September 9, 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 newly installed monitoring wells on-site. A site location map is provided in Attachment A. Two samples were collected from the lake and one sample was collected at seep location 0 along the creek. In addition, The EPA Remedial Branch installed two monitoring wells at the site during the month of July 2009. OTIE developed and sampled these monitoring wells (MW-01 and MW-02). Water quality parameters were prior to water sampling. Water quality parameters from July 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 July 24, 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 two 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 two samples from the newly installed monitoring wells (Figure 1). 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-014 was collected one meter below the lake water surface and BHR-MPB-014 was collected one meter from the bottom of the lake using a Bacon Bomb. BHR-S0-014 was collected adjacent to the spillway along the creek (Seep 0). Samples BHR-MW1-001 and BHR-MW2-001 were collected from monitoring wells 1 and 2, respectively, 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 the monitoring wells were 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 July 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.

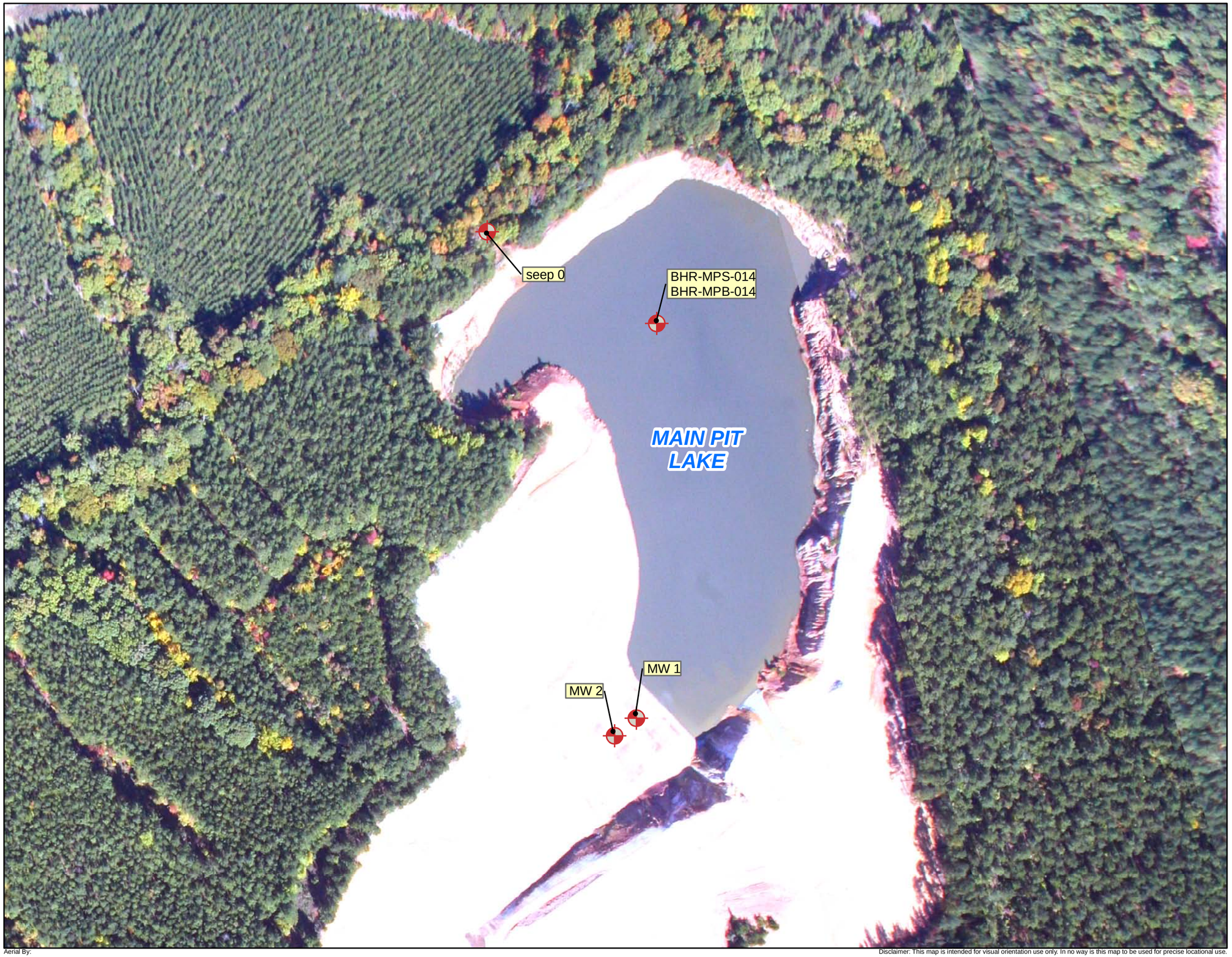
If you have any questions or comments regarding this Letter Report or require any additional information, please contact me at (678) 355-5550 ext. 5707.

