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LOCKHEED MARTIN

SITE: Barite Hill
BREAK: 2.2
OTHER:

DATE: June 22, 2007

TO: Don Bussey, U.S. EPA/ERT Work Assignment Manager

THROUGH: Parry Bhambra, REAC Operation Section Manager PBh

FROM: Jon McBurney, REAC Task Leader JMcBurney 6/22/07

SUBJECT: FIELD ACTIVITIES (MARCH 26 - 30, 2007 and MAY 22, 2007)
BARITE HILL GOLD MINE, MCCORMICK, SC
WORK ASSIGNMENT NO. 0-247 - TRIP REPORT

A. BACKGROUND

On February 2, 2007, Response Engineering and Analytical Contract (REAC) personnel were tasked to provide technical support to the Environmental Protection Agency /Environmental Response Team (EPA/ERT) and EPA Region IV regarding the Barite Hill Gold Mine Site (Site). Specifically REAC personnel will assist with performing a Removal Site Evaluation (RSE) as per 40 CFR 300.410 of the mine and determine its impact on the surrounding areas.

The Barite Hill Gold Mine is an inactive gold mine located approximately three miles south of McCormick, South Carolina (SC). The mine actively mined gold from 1991 to 1995. Between 1995 and 1999, the site was undergoing reclamation activities under the direction of Nevada Goldfields. In 1999, Nevada Goldfields filed for bankruptcy and the site has been under the control of the South Carolina Division of Health and Environmental Control (SCDHEC) since then.

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 approximately 510 feet. The permitted mine site totals 795.2 acres of which 659.7 acres are designated as buffer area. The site map is provided as Figure 1.

The facility used a cyanide solution in a heap leach process to extract gold from ore. Persuant to this method of extraction, there are three major waste rock piles contaminated with cyanide, eight processing ponds, several processing building with associated piping, and the large Main Pit from which the ore was mined. The Main Pit is now filled with pH 2 to 2.2 water with a high dissolved metal content. The surrounding rock contains a large amount of Barite ($BaSO_4$) and Pyrite (FeS_2). The weathering of the pyrite has depressed the pH of the Main Pit water. Seeps from the Main Pit containing the acidic water are impacting the unnamed tributaries of Hawes creek. Hawes Creek flows generally south and discharges into Strom Thurmond Lake.

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In December of 2003, the SCDHEC performed a site investigation. The investigation reported elevated levels of arsenic, cobalt, copper, cyanide, iron, lead, manganese, selenium and zinc in surface water, groundwater and soil samples.

The EPA Region IV Emergency Response and Removal Branch (ERRB) On Scene Coordinator (OSC) has requested ERT assistance in completing a RSE regarding the impact to Hawes Creek and ultimately Strom Thurmond Lake under normal weather conditions and during catastrophic weather (hurricane, etc.) over a short term and longer term period.

B. FIELD TASKS

On March 26 through March 30, 2007, REAC team members McBurney, Holderness, Grossman, Nigro, Gussman and Dubois along with ERT members Bussey, Fredericks, and Powell visited the site to complete an environmental investigation. The REAC team completed the following tasks:

Task 1: Biological Assessment of Unnamed Tributaries to Hawes Creek.

REAC personnel with the assistance of a representative from the United States Fish and Wildlife Service (USFWS) and a representative from ERT, conducted a streamlined ecological assessment of impacted streams that border Site discharge areas in order to define the extent of the impact to the streams.

The biological assessment was based on the EPA Rapid Bioassessment Protocol I. The REAC team walked the stream, beginning upstream of the impacted area. Using the EPA Protocol, personnel visually inspected the stream life, recorded water quality measurements such as pH and conductivity, and took such samples of sedimentary areas as were deemed appropriate by the ERT representative at the time of the walkthrough. All sample locations were recorded using a global positioning system (GPS) unit. Sediment samples were submitted for Target Analyte List (TAL) metals analysis, cyanide analysis, and weak acid dissociable (WAD) cyanide. The team investigated the stream that flows from south to north along the eastern side of the site, joins with another small stream and proceeds west along the northern border of the site. At the western edge of the site, the stream merges with an unnamed tributary to the south and Hawes Creek from the north. The investigation included sample locations in tributaries, Hawes Creek, and continued approximately one kilometer downstream of the site.

Task 2: Estimate the impact into the creek from the Main Pit during normal and catastrophic conditions.

To accomplish this task, REAC personnel investigated the following items:

a. Measure the water level fluctuations of the pit lake. A Minitroll™ automatic water level recording device was installed in the pit lake. The minitroll was programmed to record the water level every hour. The minitroll was downloaded during the second site visit on May 22, 2007 and the data was compared against regional precipitation events.

b. Determine the elevation difference between the top water level in the pit and the seep elevation. A relative survey was conducted to determine the difference in elevations of the seep and the pit water level to determine the hydraulic head acting on the seep.

c. Determine evaporative losses. Using historical data, an evaporative loss rate was determined.

d. Determine the flowrate of the creek pre- and post- seep. The creek was investigated to determine the flowrate before the seep and after the seep. Observations were recorded to estimate flowrates where possible.

e. Calculate the water balance. Given the influx, evaporative rate and water level changes, the flowrate of low pH water from the pit was estimated. This flowrate, along with historical contamination levels in the pit can be used to determine the contaminant loading to the creek under normal circumstances. The seep flowrate was used as a check against influx from springs in the pit or other sources of water.

f. To determine catastrophic impacts, the expected rainfall from a hurricane type event was obtained and, based on the pit lake surface area and drainage basin area, the approximate rise in pit lake elevation was estimated.

Task 3: Process pond sampling.

To investigate the process ponds, REAC personnel collected a composite sample of the sediments in nine ponds. An estimation of the depth to sediment and depth to bottom was also taken in several places in each pond. The available freeboard of each process pond was identified to determine the possibility of overflow during precipitation events. Any likely paths of discharge were identified.

Water samples were collected from each process pond for Nitrate and Sulfate analyses. These samples were field screened using HACH field portable test kits. Water samples were also collected from the leakage detection pits under each process pond. These samples were submitted to the Region IV CLP laboratory for TAL Metals, cyanide, and WAD cyanide analyses.

Task 4: Process area equipment waste investigation.

In the process area of the mine, remaining process equipment was investigated, documented, and any residual wastes were sampled. The samples were analyzed using a hazardous waste categorization (HAZCAT) protocol to determine the physical characteristics of each type of waste. The HAZCAT results were given directly to the WAM and OSC so that the OSC could determine the hazards of the remaining materials and to assist with determination of the removal/disposal of the wastes.

Task 5: Other Sample Analysis.

Several samples were collected at the request of the ERT WAM and the OSC. These samples included a precipitate located at the drainage entrances to ponds G and H. A sample was collected from a large stockpile of white powder located near the main entrance to the site. A sediment sample was also collected from the ingot room sump. These three samples were submitted to the CLP laboratory for TAL Metals, total cyanide and WAD cyanide.

C. RESULTS

Biological Assessment of the Unnamed Tributaries to Hawes Creek

A REAC biologist/plant scientist, biological technician, ERT biological scientist, and a representative of the U.S. Fish and Wildlife Service walked along streams surrounding the Barite Hill Mine Site for evaluation

purposes. This investigation included stream areas upstream, downstream, and adjacent to the site. Biota, water chemistry, general stream conditions, and other parameters were evaluated at several selected locations. EPA's Rapid Bioassessment Protocol for Use in Streams and Wadeable Rivers was used to evaluate impact and relative conditions in the streams. Field Data Sheets were filled out for several locations on the streams bordering the northern and southern perimeter of the site, and at selected locations where significant changes may potentially occur (i.e. upstream and downstream of seeps and outfalls). These streams are extremely small and shallow at their upstream reaches, gaining size and water volume as they flow in a generally westward direction and receive input from other streams and groundwater influx.

Two main, unnamed streams border the site. One originates from several small streams northeast of the site. It runs adjacent to the site beginning on the northeast part of the site, very close to the "Main Pit". This northern stream follows the northern contour of the Main Pit and then flows parallel to the northen edge of the site in a generally westerly direction. The other stream follows the southern and western edge of the site. Several small streams to the south and southeast of the site join. One of these borders the southeast of the site and runs close to, and occasionally receives overflow, from the Main Leach Pile Process Ponds. This stream than joins another small stream and continues west along the southern edge of the site, and then northwest parallel to the western edge of the site where it passes near Outfall 1. This stream then joins the above stream flowing along the northern edge of the site at a point on the northwest boundary of the site. These two streams join into Hawe's Creek which comes in from the north. Hawe's Creek then flows in a general westerly direction away from the site, occasionally joined by other small streams and eventually flows into Lake. The majority of these stream lengths occur in wooded areas typical of the region. These streams are shown in Figure 1. Areas of examination were given an identification number in the field, beginning with "BH-247-1" through "BH247-29". Each location was recording using GPS at the time of observation.

The field data sheets provided in Appendix A detail a record of the characterization of these streams at the time of observation. Physical characterization and other conditions are noted at each location. In addition, there is a "habitat assessment sheet" in which several parameters of the stream are evaluated and given a relative numerical score. This number is used to compare the relative quality of the physical habitat. The relative quality represents suitability for colonization by a diverse ecological community. The numerical scoring is used in conjunction with the Benthic Macroinvertebrates Field Data Sheet, which provides a record of the macroinvertebrate diversity and numbers observed at each location. Freshwater invertebrates play important roles in the ecological community. They are used more often than any other group of freshwater organisms to assess the health of freshwater environments. Some groups of these organisms are more sensitive to environmental stress or certain types of environmental stress than others, allowing biomonitoring of the habitat where they are collected. A summary table of the Habitat Assessment scores, the Macrobenthos diversity noted at each location, and an average Macrobenthos Abundance score is provided in Table 1. A detailed sample map is provided as Figure 2. For the Macrobenthos Average Abundance (MAA) score, the abundance scores of each separate benthos community were averaged for each location. Abundance scores for each species were rated from 0 to 4 based on the following:

0	Absent/Not Observed
1	Rare (1-3 Organisms)
2	Common (3-9 Organisms)
3	Abundant (>10 Organisms)
4	Dominant (>59 Organisms)

The MAA score is a direct correlation of the estimated abundance score of each species. Based on the same

0-4 scale, an average MAA score of 4 would mean that all communities were in great abundance. An average MAA score of 1 would indicate that the populations were very slight.

It should be noted that the stream habitat does not change throughout most of the survey area as indicated by the habitat scores. There is evidence that these streams are heavily scoured after rainfall events. That is, they probably act to channel a great deal of storm run-off. There is evidence (scouring and erosion) that during these events, water levels are several feet above the currently observed water levels and swiftly moving. This scouring most likely displaces a lot of the organisms and creates a much more unstable environment. The banks of these streams are heavily eroded in many areas.

Based on the MAA and Diversity Scores, the impact of the seep can be seen. The areas outside of the seep area indicate that the streams in their natural states are not highly habitated. However, in the area of the seep, the diversity and abundance of all species lessens almost to extinction. As previously discussed, this extinction cannot be explained by the habitat scores.

Other possible reasons for low overall abundance and diversity downstream of the seep are water chemistry and influence from the seep. Chemistry of water and sediment provides more apparent results. Water quality measurements taken during the investigation are detailed in Table 2 with the full analytical report attached as Appendix B. Nitrate and Sulfate screening values are provided in Table 3. TAL Metals and Cyanide analysis results for the stream sediment samples are listed in Table 4. The extremely low pH (pH 2.76) and high Sulfate content (> 200 milligrams/Liter (mg/L)) found after the seep area at location BH247-9 are the indicators of the impact from the main pit. Analytical results indicate that the streams metals content is consistent throughout. The sulfate content and low pH seem to indicate that the sulfate rich low pH water from the Main pit is indeed seeping into and impacting the stream. The impact area can be seen on the pH Map (Figure 4) And the Bioassessment Map (Figure 3).

Several relatively large and currently active beaver dams were observed along this northern stream, even in the areas of low pH water. The first dam was observed just below BH247-10 and several other dams were found between BH247-10 and BH247-14. It can be assumed that the beaver dams are causing sediment deposition upstream of the dams. This sediment makeup can be assumed to be consistent with the sediment sampled at location BH247-13. The sediment at that location contained elevated levels of Aluminum (15,000 mg/kg), Copper (3,700 mg/kg), Iron (15,000 mg/kg), magnesium (1,200 mg/kg) and zinc (1,300 mg/kg). A sediment volume estimate is not available.

Estimated Impact Into Creek from Main Pit

The results from this study yielded the expected rate of seepage from the Main Pit into the unnamed tributary of Hawes Creek. The resultant seepage rate from this investigation is on the order of 5 gallons per minute (gpm). Using this flowrate and historic data from the Main Pit, the contaminant loading into the creek can be estimated.

In order to calculate this seepage rate, the following steps were completed:

1. **Main Pit Water Level.** A Minitroll™ automatic water level recording device was installed in the pit. This device was programmed to record the water level above the device every hour. This data was downloaded on May 21, 2007. The raw data is attached as Appendix C. Also included in Appendix C is a graph of the water level change over the measured period. However, the measurement period includes only approximately two months. Better analysis could be made with

more data.

2. Elevation Survey. A relative elevation survey was conducted to determine the distance from the water level in the Main Pit to the water level in the impacted stream. The elevation survey is summarized in Table 5. The distance from the Main Pit water level to the stream was measured as between 23.4 and 24.6 feet. The raw survey data is attached as Appendix D.

3. Calculation of Evaporative Losses. Quality controlled daily weather observations for both Greenwood County Airport (GRD) located in Greenwood, SC and Greenville-Spartanburg Airport (GSP) located in Greenville, SC were obtained from the National Climatic Data Center. These data were used, as detailed in Appendix E, to calculate evaporative loss rates for April 2007 and May 2007. The April evaporation rate was calculated to be 23.7 cm/month. The May evaporation rate was calculated to be 26.9 cm/month.

4. Stream Flowrates. A study was completed to determine the stream flowrate in several different portions of the streams surrounding the Main Pit. The stream following the eastern side of the Main Pit is the most heavily impacted by the seep from the pit. Upstream of the seep area, the creek is mainly stagnant, with little to no indication of movement or velocity. As the stream flows north along the pit, the observed flow rate increases. The size and geometries of the creek forced modifications to the initial plans of flow estimation. The current meter intended was much too large to be used, and in areas where it could be deployed, the current was much too slow to be measured. Visual observations were made regarding velocities, using surface objects and a stopwatch. The flow areas were measured using a tape measure. Where possible, the flow rate was calculated by timing the period required for the steam to fill a 9 ounce cup. The calculations are attached as Appendix F. A summary table of all velocities and corresponding flowrates is listed in Table 6. The final measurable stream flowrate at BH-247-8 was 4.2 gpm. It should be noted, however that this flowrate includes a tributary that was measured to be flowing at 1.4 gpm (location BH247-7). Downstream of the last measurement, the creek became much wider and much slower moving. Measurements could not be obtained. Based on the previous measurements and observations, the stream continued to gain water as it passed the northern portion of the Main Pit. Based on these observations, an estimate was made that the total seep flowrate was on the order of 5 gpm.

5. Water Balance. Using all of the measured data, a water balance was created for the Main Pit. Using data for 24 hour periods, 11 days were chosen to calculate the water balance. Based on the calculations summarized in Table 7, an influx source of water must exist for the water to balance. Per the calculation, between 7 and 35 gpm must flow into the pit from an alternate source for the balance to be maintained. This influx could be from fractures in the rock, natural springs, or other seepage from groundwater. These calculations assume the 5 gpm rate of discharge into the stream. If the flowrate into the stream were to increase, more influx water would be required to maintain the balance.

It is unclear as to the effect that a catastrophic rain event would have on the seepage rate into the creek. Based on the historic water level data, there does not seem to be a major change in the water balance due to changes in Main Pit water levels. Rain events notably increase the levels in the Main Pit by the approximate amount of rainfall that occurred, but the rate at which the level subsides after a rain event is consistent with the rate during which no rain events occur. The equivalent rise in water level with rainfall indicates that the drainage basin for the Main Pit is approximately the size of the pit. This agrees with visual reconnaissance made during the field visits. Most of the cliffs surrounding the pit reach their highest elevations at the pit,

causing most runoff to run away from the pit. The lack of a major change in the rate of elevation change in the pit seems to indicate that the change in hydraulic head above the creek does not severely impact the seepage rate for the period measured during this study.

A catastrophic 100 year event of 16.2 inches of rain over a 24 hour period (See Appendix G for this calculation) would cause approximately 16.2 inches of rise in the water level of the pit. There was no visual evidence that a significant rainfall event would cause a catastrophic failure of the Main Pit. The creeks would likely be more impacted by the surface runoff from the area, causing most of the settled sediment to be washed down the creek. The 250 year storm event of 36.6 inches of rain in a 24 hour period would also cause a proportional rise in the pit level. Due to the limited data available from this study, the net effect on seepage rate for either storm event cannot be determined. A second point of pit water elevation verses creek flow rate data would be required to estimate the change in seepage rate.

Process Pond Sampling and Investigation

Pond Identification and pH Results. The process ponds are divided into two sets. The first set was labeled Pond A, B, C, D, and E. These ponds are located next to the processing area as shown on Figure 5. The second set is Ponds F, G and H. These ponds are located south of the Main Leach Pile. One other pond was added to the sampling, pond I. Pond I is a surface water runoff collection pond and was not used in the processing operation. The pH of each pond was recorded and is detailed in Table 17. All ponds were between the pH of 6.85 and 9.3.

Sediment Sampling. As per the site Quality Assurance Project Plan, sediment samples were collected from each process pond. The sediments were collected using a ponar sampling device. Sediments were composited on the surface in a stainless steel pan. A minimum of two depth samples were used to create the composite sample. No sample was available from the sloped sides of the ponds. Sediment samples were submitted to the Region IV CLP laboratory for TAL metals, Cyanide, and WAD Cyanide. The results are provided in Table 8. Elevated levels of Calcium, Copper, Iron, and Aluminum were found in all ponds with the exception of ponds E and I. Pond E was not lined, and was acting as an overflow receiver for ponds A, B, C, and D. Pond I was a surface water collection basin, and was not used during the heap leach process. Ponds A and C had elevated levels of total Cyanide, 2,200 mg/kg and 1,700 mg/kg respectively. Elevated levels of Calcium may be due to treatment of the pond waters with a calcium compound.

Sediment Depths/Volume Estimates. Sediment depths were recorded at multiple locations in each pond. In general, a transect was chosen to intersect the suspected sump of each pond. Sediment depths were measured and recorded at approximately 10 to 20 foot intervals. The raw data and calculations are provided in Appendix H, with a summary of the average sediment thickness and estimated sediment volumes provided in Table 9. Sediment estimates ranged from 13 cubic yards in pond D, to 3,368 cubic yards in Pond G. Ponds F and G are heavily impacted by drainage channels that drain directly off of the Main Heap Leach Pile. No estimate was generated for Ponds E or I as neither pond is lined. Pond E's liner was found to have been removed. The surface area for each pond for this calculation was estimated from aerial photography.

