



October 6, 2009

Mr. Leo Francendese
On-Scene Coordinator
U.S. Environmental Protection Agency
61 Forsyth Street, SW 11th Floor
Atlanta, Georgia 30303

**Subject: Surface Water Sampling Letter Report
Barite Hills Nevada Goldfields Site
McCormick, McCormick County, South Carolina
Contract No. EP-W-05-053
Technical Direction Document (TDD) No.: TNA-05-003-0049**

Dear Mr. Francendese:

Oneida Total Integrated Enterprises (OTIE), Superfund Technical Assessment and Response Team (START), prepared this Letter Report detailing activities performed in support of the Barite Hills Nevada Goldfields site (the site) investigation under Contract Number (No.) EP-W-05-053, Technical Direction Document (TDD) No. TNA-05-003-0049. All activities and procedures were performed in accordance with the EPA Science and Ecosystems Support Division (SESD) Region 4 Field Branches Quality System and Technical Procedures dated November 2007, and the EPA-approved site-specific Quality Assurance Project Plan (QAPP).

Under this work assignment, START was tasked with conducting water sampling of the Main Pit lake (the lake), Hawes Creek tributary (the creek), and monitoring wells located on-site, south of the Main Pit lake. A site location map is provided in Attachment A. Two samples were collected from the lake, one sample was collected at seep location 0 along the creek, and samples were collected from monitoring wells (MW) 1 and MW-2. Water quality parameters were prior to water sampling. Water quality parameters from August 2009 and a comparative table of potentially applicable standards can be found in Attachment B with corresponding graphs. Laboratory analytical data is in Attachment C. The Health and Safety Plan (HASP) can be found in Attachment D.

Site Background

The site is an abandoned pit mine located approximately 3 miles south of McCormick, McCormick County, South Carolina between US Highway (Hwy) 378 and US Hwy 221 on the northern side of Road 30. The site is located in a relatively remote area; there are no buildings, homes, or commercial buildings within 0.5 mile of the site boundary.

The site is located along a topographic high ridge area forming the headwaters of the creek. The topography of the area consists of rolling hills with ridgelines at an elevation of about 500 feet above mean sea level (amsl). Within the site, the ridgeline comprising the site has a high point of about 510 feet amsl and an average elevation of approximately 480 feet amsl.

The Main Pit from the mining operations remains. When the mine was abandoned, the Main Pit flooded. The waste rock stockpiles previously surrounding the eastern and southeastern portions of the Main Pit were a source of acid rock drainage. The pit contains approximately 60 million gallons of water with an historical pH of 2 and a high dissolved metal content.

Field Investigation Activities

On August 29, 2009, START conducted surface water and monitoring well sampling. The investigation consisted of measuring water quality and collecting water samples from the lake, nearby creek, and monitoring wells. A HASP was developed for the site prior to fieldwork activities.

START collected two samples from the lake, one sample from the creek, and one sample from MW-1 (Figure 1). MW-2 was not available for sampling. Water quality parameters were measured at each sample location (Table 1). The lake water column was measured every meter from the surface to the bottom. BHR-MPS-015 was collected one meter below the lake water surface and BHR-MPB-015 was collected one meter from the bottom of the lake using a Bacon Bomb. BHR-S0-015 was collected adjacent to the spillway along the creek (Seep 0). Sample BHR-MW1-002 was collected from MW-1, located just south of the lake. Lake samples were analyzed by Analytical Environmental Services, Inc. (AES) for various parameters including dissolved target analyte list (TAL) metals, total TAL metals, total organic carbon, pH, alkalinity, ferric/ferrous speciation, and total dissolved solids (TDS). The creek sample was analyzed for total metals only, and MW-1 was sampled for total metals, pH, ferric/ferrous speciation, TDS, ammonia, nitrate, sulfate, and total acidity. Aliquots sampled for dissolved TAL metals were filtered on-site using a 0.45 micron filter. Laboratory analytical reports are provided in Attachment C.

Conclusions

Tables 2, 3, and 4 are analytical comparisons of the lake surface, lake bottom, and creek respectively, from June 2008 through August 2009 of potentially applicable standards, including priority and non-priority pollutants. Table 5 is the analytical comparison of the

monitoring wells. Graph 1 illustrates the lake surface dissolved metal concentrations over time. Graph 2 is a close up of Graph 1, detailing the lower concentrations. Tables and graphs can be found in Attachment B.

If you have any questions or comments regarding this Letter Report or require any additional information, please contact me at (678) 355-5550 ext. 5707.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Henderson", with a long horizontal flourish extending to the right.

Russell Henderson

Project Manager

Oneida Total Integrated Enterprises (OTIE)

Superfund Technical Assessment and Response Team (START)

Enclosures

Attachment A – Figures

Attachment B – Tables & Graphs

Attachment C – Analytical Data

Attachment D – HASP

ATTACHMENT A
FIGURES



Legend

 Monitoring Well

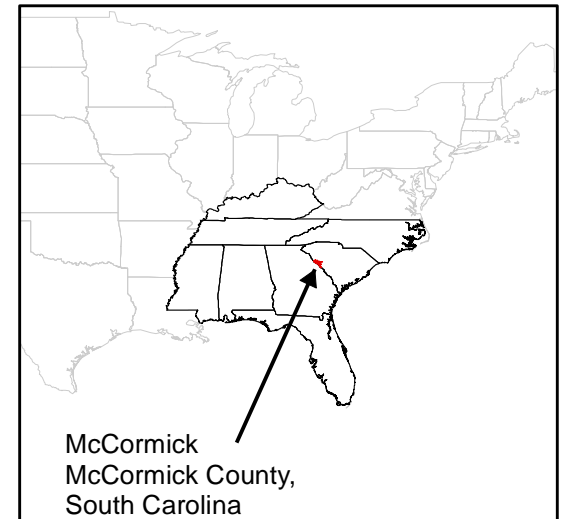
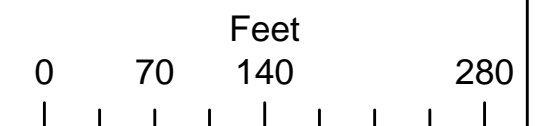
Note:

MW - Monitoring Well

MPS - Mine Pit Surface

MPB - Mine Pit Bottom

BHR - Barite Hills Removal



United States Environmental Protection Agency

**BARITE HILLS
MCCORMICK, MCCORMICK
COUNTY, SOUTH CAROLINA
TDD No: TNA-05-003-0049**

**FIGURE 1
SAMPLE LOCATIONS
AUGUST 2009**



ATTACHMENT B
TABLES & GRAPHS

Table 1
Water Quality Parameters

Nov. 19/21, 2008 YSI 5200

Main Pit Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)
1	4.38	43.8	4.74	13.41	3.327
2	4.6	-74.5	0.9	14.83	3.607
3	4.73	-88.3	0.63	14.88	3.575
4	4.81	-94.2	0.6	14.87	3.559
5	4.76	-96.5	0.47	14.87	3.537
6	4.81	-99.4	0.43	14.87	3.534
7	4.82	-100.1	0.4	14.87	3.529
8	4.82	-102.8	0.38	14.81	3.527
9	4.72	-136.9	0.39	16.12	3.818
10	4.65	-154.9	0.3	16.71	4.009
11	4.8	-197	0.43	16.69	3.774
12	5.26	-196.8	0.4	16.66	3.684

Creeks

Location	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)
1					
2	3.05	452	3.1	7.91	3.568
3 SE	6.54	232	4.17	9.24	0.429
3 SW					

Dec. 16, 2008 YSI 5200

Main Pit Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)
1	4.9	-42	1.5	11.59	3.258
2	4.95	-60	1.86	11.67	3.277
3	4.98	-64	2.39	11.66	3.278
4	5.02	-66	0.86	11.63	3.276
5	5.04	-70	0.71	11.62	3.276
6	5.07	-71	0.67	11.63	3.279
7	5.07	-71	0.63	11.64	3.28
8	5.08	-72	0.61	11.64	3.28
9	5.08	-72	0.6	11.63	3.28
10	5.1	-73	0.58	11.63	3.28
11	5.1	-73	0.57	11.63	3.28
12	5.1	-73	0.56	11.63	3.28
13	5.08	-94	0.54	11.66	3.285
14	5.8	-102	0.39	11.86	2.732
15	5.82	-113	0.41	11.85	2.721

