATE: 11-12-93

## LAB ANALYSIS

ICP	PRE-	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	Blue
	SCREEN			pH		PHASES	S
	MG/L	PPM	PPM	SP.GR.		ACIDITY	
Ag				TOTAL CN-		ALKALINITY	
Al	61.9	53.83		REAC. CN-		ODOR	m
As	3.9	3.39	3.48	NH3 AS N	460	569	RADIO- <input checked="" type="radio"/> Y <input type="radio"/> N
Au				TOC	33.4	38.9	ACTIVE
Ba				VOC	N.D.		
Ca	11.7	10.17		PROCESS STAGES		PARAMETERS	
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr							
Cu	1950	1696	2220		Cu, Na by AA <del>XX</del>		
Fe	25.4	22.09	33.3				
Mg	21.3	18.52			ENCYCLE PPM		
Mn					NH <sub>3</sub>	400	
Na	80,000	69565	82100		TOC	29.0	
Ni	6.2	5.39					
P			7100		RMA		
Pb	2.6	2.26			TSS	3950	
Se			0.30		TDS	23.8	
Si					Off spec on Na, NH <sub>3</sub> (Al, Ni) 931011501 0111-03		
Sn	4.9	4.26					
V	1.3	1.13					
Zn	10.9	9.48					
K			586				

GV  
 RG  
 JKL  
 JWO  
 BP  
 ME  
 DC

Updated  
 11-18-93

ANALYSTS: #7  
 [Signature]

COMMENTS: LOAD 7000

REAGENT COST: CONFIDENTIAL  
 002134

MANAGER: [Signature]



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0111

Laboratory Sample ID: 931011SOI0111-03

Date/Time Collected: 10-09-93/05:00

Date/Time Analyzed: 10-11-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.48	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	2220	mg/L	1.00
Iron	33.3	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.30	mg/L	0.20
Sodium	82100	mg/L	1000
Phosphorous	7100	mg/L	10.0
Potassium	586	mg/L	50.0
Ammonia	569	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.47	pH Units	---
TSS	3950	mg/L	10.0
TDS	23.8	%(mg/L)	0.10

Comments: NR = Not requested



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0111

Laboratory Sample ID: 931011SQI0111-03

Date/Time Collected: 10-09-93/05:00

Date/Time Analyzed: 10-11-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	38.9	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_

Method: ENTEKAS      Sample Name: SAMPLE # 37734      Location: HLLW  
 Ship Date: 11/17/97 15:33:25  
 Element: MATX 50855      CC-2936-41  
 Method: QNIP      Comp. Factor: 0

Elem	As	Al	Ag	Ar	Ba	Ca	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11037	61.91	3.908	10065	10010	11.74	1508
SD	6182	11.21	1.182	6543	10094	1.16	10143
%SD	17.50	18.55	4.149	190.2	43.84	3.905	674.4
#1	1163	60.08	3.929	9525	10010	10.19	1143
#2	6778	65.08	3.851	10060	10010	11.14	1308
#3	1044	60.87	3.722	10391	10010	11.63	1514
#4	1163	61.60	4.109	10377	10010	11.98	1566

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12174	17562	2071.	25134	21.33	1.5566	518850.
SD	10279	10270	96.	45	51	0.127	.
%SD	12.82	5.864	4.641	1.757	2.379	2.283	1.0000
#1	12513	17846	1996.	25179	21.59	1.5679	518850.
#2	11834	17228	2211.	24190	20.64	1.5417	518850.
#3	12140	17478	2024.	25123	21.30	1.5504	518850.
#4	12208	17698	2054.	25132	21.20	1.5664	518850.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.235	6703.	2.607	1.1055	4.869	1.293	10.93
SD	1.177	91.	1.162	1.1211	1.320	1.030	1.14
%SD	2.332	1.353	6.208	114.7	6.579	2.286	1.322
#1	6.407	6797.	2.754	1.0500	5.349	1.317	10.86
#2	6.011	6723.	2.384	1.2495	4.701	1.252	11.11
#3	6.182	6579.	2.597	1.0806	4.728	1.290	10.78
#4	6.339	6713.	2.691	1.343	4.697	1.312	10.97

ELEMENT SPECIFIC GRAVITY 1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.087	-25.0
AL	61.9	53.83	-40.0
AS	3.9	3.39	-5.0
AU	-0.100	-0.087	-5.0
BA	-0.1	-0.09	-5.0
CA	11.7	10.17	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	1950	1695.65	G1,000
FE	25.4	22.09	-30.0
MG	21.3	18.52	-30.0
MN	-0.1	-0.09	-1.0
NA	80000	69565.22	-60000.0
NI	6.2	5.39	-5.0
P	-0.1	-0.09	-8500.0
PB	2.6	2.26	-10.0
SE	-0.1	-0.09	-1.0
SN	4.9	4.26	-10.0
V	1.3	1.13	-3.0
ZN	10.9	9.48	-30.0
NH3 AS N	460	400.00	-50
TOC	33.4	29.04	-200
VOC	-0.1	-0.09	-200
PH	5.3		5.0 TO 7.

002138

CONFIDENTIAL

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL	BATCH# 124	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'0" = 81.0	VOLUME: 18,873
WASTE CODE(S): F039	LOAD# 50781	DATE: 11-12-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	Lt Blue	
				pH	5.3	5.64	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.16	1.17	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	32.6	28.10		REAC. CN-			ODOR	m
As	4.4	3.79	3.64	NH3 AS N	205	243	RADIO-	(Y) (N)
Au				TOC	60.0	57.3	ACTIVE	
Ba				VOC	<10			

Ca 13.9 11.98 PROCESS STAGES PARAMETERS

Cd				pH	REDOX	TEMP C
Co				INITIAL		
Cr						
Cu	2100	1810	2310	Cu, Na	by	AA
Fe	15.8	13.62	41.7			
Mg	15.0	12.93		Encycle ppm		
Mn				NH3	17.7	
Na	89,000	76,724	84,600	TOC	51.7	
Ni	4.0	3.45				
P			7910	RMA		
Pb	2.5	2.16		TSS	1860	
Se				TDS	23.2	
Si						
Sn	4.4	3.79				9.31018 SQ I ON 1607
V	1.3	1.12				off spec on Na, NH3
Zn	10.3	8.88				
K			594			

UPDATED  
11-18-93

ANALYSTS: AZ  
H200

COMMENTS: LOAD 7006

REAGENT COST:

002139

MANAGER: B. Caumody  
DATE: 11-15-93

CONFIDENTIAL

124



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 124

Laboratory Sample ID: 931018SQI0116-07

Date/Time Collected: 10-18-93/11:50

Date/Time Analyzed: 10-18/19-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
TOC	57.3	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

002140





SOI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 288-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 124

Laboratory Sample ID: 931018SOI0116-07

Date/Time Collected: 10-18-93/11:50

Date/Time Analyzed: 10-18/19-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.64	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	2210	mg/L	1.00
Iron	41.7	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	84600	mg/L	1000
Phosphorous	7910	mg/L	10.0
Potassium	594	mg/L	50.0
Ammonia	243	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.64	pH Units	---
TSS	1860	mg/L	10.0
TDS	23.2	%(mg/L)	0.10

Comments: NR = Not requested

Method: ENTECH 1 Sample Name: SAMPLE IR 3776 Operator: HJW  
 Run Date: 11-17-93 15:53:00  
 Comment: NATY 50781 CC-2936-91  
 Index: UNCL Comp. Factor:

Elem	As	Al	As	Al	Fe	Ca	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0963	32.60	4.323	<.0060	<.0010	13.92	.0962
StDev	.0092	1.57	.063	.0195	.0014	.17	.0062
SRSD	10.17	3.054	1.429	95.52	7.100	5.227	6.990
#1	.0837	33.42	4.413	<.0060	<.0010	13.85	.0297
#2	.0955	32.88	4.453	<.0060	<.0010	13.92	.0923
#3	.0985	31.97	4.328	<.0060	<.0010	13.88	.026
#4	.1074	32.14	4.332	<.0060	<.0010	14.02	.026

Elem	Co	Cr	Cu	Fe	Mn	Mg	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1681	.6389	2340.	15.81	15.03	.3434	\$18850.
StDev	.0081	.0051	71.	.09	.15	.0012	.
SRSD	4.209	.7977	3.027	.5792	.9931	.5332	.0000
#1	.1562	.6374	2428.	15.87	14.84	.3438	\$18850.
#2	.1698	.6374	2366.	15.87	15.09	.3438	\$18850.
#3	.1732	.6345	2278.	15.68	15.03	.3409	\$18850.
#4	.1732	.6463	2288.	15.84	15.19	.3452	\$18850.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.957	6636.	2.500	.1113	4.392	1.258	10.28
StDev	.039	112.	.062	.0672	.192	.004	.13
SRSD	.9932	1.693	2.485	60.39	4.371	.3523	1.286
#1	3.942	6785.	2.447	.0652	4.679	1.258	10.44
#2	3.930	6658.	2.447	.0576	4.279	1.258	10.33
#3	3.941	6535.	2.542	.2034	4.305	1.252	10.13
#4	4.016	6565.	2.565	.1190	4.305	1.263	10.22

00000

V	1.3	1.12	-3.0
ZN	10.3	8.88	-30.0
NH3 AS N	205	176.72	-50
TOC	60	51.72	-200
VOC	-10	-8.62	-200
PH	5.3		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	<del>86</del> -25.0
AL	32.6	28.10	-40.0
AS	4.4	3.79	-5.0
AU	-0.1	-0.09	<del>086</del> -5.0
BA	-0.1	-0.09	-5.0
CA	13.9	11.98	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2100	1810.34	G1,000
FE	15.8	13.62	-30.0
MG	15	12.93	-30.0
MN	-0.1	-0.09	-1.0
NA	89000	76724.14	-60000.0
NI	4	3.45	-5.0
P	-0.1	-0.09	-8500.0
PB	2.5	2.16	-10.0
SE	-0.1	-0.09	-1.0
SN	4.4	3.79	-10.0
V	1.3	1.12	-3.0
ZN	10.3	8.88	-30.0
NH3 AS N	205	176.72	-50
TOC	60	51.72	-200
VOC	-10	-8.62	-200
PH	5.3		5.0 TO 7.

002143

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ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300

P.O BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID SHIPMENT

REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 104	LAB NO.CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'2" = 86	VOLUME: 19352
WASTE CODE(S): F039	LOAD# 50837	DATE: 11-11-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	Lt. BLUE	
				pH	5.2	5.49	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.14	1.17	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	39.5	34.65		REAC.CN-			ODOR	M
As	4-3	3.77	3.20	NH3 AS N	335	683	RADIO-	Y (N)
Au				TOC	27.7	30.5	ACTIVE	
Ba			0.12	VOC	N.D.			
Ca	15.4	13.51		PROCESS STAGES				PARAMETERS
Cd					pH	REDOX	TEMP C	
Co				INITIAL				
Cr								
Cu	2000	1754	2050					
Fe	23.6	20.70	34.3		A/F results Cu, Na			
Mg	19.5	17.11						
Mn					Encycle ppm			
Na	78000	68421	65800		NH <sub>3</sub>	294		
Ni	5.5	4.82			TOC	24.3		
P			5700					
Pb	2-8	2.46			RMA			
Se			0.13		TSS	3980		
Si					TDS	23.7		
Sn	4.1	3.60					93100850I 0110-01	
V	1-3	1.14			Off spec NH <sub>3</sub> , Na			
Zn	12-0	10.53						
K			540					

Updated 11-18-93

ANALYSTS: H.L. Hill

MANAGER: B. Carmody  
DATE: 11-11-93

COMMENTS: LD 6998

REAGENT COST: 002144

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109

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0109

Laboratory Sample ID: 931008SQI0110-01

Date/Time Collected: 10-08-93/04:00

Date/Time Analyzed: 10-08-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
TOC	30.5	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_  
\_\_\_\_\_

002145



SQI OPERATIONS • P.O. BOX 1887 • COMMERCE CITY, CO 80037-1887 • (303) 286-9548 • (303) 288-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0109

Laboratory Sample ID: 931008SQI0110-01

Date/Time Collected: 10-08-93/04:00

Date/Time Analyzed: 10-08-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.20	mg/L	0.10
Barium	0.12	mg/L	0.10
Copper	2050	mg/L	1.00
Iron	34.3	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.13	mg/L	0.20
Sodium	65800	mg/L	1000
Phosphorous	5700	mg/L	10.0
Potassium	540	mg/L	50.0
Ammonia	683	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.49	pH Units	----
TSS	3980	mg/L	10.0
TDS	23.7	%(mg/L)	0.10

Comments: NR = Not requested

002146

Method: ENTE-AS1 Sample Name: SAMPLE # 17762 Operator: HLL  
 Run Time: 11/17/93 15:29:57  
 Element: NATX 50827 (C-293e-FJ)  
 Unit: CONC (Conc Factor: 1)

Elem	Ag	Al	As	Ca	Ba	Ca	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Ave	1333	14.19	4.309	9700	10010	15.76	1112
SDev	9138	1.002	1.87	6761	6037	66	2099
RSD	14.10	2.566	2.561	105.8	22.29	4.303	7.655
#1	1101	34.34	4.334	6060	6.0010	14.73	1051
#2	11281	40.06	4.281	9102	6.0010	15.02	1077
#3	1400	37.97	4.187	10663	6.0010	15.45	1206
#4	1543	40.02	4.531	10554	6.0010	16.25	1257
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Ave	12004	13063	2347.	23.56	19.53	14926	518850.
SDev	10144	10341	85.	89	1.76	10153	.
RSD	7.191	4.226	3.641	2.919	5.901	3.111	0000
#1	11868	7757	2389.	23.00	18.71	4777	518850.
#2	1902	17890	2395.	23.34	19.25	14893	518850.
#3	12072	18066	2219.	23.40	19.63	14893	518850.
#4	12174	18537	2384.	24.58	20.52	15140	518850.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Ave	5.477	6847.	2.778	12303	4.083	1.338	11.98
SDev	1234	159.	1211	1158	141	1044	128
RSD	4.280	2.323	7.614	52.03	3.462	3.296	2.352
#1	5.227	6810.	2.581	1267	4.287	1.301	11.89
#2	5.325	6813.	2.675	1267	3.975	1.317	12.04
#3	5.513	6692.	2.786	1346	4.063	1.334	11.66
#4	5.781	7070.	3.069	1362	4.006	1.402	12.33

002147

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	12	10.53	-30.0	
NH3 AS N		335	293.86	-50
TOC		27.7	24.30	-200
VOC		-0.1	-0.09	-200
PH		5.2		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.14

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.088	-25.0
AL	39.5	34.65	-40.0
AS	4.3	3.77	-5.0
AU	-0.100	-0.088	-5.0
BA	-0.1	-0.09	-5.0
CA	15.4	13.51	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2000	1754.39	G1,000
FE	23.6	20.70	-30.0
MG	19.5	17.11	-30.0
MN	-0.1	-0.09	-1.0
NA	78000	68421.05	-60000.0
NI	5.5	4.82	-5.0
P	-0.1	-0.09	-8500.0
PB	2.8	2.46	-10.0
SE	-0.1	-0.09	-1.0
SN	4.1	3.60	-10.0
V	1.3	1.14	-3.0
ZN	12	10.53	-30.0
NH3 AS N	335	293.86	-50
TOC	27.7	24.30	-200
VOC	-0.1	-0.09	-200
PH	5.2		5.0 TO 7.

002148

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ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID SHIPMENT  
 REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 121	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7' 2" = 86	VOLUME: 19,384
WASTE CODE(S): F039	LOAD# 50828	DATE: 11-11-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	LT BLUE
	MG/L	PPM	PPM	pH		PHASES	S
				SP.GR.		ACIDITY	
Ag				TOTAL CN-		ALKALINITY	
Al	70.6	61.39		REAC. CN-	145	ODOR	M
As	4.2	3.65	3.86	NH3 AS N	<del>470</del> 408	RADIO-	Y (N)
Au				TOC	28.7	ACTIVE	
Ba				VOC	N.D.		

Ca	CD	Co	Cr	Cu	Fe	Mg	Mn	Na	Ni	P	Pb	Se	Si	Sn	V	Zn	K	
14.2	12.35																	489
PROCESS STAGES																		
PARAMETERS																		
pH																		
REDOX																		
TEMP C																		
INITIAL																		
Cu, Na = AA results																		
Encycle ppm																		
NH3 126																		
TOL 25.0																		
RMA																		
TSS 1950																		
TDS 23.1																		
931018 SQI 0116-01																		
Off spec on Na, NH3 (AL, Ni)																		
AA Results																		

Updated  
 11-18-93

ANALYSTS: H.Z.  
 H.W.  
 MANAGER: B. Combs  
 DATE:

COMMENTS: LOAD 7003

REAGENT COST: 002149

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121

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 121

Laboratory Sample ID: 931018SQI0116-01

Date/Time Collected: 10-16-93/05:00

Date/Time Analyzed: 10-18-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	55.0	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

\_\_\_\_\_

002150  
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SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 121

Laboratory Sample ID: 931018SOI0116-01

Date/Time Collected: 10-16-93/05:00

Date/Time Analyzed: 10-18-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.86	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	1600	mg/L	1.00
Iron	41.2	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.27	mg/L	0.20
Sodium	61200	mg/L	1000
Phosphorous	5310	mg/L	10.0
Potassium	489	mg/L	50.0
Ammonia	408	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.51	pH Units	---
TSS	1950	mg/L	10.0
TDS	23.1	%(mg/L)	0.10

Comments: NR = Not requested

Method: EDTF (A3) Sample Name: SAMPLE # 1776 Operator: HLL  
 In Time: 11/17/93 15:27:53  
 Comment: NA17 50828 C-15436-91  
 Type: UONK UONK Factor: 1

Elem	Ca	Al	Ag	Au	Ba	Ce	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
ave	2962	20.60	1.266	<.0060	0030	14.17	103
stdev	7101	1.34	377	10004	0027	66	1055
SRSD	10.66	6.111	8.866	251.3	13.38	6.590	4.968
#1	2455	7.00	4.293	00e0	<.0010	14.36	1116
#2	2982	67.57	4.101	0116	<.0010	14.09	1116
#3	1066	69.22	4.144	<.0060	<.0010	14.40	1154
#4	10807	62.57	3.937	<.0060	<.0010	13.33	1026

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
ave	12573	17731	2365.	26.45	20.98	1.5915	313850.
stdev	1069	10343	197.	1.13	1.72	0270	.
SRSD	6.590	4.474	3.335	4.451	7.421	6.560	1.000
#1	2581	13110	2657.	27.95	21.76	1.6246	313850.
#2	3515	7698	2229.	26.05	20.90	1.5824	313850.
#3	12751	17831	2300.	26.65	21.21	1.5984	313850.
#4	12343	17286	2274.	25.14	20.04	1.5606	313250.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
ave	6.186	524760.	2.701	1.977	5.604	1.355	11.82
stdev	1.268	20326.	1.133	1.0436	1.217	1.063	1.64
SRSD	4.330	82.10	4.921	22.05	3.864	4.667	5.390
#1	6.469	542360	2.317	1.2418	5.917	1.431	12.75
#2	6.146	7081.	2.691	1.727	5.582	1.339	11.46
#3	6.292	7030.	2.778	1.497	5.450	1.369	11.74
#4	6.336	542360.	2.518	2264	5.468	1.279	11.35

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	-0.1	-0.09	-8500.0	
PB	2.7	2.35	-10.0	
SE	-0.1	-0.09	-1.0	
SN	5.6	4.87	-10.0	
V	1.4	1.22	-3.0	
ZN	11.8	10.26	-30.0	
NH3 AS N	145	126.09	-50	
TOC	28.7	24.96	-200	
VOC	-0.1	-0.09	-200	
PH	5.2		5.0 TO 7.	

ELEMENT SPECIFIC GRAVITY 1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.087	-25.0
AL	70.6	61.39	-40.0
AS	4.2	3.65	-5.0
AU	-0.100	-0.087	-5.0
BA	-0.1	-0.09	-5.0
CA	14.2	12.35	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	1900	1652.17	G1,000
FE	26.5	23.04	-30.0
MG	21	18.26	-30.0
MN	-0.1	-0.09	-1.0
NA	78000	67826.09	-60000.0
NI	6.2	5.39	-5.0
P	-0.1	-0.09	-8500.0
PB	2.7	2.35	-10.0
SE	-0.1	-0.09	-1.0
SN	5.6	4.87	-10.0
V	1.4	1.22	-3.0
ZN	11.8	10.26	-30.0
NH3 AS N	145	126.09	-50
TOC	28.7	24.96	-200
VOC	-0.1	-0.09	-200
PH	5.2		5.0 TO 7.

002153

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5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

**REPORT - RMA**

CLIENT: ROCKY MTN. ARSENAL	BATCH# 108	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'1" = 85	VOLUME: 19,100
WASTE CODE(S): F039	LOAD# 50841	DATE: 11-10-92

**LAB ANALYSIS**

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	4 BLUE	
				pH	5.1	5.35	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.14	1.16	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	36.3	31.84		REAC. CN-			ODOR	M
As	4.8	4.21	3.41	NH3 AS N	470	750	RADIO-	Y (N)
Au				TOC	25.9	33.5	ACTIVE	
Ba				VOC	N.D.			
Ca	16.1	14.12		<b>PROCESS STAGES</b>				<b>PARAMETERS</b>
Cd						pH	REDOX	TEMP C
Co				INITIAL				
Cr								
Cu	1,800	1579	1750					
Fe	18.1	15.88	27.5	Encycle ppm				
Mg	20.0	17.54		NH3	412			
Mn				TOC	22.7			
Na	67000	58772	69300					
Ni	5.4	4.74						
P			5835	RMA				
Pb	3.0	2.63		TSS	4320			
Se			0.20	TDS	24.9			
Si								
Sn	4.1	3.60		Off Spec NH3				
V	1.5	1.32						
Zn	12.2	10.70						
K			572					

*Updated  
11-18-92*

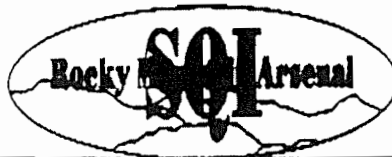
9310075QI 0109-03

ANALYSTS: *H.K. [Signature]*  
 MANAGER: *B. Cameron [Signature]*  
 DATE: 11-11-92

COMMENTS: *LD 6997*  
*AA Analysis on Cu, Na*

REAGENT COST: 002154

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SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0108

Laboratory Sample ID: 931007SQI0109-03

Date/Time Collected: 10-07-93/05:30

Date/Time Analyzed: 10-07-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	33.5	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_  
\_\_\_\_\_

002155



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0108

Laboratory Sample ID: 931007SQI0109-03

Date/Time Collected: 10-07-93/05:30

Date/Time Analyzed: 10-07-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.41	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	1750	mg/L	1.00
Iron	27.5	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.20	mg/L	0.20
Sodium	69300	mg/L	1000
Phosphorous	5825	mg/L	10.0
Potassium	572	mg/L	50.0
Ammonia	750	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.35	pH Units	----
TSS	4320	mg/L	10.0
TDS	24.9	%(mg/L)	0.10

Comments: NR = Not requested



Name: ENTE 691      Element: Hgmer      Amplifier: 10000  
 Units: 17.97157157  
 Comment: MATZ 50000      100000000  
 Code: UMC      ppm      Factor: 1

Elem	As	Al	Ag	Am	Co	Cr	Cu
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1545	35.27	4.206	1.65	100.07	15.08	1177
SD	21.15	1.151	1.1	1.05	1.05	1.15	111
%RSD	1.369	3.262	2.640	63.54	1.05	7.61	9.410
#1	1429	34.14	4.209	0.98	100	1.7	112
#2	1429	38.15	4.329	0.77	100.00	5.87	1064
#3	1513	36.34	4.320	0.402	100.00	13.65	1103
#4	1814	36.40	4.945	0.955	100.00	12.25	1321
Elem	Cl	Cl	Cl	Fe	Li	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.11	3231	3497.	13.14	19.72	1393	518850.
SD	0.210	0.366	1.51	1.59	0.77	0.189	
%RSD	1.886	1.130	4.336	12.09	3.94	13.55	0.000
#1	12174	7978	2312	17.42	14.11	1718	518850.
#2	10004	18746	2680.	15.33	14.70	1393	518850.
#3	12072	8169	2506.	17.75	19.11	1306	518850.
#4	1479	8851	2489.	19.06	11.15	1155	518850.
Elem	Ni	P	Pb	Se	Sm	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.441	524680.	2.979	1439	4.099	1.451	12.23
SD	1.117	10410	1.166	1.077	1.05	0.060	1.44
%RSD	20.52	1.985	39.16	7.49	25.37	4.136	11.77
#1	5.301	5920.	2.388	11.90	4.128	1.399	11.64
#2	5.389	542360.	2.912	10500	4.139	1.450	12.61
#3	5.300	7096	2.883	1186	3.961	1.421	12.16
#4	5.777	542360.	3.027	1267	4.051	1.535	12.52

002157

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78.95 G1,000

FE	18.1	15.88	-30.0
MG	20	17.54	-30.0
MN	-0.1	-0.09	-1.0
NA	67000	58771.93	-60000.0
NI	5.4	4.74	-5.0
P	-0.1	-0.09	-8500.0
PB	3	2.63	-10.0
SE	-0.1	-0.09	-1.0
SN	4.1	3.60	-10.0
V	1.5	1.32	-3.0
ZN	12.2	10.70	-30.0
NH3 AS N	470	412.28	-50
TOC	25.9	22.72	-200
VOC	-0.1	-0.09	-200
PH	5.1		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.14

ELEMENT	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.088	-25.0
AL	36.3	31.84	-40.0
AS	4.8	4.21	-5.0
AU	-0.100	-0.088	-5.0
BA	-0.1	-0.09	-5.0
CA	16.1	14.12	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	1800	1578.95	G1,000
FE	18.1	15.88	-30.0
MG	20	17.54	-30.0
MN	-0.1	-0.09	-1.0
NA	67000	58771.93	-60000.0
NI	5.4	4.74	-5.0
P	-0.1	-0.09	-8500.0
PB	3	2.63	-10.0
SE	-0.1	-0.09	-1.0
SN	4.1	3.60	-10.0
V	1.5	1.32	-3.0
ZN	12.2	10.70	-30.0
NH3 AS N	470	412.28	-50
TOC	25.9	22.72	-200
VOC	-0.1	-0.09	-200
PH	5.1		5.0 TO 7.

002158

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5500 UPRIVER ROAD (512)289-0300  
P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 90	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'2" 86	VOLUME: 19,320
WASTE CODE(S): F039	LOAD# 50850	DATE: 11-10-93

LAB ANALYSIS

ICP	PRE-	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	Lt. BLUE
	SCREEN			pH		PHASES	S
	MG/L	PPM	PPM	SP.GR.		ACIDITY	
Ag				TOTAL CN-		ALKALINITY	
Al	55.2	48.85		REAC. CN-		ODOR	M
As	4.1	3.63	3.38	NH3 AS N	490	RADIO-	Y (N)
Au				TOC	30.4	ACTIVE	
Ba			0.24	VOC	N.D.		

PROCESS STAGES PARAMETERS

					pH	REDOX	TEMP C
Ca	15.0	13.27		INITIAL			
Cd							
Co							
Cr							
Cu	1900	1681	1920				
Fe	25.5	22.57	36.0	Encycle ppm			
Mg	22.9	20.27		NH3	434		
Mn				TOC	26.9		
Na	120,000	106,195	72,000				
Ni	6.2	5.49					
P			6630	RMA			
Pb	2.6	2.30		TSS	4100		
Se				TDS	23.2		
Si							
Sn	4.6	4.07					
V	1.3	1.15					
Zn	12.1	10.71					
K			624				

Updated  
11-18-93

Off spec NH3, Na, (Al, Ni)  
930927 SQI 0101-03  
AF results = ~~MARK~~ Cu, Ni \*\*

ANALYSTS: H.X.  
All

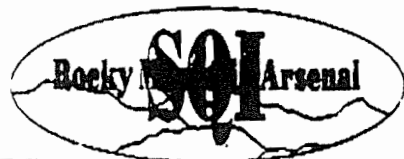
COMMENTS: LOAD 6986

REAGENT COST: 002159

MANAGER: B. Camody  
DATE: 11-11-93

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SQT OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 288-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0090

Laboratory Sample ID: 930927SQT0101-03

Date/Time Collected: 09-25-93/10:00

Date/Time Analyzed: 09-27-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
TOC	34.0	mg/L	10.0
Specific Gravity	1.15	gS/gH2O	0.90

Comments: None

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002160

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SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0090

Laboratory Sample ID: 930927SQI0101-03

Date/Time Collected: 09-25-93/10:00

Date/Time Analyzed: 09-27-93/11:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.38	mg/L	0.10
Barium	0.24	mg/L	0.10
Copper	1920	mg/L	1.00
Iron	36.0	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	72000	mg/L	1000
Phosphorous	6630	mg/L	10.0
Potassium	624	mg/L	50.0
Ammonia	910	mg/L	10.0 → 738 10/8
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.47	pH Units	----
TSS	4100	mg/L	10.0
TDS	23.2	%(mg/L)	0.10

Comments: NR = Not requested

002161



90

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0090

Laboratory Sample ID: 931007SQI0110-03

Date/Time Collected: 10-08-93/10:30

Date/Time Analyzed: 10-08-93/14:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Ammonia	738	mg/L	10.0

Comments: Sampled from tankcar.

002162

Method: ENTE-AST Sample Name: SAMPLE 3 11750 Operation: HLLW  
 Run Time: 11/17/96 14:15:10  
 Comment: NAD7-808-90 C=2974-9  
 Mode: CONC Unit: %wt/100g

Elem	Co	Ca	Ag	Al	Sr	Cr	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2924	55.15	4.134	<.0060	<.0010	15.07	1476
SD	1102	1.42	1.290	<.0017	<.0014	1.24	1811
RPD	5.121	1.667	1.184	55.107	4.506	1.616	1.566
#1	1.2966	54.11	4.041	<.0060	<.0010	15.13	1527
#2	2925	54.96	4.234	<.0060	<.0010	14.98	1476
#3	1.0926	55.24	4.074	<.0060	<.0010	14.71	1437
#4	2926	56.34	4.183	<.0060	<.0010	15.25	1463
Elem	Li	Cl	Cl	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.2191	7665	2372.	25.54	22.37	64.17	618850.
SD	.0059	.0105	53	72	28	0085	
RPD	2.635	1.770	2.239	1.237	1.225	1.327	1.0000
#1	1.2275	7757	2309.	25.62	22.77	64.36	618850.
#2	1.2174	7654	2360.	25.44	22.90	63.92	618850.
#3	1.2140	7522	2381.	25.19	22.56	63.19	618850.
#4	1.2174	7728	2437	25.94	23.23	6523	618850.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.217	6976.	2.618	1.1746	4.619	1.296	12.05
SD	.093	32.	.053	1.1362	.212	.020	16
RPD	1.494	1.131	2.015	73.00	4.728	1.567	1.359
#1	6.158	6980.	2.605	1.0500	4.886	1.296	11.95
#2	6.226	6944	2.660	1.2802	4.666	1.290	11.99
#3	6.085	6893.	2.549	1.2725	4.560	1.274	11.98
#4	6.294	7028.	2.650	1.674	4.362	1.323	12.30

002163

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0.1	-0.09	-1.0		
SN		4.6	4.07	-10.0
V		1.3	1.15	-3.0
ZN		12.1	10.71	-30.0
NH3 AS N		490	433.63	-50
TOC		30.4	26.90	-200
VOC		-0.1	-0.09	-200
PH		5.3		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.13

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.088	-25.0
AL	55.2	48.85	-40.0
AS	4.1	3.63	-5.0
AU	-0.100	-0.088	-5.0
BA	-0.1	-0.09	-5.0
CA	15	13.27	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	1900	1681.42	G1,000
FE	25.5	22.57	-30.0
MG	22.9	20.27	-30.0
MN	-0.1	-0.09	-1.0
NA	120000	106194.69	-60000.0
NI	6.2	5.49	-5.0
P	-0.1	-0.09	-8500.0
PB	2.6	2.30	-10.0
SE	-0.1	-0.09	-1.0
SN	4.6	4.07	-10.0
V	1.3	1.15	-3.0
ZN	12.1	10.71	-30.0
NH3 AS N	490	433.63	-50
TOC	30.4	26.90	-200
VOC	-0.1	-0.09	-200
PH	5.3		5.0 TO 7.

002164

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ENCYCLE / TEXAS, INC.  
 5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL BATCH# 98 LAB NO. CC 2936-91  
 WASTE DESCRIPTION: BRINE DIP IN.: 7'0" 84 VOLUME: 18,878  
 WASTE CODE(S): F039 LOAD# 50746 DATE: 11-9-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	LT. BLUE	
				pH	5.2	5.59	PHASES	5
	MG/L	PPM	PPM	SP.GR.	1.15	1.17	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	52.7	45.83		REAC. CN-			ODOR	M
As	5.5	4.78	3.44	NH3 AS N	1,050	907/900	RADIO-	Y (N)
Au				TOC	42.4	40.6	ACTIVE	
Ba			0.20	VOC	N.D.			
Ca	162	14.09		PROCESS STAGES				PARAMETERS
Cd					pH	REDOX	TEMP C	
Co				INITIAL				
Cr								
Cu	2,300	2000	2160	Encycle ppm				
Fe	21.3	18.52	42.2	NH3 913				
Mg	161	14.00		TOC 36.9				
Mn								
Na	86000	74783	77400					
Ni	4.6	4.00		RMAH				
P			7050	TSS 4340				
Pb	2.9	2.52		TDS 24.2				
Se			0.20					
Si				Off spec on Na, NH3 (AL)				
Sn	6.0	5.22						
V	1.4	1.22						
Zn	10.5	9.13		930927 SQI 0102-07				
K			667	Cu, Na = AA Analysis				

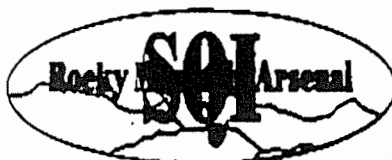
Updated  
11-18-93

ANALYSTS: J.K.  
 Hille  
 MANAGER: D. Carmody  
 DATE: 11-11-93

COMMENTS: LOAD 6988

REAGENT COST: 002165

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92

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 288-9548 • (303) 288-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0092

Laboratory Sample ID: 930927SQI0101-07

Date/Time Collected: 09-27-93/08:30

Date/Time Analyzed: 09-27-93/15:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	40.6	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: None

002166

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SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0092

Laboratory Sample ID: 930927SQI0102-07

Date/Time Collected: 09-27-93/08:30

Date/Time Analyzed: 09-28-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.44	mg/L	0.10
Barium	0.20	mg/L	0.10
Copper	2160	mg/L	1.00
Iron	42.2	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.20	mg/L	0.20
Sodium	77400	mg/L	1000
Phosphorous	7050	mg/L	10.0
Potassium	667	mg/L	50.0
Ammonia	907	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.59	pH Units	---
TSS	4340	mg/L	10.0
TDS	24.2	%(mg/L)	0.10

-900 10/8

Comments: NR = Not requested

Note: The sample was not received into the laboratory until 14:23.

002167

OCT 12 '93 07:34AM SQI OPERATIONS

P.7

92



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0092

Laboratory Sample ID: 931007SQI0110-05

Date/Time Collected: 10-08-93/10:40

Date/Time Analyzed: 10-08-93/14:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Ammonia	900	mg/L	10.0

Comments: Sampled from tankcar.

002168

CONFIDENTIAL

Method: ENTE 433      Sample Name: SAMPLE # 0775a      Operation: HLT  
 Run Time: 11/17/93 15:44:27  
 Comment: MATX 60746      FC-2936-91  
 Under: ENTE      Runn:      Factor: 1

Elem	Ag	Al	As	Au	Ba	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.75	52.06	4.495	0.41	1.0010	16.25	1021
SDev	0.67	3.40	1.231	0.0294	0.001	1.40	1705
%RSD	39.63	6.465	4.975	104.10	42.11	8.635	16.73

#1	1.1571	48.21	4.774	1755	<.0010	18.26	1021
#2	0.837	53.09	4.309	<.0060	<.0010	15.04	1051
#3	1.0985	56.42	4.578	<.0060	<.0010	15.70	1038
#4	1.1044	52.65	4.320	1.0275	<.0010	15.94	1154

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.2233	171.61	2213.	21.31	16.03	34.35	\$13250.
SDev	1.0589	10654.	205.	1.95	1.37	1.0212	.
%RSD	26.32	9.139	9.254	4.454	8.543	6.073	1.0000

#1	1.3091	18081	1936.	22.60	18.06	1.3787	\$18850.
#2	1.1800	16536	2261.	20.32	14.88	1.3292	\$18850.
#3	1.1902	16963	2429.	21.23	15.65	1.3423	\$18350
#4	2140	17066	2224.	21.11	15.73	34.38	\$18850.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.639	\$15850.	2.874	.1957	6.046	1.358	10.53
SDev	.412	17672.	.415	.0997	.247	.080	.31
%RSD	8.878	111.5	14.44	50.93	4.077	5.877	2.905

#1	5.228	7164.	3.487	.3186	6.410	1.469	10.27
#2	4.273	6883.	2.573	.1650	5.983	1.279	10.37
#3	4.491	\$42360.	2.683	.2188	5.899	1.345	10.96
#4	4.564	7009.	2.754	.0806	5.890	1.339	10.51

002169

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		-0.1	-0.09	-8500.0
PB		2.9	2.52	-10.0
SE		-0.1	-0.09	-1.0
SN		6	5.22	-10.0
V		1.4	1.22	-3.0
ZN		10.5	9.13	-30.0
NH3 AS N		1050	913.04	-50
TOC		42.4	36.87	-200
VOC		-0.1	-0.09	-200
PH		5.2		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.087	-25.0
AL	52.7	45.83	-40.0
AS	5.5	4.78	-5.0
AU	-0.100	-0.087	-5.0
BA	-0.1	-0.09	-5.0
CA	16.2	14.09	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2300	2000.00	G1,000
FE	21.3	18.52	-30.0
MG	16.1	14.00	-30.0
MN	-0.1	-0.09	-1.0
NA	86000	74782.61	-60000.0
NI	4.6	4.00	-5.0
P	-0.1	-0.09	-8500.0
PB	2.9	2.52	-10.0
SE	-0.1	-0.09	-1.0
SN	6	5.22	-10.0
V	1.4	1.22	-3.0
ZN	10.5	9.13	-30.0
NH3 AS N	1050	913.04	-50
TOC	42.4	36.87	-200
VOC	-0.1	-0.09	-200
PH	5.2		5.0 TO 7.

002170

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5500 UP RIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL BATCH# 119 LAB NO. CC 2936-91  
 WASTE DESCRIPTION: BRINE DIP IN.: 7' 1/2" = 85 VOLUME: 19,184  
 WASTE CODE(S): F039 LOAD# 50997 DATE: 11-15-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	Blue	
				pH	5.4	5.43	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.15	1.16	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	345	30.00		REAC. CN-			ODOR	M
As	4.5	3.91	3.86	NH3 AS N	250.0	330	RADIO-	Y (N)
Au				TOC	29.9	33.7	ACTIVE	
Ba				VOC	N.D.			
Ca	19.0	16.52		PROCESS STAGES				PARAMETERS
Cd					pH		REDOX	TEMP C
Co				INITIAL				
Cr								
Cu	2,150	1870	2320	Cu, Na by AA **				
Fe	24.6	21.39	31.9	Encycle ppm				
Mg	21.1	18.35		NH <sub>3</sub> 217				
Mn				TOC 26				
Na	79,600	69217	80300	RMA				
Ni	5.5	4.78		TSS 285				
P			7480	TDS 22.4				
Pb	3.2	2.78		9310155QI 0115-01				
Se			0.21	Off spec Na, NH <sub>3</sub>				
Si								
Sn	3.9	3.39						
V	1.5	1.30						
Zn	12.4	10.78						
K			553					

Updated  
11-18-93

ANALYSTS: *[Signature]*  
 MANAGER: B. Camody  
 DATE: 11-15-93

COMMENTS: LOAD 7001

REAGENT COST: 002171  
 CONFIDENTIAL



SGI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 119

Laboratory Sample ID: 931015SOI0115-01

Date/Time Collected: 10-19-93/09:30

Date/Time Analyzed: 10-19-93/11:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
TOC	33.7	mg/L	10.0

A  
 Comments: TOC <sup>was</sup> will be resampled from tankcar and analyzed.