Pond Free Volumes. The freeboard area of each pond was calculated by performing a relative elevation survey of each pond. The raw survey data is attached as Appendix D. The free volume was calculated by multiplying the surface area of the pond (as measured previously from aerial photography) by the remaining elevation to the lowest point on the berm. The individual free volume results are provided in Table 10a.

It should be noted that the ponds were designed and constructed with channels between ponds. At the time

of the survey, only pond D was not fully hydraulically connected to the other process area ponds. However, for this investigation, should each pond fill to its capacity, they would be in complete hydraulic communication with the other ponds. Based on this "system" of behavior, the lowest point of the berm of all ponds was used to determine the system capacity prior to failure. For the process area ponds (A, B, C, D, and E) this total volume is shown in Table 10b. to be 2,804,000 gallons. The distance from the surveyed water level to the point of failure was 0.85 feet. The failure point was recorded as survey point 1 or the north west corner of Pond A as shown on Figure 5. The excess capacity of this system is due primarily to the added pond E which adds significant capacity to the system. It should be noted that areas of strong erosion were noted on the banks of pond E. Should one of these banks fail due to erosion, a significant release could occur. The volume of this release would be controlled by the depths of the cross channels connecting the various ponds. A volume estimate could not be calculated due to the unknown channel depths.

The southern process ponds (F, G, and H) contained no freeboard at the time of the survey. This was due to the fact that pond H was currently breached along its southern side. All calculations of system free volume were based on the assumption that this breach would be rectified. Should this be the case, the next failure point would have been point 106 in pond G as shown on Figure 5. The system free volume using this point was calculated at 245,000 gallons corresponding to 0.22 feet of freeboard as detailed in Table 10c. Any rainfall event would cause immediate discharge from these ponds currently at survey point 111A. A catastrophic rainfall event could cause discharge from other points along these process ponds.

Tables 11a. and 11b. list the remaining volumes in the pond systems after catastrophic rainfall events. The rainfall amounts for the 100-year and 250-year storms calculated in Appendix G were used to determine the amount of water in gallons that would impact the pond systems. For this calculation, only rainfall falling directly on the ponds was used. No drainage basins have been added to this calculation. For the process area pond system, the ponds were able to contain both the 100 and 250-year rainfall amounts. The southern process ponds were not able to contain either storms. Approximately 1,260,000 gallons of water would be discharged from the southern process ponds in the event of the 100 year storm. These process ponds are also heavily impacted by drainage from the heap leach pit as shown on Figure 5. Any storm runoff from the heap leach pit would not be contained.

Process Pond Water Sulfate and Nitrate Results. Surface water samples were collected for field screening of nitrates and sulfates. Most pond samples contained in excess of the 200 mg/L upper detection limit for sulfates. The only exceptions were pond D and Pond I. Full results are tabulated in Table 12. No appreciable pattern was noted in the nitrate results for the process ponds.

Leakage Detection Pit Sampling. Each process pond with the exception of Pond E and Pond I is equipped with a leakage detection pit or sump. This sump is located beneath the liner of each pond and is accessed by a 6" CPVC capped pipe along the bank of the pond. These pits were sampled by pumping each sump with a peristaltic pump. The samples were submitted to the CLP laboratory for TAL metals, Cyanide, and WAD cyanide. The analytical results are tabulated in Table 13 for process area ponds, and Table 14 for the southern process ponds. Results for all leakage pits contained elevated levels of Calcium, Sodium, and Potassium. All leakage pits with the exception of Pond G contained negligible amounts of cyanide. The leakage pit under pond G, however, contained 30,000 ug/L of cyanide. It is unclear if this cyanide is the remnants of a historic leak, or groundwater from the main leach pile impacting the water under the process pond. Samples were also field screened for nitrates and sulfates. The leakage pit nitrate and sulfate results are shown in Table 12. Sulfate results are very similar to the surface water results with levels over 200 mg/L. No appreciable pattern was noted in the nitrate results.

Process Area Investigation

Due to the nature of the cyanide heap leach process, many chemicals found in this type of process area can be hazardous. REAC personnel visually inspected all processing areas and noted all drums, mixing tanks, storage tanks, or other stored chemicals. Where possible, chemicals were identified by the labels on drums, bags, or containers. During this investigation, a RaeSystems MultiRae™ multiple gas monitor was used to monitor the breathing space of the workers. The MultiRae™ monitor was configured to monitor for oxygen, volatile organic compounds, hydrogen cyanide gas, ammonia gas, and explosive limit.

Three main tanks were noted outside of the process buildings. The details of each tank were as follows:

Tank T-1 - Approximately 5,000 gallon capacity. Insulated. Unknown quantity remaining in tank. White powder noted at discharge connection.

Tank T-2 - Approximately 5,000 gallon capacity. Non-insulated. Noted approximately 100 gallons of fluid/sludge remaining at bottom. Material at discharge nozzle had the consistency of petroleum jelly but the coloring of clear silicone.

Tank T-3 - Approximately 1,000 gallon capacity. Insulated. Unknown quantity remaining in tank. Unable to access contents.

Outside of what was assumed to be a water treatment building were four full 55 gallon drums. These drums were labeled by REAC as D-1, D-2, D-3, and D-4. The details of each were as follows:

Drum D-1 - 55 Gallon Blue Poly drum, full, labeled Amersep MP 3R 6KL-0650-RL 547-22-525. The MultiRae™ monitor detected positive hits for ammonia gas and low oxygen from the contents of this drum. This does not imply that the vapors from the contents were indeed ammonia, as the MultiRae™ device can read interferences as positive reactions. Amersep is listed as an organo-sulfur based metals precipitant.

Drum D-2 - 55 Gallon black metallic drum in good condition. Bung was open with a metering pump mounted in the open bung. The drum was full of unknown liquid.

Drum D-3 - 55 Gallon blue poly drum, no label, full of unknown liquid.

Drum D-4 - 55 Gallon blue poly drum, no label, full of unknown liquid.

To the north side of the process area was a pole barn type building with no protected sides. Indications from the debris were that it was the remnants of a laboratory or analysis area for the processing plant. In the pole barn was a drum labeled Methyl Ethyl Ketone. This drum was labeled by REAC as drum D-5. D-5 was a somewhat rusty 55 gallon metallic drum with a hose and valve installed in the bung. Approximately 30 to 40 gallons remained in the drum.

Water Treatment Building. Inside the water treatment building were the remnants of the water treatment equipment. This included approximately six open tanks with mixers, pallets of chemicals, 5 gallon buckets of unknown materials, empty drums, and one full drum labeled Hydrochloric Acid.

Pallets.

Pallet 1 contained approximately 15 bags (approximately 40 lbs/bag) of what was labeled as "Caustic Soda Beads"

Pallet 2 contained approximately 10 - 15 bags (approximately 50 lbs/bag) of what was labeled as "Sodium Metabisulfite"

Mixing Tanks.

Mixing Tank MT-1 - Open topped mixing tank approximately 100 gallon capacity. Contained what appeared to be a heavily hydrated caustic material such as sodium hydroxide. There was a coating of approximately 2 to 3 inches thick of the material at the bottom of the tank. pH 12. Most likely caustic soda, based on the material found on the nearby pallet.

Mixing Tank MT-2 - Open topped mixing tank approximately 100 gallon capacity. Empty.

Mixing Tank MT-3 - Open topped mixing tank approximately 100 gallon capacity. Contained a 3 to 4 inch thick layer of white powder. pH 7 possibly potassium sulfate.

Mixing Tank MT-4 - Open topped mixing tank approximately 300 gallon capacity. Contained approximately 2 inches of yellow liquid, pH 1. Most likely hydrochloric acid based on the drum of Hydrochloric Acid found in the building.

Mixing Tank MT-5 - Open topped mixing tank with lid approximately 100 gallon capacity. Contained a very small amount of dark liquid. pH 5

Drums

Empty drum - An empty drum labeled Hypersperse AF-150 was found on the ground.

Drum D-6 - Full 55 gallon black metallic drum labeled with the words Hydrochloric Acid 10 Be. MultiRae registered positive hits for low oxygen, cyanide gas, and fumes were observed exiting the bung. pH testing showed a pH of 1. It is believed that the drum was correctly labeled. Cyanide response may have been due to cross interference with vapors given off by hydrochloric acid.

Hazardous Waste Characterization Results. Samples were collected from D-1, D-2, D-3, D-4, D-5, D-6, MT-1, MT-3, MT-4, MT-5, T-1 and T-2 and analyzed using the HAZCAT protocol. The protocol used in the field was used to screen materials for obvious hazards and incompatibilities so that the OSC could determine the required disposal strategies. The HAZCAT protocol was not followed to the end, nor was it intended to be used to fully identify any compounds. The HAZCAT results are tabulated in Table 15.

Other Site Samples. Several locations were sampled and analyzed at the request of the ERT WAM and the OSC. These samples were submitted for TAL metals and cyanide analysis. The results of these analyses are provided in Table 16.

Heap Leach Pile Crust. A white precipitate crystalline crust was observed in the drainage pathway between the Heap Leach Pile and the southern process ponds. This precipitate seemed to be

indicative of a precipitate left after drainage waters had evaporated. This material contained 95,000 mg/kg of sodium. It appears that the crust is some type of sodium salt. During collection it was noted that the sample gained a reddish tint as it was taken. This is due to the red tinted sediments immediately below the crust. The result of 13,000 mg/kg of iron could account for the reddish tint.

Ingot Room Pit. In the center of the ingot room in the process area, there was a sump approximately three feet square by approximately three feet deep. It was of concern that this sump would have trapped processing chemicals or heavy metals. The sediment sample from this location contained high levels of iron, zinc, sodium, and aluminum. This analytical data was very similar to the sediment samples taken from the process ponds. An elevated level of 620 mg/kg of cyanide was also noted.

White Pile. A large pile of white material was stockpiled near the entrance to the facility. This material contained 380,000 mg/kg of calcium and is believed to be Calcium Carbonate used during the decommissioning of the site.

Photo Documentation. Site conditions and activities were documented by photographs taken during the field activities. A Microsoft® PowerPoint® presentation was created to organize the site photographs. A printout of the handout generated by PowerPoint® is attached as Appendix I. Included with this report is a Compact Disc of the PowerPoint® presentation and all site photos including historical geo-referenced photographs of the site.

D. REFERENCES

SCDHEC 2004. Site Investigation. Barite Hill/Nevada Goldfields. SCD 987 597 903. Columbia, SC. 1-27

EPA. 1999. *Rapid Bioassessment Protocols for Use In Streams and Wadeable Rivers,* Second Edition, EPA/841/B-99/002, Office of Wetlands, Oceans and Watersheds

Appendices

Tables

Table 1. Stream Assessment Data Summary
Barite Hill Gold Mine
McCormick County, SC
June 2007

Sample Location	Habitat Assessment	Macrobenthos Average Abundance	Macrobenthos Diversity (# of Species)
BH247-1	130	3	4
BH247-3	147	1	1
BH247-4	142	1	1
BH247-6	142	0	0
BH247-7	149	1.3	6
BH247-8	149	0	0
BH247-17	119	1	2
BH247-18	133	2	6
BH247-19	132	2	4
BH247-21	128	1	4
BH247-22	136	2	2
BH247-25	123	2	5
BH247-26	139	1.3	7
BH247-28	129	2.4	5

Table 2. Water Quality Measurements
Barite Hill Gold Mine
McCormick County, SC
June 2007

Sample Location	Date	pH (SU)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	Turbidity (NTU)	Temp (°C)
BH247-1	3/27/07	7.00	0.140	7.7	35.7	2.2	14.9
BH247-2	3/27/07	6.04	na	na	35.7	1.8	14.9
BH247-3	3/27/07	4.50	0.587	6.1	60.0	44.7	15.1
BH247-4	3/27/07	2.50	3.904	5.4	55.7	3.1	15.6
Seep Water	3/27/07	2.29	4.813	7.6	79.0	8.3	15.7
BH247-5	3/27/07	na	na	na	na	na	na
BH247-6	3/27/07	4.23	1.514	5.2	55.5	14.1	17.5
BH247-7	3/27/07	6.70	2.300	6.7	72.5	1.1	16.1
BH247-8	3/27/07	2.80	2.175	8.13	88.5	1201	18.5
BH247-9	3/27/07	2.76	2.409	8.8	96.1	4.8	18.5
BH247-10	3/27/07	2.85	1.863	6.9	71.0	0.1	15.7
BH247-11	3/27/07	2.95	1.393	5.4	56.7	0.2	17.3
BH247-12	3/27/07	3.00	1.275	6.1	77.0	0.6	22.0
BH247-13	3/27/07	3.50	8.000	7.4	84.0	1.5	19.4
BH247-14	3/27/07	3.90	0.664	6.9	54.8	0.7	18.2
BH247-15	3/27/07	3.96	0.607	8.4	93.9	1.5	20.4
BH247-16	3/27/07	4.15	0.543	7.8	89.8	2.2	21.8
BH247-17	3/27/07	4.04	0.545	8.4	96.9	0.9	21.7
BH247-18	3/27/07	6.33	0.163	8.0	86.8	0.6	20.0
BH247-19	3/27/07	6.22	0.280	7.7	85.6	0.9	23.4
BH247-20	3/28/07	7.37	0.289	7.2	82.0	0.6	21.1
BH247-21	3/28/07	6.88	0.734	5.6	64.1	7.7	20.9
BH247-22	3/28/07	7.33	0.222	na	na	0.1	16.4
BH247-23	3/28/07	7.21	0.221	na	na	0.9	18.1
BH247-24	3/28/07	7.30	0.231	na	na	0.9	17.7
BH247-25	3/28/07	7.14	0.365	na	na	44.9	23.1
BH247-26	3/28/07	6.56	0.388	na	na	3.7	19.2
BH247-27	3/28/07	6.96	0.370	na	na	7.8	22.7
BH247-28	3/28/07	6.69	0.827	na	na	6.0	17.8
BH247-29	3/28/07	6.87	1.119	na	na	22.1	21.0

SU - standard units
mS/cm - millisiemens per centimeter
mg/L - milligrams per liter
% - percent
NTU - nephelometric turbidity units
°C - degrees centigrade
na - not available

Table 3. Stream Water Sample Nitrate and Sulfate Results
Barite Hill Gold Mine
McCormick County, SC
June 2007

Sample Location	Nitrate mg/L	Sulfate mg/L
BH247-1	0	< 50
BH247-3	0	> 200
BH247-5	na *	> 200
BH247-6	0	125
BH247-7	na	< 50
BH247-8	na *	> 200
BH247-13	0.1	> 200
BH247-17	0.15	> 200
BH247-18	0	< 50
BH247-19	0	70
BH247-20	0.07	65
BH247-21	0.07	80
BH247-22	0.05	75
BH247-25	0.07	90
BH247-26	0.1	80
BH247-27	0.05	75
BH247-28	0	< 50
BH247-29	1.1	> 200

* Sample turned green during test. Test inconclusive.
mg/L - milligrams per Liter

Table 4. Stream Sediment Analytical Results
Barite Hill Gold Mine
McCormick County, SC
June 2007

	Sample Location	BH247-1		BH247-3		BH247-5		BH247-13		BH247-17		BH247-18		BH247-19		BH247-20	
		Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
ANALYTE	Mercury	0.14	U	0.23		0.44		0.26	U	0.16	U	0.13	U	0.16	U	0.2	U
	% Solids	74.0		68.0		69.0		39.0		62.0		79.0		61.0		51.0	
	Aluminum	8,400.0		6,400.0		4,500.0		15,000.0		4,600.0		4,000.0		7,600.0		13,000.0	
	Antimony	1.5	U,J,O	8.8	U,J,O	8.7	U,J,O	16.0	U,J,O	9.7	U,J,O	7.6	U,J,O	9.9	U,J,O	12.0	U,J,O
	Arsenic	48.0	J,O	23.0	J,O	28.0	J,O	5.0	R,O	4.0	J,O	1.3	U,J,O	3.3	J,O	2.0	U,J,O
	Barium	1,700.0		910.0		470.0		330.0		120.0		37.0		110.0		350.0	
	Beryllium	0.56	U,J,O	0.07	U,J,O	0.08	U,J,O	0.34	U,J,O	0.19	U,J,O	0.14	U,J,O	0.34	U,J,O	0.41	U,J,O
	Cadmium	0.19	J,O	0.8		0.87		44.0		0.61	J,O	0.63	U	2.8		0.16	R,O
	Calcium	930.0		350.0	J,O	230.0	J,O	450.0	J,O	180.0	J,O	280.0	J,O	610.0	J,O	1,000.0	
	Chromium	110.0		18.0		25.0		11.0		25.0		14.0		24.0		25.0	
	Cobalt	7.9		3.3	J,O	2.1	J,O	51.0		3.9	J,O	3.1	J,O	8.1	J,O	14.0	
	Copper	96.0	J,O	370.0	J,O	390.0	J,O	3,700.0	J,O	320.0	J,O	11.0	J,O	300.0	J,O	38.0	J,O
	Iron	52,000.0		45,000.0		79,000.0		15,000.0		14,000.0		6,900.0		22,000.0		16,000.0	
	Lead	270.0	J,O	41.0	J,O	55.0	J,O	35.0	J,O	15.0	J,O	9.7	J,O	26.0	J,O	29.0	J,O
	Magnesium	410.0	J,O	370.0	J,O	240.0	J,O	1,200.0	J,O	550.0	J,O	610.0	J,O	1,300.0		1,200.0	
	Manganese	340.0	J,O	160.0	J,O	150.0	J,O	140.0	J,O	150.0	J,O	120.0	J,O	230.0	J,O	390.0	J,O
	Nickel	2.5	J,O	1.5	J,O	0.88	J,O	12.0		1.6	J,O	1.8	J,O	4.2	J,O	4.9	J,O
	Potassium	150.0	J,O	100.0		62.0	J,O	170.0	J,O	53.0	J,O	75.0	J,O	140.0	J,O	300.0	J,O
	Selenium	1.5	U,J,O	1.3	U,J,O	1.6	U,J,O	9.0	U	1.4	U,J,O	4.4	U	5.7	U	1.6	U,J,O
	Silver	1.4	U	0.57	R,O	1.4	U	2.6	U	1.6	U	1.3	U	1.6	U	2.0	U
	Sodium	680.0	U	730.0	U	720.0	U	84.0	J,O	48.0	J,O	51.0	J,O	65.0	J,O	110.0	J
	Thallium	1.4	U,J,O	1.3	U,J,O	0.95	U,J,O	1.2	U,J,O	4.0	U	1.1	U,J,O	2.0	U,J,O	1.1	U,J,O
	Vanadium	81.0		48.0		53.0		30.0		28.0		22.0		48.0		55.0	
	Zinc	60.0	J,O	57.0	J,O	57.0		1,300.0	J,O	42.0	J,O	15.0	J,O	76.0	J,O	39.0	J,O
	Cyanide	3.4	U	0.16	U,J,O	0.54	J,O	6.4	U	4.0	U	3.2	U	4.1	U	4.9	U
	WAD Cyanide	4.1	U	3.6	U	4.2	U	5.1	U	0.18	J,O	3.4	U	4.8	U	3.9	U