Sincerely,

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



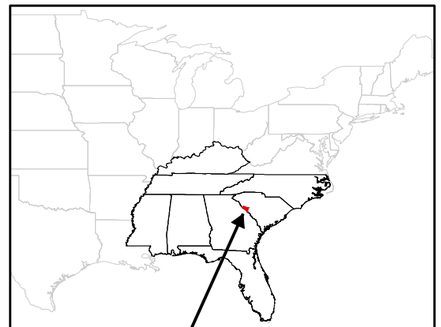
Legend

Monitoring Well

Note:
MW - Monitoring Well
MPS - Mine Pit Surface
MPB - Mine Pit Bottom
BHR - Barite Hills Removal

N

Feet
0 90 180 360



McCormick
McCormick County,
South Carolina

United States Environmental Protection Agency

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

FIGURE 1
JULY 2009
SAMPLE LOCATIONS

OTIE-TN&A
Oneida Total Integrated Enterprises

...\GIS_Workspace\Barite Hills\Mapping\New Mapping\mxds

Aerial By:

Disclaimer: This map is intended for visual orientation use only. In no way is this map to be used for precise locational use.

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

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	BRLº	NA	NA	NA	BRLº
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 contaminent level
CMC - Criterion maximum concentration
CCC - Criterion continuous concentration
mg/L - Milligrams per liter
NSA - Standard not availabe
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 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 contaminent level
CMC - Criterion maximum concentration
CCC - Criterion continuous concentration
mg/L - Milligrams per liter
NSA - Standard not availabe
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
	MCL	CMC	CCC	BHR-MPS-013	BHR-MPS-014
Potentially Applicable Standards (priority pollutants)				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†
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*
Zinc	5	0.339	0.339	0.117	BRL*
Potentially Applicable Standards (non-priority pollutants)					
Aluminum	0.2	0.75	0.087	0.622	
Iron	0.3		1	64.8	BRLº
Manganese	0.05-0.1			9.27	3.48
Ferrous Iron (mg/L)					
Iron, Ferric (+3)	0.3	NSA	1	102	0.475
Iron, Ferrous (+2)	0.3	NSA	1	68.2	BRLº

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 contaminent level
CMC - Criterion maximum concentration
CCC - Criterion continuous concentration
mg/L - Milligrams per liter
NSA - Standard not availabe
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 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:

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a - South Carolina Regulation 61-68, Water Classifications and Standards, adopted June 2004 and adjusted for water hardness of 400 mg/L.
MCL - Maximum contaminent level
CMC - Criterion maximum concentration
CCC - Criterion continuous concentration
mg/L - Milligrams per liter
NSA - Standard not availabe
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
	MCL	CMC	CCC	BHR-MPB-012	BHR-MPB-013	BHR-MPB-014
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	0.0082	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†
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*
Zinc	5	0.339	0.339	0.127	0.055	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
Manganese	0.05-0.1			11.4	9.79	10.6
Ferrous Iron (mg/L)						
Iron, Ferric	0.3	NSA	1	BRLº	BRLº	48.1
Iron, Ferrous	0.3	NSA	1	163	173	101

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 contaminent level
CMC - Criterion maximum concentration
CCC - Criterion continuous concentration
mg/L - Milligrams per liter
NSA - Standard not availabe
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)

Seep 0	Human Health	SCDHEC WQC under R61-68		July 24, 2009
	MCL	CMC	CCC	BHR-S0-014
Potentially Applicable Standards (priority pollutants)				
Antimony	0.006	NSA	NSA	
Arsenic	0.01	0.34	0.15	
Cadmium	0.005	0.008	0.0026	
Chromium	0.1	0.57	0.074	
Copper	1	0.057	0.039	20.2
Lead	0.015	0.32	0.005	
Nickel	0.61	1.071	0.167	
Selenium	0.05	NSA	0.005	0.053
Zinc	5	0.339	0.339	11.4
Potentially Applicable Standards (non-priority pollutants)				
Aluminum	0.2	0.75	0.087	
Iron	0.3	NSA	1	93
Manganese	0.05-0.1	NSA	NSA	13.8
Potassium	NSA	NSA	NSA	11.6
Sodium	NSA	NSA	NSA	44.3

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 contaminent level
CMC - Criterion maximum concentration
CCC - Criterion continuous concentration
mg/L - Milligrams per liter
NSA - Standard not availabe
NA - Not analyzed
Yellow - Exceeds one criteria (Human Health Standard or SCDHEC WQC)
Red - Exceeds all criteria (both Human Health Standard and SCDHEC WQC)