Table 1
Water Quality Parameters

Feb. 7, 2009

Horbia U-22XD

Main Pit Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)
1	5.27	-6	1.79	9.7	6.44
2	5.27	-8	1.27	9.3	7.12
3	5.26	-9	0.79	9	6.02
4	5.27	-8	0.76	9	5.82
5	5.27	-10	0.7	8.9	6.09
6	5.27	-8	0.67	8.9	8.09
7	5.27	-35	0.58	8.9	9.3
8	5.27	-40	0.54	8.9	6.64
9	5.27	-40	0.55	9	8.12
10	5.27	-40	0.54	9	9.49
11	5.27	-10	0.74	8.9	6.9
12	5.98	-146	0	10	3.88
13	6.08	-160	0	10	2.56
14	6.09	-165	0	10	2.26
15	6.1	-185	0	10.4	1.7

Jan. 30, 2009

Creeks

Location	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)
1	2.6			8.2	
2	2.68			8.4	
3 SE	5.17			9.3	
3 SW	3.65			10.2	

Feb. 26, 2009

Horbia U-22XD

Main Pit Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)
1	4.76	106	6.97	11.5	0.828
2	4.85	101	5.39	9.5	0.825
3	5.31	29	1.48	9.6	0.982
4	5.38	16	0.15	9.3	0.888
5	5.39	15	0	9.3	0.864
6	5.4	13	0	9.3	0.888
7	5.4	14	0	9.3	0.989
8	5.41	12	0	9.3	0.987
9	5.41	11	0	9.3	1.45
10	5.83	-59	0	9.5	1.24
11	5.93	-79	0	9.7	1.16
12	5.96	-91	0	9.7	1.08
13	5.98	-98	0	9.8	1.04
14	5.99	-105	0	9.8	1
15	6	-107	0	9.8	0.96
15.5	6.17	-192	0	10.1	0.555

Table 1
Water Quality Parameters

SE Corner of Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)
1	4.9	97	6.63	10.5	0.452
2	4.9	106	5.79	9.5	0.436
3	5.38	32	2.52	9.6	0.595
4	5.45	24	0.29	9.3	0.712
5	5.45	22	0	9.3	0.698
6	5.45	19	0	9.3	0.725
7	5.46	16	0	9.3	0.73
8	5.45	15	0	9.3	0.728
9	5.45	16	0	9.3	0.717
10	5.8	-35	0	9.5	0.709
11	5.97	-69	0	9.7	0.69

SW Corner of Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)
1	4.88	105	6.92	10.4	0.425
2	4.9	108	5.86	9.5	0.424
3	5.43	35	2.14	9.4	0.518
4	5.45	31	0.71	9.3	0.6
5	5.46	29	0.26	9.3	0.616
6	5.46	27	0	9.3	0.628
7	5.47	26	0	9.3	0.655
8	5.46	26	0	9.2	0.652
9	5.85	-24	0	9.5	0.69
10	5.9	-43	0	9.6	0.693

Creeks

Location	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)
0	3.96	305	10.82	12.2	83.3
MC	6.32	45	9.74	12.9	18.5
1	2.93	386	6.98	12.4	0.287
2	3.09	383	7.91	14.5	0.23
3	3.77	368	7.15	14	64.9

Apr. 08, 2009

Horbia U-22XD

Main Pit Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
0.5	3.83	231	6.27	12.9	1.15	20.5
1	5.07	-43	5.02	12.8	1.14	19.5
2	5.17	-43	1.48	12.6	1.06	13.4
3	5.22	-43	0.00	10.7	1.1	8.9
4	5.24	-45	0.00	10.5	1.13	8.1
5	5.26	-48	0.00	10.4	1.15	9.0
6	5.26	-49	0.00	10.4	1.19	9.3
7	5.26	-49	0.00	10.3	1.25	11.3
8	5.27	-51	0.00	10.3	1.3	11.5
9	5.26	-51	0.00	10.3	1.33	14.5
10	5.27	-52	0.00	10.3	1.38	14.4
11	5.31	-57	0.00	10.3	1.48	47.4
12	5.31	-57	0.00	10.3	0.999	128
13	5.33	-60	0.00	10.3	0.889	offscale
14	5.37	-60	0.00	10.3	0.832	offscale
15	6.13	-182	0.00	10.4	0.777	offscale

Table 1
Water Quality Parameters

Creeks

Location	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
0	4.33	207	11.63	11.4	0.181	50
1	4.73	179	11.43	11	33.7	42.9
2	3.36	317	10.26	12.2	0.135	17.7
3	4.14	296	9.35	11.8	50.3	22.2

May 15, 2009

Horbia U-22

Main Pit Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
1	3.14	259	3.98	23.9	0.357	33.0
2	5.05	-104	0.00	17.2	0.442	32.6
3	5.04	-92	0.00	12.6	0.447	25.3
4	5.03	-88	0.00	11.7	0.452	26.0
5	5.03	-86	0.00	11.4	0.437	27.6
6	5.05	-88	0.00	11.3	0.463	31.0
7	5.04	-85	0.00	11.3	0.469	32.4
8	5.05	-87	0.00	11.2	0.477	32.1
9	5.05	-86	0.00	11.2	0.485	33.8
10	5.06	-87	0.00	11.2	0.493	35.7
11	5.05	-88	0.00	11.2	0.502	35.6
12	5.08	-90	0.00	11.2	0.515	41.4
13	5.10	-93	0.00	11.2	0.535	75.7
14	5.18	-101	0.03	11.2	0.554	269
15	5.94	-195	0.22	11.3	0.588	offscale

Creeks

Location	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
0	2.96	374	10.02	19.0	0.112	29.9
1	2.36	429	2.82	18.0	0.293	30.2
2	2.41	421	5.95	18.2	0.236	23.9
3	2.85	351	4.64	18.0	0.128	39.7

June 18, 2009

Horbia U-22

Main Pit Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
Surface	3.24	282	7.36	30.0	3.27	offscale
0.25	3.24	280	7.20	30.0	3.27	offscale
0.50	3.23	275	6.98	30.0	3.28	offscale
0.75	3.26	257	6.01	29.9	3.28	15.5
1	5.18	-63	1.36	27.9	3.57	13.5
2	5.17	-82	1.68	17.9	3.80	14.9
3	5.19	-70	1.32	14.1	3.71	15.8
4	5.17	-54	1.42	13.2	3.73	12.3
5	5.17	-50	1.48	13.1	3.69	11.3
6	5.17	-48	1.50	12.9	3.68	13.4
7	5.17	-48	1.54	12.9	3.68	13.7
8	5.17	-47	1.61	12.9	3.67	12
9	5.18	-47	1.60	12.9	3.67	14.5
10	5.19	-47	1.60	12.8	3.67	13.5
11	5.21	-48	1.28	12.8	3.66	15.3
12	5.23	-50	0.00	12.8	3.65	19.6
13	5.65	-66	0.00	12.8	3.62	16.8
14	5.63	-176	0.00	12.9	3.00	offscale
15	5.58	-167	0.00	13.0	3.05	offscale

Table 1
Water Quality Parameters

Creeks

Location	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
0	3.63	244	11.18	25.2	1.55	offscale
1	2.96	349	11.49	21.8	0.394	offscale
2	3.31	297	11.22	22.0	0.242	offscale
3	4.06	158	10.1	22.1	0.163	offscale

July 24, 2009

Horbia U-22

Main Pit Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
Surface	8.72	-156	2.7	29.1	3.9	1.9
0.50	8.67	-166	2.55	28.2	3.89	2.3
1	8.59	-180	2.51	27.9	3.9	1.0
2	8.35	-198	2.19	27.7	3.88	1.8
3	8.03	-248	1.13	27.5	3.9	2.2
4	6.15	-171	0.00	15.7	3.93	652.0
5	6.16	-170	0.00	14.2	3.93	653.0
6	6.15	-170	0.00	14.2	3.93	652.0
7	6.16	-170	0.00	14.2	3.93	650
8	6.16	-171	0.00	14.2	3.93	671
9	6.17	-172	0.00	14.2	3.93	638
10	6.17	-172	0.00	14.2	3.93	654
11	6.18	-173	0.00	14.2	3.93	634
12	6.18	-174	0.00	14.1	3.93	626
13	6.18	-174	0.00	14.1	3.94	594
14	6.17	-173	0.00	14	3.97	591
15	6.21	-171	0.00	13.8	4.04	offscale

Creeks

Location	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
0	3.03	419	3.46	25.8	2.67	0.3

Monitoring Wells

Location	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
MW-1	2.86	280	2.06	20.9	10.6	0
MW-2	3.81	205	1.58	20.1	11.4	0