Method: PNTXAF1 Sample Name: SAMPLE # 37757 Operator: mlw  
 Date Time: 11/17/95 15:19:09  
 Comment: NATX 50792 C-2935-1  
 Mode: LHM Comb. Factor: 1

Elem	As	At	Br	Al	BA	Ca	Cl
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Ave	1.463	16.44	4.525	1158	1010	18.95	1.433
StDev	.9271	1.765	1.74	1174	1081	51	192
RPD	13.91	8.575	2.943	63.54	101.0	2.672	15.49
#1	1.657	33.06	4.614	10239	1.0010	18.20	1.154
#2	1.374	35.11	4.512	11059	1.0010	19.20	1.141
#3	1.1992	33.24	4.628	11331	1.0010	19.18	1.1453
#4	1.2288	30.95	4.379	12044	1.0010	19.24	1.194
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Ave	1.2275	1.8482	243.	24.61	21.11	1.4551	518850.
StDev	.0387	1.0209	324.	1.39	51	0080	
RPD	17.02	2.459	13.05	1.566	2.425	1.751	1.0000
#1	1.1800	1.8169	2880.	24.53	20.35	4.456	518850.
#2	21.74	1.8581	2542.	25.04	21.39	4.631	518850.
#3	1.2411	1.8581	2403.	24.74	21.27	1.4602	518850.
#4	1.2717	1.8596	2099.	24.13	21.43	1.4515	518850.
Elem	Ni	P	Pb	Se	Sn	V	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Ave	5.528	524730.	3.242	1.4049	3.947	1.480	12.42
StDev	.133	20356.	.124	.0351	.044	.023	.68
RPD	2.406	82.30	5.675	8.670	1.113	1.526	5.484
#1	5.335	542360.	3.006	1.3876	3.961	1.453	13.15
#2	5.597	542360.	3.242	3953	3.882	1.507	12.66
#3	5.550	7300.	3.266	1.4567	3.966	1.486	12.32
#4	5.631	6910.	3.455	3800	3.979	1.475	11.53

002173

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-0.09            -200  
 PH                    5.4                    5.0 TO 7.

ELEMENT	SPECIFIC GRAVITY	1.15		
	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS	
AG	-0.100	-0.087	-25.0	
AL	34.5	30.00	-40.0	
AS	4.5	3.91	-5.0	
AU	-0.100	-0.087	-5.0	
BA	-0.1	-0.09	-5.0	
CA	19	16.52	-40.0	
CD	-0.1	-0.09	-1.0	
CO	-0.1	-0.09	-1.0	
CR	-0.1	-0.09	-3.0	
CU	2150	1869.57	G1,000	
FE	24.6	21.39	-30.0	
MG	21.1	18.35	-30.0	
MN	-0.1	-0.09	-1.0	
NA	79600	69217.39	-60000.0	
NI	5.5	4.78	-5.0	
P	-0.1	-0.09	-8500.0	
PB	3.2	2.78	-10.0	
SE	-0.1	-0.09	-1.0	
SN	3.9	3.39	-10.0	
V	1.5	1.30	-3.0	
ZN	12.4	10.78	-30.0	
NH3 AS N	250	217.39	-50	
TOC	29.9	26.00	-200	
VOC	-0.1	-0.09	-200	
PH	5.4		5.0 TO 7.	

002174

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119

SQI OPERATIONS • P.O. BOX 1857 • COMMERCE CITY, CO 80037-1857 • (303) 288-9548 • (303) 288-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 119

Laboratory Sample ID: 931015SQI0115-01

Date/Time Collected: 10-14-93/17:00

Date/Time Analyzed: 10-15-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
TOC	* 534	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

\* Resampling Required, will Report Results of Second Sample

Comments: TOC will be resampled and analyzed.

002175



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 288-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 119

Laboratory Sample ID: 931015SQI0115-01

Date/Time Collected: 10-14-93/17:00

Date/Time Analyzed: 10-15-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	3.86	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	2320	mg/L	1.00
Iron	31.9	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.21	mg/L	0.20
Sodium	80300	mg/L	1000
Phosphorous	7480	mg/L	10.0
Potassium	553	mg/L	50.0
Ammonia	330	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.43	pH Units	---
TSS	285	mg/L	10.0
TDS	22.4	%(mg/L)	0.10

Comments: NR = Not requested



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 288-7912 (FAX)

**ANALYTICAL DATA SUMMARY  
REPORT**

CASE NARRATIVE

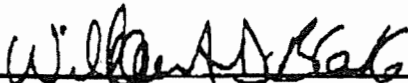
Sample ID: 931015SQI0115

Date: 10/18/93

1. The sample was analyzed using methods outlined in the SQI Laboratory Standard Operating Procedures.
2. All quality control values were within SQI Laboratory QAPP limits.
3. All TOCs were analyzed as NPOC (nonpurgable organic carbon).

  
 \_\_\_\_\_  
 Laboratory Manager

10/18/93  
 \_\_\_\_\_  
 Date

  
 \_\_\_\_\_  
 QA/QC Manager

10-19-93  
 \_\_\_\_\_  
 Date

cc: File H.14  
SQI Lab File

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

**REPORT - R M A**

CLIENT: ROCKY MTN. ARSENAL BATCH# 120 LAB NO. CC 2936-91  
 WASTE DESCRIPTION: BRINE DIP IN.: 7'1" = 85.0 VOLUME: 19,117  
 WASTE CODE(S): F039 LOAD# 50748 DATE: 11-9-93

**LAB ANALYSIS**

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	L+BLUE	
				pH	5.2	5.52	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.16	1.16	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	46.7	40.26		REAC. CN-			ODOR	M
As	4.6	3.97	3.40	NH3 AS N	335	402	RADIO-	Y (N)
Au				TOC	33.1	28.9	ACTIVE	
Ba				VOC	N.D.			

DC  
 GV  
 RG  
 MZ  
 BP  
 Jwo  
 JKL

**PROCESS STAGES PARAMETERS**

					pH	REDOX	TEMP C
Ca	10.2	8.79		INITIAL			
Cd							
Co							
Cr							
Cu	2,200	1897	2110				
Fe	29.3	25.26	30.6				
Mg	21.2	18.28					
Mn							
Na	84000	72414	71800				
Ni	6.7	5.78					
P			6800				
Pb	3.2	2.76					
Se			0.22				
Si							
Sn	4.8	4.14					
V	1.5	1.29					
Zn	13.5	11.64					
K			571				

Cu, Na by AA\*  
 Encycle ppm  
 NH<sub>3</sub> 28.9  
 TOC 28.5  
 RMA  
 TSS 1930  
 TOS 22.4  
 9310155GI 0115-03  
 off spec NH<sub>3</sub> (Al, Ni)

UPDATED  
 11-18-93

ANALYSTS: H.Z.  
 J.W.  
 MANAGER: B. Calmody  
 DATE: 11-11-93

COMMENTS: LOAD 7002

REAGENT COST: 002178

**CONFIDENTIAL**

Method: ENTEXAS1 Sample Name: SAMPLE # 17755 Operation: FLW  
 Run Time: 11/17/93 15:57:00  
 Comment: NATX 50743 (1-2935-9)  
 UNIT: CONC Units: Factor: 1

Elem	Ag	Al	As	Au	Br	Ca	Cr
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1533	46.65	4.564	18.73	0.0110	10.74	1437
SDev	.0002	1.57	.1055	0.471	0.0001	.77	1.040
%RSD	13.15	3.353	2.317	5.194	82.55	3.649	2.303
#1	1281	48.31	4.535	7063	<.0010	9.330	1231
#2	1439	47.04	4.582	10783	<.0010	10.13	1540
#3	1696	44.55	4.496	11212	<.0010	10.28	1463
#4	1696	46.82	4.621	1250	<.0010	10.73	1514

Elem	Co	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2428	19148	2379.	29.26	21.23	1.5777
SDev	.0244	.0327	121.	.62	.66	.0135
%RSD	10.05	3.574	5.073	2.130	3.097	2.339
#1	.2072	.8802	2510.	28.77	20.41	.5664
#2	.2479	.9037	2409.	29.14	21.19	.5766
#3	.2547	.9170	2219.	28.95	21.30	.5708
#4	.2615	.9582	2377	30.15	22.02	.5970

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.710	542360	3.240	2284	4.787	1.454	13.45
SDev	.204		.196	.0820	.124	.034	.31
%RSD	3.039	.0000	6.042	35.93	2.586	2.363	2.276
#1	6.463	542360.	2.967	.3416	4.908	1.421	13.59
#2	6.689	542360	3.321	.1804	4.626	1.448	13.52
#3	6.726	542360.	3.250	.1574	4.759	1.445	13.00
#4	6.961	542360.	3.424	.3341	4.855	1.502	13.68

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	-0.1	-0.09	-8500.0
PB	3.2	2.76	-10.0
SE	-0.1	-0.09	-1.0
SN	4.8	4.14	-10.0
V	1.5	1.29	-3.0
ZN	13.5	11.64	-30.0
NH3 AS N	335	288.79	-50
TOC	33.1	28.53	-200
VOC	-0.1	-0.09	-200
PH	5.2		5.0 TO 7.
ELEMENT	SPECIFIC GRAVITY		1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	-25.0
AL	46.7	40.26	-40.0
AS	4.6	3.97	-5.0
AU	-0.1	-0.09	-5.0
BA	-0.1	-0.09	-5.0
CA	10.2	8.79	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2200	1896.55	G1,000
FE	29.3	25.26	-30.0
MG	21.2	18.28	-30.0
MN	-0.1	-0.09	-1.0
NA	84000	72413.79	-60000.0
NI	6.7	5.78	-5.0
P	-0.1	-0.09	-8500.0
PB	3.2	2.76	-10.0
SE	-0.1	-0.09	-1.0
SN	4.8	4.14	-10.0
V	1.5	1.29	-3.0
ZN	13.5	11.64	-30.0

NH3 AS N	335	288.79	-50
TOC	33.1	28.53	-200
VOC	-0.1	-0.09	-200
PH	5.2		5.0 TO 7.

ok

002180

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20 P.8



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 288-9548 • (303) 288-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 120

Laboratory Sample ID: 931015SQI0115-03

Date/Time Collected: 10-15-93/05:00

Date/Time Analyzed: 10-15-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	28.9	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_

002181

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 120

Laboratory Sample ID: 931015SOI0115-03

Date/Time Collected: 10-15-93/05:00

Date/Time Analyzed: 10-15-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.40	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	2110	mg/L	1.00
Iron	30.6	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.22	mg/L	0.20
Sodium	71800	mg/L	1000
Phosphorous	6800	mg/L	10.0
Potassium	571	mg/L	50.0
Ammonia	402	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.52	pH Units	---
TSS	1930	mg/L	10.0
TDS	22.4	%(mg/L)	0.10

Comments: NR = Not requested

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 94	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'0" = 84.0	VOLUME: 18,842
WASTE CODE(S): F039	LOAD# 50858	DATE: 11-6-93

LAB ANALYSIS

ICP	PRE-	ENCYCLE	R M A		ENCYCLE	R M A	COLOR	BLUE	
	SCREEN			pH	5.6	5.63	PHASES	S	
	MG/L	PPM	PPM	SP.GR.	1.18	1.16	ACIDITY		
Ag				TOTAL CN-			ALKALINITY		
Al	29.4	24.9		REAC. CN-			ODOR	M	
As	3.7	3.1	3.40	NH3 AS N	2.35	7.24	RADIO-	Y (N)	
Au				TOC	33.9	36.1	ACTIVE		
Ba			0.14	VOC	N.D.				
Ca	8.2	6.95		PROCESS STAGES				PARAMETERS	
Cd					pH		REDOX	TEMP C	
Co				INITIAL					
Cr									
Cu	2,155	1826	1800		Encycle ppm				
Fe	14.8	12.5	35.9		TU <sub>H3</sub>	199.15			
Mg	11.7	9.9			TOC	28.73			
Mn									
Na	94,600	80,169	83,400		RMA				
Ni	4.0	3.39			TSS	4040			
P	7,250	6,144	7,380		TDS	21.5			
Pb	2.0	1.69							
Se									
Si									
Sn	11.8	10.0							
V									
Zn	13.5	11.44							
K			643						

ANALYSTS: H. Xunieraykowske

COMMENTS: LOAD 6989

REAGENT COST:

002183

MANAGER: B. Carmody

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Method: EPH529 Sample Name: SAMPLE # 100011 Comparison: EPH7  
 Unit: ug/g (ppm) (1) (1) (1) (1) (1) (1) (1)  
 Name of Method: EPH529 (1) (1) (1) (1) (1) (1) (1)  
 Unit: (1) (1) (1) (1) (1) (1) (1)

Elem	Co	Cr	As	Pb	Sb	Te	Se
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.000	24.000	1.000	0.000	0.010	0.150	20.000
SD	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RSD	0.000	0.000	0.000	0.000	0.000	0.000	0.000
#1	1.000	24.000	1.000	0.000	0.010	0.150	20.000
#2	1.000	24.000	1.000	0.000	0.010	0.150	20.000
#3	1.000	24.000	1.000	0.000	0.010	0.150	20.000
#4	1.000	24.000	1.000	0.000	0.010	0.150	20.000

Elem	Cu	Fe	Mn	Zn	Ni	Pb	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	136.5	733.1	155.4	14.82	11.73	1.3860	2925.
SD	0.125	1.0312	20.	0.40	0.37	0.112	20.
RSD	0.085	0.139	0.013	2.673	3.002	2.945	0.685
#1	136.5	733.1	155.4	14.82	11.73	1.3860	2925.
#2	136.5	733.1	155.4	14.82	11.73	1.3860	2925.
#3	136.5	733.1	155.4	14.82	11.73	1.3860	2925.
#4	136.5	733.1	155.4	14.82	11.73	1.3860	2925.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.005	7193.	1.034	0.0500	11.78	1.9766	13.49
SD	0.000	0.175	0.118	0.1281	0.33	0.0267	0.34
RSD	0.000	0.243	0.011	2.562	2.772	1.351	2.521
#1	4.005	7193.	1.034	0.0500	11.78	1.9766	13.49
#2	4.005	7193.	1.034	0.0500	11.78	1.9766	13.49
#3	4.005	7193.	1.034	0.0500	11.78	1.9766	13.49
#4	4.005	7193.	1.034	0.0500	11.78	1.9766	13.49

Report: INTTEXAS1 Sample Name: SAMPLE # 57540 Operator: HML  
 Run Date: 11/02/97 11:20:07  
 Element: NA17 40553 (0.143) (0.0)  
 Unit: ppm ppm (Factor: 1.00)

Time	Ag	As	Co	Cd	Cr	Cu	Pb
min	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.05	26	< 0.500	< 0.050	< 0.050	5.055	25.00
StDev	0.30	7	0.010	0.001	0.005	0.10	1.000
NRSD	11.12%	26.92%	2.00%	1.99%	1.00%	1.97%	12.17%

#1	0.75	24.51	0.00	0.00	< 0.010	3.267	24.50
#2	0.150	23.50	0.500	< 0.050	< 0.010	8.395	30.00
#3	0.075	0.22	0.500	< 0.050	< 0.010	4.324	10.00
#4	0.030	5.77	0.500	0.050	< 0.010	4.108	00.00

Elem	Fe	Co	Cu	Zn	Mn	Pb	Ag
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	0030	10050	1155.	24.43	25.51	< 0.010	14700
StDev	3355	1154	10.	38	1.56	0.0000	460.
NRSD	11.12	5.127	14.50	1.537	5.923	0.0000	5.177

#1	0.00	< 0.050	2150.	23.88	21.64	< 0.010	75050.
#2	0.030	< 0.050	2166.	24.73	23.30	< 0.010	75140.
#3	0.030	< 0.050	2143.	24.56	25.37	< 0.010	74330.
#4	< 0.070	< 0.050	2145.	24.56	24.13	< 0.010	74290.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.521	7250.	< 0.250	< 0.500	< 0.200	< 0.020	21.79
StDev	1.619	54.	1.646	1.423	5.060	1.3445	1.20
NRSD	6.427	7475	25.66	4.012	121.66	44.44	2970

#1	6.320	7404.	< 0.250	< 0.500	1.207	< 0.020	21.79
#2	6.947	7240.	< 0.250	< 0.500	< 0.200	< 0.020	22.03
#3	6.002	7326.	< 0.250	< 0.500	< 0.200	< 0.020	21.55
#4	6.758	7028.	< 0.250	< 0.500	5.144	< 0.020	21.79

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Method: RTEKAS1 Sample Name: 44th Flr 32637 Operation: HPC  
 Run Time: 11/02/05 11:41:19  
 Comment: NATX 50x5% (C-2935-9)  
 Mode: CONC Corr Factor: 1.000

Elem	As	Bi	Ys	Al	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	< 0.050	< 0.250	0.500	< 0.050	0.000	< 0.100	< 0.040
SDev	1.265	0.114	0.000	1.000	1.118	0.719	1.557
%RSD	6.361	10.561	0.000	1.000	50.000	3.500	14.400

#1	0.000	0.000	0.500	< 0.050	0.000	0.000	0.000
#2	< 0.050	< 0.250	0.500	< 0.050	< 0.100	< 0.100	< 0.040
#3	< 0.050	< 0.250	0.500	< 0.050	0.000	< 0.100	< 0.040
#4	< 0.050	< 0.250	< 0.500	< 0.050	< 0.100	< 0.100	< 0.040

Elem	Co	Cr	Cu	Pb	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	< 0.030	< 0.050	2476.	1.270	< 0.200	< 0.010	94600
SDev	2.577	2.211	13.	2.892	7.175	1.063	290.
%RSD	10.33	3.325	5331	227.7	8.998	20.00	3063

#1	< 0.030	< 0.050	2491.	5.081	< 0.200	< 0.010	94960.
#2	< 0.030	< 0.050	2470.	1.694	< 0.200	< 0.010	94460.
#3	< 0.030	< 0.050	2422	< 0.050	< 0.200	< 0.010	94690.
#4	< 0.030	0.050	2461.	< 0.050	< 0.200	< 0.010	94290.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	< 0.100	7536.	< 0.250	< 0.500	< 0.200	< 0.020	10.18
SDev	1.9451	62	13.44	91.93	55.36	3.978	1.20
%RSD	8.333	8289	11.54	53.56	49.42	20.08	11.76

#1	< 0.100	7594.	< 0.250	< 0.500	< 0.200	< 0.020	11.97
#2	< 0.100	7567	< 0.250	< 0.500	< 0.200	< 0.020	9.577
#3	< 0.100	7531.	< 0.250	< 0.500	< 0.200	< 0.020	9.577
#4	< 0.100	7451	< 0.250	< 0.500	< 0.200	< 0.020	9.577

002186

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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0094

Laboratory Sample ID: 930928SQI0102-03

Date/Time Collected: 09-28-93/09:10

Date/Time Analyzed: 09-28-93/12:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	36.1	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: None

002187



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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0094

Laboratory Sample ID: 930928SOI0102-03

Date/Time Collected: 09-28-93/09:10

Date/Time Analyzed: 09-28-93/12:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.40	mg/L	0.10
Barium	0.14	mg/L	0.10
Copper	1800	mg/L	1.00
Iron	35.9	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	83400	mg/L	1000
Phosphorous	7380	mg/L	10.0
Potassium	643	mg/L	50.0
Ammonia	849	mg/L	10.0 <i>724 10/8</i>
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.63	pH Units	----
TSS	4040	mg/L	10.0
TDS	21.5	%(mg/L)	0.10

Comments: NR = Not requested

002188



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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0094

Laboratory Sample ID: 931007SGI0110-07

Date/Time Collected: 10-08-93/10:48

Date/Time Analyzed: 10-08-93/14:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Ammonia	724	mg/L	10.0

Comments: Sampled from tankcar.

ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID ...  
**REPORT - R M A**

CLIENT: ROCKY MTN. ARSENAL	BATCH# 113	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 411" = 85.0	VOLUME: 19062
WASTE CODE(S): F039	LOAD# 40859	DATE: 11-6-93

**LAB ANALYSIS**

ICP	PRE-	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	BLUE	
	SCREEN			pH		PHASES	S	
	MG/L	PPM	PPM	SP.GR.		ACIDITY		
Ag				TOTAL CN-		ALKALINITY		
Al	26.5	22.65		REAC. CN-		ODOR	M	
As	3.9	3.33	3.65	NH3 AS N	230 594	RADIO-	Y (N)	
Au				TOC	37.4 36.7	ACTIVE		
Ba			0.17	VOC	N.D			
Ca	11.6	9.91		PROCESS STAGES				PARAMETERS
Cd					pH	REDOX	TEMP C	
Co				INITIAL				
Cr				<i>Encycle PPM</i>				
Cu	2517	2151	2700					
Fe	18.6	15.9	46.5	NH3	197			
Mg	10.6	9.06		TOC	32.0			
Mn								
Na	89430	76436	87800	RMA				
Ni	4.1	3.5		TDS	24.0			
P	7801	6668	8200	TSS	4000			
Pb	2.4	2.05						
Se			0.22	<i>Off-spec m NA, SN, NH3</i>				
Si								
Sn	17.5	14.96		93 10/2 SQI 0112-01				
V	1.0	0.85						
Zn	15.0	12.82						
K			647					

ANALYSTS: *J. Amerychowski*

COMMENTS: *LOAD 6991*

REAGENT COST: 002190

MANAGER: *B. Camody*

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Method: INTEXAS1 Sample Name: SAMPLE # 77659 Operator: HMZ

Run Time: 11/08/03 11:44:57

Comment: NAT/ 90259 (C-2926-59)

Mode: LINC Corr. Factor: 100

Elem	Ag	Al	As	Au	Ca	Co	Cr
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	00.80	30.01	< 0.500	< 0.050	00.00	15.74	< 0.040
1Dev	11.04	3.76	1.373	0.006	1.159	1.36	1.244
RPD	5.287	1.067	11.17	11.05	15.15	2.317	10.54
#1	00.10	37.47	< 0.500	< 0.050	00.00	15.47	< 0.040
#2	00.90	24.18	< 0.500	< 0.050	00.00	15.54	< 0.040
#3	1.0000	34.18	< 0.500	< 0.050	1.0010	15.54	< 0.040
#4	1.0000	34.18	< 0.500	00.00	00.00	16.27	< 0.040

Elem	Co	Cu	Pb	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	< 0.030	< 0.050	251.7	30.85	13.41	0.0010
1Dev	.2677	.2211	4.	35	1.04	.1228
RPD	10.53	10.64	.1423	1.131	1.425	46.19

#1	< 0.030	< 0.050	251.8	31.16	14.54	< 0.0010
#2	< 0.030	< 0.050	2521.	30.25	23.00	< 0.0010
#3	< 0.030	< 0.050	2514.	31.16	22.06	< 0.0010
#4	< 0.030	< 0.050	2514.	30.42	23.72	0.0010

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.563	7301.	< 0.250	< 0.500	1.084	< 0.020	25.32
1Dev	380	26.	1.646	4.283	4.795	.1722	23
RPD	13.20	3364	19.79	10.04	442.2	20.00	19054

#1	6.380	7762.	< 0.250	< 0.500	1.807	< 0.0020	25.14
#2	5.813	7309.	< 0.250	< 0.500	< 0.200	< 0.0020	25.38
#3	6.569	7810.	< 0.250	< 0.500	< 0.200	< 0.0020	25.62
#4	7.892	7821.	< 0.250	< 0.500	7.589	< 0.0020	25.14

002192

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0113

Laboratory Sample ID: 931012SOI0112-01

Date/Time Collected: 10-11-93/10:00

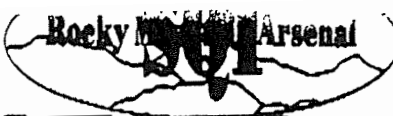
Date/Time Analyzed: 10-12-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	36.7	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

002194

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ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0113

Laboratory Sample ID: 931012SQI0112-01

Date/Time Collected: 10-11-93/10:00

Date/Time Analyzed: 10-12-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.65	mg/L	0.10
Barium	0.17	mg/L	0.10
Copper	2700	mg/L	1.00
Iron	46.5	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.22	mg/L	0.20
Sodium	87800	mg/L	1000
Phosphorous	8200	mg/L	10.0
Potassium	647	mg/L	50.0
Ammonia	594	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.34	pH Units	----
TSS	4000	mg/L	10.0
TDS	24.0	%(mg/L)	0.10

Comments: NR = Not requested

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 91	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'10" = 81.0	VOLUME: 18,902
WASTE CODE(S): F039	LOAD# 50849	DATE: 11-6-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	PHASES
	MG/L	PPM	PPM			ALKALINITY	
				pH		ODOR	
				SP.GR.		RADIO-ACTIVE	
Ag				TOTAL CN-			
Al	31.2	26.44		REAC.CN-			
As	3.6	3.05	3.43	NH3 AS N	520		
Au				TOC	39.2		
Ba			0.18	VOC	N.D.		

				PROCESS STAGES		PARAMETERS	
				INITIAL	ENCYCLE	REDOX	TEMP C
Ca	8.9	7.54					
Cd							
Co							
Cr							
Cu	2,228	1888.14	1950				
Fe	15.5	13.4	40.7				
Mg	11.2	9.49					
Mn							
Na	93,510	79,246	73,100				
Ni	3.7	3.14					
P	4,178	6,083	6,700				
Pb	2.1	1.78					
Se							
Si							
Sn	13.0	11.02					
V	1.0	0.85					
Zn	13.2	11.19					
K			622				

*Encycle ppm*  
 NH3 440.68  
 TOC 33.22

*RMA*  
 TSS 4040  
 TDS 23.8

*Refer Na, Sn, NH3*

930927 SQI 0101-05

ANALYSTS: *J. Kuremoyan*

COMMENTS: LOAD 6987

REAGENT COST:

002196

MANAGER: *B. Carmody*  
 DATE: 11-0-93

CONFIDENTIAL



Method: ENTEXA51 Sample Name: SAMPLE 4 37620 Operator: HMZ  
 Run Date: 11/02/93 11:09:54  
 Program: NATX 90849 (C:\PROGRA~1)  
 User: DMJ Conn: Factory 1

Elem	Co	Al	Ag	Au	Ba	Ca	Cd
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.85	11.12	3.615	0.255	<.0010	2.913	1.041
StDev	0.111	3.33	3.01	0.048	0.001	0.089	0.243
SRSD	6.099	11.40	8.363	19.15	9.297	12.71	29.43
#1	1.153	16.39	1.457	7.39	0.015	3.453	1.137
#2	1.405	35.12	1.304	<.0050	<.0010	7.396	0.529
#3	1.337	12.25	9.095	1.0415	<.0010	3.110	1.0874
#4	1.213	30.75	3.307	0.238	<.0010	4.017	0.831

Elem	Co	Cr	Cl	Fe	Mg	Mn	Na
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.1407	1.7511	1733.	13.44	11.23	1.3504	2973.
StDev	0.437	0.548	271.	1.92	.91	0.263	77
SRSD	31.04	7.296	15.34	5.930	3.077	7.495	2.588
#1	1.1912	1.7887	1392.	16.01	11.86	3.674	2954.
#2	1.0850	1.6749	2043.	14.19	9.919	1.3121	3084.
#3	1.1487	1.7932	1794.	16.24	11.32	1.3674	2905.
#4	1.381	1.7477	1700.	15.72	11.32	3.647	2949.

Elem	Ni	P	Pb	Se	Sn	V	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.725	6806.	2.024	<.0500	12.95	1.9924	13.16
StDev	1.378	288.	1.221	1.1902	1.64	0.656	1.51
SRSD	10.14	4.235	10.61	33.33	12.59	6.610	3.875
#1	4.057	6837.	2.303	<.0500	15.27	1.026	12.43
#2	3.184	6422.	1.202	<.0500	11.49	1.8988	13.26
#3	3.270	7122.	2.159	<.0500	12.21	1.047	13.71
#4	3.788	6842.	2.046	<.0500	12.84	1.9977	13.17

Method: ENTEZAS Sample Name: SAMPLE # 3753 Operator: HMC  
 Run Time: 11/08/03 11:07:58  
 Comment: NATX 51869 CL-2476-91  
 Mode: NC Unit Factor: 100

Elem	As	Al	As	Al	Se	Co	Cr
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.802	17.84	<.0500	1.523	<.0010	140.29	1.0040
SDev	1.277	1.112	1.872	34.8	4755	1.32	1079
%RSD	70.88	6.234	64.75	23.53	12.15	4.521	100.0

#1	3601	46.24	<.0500	1.375	<.0010	19.17	1.0040
#2	3003	47.59	<.0500	1.105	<.0010	20.14	<.0040
#3	13601	43.95	<.0500	1.360	<.0010	20.39	1.0040
#4	3003	47.98	<.0500	1.752	<.0010	21.41	0540

Elem	Co	Cr	Cu	Fe	Mn	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.1328	1.252	2228	28.47	39.29	.2663	76520.
SDev	1.2655	1.213	10.	30	1.13	1.0000	519.
%RSD	100.0	17.41	46.98	1.040	2.874	1.0000	15788

#1	<.0030	1.195	2244.	28.05	38.04	.2663	77270.
#2	<.0030	1.423	2223.	28.56	38.95	.2663	76320.
#3	<.0030	1.9673	2226.	28.73	39.40	.2663	76410.
#4	1.5311	1.423	2221.	28.56	40.75	.2663	76070.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.065	7178.	8.467	<.0500	11.56	1.673	22.34
SDev	644	25.	1.901	1.428	4.78	1.456	1.35
%RSD	8.004	1.3495	10.64	5.387	41.30	27.18	1.558

#1	7.972	7200.	7.291	<.0500	4.698	1.148	22.51
#2	7.735	7142.	9.172	<.0500	14.82	1.501	22.05
#3	7.785	7188.	8.231	<.0500	11.93	1.354	22.05
#4	8.718	7183.	9.172	<.0500	14.82	2.207	22.74

002198

CONFIDENTIAL

Method: PNTFAAS1 Sample Name: SAMPLE # 11530 Operator: HMZ  
 Run Time: 11/15/83 11:06:16  
 Comment: NATL 50849 (0-2986-9)  
 Cont: CONC. Conc. Factor: 1.000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	0.000	28.75	<.0500	<.0050	<.0010	3.051	<.0040
SDev	1.065	3.00	13.55	3.44	1.252	4.474	7.52
RRSD	40.00	13.59	38.45	158.9	127.56	115.9	9.56
#1	0.000	22.56	<.0500	<.0050	<.0010	1.525	1.040
#2	<.0030	38.89	<.0500	1.266	<.0010	1.577	<.0040
#3	<.0030	24.30	<.0500	<.0050	<.0010	<.0010	<.0040
#4	<.0030	30.95	<.0500	<.0050	<.0010	5.011	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Nb
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	<.0050	2472.	16.25	38.38	<.0010	93510.
SDev	2.655	0.000	13.	3.27	14.46	1.065	310.
RRSD	60.00	0.000	.5119	20.16	37.67	20.00	3313
#1	<.0030	<.0050	2483.	13.81	32.74	<.0010	93510.
#2	<.0030	<.0050	2480.	18.31	59.83	<.0010	93730.
#3	<.0030	<.0050	2472.	15.39	32.74	<.0010	93720.
#4	<.0030	<.0050	2455.	11.97	28.22	<.0010	93070.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.128	7276.	2.352	<.0500	<.0200	<.0020	12.76
SDev	4.028	176.	12.14	74.38	32.05	1.766	3.00
RRSD	78.55	2.415	516.4	105.2	221.7	50.00	23.47
#1	10.72	7378.	<.0250	17.67	32.53	<.0020	15.24
#2	5.128	7455.	<.0250	<.0500	<.0200	<.0020	11.60
#3	3.263	7062.	7.056	<.0500	<.0200	<.0020	13.92
#4	1.399	7207.	16.46	<.0500	<.0200	<.0020	9.282

002199

CONFIDENTIAL



SOI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0091

Laboratory Sample ID: 930927SOI0101-05

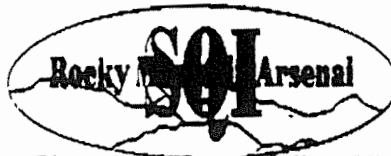
Date/Time Collected: 09-27-93/05:30

Date/Time Analyzed: 09-27-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.43	mg/L	0.10
Barium	0.18	mg/L	0.10
Copper	1950	mg/L	1.00
Iron	40.7	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	73100	mg/L	1000
Phosphorous	6700	mg/L	10.0
Potassium	622	mg/L	50.0
Ammonia	888	mg/L	10.0 → 763 10/8
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.56	pH Units	----
TSS	4040	mg/L	10.0
TDS	23.8	%(mg/L)	0.10

Comments: NR = Not requested

002200



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91

ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0091

Laboratory Sample ID: 930927SQI0101-05

Date/Time Collected: 09-27-93/05:30

Date/Time Analyzed: 09-27-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	36.3	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: None

002201



91

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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 0091

Laboratory Sample ID: 931007SQI0110-04

Date/Time Collected: 10-08-93/10:35

Date/Time Analyzed: 10-08-93/14:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Ammonia	763	mg/L	10.0

Comments: Sampled from tankcar.

002202

CONFIDENTIAL

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL BATCH# 115 LAB NO. CC 2936-91  
 WASTE DESCRIPTION: BRINE DIP IN.: 6 1/2 = 33.5 VOLUME: 18707  
 WASTE CODE(S): F039 LOAD# 50834 DATE: 11-6-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	4. Blue
	MG/L	PPM	PPM	pH		PHASES	5
				SP.GR.		ACIDITY	
Ag				TOTAL CN-		ALKALINITY	
Al	34.1	29.15		REAC. CN-		ODOR	M
As	3.8	3.25	3.74	NH3 AS N	335	RADIO-	Y (N)
Au				TOC	31.1	ACTIVE	
Ba			0.21	VOC	N.D.		
Ca	16.8	14.36		PROCESS STAGES PARAMETERS			
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr	1.4	1.20					
Cu	2533	2165	2600	Encycle ppm			
Fe	24.3	20.77	47.9	NH3 286			
Mg	11.3	9.66		TOC 26.6			
Mn							
Na	92230	78829	82500				
Ni	5.5	4.70		RMA			
P	9052	7737	7930	TSS	4900		
Pb	4.8	4.10		TDS	25.1		
Se			0.25				
Si				Off spec on Na, Sr, NH3			
Sn	15.5	13.25		931012 SQUION2-05			
V	1.5	1.28					
Zn	26.4	22.56					
K			648				

GV  
 MZ  
 BP  
 DC  
 JKL  
 JWO  
 RC

ANALYSTS: J.Y.

