8. To date, TTL has installed a total 74 In-Situ data loggers in piezometers and at staff gage locations within the study area. Baro-Trolls were also installed to monitor barometric pressure changes at the site. The purpose of the data loggers is to continuously monitor fluctuations in surface water and groundwater elevations at the site. Additionally, three rain gages were installed on and near the site to collect a continuous record of rainfall.

9. Depths to groundwater within the study area generally range from 1 to 3 feet bgs depending on seasonal fluctuations observed to date. Based on data obtained from the piezometers, potentiometric surface maps were generated for the study area (see Figure 3). Review of the maps indicates that Trail Ridge represents a hydrogeologic divide between the Okefenokee National Wildlife Refuge and the St. Mary's River resulting in groundwater along Trail Ridge flowing west towards the swamp and east to the St. Mary's River.

10. In order to evaluate background water quality at the site, TTL sampled groundwater from six piezometer and two surface water locations for select cations, anions, metals, organic and volatile acids, alkalinity (total and bicarbonate), total organic content, total dissolved solids, nitrogen, phosphate, uranium and thorium.

11. Data obtained during subsurface investigations identified the occurrence of a humate-cemented sand (Black Sand). The Black Sand unit, where present, comprises a lower permeability zone than the surrounding unconsolidated sand unit. This Black Sand unit also appears to support near surface shallow groundwater in portions of the study area. The occurrence and characteristics of the Black Sand lead to a series of specific studies in order to evaluate the significance of the Black Sand relative to the hydrology of the site.

12. TTL contracted with Geohazards Engineering Geology, Inc. of Gainesville, Florida to conduct a geophysical survey pilot study using three different geophysical methods (electrical resistivity, ground penetrating radar and seismic refraction). The purpose of the pilot study was to evaluate the effectiveness of these three methods in mapping both the top and the bottom of the Black Sand. The pilot study indicated ambiguous results between the individual geophysical methods as well as inconsistencies in the depth of the Black Sand when compared to field data collected from borings at the site. As a result, it was determined that geophysical surveys were not appropriate for mapping the Black Sand unit.

13. Because geophysical surveys were not capable of mapping the subsurface continuity of the Black Sand, 50 additional soil borings were drilled and described to further define the subsurface extent of Black Sand units.

14. The permeability of sands returned to the mine pit during reclamation/restoration may need to be reduced to ensure that groundwater levels are appropriate for maintaining wetlands. Bench-scale studies were conducted to evaluate methods for decreasing the permeability of sands returned to the mining pit. TTL drilled 14 soil borings across the