August 29, 2009

Horbia U-22

Main Pit Lake

Depth (m)	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
Surface	6.06	-62	4.46	28.1	3.86	0.2
1	6.04	-64	4.22	28	3.86	9.5
2	6	-71	3.97	28	3.86	0
3	5.7	-190	0.00	21.8	3.93	5.9
4	5.54	-155	0.00	16.9	3.92	11.1
5	5.54	-149	0.00	16	3.93	11.1
6	5.54	-146	0.00	15.8	3.92	10.5
7	5.54	-144	0.00	15.7	3.92	9.4
8	5.55	-146	0.00	15.7	3.92	9.3
9	5.57	-146	0.00	15.6	3.92	10.1
10	5.6	-149	0.00	15.6	3.92	11
11	5.63	-155	0.00	15.6	3.91	9.1
12	5.69	-170	0.00	15.6	3.9	903
13	5.58	-205	0.00	15.5	3.82	offscale
14	5.53	-201	0.00	15.4	3.69	673
15	5.52	-199	0.00	15.3	3.37	offscale

Table 1
Water Quality Parameters

Creeks

Location	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
0	3.79	0.1	7.15	24.4	2.66	0

Monitoring Wells

Location	pH	ORP (mV)	DO (mg/L)	Temp (°C)	Conductivity (mS/cm)	Turbidity (NTU)
MW-1	1.71	267	1.83	19.1	19.3	offscale
MW-2	3.79	NR	NR	NR	2	NR

* NR = Not recorded

Table 2
Pit Lake Surface Potentially Applicable Standards Comparison

	Human Health	SCDHEC WQC under R61-68		Oct. 2007	May 2, 2008	Jun. 10, 2008	Jul. 30, 2008	Aug. 22, 2008	Nov. 6, 2008
	MCL	CMC	CCC	BHB-005	BHT-001	BHR-5-001	BRR-JR-LAKE		BHR-MP05-110608
Potentially Applicable Standards (priority pollutants)				Pit Water Untreated (mg/L)	Pit water treated (Total, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)
Antimony	0.006	NSA	NSA	0.02	NA	0.006	0.2	0.2	BRL*
Arsenic	0.01	0.34	0.15	0.968	NA	BRL†	BRL†	BRL†	BRL†
Cadmium	0.005	0.008	0.0026	1.57	NA	BRL#	BRL#	BRL#	BRL#
Chromium	0.1	0.57	0.074	0.141	NA	BRL†	BRL†	BRL†	BRL†
Copper	1	0.057	0.039	287	NA	BRL†	BRL†	BRL†	BRL†
Lead	0.015	0.32	0.005	0.161	NA	BRL†	BRL†	BRL†	0.0381
Nickel	0.61	1.071	0.167	0.404	NA	0.163	BRL*	BRL*	BRL*
Selenium	0.05	NSA	0.005	0.23	NA	0.022	0.028	0.01	BRL*
Zinc	5	0.339	0.339	40.2	NA	1.44	BRL*	BRL*	0.132
Potentially Applicable Standards (non-priority pollutants)									
Aluminum	0.2	0.75	0.087	224	NA	0.347	BRL§	BRL§	0.342
Iron	0.3		1	1150	121	309	322	287	148
Manganese	0.05-0.1			13.6	NA	10.6	11	11.7	8.96
Ferrous Iron (mg/L)									
Iron, Ferric (+3)	0.3	NSA	1	NA	BRL°	NA	NA	NA	BRL°
Iron, Ferrous (+2)	0.3	NSA	1	NA	145	NA	NA	NA	217

Notes:

SCDHEC - South Carolina Department of Health and Environmental Control
a - South Carolina Regulation 61-68, Water Classifications and Standards, adopted June 2004 and adjusted for water hardness of 400 mg/L.

MCL - Maximum contaminant level

CMC - Criterion maximum concentration

CCC - Criterion continuous concentration

mg/L - Milligrams per liter

NSA - Standard not available

BRL - Below reporting limit

* - Reporting limit 0.02

† - Reporting limit 0.01

‡ - Reporting limit 0.05

- Reporting limit 0.005

§ - Reporting limit 0.2

° - Reporting limit 0.1

Yellow - Exceeds one criteria (Human Health Standard or SCDHEC WQC)

Red - Exceeds all criteria (both Human Health Standard and SCDHEC WQC)

Table 2
Pit Lake Surface Potentially Applicable Standards Comparison

	Human Health	SCDHEC WQC under R61-68		Nov. 19, 2008	Dec. 16, 2008	Jan. 30, 2009	Feb. 26, 2009	Apr. 08, 2009	May 15, 2009
	MCL	CMC	CCC	BHR-MPS-001	BHR-MPS-006	BHR-MPS-006	BHR-MPS-010	BHR-MPS-011	BHR-MPS-012
Potentially Applicable Standards (priority pollutants)				Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)
Antimony	0.006	NSA	NSA	0.257	BRL*	BRL*	BRL*	0.0045	0.0039
Arsenic	0.01	0.34	0.15	BRL‡	BRL‡	BRL‡	BRL‡	BRL‡	BRL‡
Cadmium	0.005	0.008	0.0026	BRL#	BRL#	BRL#	BRL#	BRL#	BRL#
Chromium	0.1	0.57	0.074	BRL†	BRL†	BRL†	BRL†	0.0013	0.0015
Copper	1	0.057	0.039	BRL†	0.0278	0.0293	BRL†	0.0572	0.138
Lead	0.015	0.32	0.005	0.0353	BRL†	BRL†	0.0427	BRL†	0.0024
Nickel	0.61	1.071	0.167	BRL*	BRL*	BRL*	BRL*	0.005	0.0033
Selenium	0.05	NSA	0.005	BRL*	BRL*	BRL*	BRL*	BRL*	BRL*
Zinc	5	0.339	0.339	0.118	0.061	0.0628	0.0685	0.0748	0.106
Potentially Applicable Standards (non-priority pollutants)									
Aluminum	0.2	0.75	0.087	0.257	0.314	BRL§	BRL§	0.177	0.459
Iron	0.3		1	169	212	165	186	151	77.8
Manganese	0.05-0.1			9.33	11.2	10.2	10.7	10.8	10.3
Ferrous Iron (mg/L)									
Iron, Ferric (+3)	0.3	NSA	1	37.2	BRL°	BRL°	28.5	55.7	2.05
Iron, Ferrous (+2)	0.3	NSA	1	191	305	209	194	103	75.7

Notes:

SCDHEC - South Carolina Department of Health and Environmental Control
a - South Carolina Regulation 61-68, Water Classifications and Standards, adopted June 2004 and adjusted for water hardness of 400 mg/L.

MCL - Maximum contaminant level

CMC - Criterion maximum concentration

CCC - Criterion continuous concentration

mg/L - Milligrams per liter

NSA - Standard not available

BRL - Below reporting limit

* - Reporting limit 0.02

† - Reporting limit 0.01

‡ - Reporting limit 0.05

- Reporting limit 0.005

§ - Reporting limit 0.2

° - Reporting limit 0.1

Yellow - Exceeds one criteria (Human Health Standard or SCDHEC WQC)

Red - Exceeds all criteria (both Human Health Standard and SCDHEC WQC)

Table 2
Pit Lake Surface Potentially Applicable Standards Comparison

	Human Health	SCDHEC WQC under R61-68		June 18, 2009	July 24, 2009	August 29, 2009
	MCL	CMC	CCC	BHR-MPS-013	BHR-MPS-014	BHR-MPS-015
Potentially Applicable Standards (priority pollutants)				Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)
Antimony	0.006	NSA	NSA	0.0051		
Arsenic	0.01	0.34	0.15	BRL‡		
Cadmium	0.005	0.008	0.0026	BRL#		
Chromium	0.1	0.57	0.074	BRL†		
Copper	1	0.057	0.039	0.145	BRL†	0.00603
Lead	0.015	0.32	0.005	0.0049		
Nickel	0.61	1.071	0.167	0.0026		
Selenium	0.05	NSA	0.005	BRL*	BRL*	BRL#
Zinc	5	0.339	0.339	0.117	BRL*	BRL†
Potentially Applicable Standards (non-priority pollutants)						
Aluminum	0.2	0.75	0.087	0.622		
Iron	0.3		1	64.8	BRL°	BRL°
Manganese	0.05-0.1			9.27	3.48	5.91
Ferrous Iron (mg/L)						
Iron, Ferric (+3)	0.3	NSA	1	102	0.475	BRL°
Iron, Ferrous (+2)	0.3	NSA	1	68.2	BRL°	BRL°

Notes:

SCDHEC - South Carolina Department of Health and Environmental Control
a - South Carolina Regulation 61-68, Water Classifications and Standards, adopted June 2004 and adjusted for water hardness of 400 mg/L.