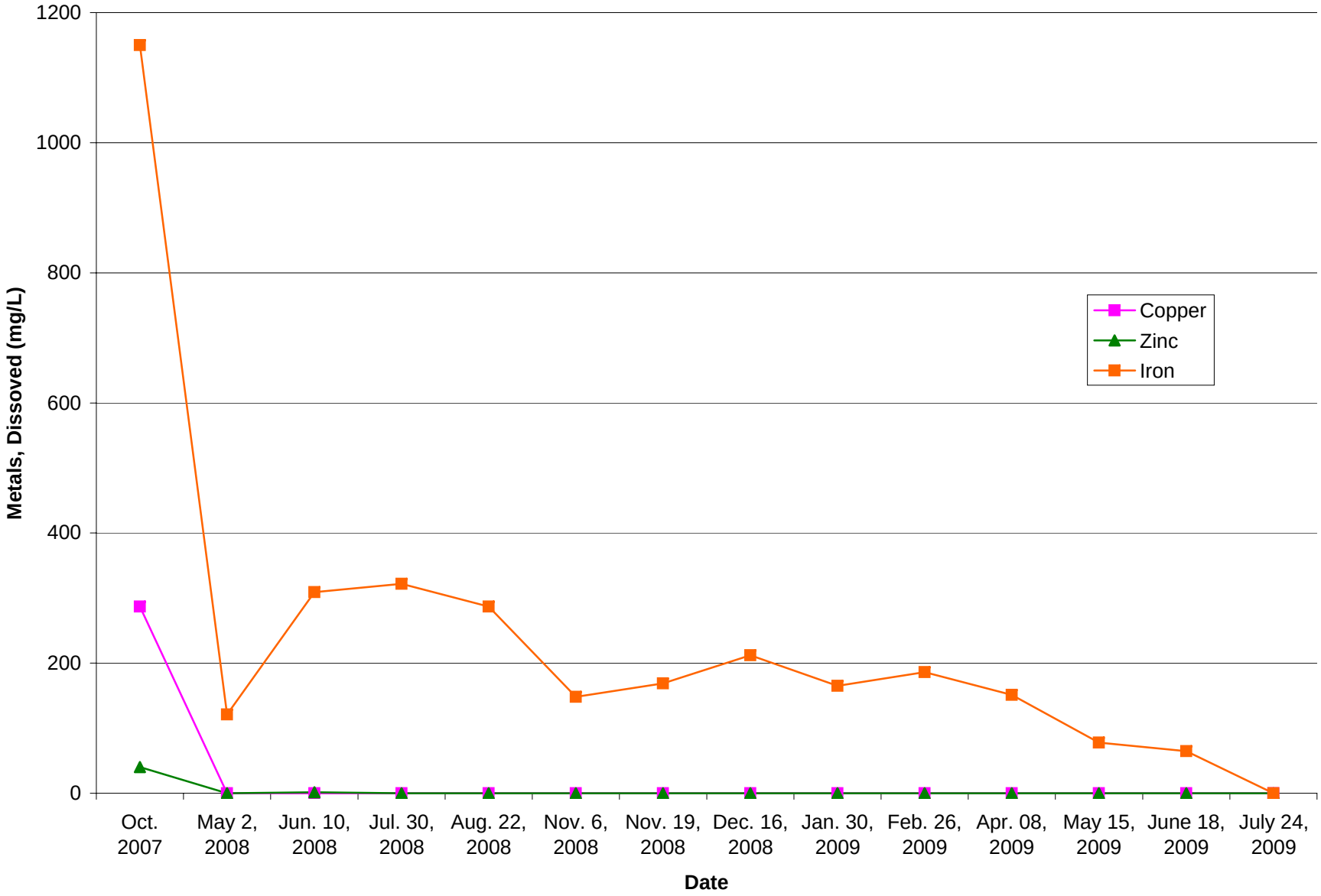
Table 5
Monitoring Wells Potentially Applicable Standards Comparison

	Drinking Water	National Recommended WQC		SCDHEC WQC[a]		MW-01		MW-02	
	Federal MCL	NOAEL Acute	NOAEL Chronic	NOAEL Acute	NOAEL Chronic	July 24, 2009		July 24, 2009	
Wet Chem (mg/L)									
Residue, Total (wt%)									
Residue, Dissolved (TDS)	500					15,000	100	16,000	100
Chloride	250	860	NSA	NSA	230				
Nitrogen, Nitrate (As N)	10	NSA	NSA	NSA	NSA	BRL	2.5	BRL	2.5
Sulfate	250	NSA	NSA	NSA	NSA	14,800	1000	10,800	1000
Organic Carbon, Total									
Alkalinity									
Acidity	NSA	NSA	NSA	NSA	NSA	8210	10	7,200	10
Ammonia						5.81	0.2	4.74	0.2
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
Metals, Total (mg/L)									
Copper	1	0.013	0.009	0.0038	0.0029	257	0.1	174	0.1
Iron	0.3	NSA	1	NSA	1	2820	10	3020	10
Manganese	0.05	NSA	NSA	NSA	NSA	12.1	0.015	14.9	0.015
Potassium	NSA	NSA	NSA	NSA	NSA	47.5	0.5	24.3	0.5
Selenium	0.05	NSA	0.005	NSA	0.005	0.0355	0.02	BRL	0.02
Sodium	NSA	NSA	NSA	NSA	NSA	34.5	1	605	100
Zinc	5	0.12	0.12	0.037	0.037	57.6	0.2	48.2	0.2
Ferrous Iron (mg/L)									
Iron, Ferric	0.3	NSA	1	NSA	1	67.6	0.1	BRL	0.1
Iron, Ferrous	0.3	NSA	1	NSA	1	2760	500	3140	500