COMMENTS: LOAD 6993

REAGENT COST:

002203

MANAGER: E. Carney  
 DATE: 11-8-93

CONFIDENTIAL





Method: ENTEVA31 Sample Name: SAMPLE # 37604 Operator: HNZ  
 Run Time: 11/03/93 10:27:53  
 Comment: NAF 5023 00-207A-99  
 Value Unit Comment

Elem	As	Al	Ag	Au	Ba	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1505.	13.59	5.777	1347	10088	15.50	2970
StDev	1013.	3.11	1.227	10995	1002.	1.079	161.9
RPD	2.077	4.574	6.311	16.10	33.55	12.05	11.09
#1	5000	15.22	5.477	5170	10021	14.75	15.77
#2	52.5	35.32	5.645	1346	10763	15.82	2239
#3	2445	79.30	5.531	3790	10082	15.89	1905
#4	491.	18.81	6.515	3471	1122	19.53	1561

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14524	1.411	1678.	23.80	11.16	5681	2074.
StDev	1735	085	233.	1.34	.99	10384	49
RPD	17.32	6.013	11.67	5.628	8.903	6.751	2.352
#1	3491	1.330	1242.	22.44	10.28	5282	2126.
#2	14301	1.415	1799.	23.58	10.87	5650	2082.
#3	14146	1.373	1735.	23.52	10.89	5589	2079.
#4	15697	1.528	1335.	25.65	12.58	6203	2008.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.350	9666.	4.720	1.3735	15.07	1.465	25.96
StDev	1.744	414.	1.387	1.1494	1.37	0.75	1.54
RPD	13.97	4.278	8.202	40.02	9.086	5.143	2.061
#1	4.784	9231.	4.479	1.6536	14.29	1.391	25.97
#2	5.064	9648.	4.537	1.1803	14.12	1.453	26.53
#3	5.127	9562	4.565	1.3348	14.31	1.444	26.11
#4	6.460	10230.	5.298	1.5151	17.08	1.570	25.25

002205

CONFIDENTIAL

Method: FITEXA51 Sample Name: SAMPLE # 37623 Operator: HMF  
 Run Time: 1.078749 ID: 7611  
 Comment: MATZ 5034 (C-2934-50)  
 Mode: LHM ppm Factor: 100

Elem	Ca	Al	AW	As	BA	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.942	4.113	4.113	3.999	2042	34.03	1.305
SD	0.031	0.019	0.019	0.126	1.0523	0.09	0.154
%RSD	1.050	0.457	0.454	3.153	28.57	0.260	11.91
#1	2.923	4.096	4.096	3.760	1750	33.67	1.13
#2	2.922	4.096	4.096	3.920	1750	34.03	1.292
#3	2.982	4.169	4.169	4.132	1291.7	34.39	1.051
#4	2.982	4.169	4.169	4.079	1750	34.03	1.292
Elem	Co	Cr	CU	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.713	4.369	2535.1	40.22	50.21	1.228	74730.1
SD	0.747	0.203	11.1	1.38	1.96	0.000	499
%RSD	27.56	4.657	0.444	3.569	1.908	0.000	0.672
#1	2.131	4.490	2541.1	39.89	49.32	1.228	75340.1
#2	2.131	4.845	2541.1	40.56	49.77	1.228	74860.1
#3	2.906	4.845	2517.1	39.89	51.54	1.228	74150.1
#4	3.621	4.493	2532.1	40.56	50.21	1.228	74560.1
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.44	9052.1	21.95	7.405	29.06	4.136	41.46
SD	1.50	79	2.67	3.346	2.36	224	1.00
%RSD	3.755	0.775	12.17	51.93	8.133	5.405	0.000
#1	12.73	8985.1	23.42	2.576	28.02	4.248	41.46
#2	13.33	9185	19.03	11.59	26.63	4.248	41.46
#3	13.34	9011	24.86	6.439	32.17	4.248	41.46
#4	13.24	9049	20.49	9.015	29.40	3.801	41.46

002206

CONFIDENTIAL

Method: #NITEVA51 Sample Name: SAMPLE # 37627 Operator: HMP  
 Run Time: 11/08/93 10:24:12  
 Comment: NATX 50843 (C-2936-9)  
 Mode: UNO Comp. Factor: 1000

Elem	As	Al	As	Al	Si	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.89	142.4	34.52	43.30	2.334	136.0	13.95
SDev	.00	33.4	74.39	1.53	574	1.3	.00
NRSD	.0000	2.058	70.07	3.513	29.87	1.324	.0000

#1	9.36	139.0	11.54	41.32	1.917	135.0	13.95
#2	9.83	143.8	19.13	44.90	2.917	138.7	13.95
#3	9.89	141.0	55.38	44.50	1.750	135.0	13.95
#4	9.89	141.0	42.31	42.91	1.750	135.0	13.95

Elem	Co	Cr	Cu	Fe	Mg	Mn	Nb
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	21.31	36.12	2884.	41.11	182.9	3.838	92230.
SDev	.00	3.52	47	1.31	5.1	1.535	1999.
NRSD	.0000	9.756	1.633	4.413	2.799	40.00	2.167

#1	21.31	30.83	2944.	43.34	187.3	3.071	94830.
#2	21.31	37.88	2895.	41.11	178.5	6.142	92650.
#3	21.31	37.88	2860.	41.11	187.3	3.071	91250.
#4	21.31	37.88	2836.	38.39	178.5	3.071	90200.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	40.20	9663.	153.7	<.0500	190.2	20.12	49.70
SDev	11.66	448.	14.6	63.42	43.0	.00	4.05
NRSD	29.02	4.641	9.524	656.6	22.61	.0000	8.148

#1	32.95	10260.	146.4	<.0500	211.0	20.12	54.99
#2	27.68	9678.	146.4	38.63	238.7	20.12	50.76
#3	51.40	9523.	146.4	12.88	141.8	20.12	46.53
#4	48.76	9189.	175.6	12.88	169.5	20.12	46.53

002207

CONFIDENTIAL

Method: ENTE 451      Sample Name: SAMPLE # 37634      Operator: HHS  
 Run Date: 11/03/97 11:05:13  
 Comment: NADA 14863 (C-95-04)  
 Order: 0100      Lab: 11111111

Elem	Ag	Al	As	Au	Fe	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1577	26.36	1.74	0.0060	0.0010	4.255	0.042
SDev	0.11	1.33	0.05	0.0004	0.0003	3.00	0.047
%RSD	0.07	0.05	2.87	6.65	15.73	70.52	5.134

#1	1543	26.41	1.74	0.0060	0.0010	3.447	0.038
#2	1593	26.41	1.750	0.0040	0.0010	5.415	0.002
#3	1405	26.22	1.707	0.0060	0.0010	4.466	0.038
#4	1569	27.12	1.959	0.0060	0.0010	4.119	0.038

Elem	Co	Cu	Ga	Pb	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1460	7026	2023.	19.08	11.48	4239	2953.
SDev	0.0234	0.223	143.	95	1.69	0.0878	21.
%RSD	16.17	0.019	6.779	4.973	14.76	20.72	0.7160

#1	1381	7204.	2221.	18.33	9.823	3504	2966.
#2	1152	7004	2243.	18.20	10.18	3304	2973.
#3	1699	7477	1932.	19.77	12.65	34697	2927.
#4	1593	7659	2096.	20.02	13.22	35251	2945.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.898	7029.	2.154	0.0500	13.26	1.005	15.15
SDev	0.444	53.	0.022	0.260	0.55	0.017	0.23
%RSD	11.40	0.7431	1.010	17.33	3.966	1.722	1.505

#1	3.486	7081.	2.178	0.0500	14.43	0.9977	15.10
#2	5.549	7088.	2.121	0.0500	13.25	0.9836	15.15
#3	4.202	7123	2.178	0.0500	14.20	1.019	14.90
#4	4.355	7160	2.140	0.0500	13.57	1.019	15.45

002208

CONFIDENTIAL



115

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0115

Laboratory Sample ID: 931012SOIQ112-05

Date/Time Collected: 10-12-93/05:00

Date/Time Analyzed: 10-12-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	34.1	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0115

Laboratory Sample ID: 931012SQI0112-05

Date/Time Collected: 10-12-93/05:00

Date/Time Analyzed: 10-12-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.74	mg/L	0.10
Barium	0.21	mg/L	0.10
Copper	2600	mg/L	1.00
Iron	47.9	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.25	mg/L	0.20
Sodium	82500	mg/L	1000
Phosphorous	7930	mg/L	10.0
Potassium	648	mg/L	50.0
Ammonia	594	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.69	pH Units	----
TSS	4900	mg/L	10.0
TDS	25.1	%(mg/L)	0.10

Comments: NR = Not requested

5500 UPRIVER ROAD (512)289-0300  
P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

RG  
DC  
BP  
Jwo  
JKL  
GV  
MZ

CLIENT: ROCKY MTN. ARSENAL	BATCH# 118	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'2" = 86.0	VOLUME: 19,296
WASTE CODE(S): F039	LOAD# 50817 WATA	DATE: 11-6-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	Lt. BLUE
	MG/L	PPM	PPM				
				pH	5.4	5.47	PHASES S
				SP.GR.	1.17	1.16	ACIDITY
Ag				TOTAL CN-			ALKALINITY
Al	46.4	39.66		REAC. CN-			ODOR M
As	5.0	4.27	4.27	NH3 AS N	335	374	RADIO- Y (N)
Au				TOC	29.9	31.3	ACTIVE
Ba			0.16	VOC	N.D		
Ca	9.6	8.21		PROCESS STAGES PARAMETERS			
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr	1.4	1.20					
Cu	2,476	2116	2350	Encycle ppm			
Fe	208	17.78	45.5	NH3 286			
Mg	9.9	8.46		TOC 25.56			
Mn							
Na	95,280	81436	79700	RMA			
Ni	3.7	3.16		TSS 2650			
P	8201	7009	7860	TDS 23.2			
Pb	4.1	3.5		Off-specimen NA, NH3			
Se			0.41				
Si				9310185QI0114-03			
Sn	8.6	7.35					
V	1.2	1.03					
Zn	26.4	22.56					
K			575				

ANALYSTS: J. Amerykova

COMMENTS: LOAD 6996

REAGENT COST:

002211

MANAGER: B. Carmody  
DATE: 11-9-93

CONFIDENTIAL

Method: ENTE4A5 Sample Name: SAMPLE # 10000 Operation: HMZ  
 Run Time: 11/02/95 10:21:01  
 Comment: NATX 50317 CC-2985-40  
 Server: CNC User: Factor: 1

Elem	Ag	Al	As	Au	Ba	Ca	Cl
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14004	46.77	61.373	246.9	0064	9.643	2265
SDev	0100	6.5	11.2	0081	0012	052	0112
%RSD	7.14	14.04	18.04	3.284	18.12	53.65	4.950
#1	4100	47.14	1.948	784	0158	9.698	1316
#2	4900	45.86	1.961	474	0058	9.576	2117
#3	5996	46.32	5.146	2477	0082	9.634	2248
#4	6078	46.47	6.838	2474	0058	9.660	2360

Elem	Co	Cu	Cr	Fe	Kg	Mn	Nb
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12906	1.376	2368.	20.84	9.876	4115	2405.
SDev	0000	012	44.	07	088	0000	0
%RSD	0000	8.71	1.873	31.16	8934	0000	3652
#1	2906	1.394	1431	20.92	9.969	4115	2405
#2	12906	1.366	2328.	20.76	9.889	4115	2417
#3	12906	1.373	2356.	20.86	9.989	4115	2402.
#4	2906	1.373	2357.	20.83	9.756	4115	2396.

Elem	Ni	P	Pb	Se	Sn	V	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.695	8805.	4.127	12769	8.571	1.243	26.43
SDev	0056	50.	104	1713	224	011	1.26
%RSD	1.512	5630	2.524	13.38	3.308	9036	996.3
#1	3.740	8853.	4.127	2318	8.309	1.257	26.76
#2	3.714	8737.	3.981	10773	8.530	1.230	26.13
#3	3.614	8803.	4.215	13091	8.475	1.243	26.36
#4	3.714	8826.	4.186	14894	8.973	1.248	26.47

002212

CONFIDENTIAL



Method: ENTRA51 Sample Name: SAMPLE 4 31641 Operator: HMZ  
 Run Time: 11/08/93 10:19:22  
 Comment: NATL 50817 CC-2936-91  
 Mode: UDFC Conc. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.532	52.80	5.154	2.428	1.253	21.70	1.031
SDev	.010	.192	1.035	.190	0.011	.65	.190
%RSD	0.000	1.745	33.07	7.828	1.0000	3.088	15.40
#1	1.833	52.40	7.342	1.755	1.250	21.79	1.067
#2	1.552	52.21	5.759	2.437	1.250	21.07	1.067
#3	1.852	52.40	4.462	2.741	1.250	22.15	1.395
#4	1.830	54.17	8.077	3.354	1.250	21.79	1.395

Elem	Co	Cu	Ga	Pb	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.163	3.172	2476.	12.56	41.45	.9212	78540.
SDev	.388	.176	.9	.18	.99	.0000	430
%RSD	33.33	5.556	.3521	.4254	2.305	.0000	.5480
#1	1.356	3.083	2469.	42.56	42.33	.9212	78210.
#2	.5213	3.083	2472.	42.78	40.90	.9212	78430.
#3	1.356	3.083	2472.	42.56	40.46	.9212	78340.
#4	1.356	3.436	2488.	42.34	42.23	.9212	79170.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.99	8201.	12.44	3.863	18.62	2.907	37.33
SDev	.43	56.	.65	2.782	4.13	.000	.63
%RSD	4.013	.6863	5.792	72.01	22.12	.0000	1.700
#1	12.26	8119.	13.17	7.727	16.95	2.907	36.38
#2	12.52	8213.	11.71	1.288	23.87	2.907	37.65
#3	11.47	8244.	11.71	3.863	19.72	2.907	37.65
#4	11.73	8229.	13.17	2.576	14.12	2.907	37.65

Method: ENTEXAS1 Sample Name: SAMPLE # 37619  
 Run Date: 11/02/95 10:17:13  
 Comment: NATL 50817 (C-926-91)  
 Dilution Factor: 1000

Operator: RMZ

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.60	152.3	23.08	20.79	1877.7	60.73	7.395
Stdev	1.13	9.7	18.31	1.32	1.117	1.90	1.480
%RSD	10.69	6.354	79.35	6.349	127.7	2.985	36.29
#	10.60	141.0	11.54	19.07	1401.5	54.42	1.335
#2	10.60	150.3	11.34	19.66	1750	59.42	7.385
#3	6.748	187.7	50.00	21.19	1750	59.42	4.103
#4	14.46	164.5	19.23	12.25	1583.5	53.02	10.67

Elem	Co	Cr	Cu	Fe	Mg	Mn	Nb
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.750	14.10	2744.	41.11	98.65	3.071	95280.
Stdev	7.420	3.37	15.	1.00	5.12	1.000	828.
%RSD	95.74	23.94	.5604	0000	5.190	0000	8694
#1	13.56	16.74	2726.	41.11	103.1	3.071	94230.
#2	13.56	16.74	2737.	41.11	94.21	3.071	95110.
#3	5.813	9.691	2755.	41.11	94.21	3.071	95580.
#4	<.0030	13.21	2759.	41.11	103.1	3.071	96200.

Elem	Ni	P	Pb	Se	Sr	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.70	8438.	69.52	22.54	145.3	10.06	42.30
Stdev	5.24	131.	7.32	51.91	32.7	2.24	1.00
%RSD	22.74	1.556	10.53	230.4	22.50	22.22	1.0000
#1	27.68	8379	73.18	<.0500	169.5	11.18	42.30
#2	22.40	8522.	58.54	<.0500	141.8	11.18	42.30
#3	19.77	8283.	73.18	51.51	169.5	6.708	42.30
#4	32.95	8569	73.18	77.27	100.3	11.18	42.30

002214

CONFIDENTIAL

118

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 118

Laboratory Sample ID: 931014SQI0114-03

Date/Time Collected: 10-14-93/05:00

Date/Time Analyzed: 10-14-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
TOC	31.3	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_

## ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 118Laboratory Sample ID: 931014SOI0114-03Date/Time Collected: 10-14-93/05:00Date/Time Analyzed: 10-14-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	4.27	mg/L	0.10
Barium	0.16	mg/L	0.10
Copper	2350	mg/L	1.00
Iron	45.5	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.41	mg/L	0.20
Sodium	79700	mg/L	1000
Phosphorous	7860	mg/L	10.0
Potassium	575	mg/L	50.0
Ammonia	374	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.47	pH Units	---
TSS	2650	mg/L	10.0
TDS	23.2	%(mg/L)	0.10

Comments: NR = Not requested

002216

5500 UPRIVER ROAD (512)289-0300  
 P.C. BOX 4767 CORPUS CHRISTI, TEXAS 78649

**REPORT - R M A**

CLIENT: ROCKY MTN. ARSENAL BATCH# 112 LAB NO. CC 2936-91  
 WASTE DESCRIPTION: BRINE DIP IN.: 7'0" = 84.0 VOLUME: 18,851  
 WASTE CODE(S): F039 LOAD# 50846 DATE: 11-6-93

**LAB ANALYSIS**

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR		
				pH	5.7	5.69	PHASES	
	MG/L	PPM	PPM	SP.GR.	1.18	1.17	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	36.0	30.51		REAC. CN-			ODOR	
As	38	3.22	3.76	NH3 AS N	255	414	RADIO-	
Au				TOC	30.4	36.0	ACTIVE	
Ba			0.18	VOC	N.D.			
Ca	19.2	16.27		PROCESS STAGES				PARAMETERS
Cd					pH	REDOX	TEMP C	
Co				INITIAL				
Cr	1.6	1.36		Encycle ppm				
Cu	2,429	2058	2400	TOC 25.76				
Fe	278	23.56	43.2	NH3 216.0				
Mg	14.8	12.54		RMA				
Mn				TSS 4000				
Na	86650	73415	87820	TDS 24.7				
Ni	7.3	6.19						
P	8124	6885	8000					
Pb	4.9	4.15						
Se			0.20					
Si								
Sn	16.8	14.24		Off spec on Na, Ni, Sn, NH3 193101154 I 0111-05				
V	1.5	1.27						
Zn	27.2	23.05						
K			621					

ANALYSTS: J. Zimerykowski

COMMENTS: LOAD 6990

REAGENT COST:

002217

MANAGER: B. Caumody  
 DATE: 11-8-93

**CONFIDENTIAL**

Agency: FBI/ELAS Sample Name: SAMPLE # 37525  
 Date: 11/08/83 10:38:53  
 Element: NATL 5026a CO-29 (ppm)  
 Method: NIST Gravimetric

Operator: HPL

Elem	As	Al	Ar	Au	Ba	Cl	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6800	35.98	3.927	3965	0099	19.10	1.51
Stdev	0108	1.39	1.30	0407	0040	1.79	0.10
RSD	3.076	3.819	3.316	10.25	40.18	9.351	7.291
#1	6997	38.79	3.900	3954	0098	17.56	1.45
#2	6839	34.82	4.323	3882	0092	18.34	1.76
#3	6625	35.09	3.849	3911	0105	19.42	1.73
#4	6695	37.12	3.115	4077	0152	20.75	1.70

Elem	Ca	Cr	CU	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15774	1.565	1514.	27.77	14.77	9105	2742.
Stdev	0600	045	151.	38	1.79	10298	10.
RSD	10.40	2.881	9.943	3.159	5.331	3.276	1.451
#1	15077	1.506	1693.	26.62	13.70	8721	2055.
#2	1542	1.556	1564.	27.61	14.75	9028	2046.
#3	16007	1.584	1457.	28.23	15.04	9274	2036.
#4	16472	1.612	1340.	28.64	15.57	9397	2018.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.265	10160.	4.910	1.2189	16.78	1.543	27.16
Stdev	1.453	234.	134	1.2001	1.02	1.041	1.42
RSD	6.233	2.307	2.726	91.38	6.094	2.635	1.537
#1	6.650	9842	4.742	1.2061	15.75	1.489	27.55
#2	7.240	10140	4.888	1.4636	16.22	1.543	27.45
#3	7.462	10250.	4.947	1.2318	17.08	1.552	27.00
#4	7.710	10390.	5.064	1.0500	18.08	1.587	26.65

002218

CONFIDENTIAL

Method: ENTEKA31 Sample Name: SAMPLE # 11117 Operation: FMC  
 Run Date: 11/05/05 08:53 AM  
 Current: NAT4 40Kv 0.100000  
 User: JMM

Elem	As	Se	As	As	Ca	Ca	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
ave	7.11	5.14	27	10.53	4026	65.54	6.145
dev	1.19	1.10	1.10	1.17	10327	1.77	1.16
RSD	16.7	21.2	4.0	11.1	25.6	2.7	19.1
#1	7.114	5.14	27.00	10.53	4026	65.54	6.149
#2	7.115	5.14	26.6	10.51	4026	65.31	6.177
#3	7.114	5.14	27.7	10.55	4051	65.44	6.177
#4	7.101	5.14	26	11.12	4034	67.15	6.177
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
ave	7.1e9	10.75	429.	58.00	85.35	2.764	68040.
dev	447	1.73	22.	1.89	1.27	1.000	921
RSD	6.2e2	1.759	5.2	1.191	1.492	1.0000	1.353
#1	6.782	9.779	452.	57.23	83.91	2.764	69460.
#2	7.557	10.84	409.	57.67	85.24	2.764	67760.
#3	6.782	10.84	418.	58.78	85.24	2.764	67530.
#4	7.557	11.54	431.	58.34	87.01	2.764	67940.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
ave	23.33	11010	13.66	3.220	45.31	3.161	52.45
dev	65	107	1.40	1.6e3	1.79	.428	.60
RSD	2.768	1.076	1.039	51.54	3.942	5.246	1.140
#1	22.54	10940	12.83	5.151	47.39	7.826	52.03
#2	24.12	10900	13.76	2.576	46.00	7.826	52.03
#3	23.33	11110	13.30	5.8e3	43.24	8.720	53.30
#4	23.33	11100	13.76	1.238	44.62	8.273	52.45

002219

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Method: HPLC2and Sample Name: SAMPLE # 11-02-047 Operator: HPL

Run Time: 11/02/08 11:12:00

Comment: NISTX-HPK46-C1-C2-01-001

Lower LPL: 0.1 ppm, Upper LPL: 100000

Elem	As	Bi	Br	Ca	Ce	Cr	Cu
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.17	8.773	1.14	1026	0010	10.41	0961
StDev	1.06	1.06	1.45	68.37	0071	1.50	0261
%RSD	25.41	11.963	127.31	6.665	70.51	14.47	27.17
#1	1.5	13.31	3.17	4100	1010	10.19	7000
#2	5.01	18.39	4.377	1135	1010	10.17	6917
#3	1.653	13.99	4.142	156	0010	10.19	1109
#4	251	55.23	3.753	0050	0010	4.090	10725

Elem	Co	Cm	Cl	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2177	13126	1862.	21.57	14.80	5975	2587.
StDev	0471	0763	156	1.48	1.55	0473	34.
%RSD	21.67	5.790	8.349	6.847	10.46	7.918	1.263
#1	2018	3069	1982.	21.32	14.59	5290	2900.
#2	1013	3160	1969.	21.75	14.89	16017	2857.
#3	2868	19070	1641.	23.40	16.75	16571	2783.
#4	1306	7204	1832.	19.21	12.97	15421	3008.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.396	7449.	2.310	<.0500	14.92	1.074	15.47
StDev	1.592	199.	1.120	1.0627	1.92	1.084	59
%RSD	36.23	2.694	48.524	21.16	12.892	7.810	3.838
#1	4.355	7405.	2.353	<.0500	14.20	1.068	15.71
#2	4.396	7541.	2.291	<.0500	14.17	1.082	15.33
#3	5.321	8032.	2.611	<.0500	16.11	1.174	15.77
#4	4.411	6820.	2.084	<.0500	15.19	1.9695	14.58

002221

CONFIDENTIAL





112

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0112

Laboratory Sample ID: 931011SOI0111-05

Date/Time Collected: 10-11-93/05:00

Date/Time Analyzed: 10-11-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	36.0	mg/L	10.0
Specific Gravity	1.17	gS/gH <sub>2</sub> O	0.90

Comments: \_\_\_\_\_

\_\_\_\_\_



SOI OPERATIONS • P.O. BOX 1857 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 288-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0112

Laboratory Sample ID: 931011SOI0111-05

Date/Time Collected: 10-11-93/05:00

Date/Time Analyzed: 10-11-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	3.76	mg/L	0.10
Barium	0.18	mg/L	0.10
Copper	2400	mg/L	1.00
Iron	43.2	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.20	mg/L	0.20
Sodium	87820	mg/L	1000
Phosphorous	8000	mg/L	10.0
Potassium	621	mg/L	50.0
Ammonia	414	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.69	pH Units	---
TSS	4000	mg/L	10.0
TDS	24.7	%(mg/L)	0.10

Comments: NR = Not requested

CLIENT: RMA 50833 LAB NO. CC 2936  
WASTE DESCRIPTION: VOLUME: 18,624  
WASTE CODE(S): LOAD # 6992 DATE: 11-3-93

LAB ANALYSIS

ICP	PRE-SCREEN	POST-TREATMENT	pH	5.7	Color	LT. BLUE/F
	ppm	RMA ppm	Sp. Gr.	1.17	Phases	S Cl
			Total CN-		Acidity	NO2
Ag			Reac. CN-		Alkalinity	Br
Al	48.4		NH3 as N	170	Odor	M NO3
As	5.6	3.83	TOC	39.4	RADIOACTIVE	Y/N PO4
Au			VOC	N.D.		SO4

PROCESS STAGES: PARAMETERS

Ca	11.5					
Cd						
Co						
Cr	1.4		INITIAL TOC	33.0		
Cu	2,296	2800	Sp. Gr.	1.17		
Fe	21.3	44.2	K	640		
Mg	13.1		NH3	398		
Mn			pH	5.47		
Na	78,500	82100	TSS	4200		
Ni	5.4		TDS	24.8		
P	7,506	8940				
Pb	4.3		Off spec	NH3, Al, Na		
Se		0.30				
Si						
Sn	9.7					
V	1.3					
Zn	26.9					

CHEMISTS: *[Signature]* COMMENTS: 6' 11" = 83.0 REAGENT COST: 002225  
LAB MANAGER: *[Signature]* 11-4-93 CONFIDENTIAL

Amesbury Report

1991-11-06-03 09:50:40 AM

Page 1

Client: ENTECH | Sample Name: SAMPLE # 30570

Operator: HLLW

Run Type: 11/06/91 09:51:21

Comment: C-2435-01 MATX 50253

Date: 11/06/91 | Job: Report: 1

Elem	As	Se	As	Se	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10890	18.41	5.849	0.106	10019	11.50
StDev	10890	11.11	1.196	0.015	11611	2.22
%RSD	100.00	60.30	19.76	14.51	105.9	19.31

#1	14010	41.07	5.705	0.294	10010	12.25
#2	6387	22.29	6.006	5.07	10019	14.29
#3	10122	59.31	5.510	1.2288	10019	9.418
#4	5920	55.85	5.345	1.2535	10044	10.05

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4014	1.355	2532.	21.31	13.10	.7926	140.
StDev	0612	0.54	507.	3.23	1.25	1.0972	181.
%RSD	15.25	4.006	20.01	15.15	14.12	12.26	10.88

#1	4089	1.344	2223.	22.72	13.49	.8253	1549.
#2	14347	1.435	1985.	25.16	15.51	.9145	1473.
#3	3484	1.318	3015.	18.12	11.31	.7004	1862.
#4	3635	1.324	2906.	19.24	12.07	.7301	1758.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.419	8655.	4.286	<.0500	9.745	1.346	26.91
StDev	1.301	675.	.178	.1003	867	.126	.56
%RSD	24.02	7.797	4.147	223.8	8.900	9.387	2.066

#1	5.970	8886.	4.110	.0961	10.33	1.323	26.35
#2	5.984	9488.	4.521	<.0500	10.64	1.507	26.53
#3	4.156	7963.	4.198	.1473	9.127	1.225	27.26
#4	4.564	8282.	4.316	<.0500	8.887	1.269	27.50

002226

CONFIDENTIAL

Method: ENTEXTA2 Sample Name: SAMPLE # 37535

Operator: HLW

Run Time: 11/04/93 09:39:42

Comment: (C-2874-9) NATX 50R33

Mode: CONC Conc Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	0.00	65.72	37.43	1.149	18.35	31.13	19.73
SDev	1.85	2.78	3.67	309	1.92	4.43	2.34
%RSD	8.933	4.230	9.798	26.75	10.46	13.80	11.87

#1	18.49	62.00	34.44	5242	16.09	35.44	16.71
#2	20.57	64.85	34.44	1.109	18.01	31.05	19.32
#3	23.00	68.34	41.92	1.558	20.99	36.66	22.26
#4	20.57	67.51	38.93	1.446	18.01	34.35	20.63

Units	Co	Cr	Cu	Pb	Mg	Mn	Na
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.07	13.37	2296.	57.07	60.73	19.85	39420.
SDev	2.19	2.15	42.	3.07	3.29	1.96	503.
%RSD	10.89	11.39	1.832	5.384	5.416	9.862	1.275

#1	17.42	16.11	2248.	53.02	57.89	17.47	38880.
#2	19.69	18.71	2274.	56.78	58.82	19.55	39140.
#3	22.72	21.31	2321.	60.34	65.28	22.23	39670.
#4	20.45	19.36	2339	58.16	61.12	20.15	39990.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	30.45	7506.	26.42	42.91	18.00	20.82	53.22
SDev	3.65	139.	4.15	3.82	4.53	2.17	2.74
%RSD	11.99	1.851	15.71	8.914	25.17	10.42	5.140

#1	28.23	7350.	23.49	38.10	23.10	18.06	49.93
#2	30.58	7448.	26.42	41.95	17.10	20.71	52.32
#3	35.55	7556.	32.29	47.07	12.30	23.35	56.32
#4	27.45	7672.	23.49	44.51	19.50	21.15	54.32

002227

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ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0114

Laboratory Sample ID: 931012SQI0112-03

Date/Time Collected: 10-11-93/12:40

Date/Time Analyzed: 10-12-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.83	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	2800	mg/L	1.00
Iron	44.2	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.30	mg/L	0.20
Sodium	82100	mg/L	1000
Phosphorous	8940	mg/L	10.0
Potassium	640	mg/L	50.0
Ammonia	398	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.47	pH Units	----
TSS	4200	mg/L	10.0
TDS	24.8	%(mg/L)	0.10

Comments: NR = Not requested

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 0114

Laboratory Sample ID: 931012SQI0112-03

Date/Time Collected: 10-11-93/12:40

Date/Time Analyzed: 10-12-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	33.0	mg/L	10.0
Specific Gravity	1.17	gS/gH <sub>2</sub> O	0.90

Comments: \_\_\_\_\_

10.0

SE	-0.1	-0.09	-1.0
SN	9.7	8.29	-10.0
V	1.3	1.11	-3.0
ZN	26.9	22.99	-30.0
NH3 AS N	170	145.30	-50
TOC	39.4	33.68	-200
VOC	-0.1	-0.09	-200
PH	5.7		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.17

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.1	-0.09	-25.0
AL	48.4	41.37	-40.0
AS	5.6	4.79	-5.0
AU	-0.1	-0.09	-5.0
BA	-0.1	-0.09	-5.0
CA	11.5	9.83	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.4	1.20	-3.0
CU	2296	1962.39	G1,000
FE	21.3	18.21	-30.0
MG	13.1	11.20	-30.0
MN	0.1	-0.09	-1.0
NA	<del>39420</del> 78240	<del>-33692.31</del> 66884	-60000.0
NI	5.4	4.62	-5.0
P	7506	6415.38	-8500.0
PB	4.3	3.68	-10.0
SE	-0.1	-0.09	-1.0
SN	9.7	8.29	-10.0
V	1.3	1.11	-3.0
ZN	26.9	22.99	-30.0
NH3 AS N	170	145.30	-50
TOC	39.4	33.68	-200
VOC	-0.1	-0.09	-200
PH	5.7		5.0 TO 7.0

002230

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Method: ENTEK451 Sample Name: SAMPLE # 37556 Operator: HLW  
 Run Time: 11/04/93 13:17:20  
 Comment: CC-2936-91 NATX 50833  
 Mode: CONC Corr Factor: 1.000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.13	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
SDev	2.14	2.189	47.34	1.345	.0000	4.887	.0000
%RSD	22.21	1.168	537.7	6.886	.0000	3.088	.0000

#1	12.43	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#2	12.43	<.0250	6.588	<.0060	<.0010	<.0100	<.0040
#3	12.43	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#4	7.456	<.0250	50.51	<.0060	<.0010	<.0100	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	<.0050	2260.	34.15	<.0200	<.0010	78260.
SDev	5.766	2.364	3.	13.14	10.01	.0000	518.
%RSD	20.99	7.143	.1235	38.46	20.00	.0000	6616

#1	<.0030	<.0050	2257.	17.08	<.0200	<.0010	77980.
#2	<.0030	<.0050	2264.	38.10	<.0200	<.0010	78990.
#3	<.0030	<.0050	2259.	48.60	<.0200	<.0010	77830.
#4	<.0030	<.0050	2259.	32.84	<.0200	<.0010	78250.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0100	7267.	<.0250	18.40	18.20	<.0020	25.07
SDev	9.508	141.	24.07	43.95	34.65	3.192	.00
%RSD	30.23	1.940	14.34	238.9	190.4	17.76	.0000

#1	<.0100	7443.	<.0250	80.94	40.03	<.0020	25.07
#2	<.0100	7126.	<.0250	7.358	<.0200	<.0020	25.07
#3	<.0100	7313.	<.0250	7.358	54.59	<.0020	25.07
#4	<.0100	7184.	<.0250	<.0500	<.0200	<.0020	25.07

002231

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002232

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 143	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7' 2 1/4" = 86.25'	VOLUME: 19,385
WASTE CODE(S): F039	LOAD# 50747	DATE: 11-24-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	PHASES
				pH		BLUE	S
	MG/L	PPM	PPM	SP.GR.			ACIDITY
Ag				TOTAL CN-			ALKALINITY
Al	59.8	50.68		REAC. CN-			ODOR M
As	4.4	3.73	3.51	NH3 AS N	160 233		RADIO- Y (N)
Au				TOC	43.5 33.5		ACTIVE
Ba			0.27	VOC	N.D.		

PROCESS STAGES PARAMETERS

				PH	REDOX	TEMP C
Co				INITIAL		
Cr	2.7	2.29				Rechecked
Cu	2,456	2081	2189			Al = 52.52 = 44.51
Fe	51.9	43.98	52.4	Encycle ppm		Fe = 38.85 = 32.92
Mg	59.7	50.59		NH3 136		Mg = 36.62 = 31.03
Mn				TOC 3686		Ni = 9.213 = 7.81
Na	91,730	77737	76400			
Ni	14.5	12.29		RMA		
P	8,123	6884	7310	TSS 3060		
Pb	2.28	1.94		TDS 23.7		
Se			0.34			
Si						
Sn	6.8	5.76		Off spec on Al, Fe, Mg, Na, Ni, NH3		
V	3.2	2.71		9311025QIO126-03		
Zn	18.7	15.85		Outside Umpirel = 179,000		1-4-94
K			576			

ANALYSTS: J. Zwierynowski

COMMENTS: LOAD 7152

REAGENT COST: 002233

MANAGER: B. Carmody

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 38174  
Run Time: 11/24/93 16:39:51  
Comment: NATX 50747 CC-2936-91  
Mode: CONC Corr Factor: 10

Operator: HMZ

Elem	Ag	Al	As	Au	Ba	Ca	Cd
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.710	59.79	7.037	2.635	.1577	24.63	8159
Stdev	.081	.79	.550	.168	.0112	.74	0485
RSD	4.760	1.327	7.812	6.293	8.882	3.009	5.949
#1	1.706	60.33	7.638	2.758	.1483	25.15	8546
#2	1.641	59.25	6.665	2.493	.1271	24.11	7740
#3	1.794	60.54	7.660	2.797	.1483	25.36	8613
#4	1.641	58.83	6.486	2.491	.1271	23.88	7740

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.402	2.702	2049.	51.89	59.66	1.341	567410.
Stdev	.084	.100	11.	.98	1.69	.033	
RSD	4.536	3.711	5321	1.896	2.839	2.442	0000
#1	1.445	2.780	2050.	52.61	60.73	1.361	567410.
#2	1.324	2.604	2056.	51.24	58.39	1.317	567410.
#3	1.463	2.795	2056.	52.83	61.47	1.376	567410.
#4	1.376	2.676	2033.	50.86	58.05	1.309	567410.

Elem	Ni	P	Pb	Se	Sn	V	Zn
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.47	9242.	14.63	.9842	6.822	3.152	18.67
Stdev	.41	181.	.96	.8223	.356	.098	.25
RSD	2.866	1.956	6.557	83.55	5.216	3.109	1.326
#1	14.72	9373.	15.34	1.922	7.013	3.222	18.86
#2	14.30	9138.	13.91	1.402	6.494	3.081	18.54
#3	14.99	9615.	15.56	.1393	7.227	3.248	18.90
#4	13.97	9042.	13.70	.4735	6.555	3.055	18.39

002234

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Method: ENTEXAS1 Sample Name: SAMPLE # 38171  
 Run Time: 11/24/93 16:53:19  
 Comment: NATX 50767 CC-29%--91  
 Code: QONC Comp. Factor: 100

Operator: HMZ

Elem	As	As	As	As	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	21.523	70.05	61.849	31.747	1765	19.96	1.058
SDev	1.778	1.75	3.466	1.717	6608	44	187
NRSD	14.64	1.110	50.28	3.346	70.05	1.210	8.147
#1	21.025	68.95	11.46	31.617	1412	19.40	9570
#2	21.707	70.53	31.127	31.340	1417	20.30	1.024
#3	21.733	70.65	61.501	31.559	11118	19.75	1.158
#4	21.862	70.21	61.333	41.071	2118	20.30	1.091

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.978	21.885	2455.	49.02	65.50	1.364	84900.
SDev	1.433	1.250	25.	79	79	1.043	914.
NRSD	21.88	3.671	1.011	1.7909	1.186	0.121	1.376
#1	1.992	21.534	2486.	49.11	65.48	1.332	85070.
#2	1.892	21.902	2456.	48.99	67.39	1.406	84840.
#3	1.548	21.975	2456.	49.66	65.68	1.406	84840.
#4	2.580	3.122	2425.	48.52	65.44	1.332	83230.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.42	8125.	19.40	1.7428	5.271	3.808	18.69
SDev	1.18	70.	1.75	3.541	2.093	0.65	.17
NRSD	11.315	1.8656	9.199	476.8	39.71	1.695	.9281
#1	15.60	8001.	18.20	1.0500	5.959	3.710	18.93
#2	13.48	8151.	19.94	1.393	4.431	3.839	18.69
#3	17.48	8086.	17.77	5.107	2.903	3.839	18.53
#4	13.18	8046.	21.67	1.0500	7.792	3.839	18.61

002235

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Method: ENTEXA53 Sample Name: SAMPLE # 38164  
 Run Time: 11/24/93 16:18:32  
 Comment: NATX 50747 CC-2936-91  
 Mode: CONC Com. Factor: 1000

Operator: HMZ

Elem	Ag	Al	As	Au	Ba	Ce	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.50	125.1	92.61	30.75	1.589	23.64	8.059
Stdev	1.34	4.6	35.19	6.85	353	2.32	336
SPSD	7.226	3.678	65.89	14.14	21.22	10.23	4.167

#1	17.45	132.0	76.96	31.19	1.412	19.49	7.555
#2	18.85	122.5	85.85	33.22	1.412	23.69	8.227
#3	17.45	122.9	74.029	24.51	2.118	22.49	8.227
#4	20.25	123.5	39.21	34.14	1.412	24.89	8.227

Elem	Co	Cr	Cu	Fe	K	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.05	13.96	2604	16.67	198.8	2.959	91730.
Stdev	.86	.73	5.	2.50	19.6	1.000	311.
SPSD	5.714	5.263	1929	7.196	9.857	0000	3393

#1	15.47	13.06	2599	34.62	201.2	2.959	91340.
#2	15.48	13.59	2610.	35.79	179.7	2.959	92050.
#3	13.75	13.59	2607.	40.48	225.0	2.959	91910.
#4	15.48	13.59	2501	35.79	189.2	2.959	91630.

Elem	Ni	P	Pb	Se	Sr	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.00	8261.	138.7	4.643	28.27	15.48	11.85
Stdev	5.66	91.	12.4	28.20	28.71	1.65	1.77
SPSD	24.54	1.101	13.26	507.5	101.6	4.167	5.984

#1	28.26	8178.	150.4	<.0500	4.584	15.16	13.65
#2	15.79	8198.	125.7	32.50	4.584	15.16	11.85
#3	17.61	8295.	121.4	<.0500	62.64	15.16	13.45
#4	27.67	8374.	147.4	21.36	41.25	15.45	13.45

002236

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143

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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 143

Laboratory Sample ID: 931102SQI0126-03

Date/Time Collected: 11-01-93/18:00

Date/Time Analyzed: 11-02-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	33.5	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Al 52.52 1.18  
 Fe 38.85 44.51 ov  
 Mg 36.62 32.92 ov  
 Ni 9.213 31.03 ov  
 Pb 2.284 7.81 ov  
 1.94 OK

Comments: \_\_\_\_\_



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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 143

Laboratory Sample ID: 931102SGI0126-03

Date/Time Collected: 11-01-93/18:00

Date/Time Analyzed: 11-02-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.51	mg/L	0.10
Barium	0.27	mg/L	0.10
Copper	2189	mg/L	1.00
Iron	52.4	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.34	mg/L	0.20
Sodium	76400	mg/L	1000
Phosphorous	7310	mg/L	10.0
Potassium	576	mg/L	50.0
Ammonia	233	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.68	pH Units	----
TSS	3060	mg/L	10.0
TDS	23.7	%(mg/L)	0.10

Comments: NR = Not requested

2.71	-3.0		
ZN	18.7	15.85	-30.0
NH3 AS N	160	135.59	-50
TOC	43.5	36.86	-200
VOC	-0.1	-0.08	-200
PH	6.1		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.18

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.085	-25.0
<del>AL</del>	<del>59.8</del>	<del>50.68</del>	<del>-40.0</del>
AS	0	0.00	-5.0
AU	-0.100	-0.085	-5.0
BA	-0.1	-0.08	-5.0
CA	24.6	20.85	-40.0
CD	-0.1	-0.08	-1.0
CO	-0.1	-0.08	-1.0
CR	2.7	2.29	-3.0
CU	2456	2081.36	G1,000
<del>FE</del>	<del>51.9</del>	<del>43.98</del>	<del>-30.0</del>
<del>MG</del>	<del>59.7</del>	<del>50.59</del>	<del>-30.0</del>
MN	-0.1	-0.08	-1.0
<del>NA</del>	<del>91730</del>	<del>77737.29</del>	<del>-60000.0</del>
<del>NI</del>	<del>14.5</del>	<del>12.29</del>	<del>-5.0</del>
P	8123	6883.90	-8500.0
<del>PB</del>	<del>14.6</del>	<del>12.37</del>	<del>-10.0</del>
SE	-0.1	-0.08	-1.0
SN	6.8	5.76	-10.0
V	3.2	2.71	-3.0
ZN	18.7	15.85	-30.0
<del>NH3 AS N</del>	<del>160</del>	<del>135.59</del>	<del>-50</del>
TOC	43.5	36.86	-200
VOC	-0.1	-0.08	-200
PH	6.1		5.0 TO 7.