MCL - Maximum contaminant level

CMC - Criterion maximum concentration

CCC - Criterion continuous concentration

mg/L - Milligrams per liter

NSA - Standard not available

BRL - Below reporting limit

* - Reporting limit 0.02

† - Reporting limit 0.01

‡ - Reporting limit 0.05

- Reporting limit 0.005

§ - Reporting limit 0.2

° - Reporting limit 0.1

Yellow - Exceeds one criteria (Human Health Standard or SCDHEC WQC)

Red - Exceeds all criteria (both Human Health Standard and SCDHEC WQC)

Table 3
Pit Lake Bottom Potentially Applicable Standards Comparison

	Human Health	SCDHEC WQC under R61-68		Oct. 2007	Dec. 16, 2008	Feb. 26, 2009	Apr. 08, 2009
	MCL	CMC	CCC	BHB-005	BHR-MPSB-008	BHR-MPB-010	BHR-MPB-011
Potentially Applicable Standards (priority pollutants)				Pit Water Untreated (mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)
Antimony	0.006	NSA	NSA	0.02	BRL*	BRL*	BRL*
Arsenic	0.01	0.34	0.15	0.968	BRL‡	BRL‡	BRL‡
Cadmium	0.005	0.008	0.0026	1.57	BRL#	BRL#	BRL#
Chromium	0.1	0.57	0.074	0.141	BRL†	BRL†	0.0019
Copper	1	0.057	0.039	287	0.0189	0.0284	0.0052
Lead	0.015	0.32	0.005	0.161	BRL†	0.036	BRL†
Nickel	0.61	1.071	0.167	0.404	BRL*	BRL*	0.0067
Selenium	0.05	NSA	0.005	0.23	BRL*	BRL*	BRL*
Zinc	5	0.339	0.339	40.2	0.0676	0.0601	0.112
Potentially Applicable Standards (non-priority pollutants)							
Aluminum	0.2	0.75	0.087	224	0.38	BRL§	0.193
Iron	0.3		1	1150	217	178	187
Manganese	0.05-0.1			13.6	11.4	10.6	11.1
Ferrous Iron (mg/L)							
Iron, Ferric	0.3	NSA	1		BRL°	0.52	5.83
Iron, Ferrous	0.3	NSA	1		285	186	188

Notes:

SCDHEC - South Carolina Department of Health and Environmental Control
a - South Carolina Regulation 61-68, Water Classifications and Standards, adopted June 2004 and adjusted for water hardness of 400 mg/L.

MCL - Maximum contaminant level

CMC - Criterion maximum concentration

CCC - Criterion continuous concentration

mg/L - Milligrams per liter

NSA - Standard not available

BRL - Below reporting limit

* - Reporting limit 0.02

† - Reporting limit 0.01

‡ - Reporting limit 0.05

- Reporting limit 0.005

§ - Reporting limit 0.2

° - Reporting limit 0.1

Yellow - Exceeds one criteria (Human Health Standard or SCDHEC WQC)

Red - Exceeds all criteria (both Human Health Standard and SCDHEC WQC)

Table 3
Pit Lake Bottom Potentially Applicable Standards Comparison

	Human Health	SCDHEC WQC under R61-68		May 15, 2009	June 18, 2009	July 24, 2009	August 29, 2009
	MCL	CMC	CCC	BHR-MPB-012	BHR-MPB-013	BHR-MPB-014	BHR-MPB-015
Potentially Applicable Standards (priority pollutants)				Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)	Pit water treated (Dissolved, mg/L)
Antimony	0.006	NSA	NSA	0.0082	0.0056		
Arsenic	0.01	0.34	0.15	BRL‡	BRL‡		
Cadmium	0.005	0.008	0.0026	BRL#	BRL#		
Chromium	0.1	0.57	0.074	0.0015	BRL†		
Copper	1	0.057	0.039	BRL†	BRL†	BRL†	0.00553
Lead	0.015	0.32	0.005	BRL†	0.0058		
Nickel	0.61	1.071	0.167	0.0059	0.0065		
Selenium	0.05	NSA	0.005	0.0106	0.01	BRL*	0.00533
Zinc	5	0.339	0.339	0.127	0.055	BRL*	BRL†
Potentially Applicable Standards (non-priority pollutants)							
Aluminum	0.2	0.75	0.087	0.06	0.156		
Iron	0.3		1	149	157	74.4	62.1
Manganese	0.05-0.1			11.4	9.79	10.6	10.2
Ferrous Iron (mg/L)							
Iron, Ferric	0.3	NSA	1	BRL ^o	BRL ^o	48.1	BRL ^o
Iron, Ferrous	0.3	NSA	1	163	173	101	71.9

Notes:

SCDHEC - South Carolina Department of Health and Environmental Control
a - South Carolina Regulation 61-68, Water Classifications and Standards, adopted June 2004 and adjusted for water hardness of 400 mg/L.

MCL - Maximum contaminant level

CMC - Criterion maximum concentration

CCC - Criterion continuous concentration

mg/L - Milligrams per liter

NSA - Standard not available

BRL - Below reporting limit

* - Reporting limit 0.02

† - Reporting limit 0.01

‡ - Reporting limit 0.05

- Reporting limit 0.005

§ - Reporting limit 0.2

^o - Reporting limit 0.1

Yellow - Exceeds one criteria (Human Health Standard or SCDHEC WQC)

Red - Exceeds all criteria (both Human Health Standard and SCDHEC WQC)

Table 4
Creek Potentially Applicable Standards Comparison (Total)

<i>Seep 0</i>	Human Health	SCDHEC WQC under R61-68		July 24, 2009	August 29, 2009
	MCL	CMC	CCC	BHR-S0-014	BHR-S0-015
Potentially Applicable Standards (priority pollutants)					
Copper	1	0.057	0.039	20.2	1.68
Selenium	0.05	NSA	0.005	0.053	0.00726
Zinc	5	0.339	0.339	11.4	1.32
Potentially Applicable Standards (non-priority pollutants)					
Iron	0.3	NSA	1	93	6.72
Manganese	0.05-0.1	NSA	NSA	13.8	5.96
Potassium	NSA	NSA	NSA	11.6	27.7
Sodium	NSA	NSA	NSA	44.3	205

Notes:

SCDHEC - South Carolina Department of Health and Environmental Control
a - South Carolina Regulation 61-68, Water Classifications and Standards,
adopted June 2004 and adjusted for water hardness of 400 mg/L.

MCL - Maximum contaminant level
CMC - Criterion maximum concentration
CCC - Criterion continuous concentration
mg/L - Milligrams per liter
NSA - Standard not available
NA - Not analyzed

Yellow - Exceeds one criteria (Human Health Standard or SCDHEC WQC)

Red - Exceeds all criteria (both Human Health Standard and SCDHEC WQC)

Table 5
Monitoring Wells Potentially Applicable Standards Comparison

	Drinking Water	National Recommended WQC		SCDHEC WQC ^a		MW-01		MW-02		MW-01	
	Federal MCL	NOAEL Acute	NOAEL Chronic	NOAEL Acute	NOAEL Chronic	July 24, 2009		July 24, 2009		August 29, 2009	
Wet Chem (mg/L)											
Residue, Total (wt%)											
Residue, Dissolved (TDS)	500					15,000	100	16,000	100	19,200	100
Chloride	250	860	NSA	NSA	230						
Nitrogen, Nitrate (As N)	10	NSA	NSA	NSA	NSA	BRL	2.5	BRL	2.5	BRL	250
Sulfate	250	NSA	NSA	NSA	NSA	14,800	1000	10,800	1000	14,400	1000
Organic Carbon, Total											
Alkalinity											
Acidity	NSA	NSA	NSA	NSA	NSA	8210	10	7,200	10	11900	10
Ammonia						5.81	0.2	4.74	0.2	6.64	0.4
Cyanide, Amenable to Chlorination											
Cyanide, Total											
Phosphorus, Total (As P)	NSA	NSA	NSA	NSA	NSA						
pH (pH units)	6.5-8.5	NSA	6.5 - 8.5	NSA	6.5 - 9.0	3.03	0.01	3.40	0.01	2.34	0.01
Metals, Total (mg/L)											
Copper	1	0.013	0.009	0.0038	0.0029	257	0.1	174	0.1	734	1
Iron	0.3	NSA	1	NSA	1	2820	10	3020	10	5430	50
Manganese	0.05	NSA	NSA	NSA	NSA	12.1	0.015	14.9	0.015	26.1	2.5
Potassium	NSA	NSA	NSA	NSA	NSA	47.5	0.5	24.3	0.5	BRL	10
Selenium	0.05	NSA	0.005	NSA	0.005	0.0355	0.02	BRL	0.02	BRL	2.5
Sodium	NSA	NSA	NSA	NSA	NSA	34.5	1	605	100	BRL	250
Zinc	5	0.12	0.12	0.037	0.037	57.6	0.2	48.2	0.2	93.7	5
Ferrous Iron (mg/L)											
Iron, Ferric	0.3	NSA	1	NSA	1	67.6	0.1	BRL	0.1	1590	0.1
Iron, Ferrous	0.3	NSA	1	NSA	1	2760	500	3140	500	3840	500