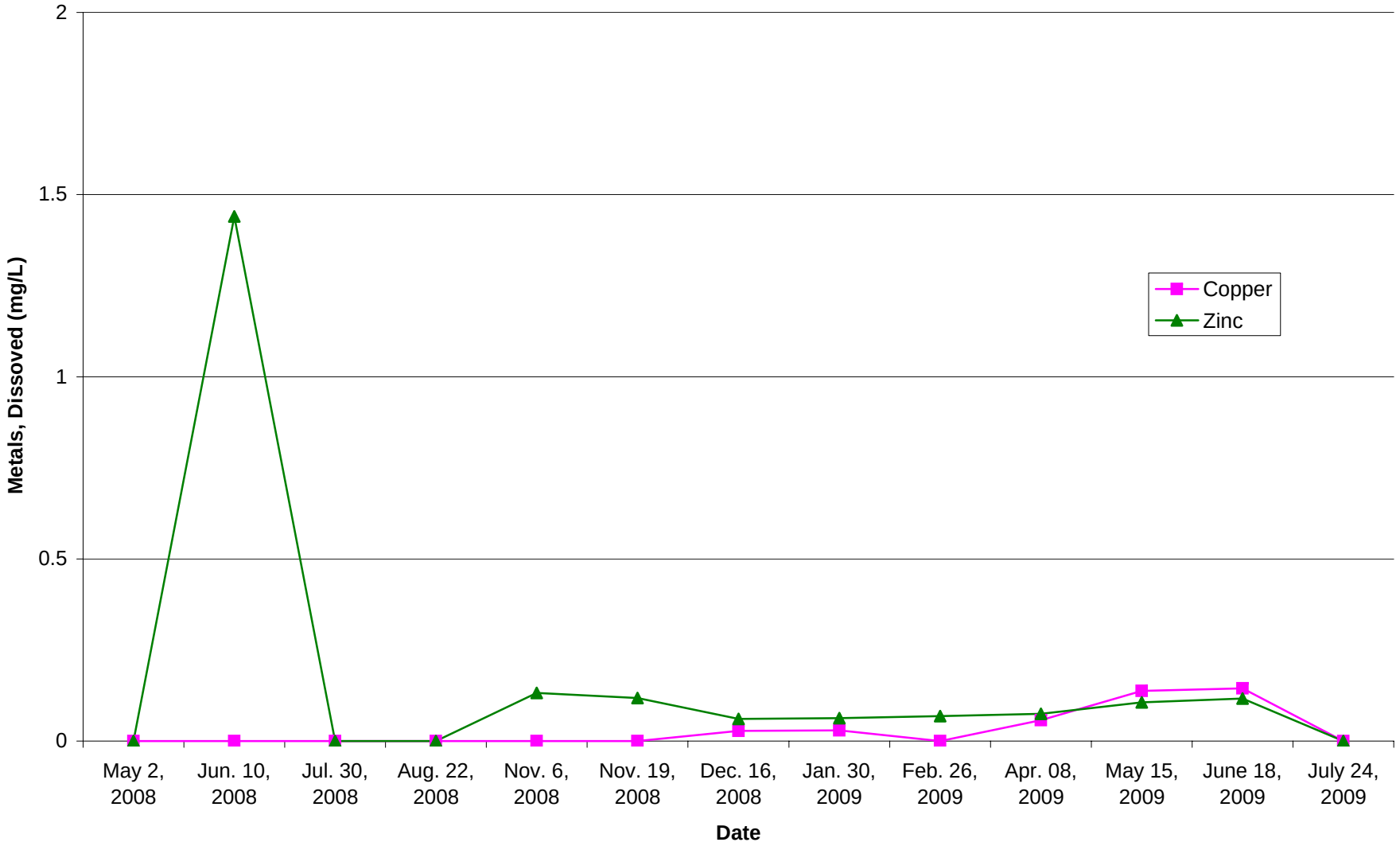
Notes:

a - South Carolina Regulation 61-68, Water Classifications and Standards
NSA - Standard not availabe
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

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

August 03, 2009

Russell Henderson
Oneida Total Integrated Enterprises
1220 Kennestone Circle Suite D
Marietta, GA 30066

TEL: (678) 355-5550
FAX: (414) 257-2492

RE: Barite Hills Removal

Order No.: 0907I70

Dear Russell Henderson:

Analytical Environmental Services, Inc. received 6 samples on 7/27/2009 2:20:00 PM for the analyses presented in the following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/09-06/30/10.
-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/09.

These results relate only to the items tested. This report may only be reproduced in full and contains 24 total pages (including cover letter).

If you have any questions regarding these test results, please feel free to call.

Sincerely,

James Forrest
Project Manager

Ø TN LA SD 990170

CHAIN-OF-CUSTODY RECORD

[1] COC NUMBER:

[2] PROJECT NAME:	[5] PROJECT NUMBER:	[8] LAB NAME AND CONTACT:	[11] FAX AND MAIL REPORTS/EDD TO:: RECIPIENT 1 (Name and Company)	[14] RECIPIENT 1 (Address, Tel No. , and Fax No.):
Barite Hills Removal	1116	AES James Forrest		
[3] PROJECT PHASE/SITE/TASK:	[6] CTO OR DO NUMBER:	[9] LAB PO NUMBER:	[12] FAX AND MAIL REPORTS/EDD TO:: RECIPIENT 2 (Name and Company)	[15] RECIPIENT 2 (Address, Tel No. , and Fax No.):
2005148-1116				
[4] PROJECT CONTACT:	[7] PROJECT TEL NO AND FAX NO:	[10] LAB TEL NO AND FAX NO:	[13] FAX AND MAIL REPORTS/EDD TO:: RECIPIENT 3 (Name and Company)	[16] RECIPIENT 3 (Address, Tel No. , and Fax No.):
Russell Henderson		770-457-8177		

[25] ANALYSES REQUIRED (Include Method Numbers)