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Method: ENTEXAS1 Sample Name: SAMPLE # 38197

Operator: HLW

Run Time: 11/29/93 09:40:11

Comment: NATX 50747 CC-2936-91

Mode: CONC Corr. Factor: 5

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	52.52	4.402	<.0060	<.0010	15.01	<.0040
SD	.0777	1.27	.200	.1528	.0092	.66	.0331
%RSD	23.87	2.411	4.553	39.23	4.939	4.397	26.46

#1	<.0030	52.86	4.478	<.0060	<.0010	14.41	<.0040
#2	<.0030	53.87	4.627	<.0060	<.0010	15.21	<.0040
#3	<.0030	50.82	4.347	<.0060	<.0010	15.86	<.0040
#4	<.0030	52.51	4.155	<.0060	<.0010	14.55	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	.8225	2279.	38.85	36.62	.7352	10130.
SD	.0522	.0662	99.	.83	1.14	.0225	.
%RSD	139.9	8.047	4.364	2.130	3.100	3.057	.0000

#1	<.0030	.7498	2336.	38.21	35.51	.7166	10130.
#2	<.0030	.8217	2359.	39.76	37.19	.7457	10130.
#3	.0280	.9100	2138.	39.35	37.93	.7618	10130.
#4	<.0030	.8086	2283.	38.09	35.85	.7166	10130.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.213	8104.	2.284	<.0500	2.380	1.359	15.48
SD	.353	146.	.519	.5282	.175	.059	.30
%RSD	3.828	1.797	22.71	191.5	7.367	4.363	1.943

#1	8.905	8031.	1.697	<.0500	2.131	1.291	15.51
#2	9.367	8314.	2.124	<.0500	2.446	1.378	15.88
#3	9.638	8086.	2.932	<.0500	2.540	1.430	15.17
#4	8.941	7985.	2.376	<.0500	2.404	1.338	15.35

002240

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ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300

P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID SHIPMENT

REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 149	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'2 3/4"	VOLUME: 19,535
WASTE CODE(S): F039	LOAD# 50820	DATE: 11-24-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	BLUE	
				pH	6.1	5.49	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.17	1.17	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	45.52	38.91		REAC. CN-			ODOR	M
As	4.8	4.10	3.50	NH3 AS N	173	256	RADIO-	Y (N)
Au				TOC	33.0	33.7	ACTIVE	
Ba			0.17	VOC	N.D.			
Ca	27.0	23.08		PROCESS STAGES				PARAMETERS
Cd					pH	REDOX	TEMP C	
Co				INITIAL				
Cr								
Cu	2,478	2118	2160	Encycle ppm				
Fe	33.41	28.56	44.1	NH3 147.86				
Mg	34.21	29.21		TOC 28.21				
Mn								
Na	96980	82889	77500	RMA				
Ni	9.01	7.70		TSS 2330				
P	8,293	7088	7600	TDS 24.4				
Pb	3.41	2.92		Rechecked Ni = 13.9 => 11.88				
Se								
Si				Off spec = Ni, Na, NH3				
Sn	4.8	6.67						
V	1.55	1.32						931103 SQT 0127-01
Zn	17.3	14.79						

ANALYSTS: H. Kwiecnyhard 571 Umpire Outside Lab 84000 ppm 1-4-94  
 COMMENTS: LOAD 7153

MANAGER: B. Carmody

REAGENT COST: 002241  
**CONFIDENTIAL**

Method: ENTEXAS1 Sample Name: SAMPLE # 38176

Operator: HMZ

Run Time: 11/24/93 16:45:42

Comment: NATX 50820 CC-2936-91

Mode: CONC Corr. Factor: 10

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.807	53.09	6.467	4.448	.1906	26.96	1.263
SDev	.365	.51	.729	.593	.0706	.62	.146
%RSD	12.99	.9541	11.27	13.34	37.04	2.291	11.55

#1	2.478	52.34	6.149	3.827	.1553	26.05	1.123
#2	3.288	53.40	6.089	5.204	.2965	27.43	1.446
#3	2.883	53.32	7.558	4.592	.1553	27.25	1.311
#4	2.576	53.32	6.069	4.168	.1553	27.11	1.170

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.133	3.603	1691.	40.69	60.61	1.215	\$67410.
SDev	.261	.257	83.	.79	2.24	.029	.
%RSD	12.25	7.131	4.927	1.943	3.698	2.351	.0000

#1	1.909	3.324	1740.	40.60	58.03	1.176	\$67410.
#2	2.494	3.919	1580.	39.77	63.43	1.043	\$67410.
#3	2.150	3.684	1677.	40.69	60.97	1.228	\$67410.
#4	1.978	3.486	1767.	41.70	60.01	1.213	\$67410.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.89	8881.	20.90	<.0500	7.762	3.726	17.26
SDev	.23	170.	2.20	.9649	.640	.174	.45
%RSD	1.683	1.916	10.52	547.0	8.249	4.681	2.605

#1	13.55	8803.	18.81	.2136	6.921	3.532	17.28
#2	14.05	8709.	23.71	<.0500	8.480	3.945	16.70
#3	13.90	8905.	21.54	.9935	7.807	3.764	17.27
#4	14.04	9106.	19.55	<.0500	7.838	3.661	17.80

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Method: ENTEXAS1 Sample Name: SAMPLE # 78169

Operator: HMZ

Run Time: 11/24/93 16:28:58

Comment: NATX 50920 CC-2936-91

Mode: CONC Corr. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.304	62.03	5.652	1.776	11236	20.73	19234
SDev	.197	.193	3.186	.1214	0353	.52	1163
%RSD	8.571	1.500	56.31	6.876	3.157	2.526	12.60
#1	2.304	61.98	1.777	3.677	1412	20.84	3227
#2	2.164	61.55	7.494	7.766	0706	20.60	18898
#3	2.583	63.35	8.883	4.021	1412	21.32	12298
#4	2.164	61.24	4.516	3.618	1412	20.12	11091

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.064	9.274	2478.	126.9	60.23	4.272	88740.
SDev	.140	.227	12.	.9	1.15	1.037	507.
%RSD	6.804	2.452	4.706	6.997	1.915	24.58	5.716
#1	2.064	9.587	2487.	128.1	50.71	4.291	89120.
#2	1.892	9.146	2488.	126.6	60.47	4.291	89240.
#3	2.036	9.293	2465.	126.7	51.19	4.291	88320.
#4	2.064	9.072	2467.	126.1	58.56	4.217	88290.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	34.77	8290.	17.66	<.0500	5.118	3.806	19.21
SDev	.45	40.	1.67	1.109	1.662	.124	.00
%RSD	1.307	4.852	9.478	24.88	32.47	3.246	1.052
#1	35.26	8350.	16.04	<.0500	3.820	3.839	19.26
#2	34.26	8278.	16.47	<.0500	7.487	3.710	19.42
#3	35.02	8287.	19.50	<.0500	5.042	3.968	19.56
#4	34.55	8256.	18.64	<.0500	4.125	3.710	18.93

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Method: ENTEXASJ Sample Name: SAMPLE # 38166

Operator: HMZ

Run Time: 11/24/93 16:22:25

Comment: NATX 50820 (C-2936-9)

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cr
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	20.94	126.8	18.38	37.90	1.236	28.19	7.555
Stdev	1.40	17.1	18.21	4.30	.353	5.01	950
SRSD	6.667	14.23	105.4	11.34	28.57	17.76	12.57
#1	21.64	126.7	19.35	36.78	1.412	26.69	8.227
#2	21.64	143.9	23.35	42.48	1.412	33.28	8.227
#3	21.64	111.9	10500	32.10	.7060	21.89	6.212
#4	18.85	110.9	27.30	38.22	1.412	30.89	7.555
Elem	Co	Cu	Fe	Mg	Mn	Na	
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.19	22.77	2680.	126.0	198.2	6.475	96980.
Stdev	1.65	1.55	18.	1.0	5.3	.708	834.
SRSD	11.61	4.118	6550	.7955	2.671	10.94	8600
#1	15.48	22.41	2695.	126.1	205.9	5.918	97340.
#2	15.48	25.34	2658.	125.6	196.4	7.398	95850.
#3	12.04	20.94	2693.	125.0	196.4	5.918	97800.
#4	13.76	22.41	2672.	127.3	194.0	6.658	96920.
Elem	Ni	P	Pb	Se	Sr	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	48.98	8743.	149.5	<.0500	19.10	17.74	14.05
Stdev	1.19	—	28.9	55.62	15.66	2.36	1.37
SRSD	2.417	.7532	19.30	332.8	81.98	13.28	9.759
#1	48.39	8743.	125.7	<.0500	13.75	19.03	15.86
#2	50.75	8812.	190.7	<.0500	16.81	20.32	13.45
#3	48.39	8664.	134.4	58.50	41.25	15.16	12.65
#4	48.39	8761.	147.4	<.0500	4.584	16.45	14.26

002244

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Method: ENTEXAS3 Sample Name: SAMPLE # 38166

Operator: HMZ

Run Time: 11/26/93 16:22:25

Comment: NATX 50220 CC-2936-91

Mode: CONC Corr Factor: 1000

Elem	As	Ar	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	20.94	126.6	15.38	37.90	1.036	28.19	7.555
Stdev	1.40	17.7	16.21	4.00	353	5.01	450
NRSD	6.877	14.25	105.4	11.34	28.57	17.76	12.57
#1	21.04	126.7	19.35	38.78	1.412	26.69	8.227
#2	21.84	146.9	23.35	42.48	1.412	33.28	8.227
#3	21.04	111.9	<.0500	32.10	.7060	21.89	6.212
#4	18.85	110.9	27.30	38.27	1.412	30.89	7.555

Elem	Co	Cr	Cu	Fe	Ks	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.19	22.77	2680.	126.0	198.2	6.473	96980.
Stdev	1.65	1.85	18.	1.0	5.3	.708	834.
NRSD	11.61	2.118	.6550	7955	2.571	10.94	8600
#1	15.48	22.41	2695.	126.1	205.9	5.918	97340.
#2	15.43	25.34	2658.	125.6	196.4	7.398	95850.
#3	12.04	20.94	2693.	125.0	196.4	5.918	97800.
#4	13.76	22.41	2672.	127.3	194.0	6.658	96920.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	48.98	8743.	149.5	<.0500	19.10	17.74	14.05
Stdev	1.15	66	28.9	55.62	15.66	2.36	1.37
NRSD	2.417	.7532	19.30	332.8	81.98	13.28	9.759
#1	48.39	8743	125.7	<.0500	13.75	19.03	15.86
#2	50.75	8812.	190.7	<.0500	16.81	20.32	13.45
#3	48.39	8654.	134.4	58.50	41.25	15.16	12.65
#4	48.39	8761.	147.4	<.0500	4.584	16.45	14.26

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SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 144

Laboratory Sample ID: 931103SOI0127-01

Date/Time Collected: 11-02-93/10:30

Date/Time Analyzed: 11-03-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	33.7	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

002246

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0.1	-0.09	-1.0		
SN	7.8	6.67	-10.0	
V	3.7	3.16	-3.0	
ZN	17.3	14.79	-30.0	
NH3 AS N	173	147.86	-50	
TOC	33	28.21	-200	
VOC	-0.1	-0.09	-200	
PH	6.1		5.0 TO 7.	

ELEMENT SPECIFIC GRAVITY 1.17

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.085	-25.0
<del>AL</del>	<del>53.1</del>	<del>45.38</del>	<del>-40.0</del>
AS	0	0.00	-5.0
AU	-0.100	-0.085	-5.0
BA	-0.1	-0.09	-5.0
CA	27	23.08	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2478	2117.95	G1,000
<del>FE</del>	<del>40.7</del>	<del>34.79</del>	<del>-30.0</del>
<del>MG</del>	<del>60.6</del>	<del>51.79</del>	<del>-30.0</del>
MN	-0.1	-0.09	-1.0
<del>NA</del>	<del>96980</del>	<del>82888.89</del>	<del>-60000.0</del>
<del>NI</del>	<del>13.9</del>	<del>11.88</del>	<del>-5.0</del>
P	8293	7088.03	-8500.0
<del>PB</del>	<del>20.9</del>	<del>17.86</del>	<del>-10.0</del>
SE	-0.1	-0.09	-1.0
SN	7.8	6.67	-10.0
<del>V</del>	<del>3.7</del>	<del>3.16</del>	<del>-3.0</del>
ZN	17.3	14.79	-30.0
NH3 AS N	173	147.86	-50
TOC	33	28.21	-200
VOC	-0.1	-0.09	-200
PH	6.1		5.0 TO 7.

Al 45.52 <sup>1.17</sup> 38.91 ok  
 Fe 33.41 28.56 ok  
 Mg 34.27 29.29 ok  
 Ni 9.011 7.70 0V  
 Pb 3.413 2.92 ok  
 V 1.545 1.32 ok

002247

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 38199

Operator: HLW

Run Time: 11/29/93 09:46:55

Comment: NATX 50820 CC-2936-91

Mode: CONC Corr. Factor: 5

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	45.52	4.819	<.0060	<.0010	16.09	<.0040
SD	.1656	1.69	.234	.3059	.0236	1.35	.0751
%RSD	109.4	3.721	4.851	395.4	13.79	8.417	143.1

#1	<.0030	47.78	4.600	<.0060	<.0010	14.49	<.0040
#2	<.0030	45.13	4.758	<.0060	<.0010	15.80	<.0040
#3	<.0030	43.69	4.767	.0461	<.0010	16.29	<.0040
#4	.0247	45.46	5.151	.2522	<.0010	17.77	.0305

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0394	1.115	2128.	33.41	34.27	.5863	10130.
SD	1245	.170	166.	1.09	2.62	.0404	.
%RSD	351.4	15.20	7.815	3.250	7.645	6.897	.0000

#1	<.0030	.9068	2365.	32.37	31.36	.5419	10130.
#2	.0130	1.083	2121.	33.19	33.54	.5742	10130.
#3	.0727	1.155	2010.	33.15	34.52	.5904	10130.
#4	.1771	1.316	2015.	34.94	37.66	.6389	10130.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.011	8287.	3.413	<.0500	2.291	1.545	15.57
SD	.614	164	1.163	.3532	.306	.141	.37
%RSD	6.816	1.982	34.06	2817.	13.35	9.144	2.370

#1	8.301	8288	1.969	<.0500	1.943	1.378	16.00
#2	8.923	8220.	3.132	<.0500	2.299	1.518	15.49
#3	9.021	8127.	3.830	.3720	2.236	1.564	15.11
#4	9.798	8512.	4.723	.2048	2.686	1.721	15.66

002248

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ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID EFFLUENT  
 REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL	BATCH# 145	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7 1/4" = 84.25	VOLUME: 18,932
WASTE CODE(S): F039	LOAD# 50740	DATE: 11-24-93

LAB ANALYSIS

ICP	PRE-	ENCYCLE	RMA	PH	ENCYCLE	RMA	COLOR	BLUE	
	SCREEN						PHASES	S	
	MG/L	PPM	PPM		SP.GR.		ACIDITY		
Ag				TOTAL CN-			ALKALINITY		
Al	37.3	32.43		REAC. CN-			ODOR	M	
As	4.4	3.83	3.76	NH3 AS N	180	236	RADIO-	Y (N)	
Au				TOC	43.0	29.2	ACTIVE		
Ba			0.31	VOC	N.D.				
Ca	35.0	30.43		PROCESS STAGES				PARAMETERS	
Cd					PH		REDOX	TEMP C	
Co				INITIAL					
Cr	2.1	1.83		Rechecked Fe = 37.59 ⇒ 32.69					
Cu	2,244	1951	1710	Mg = 43.42 = 37.76					
Fe	38.9	33.83	52.1	Ni = 8.65 = 7.52					
Mg	41.3	35.91		Encycle ppm					
Mn				NH3 156.5					
Na	87,880	76,417	61,600	TOC 37.39					
Ni	9.6	8.35		RMA					
P	7,394	6,430	5,910	TSS 27.20					
Pb	9.8	8.52		TDS 22.7					
Se			0.30						
Si									
Sn	5.7	4.96		9.311-03 SQI 0127-03					
V	2.6	2.26							
Zn	17.0	14.78		Off spec in Fe, Mg, Na, Ni, NH3					
K			554						

GV  
 RG  
 DC  
 ME  
 BP  
 JWO  
 JKL

ANALYSTS: H. Zniemykowski

COMMENTS: LOAD 7154

REAGENT COST:

002249

MANAGER: B. Camody

CONFIDENTIAL  
 n.t. to lab - samples - 11/24/93 = 10/1/94

Method: ENTEK451 Sample Name: SAMPLE # 36170  
 Run Time: 11/24/93 16:37:34  
 Comment: NATX 50740 CC-2435-91  
 Mode: CONC Corr Factor: 10

Operator: HMZ

Elem	As	Al	As	Au	Ba	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Average	1,097	37,31	6,303	1,555	0,759	54,99	51,71
SD	237	42	119	370	1,0194	7,83	1,097
%RSD	21,27	1,451	1,893	23,79	131,62	14,229	21,22
#1	916	37,10	6,511	1,125	0,635	51,66	4248
#2	9006	36,77	6,149	1,279	0,665	53,48	4315
#3	1,166	37,44	6,675	1,711	0,847	55,43	5541
#4	1,385	38,01	6,665	1,104	0,988	57,40	5531

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Average	8900	1,052	1100	38,85	41,30	1,4119	567410
SD	1664	214	75	86	2,58	1,0461	
%RSD	18,69	20,41	6,856	2,199	6,243	73,64	0,000
#1	7567	1,906	2172	38,50	39,69	7842	567410
#2	7567	1,584	2165	18,01	39,09	7696	567410
#3	9459	2,075	2060	38,88	41,62	1,8212	567410
#4	1,101	2,347	2015	40,03	44,82	1,8730	567410

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Average	9,501	8422	9,784	1,2321	5,768	2,593	17,00
SD	1,549	115	1,492	4544	1,385	185	1,10
%RSD	16,239	1,369	15,25	369,7	23,679	7,145	6,409
#1	9,208	8380	8,712	1,4364	5,363	2,448	17,11
#2	9,096	8311	9,712	1,0500	5,516	2,448	16,93
#3	9,717	8416	9,839	6221	6,066	2,642	16,91
#4	10,41	8553	11,38	1,2878	6,127	2,835	17,04

002250

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Method: ENTEXAS1 Sample Name: SAMPLE # 38172  
 Run Time: 11/24/93 16:35:18  
 Comment: NATX 50740 CC-2936-91  
 Order: 10NC Corr. Factor: 100

Operator: HMZ

Elem	As	Al	As	As	Br	Ca	Cl
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
ave	2.947	45.95	7.444	4.355	2118	32.59	1.209
stdev	.205	1.65	4.557	.356	.0000	.121	.121
RSD	7.059	3.945	67.92	8.173	.0000	.6548	9.933
#1	2.723	44.05	6.553	4.053	.2118	32.29	1.158
#2	3.142	46.25	7.891	4.850	2118	32.71	1.188
#3	2.567	46.35	9.082	4.155	.2118	32.59	1.158
#4	3.142	47.20	10.47	4.341	.2118	32.77	1.350
Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
ave	2.079	3.012	2244.	35.17	56.23	.9247	80720.
stdev	.216	.212	4.	.37	.86	.0740	143.
RSD	9.457	7.041	.1587	1.030	1.525	8.000	1770
#1	2.036	2.755	2244.	35.97	55.69	.8878	80520.
#2	2.036	3.049	2243.	35.97	55.46	.8878	80610.
#3	2.150	2.975	2240.	36.02	56.41	.8878	80580.
#4	2.064	3.269	2248.	36.73	57.37	1.036	80870.
Elem	Nb	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
ave	10.28	7394.	20.48	<.0500	6.494	3.839	16.66
stdev	.26	39.	74	2.131	.912	.105	.17
RSD	2.350	.5320	3.614	286.9	14.05	2.745	.9935
#1	10.40	7369.	20.37	<.0500	6.264	3.710	16.77
#2	9.929	7398.	21.24	<.0500	5.348	3.839	16.52
#3	10.34	7451	20.80	2.136	6.875	3.839	16.52
#4	10.46	7448.	19.50	<.0500	7.487	3.968	16.85

002251

CONFIDENTIAL



Method: ENTEXAS1 Sample Name: SAMPLE # 38163  
 Run Time: 11/24/93 16:16:37  
 Comment: NATX 50740 CC-2936-91  
 Mode: CONC Corr. Factor: 1000

Operator: HMZ

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	21.64	98.19	93.30	28.99	1.599	35.23	7.219
StDev	1.14	14.50	18.79	6.66	353	4.25	6.72
RSD	5.26%	14.77	20.14	22.91	22.22	12.07	9.302
#1	20.25	79.19	82.80	26.26	1.412	32.08	6.212
#2	21.64	106.6	96.77	29.96	1.412	32.08	7.555
#3	13.04	113.9	114.6	34.07	2.118	41.03	7.555
#4	21.64	95.02	68.98	30.25	1.412	35.68	7.555

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.05	15.06	2406.	64.13	183.9	2.959	87880.
StDev	2.94	0.16	17	1.30	23.3	0.000	760.
RSD	19.52	14.36	706%	2.004	12.70	0.000	8647
#1	17.76	12.12	2420.	55.15	163.0	2.959	88510.
#2	15.63	15.79	2416.	67.67	170.1	2.959	88230
#3	12.04	17.26	2380.	64.57	215.5	2.959	86780.
#4	18.92	15.06	2404.	51.22	186.9	2.959	88000.

Elem	Nb	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	22.49	7555.	128.9	143.0	19.10	15.81	12.25
StDev	1.96	62	20.4	70.0	10.10	.74	1.46
RSD	8.69%	8990	15.86	48.93	52.86	4.713	3.786
#1	22.96	7551.	99.69	229.3	7.639	15.16	11.85
#2	24.71	7645	143.0	106.8	13.75	16.45	11.85
#3	22.34	7486	130.0	166.2	25.97	16.45	12.65
#4	19.95	7594	143.0	69.64	29.03	15.16	12.65

002252

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0.1	-0.09	-1.0		
SN	5.7	4.96	-10.0	
V	2.6	2.26	-3.0	
ZN	17	14.78	-30.0	
NH3 AS N	180	156.52	-50	
TOC	43	37.39	-200	
VOC	-0.1	-0.09	-200	
PH	6.2		5.0 TO 7.	

ELEMENT SPECIFIC GRAVITY 1.15

ELEMENT	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.087	-25.0
AL	37.3	32.43	-40.0
AS	0	0.00	-5.0
AU	-0.100	-0.087	-5.0
BA	-0.1	-0.09	-5.0
CA	35	30.43	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	2.1	1.83	-3.0
CU	2244	1951.30	G1,000
FE	38.9	33.83	-30.0
MG	41.3	35.91	-30.0
MN	-0.1	-0.09	-1.0
NA	87880	76417.39	-60000.0
NI	9.6	8.35	-5.0
P	7394	6429.57	-8500.0
PB	9.8	8.52	-10.0
SE	-0.1	-0.09	-1.0
SN	5.7	4.96	-10.0
V	2.6	2.26	-3.0
ZN	17	14.78	-30.0
NH3 AS N	180	156.52	
TOC	43	37.39	
VOC	-0.1	-0.09	
PH	6.2		5.0

Fe 37.59  
 Mn 43.42  
 Ni 8.651  
 32.69 over  
 37.76 over  
 7.52 over

002253

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145

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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 145

Laboratory Sample ID: 931103SQI0127-03

Date/Time Collected: 11-03-93/05:30

Date/Time Analyzed: 11-03-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	29.2	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

\_\_\_\_\_



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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 145

Laboratory Sample ID: 931103SQI0127-03

Date/Time Collected: 11-03-93/05:30

Date/Time Analyzed: 11-03-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.76	mg/L	0.10
Barium	0.31	mg/L	0.10
Copper	1710	mg/L	1.00
Iron	52.1	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.30	mg/L	0.20
Sodium	61600	mg/L	1000
Phosphorous	5910	mg/L	10.0
Potassium	554	mg/L	50.0
Ammonia	236	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.58	pH Units	---
TSS	2720	mg/L	10.0
TDS	22.7	%(mg/L)	0.10

Comments: NR = Not requested

analysis Report

Mon 11-29-93 09:38:51 AM

page 1

Method: ENTEKAS1 Sample Name: SAMPLE # 38196

Operator: HLW

Run Time: 11/29/93 09:34:39

Comment: NATX-50740 - (C-3936-01)  
 CONC. UNK CORR. FACTOR: 5

Elem	Ag	Al	As	Au	Ba	Ca	Cd
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
AVE	<.0030	34.91	4.432	<.0060	<.0010	66.85	1.0270
STDEV	.0298	1.57	.282	.1163	.0053	1.44	.0513
RPD	75.22	1.927	6.357	66.20	3.922	1.647	190.1
1	<.0030	34.40	4.628	.0060	<.0010	67.45	.0430
2	<.0030	34.27	4.155	<.0060	<.0010	66.86	.0314
3	<.0030	35.50	4.225	<.0060	<.0010	66.65	<.0040
4	<.0030	35.49	4.662	<.0060	<.0010	64.39	.0125
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
AVE	1030	1.016	2295.	37.59	43.42	1.194	10130.
STDEV	.0806	.087	82.	.85	1.31	.040	.
RPD	65.57	8.211	3.563	2.258	1.018	1.345	0000
1	.0218	1.106	2225.	37.97	44.32	1.250	10130.
2	.1098	.9983	2244.	36.65	42.22	1.182	10130.
3	.0290	.9100	2409.	37.17	42.37	1.157	10130.
4	.1025	1.051	2298.	38.57	44.77	1.186	10130.
Elem	Ni	P	Pb	Se	Sn	V	Zn
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
AVE	5.651	7920.	3.380	<.0500	2.451	1.519	15.57
STDEV	.1253	170	.532	.1806	.167	.074	.129
RPD	1.920	2.131	15.73	1440.	8.037	4.901	1.875
1	1.635	1002.	3.799	.1881	2.603	1.611	15.46
2	1.443	7771.	3.326	<.0500	2.362	1.489	15.21
3	5.422	7999	2.647	<.0500	2.215	1.436	15.80
4	3.889	3187	3.753	<.0500	2.624	1.541	15.82

002256

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5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

**REPORT - RMA**

CLIENT: ROCKY MTN. ARSENAL BATCH# 150 LAB NO. CC 2936-91  
 WASTE DESCRIPTION: BRINE DIP IN.: 7'2 1/4" = 81.25 VOLUME: 19,361  
 WASTE CODE(S): F039 LOAD# 50866 DATE: 11-29-93

**LAB ANALYSIS**

ICP	PRE-	ENCYCLE	RMA		ENCYCLE	RMA	COLOR	BLUE
	SCREEN			pH			PHASES	S
	MG/L	PPM	PPM	SP.GR.			ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	34.3	29.83		REAC. CN-			ODOR	M
As	4.6	4.00	3.07	NH3 AS N	15.0	31.4	RADIO-	Y (N)
Au				TOC	23.0	25.4	ACTIVE	
Ba			0.25	VOC	N.D.			
Ca	15.6	13.57		PROCESS STAGES		PARAMETERS		
Cd					pH		REDOX	TEMPC
Co	1.1	0.96		INITIAL				
Cr	1.3	1.13						
Cu	1673	1455	1900					
Fe	267	23.22	41.2		Encycle ppm			
Mg	29.8	25.91			NH3	13.04		
Mn	1.2	1.04			TOC	20.00		
Na	84,310	73,113	70,700					
Ni	7.1	6.17			RMA			
P	6,494	5,647	6,600		TSS	3780		
Pb	4.7	4.09			TDS	22.3		
Se			0.24					
Si								
Sn	1.6	1.39						
V	1.8	1.57						
Zn	15.0	13.04						
K			549					

*Off spec on Na, Ni*  
 931109SQI 0131-01

ANALYSTS: *[Signature]*  
 MANAGER: *B. Camacho*

COMMENTS: LOAD 7170  
 93255

REAGENT COST:  
 002257  
**CONFIDENTIAL**

Method: ENTEKAS1 Sample Name: SAMPLE # 38289

Operator: HLW

Run Date: 11/30/93 14:13:05

Element: NATL 5085b- (C-2+3b-4)

Unit: CONC Corr Factor: 1

Elem	Ag	Al	As	At	Ba	Ca	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13263	34.25	4.566	5494	0242	15.58	12572
Stdev	.0738	.67	.171	.0627	.0157	.47	.0197
SE	10.37	1.951	3.746	11.41	63.22	3.045	7.439
4s	1.8030	33.87	4.559	4985	.0399	15.02	.2380
3s	1.3245	33.49	4.494	.5531	0151	15.36	2495
2s	1.0717	33.88	4.408	.6365	0364	16.01	.2842
1s	1.0070	35.25	4.806	.5094	.0080	15.93	.2571
Elem	Cr	Cu	Fe	Mg	Mn	Ni	
Units	ppm	ppm	ppm	ppm	ppm	ppm	
Avg	1.059	1.292	1662.	26.70	29.77	1.245	5735
Stdev	.005	.046	42.	64	65	.030	.
SE	3.622	0.490	2.371	2.406	2.183	2.399	.0000
4s	1.013	1.205	1653	26.02	28.88	1.208	5735.
3s	1.042	1.073	1650.	26.33	29.69	1.233	5735.
2s	1.091	1.335	1617.	27.04	30.30	1.267	5735.
1s	1.091	1.295	1730.	27.43	30.21	1.271	5735.
Elem	Na	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.101	6858	4.656	1.0500	1.565	1.772	14.99
Stdev	.1199	1501.	.245	.1848	.110	.045	.31
SE	2.901	0.336	5.260	466.4	7.006	2.553	0.078
4s	6.855	6638.	4.365	2872	1.453	1.715	14.76
3s	7.065	6756	4.623	2693	1.517	1.757	14.86
2s	7.275	6895	4.962	1.0500	1.709	1.815	14.92
1s	7.149	7052.	4.676	1.0500	1.581	1.800	15.45

002258

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Method: ENTEXAS1 Sample Name: SAMPLE # 00255 Operator: HLW  
 Run Time: 11/30/93 14:03:50  
 Instrument: NATX 3785b GC-2956-91  
 Unit: CONC Corr Factor: 50

Elem	As	Al	As	Au	Fe	Ca	Cd
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	1.0030	30.12	2.555	16944	10010	12.86	0771
stdev	.0586	40	1.220	10745	10077	.08	0485
RPD	14.20	1.312	47.76	20607	20.00	6159	62.92
41	1.0030	30.39	8336	1910	< 0010	12.81	.0289
42	1.0030	30.50	3.523	10060	< 0010	12.95	1445
43	1.0030	30.22	3.308	11517	< 0010	12.91	.0674
44	1.0030	29.61	2.555	10010	< 0010	12.78	0674
Elem	Cr	Cu	Co	Pb	Mn	Mg	Na
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	8989	7666	1673.	27.22	29.15	1.201	74670.
stdev	1112	5718	6.	79	.76	.021	323.
RPD	12.46	9.363	.3307	1020	2.588	1.754	1.4328
41	8015	6879	1672.	27.24	28.48	1.211	74680.
42	9961	8452	1668.	27.26	30.25	1.169	74300.
43	9961	8059	1672	27.15	28.99	1.211	74600.
44	8015	7273	1681.	27.33	28.99	1.211	75080.
Elem	Ni	P	Pb	Se	Sn	V	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	6.961	6496	2.631	2476	< 0200	1.430	14.21
stdev	.408	12.	.840	1.546	.9115	.036	.11
RPD	6.377	11802	31.93	624.4	108.2	2.500	.7940
41	6.860	6493.	1.794	10990	< 0200	1.412	14.30
42	7.532	6478	3.466	1.268	< 0200	1.412	14.16
43	6.765	6499	3.229	< 0500	.4013	1.412	14.30
44	6.605	6505	2.033	1.486	< 0200	1.484	14.07

002259

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Method: ENTEXAS1 Sample Name: SAMPLE # 38281 Operator: HLW  
 Run Time: 11/30/93 13:56:10  
 Comment: NATX 50866 CC-2936-91  
 Type: CONC Form. Factor: 500

Elem	Ag	Al	As	Au	Ba	Ce	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	1.0076	1.0250	3.227	0.060	1.0010	8301	1.0040
std	1.014	4.464	8.847	1.257	2049	1.8806	1.907
MSD	11.09	19.86	274.0	19.49	17.76	105.3	16.67

#1	<.0030	<.0250	<.0500	<.0060	<.0010	1.333	<.0040
#2	.0030	<.0250	15.87	<.0060	<.0010	<.0100	<.0040
#3	<.0030	<.0250	<.0500	<.0060	<.0010	1.6686	<.0040
#4	<.0030	<.0250	1.222	<.0060	<.0010	1.664	.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	<.0030	10.81	1856.	92.56	<.0200	3.581	84310.
std	.0000	39	3.	1.91	9.540	.211	90.
MSD	.0000	3.704	.1824	2.065	94.30	5.982	1071

#1	<.0030	10.81	1854.	94.37	<.0200	3.687	84200.
#2	<.0030	10.02	1854.	90.91	<.0200	3.687	84280.
#3	<.0030	10.81	1855.	90.91	<.0200	3.265	84360
#4	<.0030	10.81	1861.	94.05	<.0200	3.687	84400.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	21.44	6965.	<.0250	<.0500	<.0200	<.0020	11.75
std	1.39	42.	10.33	34.09	8.131	.6847	.38
MSD	1.625	1.037	41.15	237.4	46.06	17.41	3.202

#1	24.20	6954	<.0250	8.914	<.0200	<.0020	12.21
#2	26.44	6957.	<.0250	<.0500	<.0200	<.0020	11.29
#3	20.24	7019.	<.0250	20.80	<.0200	<.0020	11.75
#4	23.36	6917.	<.0250	<.0500	<.0200	<.0020	11.75

002260

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150

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 150

Laboratory Sample ID: 931109S&I0131-01

Date/Time Collected: 11-09-93/05:30

Date/Time Analyzed: 11-10-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	25.4	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_  
\_\_\_\_\_



SGI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 150

Laboratory Sample ID: 931109SOJ0131-01

Date/Time Collected: 11-09-93/05:30

Date/Time Analyzed: 11-10-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.07	mg/L	0.10
Barium	0.25	mg/L	0.10
Copper	1900	mg/L	1.00
Iron	41.2	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.24	mg/L	0.20
Sodium	70700	mg/L	1000
Phosphorous	6600	mg/L	10.0
Potassium	549	mg/L	50.0
Ammonia	31.4	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.91	pH Units	---
TSS	3780	mg/L	10.0
TDS	22.3	%(mg/L)	0.10

Comments: NR = Not requested

VOC	-0.1	-0.09	-200
PH	6.4		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.087	-25.0
AL	34.3	29.83	-40.0
AS	4.6	4.00	-5.0
AU	-0.100	-0.087	-5.0
BA	-0.1	-0.09	-5.0
CA	15.6	13.57	-40.0
CD	-0.1	-0.09	-1.0
CO	1.1	0.96	-1.0
CR	1.3	1.13	-3.0
CU	1673	1454.78	G1,000
FE	26.7	23.22	-30.0
MG	29.8	25.91	-30.0
MN	1.2	1.04	-1.0
<del>NA</del>	<del>843.0</del>	<del>733.04</del>	<del>60000.0</del>
<del>NI</del>	<del>7.1</del>	<del>6.17</del>	<del>-5.0</del>
P	6494	5646.96	-8500.0
PB	4.7	4.09	-10.0
SE	-0.1	-0.09	-1.0
SN	1.6	1.39	-10.0
V	1.8	1.57	-3.0
ZN	15	13.04	-30.0
NH3 AS N	15	13.04	-50
TOC	23	20.00	-200
VOC	-0.1	-0.09	-200
PH	6.4		5.0 TO 7.

002263

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ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID CHIT MENT  
**REPORT - RMA**

CLIENT: ROCKY MTN. ARSENAL	BATCH# 149	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'1 3/4" = 85.75	VOLUME: 19,024
WASTE CODE(S): F039	LOAD# 50750	DATE: 11-29-93

**LAB ANALYSIS**

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	BLU	
				pH	6.5	6.11	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.16	1.16	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	43.8	37.76		REAC. CN-			ODOR	M
As	4.6	3.97	3.80	NH3 AS N	125	101	RADIO-	Y (N)
Au				TOC	33.7	27.8	ACTIVE	
Ba			0.28	VOC	N.D.			

**PROCESS STAGES PARAMETERS**

					pH	REDOX	TEMP C
Ca	12.3	10.60		INITIAL			
Cd							
Co							
Cr	1.3	1.12					
Cu	1895	1634	2350				
Fe	30.6	26.38	56.2				
Mg	30.9	26.64					
Mn	1.0	0.86					
Na	80,160	69,103	69,900				
Ni	8.7	7.50					
P	6907	5954	8100				
Pb	4.5	3.88					
Se							
Si							
Sn	1.5	1.29					
V	1.8	1.55					
Zn	16.4	14.14					
K			567				

*Encycle ppm*  
*NH3 107.76*  
*TOC 29.05*

*RMA*  
*TSS 4930*  
*TDS 22.2*

*Offspec on Na, Ni, NH3*

931108 SQI 0130-03

ANALYSTS: *HRW*  
 MANAGER: *B. Carnody*

COMMENTS: *LOAD 7169*  
*Release 93254*

REAGENT COST:  
**CONFIDENTIAL**  
 002264

Method: ENTEZA91 Sample Name: SAMPLE # 38286 Operator: HLW  
 Run Time: 11/30/93 14:05:56  
 Comment: N014 50750 (C-45554)  
 Code: 0000 Corr. Factor: 5

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	2629	43.83	4.647	3918	0.0010	12.30	2071
max	0000	29	.100	.0213	.0018	.04	0032
min	1.173	6669	2.150	5.431	50.00	3147	1.519
stdev	2671	44.08	4.784	.3834	<.0010	12.35	2071
sd	2671	44.08	4.655	.3675	<.0010	12.28	2110
ss	2743	43.48	4.555	3993	<.0010	12.31	2083
sv	2671	43.66	4.590	.4171	<.0010	12.26	2071
Temp	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	6608	1.282	2100.	30.56	30.88	1.035	5735.
max	0046	012	24.	.14	.17	006	.
min	1.208	.9537	1.161	.4690	.5570	.5755	0049
stdev	6533	1.095	2130.	30.74	31.11	1.040	5735.
sd	6507	1.276	2111.	30.60	30.88	1.040	5735.
ss	6515	1.287	2077	30.47	30.70	1.035	5736.
sv	6515	1.265	2084.	30.41	30.81	1.027	5735.
Temp	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	5.700	7595.	4.455	.0891	1.485	1.631	16.36
max	1.070	55.	.088	.1473	.059	.012	.12
min	13295	6954	1.979	165.3	3.948	.6671	7562
stdev	5.207	7664.	4.341	.0693	1.549	1.815	16.51
sd	5.18	7600	4.556	.0278	1.420	1.836	16.46
ss	5.664	7550.	4.461	.1684	1.517	1.843	16.24
sv	5.147	7558	4.461	<.0500	1.453	1.829	16.31

002265

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Method: ENTEXAS1 Sample Name: SAMPLE # 38282 Operator: HLW  
 Run Time: 11/30/93 12:57:53  
 Comment: NATX 50750 (C-2936-R)  
 Note: CONC Corr Factor: 50

Elem	Ag	Al	As	AU	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	36.00	2.770	<.0060	<.0010	9.205	<.0040
Std	1076	29	1.152	1.133	1.0177	.134	.0578
RPD	16.67	2105	41.59	76.93	14.29	1.365	100.0
#1	<.0030	35.23	1.479	<.0060	<.0010	10.02	.0229
#2	<.0030	36.28	2.555	<.0060	<.0010	9.315	<.0040
#3	<.0030	36.28	4.276	<.0060	<.0010	9.715	<.0040
#4	<.0030	35.72	2.770	<.0060	<.0010	9.751	.0229
Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2915	.5209	1895.	30.52	26.70	.9585	774.70
Std	0930	0671	7.	.02	.87	.0000	307.
RPD	31.91	12.89	.3503	2577	3.017	.0000	.3958
#1	.4130	.4914	1898.	30.64	28.23	.9585	77030
#2	.2187	.6093	1999.	30.48	29.37	.9585	77620.
#3	.3158	.5307	1902.	30.48	27.72	.9585	77740
#4	.2187	.4521	1892.	30.48	29.49	.9585	77500.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.458	6907.	1.854	<.0500	<.0200	1.430	14.85
Std	188	22.	301	2.516	.8012	.090	.08
RPD	2.224	3117	16.24	508.1	655.6	6.292	.3064
#1	8.205	6918.	2.272	<.0500	<.0200	1.555	14.95
#2	8.650	6915.	1.794	2.080	<.0200	1.412	14.76
#3	8.458	6917.	1.555	<.0500	<.0200	1.341	14.85
#4	8.532	6875.	1.794	.4952	1.043	1.412	14.55

002266

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Method: ENTEXAS1 Sample Name: SAMPLE # 38278 Operator: HLW  
 Run Time: 11/30/93 13:50:46  
 Comment: NATX 50750 CC-12936-91  
 Mode: CONC Chem. Factor: 500

Elem	As	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	<.0030	<.0250	8.33E	<.0060	<.0010	<.0100	<.0040
StDev	1.805E	5.583	11.72	2.760	1.775	1.931	.3147
%RSD	13.74	8.171	140.6	18.60	10.000	6.949	7.258

#1	<.0030	<.0250	24.47	<.0060	<.0010	<.0100	<.0040
#2	<.0030	<.0250	8066	<.0060	<.0010	<.0100	<.0040
#3	<.0030	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#4	<.0030	<.0250	9.412	<.0060	<.0010	<.0100	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	<.0030	<.0050	1908.	12.82	<.0200	<.0010	80160.
StDev	1.223	1.015	6.	.94	7.255	.2107	288.
%RSD	20.97	9.743	.2925	7.328	15.30	20.00	.3587

#1	<.0030	<.0050	1907.	11.64	<.0200	<.0010	80280.
#2	<.0030	<.0050	1911	13.84	<.0200	<.0010	80210.
#3	<.0030	<.0050	1901.	13.21	<.0200	<.0010	79750.
#4	<.0030	<.0050	1913.	12.58	<.0200	<.0010	80410.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	<.0100	6690.	<.0250	<.0500	<.0200	<.0020	4.952
StDev	2.979	63.	6.765	17.15	5.303	1.221	.230
%RSD	103.6	9.350	13.80	144.3	57.46	17.08	4.651

#1	<.0100	6632.	<.0250	2.971	<.0200	<.0020	4.836
#2	<.0100	6650.	<.0250	<.0500	<.0200	<.0020	4.836
#3	1.518	6709	<.0250	2.971	<.0200	<.0020	4.836
#4	<.0100	6770.	<.0250	<.0500	<.0200	<.0020	5.297

002267

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14 -30.0  
 NH3 AS N 125 107.76 -50  
 TOC 33.7 29.05 -200  
 VOC -0.1 -0.09 -200  
 PH 6.5 5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.16

ELEMENT	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.086	-25.0
AL	43.8	37.76	-40.0
AS	4.6	3.97	-5.0
AU	-0.100	-0.086	-5.0
BA	-0.1	-0.09	-5.0
CA	12.3	10.60	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.3	1.12	-3.0
CU	<del>1895</del>	<del>1633.62</del>	<del>61,000</del> <i>ok</i>
FE	30.6	26.38	-30.0
MG	30.9	26.64	-30.0
MN	1	0.86	-1.0
NA	<del>80160</del>	<del>69103.45</del>	<del>60000.0</del>
NI	<del>8.7</del>	<del>7.50</del>	<del>5.0</del>
P	6907	5954.31	-8500.0
PB	4.5	3.88	-10.0
SE	-0.1	-0.09	-1.0
SN	1.5	1.29	-10.0
V	1.8	1.55	-3.0
ZN	16.4	14.14	-30.0
NH3 AS N	<del>125</del>	<del>107.76</del>	<del>-50</del>
TOC	33.7	29.05	-200
VOC	-0.1	-0.09	-200
PH	6.5		5.0 TO 7.