Notes:

a - South Carolina Regulation 61-68, Water Classifications and Standards

NSA - Standard not available

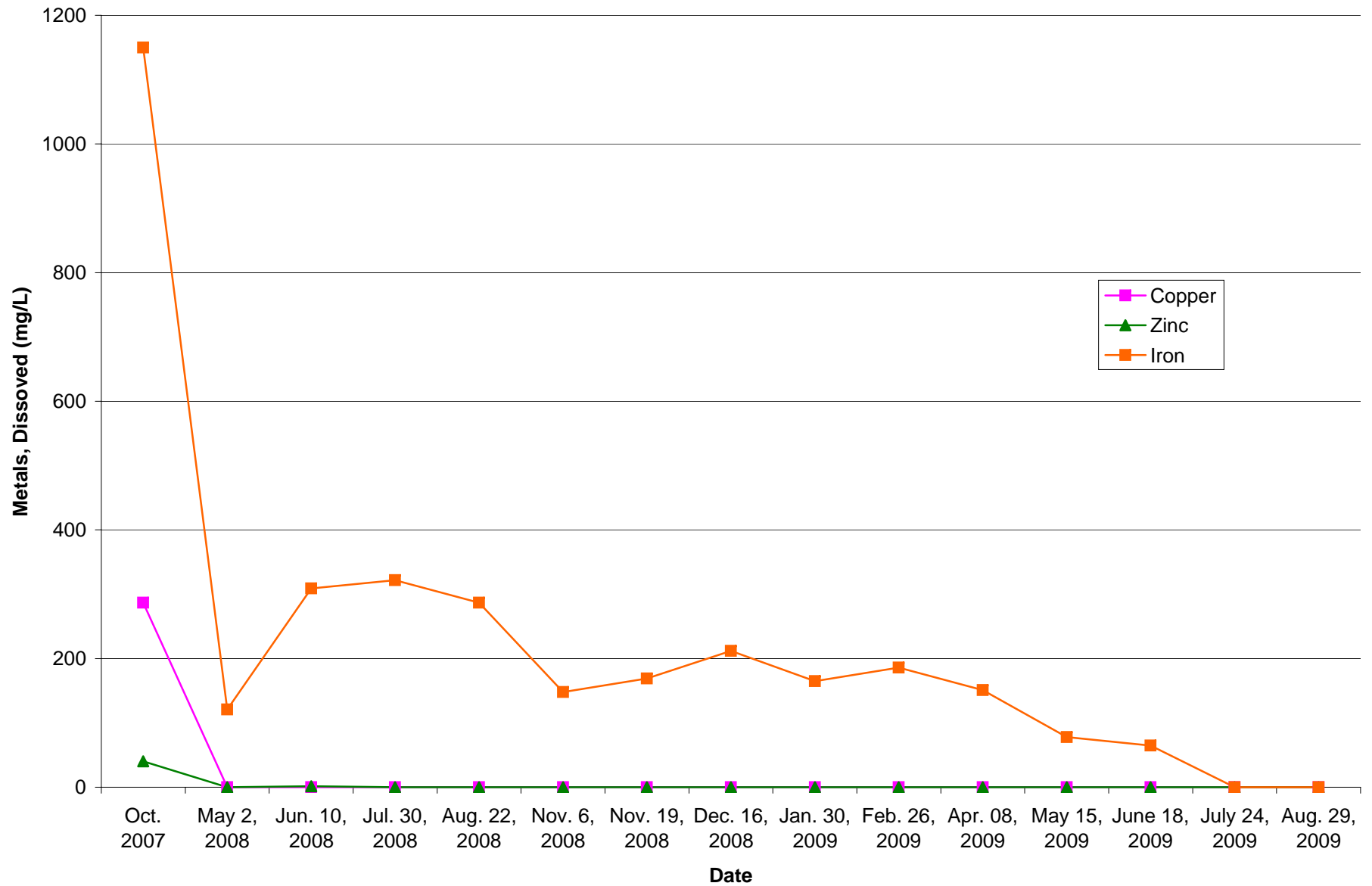
mg/L - Milligrams per liter

BRL - Below Reporting Limit

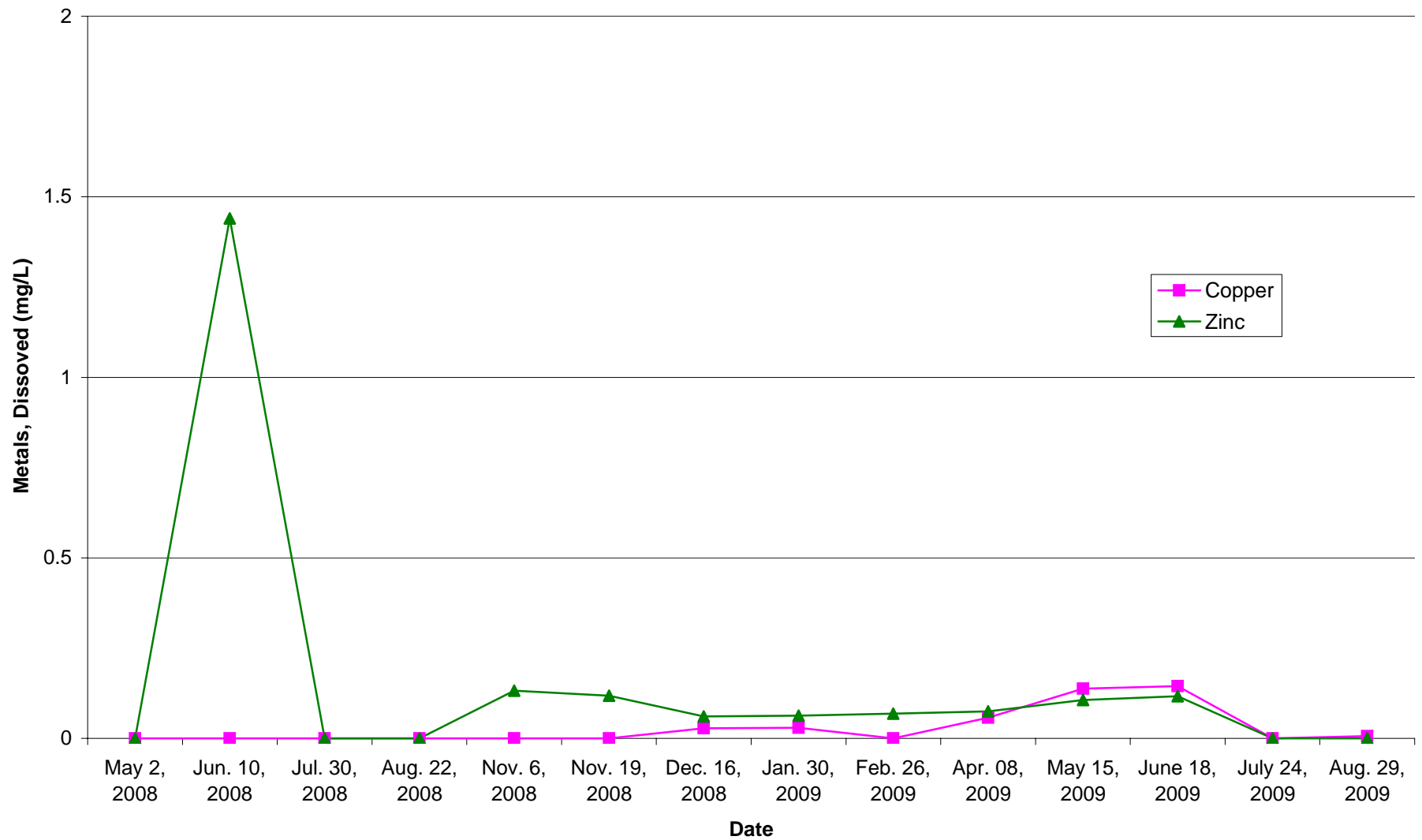
Yellow - Exceeds one criteria (Federal Drinking Water Standard or SCDHEC WQC)