All results are given in milligrams per kilogram (mg/kg) dry
U - Under MDL
MDL - Minimum Detection Limit
J - Estimated
O - Other Qualifier, See Appendix B For Full Data Report and Definition of Qualifiers.
Qual - Qualifier
na - Not Available

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Table 4. Stream Sediment Analytical Results (Continued)
Barite Hill Gold Mine
McCormick County, SC
June 2007

	Sample Location	BH247-21		BH247-22		BH247-25		BH247-26		BH247-27		BH247-28		BH247-29		BH247-521	
		Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
ANALYTE	Mercury	0.13	U	0.13	U	0.14	U	0.14	U	0.17	U	0.14	U	0.13	U	0.14	U
	% Solids	78.0		77.0		70.0		72.0		59.0		69.0		79.0		69.0	
	Aluminum	3,700.0		2,500.0		12,000.0		8,100.0		10,000.0		13,000.0		8,400.0		5,600.0	
	Antimony	7.7	U,J,O	7.8	U,J,O	8.5	U,J,O	8.3	U,J,O	10.0	U,J,O	8.6	U,J,O	7.6	U,J,O	8.7	U,J,O
	Arsenic	2.4	J,O	0.92	J,O	11.0	J,O	1.4	U,J,O	27.0	J,O	3.6	J,O	3.7	J,O	2.5	J,O
	Barium	71.0		20.0	J,O	990.0		64.0		2,200.0		150.0		71.0		220.0	
	Beryllium	0.17	U,J,O	0.13	U,J,O	0.33	U,J,O	0.25	U,J,O	0.17	U,J,O	0.62	U,J,O	0.34	U,J,O	0.19	U,J,O
	Cadmium	0.44	J,O	0.39	J,O	0.32	J,O	0.69	U	0.15	J,O	0.05	R,O	0.27	J,O	0.69	J,O
	Calcium	310.0	J,O	170.0	J,O	420.0	J,O	540.0	J,O	290.0	J,O	2,100.0		980.0		530.0	J,O
	Chromium	20.0		16.0		36.0		11.0		13.0		80.0		17.0		18.0	
	Cobalt	6.6		3.0	J,O	20.0		6.6	J,O	3.3	J,O	19.0		8.9		7.7	
	Copper	57.0	J,O	54.0	J,O	180.0	J,O	10.0	J,O	220.0	J,O	28.0	J,O	110.0	J,O	110.0	J,O
	Iron	16,000.0		8,900.0		37,000.0		13,000.0		41,000.0		56,000.0		23,000.0		14,000.0	
	Lead	12.0	J,O	8.3	J,O	55.0	J,O	12.0	J,O	110.0	J,O	18.0	J,O	18.0	J,O	22.0	J,O
	Magnesium	520.0	J,O	410.0	J,O	3,300.0		840.0		340.0	J,O	2,700.0		860.0		780.0	
	Manganese	400.0	J,O	180.0	J,O	620.0	J,O	150.0	J,O	270.0	J,O	1,600.0	J,O	330.0	J,O	550.0	J,O
	Nickel	2.0	J,O	1.3	J,O	6.8		2.7	J,O	2.2	J,O	5.6	J,O	3.6	J,O	2.7	J,O
	Potassium	61.0	J,O	41.0	J,O	140.0	J,O	140.0	J,O	210.0	J,O	340.0	J,O	170.0	J,O	99.0	J,O
	Selenium	4.5	U	0.97	U,J,O	2.9	U,J,O	4.8	U	3.1	U,J,O	5.0	U	3.8	U,J,O	5.1	U
	Silver	1.3	U	1.3	U	1.4	U	1.4	U	1.7	U	1.4	U	0.99	J,O	1.4	U
	Sodium	640.0	U	42.0	J,O	710.0	U	59.0	J,O	850.0	U	38.0	J,O	61.0	J,O	68.0	J,O
	Thallium	3.2	U	3.2	U	1.3	U,J,O	3.5	U	1.2	U,J,O	2.1	U,J,O	1.1	U,J,O	3.6	U
	Vanadium	34.0		24.0		74.0		39.0		65.0		150.0		55.0		31.0	
	Zinc	29.0	J,O	25.0	J,O	74.0	J,O	17.0	J,O	36.0	J,O	33.0	J,O	26.0	J,O	39.0	J,O
	Cyanide	3.2	U	3.2	U	3.6	U	3.5	U	4.3	U	3.6	U	3.2	U	3.6	U
	WAD Cyanide	3.2	U	3.2	U	3.8	U	3.7	U	3.8	U	3.6	U	3.2	U	3.7	U

All results are given in milligrams per kilogram (mg/kg) dry
U - Under MDL
MDL - Minimum Detection Limit
J - Estimated
O - Other Qualifier, See Appendix B For Full Data Report and Definition of Qualifiers.
Qual - Qualifier
na - Not Available

Table 4. Stream Sediment Analytical Results (Continued)
Barite Hill Gold Mine
McCormick County, SC
June 2007

	Sample Location	BH247-525		BH247-529		BH247-6		BH247-7		BH247-8	
		Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
ANALYTE	Mercury	0.15	U	0.13	U	0.15	U	0.14	U	0.28	J,O
	% Solids	68.0		77.0		67.0		73.0		64.0	
	Aluminum	14,000.0		9,000.0		6,400.0		9,200.0		27,000.0	J,O
	Antimony	8.8	U,J,O	7.8	U,J,O	8.9	U,J,O	8.2	U,J,O	9.4	U,J,O
	Arsenic	11.0	J,O	7.1	J,O	7.3	J,O	1.4	R,O	1.6	U
	Barium	980.0		52.0		470.0		150.0		230.0	
	Beryllium	0.52	U,J,O	0.5	U,J,O	0.21	U,J,O	0.24	U,O	0.34	U,J,O
	Cadmium	0.37	J,O	0.25	J,O	3.3		0.08	R,O	1.9	
	Calcium	420.0	J,O	940.0		440.0	J,O	1,100.0		1,400.0	
	Chromium	70.0		25.0		11.0		11.0		5.8	
	Cobalt	23.0		8.2		5.4	J,O	7.8		10.0	
	Copper	200.0	J,O	39.0	J,O	300.0	J,O	30.0	J,O	540.0	J,O
	Iron	49,000.0		35,000.0		13,000.0		15,000.0		34,000.0	
	Lead	51.0	J,O	21.0	J,O	46.0	J,O	47.0	J,O	13.0	
	Magnesium	3,700.0		920.0		560.0	J,O	1,300.0		15,000.0	
	Manganese	600.0	J,O	270.0	J,O	100.0	J,O	360.0	J,O	620.0	
	Nickel	7.5		3.8	J,O	2.4	J,O	3.2	J,O	7.3	
	Potassium	140.0	J,O	180.0	J,O	110.0	J,O	170.0	J,O	87.0	J,O
	Selenium	2.5	U,J,O	2.1	U,J,O	5.2	U	4.8	U	5.5	U
	Silver	1.5	U	1.3	U	1.5	U	1.4	U	1.6	U
	Sodium	730.0	U	60.0	J,O	49.0	J,O	58.0	J,O	65.0	U,J,O
	Thallium	1.5	U,J,O	1.7	U,J,O	3.7	U	3.4	U	3.9	U
	Vanadium	110.0		86.0		29.0		34.0		39.0	
	Zinc	85.0	J,O	27.0	J,O	110.0	J,O	47.0	J,O	280.0	J,O
	Cyanide	3.7	U	3.2	U	3.7	U	0.22	U,J,O	3.9	U,R,O
	WAD Cyanide	2.2	J,O	3.2	U	3.8	U	3.2	U	0.16	U,J,O

All results are given in milligrams per kilogram (mg/kg) dry
U - Under MDL
MDL - Minimum Detection Limit
J - Estimated
O - Other Qualifier, See Appendix B For Full Data Report and Definition of Qualifiers.
Qual - Qualifier
na - Not Available

Table 5. Relative Elevation Survey - Main Pit to Stream
Barite Hill Gold Mine
McCormick County, SC
June 2007

Location	Relative Elevation (feet)
Water Level @ Main Pit Edge	100.0
Water Level @ Stream Edge	76.6
Water Level @ Stream Edge at BH247-9	75.4
Water Level @ Main Pit Edge	100.0

Closure Error (feet): 0.026

Note: Water Level was given arbitrary elevation of 100 ft in order to determine the relative height between the water level and the stream elevation.

Table 6. Stream Channel Water Flow Rate
Barite Hill Gold Mine
McCormick County, SC
June 2007

Location	Method	Flow Rate (gpm)
BH247-1	Channel Area/Velocity	Negligable
BH247-2	Channel Area/Velocity	0.26
BH247-3	Channel Area/Velocity	0.39
Seep Under Tree	Defined Measure	0.1
At Seep In Stream	Channel Area/Velocity	1.6
BH247-4	Channel Area/Velocity	3
BH247-7	Defined Measure	1.4
BH247-8	Defined Measure	4.2

gpm - gallons per minute

Table 7. Water Balance Calculation Results
Barite Hill Gold Mine
McCormick County, SC
June 2007

Date	Measured Elevation Change (Ft)	Calculated Change (Gal)	Calculated Loss Due to Evaporation (Gal)	Estimated Loss Due to Creek (gpm)	Estimated Loss to Creek (Gal)	Gain due to Rainfall (Gal)	Other Water Influx (Gal)	Water Influx (gpm)
4/5/07	-0.025	-65,574	68,425	5	7,200	0	10,051	7
4/10/07	-0.011	-29,071	68,425	5	7,200	0	46,554	32
4/11/07	0.024	63,427	68,425	5	7,200	94,700	44,352	31
4/13/07 - 4/14/07	0.060	158,567	68,425	5	7,200	187,198	46,995	33
4/20/07	-0.014	-36,999	68,425	5	7,200	0	38,626	27
4/25/07	-0.015	-39,642	68,425	5	7,200	0	35,983	25
4/30/07	-0.021	-55,499	68,425	5	7,200	0	20,126	14
5/4/07	0.046	121,568	77,775	5	7,200	158,567	47,976	33
5/10/07	-0.013	-34,356	77,775	5	7,200	0	50,619	35
5/15/07	-0.023	-60,784	77,775	5	7,200	0	24,191	17
5/20/2007	-0.019	-50,213	77,775	5	7,200	0	34,762	24

gal - Gallons
gpm - Gallons per minute
Ft - Feet

Note: The Measured Elevation Change is the difference between the level at time 00:00 and time 23:59 on the day noted. For 4/13/07 to 4/14/07, an equivalent 24 hour level change was chosen to include the rainfall event.

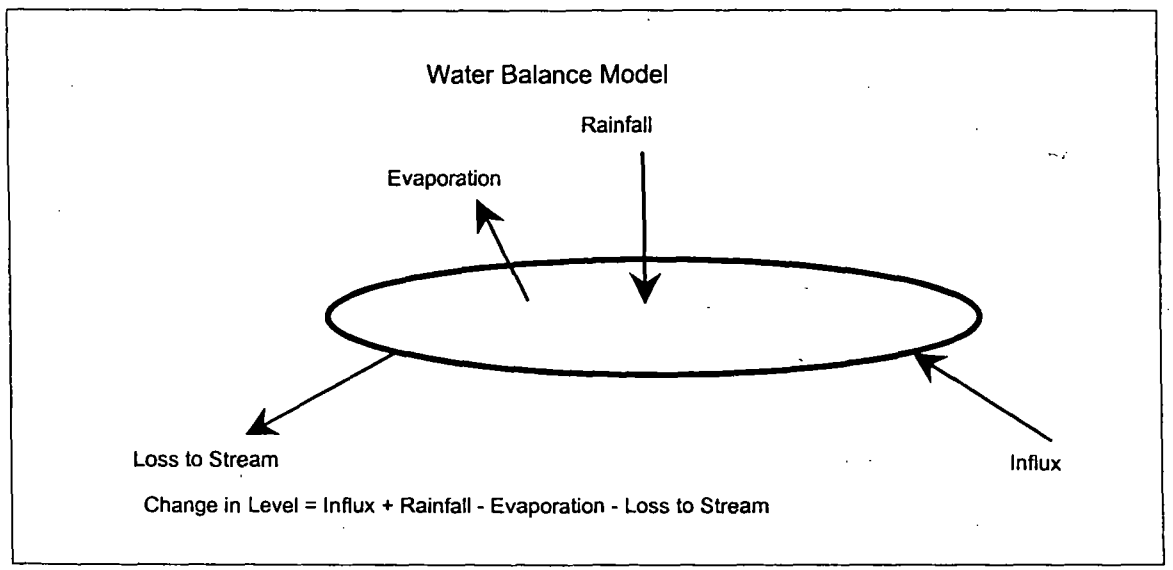


Table 8. Process Pond Sediment Sample Metals and Cyanide Results
Barite Hill Gold Mine
McCormick County, SC
June 2007

	Sample Location	Pond A		Pond B		Pond C		Pond D		Pond E		Pond F		Pond G		Pond H		Pond I	
		Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
ANALYTE	Mercury	4.0	J,O	1.7	J,O	1.6	J,O	2.2	J,O	0.15	U,J,O	0.63	J,O	0.42	J,O	0.76	J,O	0.13	U,J,O
	% Solids	51.0		8.6		44.0		48.0		57.0		61.0		62.0		56.0		65.0	
	Aluminum	7,100.0	J,O	14,000.0	J,O	9,000.0	J,O	5,500.0	J,O	10,000.0	J,O	6,100.0	J,O	10,000.0	J,O	9,300.0	J,O	18,000.0	J,O
	Antimony	4.3	U,J,O	10.0	U,J,O	4.1	U,J,O	5.7	U,J,O	11.0	U,J,O	9.8	U,J,O	1.7	U,J,O	5.0	U,J,O	9.2	U,J,O
	Arsenic	470.0		53.0		200.0		110.0		2.9		210.0		77.0		300.0		110.0	
	Barium	4,400.0		380.0		2,500.0		3,700.0		44.0		2,600.0		5,000.0		6,500.0		2,200.0	
	Beryllium	0.15	U,J,O	0.23	U,J,O	0.2	U,J,O	0.13	U,J,O	0.4	U,J,O	0.2	U,J,O	0.29	U,J,O	0.24	U,J,O	0.47	U,J,O
	Cadmium	8.2		2.5	J,O	14.0		1.7		0.3	J,O	1.5		0.42	J,O	2.4		37.0	
	Calcium	170,000.0		11,000.0		160,000.0		270,000.0		420.0	J,O	130,000.0		9,800.0		12,000.0		65,000.0	
	Chromium	120.0		55.0		70.0		19.0		55.0		35.0		19.0		20.0		18.0	
	Cobalt	13.0		660.0		9.8	J,O	8.4	J,O	2.9	J,O	15.0		7.3	J,O	22.0		21.0	
	Copper	52,000.0	J,O	37,000.0	J,O	78,000.0	J,O	16,000.0	J,O	130.0	J,O	7,300.0	J,O	3,100.0	J,O	10,000.0	J,O	2,000.0	J,O
	Iron	31,000.0		37,000.0		32,000.0		21,000.0		56,000.0		28,000.0		32,000.0		46,000.0		35,000.0	
	Lead	150.0		21.0		66.0		130.0		19.0		110.0		150.0		250.0		98.0	
	Magnesium	620.0	J,O	550.0	J,O	380.0	J,O	380.0	J,O	230.0	J,O	230.0	J,O	1,200.0		900.0		1,000.0	
	Manganese	160.0		260.0		230.0		94.0		460.0		54.0		210.0		150.0		450.0	
	Nickel	55.0		130.0		230.0		290.0		8.5		12.0		10.0		26.0		9.4	
	Potassium	380.0	J,O	940.0	J,O	110.0	J,O	500.0	U	170.0	J,O	170.0	J,O	380.0	J,O	170.0	J,O	570.0	
	Selenium	1,000.0		5,900.0		1,500.0		210.0		1.6	J,O	470.0		89.0		330.0		8.2	
	Silver	260.0		1,000.0		180.0		270.0		1.7	U	96.0		29.0		52.0		1.5	U
	Sodium	3,000.0		8,100.0		2,300.0		300.0	U,J,O	720.0	J,O	1,700.0		1,500.0		1,500.0		130.0	U,J,O
	Thallium	4.9	U	29.0	U	5.7	U	5.3	U	4.4	U	4.1	U	4.0	U	4.5	U	3.9	U
	Vanadium	44.0		65.0		68.0		24.0		160.0		36.0		48.0		50.0		49.0	
	Zinc	300.0	J,O	190.0	J,O	720.0	J,O	280.0	J,O	90.0	J,O	110.0	J,O	56.0	J,O	240.0	J,O	440.0	J,O
	Cyanide	2,200.0	J,O	2.2	U,J,O	1,700.0	J,O	400.0	J,O	0.66	U,J,O	86.0	J,O	210.0	J,O	200.0	J,O	0.26	U,J,O
	WAD Cyanide	230.0	J,O	1.1	U,J,O	230.0	J,O	6.6	J,O	4.3	U,J,O	7.3	J,O	110.0	J,O	59.0	J,O	0.23	U,J,O

All results are given in milligrams per kilogram (mg/kg) dry
U - Under MDL
MDL - Minimum Detection Limit
J - Estimated
O - Other Qualifier, See Appendix B For Full Data Report and Definition of Qualifiers.
Qual - Qualifier
na - Not Available

Table 9. Process Pond Sediment Depth and Volume Estimates
Barite Hill Gold Mine
McCormick County, SC
June 2007

Location	Average Sediment Depth (ft)	Pond Surface Area (ft2)	Estimated Sediment Volume (yd3)
Pond A	1.66	36,700	2,251
Pond B	0.16	18,200	106
Pond C	0.82	16,600	502
Pond D	0.04	8,300	13
Pond F	0.7	100,000	2,593
Pond G	3.38	26,900	3,363
Pond H	1.95	22,200	1,603

ft - Feet
ft2 - Square feet
yd3 - Cubic yards

Table10. Process Pond Free Water Volume Calculations
Barite Hill Gold Mine
McCormick County, SC
June 2007

Table10a. Individual Free Volume Calculation

Pond	Surface Area Ft2	Minimum Bank Elevation Ft above Waterline	Free Volume Gal x 1000
Pond A	36700	0.85	233
Pond B	18200	0.98	133
Pond C	16600	0.93	115
Pond D	8300	1.16	72
Pond E	26000	12.23	2378
Pond F	100000	0.49	367
Pond G	26900	0.11	22
Pond H	22200	0	0

Ft - Feet
Ft2 - Square Feet
Gal - Gallon

Table10b. Free Volume With Ponds Acting as a Combined System

Ponds A, B, C, D and E

Pond	Surface Area Ft2	Minimum Bank Elevation Ft above Waterline	Free Volume Gal x 1000
Pond A	36700	0.85	233
Pond B	18200	0.85	116
Pond C	16600	0.85	106
Pond D	8300	0.85	53
Pond E	26000	11.81	2297
TOTAL	**105800**		**2804**

Ft - Feet
Ft2 - Square Feet
Gal - Gallon

Note: For Ponds A thru E, release would be at the lowest point, survey point 1 in Pond A. Therefore, this calculation shows the free volume available at the minimum elevation.