002268

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11 '93 08:07AM SGI OPERATIONS



P.5  
149

SGI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 149  
Laboratory Sample ID: 931108SOI0130-03  
Date/Time Collected: 11-08-93/05:30  
Date/Time Analyzed: 11-08-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	27.8	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments:

002269

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SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 149

Laboratory Sample ID: 931108SOI0130-03

Date/Time Collected: 11-08-93/05:30

Date/Time Analyzed: 11-08-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	3.80	mg/L	0.10
Barium	0.28	mg/L	0.10
Copper	2350	mg/L	1.00
Iron	56.2	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	69700	mg/L	1000
Phosphorous	8100	mg/L	10.0
Potassium	567	mg/L	50.0
Ammonia	101	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	6.11	pH Units	---
TSS	4930	mg/L	10.0
TDS	22.2	%(mg/L)	0.10

Comments: NR = Not requested

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

**REPORT - RMA**

CLIENT: ROCKY MTN. ARSENAL	BATCH# 148	LAB NO. CC 2938-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7' 2 1/4" = 86.25"	VOLUME: 19.436
WASTE CODE(S): F039	LOAD# 50847	DATE: 11-29-93

**LAB ANALYSIS**

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	BLU	
				pH	6.3	5.86	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.15	1.16	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	47.4	41.22	?	REAC. CN-			ODOR	M
As	4.6	4.00	3.67	NH3 AS N	80	102	RADIO-	Y (N)
Au				TOC	26.5	26.1	ACTIVE	
Ba			0.16	VOC	M.D.			

Element	PROCESS STAGES			PARAMETERS		
	ENCYCLE	RMA	PPM	pH	REDOX	TEMPC
Ca	13.8	12.00				
Cd						
Co				INITIAL		
Cr	1.5	1.30				
Cu	2011	1749	2020			
Fe	33.8	29.39	43.8	Encycle ppm		
Mg	34.1	29.55		NH3	69.57	
Mn	1.3	1.13		TOC	23.04	
Na	82130	71417	72900			
Ni	8.8	7.65		RMA		
P	6989	6077	7900	TSS	2160	
Pb	4.9	4.26		TDS	23.7	
Se						
Si						
Sn	1.9	1.65				
V	1.7	1.48				
Zn	17.1	14.87				
K			531			

*Off spec on Al, Na, Ni, NH3*

931106 SQI 0130-01

ANALYSTS: *[Signature]*  
 MANAGER: *B. Camody*

COMMENTS: LOAD 7168  
 Rel. 93253

REAGENT COST:  
**CONFIDENTIAL**  
 002271

Method: ENTEXAS1 Sample Name: SAMPLE # 38288 Operator: HLW  
 Run Time: 11/30/93 14:01:48  
 Comment: NATX 50647 CC-2436-93  
 Mode: CONC Corr Factor: 5

Elem	As	Al	Ar	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.2887	47.44	4.557	42.70	0063	13.80	.2919
StDev	.0155	.28	.225	0311	.0034	14	.0077
RPD	5.367	5883	4.895	7.271	63.23	.9841	2.640
#1	1.2671	47.55	4.795	3834	<.0010	13.60	.2804
#2	1.2887	47.69	4.741	4568	.0080	13.89	.2958
#3	1.2958	47.20	4.507	4330	.0080	13.83	.2958
#4	1.3030	47.19	4.300	4350	.0044	13.87	.2958

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.7323	1.478	2073.	33.78	34.07	1.279	5735.
StDev	.0122	.028	.25	.24	.34	.009	
RPD	1.563	1.912	1.03-	.7193	.9987	.7306	.0000
#1	.7702	1.437	2097	33.49	33.63	1.267	5735.
#2	.7799	1.484	2085.	34.05	34.45	1.288	5735.
#3	.7993	1.492	2063.	33.88	34.07	1.284	5735.
#4	.7799	1.500	2049	33.69	34.16	1.276	5735.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.800	7468	4.855	0693	1.898	1.741	17.10
StDev	.081	45.	.163	.1401	.062	.012	.08
RPD	9148	16114	3.353	202.0	3.266	.7014	4.916
#1	8.724	7467.	4.628	.1089	1.966	1.729	17.13
#2	8.910	7539	4.867	<.0500	1.854	1.757	17.19
#3	8.760	7455.	4.915	.2278	1.838	1.743	17.07
#4	8.808	7420.	5.011	<.0500	1.934	1.736	16.99

Method: ENTEXAS1 Sample Name: SAMPLE # 35284 Operator: HLW  
 Run Time: 11/30/93 14:01:50  
 Comment: NATY 50847 CC-2936-91  
 Unit: CONC Corr. Factor: 50

Elem	As	Al	As	Al	Ba	Ca	Cr
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	1.0030	43.06	3.743	1.0060	1.0010	11.61	1156
std	.1076	.27	1.376	.0965	.0177	.10	.0685
std	25.08	6171	36.54	362.1	16.29	6036	41.94

41	1.0030	43.27	5.351	2109	1.0010	11.58	1060
42	1.0030	42.99	3.630	1.0060	1.0010	11.48	1060
43	1.0030	42.71	4.061	1.0060	1.0010	11.58	11831
44	1.0030	43.27	2.017	1.0060	1.0010	11.58	10674

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	9831	1.396	2011.	37.87	34.96	1.380	76370.
std	1123	.056	7	15	1.15	.000	814.
std	20.57	3.984	.3476	4010	3.293	.0000	4106

45	6130	1.317	2017	33.00	33.92	1.380	76530.
46	1.6074	1.435	2018.	37.94	34.05	1.380	76710.
47	1.6074	1.435	2004.	37.65	36.20	1.380	76000
48	1.7046	1.396	2008.	37.90	35.69	1.380	76240.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	9.617	6989.	3.528	<.0500	.4414	1.395	16.51
std	.199	9.	.120	2.511	.4610	.036	.04
std	2.073	11251	3.390	845.0	106.4	2.564	12278

49	9.736	7000.	3.468	.4952	.5618	1.412	16.51
50	9.417	6989	3.468	<.0500	.7223	1.412	16.56
51	9.481	6978.	3.707	2.674	<.0200	1.341	16.51
52	9.832	6987.	3.468	<.0500	.7223	1.412	16.47

002273

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Method: ENTEXAS1 Sample Name: SAMPLE # 38220

Operator: HLW

Run Time: 11/30/93 13:54:16

Comment: NATX 50847 CC-2936-91

Mode: CONC Corr. Factor: 500

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	<.00250	3.496	<.0060	<.0010	<.0100	<.0040
SD	.3586	4.347	15.05	1.919	.5325	2.406	.6293
SRSD	3.333	22.70	430.4	19.48	42.86	12.20	22.52

#1	<.0030	<.00250	13.71	<.0060	<.0010	<.0100	<.0040
#2	<.0030	<.00250	<.0500	<.0060	<.0010	<.0100	<.0040
#3	<.0030	<.00250	18.02	<.0060	<.0010	<.0100	<.0040
#4	<.0030	<.00250	<.0500	<.0060	<.0010	<.0100	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	<.0050	2105.	52.29	<.0200	1.159	82130.
SD	.9304	.9893	19.	.47	6.560	.0000	1223.
SRSD	19.15	1766	.9113	.9023	34.59	.0000	1.489

#1	<.0030	<.0050	2088.	52.53	<.0200	1.159	81150.
#2	<.0030	<.0050	2131.	52.53	<.0200	1.159	83760.
#3	<.0030	1.376	2093.	52.53	<.0200	1.159	81230.
#4	<.0030	<.0050	2107.	51.59	<.0200	1.159	82380.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.70	7024.	<.0250	<.0500	<.0200	<.0020	8.867
SD	1.23	38.	6.290	17.82	9.393	.3576	.441
SRSD	11.53	.5381	21.47	1199.	54.44	6.667	4.974

#1	11.42	7026	<.0250	24.76	<.0200	<.0020	8.521
#2	11.42	7076.	<.0250	<.0500	<.0200	<.0020	8.521
#3	11.10	7007.	<.0250	<.0500	<.0200	<.0020	9.443
#4	8.866	6988.	<.0250	<.0500	<.0200	<.0020	8.982

002274

CONFIDENTIAL



148

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 148

Laboratory Sample ID: 931108SQI0130-01

Date/Time Collected: 11-06-93/05:30

Date/Time Analyzed: 11-08-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	26.1	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_





SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 148

Laboratory Sample ID: 931106SOI0130-01

Date/Time Collected: 11-06-93/05:30

Date/Time Analyzed: 11-08-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.67	mg/L	0.10
Barium	0.16	mg/L	0.10
Copper	2020	mg/L	1.00
Iron	43.8	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	72900	mg/L	1000
Phosphorous	7900	mg/L	10.0
Potassium	531	mg/L	50.0
Ammonia	102	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.86	pH Units	---
TSS	2160	mg/L	10.0
TDS	23.7	%(mg/L)	0.10

Comments: NR = Not requested

SE	-0.1	-0.09	-1.0
SN	1.9	1.65	-10.0
V	1.7	1.48	-3.0
ZN	17.1	14.87	-30.0
NH3 AS N	80	69.57	-50
TOC	26.5	23.04	-200
VOC	-0.1	-0.09	-200
PH	6.3		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.087	-25.0
<del>AL</del>	<del>47.4</del>	<del>41.22</del>	<del>-40.0</del>
AS	4.6	4.00	-5.0
AU	-0.100	-0.087	-5.0
BA	-0.1	-0.09	-5.0
CA	13.8	12.00	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.5	1.30	-3.0
CU	2011	1748.70	G1,000
FE	33.8	29.39	-30.0
MG	34.1	29.65	-30.0
MN	1.3	1.13	-1.0
<del>NA</del>	<del>821.30</del>	<del>714.17.39</del>	<del>-60000.0</del>
<del>NI</del>	<del>8.8</del>	<del>7.65</del>	<del>-5.0</del>
P	6989	6077.39	-8500.0
PB	4.9	4.26	-10.0
SE	-0.1	-0.09	-1.0
SN	1.9	1.65	-10.0
V	1.7	1.48	-3.0
ZN	17.1	14.87	-30.0
<del>NH3 AS N</del>	<del>80</del>	<del>69.57</del>	<del>-50</del>
TOC	26.5	23.04	-200
VOC	-0.1	-0.09	-200
PH	6.3		5.0 TO 7.

002277

CONFIDENTIAL

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

**REPORT - RMA**

CLIENT: ROCKY MTN. ARSENAL BATCH# 147 LAB NO. CC 2936-91  
 WASTE DESCRIPTION: BRINE DIP IN.: 4' 1 3/4" = 85.75" VOLUME: 19,300  
 WASTE CODE(S): F039 LOAD# 50788 DATE: 11-29-93

**LAB ANALYSIS**

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	BLUE	
				pH	6.1	5.57	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.15	1.16	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	26.8	23.30		REAC. CN-			ODOR	M
As	5.2	4.52	3.48	NH3 AS N	310	271	RADIO-	Y- <sup>(N)</sup>
Au				TOC	33.0	28.2	ACTIVE	
Ba			0.29	VOC	N.D.			

GV  
 RG  
 DC  
 MZ  
 BP  
 JWD  
 JKL

**PROCESS STAGES PARAMETERS**

					pH	REDOX	TEMPC
Cd							
Co				INITIAL			
Cr	1.2	1.04					
Cu	2,151	1870	2150				
Fe	31.7	27.57	46.6				
Mg	27.2	23.65					
Mn							
Na	86200	74957	84700				
Ni	6.6	5.74					
P	7,108	6181	7260				
Pb	4.5	3.91					
Se			0.35				
Si							
Sn	2.8	2.43					
V	1.7	1.48					
Zn	16.2	14.09					
K			618				

*Encycle ppm*  
 NH<sub>3</sub> 269.57  
 TOC 28.70  
 RMA  
 TSS 3130  
 TDS 22.6

*Off spec on Na, Ni, NH<sub>3</sub>*  
 9311055QI 0129-01

ANALYSTS: *AE*  
*AW*

MANAGER: *B. Camody*  
 DATE:

COMMENTS: LOAD 7167  
 Rel 93252

REAGENT COST: 002278

**CONFIDENTIAL**

Method: ENTEXAS1 Sample Name: SAMPLE # 38227 Operator: HLW  
 Run Time: 11/30/93 14:09:38  
 Instrument: NATX 50728 CC-493491  
 Mode: CONC Corr Factor: 5

Elem	Ag	Al	As	AU	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
AVG	2331	26.72	5.195	12957	<.0010	28.54	1975
StDev	.0230	.20	.105	.0291	.0079	.62	.0074
RPD	9.851	7456	2.037	9.716	108.9	2.166	3.736
Q1	12528	26.60	5.322	13228	<.0010	29.03	12033
Q3	2528	26.75	5.150	1258	<.0010	29.11	2033
Q5	12098	27.05	5.225	12672	<.0010	28.17	1956
Q95	12169	26.71	5.074	12831	<.0010	27.87	1879
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
AVG	17337	1.245	2212.	31.69	27.16	.9669	5735.
StDev	0145	.035	27	.44	.38	.0166	.
RPD	11987	1.829	1.240	1.393	1.413	1.720	10049
Q1	7610	1.272	2191.	32.05	27.52	.9806	5735.
Q3	7507	1.284	2197.	32.01	27.45	.9806	5735.
Q5	7216	1.228	2252	31.58	26.92	.9596	5735.
Q95	7216	1.209	2209.	31.11	26.75	.9469	5735.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
AVG	6.538	7739.	4.536	<.0500	2.833	1.748	16.22
StDev	.167	.77	.167	.3338	.170	.038	.10
RPD	2.537	9942	3.231	3370	5.996	2.199	16039
Q1	6.751	7789.	4.652	.2080	3.058	1.772	16.22
Q3	6.721	7790.	4.676	.0891	2.865	1.786	16.23
Q5	6.510	7750.	4.329	<.0500	2.737	1.736	16.34
Q95	6.389	7606	4.437	.1684	2.672	1.700	16.10

002279

CONFIDENTIAL

Method: ENTEXAS1      Sample Name: SAMPLE # 38037      Operator: HJW  
 Run Time: 11/30/97 13:59:50  
 Element: NATX SD733      CC-2536-90  
 Units: CONC      Comp. Factor: 50

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
100%	<.0030	21.87	3.299	<.0060	<.0010	28.11	<.0040
10%	1076	.10	.558	.1711	.0502	.15	.0545
100%	19.75	4396	13.79	50.04	50.43	50.43	565.7
100%	<.0030	21.84	4.599	<.0060	<.0010	28.16	<.0040
10%	<.0030	21.84	3.738	<.0060	<.0010	28.02	.0040
10%	<.0030	22.01	3.953	<.0060	<.0010	28.32	.0289
10%	<.0030	21.79	3.308	<.0060	.0010	28.30	.0289
Elem	Co	Cr	Cu	Fe	Mn	Pb	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
100%	1016	6623	2151	32.85	27.75	.9691	80640
10%	1255	.0753	12.	.11	1.14	.0011	885
100%	27.18	11.26	.5771	16.	4.470	2.174	.7057
100%	5102	6093	2147	32.81	25.95	.9525	81470
10%	14170	.6879	2154.	34.00	23.73	.9585	80770
10%	13158	6093	2137.	33.81	27.98	.9525	80040
10%	6074	7666	2147.	33.75	28.36	1.001	80360
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
100%	6.757	7105	2.272	<.0500	1.124	1.466	15.69
10%	.213	.30.	1.474	2.718	.593	.107	.17
100%	7.121	4222	64.89	116.8	52.81	7.317	1.087
100%	6.669	7140	.1196	<.0500	1.846	1.341	16.19
10%	6.510	7087	3.488	<.0500	.5618	1.612	16.14
10%	6.860	7075.	2.751	<.0500	1.364	1.555	15.87
10%	6.989	7126	2.751	<.0500	.7223	1.555	15.82

002280

CONFIDENTIAL

Method: ENTE/AS1 Sample Name: SAMPLE # 32279 Operator: HLLW  
 Run Time: 11/30/90 13:52:22  
 Comment: NAT/ 50782 CC-2936-91  
 Mode: CONC Conc Factor: 500

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	<.0030	0250	12.91	<.0050	<.0010	<.0100	<.0040
stdv	1.07E	6.16E	10.68	1.45E	.0000	.9938	.5781
RPD	9.37E	13.63	98.22	15.50	.0000	29.13	18.75
#1	<.0030	<.0250	13.71	<.0050	<.0010	<.0100	<.0040
#2	<.0030	<.0250	24.85	<.0050	<.0010	<.0100	<.0040
#3	<.0030	<.0250	8.33E	<.0050	<.0010	<.0100	<.0040
#4	<.0030	<.0250	<.0500	<.0050	.0010	<.0100	<.0040
Elem	Cr	Cu	Fe	Mg	Mn	Na	
Units	ppm	ppm	ppm	ppm	ppm	ppm	
avg	<.0030	<.0050	223E	16.75	<.0200	<.0010	86200.
stdv	1.18E	3104	7	53	10.17	.2432	616.
RPD	50.32	10.71	.3120	4.939	28.98	32.94	.7151
#1	<.0030	<.0050	2247	16.04	<.000	<.0010	86950.
#2	<.0030	<.0050	2238.	16.36	<.0200	<.0010	85910.
#3	<.0030	<.0050	2230.	16.87	<.0200	<.0010	85530.
#4	<.0030	<.0050	2239.	17.93	<.0200	<.0010	86420.
Elem	Ni	P	Pb	Se	Sr	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	<.0100	7125.	<.0250	<.0500	<.0200	<.0020	7.485
stdv	1.417	83.	11.86	15.96	7.683	5839	.950
RPD	50.68	1.164	39.73	70.61	66.03	11.26	12.69
#1	<.0100	7235.	<.0250	<.0500	<.0200	<.0020	6.218
#2	<.0100	7046.	<.0250	<.0500	<.0200	<.0020	8.521
#3	<.0100	7079.	<.0250	<.0500	<.0200	<.0020	7.600
#4	<.0100	7139.	<.0250	<.0500	<.0200	<.0020	7.600

002281

CONFIDENTIAL



147

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 147

Laboratory Sample ID: 931105SQI0129-01

Date/Time Collected: 11-05-93/05:30

Date/Time Analyzed: 11-05-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	28.2	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_  
\_\_\_\_\_

002282

CONFIDENTIAL



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 288-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 147

Laboratory Sample ID: 931105SQI0129-01

Date/Time Collected: 11-05-93/05:30

Date/Time Analyzed: 11-05-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	3.48	mg/L	0.10
Barium	0.29	mg/L	0.10
Copper	2150	mg/L	1.00
Iron	46.6	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.35	mg/L	0.20
Sodium	84700	mg/L	1000
Phosphorous	7260	mg/L	10.0
Potassium	618	mg/L	50.0
Ammonia	271	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.57	pH Units	---
TSS	3130	mg/L	10.0
TDS	22.6	%(mg/L)	0.10

Comments: NR = Not requested

002283



0.1	-0.09	-1.0		
SN	2.8	2.43	-10.0	
V	1.7	1.48	-3.0	
ZN	16.2	14.09	-30.0	
NH3 AS N	310	269.57	-50	
TOC	33	28.70	-200	
VOC	-0.1	-0.09	-200	
PH	6.1		5.0 TO 7.	

ELEMENT SPECIFIC GRAVITY 1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.087	-25.0
AL	26.8	23.30	-40.0
AS	5.2	4.52	-5.0
AU	-0.100	-0.087	-5.0
BA	-0.1	-0.09	-5.0
CA	28.5	24.78	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.2	1.04	-3.0
CU	2151	1870.43	G1,000
FE	31.7	27.57	-30.0
MG	27.2	23.65	-30.0
MN	-0.1	-0.09	-1.0
<del>NA</del>	<del>86200</del>	<del>74956.52</del>	<del>-60000.0</del>
<del>NI</del>	<del>6.6</del>	<del>5.74</del>	<del>-5.0</del>
P	7108	6180.87	-8500.0
PB	4.5	3.91	-10.0
SE	-0.1	-0.09	-1.0
SN	2.8	2.43	-10.0
V	1.7	1.48	-3.0
ZN	16.2	14.09	-30.0
<del>NH3 AS N</del>	<del>310</del>	<del>269.57</del>	<del>-50</del>
TOC	33	28.70	-200
VOC	-0.1	-0.09	-200
PH	6.1		5.0 TO 7.

002284

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ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID SHIPMENT  
 REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL BATCH# 132 LAB NO. CC 2936-91  
 WASTE DESCRIPTION: BRINE DIP IN.: 7' 1 1/2" = 85.5 VOLUME: 19,214  
 WASTE CODE(S): F039 LOAD# 50776 DATE: 11-24-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	BLUE	
				pH	6.0	5.62	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.15	1.17	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	3994	34.73		REAC. CN-			ODOR	M
As	4.4	3.83	3.62	NH3 AS N	135	136	RADIO-	Y (N)
Au				TOC	30.7	28.4	ACTIVE	
Ba			0.21	VOC	N.D.			
Ca	28.4	24.70		PROCESS STAGES				PARAMETERS
Cd					pH	REDOX	TEMP C	
Co				INITIAL				
Cr	2.7	2.35						
Cu	2,323		2040					
Fe	30.21	26.27	45.3					
Mg	26.41	22.97						
Mn								
Na	86,560	75,270	68,900					
Ni	7.43	6.46						
P	7,568	6,581	7,540					
Pb	3.61	3.14						
Se								
Si								
Sn	8.8	7.65						
V	3.1	2.70						
Zn	16.0	13.91						
K			588					

Encycle ppm  
 NH<sub>3</sub> 117  
 TOC 26.70

RMA  
 TSS 2750  
 TDS 23.1

Off spec Ni, Na, NH<sub>3</sub>

93 1025 SQI 0121-05

Revised Ni = 10.87 → 9.48

ANALYSTS: J. Zwiernykowski  
 MANAGER: B. Curran

COMMENTS: LOAD 7048

REAGENT COST:  
 002285  
 CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 38175  
 Run Time: 11/24/93 16:43:12  
 Comment: NATX 50776 CC-2936-91  
 Mode: CONC Corr. Factor: 10

Operator: HMZ

Elem	Ag	Al	As	Au	Ba	Ce	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.486	48.57	6.055	3.093	1423	28.35	19217
Stdev	.419	1.59	.806	.696	.0141	2.14	11272
RSD	21.12	3.291	13.31	22.49	9.524	7.540	59.31
#1	1.557	46.22	5.196	2.356	1271	25.78	7063
#2	1.934	48.19	5.990	2.984	1553	28.19	9150
#3	1.892	48.80	5.891	2.997	1553	28.46	9041
#4	2.562	50.66	7.141	4.035	1553	31.01	11163

Elem	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.565	2.650	1748.	37.68	44.36	8915
Stdev	.330	.388	45	1.34	4.67	.0566
RSD	21.10	14.64	2.556	3.546	10.52	7.489
#1	1.169	2.200	1792.	35.98	39.07	.8138
#2	1.565	2.619	1734.	37.42	43.75	.8878
#3	1.548	2.634	1773.	38.19	44.18	.8878
#4	1.978	3.148	1691.	39.14	50.44	.9765

Elem	Nb	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.87	8259.	15.85	.7521	8.801	3.064	15.99
Stdev	.82	276.	2.76	.6343	.946	.324	.31
RSD	7.512	3.343	17.43	84.34	10.75	10.58	1.942
#1	9.853	7919.	12.79	.8449	7.624	2.706	15.66
#2	10.82	8189.	15.52	.4735	8.602	3.016	15.80
#3	10.97	8352.	15.60	.1021	9.091	3.042	16.21
#4	11.85	8574.	19.50	1.588	9.885	3.493	16.29

002286

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 38170

Operator: HMZ

Run Time: 11/24/93 16:30:57

Comment: NATY 50776 CC-2936-91

Mode: CONC Corr Factor: 100

Elem	Ag	Al	As	Ba	Be	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg#	2.199	57.46	6.588	3.408	1.589	22.47	1.730
std#	.178	.79	1.090	.577	.0353	.08	.0643
rsd#	7.989	1.384	19.66	16.48	22.22	1.7353	7.365
q1	2.164	56.28	4.718	3.135	1.412	22.56	2227
q2	2.164	57.65	6.501	4.001	1.412	22.48	1.8299
q3	2.444	57.75	6.501	3.525	2.118	22.46	4570
q4	2.025	58.07	4.538	2.858	1.411	22.40	2227
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg#	1.806	2.222	2323	35.60	47.58	1693	11790
std#	.222	.125	14.	.17	1.84	1.0070	455
rsd#	12.30	5.646	.6072	.4734	3.866	4.255	1.5566
q1	1.720	2.094	2333.	35.85	46.38	8578	92090
q2	1.064	2.387	2311.	36.60	48.77	1378	11350
q3	1.541	2.241	2312.	35.50	49.49	18878	81440
q4	1.892	2.167	2332.	35.56	45.67	18138	22260
Elem	Nb	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg#	9.707	7568.	17.01	<.0500	8.251	3.387	17.05
std#	.394	33.	1.39	2.754	1.355	.129	24
rsd#	4.058	.4309	8.157	63.12	16.42	3.810	1.413
q1	9.574	7546.	18.20	<.0500	8.709	3.322	17.25
q2	9.574	7535.	15.60	<.0500	6.875	3.581	16.77
q3	9.396	7594.	18.20	<.0500	7.487	3.322	16.93
q4	10.28	7599	16.04	<.0500	9.931	3.322	17.25

002287

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Method: ENTEXAS1 Sample Name: SAMPLE # 38165

Operator: HMZ

Run Time: 11/24/93 16:20:24

Comment: NATX 50776 CC-2936-91

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	21.99	124.6	31.76	33.08	1.23e	29.24	8.059
StDev	1.76	9.1	11.73	2.70	1.353	3.30	1.007
SPSD	7.989	7.290	36.93	8.162	28.57	11.28	12.50

#1	20.28	124.6	39.21	29.16	7060	26.09	7.555
#2	21.64	114.0	31.27	33.77	1.412	28.49	7.555
#3	21.64	136.0	15.38	35.25	1.412	28.49	7.555
#4	24.44	123.5	41.19	34.14	1.412	33.88	9.570

Elem	Co	Cr	Cu	Fe	Md	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.91	14.88	437.	31.83	186.8	2.774	86560.
StDev	2.94	1.39	18.	2.60	25.6	1.370	710.
SPSD	18.46	9.343	7208	8.157	13.68	13.33	8201

#1	12.04	12.86	2463.	29.92	153.4	2.219	87580.
#2	13.20	15.79	3425.	33.44	215.5	2.959	85950.
#3	18.92	15.06	2436.	29.34	191.5	2.959	86380.
#4	15.48	15.79	2426.	34.62	186.8	2.959	86310.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.90	7684.	138.7	<.0500	23.68	16.77	11.24
StDev	5.03	69.	11.2	15.28	6.78	.65	1.01
SPSD	28.12	18964	8.069	63.28	28.61	3.846	8.988

#1	25.30	7678	143.0	<.0500	13.75	16.45	12.65
#2	16.42	7767.	151.7	<.0500	25.97	16.45	11.04
#3	14.06	7599	125.7	<.0500	25.97	17.74	10.24
#4	15.63	7491	134.4	<.0500	29.03	16.45	11.04



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SGI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 288-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 132

Laboratory Sample ID: 931025SGI0121-05

Date/Time Collected: 10-25-93/04:30

Date/Time Analyzed: 10-25-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	28.4	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_  
\_\_\_\_\_



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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 132

Laboratory Sample ID: 931025SQI0121-05

Date/Time Collected: 10-25-93/04:30

Date/Time Analyzed: 10-25-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	3.62	mg/L	0.10
Barium	0.21	mg/L	0.10
Copper	2040	mg/L	1.00
Iron	45.3	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	68900	mg/L	1000
Phosphorous	7540	mg/L	10.0
Potassium	588	mg/L	50.0
Ammonia	136	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.62	pH Units	---
TSS	2750	mg/L	10.0
TDS	23.1	%(mg/L)	0.10

Comments: NR = Not requested

0.0

V	3.1	2.70	-3.0
ZN	16	13.91	-30.0
NH3 AS N	135	117.39	-50
TOC	30.7	26.70	-200
VOC	-0.1	-0.09	-200
PH	6		5.0 TO 7.
ELEMENT	SPECIFIC	GRAVITY	1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.087	-25.0
AL	48.6	42.26	-40.0
AS	0	0.00	-5.0
AU	-0.100	-0.087	-5.0
BA	-0.1	-0.09	-5.0
CA	28.4	24.70	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	2.7	2.35	-3.0
CU	2323	2020.00	G1,000
FE	37.7	32.78	-30.0
MG	44.4	38.61	-30.0
MN	-0.1	-0.09	-1.0
NA	86560	75269.57	-60000.0
NI	10.9	9.48	-5.0
P	7568	6580.87	-8500.0
PB	15.9	13.83	-10.0
SE	-0.1	-0.09	-1.0
SN	8.8	7.65	-10.0
V	3.1	2.70	-3.0
ZN	16	13.91	-30.0

AP 39.94 - 34.73 ok  
 Fe 30.21 = 26.27 ok  
 Mg 26.41 = 22.97 ok  
 Ni 7.433 = 6.46 ov  
 Pb 3.607 = 3.14 ok

NH3 AS N	135	117.39	-50
TOC	30.7	26.70	-
VOC	-0.1	-0.09	-
PH	6		5.0 TO 7.
ELEMENT	SPECIFIC	GRAVITY	1.15

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.087	-25.0
AL	48.6	42.26	-40.0
AS	0	0.00	-5.0
AU	-0.100	-0.087	-5.0
BA	-0.1	-0.09	-5.0
CA	28.4	24.70	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	2.7	2.35	-3.0
CU	2323	2020.00	G1,000
FE	37.7	32.78	-30.0

002291

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Method: ENTEXAS1 Sample Name: SAMPLE # 38198

Operator: HLW

Run Time: 11/29/93 09:43:30

Comment: NATX 50776 CC-2936-91

Mode: CONC Corr. Factor: 5

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	39.94	4.415	.0109	<.0010	19.65	<.0040
StDev	.0464	.49	.243	.0758	.0018	.44	.0196
%RSD	42.07	1.231	5.512	692.2	1.093	2.216	57.48
#1	<.0030	39.41	4.382	<.0060	<.0010	19.03	<.0040
#2	<.0030	39.63	4.566	<.0060	<.0010	19.70	<.0040
#3	<.0030	40.41	4.627	.0132	<.0010	19.81	<.0040
#4	<.0030	40.31	4.085	.1062	<.0010	20.05	<.0040
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0802	.8602	1867.	30.21	26.41	.4214	10130.
StDev	.0292	.0475	20.	.35	.76	.0085	.
%RSD	36.43	5.522	1.061	1.168	2.894	2.019	.0000
#1	.0429	.7956	1862.	29.71	25.48	.4092	10130.
#2	.0951	.8675	1849.	30.20	26.32	.4222	10130.
#3	.0727	.8675	1895.	30.47	26.51	.4254	10130.
#4	1100	9100	1861.	30.45	27.34	.4286	10130.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.443	7732.	3.607	<.0500	3.823	1.419	13.62
StDev	.107	.74.	.310	.3446	.146	.039	.15
%RSD	1.442	.9630	8.585	64.42	3.813	2.736	1.099
#1	7.289	7633.	3.190	<.0500	3.933	1.367	13.44
#2	7.415	7720.	3.714	<.0500	3.755	1.419	13.56
#3	7.513	7803.	3.598	<.0500	3.954	1.430	13.78
#4	7.516	7773.	3.927	<.0500	3.650	1.460	13.68

002292

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5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL BATCH# 130 LAB NO. CC 2936-91  
 WASTE DESCRIPTION: BRINE DIP IN.: 4'3 3/4" 82.75 VOLUME: 19,784  
 WASTE CODE(S): F039 LOAD# 50827 DATE: 11-24-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	PHASES
	MG/L	PPM	PPM	SP.GR.			
Ag				TOTAL CN-		ALKALINITY	
Al	45.22	38.98		REAC. CN-		ODOR	M
As	4.3	3.71	3.50	NH3 AS N	450 566	RADIO-	Y (N)
Au				TOC	25.0 32.9	ACTIVE	
Ba			0.18	VOC	N.D.		
Ca	23.9	20.60		PROCESS STAGES PARAMETERS			
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr				rechecked Fe = 37.87 ⇒ 32.65			
Cu	2.043	1761	1730	Ni = 9.034 ⇒ 7.79			
Fe	45.4	39.14	45.8	Encycle ppm			
Mg	31.53	27.18		NH3 388			
Mn				TOC 21.55			
Na	79010	68112	59600	RMA			
Ni	72.2	10.52		TSS 2200			
P	7.088	6110	6460	TDS 238			
Pb	3.46	2.98					
Se			0.24				
Si				Off spec on Fe, Ni, NH3, Na			
Sn	8.6	7.41					
V	2.8	2.41					
Zn	16.3	14.05					
K			560				

ANALYSTS: H. Xmerzykowski

COMMENTS: LOAD 7045

REAGENT COST: 002293

MANAGER: B. Cameron

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931025SQIG10121-01

Method: ENTEXAS1 Sample Name: SAMPLE # 38177  
 Run Time: 11/24/93 16:47:20  
 Comment: NATX 50827 CC-2936-91  
 Mode: CONC Com. Factor: 10

Operator: HMZ

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	1.655	52.32	4.928	2.608	.1200	23.88	.7992
low	.590	1.37	.868	.978	.0270	1.83	.2422
RPD	35.68	2.611	17.61	37.49	22.53	7.668	30.31

#1	2.506	52.45	4.958	4.009	.1553	25.79	1.143
#2	1.250	51.93	4.859	1.948	.0988	22.50	.6262
#3	1.264	50.81	3.886	1.924	.0988	22.13	.6329
#4	1.599	54.09	6.010	2.552	.1271	25.09	.7941

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	1.380	2.593	1630.	45.38	46.63	1.008	667410.
low	.398	.453	121.	1.62	5.05	.069	.
RPD	29.20	17.46	7.408	3.569	10.63	6.869	0000

#1	1.943	3.207	1450.	44.78	53.06	1.027	667410.
#2	1.083	2.266	1704.	44.91	42.87	.9617	667410.
#3	1.118	2.237	1669.	44.09	42.34	.9395	667410.
#4	1.376	2.663	1695.	47.75	48.24	1.043	667410.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
avg	12.17	7863.	13.82	<.0500	8.564	2.784	16.30
low	.89	279.	3.48	.7256	.884	.365	.58
RPD	7.277	3.544	25.22	252.1	10.32	13.10	3.551

#1	12.98	7714.	18.72	<.0500	9.610	3.274	15.66
#2	11.50	7818.	11.36	<.0500	8.327	2.526	16.41
#3	11.32	7653.	11.31	.1021	7.502	2.487	16.02
#4	12.89	8269.	13.87	.2507	8.816	2.848	17.03

002294

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Method: ENTEXAS1 Sample Name: SAMPLE # 38168  
 Run Time: 11/24/93 16:26:47  
 Comment: NATX 50827 CC-2936-91  
 Mode: CONC Corr. Factor: 100

Operator: HMZ

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.164	62.82	7.395	3.609	1158.2	19.40	1.9234
Stdev	.114	1.57	.199	.776	16.57	.22	1.0867
RPD	5.268	2.497	2.685	7.456	23.24	1.129	9.389
#1	2.164	65.04	7.097	3.140	1211	19.52	2227
#2	2.025	61.77	7.494	3.210	1412	19.64	1.024
#3	2.164	62.82	7.494	3.729	1412	19.28	1.3898
#4	2.304	61.66	7.494	3.655	1412	19.16	1.9570

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.806	2.626	2043.	43.27	52.80	1.054	74690.
Stdev	.172	.163	8.	.30	1.47	.037	386.
RPD	9.524	8.202	14099	1.7046	1.712	3.509	4164
#1	1.892	2.828	2031.	43.01	54.50	1.036	74170.
#2	1.892	2.534	2044.	43.54	51.64	1.110	74820.
#3	1.548	2.461	2051.	43.54	51.64	1.036	75060.
#4	1.892	2.681	2045.	43.01	53.55	1.036	74670.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.76	7088.	17.77	<.0500	6.570	3.290	16.60
Stdev	.60	39.	2.45	5.325	1.519	.220	.15
RPD	5.557	1.5457	13.80	179.2	23.10	6.697	1.8631
#1	11.41	7064.	17.77	4.735	6.264	3.581	16.77
#2	11.11	7133.	21.24	<.0500	8.403	3.322	16.44
#3	10.17	7048.	16.04	<.0500	6.875	3.064	16.52
#4	10.34	7106.	16.04	<.0500	4.736	3.193	16.69

002295

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Method: ENTEXA51 Sample Name: SAMPLE # 38167

Operator: HMZ

Run Time: 11/24/93 16:24:43

Comment: NATX 50827 CC-2936-91

Mode: CONC Corr Factor: 1000

Elem	Ag	Al	As	AlI	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	22.34	132.0	4.467	35.44	1.236	27.74	7.723
StDev	1.80	11.8	8.344	5.27	.353	2.42	1.147
%RSD	8.06%	8.900	186.8	14.85	28.57	8.716	14.85

#1	20.25	118.3	<.0500	31.18	.7060	24.89	8.298
#2	23.04	146.8	13.40	41.74	1.412	30.29	6.212
#3	24.44	134.1	9.429	30.99	1.412	29.09	8.227
#4	21.64	129.9	<.0500	37.85	1.412	26.69	7.555

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.48	15.61	2160.	36.23	197.6	2.959	79010.
StDev	1.40	1.84	14.	.29	4.6	.000	422.
%RSD	9.072	11.76	.6291	.8097	2.314	.0000	.5344

#1	15.48	13.59	2179.	36.38	196.4	2.959	79420.
#2	17.20	15.79	2150.	36.38	201.2	2.959	78490.
#3	15.48	15.06	2150.	35.79	191.6	2.959	78860.
#4	13.76	18.00	2161.	36.38	201.2	2.959	79280.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	22.20	7210.	126.8	5.571	21.39	16.13	10.64
StDev	4.17	57	4.1	32.15	17.55	.65	1.04
%RSD	18.75	.7849	3.273	577.0	82.07	4.000	9.743

#1	22.34	7135.	125.7	<.0500	25.97	16.45	9.437
#2	17.61	7201.	121.4	28.78	32.09	16.45	11.04
#3	21.16	7268.	130.0	21.36	<.0200	16.45	11.85
#4	27.67	7235.	130.0	13.93	32.09	15.16	10.24

002296

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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 130

Laboratory Sample ID: 931025SQI0121-01

Date/Time Collected: 10-23-93/05:15

Date/Time Analyzed: 10-23-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	32.9	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 130

Laboratory Sample ID: 931025SQI0121-01

Date/Time Collected: 10-23-93/05:15

Date/Time Analyzed: 10-23-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.50	mg/L	0.10
Barium	0.18	mg/L	0.10
Copper	1730	mg/L	1.00
Iron	45.8	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.24	mg/L	0.20
Sodium	59600	mg/L	1000
Phosphorous	6460	mg/L	10.0
Potassium	560	mg/L	50.0
Ammonia	566	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.58	pH Units	---
TSS	2200	mg/L	10.0
TDS	23.8	%(mg/L)	0.10

Comments: NR = Not requested

0.0

V	2.8	2.41	-3.0
ZN	16.3	14.05	-30.0
NH3 AS N	450	387.93	-50
TOC	25	21.55	-200
VOC	-0.1	-0.09	-200
PH	6.1		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.086	-25.0
<del>AL</del>	<del>52.3</del>	<del>45.09</del>	<del>-40.0</del>
AS	0	0.00	-5.0
AU	-0.100	-0.086	-5.0
BA	-0.1	-0.09	-5.0
CA	23.9	20.60	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2043	1761.21	G1,000
<del>FE</del>	<del>45.4</del>	<del>39.14</del>	<del>-30.0</del>
<del>MG</del>	<del>46.6</del>	<del>40.17</del>	<del>-30.0</del>
MN	-0.1	-0.09	-1.0
NA	79010	68112.07	-60000.0
NI	12.2	10.52	-5.0
P	7088	6110.34	-8500.0
<del>PB</del>	<del>13.8</del>	<del>11.90</del>	<del>-10.0</del>
SE	-0.1	-0.09	-1.0
SN	8.6	7.41	-10.0
V	2.8	2.41	-3.0
ZN	16.3	14.05	-30.0
<del>NH3 AS N</del>	<del>450</del>	<del>387.93</del>	<del>-50</del>
TOC	25	21.55	-200
VOC	-0.1	-0.09	-200
PH	6.1		5.0 TO 7.