Red - Exceeds all criteria (both Federal Drinking Water Standard and SCDHEC WQC)

Graph 1
Pit Lake Comparison



Graph 2
Pit Lake Comparison Detailed
(Iron is not included since it is detailed on Graph 1)



ATTACHMENT C
ANALYTICAL DATA

Analytical Environmental Services, Inc.**Date:** 15-Sep-09**CLIENT:** Oneida Total Integrated Enterprises**Client Sample ID:** BHR-MPS-015**Project:** Barite Hills Removal**Collection Date:** 8/29/2009 10:00:00 AM**Lab ID:** 0908M00-001**Matrix:** AQUEOUS

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed
T. ORGANIC CARBON(TOC)(E415.1/SM5310B)							
Organic Carbon, Total	33.6	1.0		mg/L		1	Analyst: GAR 9/1/2009 12:11 PM
CARBON DIOXIDE SM4500-CO2							
Bicarbonate Alkalinity	143	3.00		mg/L		1	Analyst: TL 9/2/2009 12:00 AM
TOTAL METALS BY ICP/MS SW6020A (SW3005A)							
Copper	0.0157	0.00200		mg/L	117885	1	Analyst: DJ 9/4/2009 2:27 PM
Iron	3.06	0.100		mg/L	117885	1	9/4/2009 2:27 PM
Manganese	6.60	0.0500		mg/L	117885	10	9/3/2009 10:44 PM
Potassium	42.6	0.100		mg/L	117885	1	9/3/2009 10:26 PM
Selenium	BRL	0.00500		mg/L	117885	1	9/4/2009 2:27 PM
Sodium	277	5.00		mg/L	117885	10	9/3/2009 10:44 PM
Zinc	BRL	0.0100		mg/L	117885	1	9/4/2009 2:27 PM
DISSOLVED METALS BY ICP/MS SW6020A (SAMP_FILT)							
Copper	0.00603	0.00200		mg/L	117890	1	Analyst: DJ 9/2/2009 6:44 PM
Iron	BRL	0.100		mg/L	117890	1	9/2/2009 6:44 PM
Manganese	5.91	0.0100		mg/L	117890	2	9/3/2009 4:45 PM
Selenium	BRL	0.00500		mg/L	117890	1	9/2/2009 6:44 PM
Zinc	BRL	0.0100		mg/L	117890	1	9/2/2009 6:44 PM
HYDROGEN ION (PH)(E150.1/SM4500 H+ B)							
pH	6.96	0.01	H	pH Units		1	Analyst: CG 9/1/2009 10:50 AM
RESIDUE, DISS.(TDS)(E160.1/SM2540C) (E160.1)							
Residue, Dissolved (TDS)	3260	20		mg/L	118146	1	Analyst: ML 9/3/2009 3:00 PM
FERROUS IRON SM3500-FE-D							
Iron, as Ferric (Fe+3)	BRL	0.100	H	mg/L		1	Analyst: CG 9/1/2009 11:15 AM
Iron, as Ferrous (Fe+2)	BRL	0.100	H	mg/L		1	9/1/2009 11:15 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- BRL Below Reporting Limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated Method Blank
- > Greater than Result value

- E Estimated (Value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See Case Narrative
- NC Not Confirmed
- < Less than Result value

Analytical Environmental Services, Inc.

Date: 15-Sep-09

CLIENT: Oneida Total Integrated Enterprises
Project: Barite Hills Removal
Lab ID: 0908M00-002

Client Sample ID: BHR-MPB-015
Collection Date: 8/29/2009 9:20:00 AM
Matrix: AQUEOUS

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed
T. ORGANIC CARBON(TOC)(E415.1/SM5310B)							
Organic Carbon, Total	34.8	1.0		mg/L		1	Analyst: GAR 9/1/2009 12:44 PM
CARBON DIOXIDE SM4500-CO2							
Bicarbonate Alkalinity	104	3.00		mg/L		1	Analyst: TL 9/2/2009 12:00 AM
TOTAL METALS BY ICP/MS SW6020A (SW3005A)							
Copper	0.0171	0.00200		mg/L	117885	1	Analyst: DJ 9/4/2009 2:33 PM
Iron	118	1.00		mg/L	117885	10	9/3/2009 10:50 PM
Manganese	10.9	0.0500		mg/L	117885	10	9/3/2009 10:50 PM
Potassium	41.6	0.100		mg/L	117885	1	9/3/2009 10:32 PM
Selenium	0.00570	0.00500		mg/L	117885	1	9/4/2009 2:33 PM
Sodium	199	5.00		mg/L	117885	10	9/3/2009 10:50 PM
Zinc	0.0131	0.0100		mg/L	117885	1	9/4/2009 2:33 PM
DISSOLVED METALS BY ICP/MS SW6020A (SAMP_FILT)							
Copper	0.00553	0.00200		mg/L	117890	1	Analyst: DJ 9/2/2009 6:50 PM
Iron	62.1	0.500		mg/L	117890	5	9/3/2009 4:51 PM
Manganese	10.2	0.0250		mg/L	117890	5	9/3/2009 4:51 PM
Selenium	0.00533	0.00500		mg/L	117890	1	9/2/2009 6:50 PM
Zinc	BRL	0.0100		mg/L	117890	1	9/2/2009 6:50 PM
HYDROGEN ION (PH)(E150.1/SM4500 H+ B)							
pH	5.35	0.01	H	pH Units		1	Analyst: CG 9/1/2009 11:05 AM
RESIDUE, DISS.(TDS)(E160.1/SM2540C) (E160.1)							
Residue, Dissolved (TDS)	3740	20		mg/L	118146	1	Analyst: ML 9/3/2009 3:00 PM
FERROUS IRON SM3500-FE-D							
Iron, as Ferric (Fe+3)	BRL	0.100	H	mg/L		1	Analyst: CG 9/1/2009 11:15 AM
Iron, as Ferrous (Fe+2)	71.9	5.00	H	mg/L		50	9/1/2009 11:15 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- BRL Below Reporting Limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated Method Blank
- > Greater than Result value

- E Estimated (Value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See Case Narrative
- NC Not Confirmed
- < Less than Result value

Analytical Environmental Services, Inc.**Date:** 15-Sep-09**CLIENT:** Oneida Total Integrated Enterprises**Client Sample ID:** BHR-SO-015**Project:** Barite Hills Removal**Collection Date:** 8/29/2009 10:45:00 AM**Lab ID:** 0908M00-003**Matrix:** AQUEOUS

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed
TOTAL METALS BY ICP/MS SW6020A					(SW3005A)		Analyst: DJ
Copper	1.68	0.00200		mg/L	117885	1	9/4/2009 2:39 PM
Iron	6.72	0.100		mg/L	117885	1	9/4/2009 2:39 PM
Manganese	5.96	0.0500		mg/L	117885	10	9/3/2009 10:55 PM
Potassium	27.7	0.100		mg/L	117885	1	9/3/2009 10:38 PM
Selenium	0.00726	0.00500		mg/L	117885	1	9/4/2009 2:39 PM
Sodium	205	5.00		mg/L	117885	10	9/3/2009 10:55 PM
Zinc	1.32	0.0100		mg/L	117885	1	9/4/2009 2:39 PM
HYDROGEN ION (PH)(E150.1/SM4500 H+ B)							Analyst: CG
pH	4.97	0.01	H	pH Units		1	9/1/2009 11:20 AM
RESIDUE, DISS.(TDS)(E160.1/SM2540C)					(E160.1)		Analyst: ML
Residue, Dissolved (TDS)	2600	20		mg/L	118146	1	9/3/2009 3:00 PM

Qualifiers:	*	Value exceeds Maximum Contaminant Level	E	Estimated (Value above quantitation range)
	BRL	Below Reporting Limit	S	Spike Recovery outside limits due to matrix
	H	Holding times for preparation or analysis exceeded	Narr	See Case Narrative
	N	Analyte not NELAC certified	NC	Not Confirmed
	B	Analyte detected in the associated Method Blank	<	Less than Result value
	>	Greater than Result value		