Table 10c. Free Volume With Ponds Acting as a Combined System

Ponds F, G and H

Pond	Surface Area Ft2	Minimum Bank Elevation Ft above Waterline	Free Volume Gal x 1000
Pond F	100000	0.22	165
Pond G	26900	0.22	44
Pond H	22200	0.22	37
TOTAL	**149100**		**245**

Ft - Feet
Ft2 - Square Feet
Gal - Gallon

Note:For Ponds F thru H, any rainfall would be presently released at a breach in pond H at location 111A. Should this breach be repaired, the next logical breakthrough would be at location 105 in Pond G. This would not cause total failure. The next location that would lead to complete failure is location 106 in pond G. This is the most southern point of pond G. These calculations are based on the elevation of location 106.

Table 11. Pond Response to 100 and 250 Year Storms
Barite Hill Gold Mine
McCormick County, SC
June 2007

Table 11a. Process Area Process Ponds Acting as a Combined System

Pond	Area	Minimum Bank Elevation	Free Volume	100 Year Storm	250 Year Storm	Remaining Volume After	
						100 Yr Storm	250 Year Storm
	Ft2	Ft above Waterline	Gal x 1000	Gal x 1000	Gal x 1000	Gal x 1000	Gal x 1000
Pond A	36700	0.85	233	371	837	-137	-604
Pond B	18200	0.85	116	184	415	-68	-299
Pond C	16600	0.85	106	168	379	-62	-273
Pond D	8300	0.85	53	84	189	-31	-137
Pond E	26000	11.81	2297	263	593	2034	1704
TOTAL	**105800**		**2804**	**1068**	**2414**	**1736**	**390**

Ft - Feet
Ft2 - Square Feet
Gal - Gallon
Yr - Year

Note: Calculations based on 100 year 24 hour period rainfall of 16.2 inches, and 250 year 24 hour period rainfall of 36.6 inches.

Table 11b. Southern Process Ponds Acting as a Combined System

Pond	Area	Minimum Bank Elevation	Free Volume	100 Year Storm	250 Year Storm	Remaining Volume After	
						100 Yr Storm	250 Year Storm
	Ft2	Ft above Waterline	Gal x 1000	Gal x 1000	Gal x 1000	Gal x 1000	Gal x 1000
Pond F	100000	0.22	165	1010	2281	-845	-2117
Pond G	26900	0.22	44	272	614	-227	-569
Pond H	22200	0.22	37	224	506	-188	-470
TOTAL	**149100**		**245**	**1506**	**3402**	**-1260**	**-3156**

Ft - Feet
Ft2 - Square Feet
Gal - Gallon
Yr - Year

Note: Calculations based on 100 year 24 hour period rainfall of 16.2 inches, and 250 year 24 hour period rainfall of 36.6 inches.

Table 12. Process Pond Water Sample Nitrate and Sulfate Results
Barite Hill Gold Mine
McCormick County, SC
June 2007

Sample Location	Nitrate mg/L	Sulfate mg/L
Pond A Sw	0	> 200
Pond A L	0.8	> 200
Pond B SW	0	> 200
Pond B L	> 10	> 200
Pond C SW	0	> 200
Pond C L	0.25	> 200
Pond D SW	0	85
Pond D L	0.32	> 200
Pond E SW	0	> 200
Pond F SW	4.6	> 200
Pond F L	0	> 200
Pond G SW	5.4	> 200
Pond G L	0	> 200
Pond H SW	3.2	> 200
Pond H L	> 10	> 200
Pond I SW	0	80

U - Results above maximum detection limit of 10 mg/L
U1 - Results above maximum detection limit of 200 mg/L
mg/L - milligrams per Liter
SW - Surface Water
L - Leakage Detection Pit

Table 13. Process Area Process Pond Leakage Detection Pit Water Sample Analytical Results
Barite Hill Gold Mine
McCormick County, SC
June 2007

	Sample Location	AL		ZL (AL Duplicate)		BL		CL		DL	
		Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.	Result	Qual.
ANALYTE	Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
	Aluminum	110.0	J,O	140.0	J,O	120.0	J,O	41.0	U,J,O	17,000.0	
	Antimony	60.0	U	60.0	U	60.0	U	60.0	U	60.0	U
	Arsenic	8.1	J,O	4.3	R,O	10.0	U	4.0	R,O	10.0	U
	Barium	16.0	J,O	17.0	J,O	33.0	J,O	20.0	J,O	12.0	J,O
	Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	0.38	U,J,O
	Cadmium	0.17	U,J,O	0.2	U,J,O	0.38	U,J,O	0.68	U,J,O	3.6	U,J,O
	Calcium	14,000.0		14,000.0		21,000.0		13,000.0		38,000.0	
	Chromium	0.93	U,J,O	1.1	U,J,O	10.0	U	10.0	U	5.2	U,J,O
	Cobalt	3.7	J,O	3.5	J,O	31.0	J,O	11.0	J,O	130.0	
	Copper	100.0		110.0		730.0		120.0		320.0	
	Iron	130.0		150.0		210.0		180.0		450.0	
	Lead	10.0	U	3.8	U,J,O	10.0	U	10.0	U	4.6	U,J,O
	Magnesium	800.0	J,O	810.0	J,O	940.0	J,O	620.0	J,O	3,000.0	J,O
	Manganese	47.0		48.0		220.0		100.0		330.0	
	Nickel	130.0		140.0		96.0		93.0		150.0	
	Potassium	17,000.0	J,O	17,000.0	J,O	12,000.0	J,O	12,000.0	J,O	11,000.0	J,O
	Selenium	57.0		56.0		110.0		110.0		44.0	
	Silver	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
	Sodium	600,000.0		590,000.0		370,000.0		380,000.0		270,000.0	
	Thallium	25.0	U	25.0	U	25.0	U	25.0	U	25.0	U
	Vanadium	0.46	J,O	0.53	J,O	1.2	J,O	0.57	J,O	1.3	J,O
	Zinc	12.0	U,J,O	14.0	U,J,O	24.0	U,J,O	5.1	U,J,O	210.0	
	Cyanide	6.4	U,J,O	10.0	U	3.7	U,J,O	2.3	U,J,O	11.0	
	WAD Cyanide	10.0	U	10.0	U	10.0	U	2.3	U,J,O	4.9	U,J,O

All results are given in microgram per liter (ug/L)
U - Under MDL
MDL - Minimum Detection Limit
J - Estimated
O - Other Qualifier, See Appendix B For Full Data Report and Definition of Qualifiers.
Qual - Qualifier
WAD - Weak Acid Dissociable

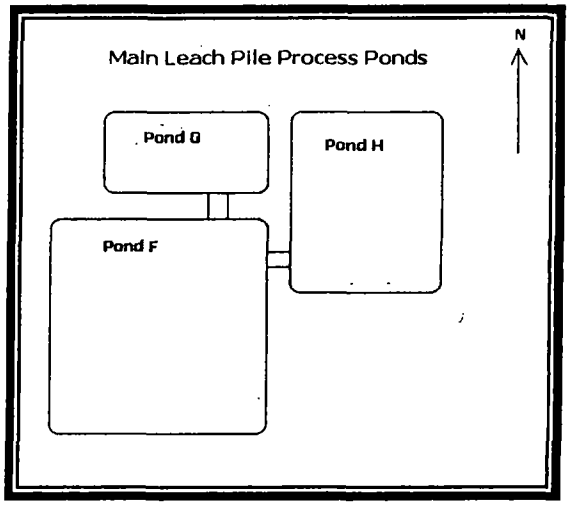
Table 16. Other Sample Analytical Results
Barite Hill Gold Mine
McCormick County, SC
June 2007

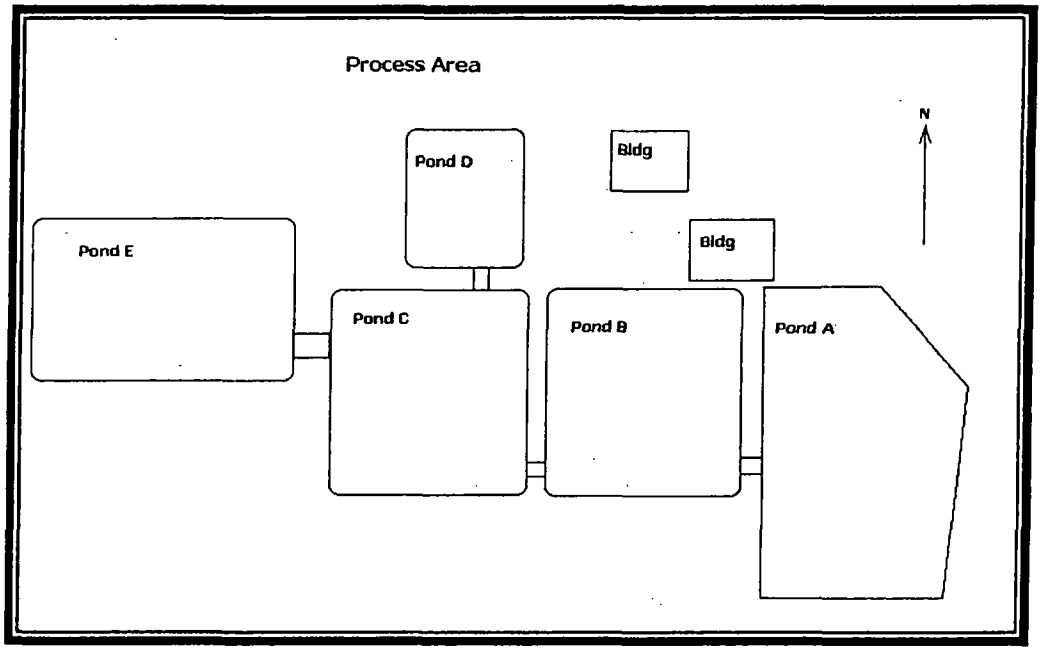
	Sample	Heap Leach Pile Crust		Ingot Room Pit		White Pile	
		Result	Qual.	Result	Qual.	Result	Qual.
ANALYTE	Mercury	0.13	U,J,O	3.6	J,O	0.11	U,J,O
	% Solids	79.0		74.0		90.0	
	Aluminum	3,200.0	J,O	8,100.0	J,O	4,700.0	J,O
	Antimony	7.6	U,J,O	41.0	U,J,O	6.6	U,J,O
	Arsenic	29.0		24.0		1.4	
	Barium	67.0		1,200.0		62.0	
	Beryllium	0.18	U,J,O	0.09	U,J,O	0.95	
	Cadmium	0.11	R,O	6.2		0.08	J,O
	Calcium	3,500.0		31,000.0		380,000.0	
	Chromium	1.5		370.0		3.4	
	Cobalt	12.0		6.6	J,O	0.19	J,O
	Copper	260.0	J,O	6,300.0	J,O	7.2	J,O
	Iron	13,000.0		210,000.0		1,000.0	
	Lead	17.0		160.0		2.8	
	Magnesium	2,200.0		1,100.0		350.0	J,O
	Manganese	100.0		1,200.0		9.4	
	Nickel	1.1	J,O	170.0		2.4	J,O
	Potassium	1,500.0		7,600.0		63.0	J,O
	Selenium	7.2		360.0		3.9	U
	Silver	1.3	U	120.0		1.1	U
	Sodium	95,000.0		20,000.0		39.0	U,J,O
	Thallium	3.2	U	17.0	U,O	2.8	U
	Vanadium	13.0		44.0		6.4	
	Zinc	100.0	J,O	16,000.0	J,O	3.6	U,J,O
	Cyanide	1.4	U,J,O	620.0	J,O	0.67	U,J,O
	WAD Cyanide	na	na	280.0	J,O	na	na

All results are given in milligrams per kilogram (mg/kg) dry
U - Under MDL
MDL - Minimum Detection Limit
J - Estimated
O - Other Qualifier, See Appendix B Full Data Report and Definition of Qualifiers.
Qual - Qualifier
na - Not Available

Table 17. Process Pond Labels and pH Results
Barite Hill Gold Mine
McCormick County, SC
June 2007

Pond	pH
A	9.30
B	9.10
C	9.08
D	9.20
E	8.48
F	7.20
G	8.10
H	6.85
I	7.95

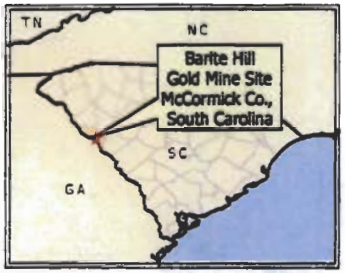




Notes: Pond I was located west of the main parking area. It can be described as a shallow depression with a large quantity of downed trees that collects pooled water.

Pond locations and sizes are given for reference only. Figures are not to scale.

Figures



Process Area

Legend

- Roads
- Streams
- General Site Extents
- Ponds

1,000 0 1,000 Feet

Map created using South Carolina Department of Natural Resources (SCDNR) provided 1 meter orthoimagery (2006) and site survey GPS data. GPS collected in Lat., Lon., Decimal Degrees, WGS84.

Map Creation Date: 14June2007

Coordinate system: UTM
Zone: 17N
Datum: NAD83
Units: Meters

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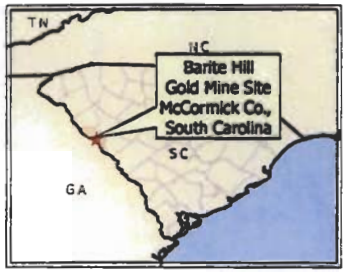
Revision Number: 003

U.S. EPA Environmental Response Team
Response Engineering and Analytical Contract
EP-C-04-032
W.A.# 0-247

Figure 1
Site Location Map
Barite Hill Mine Site
McCormick Co., SC



Legend

- Stream Sample Location
- Other Samples
- Roads
- Streams
- Ponds

Map created using South Carolina Department of Natural Resources (SCDNR) provided 1 meter orthomagery (2006) and site survey GPS data. GPS collected in Lat., Lon., Decimal Degrees, WGS84.

Map Creation Date: 14June2007

Coordinate system: UTM
Zone: 17N
Datum: NAD83
Units: Meters

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Feet

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Revision Number: 003

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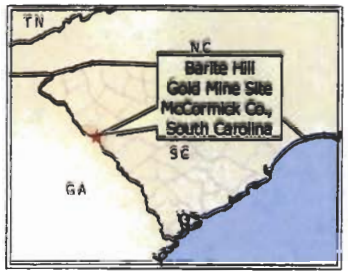
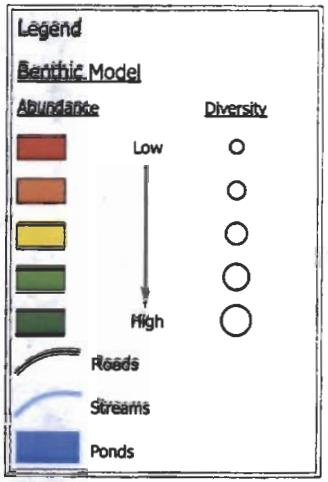
EP-C-04-032
W.A.# 0-247

Figure 2
Sample Location Map
Barite Hill
Gold Mine Site
McCormick Co., SC





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Map Creation Date: 14June2007

Coordinate system: UTM
Zone: 17N
Datum: NAD83
Units: Meters

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Feet

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Revision Number: 003

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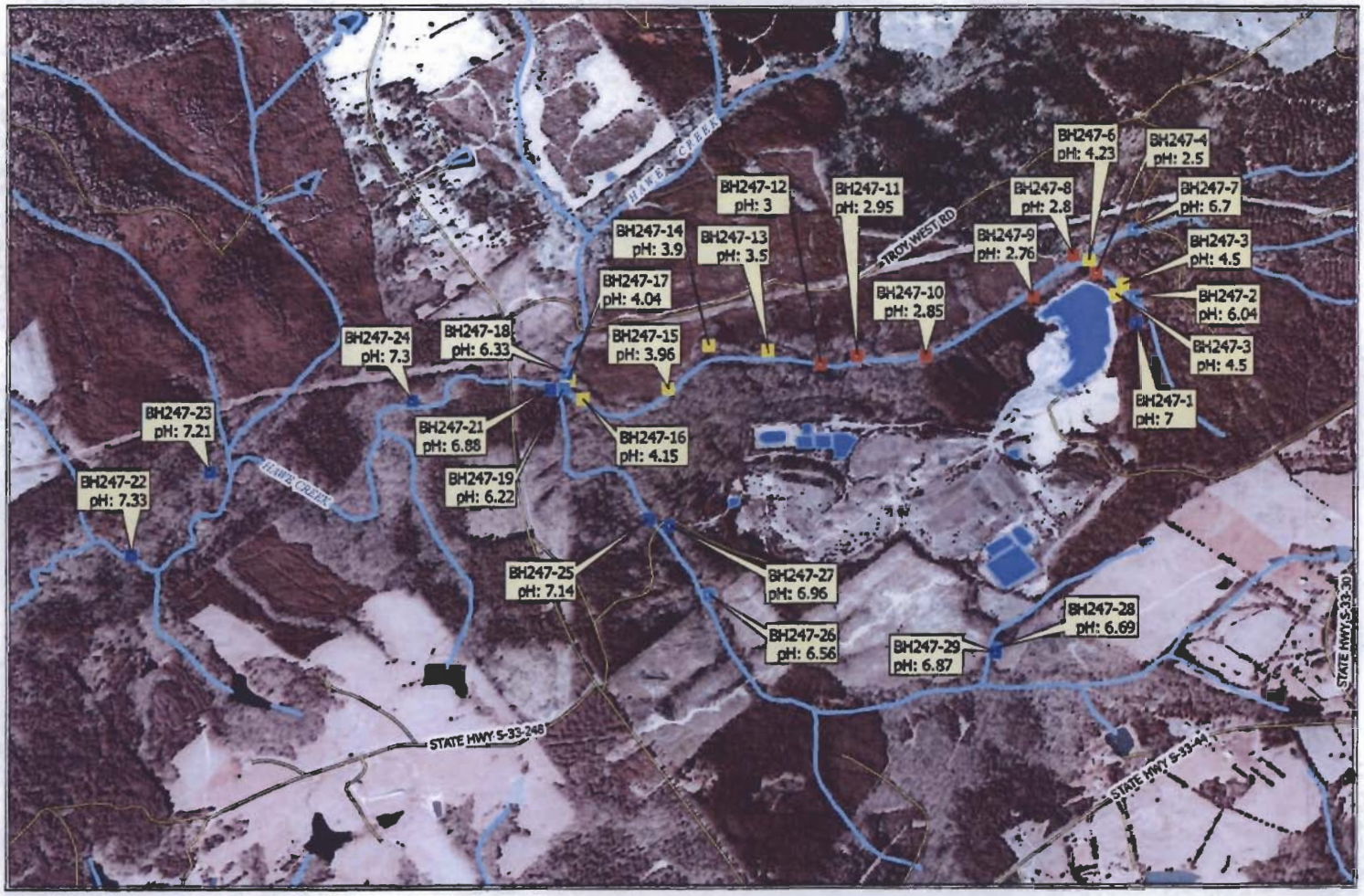
EP-C-04-032
W.A.# 0-247

Figure 3
Benthic Diversity Map
Barite Hill
Gold Mine Site
McCormick Co., SC



Legend

		pH Values
Roads		
Streams		0.00 - 3.00
Ponds		3.50 - 4.50
		6.04 - 6.70
		6.87 - 7.33

Map created using South Carolina Department of Natural Resources (SCDNR) provided 1 meter orthoimagery (2006) and site survey GPS data. GPS collected in Lat., Lon., Decimal Degrees, WGS84.