45.22 ⇒ 38.98 OK

37.87 ⇒ 32.65 Over

31.53 ⇒ 27.18 OK

9.034 ⇒ 7.79 Over

3.457 ⇒ 2.98 OK

Over

002299

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Method: ENTEXAS1 Sample Name: SAMPLE # 38200

Operator: HLW

Run Time: 11/29/93 09:51:17

Comment: NATX 50827 CC-2936-91

Inlet CONC Corr. Factor: 5

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	45.22	4.279	<.0060	<.0010	17.75	<.0040
StDev	.1009	1.51	.206	.1941	.0155	.68	.0438
RPSD	58.95	3.335	4.824	654.9	9.436	3.809	92.17
#1	<.0030	43.70	4.025	.2230	<.0010	18.32	.0135
#2	<.0030	44.38	4.426	.0123	<.0010	17.71	<.0040
#3	<.0030	45.68	4.120	<.0060	<.0010	16.82	<.0040
#4	<.0030	47.11	4.487	<.0060	<.0010	18.17	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0802	.9697	1727.	37.87	31.53	.5532	10130.
StDev	.0777	.0815	92.	.94	1.33	.0254	.
RPSD	96.97	8.404	5.312	2.485	4.218	4.592	.0000
#1	.1771	1.067	1617.	37.76	32.88	.5710	10130.
#2	.0951	.9722	1691.	37.58	31.52	.5483	10130.
#3	<.0030	.8675	1777.	36.97	29.73	.5192	10130.
#4	.0578	.9722	1823.	39.19	31.99	.5742	10130.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.034	7668.	3.457	<.0500	3.917	1.365	14.11
StDev	.278	215.	.652	.1696	.093	.071	40
RPSD	3.082	2.799	18.85	289.9	2.366	5.193	2.870
#1	9.258	7491.	4.257	.0543	3.849	1.430	13.75
#2	9.036	7594.	3.617	.1045	4.017	1.361	13.93
#3	8.641	7606.	2.706	<.0500	3.828	1.268	14.08
#4	9.202	7980.	3.249	<.0500	3.975	1.401	14.68

002300

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ENCYCLE / TEXAS, INC.

REPORT - RMA

5500 UPRIVER ROAD (512)289-0300  
P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

CLIENT: ROCKY MTN. ARSENAL BATCH# 133 LAB NO. CC 2936-91  
WASTE DESCRIPTION: BRINE DIP IN.: 7'1 1/2" 85.25 VOLUME: 19.177  
WASTE CODE(S): F039 LOAD# 50822 DATE: 11-23-93

LAB ANALYSIS

ICP	PRE-	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	BLUE
	SCREEN			pH		PHASES	S
	MG/L	PPM	PPM	SP.GR.		ACIDITY	
Ag				TOTAL CN-		ALKALINITY	
Al	38.4	32.82		REAC. CN-		ODOR	M
As	4.2	3.59	3.62	NH3 AS N	200	234	RADIO- Y (M)
Au				TOC	29.3	33.1	ACTIVE
Ba			0.27	VOC	N.D.		
Ca	15.2	12.99		PROCESS STAGES PARAMETERS			
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr	1.1	0.94		<i>Encycle ppm</i>			
Cu	2,562	2190	2150	NH <sub>3</sub>	170.94		
Fe	32.2	27.52	62.0	TOC	25.04		
Mg	29.1	24.87					
Mn							
Na	105,600	90,256	72,500	<i>RMA</i>			
Ni	7.8	6.67		TSS	3720		
P	9,076	7,757	7,880	TDS	23.1		
Pb	4.0	3.42					
Se				<i>Off spec Na, Ni, NH<sub>3</sub></i>			
Si							
Sn	2.9	2.48		<i>Na return: 88320 =&gt; 75487</i>			
V	1.5	1.28		<i>931025 SQ ± 0121-07</i>			
Zn	11.9	10.17					
K			548				

GV  
BP  
MZ  
RG  
DC  
Jwo  
JKL

ANALYSTS: J. Kuczykowski

COMMENTS: LOAD 7050

REAGENT COST:

002301

MANAGER: B. Cameron

CONFIDENTIAL

Method: ENTEXA51 Sample Name: SAMPLE # 38104

Operator: HMZ

Run Time: 11/23/93 14:03:24

Comment: NATX 50822 CC-2936-91

Mode: CONC Corr. Factor: 2

Elem	As	Al	Ar	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2277	38.43	4.232	.3048	.0064	15.23	.1847
Stdv	1117	36	500	1850	.0107	1.12	.0556
RPD	49.04	9387	11.82	60.69	166.6	7.388	30.12
#1	3035	38.24	4.593	.4342	.0156	16.02	.2239
#2	3439	38.49	4.612	.4929	.0156	16.33	.2412
#3	1274	38.08	3.944	.1369	<.0010	13.98	.1376
#4	1369	38.91	4.177	.1553	<.0010	14.58	.1362

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13690	1.107	1485.	32.22	29.13	.6988	3061
Stdv	1022	.126	53.	1.16	2.63	.0382	121.
RPD	27.71	11.61	3.579	3.601	9.025	5.465	3.945
#1	4456	1.190	1344.	32.98	30.90	.7248	2925.
#2	14856	1.233	1436.	33.31	31.78	.7368	3021.
#3	12808	.9841	1517.	30.77	26.32	.6566	3084.
#4	2808	1.014	1543.	31.80	27.51	.6770	3213.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.781	6754.	4.008	.1328	2.870	1.474	11.92
Stdv	565	317.	.807	.4407	.353	.110	.23
RPD	7.263	4.688	20.12	331.9	12.31	7.476	1.955
#1	8.193	7031.	4.527	.0797	3.281	1.557	12.05
#2	8.323	7018.	4.860	.4562	3.033	1.579	12.11
#3	7.163	6421.	3.233	<.0500	2.670	1.358	11.59
#4	7.444	6545.	3.412	.4659	2.498	1.402	11.93

002302

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Method: ENTEKAS1 Sample Name: SAMPLE # 38100

Operator: HMZ

Run Time: 11/23/93 13:56:01

Comment: NATX 50322 CC-2936-91

Mode: CONC Corr. Factor: 100

Elem	A9	Al	As	Au	Ba	Ca	Cd
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
AVGE	1.712	78.94	12.82	2.719	0.224	22.53	1.366
SDAV	.726	2.28	.91	.837	.0458	.69	.206
SPSD	42.54	2.884	7.119	30.77	200.0	3.053	15.12
#1	7961	76.25	13.47	1.894	<.0010	21.58	1.132
#2	1.592	79.28	13.70	2.892	.0458	23.49	1.348
#3	1.911	78.45	12.29	1.278	.0458	22.89	1.348
#4	2.548	81.76	11.81	3.813	.0458	23.15	1.635

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
AVGE	2.444	2.550	2562.	50.14	63.63	1.301	87050.
SDAV	.546	.327	42.	.63	4.35	.049	1574.
SPSD	24.39	12.84	1.884	1.252	6.853	3.786	1.809
#1	1.965	2.216	2626.	51.06	58.11	1.259	89200.
#2	2.156	2.383	2561.	49.83	62.58	1.344	86890.
#3	2.348	2.634	2553.	49.69	65.57	1.259	86710.
#4	3.306	2.968	2509.	49.96	68.25	1.344	85410.

Elem	Ni	P	Pb	Se	Sn	V	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
AVGE	13.52	9076.	24.84	<.0500	4.300	3.452	21.43
SDAV	.75	83.	1.70	3.414	1.601	.200	.17
SPSD	5.563	.9135	6.832	104.8	37.23	5.802	.7964
#1	14.64	9174.	23.60	.6035	6.390	3.220	21.33
#2	13.19	9080.	23.60	<.0500	2.568	3.530	21.52
#3	13.00	9078.	24.95	<.0500	4.479	3.375	21.61
#4	13.26	8971.	27.20	<.0500	3.763	3.685	21.24

002303

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Method: ENTEXAS Sample Name: SAMPLE # 38096

Operator: HME

Run Time: 11/23/93 13:47:35

Comment: NATX 50822 CC-2956-91

Mode: CONC Corr Factor: 1000

Elem	As	Au	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
As	<.0030	<.0250	333.7	<.0060	<.0010	<.0100	<.0040
Au	1.540	25.06	47.5	5.715	1.425	3.071	3.522
As	6.064	21.76	14.23	20.25	364.6	5.900	110.9
Ba	<.0030	<.0250	404.0	<.0060	2.291	<.0100	1.477
Ca	<.0030	<.0250	321.3	<.0060	<.0010	<.0100	<.0040
As	<.0030	<.0250	304.2	<.0060	<.0010	<.0100	<.0040
As	<.0030	<.0250	304.5	<.0060	<.0010	<.0100	<.0040
Co							
Elem	Co	Cu	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Co	<.0030	<.0050	2253.	<.0050	<.0200	1.4266	105400.
Co	1.565	2.697	17.	4.660	25.49	1.892	602.
Co	17.19	11.80	15825	130.7	11.74	443.5	15713.
Co	<.0030	<.0050	2662.	1.914	<.0200	3.200	105600.
Co	<.0030	<.0050	2837.	3.074	<.0200	<.0010	104800.
Co	<.0030	<.0050	2841.	3.050	<.0200	<.0010	104900.
Co	<.0030	<.0050	2872.	3.050	<.0200	<.0010	106100.
Co							
Elem	Mg	P	Pb	Sr	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Mg	<.0100	9125.	<.0250	581.8	<.0200	<.0020	21.50
Mg	2.030	36.	19.60	204.3	13.98	1.436	1.40
Mg	72.34	3906.	36.30	35.20	90.04	12.77	6.522
Mg	<.0100	9147.	<.0250	507.5	<.0200	<.0020	23.60
Mg	<.0100	9036.	<.0250	586.8	<.0200	<.0020	20.79
Mg	<.0100	9162.	<.0250	454.0	<.0200	<.0020	20.79
Mg	<.0100	9104.	<.0250	348.8	<.0200	<.0020	20.79

002304

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4	3.42	-10.0	
SE	-0.1	-0.09	-1.0
SN	2.9	2.48	-10.0
V	1.5	1.28	-3.0
ZN	11.9	10.17	-30.0
NH3 AS N	200	170.94	-50
TOC	29.3	25.04	-200

VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.17

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.085	-25.0
AL	38.4	32.82	-40.0
AS	4.2	3.59	-5.0
AU	-0.100	-0.085	-5.0
BA	-0.1	-0.09	-5.0
CA	15.2	12.99	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.1	0.94	-3.0
CU	2562	2189.74	G1,000
FE	32.2	27.52	-30.0
MG	29.1	24.87	-30.0
MN	-0.1	-0.09	-1.0
NA	105600	90256.41	-60000.0
NI	7.8	6.67	-5.0
P	9076	7757.26	-8500.0
PB	4	3.42	-10.0
SE	-0.1	-0.09	-1.0
SN	2.9	2.48	-10.0
V	1.5	1.28	-3.0
ZN	11.9	10.17	-30.0
NH3 AS N	200	170.94	-50
TOC	29.3	25.04	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

002305

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133

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 133

Laboratory Sample ID: 931025SOJ0121-07

Date/Time Collected: 10-25-93/09:35

Date/Time Analyzed: 10-25-93/10:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	33.1	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

\_\_\_\_\_



SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 133

Laboratory Sample ID: 931025SQI0121-07

Date/Time Collected: 10-25-93/09:35

Date/Time Analyzed: 10-25-93/10:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.62	mg/L	0.10
Barium	0.27	mg/L	0.10
Copper	2150	mg/L	1.00
Iron	62.0	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	72500	mg/L	1000
Phosphorous	7880	mg/L	10.0
Potassium	548	mg/L	50.0
Ammonia	234	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.67	pH Units	—
TSS	3720	mg/L	10.0
TDS	23.1	%(mg/L)	0.10

Comments: NR = Not requested



Method: ENTEXAS1 Sample Name: SAMPLE # 38129  
 Run Time: 11/24/93 09:05:20  
 Comment: NATX 50822  
 Mode: CONC Corr. Factor: 1000

Operator: HMZ

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	45.64	215.0	<.0500	73.67	3.537	52.40	15.14
StDev	1.61	11.9	16.97	3.19	.0000	1.21	1.41
%RSD	3.520	5.549	3897.	4.324	.0000	2.311	9.331

#1	45.32	219.5	20.90	73.50	3.537	53.16	13.99
#2	45.32	211.5	3.483	75.39	3.537	51.63	16.27
#3	44.04	200.4	<.0500	69.26	3.537	51.12	15.72
#4	47.87	228.5	<.0500	76.50	3.537	53.67	13.99

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	26.88	27.07	2466.	62.18	321.0	4.613	88320.
StDev	1.24	.37	10.	3.53	16.3	.0000	320
%RSD	4.600	1.375	.4185	5.673	5.069	.0000	.3618

#1	26.88	27.39	2475.	60.99	342.8	4.613	88510.
#2	25.37	26.75	2470.	60.99	310.2	4.613	88480.
#3	26.88	26.75	2467.	59.40	305.6	4.613	88440.
#4	28.39	27.39	2451.	67.35	323.1	4.613	87840.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	32.29	7794.	228.7	33.72	89.35	25.83	17.89
StDev	8.23	54.	14.1	40.82	33.87	.00	.00
%RSD	25.48	.6947	6.152	121.1	37.90	.0000	.0000

#1	42.40	7821.	239.7	17.27	96.23	25.83	17.89
#2	25.07	7818.	239.7	<.0500	120.7	25.83	17.89
#3	35.57	7825.	210.3	83.06	41.24	25.83	17.89
#4	26.12	7713.	225.0	46.87	99.28	25.83	17.89

002308

CONFIDENTIAL

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

**REPORT - RMA**

CLIENT: ROCKY MTN. ARSENAL	BATCH# 135	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 4 1/4" 85.25	VOLUME: 19.184
WASTE CODE(S): F039	LOAD# 50818	DATE: 11-23-93

**LAB ANALYSIS**

ICP	PRE-	ENCYCLE	RMA		ENCYCLE	RMA	COLOR	BLUE
	SCREEN			pH	6.0	5.81	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.16	1.16	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	33.6	28.99		REAC. CN-			ODOR	M
As	4.1	3.53	3.52	NH3 AS N	145	163	RADIO-	Y (N)
Au				TOC	35.9	31.4	ACTIVE	
Ba			0.27	VOC	N.D			

**PROCESS STAGES PARAMETERS**

					pH	REDOX	TEMP C
Ca	22.2	19.14		INITIAL			
Cd							
Co							
Cr							
Cu	2,056	1772	2110				
Fe	21.0	23.28	49.9				
Mg	24.8	21.38					
Mn							
Na	87080	75069	72500				
Ni	6.4	5.52					
P	6824	5883	7910				
Pb	3.5	3.02					
Se							
Si							
Sn	2.9	2.50					
V	1.4	1.21					
Zn	11.8	10.17					
K			512				

*Encycle ppm*  
 NH3 125  
 TOC 30.95  
 RMA  
 TSS 3040  
 TDS 20.7

*Off spec on Na, Ni, NH3*

*Na return: 84420 => 72776*

9310265QIO122-03

ANALYSTS: *J. Amierapowol*  
 MANAGER: *B. Cimador*

COMMENTS: LOAD 7052

REAGENT COST: 002309

**CONFIDENTIAL**

Method: ENTEXAS1 Sample Name: SAMPLE # 38103  
 Run Time: 11/23/93 14:01:40  
 Comment: NATY 50818 CO-2936-91  
 Mode: CONC Corr. Factor: 1

Operator: HMZ

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.775	33.54	4.115	.2044	<.0010	22.17	.1527
SD	.0016	1.52	.395	.0627	.0044	.70	.0186
%RSD	23.45	4.806	9.604	30.68	238.0	3.146	12.16

#1	1.274	35.26	4.371	.1254	<.0010	22.11	.1305
#2	.2229	32.94	4.177	.2650	.0027	22.64	.1736
#3	1.974	31.71	3.539	.2435	<.0010	21.20	.1606
#4	.1624	34.59	4.376	.1829	<.0010	22.72	.1463

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2971	.9655	1527	26.95	24.79	.4872	2768.
SD	.0298	.0328	104.	.94	.75	.0159	47.
%RSD	10.02	3.398	6.806	3.496	3.015	3.265	1.687

#1	.2578	.9439	1651.	27.56	24.51	.4910	2740.
#2	.3268	1.002	1468.	27.06	25.55	.4952	2797.
#3	.3115	.9339	1418.	25.58	23.88	.4637	2816.
#4	2923	.9857	1570.	27.60	25.23	.4979	2717.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.369	6541.	3.498	.1521	2.942	1.414	11.76
SD	.174	271.	.233	.1750	.052	.038	.50
%RSD	2.728	4.140	6.672	115.0	1.774	2.717	4.265

#1	6.360	6765.	3.179	.1473	3.004	1.411	12.22
#2	6.489	6520.	3.736	.3500	2.966	1.448	11.64
#3	6.126	6167	3.565	<.0500	2.894	1.362	11.11
#4	6.501	6713.	3.511	.1859	2.904	1.436	12.08

002310

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 38099

Operator: HMZ

Run Time: 11/23/93 13:54:09

Comment: NATX 50818 CC-2936-91

Mode: CONC Corr. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	41.43	8.506	<.0060	<.0010	22.94	.1977
SDev	.8853	4.27	3.375	1.696	.0748	1.72	.3937
%RSD	76.69	10.30	39.67	162.3	23.33	7.501	199.2
#1	<.0030	35.34	3.544	<.0060	<.0010	20.66	<.0040
#2	<.0030	41.81	11.11	<.0060	<.0010	22.62	.2695
#3	<.0030	44.98	9.688	.2446	<.0010	23.87	.4133
#4	<.0030	43.60	9.688	<.0060	<.0010	24.59	.4852

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5271	<.0050	2056.	30.98	27.15	4693	72810.
SDev	.7903	.6826	25.	.81	4.43	.1280	.938.
%RSD	149.9	544.3	1.232	2.617	16.33	27.27	1.288
#1	<.0030	<.0050	2092.	29.86	20.81	3200	74170.
#2	.6229	.0418	2040.	30.89	27.67	4053	72250.
#3	.6229	.2090	2037	31.58	29.17	.5759	72130.
#4	1.390	.3762	2055.	31.58	30.96	.5759	72680.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.418	6824.	7.868	1.931	1.911	.9310	16.33
SDev	.785	45.	6.065	2.770	1.093	.7641	.35
%RSD	9.321	.6632	77.09	143.4	57.17	82.07	2.116
#1	7.876	6831.	<.0250	<.0500	.6570	<.0020	16.01
#2	7.614	6764.	7.418	4.466	1.613	1.202	16.10
#3	9.123	6829.	14.16	.6035	3.285	1.202	16.47
#4	9.058	6874.	10.12	3.983	2.090	1.513	16.75

002311

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Method: ENTEXAS1 Sample Name: SAMPLE # 38094

Operator: HMZ

Run Time: 11/23/93 13:27:36

Comment: NATX 50818 CC-2936-91

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	<.0030	<.0250	91.65	<.0060	<.0010	<.0100	<.0040
Stdev	7.304	24.26	13.61	8.768	1.9509	7.100	1.210
RPSD	18.9%	15.51	14.85	17.01	20.16	12.79	15.27
#1	<.0030	<.0250	77.70	<.0060	<.0010	<.0100	<.0040
#2	<.0030	<.0250	85.67	<.0060	<.0010	<.0100	<.0040
#3	<.0030	<.0250	93.64	<.0060	<.0010	<.0100	<.0040
#4	<.0030	<.0250	109.6	<.0060	<.0010	<.0100	<.0040
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	<.0030	<.0050	2342.	60.87	<.0200	<.0010	87080.
Stdev	21.879	4.964	14.	54.53	39.42	.740%	409.
RPSD	23.84	18.33	1.5915	89.58	16.25	19.15	1.4701
#1	<.0030	<.0050	2353.	190.00	<.0200	<.0010	86690.
#2	<.0030	<.0050	2341.	62.43	<.0200	<.0010	87300.
#3	<.0030	<.0050	2322.	32.54	<.0200	<.0010	86800.
#4	<.0030	<.0050	2351.	11.99	<.0200	<.0010	87550.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	<.0100	5753.	<.0250	<.0500	<.0200	<.0020	16.36
Stdev	7.983	39.	21.46	66.36	20.02	3.231	1.40
RPSD	88.83	1.6774	25.50	391.1	98.61	14.31	8.539
#1	<.0100	5723	<.0250	56.89	<.0200	<.0020	18.20
#2	<.0100	5758.	<.0250	<.0500	<.0200	<.0020	15.74
#3	<.0100	5725.	<.0250	16.97	6.570	<.0020	16.56
#4	<.0100	5806.	<.0250	<.0500	<.0200	<.0020	14.92

002312

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 135

Laboratory Sample ID: 931026SGI0122-03

Date/Time Collected: 10-26-93/05:30

Date/Time Analyzed: 10-26-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	31.4	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_  
\_\_\_\_\_



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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 135

Laboratory Sample ID: 931026SGI0122-03

Date/Time Collected: 10-26-93/05:30

Date/Time Analyzed: 10-26-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.52	mg/L	0.10
Barium	0.27	mg/L	0.10
Copper	2110	mg/L	1.00
Iron	49.9	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	72500	mg/L	1000
Phosphorous	7910	mg/L	10.0
Potassium	512	mg/L	50.0
Ammonia	163	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.81	pH Units	—
TSS	3040	mg/L	10.0
TDS	20.7	%(mg/L)	0.10

Comments: NR = Not requested

	6824	5882.76	-8500.0
PB	3.5	3.02	-10.0
SE	-0.1	-0.09	-1.0
SN	2.9	2.50	-10.0
V	1.4	1.21	-3.0
ZN	11.8	10.17	-30.0
NH3 AS N	145	125.00	-50
TOC	35.9	30.95	-200
VOC	-0.1	-0.09	-200
PH	6		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.086	-25.0
AL	33.6	28.97	-40.0
AS	4.1	3.53	-5.0
AU	-0.100	-0.086	-5.0
BA	-0.1	-0.09	-5.0
CA	22.2	19.14	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2056	1772.41	G1,000
FE	27	23.28	-30.0
MG	24.8	21.38	-30.0
MN	-0.1	-0.09	-1.0
<del>NA</del>	<del>87080</del>	<del>75088.97</del>	<del>-60000.0</del>
<del>NI</del>	<del>6.4</del>	<del>5.52</del>	<del>-5.0</del>
P	6824	5882.76	-8500.0
PB	3.5	3.02	-10.0
SE	-0.1	-0.09	-1.0
SN	2.9	2.50	-10.0
V	1.4	1.21	-3.0
ZN	11.8	10.17	-30.0
<del>NH3 AS N</del>	<del>145</del>	<del>125.00</del>	<del>-50</del>
TOC	35.9	30.95	-200
VOC	-0.1	-0.09	-200
PH	6		5.0 TO 7.



Method: ENTEXAS1 Sample Name: SAMPLE # 38130  
 Run Time: 11/24/93 09:07:10  
 Comment: NATX 50818  
 Mode: CONC Corr. Factor: 1000

Operator: HMZ

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	44.36	195.9	<.0500	69.45	3.183	62.95	15.28
SDev	1.91	8.4	23.03	3.28	.408	2.05	1.28
%RSD	4.317	4.290	755.7	4.718	12.83	3.257	8.367

#1	41.49	195.4	<.0500	73.16	2.829	61.81	16.29
#2	45.32	204.4	31.35	69.82	2.829	65.37	15.72
#3	45.32	198.4	<.0500	65.18	3.537	60.79	13.41
#4	45.32	184.4	<.0500	69.63	3.537	63.84	15.72

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	27.26	26.75	2320.	44.81	296.9	4.283	84420.
SDev	.76	1.39	9.	.92	8.7	.380	470.
%RSD	2.778	5.205	.3732	2.050	2.947	8.882	.5568

#1	26.88	24.81	2330.	45.08	292.5	3.954	84930.
#2	26.88	27.39	2309.	45.61	292.5	4.613	83830.
#3	26.88	28.04	2322.	45.08	292.5	4.613	84630.
#4	28.39	26.75	2318.	43.49	310.0	3.954	84310.

Elem	Ni	P	Pb	Se	Sr	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	27.56	7228.	218.6	12.34	75.61	24.37	15.91
SDev	3.22	79.	13.2	19.64	10.98	1.12	.69
%RSD	11.68	1.096	6.040	159.3	14.52	4.614	4.352

#1	29.80	7252.	199.3	<.0500	65.68	23.49	15.72
#2	22.97	7277.	221.4	20.56	90.12	25.83	15.00
#3	27.70	7110.	225.0	33.72	77.90	23.49	16.45
#4	29.80	7272.	228.7	7.401	68.73	24.66	16.45

002316

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5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL BATCH# 134 LAB NO. CC 2936-91  
 WASTE DESCRIPTION: BRINE DIP IN: 4' 1 1/2" 84.50 VOLUME: 19,269  
 WASTE CODE(S): F039 LOAD# 50831 DATE: 11-23-93

LAB ANALYSIS

ICP	PRE-	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	BLUE
	SCREEN			pH		PHASES	S
	MG/L	PPM	PPM	SP.GR.		ACIDITY	
Ag				TOTAL CN-		ALKALINITY	
Al	21.8	18.79		REAC. CN-		ODOR	M
As	2.7	2.33	364	NH3 AS N	125 181	RADIO-	Y (N)
Au				TOC	27.0 30.0	ACTIVE	
Ba			0.29	VOC	N.D.		

PROCESS STAGES PARAMETERS

					pH	REDOX	TEMP C
Ca	8.6	7.41		INITIAL			
Cd							
Co							
Cr							
Cu	2,126	1833	2160	Encycle ppm			
Fe	155	13.36	53.7	TOC	23.28		
Mg	12.9	11.12		NH3	107.76		
Mn							
Na	91900	79224	67700				
Ni	3.7	3.19		RMA			
P	7,602	6553	8010	TSS	4020		
Pb	1.1	0.95		TDS	24.0		
Se			0.30				
Si							
Sn	2.8	2.41		Off spec Na, NH3			
V				Na num 85470 -> 73681			
Zn	7.8	6.72					
K			521				

ANALYSTS: J. Limeray

COMMENTS: LOAD 7051

REAGENT COST: 002317

MANAGER: B. Curmody

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Method: ENTEYAS1 Sample Name: SAMPLE # 08106

Operator: HMZ

Run Time: 11/23/95 14:06:46

Comment: NATX 50831 CO-2930-91

Unit: CONC Corr: Factor: 2

Elem	Ag	Al	As	Au	Ba	Ca	Co
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Ag	1.0030	21.20	2.694	1.0060	1.0010	2.547	0.66
Al	0.994	6.87	1.489	1.507	1.0140	1.487	0.575
As	67.11	31.50	18.15	67.14	43.52	22.15	206.0
Au	1.0030	30.20	3.303	1.0060	1.0010	11.77	1.0040
Ba	1.0030	23.18	2.532	1.0060	1.0010	9.132	1.0040
Ca	1.0030	18.18	2.782	1.0060	1.0010	7.419	1.0566
Co	1.0030	15.05	2.131	1.0060	1.0010	5.203	0.270
Elem	Cr	Cu	Fe	Mn	Mg	Ni	
Units	ppm	ppm	ppm	ppm	ppm	ppm	
Cr	1.0393	13729	1041.	15.54	12.25	2910	517930
Cu	1.0587	10932	368.	6.44	2.35	10322	
Fe	149.5	34.99	35.35	28.95	18.29	28.24	0000
Mn	1.0030	4791	1529.	21.12	15.43	17955	517930.
Mg	1.0030	3486	1114.	16.58	10.17	3050	517930.
Ni	1.1160	14055	815.1	13.63	12.72	12641	517930.
Ag	1.0546	12523	706.6	10.79	9.295	1992	517930
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Ag	3.722	915190.	1.090	1.0500	2.842	1.6137	7.839
Al	1.681	22267	1.334	1.2419	1.576	1.1894	1.274
As	20.57	147.0	30.60	334.0	20.28	30.87	13.90
Co	4.516	548730.	1.9756	1.0500	3.630	8538	10.25
Cr	3.879	4608.	1.7958	1.0500	2.889	1.6230	8.256
Fe	3.500	4020.	1.569	1.2438	2.531	5753	6.903
Ag	2.694	3397.	1.021	1.0500	2.316	1.3995	5.931

002318

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Method: ENTEXAS1 Sample Name: SAMPLE # 32102  
 Run Time: 11/23/93 13:54:35  
 Comment: NATX 50831 CC-2955-91  
 Mode: CONC Corr Factor: 100

Operator: HMZ

Item	Ag	Al	As	Au	Ba	Ca	Cd
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.105	70.64	9.154	4.373	2291	25.56	1.905
Stdev	.495	3.74	3.464	.641	1748	.97	.223
SRSD	15.94	3.885	26.93	7.67	32.66	3.814	11.68
#1	2.866	71.48	8.474	3.444	11375	25.83	1.707
#2	3.025	67.73	6.907	6.375	12291	24.46	1.779
#3	2.707	69.54	11.81	4.733	2291	25.18	1.923
#4	3.521	73.77	9.924	6.728	3208	26.75	2.210
Item	Co	Cr	Cu	Fe	Mg	Mn	Na
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.607	1.470	2126.	35.16	61.17	1.109	72570.
Stdev	.482	.341	25.	32	3.10	.043	838.
SRSD	14.28	4.837	1.141	6.17	6.075	3.846	1.154
#1	2.923	3.302	2140.	35.42	59.30	1.088	73110.
#2	3.306	3.219	2139	35.15	61.09	1.088	73000.
#3	3.306	3.386	2136	35.42	58.71	1.088	72850.
#4	4.073	3.971	2086.	34.73	65.57	1.173	71320.
Item	Ni	P	Pb	Se	Sn	V	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.50	7602.	32.82	2.052	9.138	3.995	19.09
Stdev	.52	76.	2.86	1.537	2.748	.253	.23
SRSD	4.478	1.001	8.771	113.7	30.07	6.342	1.199
#1	11.22	656.	31.70	3.018	6.390	3.995	19.09
#2	11.22	7634.	30.80	<.01500	7.585	3.685	19.37
#3	12.27	7639	31.70	3.983	12.60	3.995	18.81
#4	11.24	7684	37.04	3.535	9.974	4.306	19.09

002319

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Vendor: ANTEK 451 Sample Name: SAMPLE # 33096  
 In Time: 11/25/93 13:50:59  
 Element: NaTl 50831 CC-2936-91  
 Gas: OOK Term. Factor: 1000

Operator: HME

Element	A1	A2	A3	A4	Cs1	Cs2	Cs3
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Ag	0.050	0.050	90.34	< 0.050	0.000	< 0.0100	< 0.040
As	7.983	5.335	22.25	4.057	0.000	5.212	1.898
Bi	18.27	10.76	27.69	18.51	0.000	15.68	94.52
Ba	0.070	< 0.050	77.97	< 0.050	< 0.010	< 0.0100	< 0.040
Be	< 0.0050	< 0.0250	80.34	< 0.050	< 0.010	< 0.0100	< 0.040
Br	< 0.0050	< 0.0250	108.7	< 0.050	< 0.010	< 0.0100	< 0.040
Bz	< 0.0050	< 0.0250	64.34	< 0.050	< 0.010	< 0.0100	1.5391
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Co	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cu	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fluor	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ga	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ge	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gr	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gu	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hg	0.000	0.000	0.000	0.000	0.000	0.000	0.000
In	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ir	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Li	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mo	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nb	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Os	0.000	0.000	0.000	0.000	0.000	0.000	0.000
P	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pb	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pr	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Rb	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sb	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Se	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Si	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sn	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sr	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ta	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tb	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tc	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Te	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Th	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tl	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tm	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tn	0.000	0.000	0.000	0.000	0.000	0.000	0.000
U	0.000	0.000	0.000	0.000	0.000	0.000	0.000
V	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Va	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Xe	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Zn	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Zr	0.000	0.000	0.000	0.000	0.000	0.000	0.000

002320

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134

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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 134

Laboratory Sample ID: 931026SQI0122-01

Date/Time Collected: 10-25-93/12:45

Date/Time Analyzed: 10-26-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
TOC	30.0	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_  
\_\_\_\_\_



SGI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 134

Laboratory Sample ID: 931025SOI0122-01

Date/Time Collected: 10-25-93/12:45

Date/Time Analyzed: 10-26-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.64	mg/L	0.10
Barium	0.29	mg/L	0.10
Copper	2160	mg/L	1.00
Iron	53.7	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.30	mg/L	0.20
Sodium	67700	mg/L	1000
Phosphorous	8010	mg/L	10.0
Potassium	521	mg/L	50.0
Ammonia	181	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.62	pH Units	---
TSS	4020	mg/L	10.0
TDS	24.0	%(mg/L)	0.10

Comments: NR = Not requested

002322

0.0

V	-0.1	-0.09	-3.0
ZN	7.8	6.72	-30.0
NH3 AS N	125	107.76	-50
TOC	27	23.28	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.086	-25.0
AL	21.8	18.79	-40.0
AS	2.7	2.33	-5.0
AU	-0.100	-0.086	-5.0
BA	-0.1	-0.09	-5.0
CA	8.6	7.41	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2126	1832.76	G1,000
FE	15.5	13.36	-30.0
MG	12.9	11.12	-30.0
MN	-0.1	-0.09	-1.0
NA	91900	79224.14	-60000.0
NI	3.7	3.19	-5.0
P	7602	6553.45	-8500.0
PB	1.1	0.95	-10.0
SE	-0.1	-0.09	-1.0
SN	2.8	2.41	-10.0
V	-0.1	-0.09	-3.0
ZN	7.8	6.72	-30.0
NH3 AS N	125	107.76	-50
TOC	27	23.28	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.



