July 2008 Comparative Table for the Barite Hill Pit Lake

Comparison of Barite Hill untreated lake water (October 2007) and interim treated lake water (June 10, 2008) to Priority Pollutant Criteria provided under SCDHEC Regulation 61-68 (adopted June 2004) and adjusted for the appropriate water hardness of 400 mg/L. Analyses that exceed one but not all of the applicable criteria are highlighted in yellow. Analyses that exceed all criteria are highlighted in red.

	Human Health	SCDHEC WQC under R 61-68		October 2007	June 2008
	MCL	CMC	CCC	BHB-005	BHR-5-001
Potentially Applicable Standards (priority pollutants)				Pit Water Untreated	Pit water treated (Dissolved)
Antimony	0.006	NSA	NSA	0.02	**0.006**
Arsenic	0.01	0.34	0.15	0.968	**0.010**
Cadmium	0.005	0.008	0.0026	1.57	**0.005**
Chromium	0.1	0.57	0.074	0.141	**0.010**
Copper	1	0.057	0.039	287	**0.010**
Lead	0.015	0.32	0.005	0.161	**0.010**
Nickel	0.61	1.071	0.167	0.404	**0.163**
Selenium	0.05	NSA	0.005	0.23	**0.022**
Zinc	5	0.339	0.339	40.2	**1.440**

Criterion continuous concentration (CCC) means the highest instream concentration of a toxicant or an effluent to which the organisms can be exposed to protect against chronic (long-term) effects. EPA derives chronic criteria from longer term (often greater than 28 days) tests that measure survival, growth, reproduction, and in some cases bioconcentration.

Criterion maximum concentration (CMC) means the highest instream concentration of a toxicant or an effluent to which the organisms can be exposed for a brief period of time without causing an acute effect. EPA derives acute criteria from 48 to 96 hour tests of lethality or immobilization.

In addition to the above slight exceedances that remain for priority pollutants (selenium and zinc) for the interim treated pit lake water, aluminum, iron, manganese also exceed one or more secondary water quality criteria. Iron and manganese are dropping out and are anticipated to continue to drop out to low concentrations (through geochemical precipitation) when the previously added soluble organic

carbon is depleted through redox reactions with sediments containing iron hydroxides and other metal hydroxides.

	Human Health	SCDHEC WQC under R 61-68		October 2007	June 2008
	Secondary MCL	CMC	CCC	BHB-005	BHR-5-001
Potentially Applicable Standards (non-priority pollutants)				**Pit Water Untreated**	**Pit water treated (Dissolved)**
Aluminum	0.2	0.75	0.087	244	**0.347**
Iron	0.3		1.0	1150	**309**
Manganese	0.05 – 0.1			13.6	**10.6**