Map Creation Date: 14June2007

Coordinate system: UTM
Zone: 17N
Datum: NAD83
Units: Meters

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Feet

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Revision Number: 003

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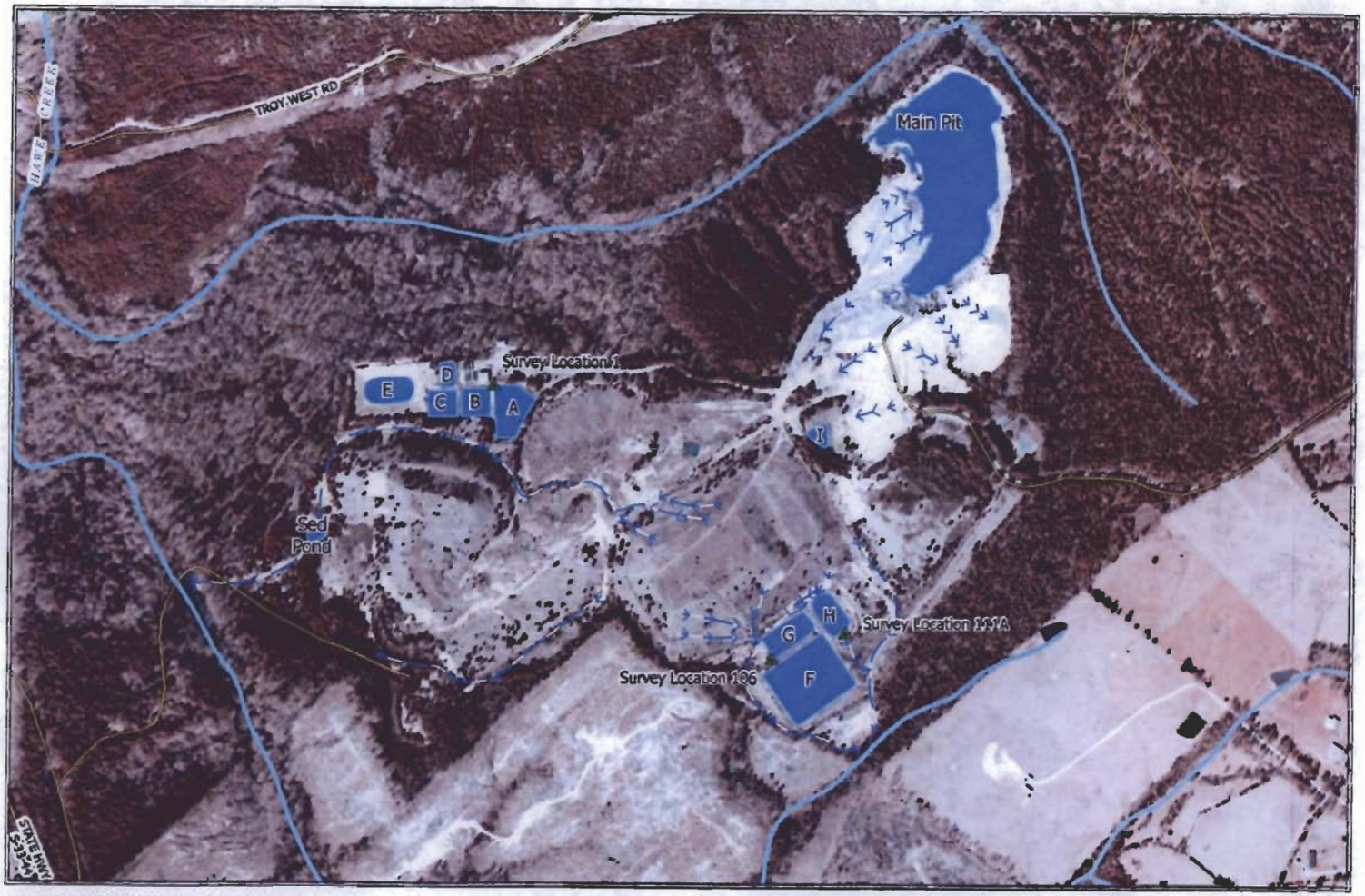
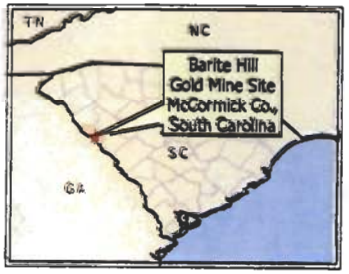
EP-C-04-032
W.A.# 0-247

Figure 4
Stream Sample Locations
Showing pH Values
Barite Hill
Gold Mine Site
McCormick Co., SC





Legend

- Survey Location
- Surface Drainage Flow
- Roads
- Streams
- Ponds

Map created using South Carolina Department of Natural Resources (SCDNR) provided 1 meter orthomagery (2006) and site survey GPS data. GPS collected in Lat., Lon., Decimal Degrees, WGS84.

Map Creation Date: 14June2007

Coordinate system: UTM
Zone: 17N
Datum: NAD83
Units: Meters

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Feet

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Revision Number: 003

U.S. EPA Environmental Response Team
Response Engineering and Analytical Contract
EP-C-04-032
W.A.# 0-247

Figure 5
Pond Location Map
Barite Hill
Gold Mine Site
McCormick Co., SC

APPENDIX A
STREAM DATA SHEETS
BARITE HILL GOLD MINE
TRIP REPORT
JUNE 2007

FINAL DRAFT

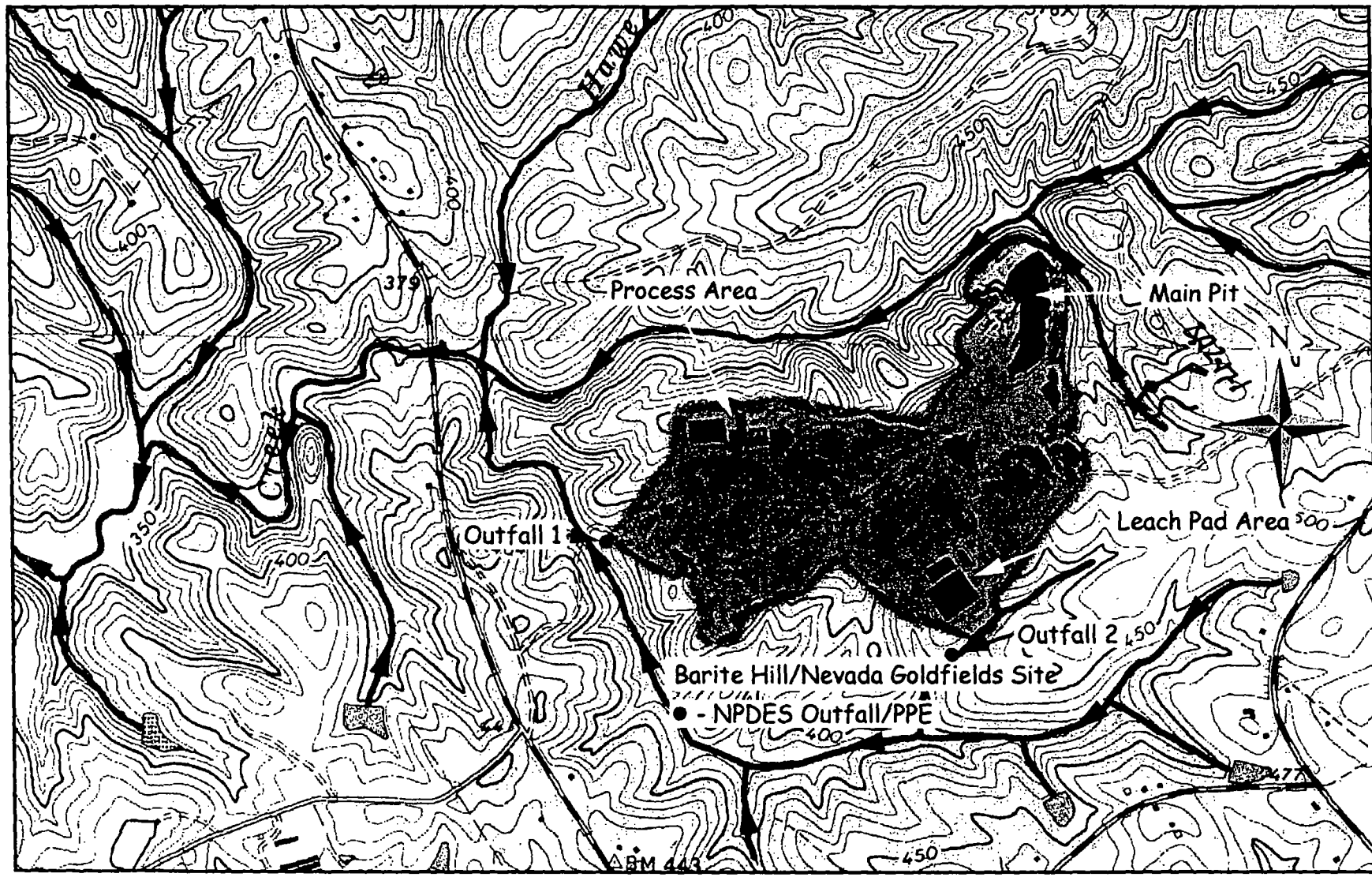


Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

Sample Location: BH247-1
3/27/2001
9:15 a.m.

SLM MOVING, Channeled.

2 2 0039

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

~~BSA~~ BH247-1

STREAM NAME UNNAMED	LOCATION EAST/NORTHEAST OF SITE, UPSTREAM OF MAIN NORTHERN SITE STR ~~ON SIDE TRI~~
STATION # 1 RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN
STORET #	AGENCY ERT/Fish & Wildlife/REAC
INVESTIGATORS R. HENRY, M. NIGRO, S. FREDERICKS, C. GUSSMAN	
FORM COMPLETED BY C. GUSSMAN	DATE 3/29/2007 TIME 9:15 AM PM — REASON FOR SURVEY STREAM IMPACT ASSESSMENT MONITORING / BIOTA

NO GIS This location due to canopy

pH. 7.0

WEATHER CONDITIONS

SUNNY

83°F (COVER BY STREAM)

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___%☐	%cloud cover	☒ 25 %
☒	clear/sunny	☐

Has there been a heavy rain in the last 7 days? ☐ Yes ☒ No

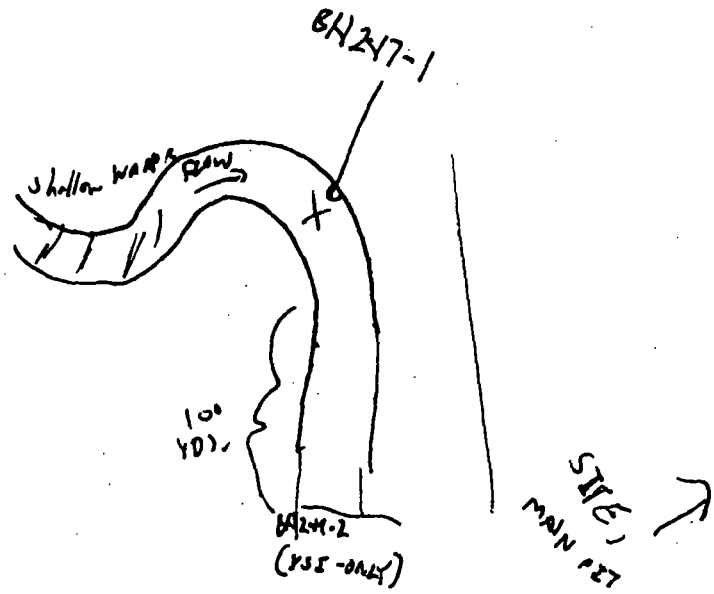
Air Temperature 25 °C (ESTIMATE)

Other

SITE LOCATION/MAP

NOTE! BH247-2 CHEMICAL ONLY, NOTED LOCATION ON MAP AT RIGHT.

Draw a map of the site and indicate the areas sampled (or attach a photograph)



pH = 6.04
turbidity 1.8.
Temp 14.9
Turbidity 1.8
D.O. 35.6%

BH247-2 CHEMICAL/YSI ONLY.

STREAM CHARACTERIZATION

* shallow water may dry in drought (?)

Stream Subsystem: ☒ Perennial ☒ Intermittent ? ☐ Tidal

Stream Type: ☐ Coldwater ☒ Warmwater — TEMP 14.9 °C

Stream Origin: ☐ Glacial ☐ Non-glacial montane ☐ Swamp and bog ☒ Spring-fed ? ☒ Mixture of origins ☐ Other

Catchment Area ___ km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	**Predominant Surrounding Landuse** ☒ Forest ☐ Commercial ☐ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other _____ ☐ Residential **Local Watershed NPS Pollution** ☒ No evidence ☐ Some potential sources ☐ Obvious sources **Local Watershed Erosion** ☐ None ☐ Moderate ☐ Heavy
RIPARIAN VEGETATION (18 meter buffer)	**Indicate the dominant type and record the dominant species present** ☒ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous **dominant species present** TREES ~ PITCH PINE & BEGIN
INSTREAM FEATURES	**Estimated Reach Length** _____ m **Estimated Stream Width** 0.5 m **Sampling Reach Area** 1 m² **Area in km² (m²x1000)** _____ km² **Estimated Stream Depth** 0.1 m **Surface Velocity (at thalweg)** SLOW _____ m/sec **Canopy Cover** shaded later in year. ☒ Partly open ☐ Partly shaded ☐ Shaded **High Water Mark** _____ m **Proportion of Reach Represented by Stream Morphology Types** ☐ Riffle _____ % ☐ Run 100 % (SLOW) ☐ Pool _____ % **Channelized** ☒ Yes ☐ No **Dam Present** ☐ Yes ☒ No
LARGE WOODY DEBRIS	**LWD** 0.1 m² LOW/NONE **Density of LWD** _____ m²/km² (LWD/ reach area)
AQUATIC VEGETATION	**Indicate the dominant type and record the dominant species present** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☐ Floating Algae ☐ Attached Algae **dominant species present** 0 **Portion of the reach with aquatic vegetation** 0 %
WATER QUALITY	**Temperature** 14.8 °C **Specific Conductance** 0.14 mS/cm **Dissolved Oxygen** 7.7 mg/L **pH** 7.0 **Turbidity** 2.2 NTU **WQ Instrument Used** YSI **Water Odors** ☒ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other _____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☒ None ☐ Other _____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other _____
SEDIMENT/ SUBSTRATE	**Odors** ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None ☐ Other _____ **Oils** ☐ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** ☐ Sludge ☐ Sawdust ☐ Paper fiber ☐ Sand ☐ Relict shells ☒ Other POLLEN **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		30	Detritus	sticks, wood, coarse plant materials (CPOM)	MINIMAL
Boulder	> 256 mm (10")	40			
Cobble	64-256 mm (2.5"-10")	20	Muck-Mud	black, very fine organic (FPOM)	N/A
Gravel	2-64 mm (0.1"-2.5")				
Sand	0.06-2mm (gritty)	10	Marl	grey, shell fragments	N/A
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)				

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME BH 247-1	LOCATION BH247-1
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT_____ LONG_____	RIVER BASIN
STORET #	AGENCY EPA / Fish + Wildlife / ERI / REDC
INVESTIGATORS R. HENRY / M. NIGRO / S. FREDERICKS / C. GUSSMAN	
FORM COMPLETED BY Chris Gussman	DATE 3/27/07 TIME 9:06 AM PM — REASON FOR SURVEY B/I MONITORING

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

45

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 130

85
+45
130

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME BH247-1 (6)	LOCATION BH 247-1
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY LBAC / ERT
INVESTIGATORS RICA HENRY	LOT NUMBER
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/01 TIME 9:45 (AM) PM / REASON FOR SURVEY BIO MONITORING, IMPACT

HABITAT TYPES	Indicate the percentage of each habitat type present ☐ Cobble 80 % ☐ Snags 10 % ☐ Vegetated Banks 5 % ☐ Sand 5 % ☐ Submerged Macrophytes____% ☐ Other ( )____%
SAMPLE COLLECTION	Gear used ☑ D-frame ☐ kick-net ☐ Other _____ How were the samples collected? ☑ wading ☐ from bank ☐ from boat Indicate the number of jabs/kicks taken in each habitat type. ☐ Cobble 100% ☐ Snags____ ☐ Vegetated Banks____ ☐ Sand____ ☐ Submerged Macrophytes____ ☐ Other ( )____
GENERAL COMMENTS	SHALLOW, MINIMAL MOVEMENT. LOW DIVERSITY (SUITABLE FOR HABITAT) HIGH AMOUNT/DENSITY

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3 = Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

LOW DIVERS!