[17] ITEM	[18] SAMPLE IDENTIFIER	[19] SAMPLE DESCRIPTION/LOCATION	[20] MATRIX (see codes on SOP)	[21] DATE COLLECTED	[22] TIME COLLECTED	[23] DATA PKG LEVEL (see codes on SOP)	[24] TAT (calendar days)	TAL Metals	Dissolved Metals	TOC	pH	Bicarbonate	Ferric/Ferrous Speciation	TDS	Ammonia, Nitrate, Sulfate	Total Acidity				[26] SAMPLE TYPE (see codes on SOP)	[27] COMMENTS/ SCREENING READINGS	[28] LAB ID (for lab's use)
1	BHR-MPS-014	Main Pit Surface	1	07/24/09	11:15	II	5 Day	X	X	X	X	X	X	X							For Metals on totals run Copper, Manganese, Iron, Selenium, Zinc, sodium and potassium only	
2	BHR-MPB-014	Main Pit Bottom	1	07/24/09	11:30	II	5 Day	X	X	X	X	X	X	X							Disolved run Copper, Manganese, Iron, Selenium, Zinc only	
3	BHR-S0-014	Seep 0	1	07/24/09	12:40	II	5 Day	X			X			X								
4	BHR-MW1-001	Monitor well 1 uphill	1	07/24/09	13:00	II	5 Day	X			X		X	X	X	X						
5	BHR-MW2-001	Monitor well 2 downhill	1	07/24/09	13:10	II	5 Day	X			X		X	X	X	X						
6																						
10																						

[29] SAMPLER(S) AND COMPANY: (please print)	[30] COURIER AND SHIPPING NUMBER:	[31] SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use):

[32] RELINQUISHED BY	DATE	TIME	[33] RECEIVED BY	DATE	TIME
Printed Name and Signature:			Printed Name and Signature:		
[signature]	7/24/09	13:00	[signature] 7/27/09 2:20	1/0/1900	0:00
Printed Name and Signature:			Printed Name and Signature:		
			CLIENT		
Printed Name and Signature:			Printed Name and Signature:		

Distribution: [ ] Original - Laboratory (To be returned with Analytical Report); [ ] Copy 1 - Project File; [ ] Copy 2 - PMO

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client OTIE Work Order Number 0907I70

Checklist completed by Signature 7-27-09 Date

Carrier name: FedEx __ UPS __ Courier __ Client ✓ US Mail __ Other _____

Shipping container/cooler in good condition? Yes __ ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present __ ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present __ ✓

Container/Temp Blank temperature in compliance? (4°C±2)* Yes ✓ No __

Cooler #1 3.6°C Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes __ ✓ No __

Chain of custody signed when relinquished and received? Yes __ ✓ No __

Chain of custody agrees with sample labels? Yes __ No __ ✓

Samples in proper container/bottle? Yes __ ✓ No __

Sample containers intact? Yes __ ✓ No __

Sufficient sample volume for indicated test? Yes __ ✓ No __

All samples received within holding time? Yes __ No __ ✓

Was TAT marked on the COC? Yes __ ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable __ ✓

Water - VOA vials have zero headspace? No VOA vials submitted __ ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes __ No __ ✓ Not Applicable __

Adjusted? PT Checked by PI

Sample Condition: Good __ ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No __ ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

Analytical Environmental Services, Inc.

Date: *04-Aug-09*

CLIENT: Oneida Total Integrated Enterprises
Client Sample ID: BHR-MPS-014
Project: Barite Hills Removal
Collection Date: 7/24/2009 11:15:00 AM
Lab ID: 0907I70-001
Matrix: AQUEOUS

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed
T. ORGANIC CARBON(TOC)(E415.1/SM5310B)							Analyst: **GAR**
Organic Carbon, Total	40.6	1.0		mg/L		1	7/27/2009 4:48 PM
CARBON DIOXIDE SM4500-CO2							Analyst: **TL**
Bicarbonate Alkalinity	158	3.00		mg/L		1	7/30/2009 12:00 AM
METALS, TOTAL SW6010C					(SW3010A)		Analyst: **BB**
Copper	BRL	0.0100		mg/L	116162	1	7/29/2009 1:03 PM
Iron	0.497	0.100		mg/L	116162	1	7/29/2009 1:03 PM
Manganese	4.32	0.0150		mg/L	116162	1	7/29/2009 1:03 PM
Potassium	57.8	0.500		mg/L	116162	1	7/29/2009 1:03 PM
Selenium	BRL	0.0200		mg/L	116162	1	7/29/2009 1:03 PM
Sodium	253	10.0		mg/L	116162	10	7/29/2009 1:45 PM
Zinc	BRL	0.0200		mg/L	116162	1	7/29/2009 1:03 PM
METALS, DISSOLVED SW6010C					(SAMP_FILT)		Analyst: **BB**
Copper	BRL	0.0100		mg/L	116173	1	7/29/2009 10:55 AM
Iron	BRL	0.100		mg/L	116173	1	7/29/2009 10:55 AM
Manganese	3.48	0.0150		mg/L	116173	1	7/29/2009 10:55 AM
Selenium	BRL	0.0200		mg/L	116173	1	7/29/2009 10:55 AM
Zinc	BRL	0.0200		mg/L	116173	1	7/29/2009 10:55 AM
HYDROGEN ION (PH)(E150.1/SM4500 H+ B)							Analyst: **CG**
pH	8.44	0.01	H	pH Units		1	7/27/2009 6:46 PM
RESIDUE, DISS.(TDS)(E160.1/SM2540C)					(E160.1)		Analyst: **ML**
Residue, Dissolved (TDS)	3330	20		mg/L	116361	1	7/30/2009 2:00 PM
FERROUS IRON SM3500-FE-D							Analyst: **CG**
Iron, as Ferric (Fe+3)	0.475	0.100	H	mg/L		1	7/27/2009 6:30 PM
Iron, as Ferrous (Fe+2)	BRL	0.100	H	mg/L		1	7/27/2009 6:30 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: *04-Aug-09*