Analytical Environmental Services, Inc.**Date:** 15-Sep-09**CLIENT:** Oneida Total Integrated Enterprises**Client Sample ID:** BHR-MW1-002**Project:** Barite Hills Removal**Collection Date:** 8/29/2009 10:30:00 AM**Lab ID:** 0908M00-004**Matrix:** AQUEOUS

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed
INORGANIC ANIONS BY IC E300.0							Analyst: GAR
Nitrogen, Nitrate (As N)	BRL	250	H	mg/L		1000	9/1/2009 10:53 AM
Sulfate	14400	1000		mg/L		1000	9/1/2009 10:53 AM
NITROGEN, AMMONIA (AS N) E350.1					(E350.1)		Analyst: LAV
Nitrogen, Ammonia (As N)	6.64	0.400		mg/L	118010	1	9/2/2009 4:41 PM
TOTAL METALS BY ICP/MS SW6020A					(SW3005A)		Analyst: DJ
Copper	734	1.00		mg/L	117885	500	9/4/2009 2:45 PM
Iron	5430	50.0		mg/L	117885	500	9/4/2009 2:45 PM
Manganese	26.1	2.50		mg/L	117885	500	9/4/2009 2:45 PM
Potassium	BRL	10.0		mg/L	117885	100	9/3/2009 11:07 PM
Selenium	BRL	2.50		mg/L	117885	500	9/4/2009 2:45 PM
Sodium	BRL	250		mg/L	117885	500	9/4/2009 2:45 PM
Zinc	93.7	5.00		mg/L	117885	500	9/4/2009 2:45 PM
HYDROGEN ION (PH)(E150.1/SM4500 H+ B)							Analyst: CG
pH	2.34	0.01	H	pH Units		1	9/1/2009 11:30 AM
RESIDUE, DISS.(TDS)(E160.1/SM2540C)					(E160.1)		Analyst: ML
Residue, Dissolved (TDS)	19200	100		mg/L	118146	1	9/3/2009 3:00 PM
ACIDITY (E305.1/SM2310 B)							Analyst: MAS
Acidity	11900	10.0		mg/L		1	9/4/2009 11:45 AM
FERROUS IRON SM3500-FE-D							Analyst: CG
Iron, as Ferric (Fe+3)	1590	0.100	H	mg/L		1	9/1/2009 11:15 AM
Iron, as Ferrous (Fe+2)	3840	500	H	mg/L		5000	9/1/2009 11:15 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- BRL Below Reporting Limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated Method Blank
- > Greater than Result value

- E Estimated (Value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See Case Narrative
- NC Not Confirmed
- < Less than Result value

ATTACHMENT D
HASP

HEALTH AND SAFETY PLAN FORM		This document is for the exclusive use of TN&Associates its subcontractors, and EPA.		TN & ASSOCIATES			
TN&Associates Health and Safety Program				Site Name: Barite Hill Nevada Goldfields			
PROJECT NAME:	Barite Hill Nevada Goldfields	DATE:	6/10/2008				
PROJECT#:	2005148	CLIENT:	EPA				
LOCATION:	McCormick, South Carolina	EPA CONTACT/PHONE #:	Leo Francendese, 404-562-8772				
		LOCAL/SITE CONTACT PHONE #:					
INCIDENT DESCRIPTION:		SOURCE OF PRELIMINARY INFORMATION:					
The OSC tasked START with conducting water sampling of the main pit lake and the creek to monitor metal concentrations and water quality parameters.		ER Action Memo/ initial POLREP from epaosc.net website					
ANTICIPATED TASKS:		TYPE: Check as many as applicable					
(e.g. collect surface soil samples):							
Take water quality measurements and samples of the liquid in the main pit and creek.		Active	()	Landfill	()	Spill	()
		Inactive	(X)	Uncontrolled	()	Fire	()
		Secure	(X)	Industrial	()	Military	()
		Unsecure	()	Recovery	(X)	Unknown	()
		Enclosed space	()	Well Field	()	Other (specify)	()
DESCRIPTION AND FEATURES:		Include principal operations and unusual features (containers, buildings, dikes, power lines, hillslopes, rivers, etc.)					
<p>The Barite Hill Nevada Goldfields site is located approximately 3 miles south of McCormick, SC between US 378 and US 221 on the northern side of Road 30 in McCormick County, SC. The mine site is relatively remote; there are no buildings, homes, or commercial buildings within 0.5 miles of the boundary. The site actively mined gold from 1991 to 1995. The site is located along a topographic high ridge area forming the headwaters of an unnamed tributary to Hawes Creek. The topography of the area consists of rolling hills with ridgelines at an elevation of about 500 feet. Within the site, the ridgeline comprising the site has a high point of about 510 feet and an average elevation of approximately 480 feet. Storm water run on and runoff are not controlled at the site. The Main Pit from the mining operations remains. The pit contains approximately 60 million gallons of water with an historic low pH of 2 and high dissolved metal content. <input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>							
SURROUNDING POPULATION:		() Residential () Industrial () Commercial (X) Rural () Urban () Other:					

HEALTH AND SAFETY PLAN FORM TN & Associates Health and Safety Program		<i>This document is for the exclusive use of TN&Associates its subcontractors, and EPA.</i>	TN & ASSOCIATES Site Name: Barite Hill Nevada Goldfields
<p>HISTORY: <i>Summarize conditions that relate to hazard. Include citizen complaints, spills, previous investigations or agency actions, known injuries, etc.</i></p> <p>The site actively mined gold from 1991 to 1995. From 1995 until Nevada Goldfields filed for Chapter 7 Bankruptcy in 1999, the reclamation of the site was being addressed by Nevada Goldfields. On July 7, 1999 Nevada Goldfields handed the facility's keys to SCDHEC and abandoned the site. The facility used a cyanide solution in a heap leach process to extract gold from ore. There are 7 processing ponds onsite containing an unknown amount of free-liquids. Three large, multi-acre, waste rock piles contaminated with cyanide are left onsite. Each waste rock pile has the potential for producing acid. Storm water run on and runoff are not controlled at the site. The Main Pit from the mining operations remains. The pit contains approximately 60 million gallons of water with a pH of 2 ~ 2.2 and a high dissolved metal content. Seeps from the main pit containing acidic water with high dissolved metal content are being released to the northern unnamed tributaries of Hawes Creek which borders the pit. □</p>			
WASTE TYPES: <input checked="" type="checkbox"/> Liquid <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Sludge <input type="checkbox"/> Gas <input type="checkbox"/> Unknown <input type="checkbox"/> Other: _____			
WASTE CHARACTERISTICS: <i>Check as many as applicable.</i> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input checked="" type="checkbox"/> Corrosive <input type="checkbox"/> Flammable <input type="checkbox"/> Radioactive <input checked="" type="checkbox"/> Toxic <input type="checkbox"/> Volatile <input checked="" type="checkbox"/> Reactive <input type="checkbox"/> Inert Gas <input type="checkbox"/> Unknown <input type="checkbox"/> Other, Specify: _____ </div> <div style="width: 65%;"></div> </div>		WORK ZONES: <i>Describe the Exclusion, Contamination Reduction, and Support Zones in terms on-site personnel will recognize</i>	
HAZARDS OF CONCERN: <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input checked="" type="checkbox"/> Heat Stress <i>attach guidelines</i> <input checked="" type="checkbox"/> Cold Stress <i>attach guidelines</i> <input type="checkbox"/> Explosive/Flammable <input type="checkbox"/> Oxygen Deficient <input type="checkbox"/> Radiological <input type="checkbox"/> Biological <input type="checkbox"/> Other, Specify: _____ </div> <div style="width: 50%;"> <input type="checkbox"/> Noise <input checked="" type="checkbox"/> Inorganic Chemicals <input type="checkbox"/> Organic Chemicals <input type="checkbox"/> Motorized Traffic <input type="checkbox"/> Heavy Machinery <input checked="" type="checkbox"/> Slips, Trips, & Falls </div> </div>		FACILITY'S PAST AND PRESENT DISPOSAL METHODS AND PRACTICES: None found	