Method: ENTE/AS1 Sample Name: SAMPLE # 38127  
 Run Time: 11/24/93 09:01:42  
 Comment: NATX 50831  
 Mode: CONC Corr. Factor: 1000

Operator: HMZ

Elem	Ag	Al	As	ATI	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	41.81	190.9	37.07	65.87	4.952	52.40	15.14
SD	1.81	5.1	42.44	3.34	1.415	3.28	1.05
95U	3.842	2.794	43.74	5.065	28.57	6.257	6.955
#1	44.04	187.4	137.6	70.00	7.074	53.16	16.29
#2	41.49	194.4	30.10	65.73	4.244	50.11	14.56
#3	40.21	185.4	95.78	61.83	4.244	49.60	13.99
#4	41.49	196.4	34.93	65.92	4.244	56.72	15.72

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	27.64	26.59	2409.	48.56	291.4	5.601	85470.
SD	1.51	2.19	6.	3.39	10.2	1.569	189.
95U	5.479	8.251	.2325	6.972	3.493	28.01	2215
#1	29.91	29.53	2405.	53.56	301.3	7.908	85400.
#2	26.88	24.81	2405.	48.26	299.1	5.272	85470.
#3	26.88	27.39	2417.	46.67	283.8	4.613	85720.
#4	26.88	24.81	2408.	46.14	281.6	4.613	85270.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	30.29	7527.	203.0	194.9	72.55	26.72	17.89
SD	7.89	42.	18.0	98.9	20.92	2.60	2.29
95U	12.05	.5567	8.867	50.76	28.84	9.747	12.75
#1	31.77	7515.	225.0	333.1	84.01	30.53	20.79
#2	35.57	7480.	203.0	185.0	41.24	25.83	18.62
#3	27.17	7581.	180.9	162.0	84.01	24.66	15.72
#4	35.05	7533.	203.0	99.51	80.95	25.83	16.45

002324

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5500 UPRIVER ROAD (512)289-0300

P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - R M A

CLIENT: ROCKY MTN. ARSENAL	BATCH# 126	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 6' 11 3/4" = 83.1"	VOLUME: 18,765
WASTE CODE(S): F039	LOAD# 50751	DATE: 11-19-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	R M A	ENCYCLE	R M A	COLOR	GT. BLUE	
				pH	5.7	5.51	PHASES	S
	MG/L	PPM	PPM	SP.GR.	1.16	1.16	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	34.5	29.74	-	REAC. CN-			ODOR	M
As	3.9	3.36	3.79	NH3 AS N	290	401	RADIO-	Y (N)
Au				TOC	37.9	57.6	ACTIVE	
Ba			0.30	VOC	N.D			

PROCESS STAGES PARAMETERS

				pH	REDOX	TEMP C
Ca	16.7	14.40				
Cd						
Co				INITIAL		
Cr						
Cu	2065	1780.17	2420			
Fe	24.2	20.86	50.3			
Mg	20.7	17.84				
Mn						
Na	81,910	70612	85400			
Ni	5.5	4.74				
P	6,591	5682	8420			
Pb	2.8	2.41				
Se						
Si						
Sn	5.0	4.31				
V	1.3	1.12				
Zn	10.1	8.71				
K			578			

Encycle PPM  
 TOC 32.67  
 NH3 250.0

RMA  
 TSS 3270  
 TDS 21.6

Offspec Na, NH3  
 931019 SQI 0117-07

GV  
 DC  
 BR  
 MZ  
 TWO  
 JAL  
 RG

ANALYSTS: *[Signature]*  
 MANAGER: B. Carmody

COMMENTS: LOAD 7008

REAGENT COST: 002325  
 CONFIDENTIAL

Method: ENTFXAS1 Sample Name: SAMPLE # 37983

Operator: HLW

Run Time: 11/19/93 11:04:52

Comment: NATX 50751 CC-2936-91

Mode: CONC Corr. Factor: 2

Elem	Ag	AJ	As	AU	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0608	34.45	3.850	.0550	<.0010	16.73	.1172
SDev	.0574	1.13	.254	.1011	.0078	.85	.0256
RRSD	94.45	3.283	6.607	183.6	37.84	5.102	21.82
#1	.0970	32.82	3.792	.1261	<.0010	16.64	.1368
#2	.1035	35.03	4.090	.1449	<.0010	17.64	.1356
#3	.0641	35.37	4.000	.0223	<.0010	17.04	.1144
#4	<.0030	34.58	3.518	<.0060	<.0010	15.61	.0821
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3213	7785	1820	24.24	20.70	.5060	520610.
SDev	.0482	.0594	.91	.85	1.33	.0218	.
RRSD	14.99	7.628	4.986	3.503	6.409	4.310	.0000
#1	.3455	7887	1691.	23.68	20.73	.4993	520610.
#2	.3664	8355	1822.	25.12	22.10	.5292	520610.
#3	.3178	7947	1881.	24.78	21.08	.5166	520610.
#4	.2555	6951	1885.	23.36	18.91	.4789	520610.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.464	6170.	2.829	.0918	5.044	1.328	10.12
SDev	.278	195.	.405	.3096	.167	.070	.33
RRSD	5.074	3.162	14.32	337.4	3.302	5.275	3.237
#1	5.462	6032.	3.021	<.0500	5.264	1.311	9.712
#2	5.742	6375.	3.176	.1308	5.053	1.401	10.38
#3	5.566	6245.	2.865	.5057	4.995	1.362	10.39
#4	5.086	6977.	2.252	<.0500	4.864	1.239	9.987

002326

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Method: ENTEXAS1 Sample Name: SAMPLE # 37979

Operator: HLW

Run Time: 11/19/93 13:57:37

Comment: NATX 50751 CC-2936-91

Mode: CONC Corr. Factor: 1.00

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.848	68.74	2.147	7.729	.1401	27.69	1.586
SD	.537	3.20	2.375	.980	.1073	.67	.119
RRSD	11.07	4.648	110.6	12.68	76.59	2.425	7.509

#1	4.848	66.38	<.0500	7.980	.1681	27.13	1.493
#2	4.848	68.07	3.527	7.666	.0560	27.35	1.617
#3	5.506	73.42	4.140	8.317	.2800	28.67	1.741
#4	4.191	67.08	2.096	6.452	.0560	27.02	1.493

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.117	3.668	2065.	30.02	67.77	9618	74590.
SD	.455	.262	17.	.28	3.61	.0752	647.
RRSD	14.61	7.331	.8432	.9346	5.329	7.816	.8668

#1	3.074	3.643	2061.	29.74	66.80	1.021	74660.
#2	3.901	3.794	2062.	29.87	66.54	.9422	74420.
#3	3.767	3.643	2048.	30.37	73.00	1.021	73870.
#4	2.728	3.190	2089.	30.12	64.73	.8636	75430.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.29	6591.	27.10	<.0500	11.73	4.505	14.06
SD	.54	.22.	3.12	.9762	1.69	.288	.14
RRSD	5.275	.3272	11.53	8.333	14.41	6.383	1.003

#1	10.23	6583.	25.16	<.0500	12.18	4.280	13.91
#2	10.12	6605.	25.93	<.0500	12.41	4.580	14.24
#3	11.05	6565.	31.76	<.0500	9.262	4.881	14.08
#4	9.763	6513.	25.55	<.0500	13.08	4.280	14.00

002327

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Method: ENTEXAS1 Sample Name: SAMPLE # 37975

Operator: HLW

Run Time: 11/19/93 13:50:26

Comment: NATX 50751 CC-2936-91

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.109	17.94	<.0500	4.500	<.0010	11.41	<.0040
SD	1.898	15.27	19.92	4.826	.0000	.92	.5078
%RSD	46.19	101.9	62.85	107.2	.0000	8.037	40.83

#1	2.465	<.0250	<.0500	3.811	<.0010	11.54	<.0040
#2	5.752	23.57	<.0500	11.36	<.0010	12.61	<.0040
#3	5.752	13.72	<.0500	2.983	<.0010	11.00	<.0040
#4	2.465	39.05	<.0500	.0523	<.0010	10.47	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.732	<.0050	2232.	<.0050	72.42	<.0010	81910.
SD	1.658	.7229	18.	1.081	19.96	.4533	622.
%RSD	95.74	17.41	.7954	6.506	27.57	23.09	.7590

#1	<.0030	<.0050	2216.	<.0050	73.07	<.0010	81570.
#2	3.031	<.0050	2220.	<.0050	80.83	<.0010	81430.
#3	3.031	<.0050	2239.	<.0050	44.62	<.0010	81850.
#4	1.299	<.0050	2254.	<.0050	91.17	<.0010	82810.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.747	6542.	28.17	<.0500	32.00	<.0020	10.12
SD	2.586	112.	13.27	77.90	12.02	1.438	1.04
%RSD	29.56	1.711	47.11	52.16	37.57	383.0	10.27

#1	7.872	6432.	10.68	<.0500	29.75	<.0020	8.670
#2	11.37	6509.	26.23	<.0500	47.71	.7509	11.15
#3	10.20	6430.	34.00	<.0500	18.52	<.0020	10.32
#4	5.540	6697.	41.77	<.0500	32.00	.7509	10.32

002328

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126

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 126

Laboratory Sample ID: 931019SQI0117-03

Date/Time Collected: 10-19-93/09:40

Date/Time Analyzed: 10-19-93/11:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	57.6	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_

002329



SOI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-0548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 126

Laboratory Sample ID: 931019SOI0117-03

Date/Time Collected: 10-19-93/09:40

Date/Time Analyzed: 10-19-93/11:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.79	mg/L	0.10
Barium	0.30	mg/L	0.10
Copper	2420	mg/L	1.00
Iron	50.3	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	ND	mg/L	0.20
Sodium	85400	mg/L	1000
Phosphorous	8420	mg/L	10.0
Potassium	578	mg/L	50.0
Ammonia	401	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.51	pH Units	---
TSS	3270	mg/L	10.0
TDS	21.6	%(mg/L)	0.10

Comments: NR = Not requested

8.71	-30.0			
NH3 AS N	290	250.00	-50	
TOC	37.9	32.67	-200	
VOC	-0.1	-0.09	-200	
PH	5.7		5.0 TO 7.	

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.086	-25.0
AL	34.5	29.74	-40.0
AS	3.9	3.36	-5.0
AU	-0.100	-0.086	-5.0
BA	-0.1	-0.09	-5.0
CA	16.7	14.40	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	2065	1780.17	G1,000
FE	24.2	20.86	-30.0
MG	20.7	17.84	-30.0
MN	-0.1	-0.09	-1.0
<del>NA</del>	<del>81910</del>	<del>70612.07</del>	<del>60000.0</del>
NI	5.5	4.74	-5.0
P	6591	5681.90	-8500.0
PB	2.8	2.41	-10.0
SE	-0.1	-0.09	-1.0
SN	5	4.31	-10.0
V	1.3	1.12	-3.0
ZN	10.1	8.71	-30.0
<del>NH3 AS N</del>	<del>290</del>	<del>250.00</del>	<del>-50</del>
TOC	37.9	32.67	-200
VOC	-0.1	-0.09	-200
PH	5.7		5.0 TO 7.

002331

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5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL	BATCH# 136	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 4'1" = 84	VOLUME: 19,112
WASTE CODE(S): F039	LOAD# 50824	DATE: 11-23-93

LAB ANALYSIS

ICP	PRE-	ENCYCLE	RMA		ENCYCLE	RMA	COLOR	BLUE	
	SCREEN			pH	5.9	5.60	PHASES	S	
	MG/L	PPM	PPM	SP.GR.	1.18	1.17	ACIDITY		
Ag				TOTAL CN-			ALKALINITY		
Al	328	27,80		REAC.CN-			ODOR	M	
As	4.1	3,47	3.31	NH3 AS N	285	336	RADIO-	Y (N)	
Au				TOC	29.3	34.2	ACTIVE		
Ba			0.18	VOC	N.D.				
Ca	13.5	11.44		PROCESS STAGES				PARAMETERS	
Cd					pH		REDOX	TEMPC	
Co				INITIAL					
Cr									
Cu	2,463	2087	1980		Encycle ppm				
Fe	28.7	24,32	46.6		NH <sub>3</sub>	242			
Mg	24.1	20.42			TOC	24.8			
Mn									
Na	127,600	108,136	69,400		RMA				
Ni	7.4	6.27			TSS	2250			
P	8,953	7,587	7,290		TDS	25.5			
Pb	2.2	1.86							
Se			0.22		Off spec on Na, Ni, NH <sub>3</sub>				
Si									
Sn	3.1	2.63			Na num = 94790 ⇒ 80331				
V	1.2	1.02							
Zn	12.6	10.68							
K			554						

ANALYSTS: J. Amersfoort

COMMENTS: LOPD 7053

REAGENT COST:

002332

MANAGER: B. Currody

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 38105

Operator: HMZ

Run Time: 11/23/93 14:05:06

Comment: NATX 50824 CC-2936-91

Mode: CONC Conc. Factor: 2

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	32.81	4.128	<.0060	1.0010	13.47	.0589
Stdev	.0600	1.76	1.417	.00970	.0055	1.14	.0305
%RSD	59.34	5.372	10.10	46.02	17.65	8.465	51.79
#1	<.0030	34.79	4.584	<.0060	.0010	14.79	.0902
#2	<.0030	33.67	4.376	<.0060	<.0010	14.03	.0787
#3	<.0030	31.94	3.733	<.0060	.0010	12.74	.0413
#4	<.0030	30.87	3.818	<.0060	<.0010	12.32	.0255

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1476	.8336	1663	28.70	24.16	.6523	817930.
Stdev	.0546	.1138	75.	1.91	2.25	.0492	
%RSD	37.00	13.65	4.425	6.662	9.324	7.564	.0000
#1	.2080	.9606	1754	30.89	25.64	.7163	817930.
#2	.1773	.8954	1690	29.66	25.47	.6822	817930.
#3	.1160	.7617	1624.	27.50	22.63	.6259	817930.
#4	.0891	.7165	1584.	26.75	21.92	.6088	817930.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.356	6590.	2.174	.0507	3.131	1.238	12.58
Stdev	.625	578.	.550	.2467	.356	.123	.76
%RSD	8.503	8.774	25.29	486.6	11.37	9.944	6.010
#1	8.107	7287.	2.792	.1955	3.611	1.377	13.48
#2	7.623	6834.	2.468	.3211	3.186	1.303	12.90
#3	6.943	6209.	1.821	<.0500	2.823	1.163	12.09
#4	6.750	6031	1.614	<.0500	2.904	1.110	11.83

002333

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Method: ENTEXASJ Sample Name: SAMPLE # 38101  
 Run Time: 11/23/93 13:57:54  
 Comment: NATX 50326 CC-2936-91  
 Mode: CONC Corr Factor: 100

Operator: HMZ

Elem	As	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.349	68.95	13.57	4.249	1146	23.23	1.635
SDev	.846	2.70	3.90	1.306	0877	1.29	.389
%RSD	36.03	4.017	28.86	30.73	76.59	5.540	23.81

#1	1.115	61.92	10.87	2.297	.0458	21.32	1.060
#2	3.025	75.84	17.96	5.002	.1375	24.07	1.923
#3	2.548	71.02	9.688	4.944	.2291	23.87	1.779
#4	2.707	71.02	15.59	4.753	0458	23.67	1.779

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.115	1.093	2463.	44.92	65.34	1.451	84560.
SDev	.682	.714	48.	.32	5.74	.146	1712.
%RSD	21.90	23.09	1.965	7109	8.778	10.05	2.024

#1	2.156	2.048	2533.	45.02	56.91	1.259	87040.
#2	3.115	3.553	2442.	44.96	69.74	1.429	83660.
#3	3.498	3.553	2422.	44.48	67.66	1.600	83230.
#4	3.690	3.219	2458.	45.23	67.06	1.515	84300.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.37	2953	27.76	<.0500	6.570	3.801	22.20
SDev	.52	93.	5.84	4.860	.983	.528	.14
%RSD	3.595	1.039	21.05	211.9	14.96	13.89	.6316

#1	13.78	9078	19.11	4.466	5.674	3.064	22.27
#2	14.90	8910.	30.80	<.0500	6.868	4.306	22.08
#3	14.70	8861.	31.70	<.0500	7.824	3.840	22.36
#4	14.11	8965.	29.45	<.0500	5.913	3.995	22.08

002334

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 38097

Operator: HMZ

Run Time: 11/23/93 13:49:17

Comment: NATX 50824 CC-2936-91

Mode: CONC Corr. Factor: 1000

Elem	As	Al	As	Au	Be	Ce	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	<.0250	118.1	<.0060	<.0010	<.0100	<.0040
SDev	2.758	13.71	44.5	5.120	0.0000	4.673	1.312
%RSD	12.83	36.85	37.63	21.84	0.0000	11.75	56.18

#1	<.0030	<.0250	170.1	<.0060	<.0010	<.0100	<.0040
#2	<.0030	<.0250	61.43	<.0060	<.0010	<.0100	<.0040
#3	<.0030	<.0250	120.5	<.0060	<.0010	<.0100	<.0040
#4	<.0030	<.0250	120.5	<.0060	<.0010	<.0100	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	<.0030	<.0050	3415.	<.0050	<.0200	<.0010	127600.
SDev	3.951	2.159	21.	3.029	11.03	1.426	860.
%RSD	206.2	13.96	6029	150.0	10.06	33.33	6738

#1	1.792	<.0050	3401.	1.715	.0200	<.0010	126800.
#2	<.0030	<.0050	3399	<.0050	<.0200	<.0010	127200.
#3	<.0030	<.0050	3444.	1.715	<.0200	<.0010	126800.
#4	2.396	<.0050	3415.	<.0050	.0200	<.0010	127600.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8204	11150.	<.0250	142.4	7.764	<.0020	27.34
SDev	6.371	101.	20.93	25.4	19.55	1.552	1.32
%RSD	837.5	9021	232.7	17.80	251.9	12.90	4.535

#1	<.0100	11220.	<.0250	107.4	25.68	<.0020	29.21
#2	4.594	11090.	<.0250	155.7	8.958	<.0020	26.40
#3	1.954	11030.	<.0250	165.4	<.0200	<.0020	26.40
#4	6.907	11240.	11.24	141.2	16.13	<.0020	27.34

002335

CONFIDENTIAL



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SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 136

Laboratory Sample ID: 931027SQI0123-01

Date/Time Collected: 10-27-93/05:30

Date/Time Analyzed: 10-28-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	34.2	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

002336



SQUI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 136

Laboratory Sample ID: 931027SQUI0123-01

Date/Time Collected: 10-27-93/05:30

Date/Time Analyzed: 10-27-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	3.31	mg/L	0.10
Barium	0.18	mg/L	0.10
Copper	1980	mg/L	1.00
Iron	46.6	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.22	mg/L	0.20
Sodium	69400	mg/L	1000
Phosphorous	7290	mg/L	10.0
Potassium	554	mg/L	50.0
Ammonia	336	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.60	pH Units	----
TSS	2250	mg/L	10.0
TDS	25.5	%(mg/L)	0.10

Comments: NR = Not requested

0.1	-0.08	-1.0		
SN	3.1	2.63	-10.0	
V	1.2	1.02	-3.0	
ZN	12.6	10.68	-30.0	
NH3 AS N	285	241.53	-50	
TOC	29.3	24.83	-200	
VOC	-0.1	-0.08	-200	
PH	5.9		5.0 TO 7.	

ELEMENT SPECIFIC GRAVITY 1.18

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.085	-25.0
AL	32.8	27.80	-40.0
AS	4.1	3.47	-5.0
AU	-0.100	-0.085	-5.0
BA	-0.1	-0.08	-5.0
CA	13.5	11.44	-40.0
CD	-0.1	-0.08	-1.0
CO	-0.1	-0.08	-1.0
CR	-0.1	-0.08	-3.0
CU	2463	2087.29	G1,000
FE	28.7	24.32	-30.0
MG	24.1	20.42	-30.0
MN	-0.1	-0.08	-1.0
NA	127600	108135.59	-60000.0
NI	7.4	6.27	-5.0
P	8953	7587.29	-8500.0
PB	2.2	1.86	-10.0
SE	-0.1	-0.08	-1.0
SN	3.1	2.63	-10.0
V	1.2	1.02	-3.0
ZN	12.6	10.68	-30.0
NH3 AS N	285	241.53	-50
TOC	29.3	24.83	-200
VOC	-0.1	-0.08	-200
PH	5.9		5.0 TO 7.

002338

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 3S128

Operator: HMZ

Run Time: 11/24/93 09:03:29

Comment: NATX 50824

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	34.89	200.7	6.530	70.89	3.183	50.62	14.42
Stdev	1.22	13.3	8.575	5.57	.402	3.02	.29
RPD	3.064	6.605	131.3	7.854	12.83	5.974	2.000

#1	38.93	168.4	13.93	65.36	3.537	47.06	14.56
#2	41.49	219.5	<.0500	66.85	2.829	54.18	14.56
#3	38.93	196.4	13.93	76.13	3.537	51.63	13.99
#4	40.21	198.4	<.0500	75.20	2.829	49.60	14.56

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	27.26	25.94	2603.	49.05	317.1	4.613	94790.
Stdev	2.59	1.61	6.	.62	1.1	.000	262.
RPD	9.488	6.211	.2297	1.396	.3448	.0000	.2766

#1	29.91	24.17	2611.	48.79	316.6	4.613	95100.
#2	28.39	25.46	2598.	48.26	316.6	4.613	94630.
#3	26.88	26.10	2599.	49.32	318.8	4.613	94520.
#4	23.85	28.04	2603.	49.85	316.6	4.613	94910.

Elem	Ni	P	Pb	Se	Sr	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	33.08	8338.	218.6	45.23	77.13	25.25	18.44
Stdev	4.54	95.	15.1	15.31	18.73	.68	.36
RPD	13.74	1.141	6.913	33.85	24.28	2.685	1.961

#1	26.65	8241.	214.0	23.85	77.90	24.66	18.62
#2	35.05	8353.	199.3	60.03	77.90	25.83	18.62
#3	33.47	8463.	232.4	46.87	99.28	25.83	17.89
#4	37.15	8294.	228.7	50.16	53.46	24.66	18.62

002339

CONFIDENTIAL



ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID SHIPMENT  
 REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL	BATCH# 142	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 4' 3 1/4" 87.25	VOLUME: 19641
WASTE CODE(S): F039	LOAD# 50737	DATE: 11-19-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	PHASES
	MG/L	PPM	PPM	PH		BLUE	S
				SP.GR.			
Ag				TOTAL CN-			
Al	26.3	22.87		REAC. CN-			M
As	3.7	3.22	3.35	NH3 AS N	135	198	Y (N)
Au				TOC	30.6	30.7	ACTIVE
Ba			0.37	VOC	M.D		
Ca	17.3	15.04		PROCESS STAGES		PARAMETERS	
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr							
Cu	2287	1989	2510				
Fe	18.4	16.00	46.4				
Mg	228	19.83					
Mn							
Na	81,080	70504	79300				
Ni	5.0	4.35					
P	6929	6025	7540				
Pb	3.4	2.96					
Se			0.27				
Si							
Sn	1.9	1.65					
V	1.5	1.30					
Zn	9.6	8.35					
K			587				

Encycle ppm  
 NH3 117.39  
 TOC 26.61

RMA  
 TSS 4240  
 TDS 22.9

Off spec Na, NH3 93110259701260.1

ANALYSTS: *[Signature]*  
 MANAGER: *B. Camodey*

COMMENTS: LOAD 7142

REAGENT COST: 002340  
 CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37982

Operator: HLW

Run Time: 11/19/93 14:03:04

Comment: NATX 50737 CC-2936-91

Mode: CONC Corr. Factor: 2

Elem	Ag	Al	As	AU	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2490	26.34	3.683	3031	.0073	17.29	.1465
SDev	.0743	.62	.057	.1280	.0170	.45	.0301
%RSD	29.84	2.340	1.550	42.24	233.5	2.603	20.57

#1	3073	25.78	3.616	.3974	.0213	17.68	1716
#2	1561	27.11	3.747	.1408	<.0010	16.66	.1095
#3	.3106	25.91	3.661	.4133	.0168	17.54	1704
#4	.2219	26.56	3.710	.2609	.0078	17.27	.1343

Elem	Co	Cr	Cu	Fe	Md	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3065	.8827	1935.	18.41	22.78	.4346	520610.
SDev	.0515	.0562	117.	.08	.89	.0087	
%RSD	16.79	6.362	6.038	.4488	3.911	2.009	.0000

#1	.3524	.9246	1842.	18.46	23.47	.4428	520610.
#2	.2451	.8098	2084.	18.33	21.57	.4224	520610.
#3	3455	.9292	1841.	18.34	23.44	.4381	520610.
#4	.2832	.8672	1973.	18.49	22.65	.4350	520610.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.954	5927.	3.425	<.0500	1.903	1.471	9.623
SDev	.105	36.	.453	.1221	.148	.041	.218
%RSD	2.112	.4353	13.24	145.4	7.769	2.797	2.270

#1	5.059	5937	3.845	<.0500	2.098	1.503	9.449
#2	4.831	5931.	2.873	<.0500	1.748	1.413	9.892
#3	5.020	5891.	3.744	<.0500	1.919	1.497	9.441
#4	4.905	5951.	3.238	<.0500	1.847	1.470	9.710

002341

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37978

Operator: HLW

Run Time: 11/19/93 13:55:30

Comment: NATX 50737 CC-2936-91

Mode: CONC Corr. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.081	47.00	1.738	4.615	<.0010	26.22	1.073
SD	.809	5.58	1.605	1.182	.1621	.75	.266
%RSD	26.26	11.87	92.32	25.61	200.0	2.866	24.77
#1	2.383	42.18	1.687	3.187	<.0010	25.31	.7463
#2	2.383	42.74	3.527	4.108	<.0010	25.95	.9951
#3	3.698	49.21	2.096	5.489	.0560	26.60	1.182
#4	3.862	53.86	<.0500	5.678	.0560	27.02	1.368
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.948	2.548	2287.	29.26	54.64	7066	79840.
SD	.412	.612	21.	.52	7.01	.1433	882.
%RSD	21.16	24.01	.9380	1.787	12.84	20.29	1.108
#1	1.689	1.907	2314.	28.54	47.91	.6281	80670.
#2	1.515	2.284	2289.	29.23	49.47	.5496	79840.
#3	2.208	2.662	2283.	29.61	59.04	.7851	79490.
#4	2.381	3.341	2262.	29.68	62.14	.8636	78540.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.097	6929.	19.82	<.0500	7.690	3.604	13.25
SD	1.080	26.	4.69	6.856	1.053	.666	.17
%RSD	11.87	.3783	23.66	55.74	13.69	18.48	1.246
#1	8.485	6912.	14.67	<.0500	9.037	2.778	13.01
#2	7.902	6905.	17.39	<.0500	7.241	3.379	13.34
#3	9.826	6963.	22.05	<.0500	7.915	3.980	13.34
#4	10.18	6935.	25.16	<.0500	6.568	4.280	13.34

002342

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37974

Operator: HLW

Run Time: 11/19/93 13:48:43

Comment: NATX 50737 CC-2936-91

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4108	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
SDev	1.573	30.77	20.40	11.34	.9149	7.803	2.063
%RSD	383.0	53.67	39.92	102.2	18.14	153.0	39.02

#1	<.0030	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#2	<.0030	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#3	2.465	<.0250	<.0500	<.0060	<.0010	<.0100	<.0040
#4	.8217	<.0250	<.0500	2.564	<.0010	4.026	<.0040

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	<.0030	<.0050	2301.	<.0050	<.0200	<.0010	81080.
SDev	3.840	5.084	8.	1.889	31.70	.9879	286.
%RSD	49.27	42.75	.3292	9.711	612.9	26.49	.3522

#1	<.0030	<.0050	2290.	<.0050	<.0200	<.0010	80820.
#2	<.0030	<.0050	2307.	<.0050	<.0200	<.0010	81490.
#3	<.0030	<.0050	2301.	<.0050	13.58	<.0010	81050.
#4	<.0030	<.0050	2305.	<.0050	29.10	<.0010	80970.

Elem	Ni	P	Pb	Se	Sn	V	Zn
units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.770	6595.	<.0250	<.0500	9.543	<.0020	6.193
SDev	3.730	113.	16.33	14.44	20.98	3.126	1.651
%RSD	134.7	1.706	48.04	12.43	219.9	41.63	26.67

#1	3.207	6439.	<.0250	<.0500	<.0200	<.0020	3.716
#2	<.0100	6664.	<.0250	<.0500	18.52	<.0020	7.019
#3	2916	6589	<.0250	<.0500	34.24	<.0020	7.019
#4	7.872	6690.	<.0250	<.0500	<.0200	<.0020	7.019

002343

CONFIDENTIAL



142

SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 142

Laboratory Sample ID: 931102SQI0126-01

Date/Time Collected: 11-01-93/09:45

Date/Time Analyzed: 11-02-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	30.7	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_



SGI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7812 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 142

Laboratory Sample ID: 931102SGI0126-01

Date/Time Collected: 11-01-93/09:45

Date/Time Analyzed: 11-02-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.35	mg/L	0.10
Barium	0.37	mg/L	0.10
Copper	2510	mg/L	1.00
Iron	46.4	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.27	mg/L	0.20
Sodium	79300	mg/L	1000
Phosphorous	7540	mg/L	10.0
Potassium	587	mg/L	50.0
Ammonia	198	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.43	pH Units	---
TSS	4240	mg/L	10.0
TDS	22.9	%(mg/L)	0.10

Comments: NR = Not requested

ENCYCLE / TEXAS, INC.

LIQUID SHIPMENT  
REPORT - RMA

5500 UPRIVER ROAD (512)289-0300

P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

CLIENT: ROCKY MTN. ARSENAL	BATCH# 131	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7' 2 1/4" @ 80'	VOLUME: 19,419
WASTE CODE(S): F039	LOAD# 50838	DATE: 11-19-93

LAB ANALYSIS

ICP	PRE-	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	4. BLUE
	SCREEN			pH		PHASES	5
	MG/L	PPM	PPM	SP.GR.		ACIDITY	
Ag				TOTAL CN-		ALKALINITY	
Al	33.4	29.14		REAC. CN-		ODOR	M
As	3.7	3.19	3.62	NH3 AS N	155 246	RADIO-	Y (N)
Au				TOC	22.4 31.3	ACTIVE	
Ba			0.27	VOC	N.D.		
Ca	16.6	14.31		PROCESS STAGES		PARAMETERS	
Cd					pH	REDOX	TEMP C
Co				INITIAL			
Cr							
Cu	1893	1632	2240	<i>Encycle ppm</i>			
Fe	25.5	21.98	49.4	<i>NH3 133.62</i>			
Mg	226	19.48		<i>TOC 19.31</i>			
Mn							
Na	74350	64095	78400				
Ni	61	5.26		<i>RMA</i>			
P	62.55	5392	8550	TSS	3190		
Pb	24	2.07		TDS	23.3		
Se			0.28				
Si						<i>931025 SQI 0121-03</i>	
Sn	3.6	3.10					
V	1.3	1.12					
Zn	10.6	9.14		<i>Off spec on Na, Ni, NH3</i>			
K			562				

ANALYSTS: *[Signature]*

COMMENTS: LOAD 7047

REAGENT COST:

002346

MANAGER: *B. Camacho*

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37985  
 Run Time: 11/19/93 14:09:34  
 Comment: NATX 50838 CC-2936-91  
 Mode: CONC Corr Factor: ?

Operator: HLW

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0370	33.78	3.670	0178	<.0010	16.56	.0843
StDev	.0109	1.05	.244	0001	.0023	.54	.0073
%RSD	29.37	3.122	6.637	113.0	12.28	3.258	8.638
#1	.0444	35.00	4.004	0202	<.0010	17.30	.0933
#2	.0214	34.28	3.489	<.0050	<.0010	16.56	.0784
#3	.0378	32.71	3.489	0236	<.0010	16.03	.0784
#4	.0444	33.12	3.698	.0336	<.0010	16.35	.0871
Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1922	.7819	1757.	25.53	22.57	.5406	520610.
StDev	.0071	.0276	71.	.82	.58	.0179	.
%RSD	3.715	3.532	4.024	3.222	2.580	3.315	0000
#1	.1966	.8219	1835.	26.60	23.38	.5637	520610.
#2	.1862	.7736	1800.	25.70	22.53	.5449	520610.
#3	.1862	.7585	1690.	24.73	22.01	.5229	520610.
#4	.2000	.7736	1706.	25.08	22.37	.5307	520610.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.126	5790.	2.426	<.0500	3.585	1.280	10.57
StDev	.107	223.	.088	.2857	.172	.045	.35
%RSD	3.387	3.851	3.637	166.3	4.795	3.534	3.269
#1	6.410	6087	2.555	.1464	3.823	1.341	10.99
#2	6.120	5823.	2.399	<.0500	3.589	1.281	10.71
#3	5.918	5574.	2.353	<.0500	3.427	1.233	10.23
#4	6.055	5675	2.399	<.0500	3.499	1.266	10.35

002347

CONFIDENTIAL



Method: ENTEXAS1 Sample Name: SAMPLE # 37981

Operator: HLW

Run Time: 11/19/93 14:00:45

Comment: NATY 50538 (C-2936-9)

Mode: CONC Conc. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.382	70.29	<.0500	8.435	.2801	28.07	1.835
StDev	.591	3.80	6465	1.426	.1585	.81	.241
RPD	10.97	5.413	115.0	16.90	56.57	2.898	12.13
#1	5.670	72.01	<.0500	9.738	.3922	28.37	1.928
#2	5.506	71.31	<.0500	8.357	.2801	28.64	1.866
#3	5.834	73.13	<.0500	9.173	.3922	28.42	2.052
#4	6.519	64.69	.2556	6.473	.0560	26.86	1.493
Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.421	4.455	1893.	48.83	73.39	1.158	70140.
StDev	.695	.570	14.	1.10	5.33	.039	604.
RPD	20.25	12.79	.7451	2.243	7.260	3.390	.8608
#1	3.767	4.852	1884.	47.39	74.81	1.178	69890.
#2	3.767	4.474	1902.	50.05	76.62	1.178	70380.
#3	3.767	4.852	1877.	49.04	76.62	1.178	69450.
#4	2.381	3.643	1907.	48.85	65.50	1.099	70840.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.06	6255.	30.01	<.0500	10.16	4.693	14.47
StDev	.55	34.	2.72	4.653	1.50	.395	.14
RPD	4.561	.5387	9.061	34.79	14.77	8.416	.9745
#1	12.28	6258	32.93	<.0500	11.96	4.881	14.49
#2	12.57	6302.	31.37	<.0500	8.813	4.731	14.41
#3	12.10	6232	29.04	<.0500	10.83	5.031	14.66
#4	11.28	6230.	26.71	<.0500	9.037	4.130	14.33

002348

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37977

Operator: HLW

Run Time: 11/19/93 13:53:45

Comment: NATX 50838 CC-2936-91

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.09	77.04	<.0500	23.23	<.0010	22.41	3.576
SD	3.39	11.99	19.21	2.20	.5603	3.17	.783
%RSD	30.54	15.57	69.59	9.488	22.22	14.15	21.88
#1	10.68	62.97	<.0500	20.98	<.0010	21.20	3.731
#2	7.396	72.82	<.0500	26.22	<.0010	18.52	3.731
#3	10.68	81.26	<.0500	22.45	<.0010	25.50	2.488
#4	15.61	91.11	<.0500	23.29	<.0010	24.42	4.353

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.794	8.872	1984.	100.6	148.1	<.0010	74350.
SD	2.598	1.572	4.	5.3	23.5	.9066	235.
%RSD	33.33	17.72	.2031	5.287	15.82	20e6	.3161
#1	4.763	6.985	1984.	93.65	117.0	<.0010	74590.
#2	6.495	8.495	1990.	99.97	148.1	<.0010	74510.
#3	9.958	9.250	1982.	102.5	173.9	.7851	74140.
#4	9.958	10.76	1982.	106.3	153.2	.7851	74160.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	16.18	6211.	79.65	<.0500	29.75	5.632	12.80
SD	1.53	91.	5.83	45.98	10.85	1.438	.95
%RSD	9.477	1.464	7.317	31.61	36.46	25.53	7.450
#1	15.45	6269.	84.51	<.0500	32.00	3.754	11.97
#2	14.87	6186.	72.85	<.0500	34.24	6.758	11.97
#3	16.04	6093.	76.74	<.0500	38.73	5.256	13.62
#4	18.37	6295.	84.51	<.0500	14.03	6.758	13.62

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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 131

Laboratory Sample ID: 931025SOI0121-03

Date/Time Collected: 10-23-93/10:40

Date/Time Analyzed: 10-25-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	31.3	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_  
\_\_\_\_\_



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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 131

Laboratory Sample ID: 931025SOI0121-03

Date/Time Collected: 10-23-93/10:40

Date/Time Analyzed: 10-25-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.62	mg/L	0.10
Barium	0.27	mg/L	0.10
Copper	2240	mg/L	1.00
Iron	49.4	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.28	mg/L	0.20
Sodium	78400	mg/L	1000
Phosphorous	8550	mg/L	10.0
Potassium	562	mg/L	50.0
Ammonia	246	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.59	pH Units	----
TSS	3190	mg/L	10.0
TDS	23.3	%(mg/L)	0.10

Comments: NR = Not requested

1.12	-3.0		
ZN	10.6	9.14	-30.0
NH3 AS N	155	133.62	-50
TOC	22.4	19.31	-200
VOC	-0.1	-0.09	-200
PH	5.8		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.086	-25.0
AL	33.8	29.14	-40.0
AS	3.7	3.19	-5.0
AU	-0.100	-0.086	-5.0
BA	-0.1	-0.09	-5.0
CA	16.6	14.31	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	-0.1	-0.09	-3.0
CU	1893	1631.90	G1,000
FE	25.5	21.98	-30.0
MG	22.6	19.48	-30.0
MN	-0.1	-0.09	-1.0
<del>NA</del>	<del>74350</del>	<del>64094.83</del>	<del>66000.0</del>
<del>NI</del>	<del>5.1</del>	<del>5.26</del>	<del>-5.0</del>
P	6255	5392.24	-8500.0
PB	2.4	2.07	-10.0
SE	-0.1	-0.09	-1.0
SN	3.6	3.10	-10.0
V	1.3	1.12	-3.0
ZN	10.6	9.14	-30.0
<del>NH3 AS N</del>	<del>155</del>	<del>133.62</del>	<del>-50</del>
TOC	22.4	19.31	-200
VOC	-0.1	-0.09	-200
PH	5.8		5.0 TO 7.

002352

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ENCYCLE / TEXAS, INC.

LIQUID SHIPMENT  
REPORT - RMA

5500 UPRIVER ROAD (512)289-0300  
P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

CLIENT: ROCKY MTN. ARSENAL	BATCH# 137	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7' 1 3/4" 85.15	VOLUME: 19.317
WASTE CODE(S): F039	LOAD# 50821	DATE: 11-19-93

LAB ANALYSIS

ICP	PRE-SCREEN	ENCYCLE	RMA		ENCYCLE	RMA	COLOR	BLUE
	MG/L	PPM	PPM	pH	5.9	5.66	PHASES	S
				SP.GR.	1.16	1.16	ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	39.3	33.88		REAC. CN-			ODOR	M
As	3.8	3.28	3.20	NH3 AS N	110	336	RADIO-	Y (N)
Au				TOC	30.3	30.0	ACTIVE	
Ba			0.21	VOC	N.D.			