CLIENT:	Oneida Total Integrated Enterprises	**Client Sample ID:**	BHR-MPB-014
Project:	Barite Hills Removal	**Collection Date:**	7/24/2009 11:30:00 AM
Lab ID:	0907I70-002	**Matrix:**	AQUEOUS

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed
T. ORGANIC CARBON(TOC)(E415.1/SM5310B)							Analyst: **GAR**
Organic Carbon, Total	57.8	1.0		mg/L		1	7/27/2009 5:01 PM
CARBON DIOXIDE SM4500-CO2							Analyst: **TL**
Bicarbonate Alkalinity	122	3.00		mg/L		1	7/30/2009 12:00 AM
METALS, TOTAL SW6010C					(SW3010A)		Analyst: **BB**
Copper	BRL	0.0100		mg/L	116162	1	7/29/2009 1:07 PM
Iron	149	1.00		mg/L	116162	10	7/29/2009 1:48 PM
Manganese	10.5	0.0150		mg/L	116162	1	7/29/2009 1:07 PM
Potassium	56.9	0.500		mg/L	116162	1	7/29/2009 1:07 PM
Selenium	BRL	0.0200		mg/L	116162	1	7/29/2009 1:07 PM
Sodium	153	10.0		mg/L	116162	10	7/29/2009 1:48 PM
Zinc	0.0244	0.0200		mg/L	116162	1	7/29/2009 1:07 PM
METALS, DISSOLVED SW6010C					(SAMP_FILT)		Analyst: **BB**
Copper	BRL	0.0100		mg/L	116173	1	7/29/2009 11:05 AM
Iron	74.4	0.200		mg/L	116173	2	7/29/2009 12:08 PM
Manganese	10.6	0.0150		mg/L	116173	1	7/29/2009 11:05 AM
Selenium	BRL	0.0200		mg/L	116173	1	7/29/2009 11:05 AM
Zinc	BRL	0.0200		mg/L	116173	1	7/29/2009 11:05 AM
HYDROGEN ION (PH)(E150.1/SM4500 H+ B)							Analyst: **CG**
pH	5.09	0.01	H	pH Units		1	7/27/2009 6:50 PM
RESIDUE, DISS.(TDS)(E160.1/SM2540C)					(E160.1)		Analyst: **ML**
Residue, Dissolved (TDS)	3650	20		mg/L	116361	1	7/30/2009 2:00 PM
FERROUS IRON SM3500-FE-D							Analyst: **CG**
Iron, as Ferric (Fe+3)	48.1	0.100	H	mg/L		1	7/27/2009 6:30 PM
Iron, as Ferrous (Fe+2)	101	10.0	H	mg/L		100	7/27/2009 6:30 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: *04-Aug-09*

CLIENT: Oneida Total Integrated Enterprises
Client Sample ID: BHR-SO-014
Project: Barite Hills Removal
Collection Date: 7/24/2009 12:40:00 PM
Lab ID: 0907I70-003
Matrix: AQUEOUS

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed
METALS, TOTAL SW6010C					(SW3010A)		Analyst: BB
Copper	20.2	0.0100		mg/L	116162	1	7/29/2009 1:13 PM
Iron	93.0	0.500		mg/L	116162	5	7/29/2009 1:52 PM
Manganese	13.8	0.0150		mg/L	116162	1	7/29/2009 1:13 PM
Potassium	11.6	0.500		mg/L	116162	1	7/29/2009 1:13 PM
Selenium	0.0530	0.0200		mg/L	116162	1	7/29/2009 1:13 PM
Sodium	44.3	1.00		mg/L	116162	1	7/29/2009 1:13 PM
Zinc	11.4	0.0200		mg/L	116162	1	7/29/2009 1:13 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: *04-Aug-09*