FINAL DRAFT

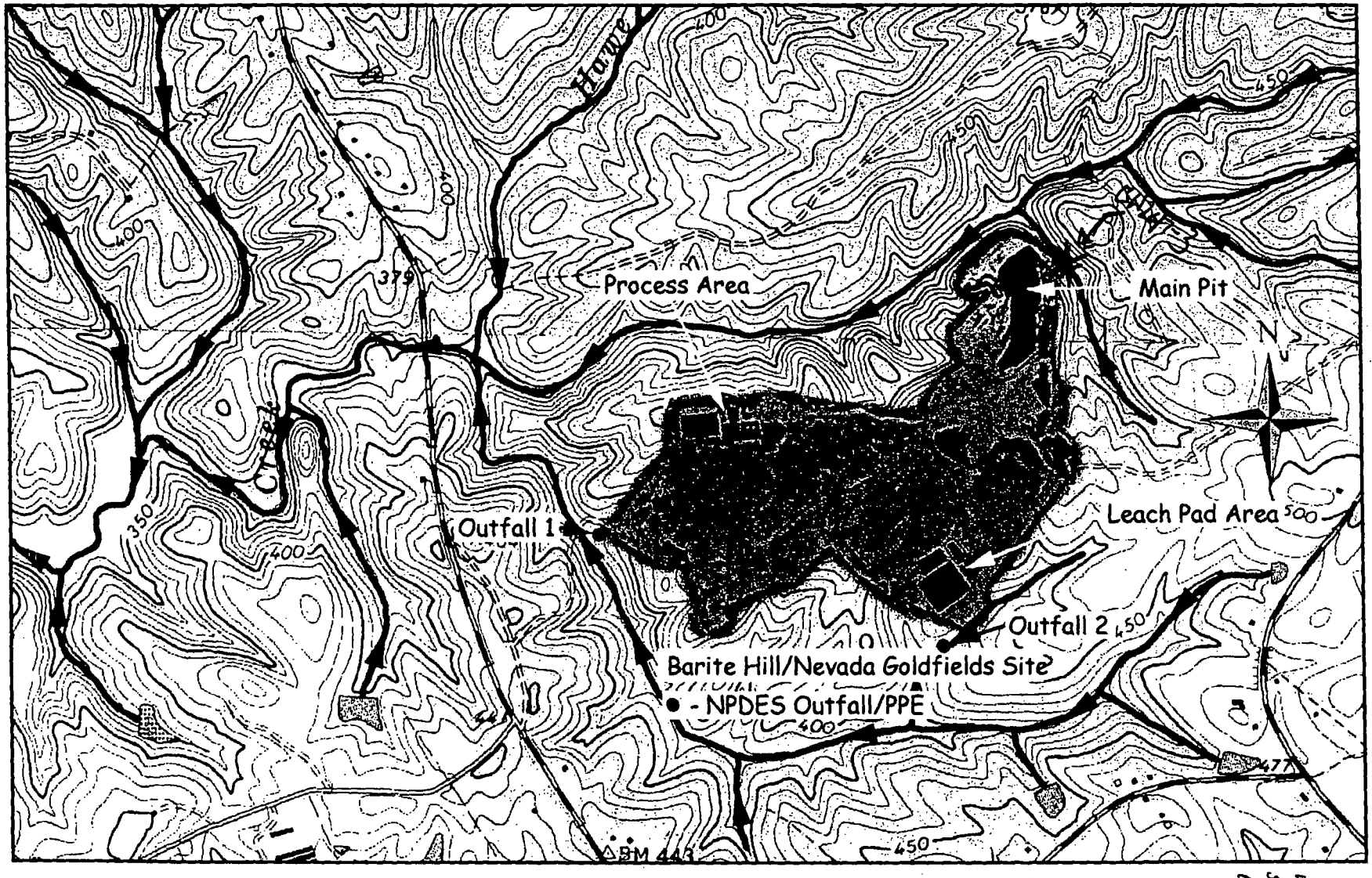


Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

Sample Location: BH247-3
3/27/07 10:15 AM

WATER
BENTAN
SEDIMENT
CHEMISTR

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME	LOCATION BH247-3
STATION # _____ RIVERMILE _____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY NEAC / CRT / Fish/Wildlife
INVESTIGATORS C. GUSSMAN / R. NGNRY / M. NIGRO / S. FREGGLIELI	
FORM COMPLETED BY C. GUSSMAN	DATE 3/21/07 TIME _____ AM PM — REASON FOR SURVEY BENTHOS / BIO - STREAM EVALUATION

WEATHER CONDITIONS SUNNY, CLEAR, WARM

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___% ☐	%cloud cover	☐ ___%
☑	clear/sunny	☑

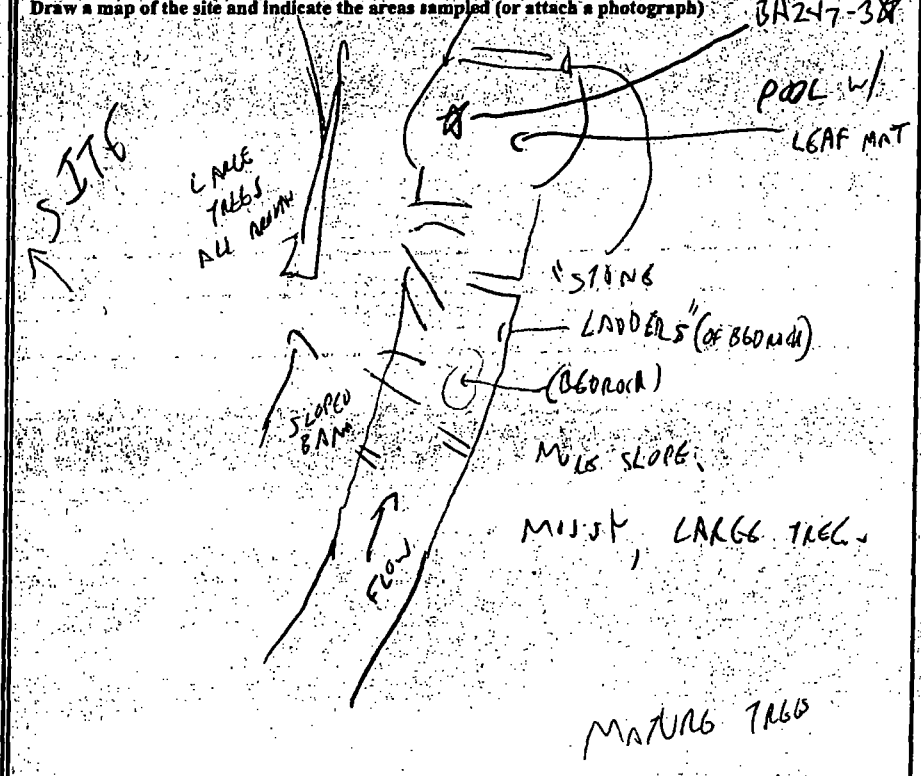
Has there been a heavy rain in the last 7 days? ☐ Yes ☑ No

Air Temperature 25 °C (ESTIMATED)

Other _____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem: ☑ Perennial ☐ Intermittent ☐ Tidal

Stream Type: ☑ Coldwater ☐ Warmwater

Stream Origin: ☐ Glacial ☐ Non-glacial montane ☐ Swamp and bog ☐ Spring-fed ☑ Mixture of origins ☐ Other _____

Catchment Area _____ km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES

Predominant Surrounding Landuse
☒ Forest ☐ Commercial
☐ Field/Pasture ☐ Industrial
☐ Agricultural ☐ Other _____
☐ Residential

Local Watershed NPS Pollution
☐ No evidence ☒ Some potential sources
☐ Obvious sources

Local Watershed Erosion
☒ None ☐ Moderate ☐ Heavy

RIPARIAN VEGETATION (18 meter buffer)

Indicate the dominant type and record the dominant species present
☒ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous

dominant species present BEECH TREES (LARGE & SMALL)

INSTREAM FEATURES

Estimated Reach Length _____ m

Estimated Stream Width 3 m

Sampling Reach Area _____ m²

Area in km² (m²x1000) _____ km²

Estimated Stream Depth 0.33 m

Surface Velocity (at thalweg) _____ m/sec

NOW → **Canopy Cover** ← SUMMER
☒ Partly open ☐ Partly shaded ☒ Shaded

High Water Mark 1+ m

Proportion of Reach Represented by Stream Morphology Types
☐ Riffle 45 % ☐ Run 5 %
☐ Pool 50 %

Channelized ☒ Yes ☐ No

Dam Present ☐ Yes ☐ No

LARGE WOODY DEBRIS

LWD _____ m² (0) MINIMAL/NONE

Density of LWD 1 m²/km² **(LWD/ reach area)**

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating
☐ Floating Algae ☒ Attached Algae

dominant species present _____

Portion of the reach with aquatic vegetation <5 %

WATER QUALITY

Temperature 15.1 °C

Specific Conductance 0.587 mS/cm

Dissolved Oxygen 109% 7.1 mg/L

pH 4.5

Turbidity 44.7 NTU

WQ Instrument Used YSI

Water Odors
☒ Normal/None ☐ Sewage
☐ Petroleum ☐ Chemical
☐ Fishy ☐ Other _____

Water Surface Oils
☐ Slick ☐ Sheen ☐ Globs ☐ Flecks
☒ None ☐ Other _____

Turbidity (if not measured)
☐ Clear ☒ Slightly turbid ☐ Turbid
☐ Opaque ☐ Stained ☐ Other _____

SEDIMENT/ SUBSTRATE

Odors
☒ Normal ☐ Sewage ☐ Petroleum
☐ Chemical ☐ Anaerobic ☐ None
☐ Other _____

Oils
☒ Absent ☐ Slight ☐ Moderate ☐ Profuse

Deposits
☐ Sludge ☐ Sawdust ☐ Paper fiber ☒ Sand
☐ Relict shells ☒ Other Debris

Looking at stones which are not deeply embedded, are the undersides black in color?
☐ Yes ☐ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock	LARGE, PLATEAU	30	Detritus	sticks, wood, coarse plant materials (CPOM) LEAF PACK.	100 (POOL)
Boulder	> 256 mm (10")	30			
Cobble	64-256 mm (2.5"-10")	20	Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1"-2.5")	10			
Sand	0.06-2mm (gritty)	10	Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)				

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME	LOCATION 6H247-3
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT / Fish&Wildlife / REAC
INVESTIGATORS Rich Henry / C. GUSSMAN / M. NIGRO / Scott Frederick	
FORM COMPLETED BY C. GUSSMAN	DATE 7/27/07 TIME 10:15 AM PM / REASON FOR SURVEY OLD PUGS SMGNT / STROISM IMPACT

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

58

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 140

172
51
40

2 2 0049

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

(2)

STREAM NAME BH2+7-3	LOCATION BH2+7-3
STATION # ____ RIVERMILE ____	STREAM CLASS
LAT ____ LONG ____	RIVER BASIN
STORET #	AGENCY REAG / ERT / Fishwildlife
INVESTIGATORS Rich Henry / Mike Nigro / Chris Gussman / S. Frederick	LOT NUMBER
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/07 TIME 10:15 AM PM / REASON FOR SURVEY BIOLOGICAL SURVEY / IMPACT ARIN

HABITAT TYPES	Indicate the percentage of each habitat type present: ☐ Cobble ____% ☐ Snags ____% ☐ Vegetated Banks ____% ☐ Sand ____% ☐ Submerged Macrophytes ____% ☐ Other (LEAF MATS) 100 %
SAMPLE COLLECTION	Gear used ☒ D-frame ☐ kick-net ☐ Other ____ How were the samples collected? ☒ wading ☐ from bank ☐ from boat Indicate the number of jabs/kicks taken in each habitat type. ☐ Cobble ____ ☐ Snags ____ ☐ Vegetated Banks ____ ☐ Sand ____ ☐ Submerged Macrophytes ____ ☒ Other (LEAF LITTER) ____
GENERAL COMMENTS	only 1 adult individual noted. HEMIPTERUMS NOTED ON SURFACE

LEAF MATS SURROUNDED BY BEDROCK.

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0 1 2 3 4	Slimes	0 1 2 3 4
Filamentous Algae	0 1 2 3 4	Macroinvertebrates	0 1 2 3 4
Macrophytes	0 1 2 3 4	Fish	0 1 2 3 4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0 1 2 3 4	Anisoptera	0 1 2 3 4	Chironomidae	0 1 2 3 4
Hydrozoa	0 1 2 3 4	Zygoptera	0 1 2 3 4	Ephemeroptera	0 1 2 3 4
Platyhelminthes	0 1 2 3 4	Hemiptera	0 1 2 3 4	Trichoptera	0 1 2 3 4
Turbellaria	0 1 2 3 4	Coleoptera *	0 1 2 3 4	Other	0 1 2 3 4
Hirudinea	0 1 2 3 4	Lepidoptera	0 1 2 3 4		
Oligochaeta	0 1 2 3 4	Sialidae	0 1 2 3 4		
Isopoda	0 1 2 3 4	Corydalidae	0 1 2 3 4		
Amphipoda	0 1 2 3 4	Tipulidae	0 1 2 3 4		
Decapoda	0 1 2 3 4	Empididae	0 1 2 3 4		
Gastropoda	0 1 2 3 4	Simuliidae	0 1 2 3 4		
Bivalvia	0 1 2 3 4	Tabinidae	0 1 2 3 4		
		Culcidae	0 1 2 3 4		

* / individual adult noted

FINAL DRAFT

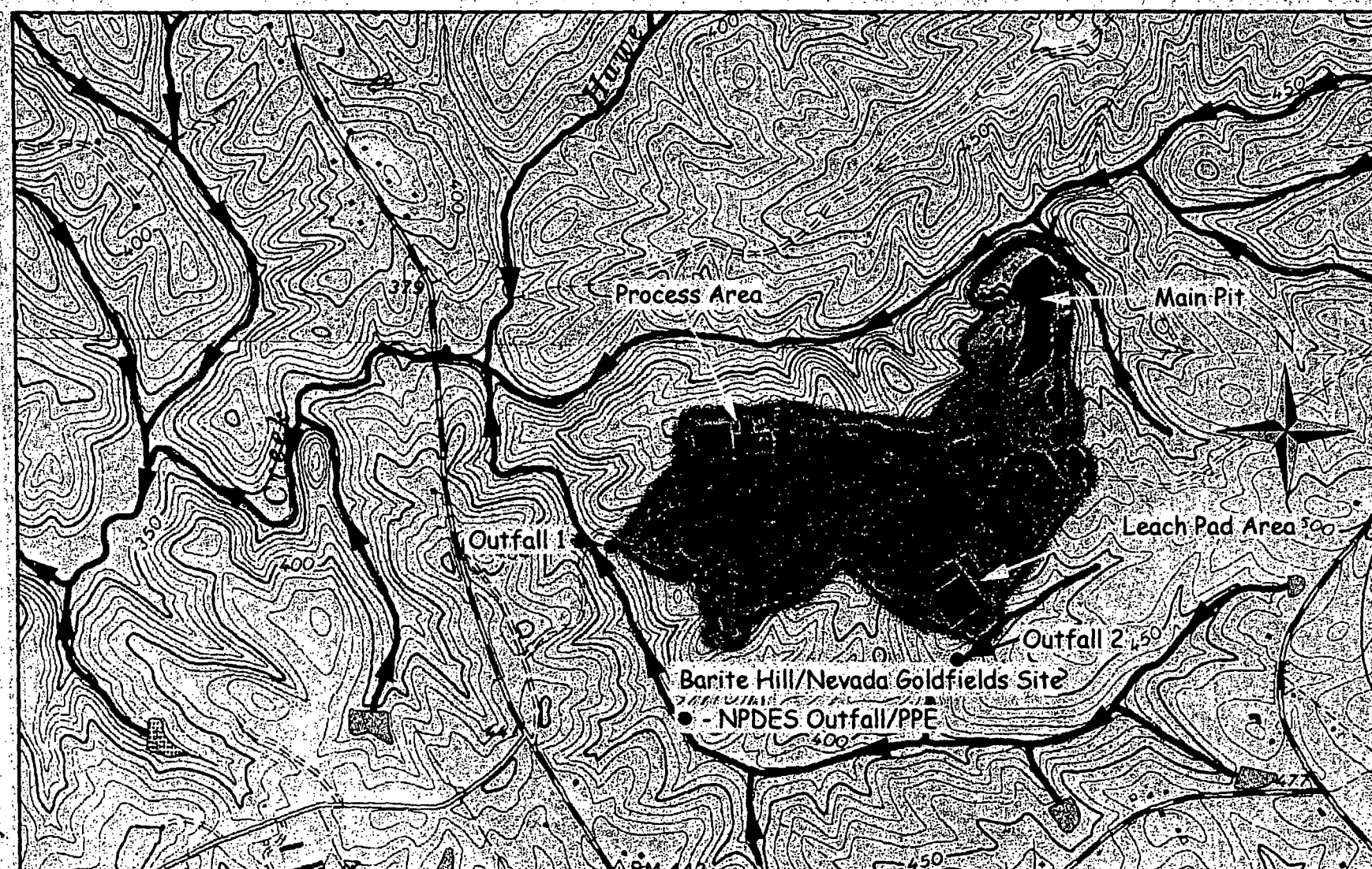


Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

* Sample Location BH247-5 YSI Water Chemistry Only

Sample Location: BH247-4

Sample Location: * BH247-5

3/27/07 11:00 A.M.

AL6A6 SAMPLE (a) BH247-4

BH247-4

Right by SEE

Just Below Visible See

2 2 050

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME	LOCATION BA247-4
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY REAC / ERT / Fish+Wildlife.
INVESTIGATORS C GUSSMAN / L. AGNEY / M. NIGRO / S. FREDERICK	
FORM COMPLETED BY C. GUSSMAN.	DATE 3/27/07 TIME 11:00 AM PM — REASON FOR SURVEY BIOLOGICAL MONITORING & STREAM IMPACT

OPS →

WEATHER CONDITIONS
SUNNY, WARM.

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___%☐	%cloud cover	☐___%
☒	clear/sunny	☒

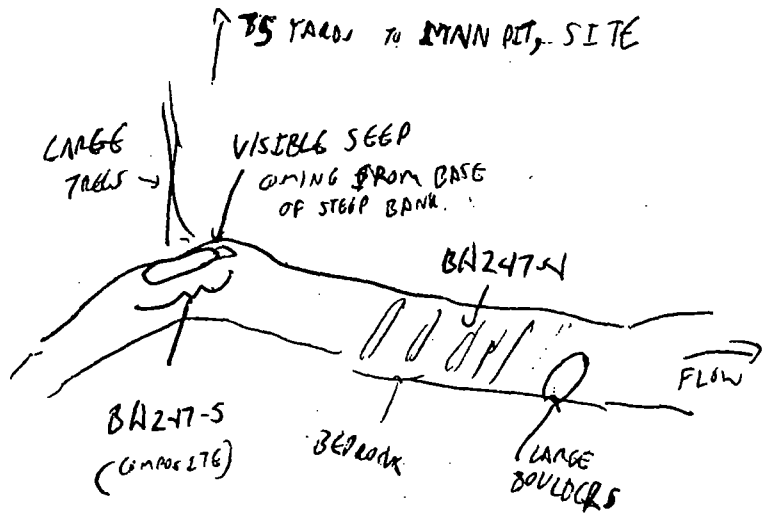
Has there been a heavy rain in the last 7 days? ☐ Yes ☒ No

Air Temperature 25 °C (ESTIMATED)

Other_____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem: ☒ Perennial ☐ Intermittent ☐ Tidal

Stream Type: ☒ Coldwater ☐ Warmwater

Stream Origin: ☐ Glacial ☐ Non-glacial montane ☐ Swamp and bog ☐ Spring-fed ☒ Mixture of origins ☐ Other_____ NOTE SEEP/UPSTREAM.