Ca 13.9 11.98 PROCESS STAGES PARAMETERS

					pH	REDOX	TEMP C
Cd				INITIAL			
Co							
Cr	1.1	0.95					
Cu	2027	1747.41	1812				
Fe	35.1	30.26	46.2				
Mg	27.7	23.88					
Mn							
Na	79090	68181	73200				
Ni	7.0	6.03					
P	6.817	5877	5700				
Pb	30	2.59					
Se			0.26				
Si							
Sn	2.1	1.81					
V	1.5	1.29					
Zn	11.7	10.09					
K			594				

Encycle ppm  
NH3 94.83  
TOC 26.12

RMA  
TSS 2820  
TDS 23.1

931028 SQIO 124-01

Off spec Fe, Na, Ni, NH3

ANALYSTS: HZ  
H. Reel  
MANAGER: C. Comodry

COMMENTS: LOAD 7072

REAGENT COST: 002353

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37984

Operator: HLW

Run Time: 11/19/93 14:07:15

Comment: NATX 50821 CC-2936-91

Mode: CONC Corr. Factor: 2

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1545	39.26	3.775	.1839	<.0010	13.89	.1154
StDev	.0290	.84	.080	.0545	.0046	.22	.0112
RSD	18.75	2.133	2.111	29.63	48.51	1.570	9.699
#1	.1364	40.07	3.886	.1429	<.0010	14.07	.1070
#2	.1233	39.75	3.706	.1311	<.0010	13.63	.1045
#3	.1791	39.03	3.730	.2262	<.0010	14.06	.1244
#4	.1791	38.19	3.779	.2354	<.0010	13.78	.1256
Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2347	1.067	1985.	35.05	27.67	.6422	520610.
StDev	.0242	.023	72.	.54	.45	.0092	
RSD	10.30	2.119	3.613	1.536	1.632	1.440	0000
#1	.2277	1.073	2050.	35.72	27.85	.6517	520610.
#2	.2035	1.036	2038.	34.87	27.06	.6328	520610.
#3	.2520	1.091	1951.	35.17	28.13	.6485	520610.
#4	.2555	1.067	1900.	34.43	27.65	.6360	520610.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.032	6229.	2.988	<.0500	2.077	1.484	11.68
StDev	.098	133.	.181	.1651	.136	.020	.23
RSD	1.396	2.138	6.060	528.5	6.547	1.338	1.982
#1	7.117	6404.	2.935	.1074	2.278	1.497	11.93
#2	6.905	6213.	2.757	<.0500	2.026	1.461	11.77
#3	7.101	6220.	3.161	<.0500	2.026	1.503	11.64
#4	7.004	6080.	3.099	.1855	1.977	1.473	11.39

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Method: ENTEXAS1 Sample Name: SAMPLE # 37990

Operator: HLW

Run Time: 11/19/93 13:59:13

Comment: NATX 50821 CC-2936-91

Mode: CONC Corr. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.834	76.51	<.0500	9.576	.3362	24.49	1.959
SDev	.671	2.06	1.420	.840	.0647	.68	.230
%RSD	11.50	2.695	173.7	8.773	19.24	2.730	11.74

#1	5.999	75.25	<.0500	10.07	.3922	24.93	1.928
#2	6.327	77.50	.4600	10.12	.3922	24.38	2.239
#3	6.163	78.90	<.0500	9.780	.2801	24.66	1.990
#4	4.848	74.40	<.0500	8.336	.2801	23.43	1.679

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.507	4.719	2027.	43.93	82.44	1.256	74320.
SDev	.412	.317	27.	.47	3.67	.091	1019.
%RSD	11.76	6.709	1.333	1.067	4.455	7.217	1.371

#1	3.247	4.852	2024.	43.66	84.13	1.178	74140.
#2	3.940	4.927	2015.	44.36	85.94	1.335	73870.
#3	3.767	4.852	2003.	43.41	82.31	1.335	73470.
#4	3.074	4.247	2065.	44.29	77.40	1.178	75790.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.73	6817.	33.32	<.0500	9.767	5.256	15.11
SDev	.54	58.	2.87	9.020	1.106	.397	.20
%RSD	4.255	.8539	8.622	77.65	11.32	7.559	1.301

#1	13.27	6850.	36.04	<.0500	10.61	5.181	15.24
#2	12.04	6795.	35.26	<.0500	10.16	5.632	14.90
#3	12.57	6745.	32.15	<.0500	10.16	5.482	14.99
#4	13.03	6876.	29.82	<.0500	8.139	4.731	15.32

002355

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Method: ENTEXAS1 Sample Name: SAMPLE # 37976

Operator: HLW

Run Time: 11/19/93 13:52:11

Comment: NATX 50821 CC-2936-91

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.039	66.13	<.0500	18.21	<.0010	15.57	3.731
SDev	1.342	10.55	24.93	3.48	.0000	3.83	.508
%RSD	14.85	15.96	53.60	19.10	.0000	24.63	13.61

#1	9.039	68.60	<.0500	13.45	<.0010	15.30	3.731
#2	9.039	60.15	<.0500	17.84	<.0010	10.47	3.110
#3	7.396	55.93	<.0500	21.19	<.0010	16.91	3.731
#4	10.68	79.85	<.0500	20.36	<.0010	19.59	4.353

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.062	2.077	2128.	40.65	137.1	<.0010	79090.
SDev	2.179	1.308	7.	3.52	13.7	.0000	195.
%RSD	35.95	62.98	.3404	8.654	10.03	.0000	.2470

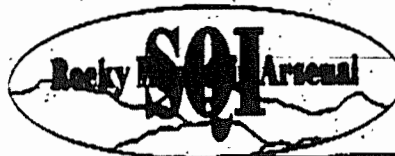
#1	6.495	.9439	2118.	44.29	119.6	<.0010	78820.
#2	3.031	.9439	2135.	37.96	148.1	<.0010	79270.
#3	8.227	3.209	2129.	37.33	132.6	<.0010	79190.
#4	6.495	3.209	2131.	43.03	148.1	<.0010	79080.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	19.97	6721.	79.65	<.0500	52.20	4.881	12.80
SDev	12.25	72.	35.66	28.58	47.63	1.438	.95
%RSD	61.35	1.076	44.77	22.52	91.24	29.46	7.450

#1	32.95	6679.	68.97	<.0500	119.6	3.754	13.62
#2	13.70	6697.	34.00	<.0500	18.52	6.758	11.97
#3	6.123	6679.	103.9	<.0500	18.52	3.754	11.97
#4	27.12	6829.	111.7	<.0500	52.20	5.256	13.62

002356

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SQI OPERATIONS • P.O. BOX 1657 • COMMERCE CITY, CO 80037-1657 • (303) 286-9548 • (303) 286-7912 (FAX)

### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 137

Laboratory Sample ID: 931028SQI0124-01

Date/Time Collected: 10-28-93/03:55

Date/Time Analyzed: 10-28-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	30.0	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_



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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 137

Laboratory Sample ID: 931028SGI0124-01

Date/Time Collected: 10-28-93/03:55

Date/Time Analyzed: 10-29-93/08:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.20	mg/L	0.10
Barium	0.21	mg/L	0.10
Copper	1812	mg/L	1.00
Iron	46.2	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.26	mg/L	0.20
Sodium	73200	mg/L	1000
Phosphorous	5700	mg/L	10.0
Potassium	594	mg/L	50.0
Ammonia	336	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.66	pH Units	----
TSS	2820	mg/L	10.0
TDS	23.1	%(mg/L)	0.10

Comments: NR = Not requested

0.0

V	1.5	1.29	-3.0
ZN	11.7	10.09	-30.0
NH3 AS N	110	94.83	-50
TOC	30.3	26.12	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.086	-25.0
AL	39.3	33.88	-40.0
AS	3.8	3.28	-5.0
AU	-0.100	-0.086	-5.0
BA	-0.1	-0.09	-5.0
CA	13.9	11.98	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.1	0.95	-3.0
CU	2027	1747.41	G1,000
<del>FE</del>	<del>85.1</del>	<del>80.26</del>	<del>-30.0</del>
MG	27.7	23.88	-30.0
MN	-0.1	-0.09	-1.0
<del>NA</del>	<del>19090</del>	<del>58181.03</del>	<del>-60000.0</del>
<del>NI</del>	<del>6.7</del>	<del>6.03</del>	<del>-5.0</del>
P	6817	5876.72	-8500.0
PB	3	2.59	-10.0
SE	-0.1	-0.09	-1.0
SN	2.1	1.81	-10.0
V	1.5	1.29	-3.0
ZN	11.7	10.09	-30.0
<del>NH3 AS N</del>	<del>110</del>	<del>94.83</del>	<del>-50</del>
TOC	30.3	26.12	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

002359

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Method: ENTEXAS1 Sample Name: SAMPLE # 37913

Operator: HMZ

Run Time: 11/18/93 15:11:48

Comment: LOAD # 50810 CC-2936

Mode: CONC. Corr. Factor: 2

Elem	As	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3522	30.44	4.669	4622	.0201	22.62	2214
StdDev	.0814	.73	.256	.1372	.0103	.79	0381
%RSD	23.10	2.396	5.485	29.69	51.21	3.471	17.19
#1	.2882	30.53	4.431	3536	.0072	21.88	.1937
#2	.3632	31.16	4.627	4763	.0168	23.29	2239
#3	.2944	30.66	4.585	.3680	.0263	22.01	.1937
#4	.4631	29.43	5.031	.6509	.0302	23.31	2743
Elem	Co	Cr	Cu	Fe	Mn	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3933	1.161	1875.	27.57	28.60	5335	\$17700.
StdDev	.0669	.069	104.	54	1.46	.0147	
%RSD	17.02	5.961	5.519	1.957	5.121	2.766	.0000
#1	.3378	1.093	1941.	27.23	27.27	.5200	\$17700.
#2	.4017	1.193	1914.	28.37	29.51	.5479	\$17700.
#3	.3491	1.117	1926.	27.26	27.43	.5216	\$17700.
#4	.4845	1.243	1721.	27.43	30.17	.5446	\$17700.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.823	7451.	5.006	.4416	2.950	1.724	12.31
StdDev	.254	133.	.573	.1872	.112	.055	.28
%RSD	3.718	1.787	11.44	42.40	3.808	3.180	2.276
#1	6.600	7374.	4.472	.4474	2.846	1.674	12.33
#2	7.021	7651.	5.129	.1906	2.953	1.767	12.64
#3	6.608	7386.	4.664	.4863	2.897	1.680	12.35
#4	7.063	7394.	5.759	.6420	3.106	1.776	11.95

002361

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37909

Operator: HMZ

Run Time: 11/18/93 15:04:49

Comment: LOAD # 50810 CC-2936

Mode: CONC. Corr. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.419	75.57	6.514	11.30	.8144	39.56	2.898
SD	1.232	5.46	1.097	1.66	.1638	1.73	.507
%RSD	16.61	7.221	16.83	14.69	20.09	4.367	17.49
#1	6.131	69.86	8.078	9.258	6467	37.82	2.340
#2	7.224	74.27	5.576	11.08	.7425	39.05	2.772
#3	7.224	75.18	6.410	11.55	.8383	39.42	2.916
#4	9.098	82.98	5.993	13.29	1.030	41.94	3.564
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.363	6.490	2211.	40.27	92.45	1.476	77960.
SD	1.012	.778	37.	23	9.29	.134	1450.
%RSD	18.87	11.99	1.663	.5612	10.05	9.072	1.860
#1	4.281	5.831	2254.	40.07	85.54	1.312	79520.
#2	5.222	6.071	2224.	40.20	88.25	1.476	78590.
#3	5.222	6.470	2199.	40.20	89.88	1.476	77580.
#4	6.727	7.589	2167.	40.59	106.1	1.640	76130.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.57	8093.	45.29	<.0500	10.14	6.873	17.35
SD	.89	50.	4.99	4.134	3.52	.653	.12
%RSD	6.107	.6173	11.02	61.60	34.71	9.507	.7053
#1	14.11	8118.	41.07	<.0500	6.665	6.310	17.44
#2	13.98	8122.	41.99	<.0500	8.984	6.611	17.18
#3	14.30	8018.	46.09	<.0500	9.911	6.761	17.35
#4	15.89	8113.	52.03	<.0500	15.01	7.812	17.44

002362

CONFIDENTIAL

Method: ZNTEXAS1 Sample Name: SAMPLE # 37905

Operator: HMZ

Run Time: 11/18/93 14:57:42

Comment: LOAD # 50810 CC-2936

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	At	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	50.37	276.4	<.0500	77.63	5.749	99.36	18.72
Stdev	4.60	27.6	49.40	4.80	917	2.38	.72
RPD	9.128	9.971	2370.	6.185	15.96	8.432	3.846
#1	47.25	259.5	51.59	73.56	4.551	93.21	19.08
#2	45.69	249.1	<.0500	73.56	5.509	91.98	17.64
#3	55.06	310.1	22.41	82.87	6.467	109.8	19.08
#4	53.50	286.8	<.0500	80.54	6.467	102.4	19.08
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	35.28	34.95	2269.	56.26	395.9	6.151	80300.
Stdev	4.07	3.29	15.	2.77	29.2	800	651.
RPD	11.52	9.401	16495	4.919	7.372	13.33	18111
#1	33.40	32.75	2265.	54.96	362.8	6.561	80310
#2	31.52	31.95	2287.	53.00	381.7	4.921	81080.
#3	40.93	39.14	2252.	58.87	427.7	6.561	79480.
#4	35.28	35.95	2271.	58.22	411.5	6.561	80310.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	42.47	2029.	265.8	<.0500	47.53	33.80	19.69
Stdev	4.47	48.	12.0	16.00	11.10	3.13	1.92
RPD	10.50	15931	4.515	149.6	23.35	9.252	9.747
#1	38.00	1952.	260.1	<.0500	34.20	33.05	18.61
#2	45.65	2043.	255.6	9.727	43.47	30.05	17.74
#3	39.29	2060.	264.7	<.0500	59.70	37.56	20.34
#4	46.92	2055.	282.9	<.0500	52.74	34.56	22.07

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PB	5	4.27	-10.0
SE	-0.1	-0.09	-1.0
SN	3	2.56	-10.0
V	1.7	1.45	-3.0
ZN	12.3	10.51	-30.0
NH3 AS N	230	196.58	-50
TOC	30.9	26.41	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.17

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.085	-25.0
AL	30.4	25.98	-40.0
AS	4.7	4.02	-5.0
AU	-0.100	-0.085	-5.0
BA	-0.1	-0.09	-5.0
CA	22.6	19.32	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.2	1.03	-3.0
CU	2211	1889.74	G1,000
FE	27.6	23.59	-30.0
MG	28.6	24.44	-30.0
MN	-0.1	-0.09	-1.0
<del>NA</del>	<del>80300</del>	<del>68632.48</del>	<del>-60000.0</del>
<del>NI</del>	<del>6.8</del>	<del>5.81</del>	<del>-5.0</del>
P	8093	6917.09	-8500.0
PB	5	4.27	-10.0
SE	-0.1	-0.09	-1.0
SN	3	2.56	-10.0
V	1.7	1.45	-3.0
ZN	12.3	10.51	-30.0
<del>NH3 AS N</del>	<del>230</del>	<del>196.58</del>	<del>-50</del>
TOC	30.9	26.41	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

002364

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 138

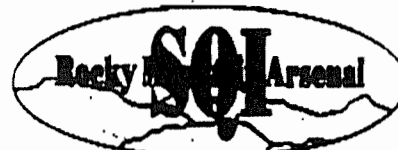
Laboratory Sample ID: 931101SOI0125-01

Date/Time Collected: 10-28-93/13:15

Date/Time Analyzed: 11-01/02-93/8:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.14	mg/L	0.10
Barium	0.31	mg/L	0.10
Copper	2160	mg/L	1.00
Iron	44.1	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.21	mg/L	0.20
Sodium	89500	mg/L	1000
Phosphorous	6300	mg/L	10.0
Potassium	618	mg/L	50.0
Ammonia	250	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.67	pH Units	----
TSS	3340	mg/L	10.0
TDS	23.5	%(mg/L)	0.10

Comments: NR = Not requested



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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 138

**10/28**

Laboratory Sample ID: 931101SQI0125-01

Date/Time Collected: 10-28-93/13:15

Date/Time Analyzed: 11-01-93/13:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	29.4	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_

\_\_\_\_\_

**ENCYCLE / TEXAS, INC.**

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

**LIQUID SHIPMENT REPORT - RMA**

CLIENT: ROCKY MTN. ARSENAL	BATCH# 14	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7'2 1/2" 86.25	VOLUME: 19,427
WASTE CODE(S): F039	LOAD# 50830	DATE: 11-18-93

**LAB ANALYSIS**

ICP	PRE-	ENCYCLE	RMA	ENCYCLE	RMA	COLOR	BLUE
	SCREEN			pH		PHASES	S
	MG/L	PPM	PPM	SP.GR.		ACIDITY	
Ag				TOTAL CN-		ALKALINITY	
Al	39.3	33.88		REAC. CN-		ODOR	M
As	4.5	3.88	3.52	NH3 AS N	62	186	RADIO- Y (N)
Au				TOC	25.7	31.3	ACTIVE
Ba				VOC	N.D.		

**PROCESS STAGES PARAMETERS**

					pH	REDOX	TEMP C
Ca	4.4	12.41		INITIAL			
Cd							
Co							
Cr	1.2	1.03					
Cu	1822	1571	2170				
Fe	31.1	26.81	34.4				
Mg	350	30.17					
Mn							
Na	67650	58319	77600				
Ni	9.0	7.76					
P	7225	6228	6240				
Pb	4.9	4.22					
Se			0.18				
Si							
Sn	2.9	2.50					
V	1.7	1.47					
Zn	12.3	10.60					
K			666				

*Encycle ppm*  
 NH3 5345  
 TOC 22.16

*RMA*  
 TSS 1000  
 TDS 23.6

*Off spec Ni, NH3*

*931101 SQI 0125-07*

ANALYSTS: *H.K.*  
*Shu*  
 MANAGER: *B. Carmody*

COMMENTS: *LOAD 7131*

REAGENT COST: 002367

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37915

Operator: HMZ

Run Time: 11/18/93 15:16:01

Comment: LOAD # 50830 CC-2936

Mode: CONC Corr. Factor: 2

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3366	39.31	4.516	.4603	.0369	14.36	2171
SDev	.1056	.94	.434	.1763	.0123	.81	.0510
%RSD	31.38	2.403	9.613	38.30	49.20	5.657	23.51
#1	.4819	38.30	5.106	.7002	.0417	15.35	.2873
#2	.2538	39.01	4.097	.3233	.0149	13.48	.1793
#3	.2632	40.56	4.314	.3327	.0168	13.97	.1793
#4	.3475	39.36	4.548	.4848	.0263	14.65	.2225
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4460	1.181	1678.	31.06	35.04	.9149	\$17700.
SDev	.0914	.105	94.	.73	2.34	.0296	.
%RSD	20.50	8.909	5.612	2.352	6.672	3.238	.0000
#1	.5673	1.318	1554.	31.62	38.02	.9464	\$17700.
#2	.3754	1.078	1707.	30.02	32.64	.8776	\$17700.
#3	.3754	1.123	1780.	31.10	33.87	.9071	\$17700.
#4	.4657	1.205	1672.	31.52	35.65	.9284	\$17700.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.036	7309.	4.874	.4805	2.927	1.650	12.30
SDev	.479	184.	.786	.3886	.210	.092	.20
%RSD	5.301	2.523	16.12	80.87	7.189	5.555	1.666
#1	9.624	7482.	5.942	1.054	3.221	1.764	12.21
#2	8.525	7052.	4.226	.3852	2.823	1.553	12.07
#3	8.798	7320.	4.345	.2373	2.739	1.605	12.54
#4	9.196	7385.	4.923	.2451	2.925	1.680	12.38

002368

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Method: ENTEXAS1 Sample Name: SAMPLE # 37911

Operator: HMZ

Run Time: 11/18/93 15:08:22

Comment: LOAD # 50830 CC-2936

Mode: CONC Corr. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.239	86.58	6.202	12.45	.9820	28.18	3.114
SDev	.299	1.36	1.351	.84	.0958	.58	.091
%RSD	3.630	1.571	21.78	6.779	9.756	2.045	2.909
#1	8.161	85.96	7.453	11.82	.8383	28.06	3.132
#2	8.474	87.13	4.326	13.51	1.030	28.79	3.132
#3	8.474	88.17	6.202	12.75	1.030	28.42	3.204
#4	7.849	85.05	6.827	11.72	1.030	27.44	2.988
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.692	6.810	1822.	42.03	104.5	1.989	65880.
SDev	.188	.280	8.	.31	2.4	.041	264.
%RSD	3.306	4.106	.4142	.5069	2.327	2.062	.4011
#1	5.786	6.710	1812.	41.77	102.9	1.968	65640.
#2	5.786	6.950	1820.	42.29	108.0	2.050	65800.
#3	5.786	7.109	1823.	42.03	102.9	1.968	65800.
#4	5.410	6.470	1831	42.03	104.2	1.968	66260.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	16.53	7225.	51.00	2.626	10.38	7.061	15.95
SDev	.76	21.	1.84	2.684	1.00	.245	.08
%RSD	4.577	.2857	3.607	102.2	9.655	3.474	.5196
#1	17.16	7207.	48.37	4.863	10.84	7.061	15.88
#2	17.04	7209.	51.11	2.140	11.30	7.061	15.88
#3	15.51	7249.	52.48	4.474	8.984	7.362	15.97
#4	16.40	7236.	52.03	<.0500	10.38	6.761	16.06

002369

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Method: ENTEXAS1 Sample Name: SAMPLE # 37907

Operator: HMZ

Run Time: 11/18/93 15:01:10

Comment: LOAD # 50930 CC-2936

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	50.37	353.7	<.0500	77.34	5.988	701.8	19.98
SDev	3.61	18.8	23.49	3.96	.958	10.5	1.23
%RSD	7.161	5.319	300.5	5.124	16.00	1.495	6.154
#1	47.25	325.7	<.0500	71.81	4.551	629.6	18.36
#2	47.25	359.5	<.0500	79.57	6.467	696.4	19.80
#3	53.50	363.4	14.07	80.74	6.467	709.9	21.24
#4	53.50	366.0	3.648	77.24	6.467	711.1	20.52
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	37.63	35.55	1866.	63.11	508.3	7.176	67650.
SDev	2.37	3.02	11.	2.89	38.4	.410	400.
%RSD	6.292	8.508	.5847	4.584	7.562	5.714	.5906
#1	37.16	31.15	1868.	58.87	454.8	6.561	67870.
#2	35.28	35.95	1851.	64.09	508.9	7.381	67070.
#3	37.16	37.54	1868.	65.40	544.1	7.381	67680.
#4	40.93	37.54	1878.	64.09	525.2	7.381	67960.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	46.45	7011.	304.6	<.0500	80.57	33.80	23.80
SDev	3.18	91.	27.2	63.53	12.98	3.13	1.87
%RSD	6.838	1.300	8.937	121.0	16.11	9.252	7.855
#1	43.11	6885.	264.7	<.0500	99.11	30.05	21.20
#2	49.47	7097.	319.5	<.0500	75.93	34.56	23.80
#3	48.83	7012.	324.0	25.29	68.97	33.05	24.67
#4	44.38	7051.	310.3	<.0500	78.25	37.56	25.53

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	1.7	1.47	-3.0	
ZN	12.3		10.60	-30.0
NH3 AS N	62		53.45	-50
TOC	25.7		22.16	-200
VOC	-0.1		-0.09	-200
PH	5.9			5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.086	-25.0
AL	39.3	33.88	-40.0
AS	4.5	3.88	-5.0
AU	-0.100	-0.086	-5.0
BA	-0.1	-0.09	-5.0
CA	14.4	12.41	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.2	1.03	-3.0
CU	1822	1570.69	G1,000
FE	31.1	26.81	-30.0
MG	35	30.17	-30.0
MN	-0.1	-0.09	-1.0
NA	67650	58318.97	-60000.0
<del>NI</del>	<del>7.9</del>	<del>7.76</del>	<del>-5.0</del>
P	7225	6228.45	-8500.0
PB	4.9	4.22	-10.0
SE	-0.1	-0.09	-1.0
SN	2.9	2.50	-10.0
V	1.7	1.47	-3.0
ZN	12.3	10.60	-30.0
<del>NH3 AS N</del>	<del>62</del>	<del>53.45</del>	<del>-50</del>
TOC	25.7	22.16	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

002371

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 141

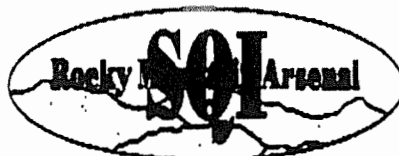
Laboratory Sample ID: 931101SQI0125-07

Date/Time Collected: 10-31-93/14:30

Date/Time Analyzed: 11-01/02-93/8:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
Arsenic	3.52	mg/L	0.10
Barium	ND	mg/L	0.10
Copper	2170	mg/L	1.00
Iron	34.4	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.18	mg/L	0.20
Sodium	77600	mg/L	1000
Phosphorous	6240	mg/L	10.0
Potassium	666	mg/L	50.0
Ammonia	186	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.67	pH Units	---
TSS	1000	mg/L	10.0
TDS	23.6	%(mg/L)	0.10

Comments: NR = Not requested



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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 141

~~932015~~

Laboratory Sample ID: 931101SQI0125-07

Date/Time Collected: 10-31-93/14:30

Date/Time Analyzed: 11-01-93/13:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>PQL</u>
TOC	31.3	mg/L	10.0
Specific Gravity	1.17	gS/gH2O	0.90

Comments: \_\_\_\_\_

002373

ENCYCLE / TEXAS, INC.

5500 UPRIVER ROAD (512)289-0300  
 P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

LIQUID SHIPMENT  
 REPORT - RMA

CLIENT: ROCKY MTN. ARSENAL	BATCH# 140	LAB NO. CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 4 1/2" 84.5	VOLUME: 19.031
WASTE CODE(S): F039	LOAD# 50819	DATE: 11-18-93

LAB ANALYSIS

ICP	PRE-	ENCYCLE	RMA		ENCYCLE	RMA	COLOR	BLUE
	SCREEN			pH			PHASES	S
	MG/L	PPM	PPM	SP.GR.			ACIDITY	
Ag				TOTAL CN-			ALKALINITY	
Al	23.8	20.34		REAC. CN-			ODOR	M
As	5.0	4.27	3.23	NH3 AS N	180	232	RADIO-	Y (N)
Au				TOC	29.0	27.7	ACTIVE	
Ba			0.30	VOC	M.D.			


	PROCESS STAGES			PARAMETERS		
				pH	REDOX	TEMP C
Ca	26.6	22.74				
Cd						
Co			INITIAL			
Cr	1.1	0.94				
Cu	2,101	1796	2240			
Fe	24.8	21.20	45.1			
Mg	28.7	24.53				
Mn						
Na	78490	67085	85400			
Ni	6.4	5.47				
P	7,870	6727	7030			
Pb	5.1	4.36				
Se			0.19			
Si						
Sn	3.0	2.56				
V	1.4	1.45				
Zn	11.5	9.83				
K			656			

*Encycle ppm*  
 NH3 153.85  
 TOC 24.79

*RMA*  
 TSS 2230  
 TDS 22.2

*931101 SQI 225-05*

*Speccom Na, NH3, Ni*

ANALYSTS: *H.K.*  
  
 MANAGER: *B. Camodey*

COMMENTS: *LD 7132*

REAGENT COST: 002374

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37914

Operator: HMZ

Run Time: 11/18/93 15:13:31

Comment: LOAD # 50819 CC-2936

Mode: CONC Corr. Factor: 2

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3835	23.75	5.032	.5095	.0220	26.62	.2290
Stdev	.0355	.36	.135	.0515	.0033	.28	.0133
RPSD	9.253	1.535	2.688	10.10	14.85	1.039	5.921
#1	.3444	23.67	4.848	.4510	.0187	26.32	.2182
#2	.3632	24.27	5.165	.4817	.0206	26.91	.2182
#3	.4194	23.65	5.090	.5574	.0263	26.78	.2455
#4	.4069	23.41	5.027	.5477	.0225	26.45	.2340

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4093	1.109	1752.	24.78	28.65	.4523	517700.
Stdev	.0206	.025	53.	.30	.46	.0057	.
RPSD	5.037	2.254	3.006	1.205	1.600	1.269	.0000
#1	.3980	1.078	1776.	24.71	28.03	.4462	517700.
#2	.3867	1.106	1814.	25.21	28.84	.4544	517700.
#3	.4319	1.139	1713.	24.71	29.11	.4593	517700.
#4	.4206	1.114	1703.	24.51	28.61	.4494	517700.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.438	7364.	5.125	.5389	2.965	1.713	11.54
Stdev	.061	104.	.226	.2420	.060	.021	.19
RPSD	.9644	1.418	4.417	44.92	2.040	1.243	1.643
#1	6.360	7395.	4.856	.2140	3.045	1.653	11.53
#2	6.491	7486.	5.020	.7820	2.943	1.728	11.80
#3	6.482	7341.	5.321	.5175	2.971	1.728	11.45
#4	6.422	7236.	5.303	.6420	2.902	1.716	11.36

002375

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37910

Operator: HMZ

Run Time: 11/18/93 15:06:41

Comment: LOAD # 50819 CC-2936

Mode: CONC Corr. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.966	67.81	7.505	12.15	.9341	44.61	3.078
SDev	.737	3.94	5.197	1.28	.1355	1.01	.421
%RSD	9.249	5.814	69.25	10.53	14.50	2.264	13.69

#1	6.912	62.19	7.453	10.56	.7425	43.29	2.556
#2	8.161	68.95	7.870	11.94	1.030	44.64	2.988
#3	8.161	68.69	.9902	12.45	.9341	44.76	3.204
#4	8.630	71.41	13.71	13.64	1.030	45.75	3.564

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.504	6.590	2101.	36.50	95.49	1.435	75270.
SDev	.585	.544	32.	.33	7.09	.082	1277.
%RSD	10.63	8.251	1.500	.9157	7.426	5.714	1.697

#1	4.657	5.831	2146.	36.03	85.54	1.312	77070.
#2	5.598	6.630	2096.	36.81	96.64	1.476	75150.
#3	5.786	6.790	2089.	36.55	97.46	1.476	74770.
#4	5.975	7.109	2073.	36.61	102.3	1.476	74090.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.92	7870.	49.52	<.0500	10.84	7.024	16.34
SDev	.45	32.	4.06	3.271	2.75	.630	.22
%RSD	3.232	.4048	8.192	129.3	25.37	8.970	1.324

#1	13.35	7906.	43.81	1.751	7.361	6.160	16.31
#2	14.17	7881.	50.20	<.0500	9.911	7.061	16.57
#3	13.79	7864.	53.39	<.0500	13.16	7.212	16.06
#4	14.36	7830.	50.66	<.0500	12.93	7.662	16.40

002376

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37906

Operator: HMZ

Run Time: 11/18/93 14:59:23

Comment: LOAD # 50819 CC-2936

Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	54.28	289.7	<.0500	84.18	6.228	111.5	19.98
StDev	2.02	22.8	20.81	2.62	.479	4.2	.91
RPSD	3.715	7.873	1331.	3.112	7.692	3.774	4.534
#1	51.93	273.8	<.0500	80.54	6.467	109.2	19.80
#2	56.62	320.5	<.0500	86.75	6.467	117.8	21.24
#3	53.50	271.2	<.0500	84.42	5.509	109.8	19.80
#4	55.06	293.3	26.58	85.01	6.467	109.2	19.08
Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	38.58	37.34	2190.	56.59	446.7	6.356	78490.
StDev	1.80	1.77	15.	3.26	11.1	.410	547.
RPSD	4.670	4.743	.6872	5.764	2.474	6.452	.8241
#1	37.16	36.74	2183.	54.96	435.8	6.561	78220.
#2	40.93	39.14	2173.	61.48	438.5	5.741	77720.
#3	39.05	38.34	2207.	54.96	457.5	6.561	79180.
#4	37.16	35.15	2198.	54.96	454.8	6.561	78820.
Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	44.86	7930.	303.5	<.0500	62.02	37.18	20.77
StDev	7.95	67.	27.5	30.64	7.33	3.55	.87
RPSD	17.73	.8427	9.064	54.30	11.82	9.547	4.167
#1	42.47	7925.	333.1	<.0500	52.74	34.56	20.34
#2	55.19	7916.	319.5	<.0500	59.70	42.07	22.07
#3	36.11	8021.	273.8	<.0500	68.97	34.56	20.34
#4	45.65	7860.	287.5	<.0500	66.65	37.56	20.34

002377

CONFIDENTIAL

10.0

SE	-0.1	-0.09	-1.0
SN	3	2.56	-10.0
V	1.7	1.45	-3.0
ZN	11.5	9.83	-30.0
NH3 AS N	180	153.85	-50
TOC	29	24.79	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.17

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.085	-25.0
AL	23.8	20.34	-40.0
AS	5	4.27	-5.0
AU	-0.100	-0.085	-5.0
BA	-0.1	-0.09	-5.0
CA	26.6	22.74	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.1	0.94	-3.0
CU	2101	1795.73	G1,000
FE	24.8	21.20	-30.0
MG	28.7	24.53	-30.0
MN	-0.1	-0.09	-1.0
<del>NA</del>	<del>78490</del>	<del>67085.47</del>	<del>-60000.0</del>
<del>NI</del>	<del>6.4</del>	<del>5.47</del>	<del>-5.0</del>
P	7870	6726.50	-8500.0
PB	5.1	4.36	-10.0
SE	-0.1	-0.09	-1.0
SN	3	2.56	-10.0
V	1.7	1.45	-3.0
ZN	11.5	9.83	-30.0
<del>NH3 AS N</del>	<del>180</del>	<del>153.85</del>	<del>-50</del>
TOC	29	24.79	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

002378

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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 140

Laboratory Sample ID: 931101SOI0125-05

Date/Time Collected: 10-30-93/03:30

Date/Time Analyzed: 11-01/02-93/8:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.23	mg/L	0.10
Barium	0.30	mg/L	0.10
Copper	2240	mg/L	1.00
Iron	45.1	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.19	mg/L	0.20
Sodium	85400	mg/L	1000
Phosphorous	7030	mg/L	10.0
Potassium	656	mg/L	50.0
Ammonia	232	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.65	pH Units	---
TSS	3230	mg/L	10.0
TDS	22.2	%(mg/L)	0.10

Comments: NR = Not requested





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**ANALYTICAL DATA SUMMARY**

Sample ID: Brine Batch Number 140 93115

Laboratory Sample ID: 931101SQI0125-05

Date/Time Collected: 10-30-93/03:30

Date/Time Analyzed: 11-01-93/13:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
TOC	27.7	mg/L	10.0
Specific Gravity	1.16	gS/gH2O	0.90

Comments: \_\_\_\_\_  
 \_\_\_\_\_

**ENCYCLE / TEXAS, INC.**

5500 UPRIVER ROAD (512)289-0300

P.O. BOX 4767 CORPUS CHRISTI, TEXAS 78649

**LIQUID SHIPMENT REPORT - RMA**

CLIENT: ROCKY.MTN. ARSENAL	BATCH# 139	LAB.NO.CC 2936-91
WASTE DESCRIPTION: BRINE	DIP IN.: 7' 3/4 85.15	VOLUME 19,267
WASTE CODE(S): F039	LOAD# 50865	DATE: 11-18-93

**LAB ANALYSIS**

ICP	PRE-SCREEN	ENCYCLE	RMA	ENCYCLE	RMA	COLOR		
				pH	5.9	5.64	PHASES	Blue
	MG/L	PPM	PPM	SP.GR.	1.16		ACIDITY	S
Ag				TOTAL CN-			ALKALINITY	
Al	31.8	30.00		REAC.CN-			ODOR	M
As	4.5	3.88	3.36	NH3 AS N	155	391	RADIO-ACTIVE	Y (N)
Au				TOC	28.0			
Ba			0.18	VOC	N.D.			

Ca	15.7	13.53		PROCESS STAGES		PARAMETERS	
Cd					pH	REDOX	TEMPC
Co				INITIAL			
Cr	1.2	1.03					
Cu	2063	1778.5	2200				
Fe	37.4	32.24	50.1				
Mg	33.8	29.14					
Mn							
Na	42,510	62,509	86,900				
Ni	9.4	8.10					
P	8.131	7009	6750				
Pb	4.6	3.97					
Se			0.21				
Si							
Sn	4.3	3.71					
V	1.6	1.38					
Zn	13.1	11.29					
K			673				

*Encycle ppm*  
*TOC 24.14*  
*RMA*  
*TSS 2120*  
*TDS 23.2*

*Spec on Fe, Na, Ni, NH3*

931101 SQI 0125-03

ANALYSTS: *J.K.*  
*AW*  
 MANAGER: *B. Calmody*

COMMENTS: LOAD 7133

REAGENT COST:

002381

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37916 Operator: HMZ  
 Run Time: 11/18/93 15:17:49  
 Comment: LOAD # 50865 CC-2936  
 Mode: CONC Corr. Factor: 2

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2608	34.81	4.496	.5535	.0115	15.70	.2038
SD	.0637	.80	.269	.1103	.0025	.66	.0313
RRSD	24.41	2.288	5.978	31.20	73.76	4.176	15.36

#1	.3038	33.64	4.669	.4456	.0168	15.88	.2254
#2	.1945	35.42	4.268	.2449	.0034	15.01	.1721
#3	.3257	35.00	4.781	.4514	.0206	16.53	.2354
#4	.2195	35.17	4.264	.2721	.0053	15.39	.1822

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4149	1.200	1770.	37.35	33.77	.8972	\$17700.
SD	.0575	.066	81.	.72	1.60	.0233	.
RRSD	13.86	5.531	4.583	1.936	4.751	2.598	.0000

#1	.4620	1.225	1671.	36.99	34.23	.8956	\$17700.
#2	.3528	1.130	1850.	36.75	32.09	.8759	\$17700.
#3	.4657	1.280	1738.	38.39	35.78	.9300	\$17700.
#4	.3792	1.165	1820.	37.26	32.97	.8874	\$17700.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.366	\$45210.	4.609	.0778	4.331	1.620	13.14
SD	.336	.	.487	.2435	.203	.058	.25
RRSD	3.582	.0000	10.56	313.0	4.691	3.559	1.934

#1	9.433	\$45210.	4.874	.2295	4.622	1.632	12.79
#2	8.996	\$45210.	4.089	<.0500	4.214	1.559	13.15
#3	9.791	\$45210.	5.148	.3385	4.316	1.695	13.40
#4	9.242	\$45210.	4.326	<.0500	4.172	1.596	13.21

002382

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37912

Operator: HMZ

Run Time: 11/18/93 15:10:01

Comment: LOAD # 50865 CC-2936

Mode: CONC Corr. Factor: 100

Elem	Ag	Al	As	Au	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.693	84.50	7.088	11.98	.9102	92.52	3.312
SD	.221	1.70	2.235	.47	.0917	2.54	.125
%RSD	2.872	2.010	31.53	3.954	10.08	2.750	3.765

#1	7.380	83.24	6.202	11.61	.8383	88.93	3.348
#2	7.849	84.02	6.410	12.21	1.030	92.61	3.420
#3	7.693	83.76	5.368	11.57	.8383	93.84	3.132
#4	7.849	87.00	10.37	12.54	.9341	94.70	3.348

Elem	Co	Cr	Cu	Fe	Mg	Mn	Na
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.645	6.810	2063.	55.22	105.8	2.173	73740.
SD	.180	.229	43.	1.27	3.3	.082	1444.
%RSD	3.191	3.369	2.074	2.304	3.132	3.774	1.958

#1	5.410	6.470	2009.	53.51	103.1	2.132	71990.
#2	5.786	6.950	2047.	55.07	107.2	2.132	73120.
#3	5.786	6.950	2094.	55.86	103.1	2.132	74840.
#4	5.598	6.870	2100.	56.44	109.9	2.296	75010.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.15	8131.	52.03	<.0500	11.94	6.873	18.95
SD	.68	157.	1.12	1.945	2.08	.144	.30
%RSD	3.738	1.932	2.149	500.0	17.39	2.093	1.560

#1	17.67	7923.	52.94	.5836	10.84	6.761	18.65
#2	17.61	8096.	51.57	<.0500	12.93	7.061	18.82
#3	18.24	8249.	50.66	.5836	9.679	6.761	19.00
#4	19.07	8256.	52.94	.5836	14.32	6.911	19.34

002383

CONFIDENTIAL

Method: ENTEXAS1 Sample Name: SAMPLE # 37908 Operator: HMZ  
 Run Time: 11/18/93 15:02:52  
 Comment: LOAD # 50865 CC-2936  
 Mode: CONC Corr. Factor: 1000

Elem	Ag	Al	As	Atl	Ba	Ca	Cd
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	55.84	325.7	<.0500	90.88	6.946	759.7	23.76
SDev	3.72	22.5	12.89	3.01	.553	6.9	1.38
%RSD	6.659	6.915	51.54	3.315	7.963	.9124	5.803
#1	53.50	298.5	<.0500	90.83	7.425	757.2	23.40
#2	51.93	319.2	<.0500	91.02	6.467	751.1	21.96
#3	58.18	333.5	<.0500	94.52	7.425	766.4	24.84
#4	59.74	351.7	<.0500	87.14	6.467	764.0	24.84

Elem	Co	Cr	Cu	Fe	Mg	Mn	Ni
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	42.81	40.94	2028.	77.79	497.4	7.791	72510.
SDev	3.76	2.29	10.	1.51	32.1	.474	414.
%RSD	8.791	5.604	.4788	1.937	6.445	6.077	.5716
#1	40.93	40.74	2024.	79.10	487.3	7.381	72640.
#2	40.93	38.34	2042.	76.49	457.5	7.381	73040.
#3	48.45	43.93	2024.	76.49	530.6	8.201	72120.
#4	40.93	40.74	2022.	79.10	514.3	8.201	72240.

Elem	Ni	P	Pb	Se	Sn	V	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	58.22	7618.	362.8	<.0500	68.39	38.31	27.70
SDev	5.98	100.	19.2	8.405	22.59	2.88	.87
%RSD	10.27	1.313	5.287	22.74	33.03	7.509	3.125
#1	66.01	7585.	342.3	<.0500	73.61	37.56	26.40
#2	52.65	7766.	351.4	<.0500	59.70	34.56	28.13
#3	59.65	7549.	383.3	<.0500	43.47	40.56	28.13
#4	54.56	7571.	374.2	<.0500	96.79	40.56	28.13

002384

CONFIDENTIAL

1.38	-3.0		
ZN	13.1	11.29	-30.0
NH3 AS N	155	133.62	-50
TOC	28	24.14	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

ELEMENT SPECIFIC GRAVITY 1.16

	ICP MG/L	CALC PPM(MG/KG)	SCHED. D LIMITS
AG	-0.100	-0.086	-25.0
AL	34.8	30.00	-40.0
AS	4.5	3.88	-5.0
AU	-0.100	-0.086	-5.0
BA	-0.1	-0.09	-5.0
CA	15.7	13.53	-40.0
CD	-0.1	-0.09	-1.0
CO	-0.1	-0.09	-1.0
CR	1.2	1.03	-3.0
CU	2063	1778.45	G1,000
<del>FE</del>	<del>27.4</del>	<del>32.24</del>	<del>-30.0</del>
MG	33.8	29.14	-30.0
MN	-0.1	-0.09	-1.0
<del>NA</del>	<del>72510</del>	<del>62508.62</del>	<del>-60000.0</del>
<del>NI</del>	<del>9.4</del>	<del>8.10</del>	<del>-5.0</del>
P	8131	7009.48	-8500.0
PB	4.6	3.97	-10.0
SE	-0.1	-0.09	-1.0
SN	4.3	3.71	-10.0
V	1.6	1.38	-3.0
ZN	13.1	11.29	-30.0
<del>NH3 AS N</del>	<del>155</del>	<del>133.62</del>	<del>-50</del>
TOC	28	24.14	-200
VOC	-0.1	-0.09	-200
PH	5.9		5.0 TO 7.

002385

CONFIDENTIAL



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### ANALYTICAL DATA SUMMARY

Sample ID: Brine Batch Number 139

Laboratory Sample ID: 931101SQI0125-03

Date/Time Collected: 10-29-93/07:45

Date/Time Analyzed: 11-01/02-93/8:00

<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>POL</u>
Arsenic	3.36	mg/L	0.10
Barium	0.18	mg/L	0.10
Copper	2200	mg/L	1.00
Iron	50.1	mg/L	1.00
Mercury	NR	mg/L	0.10
Selenium	0.21	mg/L	0.20
Sodium	86900	mg/L	1000
Phosphorous	6750	mg/L	10.0
Potassium	673	mg/L	50.0
Ammonia	391	mg/L	10.0
Total Cyanide	NR	mg/L	0.05
Sulfate	NR	%(mg/L)	0.65
Bromide	NR	mg/L	1.00
Fluoride	NR	mg/L	1.00
pH	5.64	pH Units	---
TSS	2120	mg/L	10.0
TDS	23.2	%(mg/L)	0.10

Comments: NR = Not requested