CLIENT:	Oneida Total Integrated Enterprises	**Client Sample ID:**	BHR-MW1-001
Project:	Barite Hills Removal	**Collection Date:**	7/24/2009 1:00:00 PM
Lab ID:	0907I70-004	**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	2.50	H	mg/L		10	7/27/2009 5:15 PM
Sulfate	14800	1000		mg/L		1000	7/28/2009 9:33 AM
NITROGEN, AMMONIA (AS N) E350.1					**(E350.1)**		Analyst: **LAV**
Nitrogen, Ammonia (As N)	5.81	0.200		mg/L	116242	1	7/29/2009 5:01 PM
METALS, TOTAL SW6010C					**(SW3010A)**		Analyst: **BB**
Copper	257	0.100		mg/L	116162	10	7/29/2009 1:58 PM
Iron	2820	10.0		mg/L	116162	100	7/29/2009 5:58 PM
Manganese	12.1	0.0150		mg/L	116162	1	7/29/2009 1:23 PM
Potassium	47.5	0.500		mg/L	116162	1	7/29/2009 1:23 PM
Selenium	0.0355	0.0200		mg/L	116162	1	7/29/2009 1:23 PM
Sodium	34.5	1.00		mg/L	116162	1	7/29/2009 1:23 PM
Zinc	57.6	0.200		mg/L	116162	10	7/29/2009 1:58 PM
HYDROGEN ION (PH)(E150.1/SM4500 H+ B)							Analyst: **CG**
pH	3.03	0.01	H	pH Units		1	7/27/2009 6:55 PM
RESIDUE, DISS.(TDS)(E160.1/SM2540C)					**(E160.1)**		Analyst: **ML**
Residue, Dissolved (TDS)	15000	100		mg/L	116361	1	7/30/2009 2:00 PM
ACIDITY (E305.1/SM2310 B)							Analyst: **MAS**
Acidity	8210	10.0		mg/L		1	7/30/2009 12:30 PM
FERROUS IRON SM3500-FE-D							Analyst: **CG**
Iron, as Ferric (Fe+3)	67.6	0.100	H	mg/L		1	7/27/2009 6:30 PM
Iron, as Ferrous (Fe+2)	2760	500	H	mg/L		5000	7/27/2009 6:30 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: *04-Aug-09*

CLIENT:	Oneida Total Integrated Enterprises	**Client Sample ID:**	BHR-MW2-001
Project:	Barite Hills Removal	**Collection Date:**	7/24/2009 1:10:00 PM
Lab ID:	0907I70-005	**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	2.50	H	mg/L		10	7/27/2009 6:44 PM
Sulfate	10800	1000		mg/L		1000	7/28/2009 9:19 AM
NITROGEN, AMMONIA (AS N) E350.1					(E350.1)		Analyst: **LAV**
Nitrogen, Ammonia (As N)	4.74	0.200		mg/L	116242	1	7/29/2009 5:04 PM
METALS, TOTAL SW6010C					(SW3010A)		Analyst: **BB**
Copper	174	0.100		mg/L	116162	10	7/29/2009 2:02 PM
Iron	3020	10.0		mg/L	116162	100	7/29/2009 6:02 PM
Manganese	14.9	0.0150		mg/L	116162	1	7/29/2009 1:28 PM
Potassium	24.3	0.500		mg/L	116162	1	7/29/2009 1:28 PM
Selenium	BRL	0.0200		mg/L	116162	1	7/29/2009 1:28 PM
Sodium	605	100		mg/L	116162	100	7/29/2009 6:02 PM
Zinc	48.2	0.200		mg/L	116162	10	7/29/2009 2:02 PM
HYDROGEN ION (PH)(E150.1/SM4500 H+ B)							Analyst: **CG**
pH	3.40	0.01	H	pH Units		1	7/27/2009 7:00 PM
RESIDUE, DISS.(TDS)(E160.1/SM2540C)					(E160.1)		Analyst: **ML**
Residue, Dissolved (TDS)	16000	100		mg/L	116361	1	7/30/2009 2:00 PM
ACIDITY (E305.1/SM2310 B)							Analyst: **MAS**
Acidity	7200	10.0		mg/L		1	7/30/2009 12:30 PM
FERROUS IRON SM3500-FE-D							Analyst: **CG**
Iron, as Ferric (Fe+3)	BRL	0.100	H	mg/L		1	7/27/2009 6:30 PM
Iron, as Ferrous (Fe+2)	3140	500	H	mg/L		5000	7/27/2009 6:30 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		

ATTACHMENT D
HASP

HEALTH AND SAFETY PLAN FORM *This document is for the exclusive* **TN & ASSOCIATES**

TN&Associates Health and Safety Program *use of TN&Associates its subcontractors, and EPA.* **Site Name: Barite Hill Nevada Goldfields**

PROJECT NAME: Barite Hill Nevada Goldfields **DATE:** 6/10/2008

PROJECT#: 2005148

LOCATION: McCormick, South Carolina **CLIENT:** EPA

EPA CONTACT/PHONE #: Leo Francendese, 404-562-8772

LOCAL/SITE CONTACT PHONE #:

INCIDENT DESCRIPTION:
The OSC tasked START with conducting water sampling of the main pit lake and the creek to monitor metal concentrations and water quality parameters.

SOURCE OF PRELIMINARY INFORMATION: ER Action Memo/ initial POLREP from epaosc.net website

ANTICIPATED TASKS:
(e.g. collect surface soil samples):
Take water quality measurements and samples of the liquid in the main pit and creek.

TYPE: *Check as many as applicable*

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.)*

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.

SURROUNDING POPULATION: ( ) Residential ( ) Industrial ( ) Commercial (X) Rural ( ) Urban ( ) Other:

HISTORY: *Summarize conditions that relate to hazard. Include citizen complaints, spills, previous investigations or agency actions, known injuries, etc.*

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.