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TN&Associates Health and Safety Program		<i>use of TN&Associates its subcontractors, and EPA.</i>		Site Name: Barite Hill Nevada Goldfields	
HAZARDOUS MATERIAL SUMMARY: <i>Circle waste type and estimate amounts by category.</i>					
CHEMICALS: <i>Amount/Units:</i>	SOLIDS: <i>Amount/Units:</i> Metals unknown	SLUDGES: <i>Amount/Units:</i> Inorganic unknown	SOLVENTS: <i>Amount/Units:</i>	OILS: <i>Amount/Units:</i>	OTHER: <i>Amount/Units:</i>
OVERALL HAZARD EVALUATION: <input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/> Unknown JUSTIFICATION: Stabilization of Main Pit lake for pyrite contact with liquid.					
FIRE/EXPLOSION POTENTIAL: <input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input checked="" type="checkbox"/> Unknown					
INFORMATION COMPLETE: <input type="checkbox"/> Complete <input type="checkbox"/> Incomplete <input checked="" type="checkbox"/> Best Available at Current Time					

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TN & Associates Health and Safety Program				Site Name: Barite Hill Nevada Goldfields			
KNOWN CONTAMINANTS	NIOSH REL (ST if Available) <i>ppm or mg/m3 (specify)</i>	OSHA PEL (ST if Available) <i>ppm or mg/m3 (specify)</i>	IDLH <i>ppm or mg/m3 (specify)</i>	SYMPTOMS & EFFECTS OF ACUTE EXPOSURE	PHOTO IONIZATION POTENTIAL		
NA = Not Available		NE = None Established		U = Unknown			
S = Soil A = Air		SW = Surface Water GW = Ground Water T = Tailings SL = Sludge		W = Waste D = Drums			
				Attach, to this plan, an MSDS for each chemical you will use at the site. SD = Sediment OFF = Off-Site			

HEALTH AND SAFETY PLAN FORM		This document is for the exclusive use of TN&Associates its subcontractors, and EPA.		TN & ASSOCIATES Site Name: Barite Hill Nevada Goldfields	
Task Description / PPE / Personnel & Responsibilities (attach additional sheets as necessary)					
Task 1 Description	Site liquid sampling/In-situ monitoring			Type Intrusive	Hazard Schedule High
Primary Level Modified D	Respiratory: APR combo Eyewear: Safety Glasses Hard Hat Boots: Steel-Toe Latex Bootie Gloves: Inner: Nitrile Outer:	Contingency Level Modified D To C	Respiratory: APR combo Eyewear: Safety Glasses Hard Hat Boots: Steel-Toe Latex Bootie Gloves: Inner: Nitrile Outer:		
PPE:	Clothing: Tyvek Coverall	PPE:	Clothing: Tyvek Coverall		
Task 2 Description				Type	Hazard Schedule
Primary Level	Respiratory: _____ Eyewear: _____ Boots: _____ Gloves: _____	Contingency Level	Respiratory: _____ Eyewear: _____ Boots: _____ Gloves: _____		
PPE:	Clothing: _____	PPE:	Clothing: _____		
Task 3 Description				Type	Hazard Schedule
Primary Level	Respiratory: _____ Eyewear: _____ Boots: _____ Gloves: _____	Contingency Level	Respiratory: _____ Eyewear: _____ Boots: _____ Gloves: _____		
PPE:	Clothing: _____	PPE:	Clothing: _____		
Task 4 Description				Type	Hazard Schedule
Primary Level	Respiratory: _____ Eyewear: _____ Boots: _____ Gloves: _____	Contingency Level	Respiratory: _____ Eyewear: _____ Boots: _____ Gloves: _____		
PPE:	Clothing: _____	PPE:	Clothing: _____		
PERSONNEL AND RESPONSIBILITIES					
Name	Company/Agency	Training	Responsibilities		
Jorge Sanchez	TN&A	OSHA	Safety and Health		
Russell Henderson	TN&A	OSHA	Safety and Health		
Dannena Bowman	TN&A	OSHA	Safety and Health		

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TN & Associates Health and Safety Program		Site Name: Barite Hill Nevada Goldfields		
Monitoring Equipment:		Specify by task. Indicate type as necessary. Attach additional sheets if needed.		
Tasks: 1	Instrument: pH Meter	Level:	Action Guidelines:	Comments:
Tasks:	Instrument:	Level:	Action Guidelines:	Comments:
Tasks:	Instrument:	Level:	Action Guidelines:	Comments:
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TN&Associates Health and Safety Program				Site Name: Barite Hill Nevada Goldfields	

EMERGENCY CONTACTS Site Telephone _____ EPA Release Report # _____ TN&Assoc 24-Hr Emergency # 678-255-5538 Facility Management _____ Other (specify) _____ CHEMTREC Emergency #: 1-800-424-9300	<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">EMERGENCY CONTACTS</th> <th style="text-align: left; border-bottom: 1px solid black;">NAME</th> <th style="text-align: left; border-bottom: 1px solid black;">PHONE</th> </tr> <tr> <td>Health and Safety Manager</td> <td>Bill Fink</td> <td>414-234-7845</td> </tr> <tr> <td>Project Manager</td> <td>Russell Henderson</td> <td>678-255-6156</td> </tr> <tr> <td>Site Safety Coordinator</td> <td>Jorge Sanchez</td> <td>678-255-5538</td> </tr> <tr> <td>Client Contact (EPA RPM)</td> <td></td> <td></td> </tr> <tr> <td>Other (EPA HRS coordinator)</td> <td></td> <td></td> </tr> <tr> <td>State Agency</td> <td></td> <td></td> </tr> <tr> <td>State Spill Number</td> <td></td> <td></td> </tr> <tr> <td>Fire Department</td> <td></td> <td>911</td> </tr> <tr> <td>Police Department</td> <td></td> <td>911</td> </tr> <tr> <td>State Police</td> <td></td> <td>911</td> </tr> <tr> <td>Health Department</td> <td></td> <td></td> </tr> <tr> <td>Poison Control Center</td> <td></td> <td>800-848-6946</td> </tr> <tr> <td>Occupational Physician</td> <td>Dr. Jerry Berke, Health Resources</td> <td>800-350-4511</td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">MEDICAL EMERGENCY</th> <th style="text-align: left; border-bottom: 1px solid black;">PHONE</th> </tr> <tr> <td>Hospital Name: _____</td> <td></td> </tr> <tr> <td>Hospital Address _____</td> <td></td> </tr> <tr> <td>Name of Contact at Hospital: _____</td> <td></td> </tr> <tr> <td>Name of 24-Hour Ambulance: _____</td> <td></td> </tr> <tr> <td>Route to Hospital: (see attached sheet)</td> <td></td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top; padding: 5px;"> HEALTH AND SAFETY PLAN APPROVALS Prepared by _____ Date _____ DHSC Signature _____ Date _____ HSM Signature _____ Date _____ </td> <td style="width: 50%; vertical-align: top; padding: 5px;"> Distance to Hospital _____ </td> </tr> </table>	EMERGENCY CONTACTS	NAME	PHONE	Health and Safety Manager	Bill Fink	414-234-7845	Project Manager	Russell Henderson	678-255-6156	Site Safety Coordinator	Jorge Sanchez	678-255-5538	Client Contact (EPA RPM)			Other (EPA HRS coordinator)			State Agency			State Spill Number			Fire Department		911	Police Department		911	State Police		911	Health Department			Poison Control Center		800-848-6946	Occupational Physician	Dr. Jerry Berke, Health Resources	800-350-4511	MEDICAL EMERGENCY	PHONE	Hospital Name: _____		Hospital Address _____		Name of Contact at Hospital: _____		Name of 24-Hour Ambulance: _____		Route to Hospital: (see attached sheet)		HEALTH AND SAFETY PLAN APPROVALS Prepared by _____ Date _____ DHSC Signature _____ Date _____ HSM Signature _____ Date _____	Distance to Hospital _____
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HEALTH AND SAFETY PLAN SIGNATURE FORM

TN & Associates Health and Safety Program

All site personnel must sign this form indicating receipt of the H&SP. Keep this original on site. It becomes part of the permanent project files. Send a copy to the Health and Safety Manager (HSM).

SITE NAME/NUMBER: Barite Hill Nevada Goldfields / 2005148

DIVISION/LOCATION: T N & Associates, Marietta, GA.

DATE: _____

I understand, and agree to comply with, the provisions of the above referenced H&SP for work activities on this project. I agree to report any injuries, illnesses or exposure incidents to the site Health and Safety Coordinator (SHSC). I agree to inform the SHSC about any drugs (legal and illegal) that I take within three days of site work.

PRINTED NAME	SIGNATURE	DATE