Catchment Area 1 km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	**Predominant Surrounding Landuse** ☒ Forest ☐ Commercial ☐ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other ____ ☐ Residential **Local Watershed NPS Pollution** ☐ No evidence ☐ Some potential sources ☒ Obvious sources ← SEEP FROM DIRECTION OF MAIN PIT. **Local Watershed Erosion** ☒ None ☐ Moderate ☐ Heavy
RIPARIAN VEGETATION *(18 meter buffer)*	**Indicate the dominant type and record the dominant species present** ☒ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous **dominant species present** BEECH (PITCH PINE IN UPPER REACHES)
INSTREAM FEATURES	**Estimated Reach Length** ~~0.2~~ m **Estimated Stream Width** 1 m **Sampling Reach Area** (W) 1 m² **Area in km² (m²x1000)** (W) ~~0.1~~ 10 km² **Estimated Stream Depth** 0.2 m **Surface Velocity (at thalweg)** ____ m/sec **Canopy Cover** ☒ Partly open ☐ Partly shaded ☒ Shaded ← SUMMER **High Water Mark** 2 m **Proportion of Reach Represented by Stream Morphology Types** ☐ Riffle 45 % ☐ Run 40 % ☐ Pool 5 % **Channelized** ☒ Yes ☐ No **Dam Present** ☐ Yes ☒ No
LARGE WOODY DEBRIS	**LWD** ____ m² (W) Occasional large branches in water (MINIMAL) **Density of LWD** 0.5 m²/km² (LWD/ reach area)
AQUATIC VEGETATION	**Indicate the dominant type and record the dominant species present** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☐ Floating Algae ☒ Attached Algae ← VERY OBVIOUS IN SOME AREAS NOW **dominant species present** ALGAE ? **Portion of the reach with aquatic vegetation** 5 %
WATER QUALITY	**Temperature** 15.6 °C **Specific Conductance** 3.904 ms/cm **Dissolved Oxygen** 55.6% **pH** 2.5 **Turbidity** 307 N.T.U. **WQ Instrument Used** YSI **Water Odors** ☒ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other ____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☒ None ☐ Other ____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other ____
SEDIMENT/ SUBSTRATE	**Odors** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None ☒ Other ORANGE SEDIMENT **Oils** ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** ☐ Sludge ☐ Sawdust ☐ Paper fiber ☐ Sand ☐ Relict shells ☒ Other ALLEN **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock	LARGE SLAB	50	Detritus	sticks, wood, coarse plant materials (CPOM)	20% ORGANIC. ← Exposed REST BEDROCK ETC
Boulder	> 256 mm (10")	25			
Cobble	64-256 mm (2.5"-10")	10	Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1"-2.5")				
Sand	0.06-2mm (gritty)	10	Marl	grey, shell fragments	
Silt	0.004-0.06 mm	<5			
Clay	< 0.004 mm (slick)				

2 2 0053

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME	LOCATION BH 247-4
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY REAC / SPT / Bishop Wildlife
INVESTIGATORS C.G. / M.N. / S.F. / R.H.	
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/07 TIME 11:15 AM PM — REASON FOR SURVEY BIOLOGICAL SURVEY / STREAM IMPACT

GRJ

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

55

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score 147

92
55
147

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION BH247-4
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT / RGAC
INVESTIGATORS R. HENRY	LOT NUMBER
FORM COMPLETED BY	DATE 3/27/01 TIME 11:00 AM PM — REASON FOR SURVEY Biological / stream impact

HABITAT TYPES	**Indicate the percentage of each habitat type present** ❑ Cobble____% ❑ Snags____% ❑ Vegetated Banks 10 % ❑ Sand 5 % ❑ Submerged Macrophytes 5 % ❑ Other (root mt) 80 %
SAMPLE COLLECTION	**Gear used** ❑ D-frame ❑ kick-net ❑ Other _____ **How were the samples collected?** ❑ wading ❑ from bank ❑ from boat **Indicate the number of jabs/kicks taken in each habitat type.** ❑ Cobble____ ❑ Snags____ ❑ Vegetated Banks____ ❑ Sand____ ❑ Submerged Macrophytes____ ☒ Other (sediment/gravel)____
GENERAL COMMENTS	1 (ONE) COLEOPTERA (ADULT) ADULT INDIVIDUALS MOBILE AND MAY BE TEMPORARY.

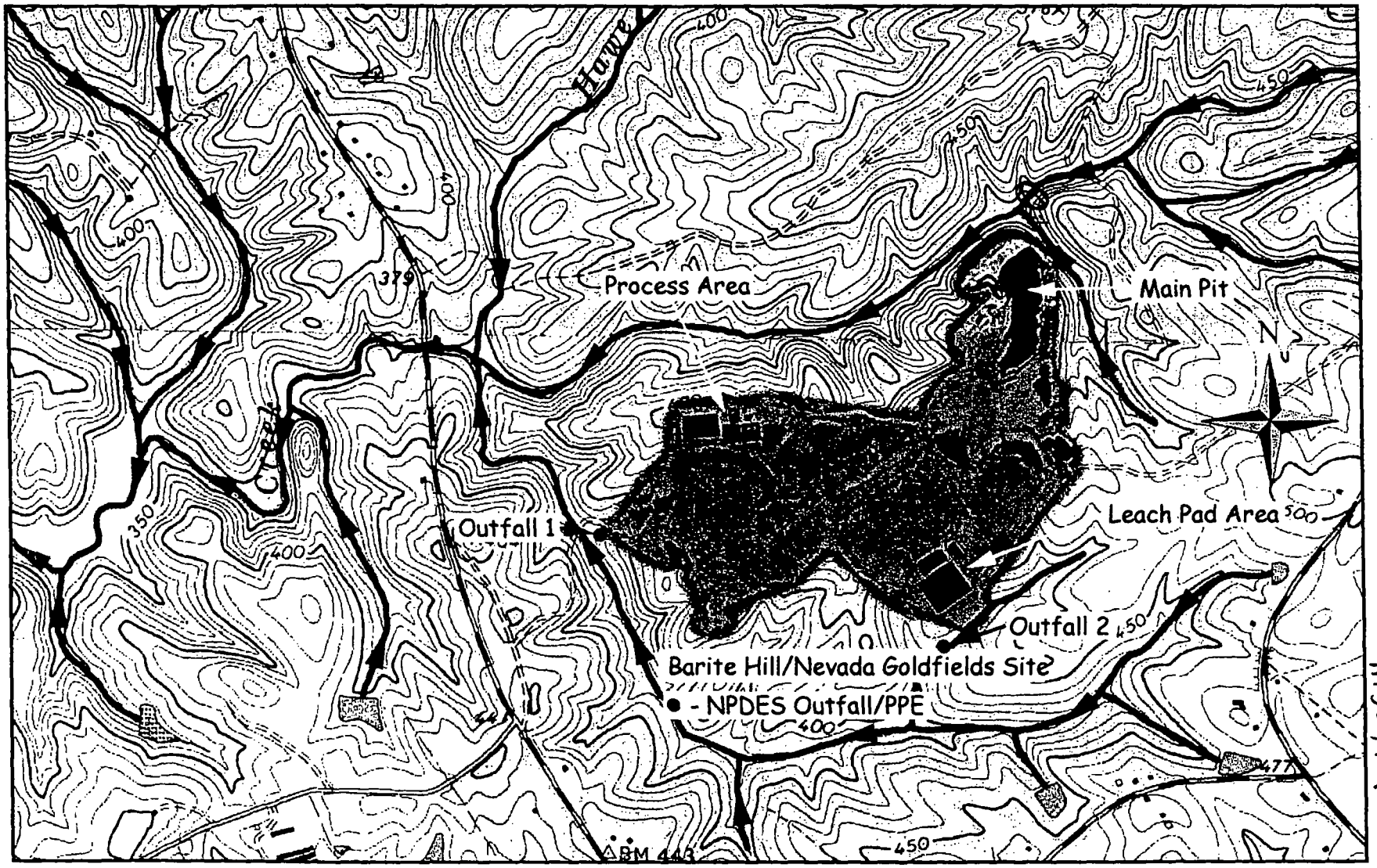
QUALITATIVE LISTING OF AQUATIC BIOTA
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera ✗	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4	✗ ONE ADULT INDIVIDUAL					
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

FINAL DRAFT



Sample Location: BA247-6 3/27/07 11:30 A.M.

Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME	LOCATION BA247-6
STATION #_____ RIVERMILE_____	STREAM CLASS
GPSS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY
INVESTIGATORS Rich Aenry / Chris Gussman / Mike Nigro / Scott Fredericks	
FORM COMPLETED BY Christopher Gussman	DATE 3/27/07 TIME 11:30 AM PM — REASON FOR SURVEY Biological Monitoring / stream impact monitoring

WEATHER CONDITIONS

SUNNY, 25°C

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___%☐	%cloud cover	☐___%
☒	clear/sunny	☒

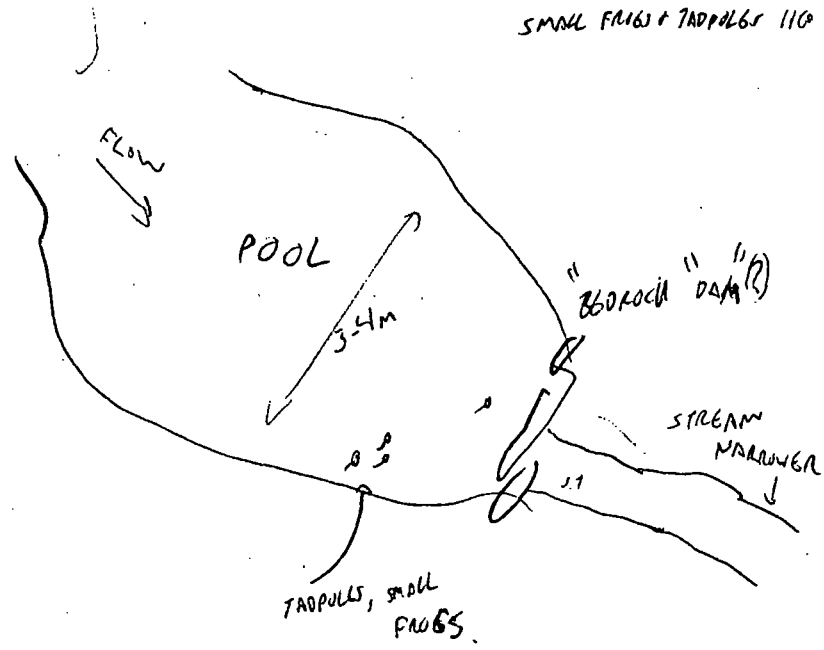
Has there been a heavy rain in the last 7 days? ☐ Yes ☒ No

Air Temperature 25 °C Estimate

Other_____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



IMPACTED(?) AREA ON SIDE TRIBUTARY JUST UPSTREAM OF MAIN CHANNEL.

STREAM CHARACTERIZATION

Stream Subsystem: ☒ Perennial ☐ Intermittent ☐ Tidal

Stream Type: ☒ Coldwater ☐ Warmwater

Stream Origin: ☐ Glacial ☐ Non-glacial montane ☐ Swamp and bog ☐ Spring-fed ☒ Mixture of origins ☐ Other_____

Catchment Area_____km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	**Predominant Surrounding Landuse** ☒ Forest ☐ Commercial ☐ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other _____ ☐ Residential **Local Watershed NPS Pollution** ☐ No evidence ☒ Some potential sources ☐ Obvious sources **Local Watershed Erosion** ☒ None ☐ Moderate ☐ Heavy
RIPARIAN VEGETATION (18 meter buffer)	**Indicate the dominant type and record the dominant species present** ☒ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous **dominant species present** BEECH, PITCH PINO
INSTREAM FEATURES	**Estimated Reach Length** ~~10~~ (?) m **Estimated Stream Width** 3 m **Sampling Reach Area** 1-2 m² **Area in km² (m²x1000)** _____ km² **Estimated Stream Depth** 0.5 m **Surface Velocity (at thalweg)** MINIMAL _____ m/sec **Canopy Cover** ☒ Partly open ☐ Partly shaded ☐ Shaded **High Water Mark** 2 m **Proportion of Reach Represented by Stream Morphology Types** ☐ Riffle _____ % ☐ Run _____ % ☐ Pool _____ % **Channelized** ☒ Yes ☐ No **Dam Present** ☒ Yes * ☐ No * BEDROCK "DAM" (NATURAL)
LARGE WOODY DEBRIS	**LWD** _____ m² SOME WOODY DEBRIS, NO LARGE SNAGS. **Density of LWD** 5 (?) m²/km² (LWD/ reach area)
AQUATIC VEGETATION	**Indicate the dominant type and record the dominant species present** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☒ Floating Algae ☒ Attached Algae **dominant species present** _____ **Portion of the reach with aquatic vegetation** <5 %
WATER QUALITY	**Temperature** 17.5 °C **Specific Conductance** 1.514 **Dissolved Oxygen** 55.5% 5.22mg/L **pH** 4.23 **Turbidity** 14.1 **WQ Instrument Used** YSI **Water Odors** ☒ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other _____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☒ None ☐ Other _____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other _____
SEDIMENT/ SUBSTRATE	**Odors** ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None ☐ Other _____ **Oils** ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** ☐ Sludge ☐ Sawdust ☐ Paper fiber ☐ Sand ☐ Relict shells ☒ Other POLLEN **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		10	Detritus	sticks, wood, coarse plant materials (CPOM)	20%
Boulder	> 256 mm (10")	10			
Cobble	64-256 mm (2.5"-10")	75	Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1"-2.5")				
Sand	0.06-2mm (gritty)	5	Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)				

REST, MOSTLY COBBLES

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME	LOCATION BA247-6	
STATION #_____ RIVERMILE_____	STREAM CLASS	
LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY ERT/RGAC/Fish&Wildlife	
INVESTIGATORS C.G. / M. Nigro / R. Henry / S. Fredericks.		
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/01 TIME 11:30 AM PM	REASON FOR SURVEY Biological / Stream Impact

GPS

Parameters to be evaluated in sampling reach	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0
	2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
	3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0
	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

59

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 142

57
83
142

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION BA247-6
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT / RGAC / Fish & Wildlife.
INVESTIGATORS Rich Henry / Mike Nigro / Chris Guzman / Scott Frederick	LOT NUMBER
FORM COMPLETED BY Chris Guzman	DATE 3/27/07 TIME 11:40 AM PM / REASON FOR SURVEY Biological / STREAM IMPACT

HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Cobble_____% ☐ Snags_____% ☐ Vegetated Banks_____% ☐ Sand_____% ☐ Submerged Macrophytes_____% ☐ Other ( )_____%
SAMPLE COLLECTION	**Gear used** ■ D-frame ☐ kick-net ☐ Other _____ **How were the samples collected?** ■ wading ☐ from bank ☐ from boat **Indicate the number of jabs/kicks taken in each habitat type.** ☐ Cobble_____ ☐ Snags_____ ☐ Vegetated Banks_____ ☐ Sand_____ ☐ Submerged Macrophytes_____ ☐ Other ( )_____
GENERAL COMMENTS	SMALL PRIOR / TADPOLES ONLY LIVING FAUNA

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant N/A – NONE

Periphyton	0	1	2	3	4	Slimes	0	1	~~2~~	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	~~2~~	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4	NONE !!					
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

FINAL DRAFT

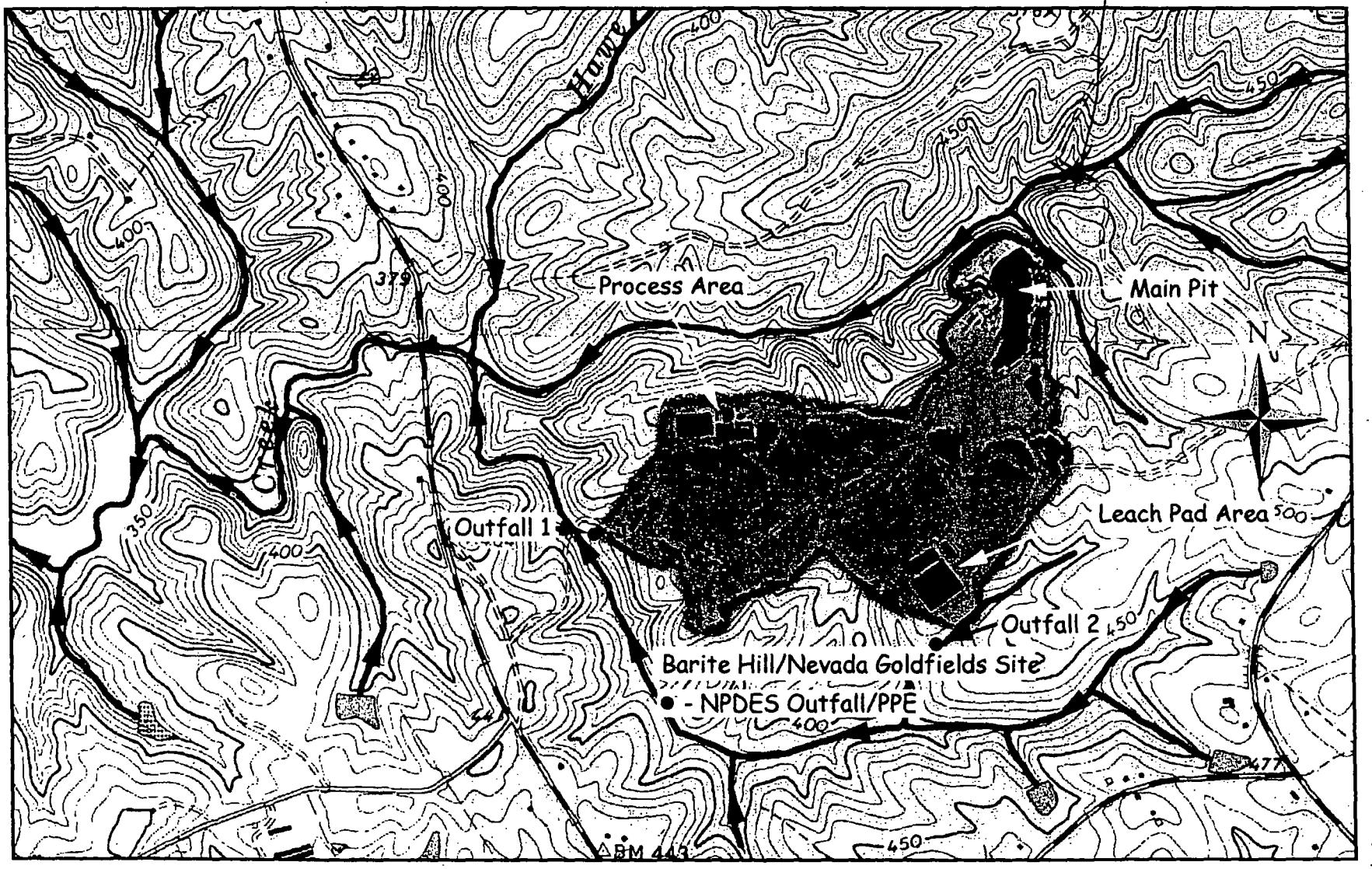


Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

Sample Location: BA 247-7 - Further upstream in "Clean" area (?) as control from side tributary NE of site

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME	LOCATION BH247-7
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT / REAC
INVESTIGATORS M. NIGRO / C. GUSMAN / R. HENRY / S. FREDERICK	
FORM COMPLETED BY Chris Gusman	DATE 3/27/07 TIME 11:55 AM PM — REASON FOR SURVEY Biological sunny / stream image

WEATHER CONDITIONS

SUNNY.