WASTE TYPES: (X) Liquid (X) Solid ( ) Sludge ( ) Gas ( ) Unknown ( ) Other: _____

WASTE CHARACTERISTICS: *Check as many as applicable.*

(X) Corrosive ( ) Flammable ( ) Radioactive

(X) Toxic ( ) Volatile (X) Reactive

( ) Inert Gas ( ) Unknown ( ) Other, Specify: _____

WORK ZONES: *Describe the Exclusion, Contamination Reduction, and Support Zones in terms on-site personnel will recognize*

HAZARDS OF CONCERN:

(X) Heat Stress *attach guidelines* ( ) Noise
(X) Cold Stress *attach guidelines* (X) Inorganic Chemicals
( ) Explosive/Flammable ( ) Organic Chemicals
( ) Oxygen Deficient ( ) Motorized Traffic
( ) Radiological ( ) Heavy Machinery
( ) Biological (X) Slips, Trips, & Falls
( ) Other, Specify: _____

FACILITY'S PAST AND PRESENT DISPOSAL METHODS AND PRACTICES:

None found

HEALTH AND SAFETY PLAN FORM	*This document is for the exclusive*	**TN & ASSOCIATES**
TN&Associates Health and Safety Program	*use of TN&Associates its subcontractors, and EPA.*	**Site Name: Barite Hill Nevada Goldfields**

HAZARDOUS MATERIAL SUMMARY: *Circle waste type and estimate amounts by category.*

CHEMICALS: *Amount/Units:*	**SOLIDS:** *Amount/Units:*	**SLUDGES:** *Amount/Units:*	**SOLVENTS:** *Amount/Units:*	**OILS:** *Amount/Units:*	**OTHER:** *Amount/Units:*
	Metals unknown	Inorganic unknown			

OVERALL HAZARD EVALUATION: ( )High (X)Medium ( )Low ( )Unknown

JUSTIFICATION: Stabiliziation of Main Pit lake for pyrite contact with liquid.

FIRE/EXPLOSION POTENTIAL: ( )High ( )Medium ( )Low (X)Unknown

INFORMATION COMPLETE: ( )Complete ( )Incomplete (X)Best Available at Current Time

KNOWN CONTAMINANTS	NIOSH REL (ST if Available) *ppm or mg/m3 (specify)*	OSHA PEL (ST if Available) *ppm or mg/m3 (specify)*	IDLH *ppm or mg/m3 (specify)*	SYMPTOMS & EFFECTS OF ACUTE EXPOSURE	PHOTO IONIZATION POTENTIAL

NA = Not Available **NE = None Established** **U = Unknown** Attach, to this plan, an MSDS for each chemical you will use at the site.

S = Soil	SW = Surface Water	T = Tailings	W = Waste	SD = Sediment
A = Air	GW = Ground Water	SL = Sludge	D = Drums	OFF = Off-Site

HEALTH AND SAFETY PLAN FORM *This document is for the exclusive use of* **TN & ASSOCIATES**

TN & Associates Health and Safety Program *TN&Associates its subcontractors, and EPA.* **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		**Contingency Level** Modified D To C	Respiratory: APR combo			
	Eyewear: Safety Glasses Hard Hat			Eyewear: Safety Glasses Hard Hat			
	Boots: Steel-Toe Latex Bootie			Boots: Steel-Toe Latex Bootie			
	Gloves: Inner: Nitrile Outer:			Gloves: Inner: Nitrile Outer:			
PPE:	Clothing: Tyvek Coverall		**PPE:**	Clothing: Tyvek Coverall			
Task 2 Description						**Type**	**Hazard Schedule**
Primary Level	Respiratory:		**Contingency Level**	Respiratory:			
	Eyewear:			Eyewear:			
	Boots:			Boots:			
	Gloves:			Gloves:			
PPE:	Clothing:		**PPE:**	Clothing:			
Task 3 Description						**Type**	**Hazard Schedule**
Primary Level	Respiratory:		**Contingency Level**	Respiratory:			
	Eyewear:			Eyewear:			
	Boots:			Boots:			
	Gloves:			Gloves:			
PPE:	Clothing:		**PPE:**	Clothing:			
Task 4 Description						**Type**	**Hazard Schedule**
Primary Level	Respiratory:		**Contingency Level**	Respiratory:			
	Eyewear:			Eyewear:			
	Boots:			Boots:			
	Gloves:			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

Monitoring Equipment: Specify by task. Indicate type as necessary. Attach additional sheets if needed.

Tasks:	Instrument:	Level:	Action Guidelines:	Comments:
1	pH Meter			
Tasks:	**Instrument:**	**Level:**	**Action Guidelines:**	**Comments:**
Tasks:	**Instrument:**	**Level:**	**Action Guidelines:**	**Comments:**
Tasks:	**Instrument:**	**Level:**	**Action Guidelines:**	**Comments:**
Tasks:	**Instrument:**	**Level:**	**Action Guidelines:**	**Comments:**
Tasks:	**Instrument:**	**Level:**	**Action Guidelines:**	**Comments:**

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

CONTINGENCY PLANS: *Summarize below*

Contact corporate Health and Saftey officer, William Fink, at 414-234-7845

HEALTH AND SAFETY PLAN APPROVALS

Prepared by _____ Date _____

DHSC Signature _____ Date _____

HSM Signature _____ Date _____

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)	

Distance to Hospital _____

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