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___%☐	%cloud cover	☐___%
☒	clear/sunny	☒

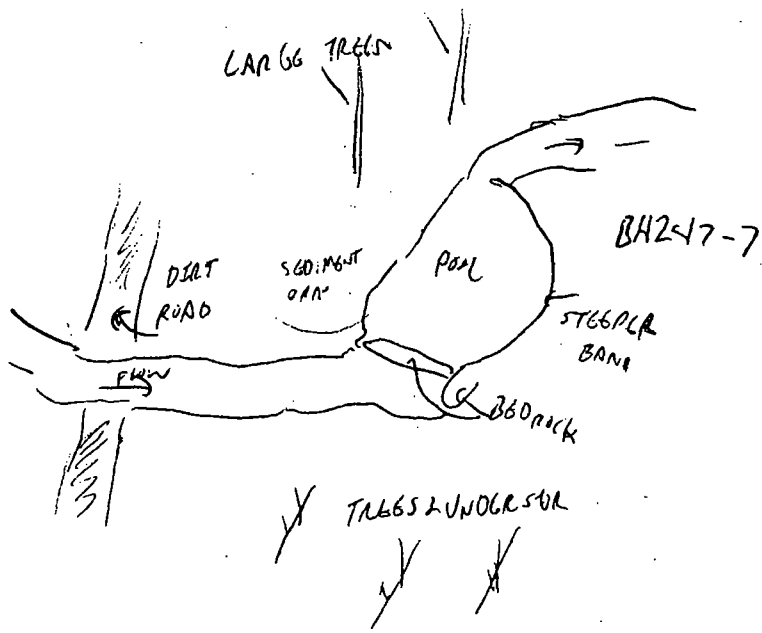
Has there been a heavy rain in the last 7 days? ☐ Yes ☒ No

Air Temperature 25 °C (Estimated)

Other_____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem: ☒ Perennial ☐ Intermittent ☐ Tidal

Stream Type: ☒ Coldwater ☐ Warmwater

Stream Origin: ☐ Glacial ☐ Non-glacial montane ☐ Swamp and bog ☐ Spring-fed ☐ Mixture of origins ☒ Other_____

Catchment Area_____km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

BH247-7

WATERSHED FEATURES	**Predominant Surrounding Landuse** ☒ Forest ☐ Commercial ☐ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other _____ ☐ Residential **Local Watershed NPS Pollution** ☒ No evidence ☐ Some potential sources ☐ Obvious sources **Local Watershed Erosion** ☒ None ☐ Moderate ☐ Heavy
RIPARIAN VEGETATION (18 meter buffer)	**Indicate the dominant type and record the dominant species present** ☒ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous **dominant species present** MATURE BEECH + LOBLOLLY PINE
INSTREAM FEATURES	**Estimated Reach Length** _____ m **Estimated Stream Width** 2 m **Sampling Reach Area** 5 m² **Area in km² (m²x1000)** _____ km² **Estimated Stream Depth** 0.5 m (POOL) **Surface Velocity (at thalweg)** _____ m/sec MINIMAL, SOME FLOW **Canopy Cover** ☒ Partly open ☐ Partly shaded ☒ Shaded SUMMER NOW **High Water Mark** 1 m **Proportion of Reach Represented by Stream Morphology Types** ☐ Riffle 25 % ☐ Run 25 % ☐ Pool 50 % **Channelized** ☒ Yes ☐ No **Dam Present** ☐ Yes ☒ No
LARGE WOODY DEBRIS	**LWD** _____ m² MINIMAL, SOME LARGE **Density of LWD** _____ m²/km² (LWD/ reach area)
AQUATIC VEGETATION	**Indicate the dominant type and record the dominant species present** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☐ Floating Algae ☒ Attached Algae <5% MINIMAL **dominant species present** _____ **Portion of the reach with aquatic vegetation** <5 %
WATER QUALITY	**Temperature** 17.5 °C **Specific Conductance** 2.3 ms/cm **Dissolved Oxygen** 72.5% / 6.7 mg/L **pH** 6.7 **Turbidity** 1.1 **WQ Instrument Used** YSI **Water Odors** ☒ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other _____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☒ None ☐ Other _____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other _____
SEDIMENT/ SUBSTRATE	**Odors** ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None ☐ Other _____ **Oils** ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** ☐ Sludge ☐ Sawdust ☐ Paper fiber ☒ Sand ☐ Relict shells ☒ Other POLLEN **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		20	Detritus	sticks, wood, coarse plant materials (CPOM)	25% in POOL
Boulder	> 256 mm (10")	20			
Cobble	64-256 mm (2.5"-10")	40	Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1"-2.5")	20			
Sand	0.06-2mm (gritty)		Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)				

2 2 1065

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME	LOCATION ~~BH247-6~~ BH247-7
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY RBPC/ERT/FAW
INVESTIGATORS C.G. / R.H. / M.N. / S.F.	
FORM COMPLETED BY Chris Grossman	DATE 7/27/97 TIME 11:50 AM PM / REASON FOR SURVEY Biological / stream impact

	Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
Parameters to be evaluated in sampling reach	1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
	2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
	SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
	3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE	20 19 (18) 17 ~~16~~	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

(18)

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 149

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION BH247-7
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT/FAW/REDC
INVESTIGATORS R. HENRY / C. GUSSMAN / M. NIGRO / J. FREDERICK	LOT NUMBER
FORM COMPLETED BY	DATE 8/27/07 TIME 11:50 AM PM — REASON FOR SURVEY Biologic survey / stream impact

HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Cobble 100 % ☐ Snags____% ☐ Vegetated Banks 100 % ☐ Sand____% ☐ Submerged Macrophytes____% ☐ Other ( )____%
SAMPLE COLLECTION	**Gear used** ☒ D-frame ☐ kick-net ☐ Other _____ **How were the samples collected?** ☒ wading ☐ from bank ☐ from boat **Indicate the number of jabs/kicks taken in each habitat type.** ☒ Cobble 75 ☐ Snags____ ☒ Vegetated Banks____ ☐ Sand____ ☐ Submerged Macrophytes____ ☒ Other (CLAY SEDIMENT) 25
GENERAL COMMENTS	POOL. - UPSTREAM. → Relatively low diversity & abundance but appropriate for habitat (non-impacted).

QUALITATIVE LISTING OF AQUATIC BIOTA
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

N/A.

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	√Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	√Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
√Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
√Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
√Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

FINAL DRAFT

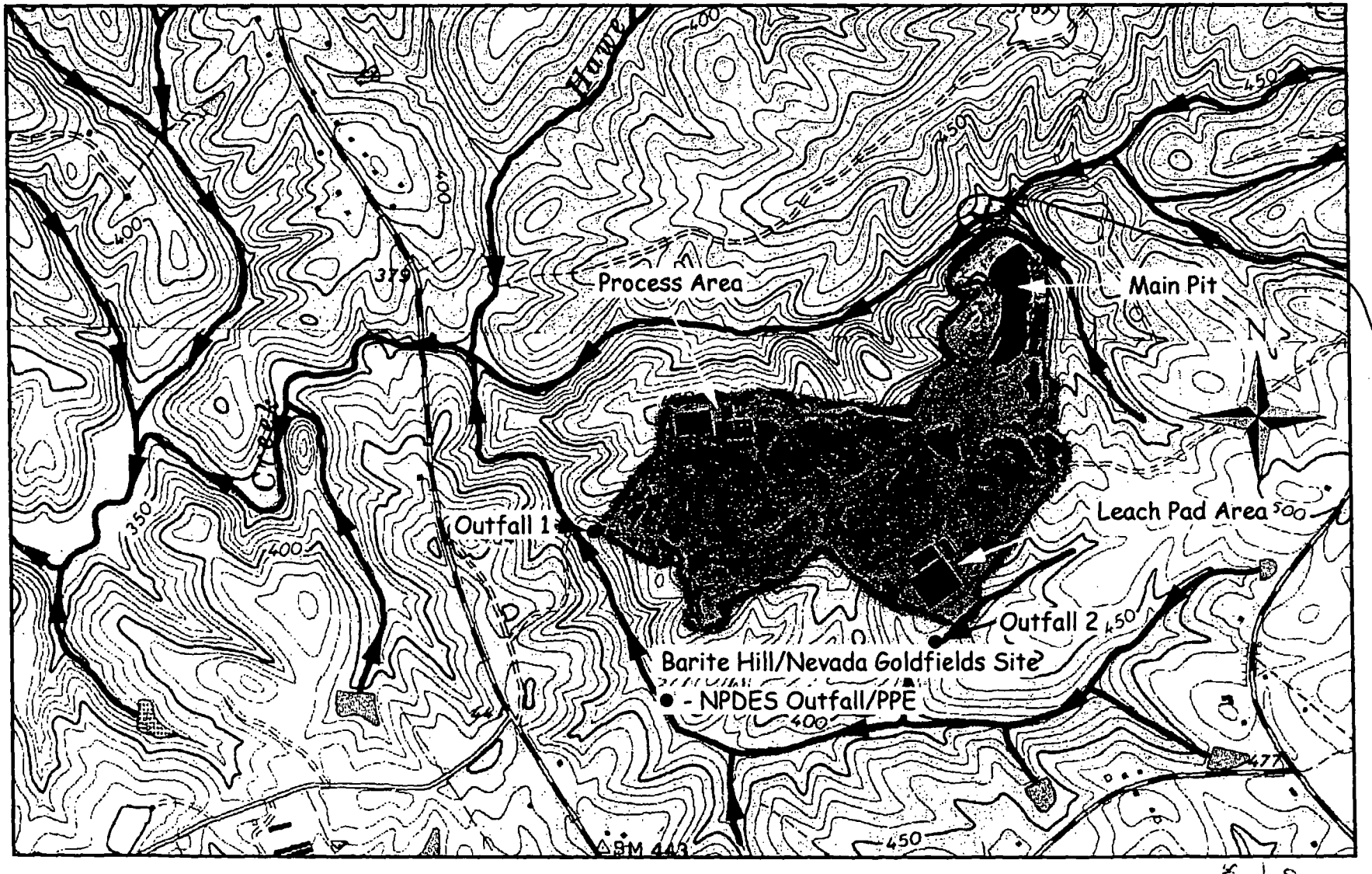


Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

Sample Location: BH217-8 = Downstream of SCGP + Site Influence.

Bottom orange fld surface material

2 2 0068

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

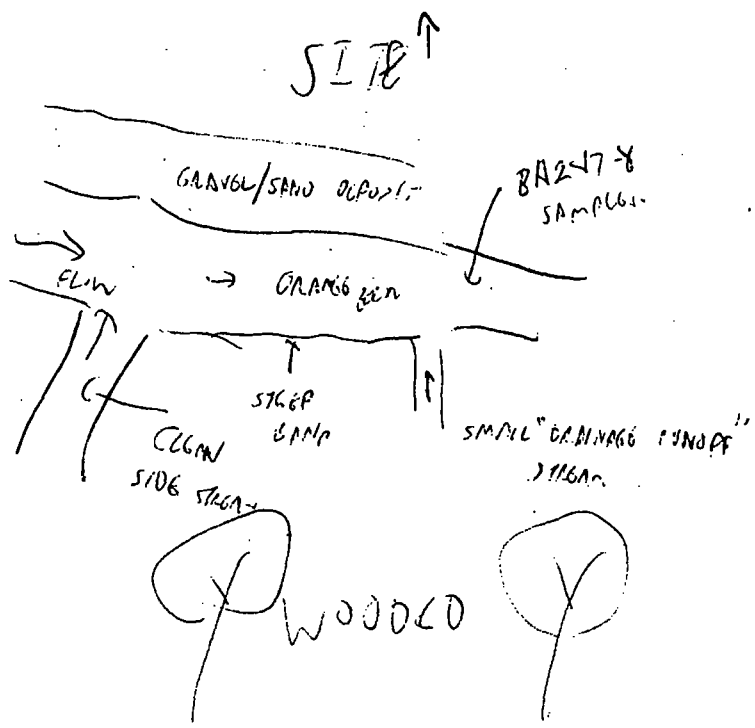
GPS

STREAM NAME	LOCATION BA247-8
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY EPT/REAC/FOW
INVESTIGATORS C. GUSMAN / M. NIGAS / S. FALLAICH / RICH NGHRK	
FORM COMPLETED BY C. GUSMAN	DATE 3/27/01 TIME _____ AM PM
REASON FOR SURVEY Biological / STREAM IMPACT	

WEATHER CONDITIONS SUNNY, CLEAR	**Now**	**Past 24 hours**	**Has there been a heavy rain in the last 7 days?** ☐ Yes ☑ No
	☐ storm (heavy rain)	☐	**Air Temperature** 26 °C (ESTIMATED)
	☐ rain (steady rain)	☐	
	☐ showers (intermittent)	☐	**Other**_____
	___%☐ %cloud cover	☐___%	
	☑ clear/sunny	☑	

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
☑ Perennial ☐ Intermittent ☐ Tidal

Stream Type
☑ Coldwater ☐ Warmwater

Stream Origin
☐ Glacial ☐ Spring-fed
☐ Non-glacial montane ☐ Mixture of origins
☐ Swamp and bog ☐ Other_____

Catchment Area_____km²

2 2 0070

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	**Predominant Surrounding Landuse** ☒ Forest ☐ Commercial ☐ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other _____ ☐ Residential **Local Watershed NPS Pollution** ☐ No evidence ☒ Some potential sources ☐ Obvious sources **Local Watershed Erosion** ☒ None ☐ Moderate ☐ Heavy
RIPARIAN VEGETATION (18 meter buffer)	**Indicate the dominant type and record the dominant species present** ☒ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous **dominant species present** BEECH / COBBLY fire / MIXED Herbaceous
INSTREAM FEATURES	**Estimated Reach Length** ~~10~~ 14 m 10 **Estimated Stream Width** 1 m **Sampling Reach Area** _____ m^2 **Area in km^2 (m^2x1000)** _____ km^2 **Estimated Stream Depth** 0.3 m **Surface Velocity (at thalweg)** _____ m/sec **Canopy Cover** NOW ☒ Partly open ☐ Partly shaded ☒ Shaded ✓ SUMMER **High Water Mark** 1 m **Proportion of Reach Represented by Stream Morphology Types** ☐ Riffle 25 % ☐ Run 25 % ☐ Pool 50 % **Channelized** ☒ Yes ☐ No **Dam Present** ☐ Yes ☒ No
LARGE WOODY DEBRIS NO	**LWD** _____ m^2 SOME SNAGS / BRANCHES **Density of LWD** _____ m^2/km^2 (LWD/ reach area)
AQUATIC VEGETATION NO	**Indicate the dominant type and record the dominant species present** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☐ Floating Algae ☐ Attached Algae **dominant species present** _____ **Portion of the reach with aquatic vegetation** 0 %
WATER QUALITY	**Temperature** 18.5 °C **Specific Conductance** 2.175 **Dissolved Oxygen** 88.5 / 8.13 mg/L **pH** 2.8 **Turbidity** 1,201 (sic) **WQ Instrument Used** YSI **Water Odors** ☒ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other _____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☒ Flecks BACTERIA ☐ None ☐ Other _____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other _____
SEDIMENT/ SUBSTRATE	**Odors** ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None ☐ Other _____ **Oils** ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** ☐ Sludge ☐ Sawdust ☐ Paper fiber ☐ Sand ☐ Relict shells ☒ Other SOME CLAY **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		10	Detritus	sticks, wood, coarse plant materials (CPOM)	10
Boulder	> 256 mm (10")				
Cobble	64-256 mm (2.5"-10")	10 ~~70~~ 60	Muck-Mud	black, very fine organic (FPOM)	20
Gravel	2-64 mm (0.1"-2.5")				
Sand	0.06-2mm (gritty)		Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)	20			

70% COBBLE

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME	LOCATION BN247-8
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT / Fish+Wildlife / REAC
INVESTIGATORS A. HENRY, C. GUSMAN / M. NIGRO / S. FREDRICKS	
FORM COMPLETED BY	DATE 3/21/07 TIME 12:20 AM PM — REASON FOR SURVEY Biological / STREAM IMPACT

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

61

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 149

61
88
49

N/A. → STERILE AREA (+ low pH)

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION BH247-8
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT/FishWildlife/Ecol
INVESTIGATORS R. Henry / C. Gussman / M. Nigro / S. Fredericks	LOT NUMBER
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/07 TIME _____ AM PM
	REASON FOR SURVEY Biological Assessment

HABITAT TYPES	**Indicate the percentage of each habitat type present** ❑ Cobble____% ❑ Snags____% ❑ Vegetated Banks____% ❑ Sand____% ❑ Submerged Macrophytes____% ❑ Other ( )____%
SAMPLE COLLECTION	**Gear used** ❑ D-frame ❑ kick-net ❑ Other _____ **How were the samples collected?** ❑ wading ❑ from bank ❑ from boat **Indicate the number of jabs/kicks taken in each habitat type.** ❑ Cobble____ ❑ Snags____ ❑ Vegetated Banks____ ❑ Sand____ ❑ Submerged Macrophytes____ ❑ Other ( )____
GENERAL COMMENTS	NO BENTHOS OBSERVED, NOT SAMPLED

QUALITATIVE LISTING OF AQUATIC BIOTA
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

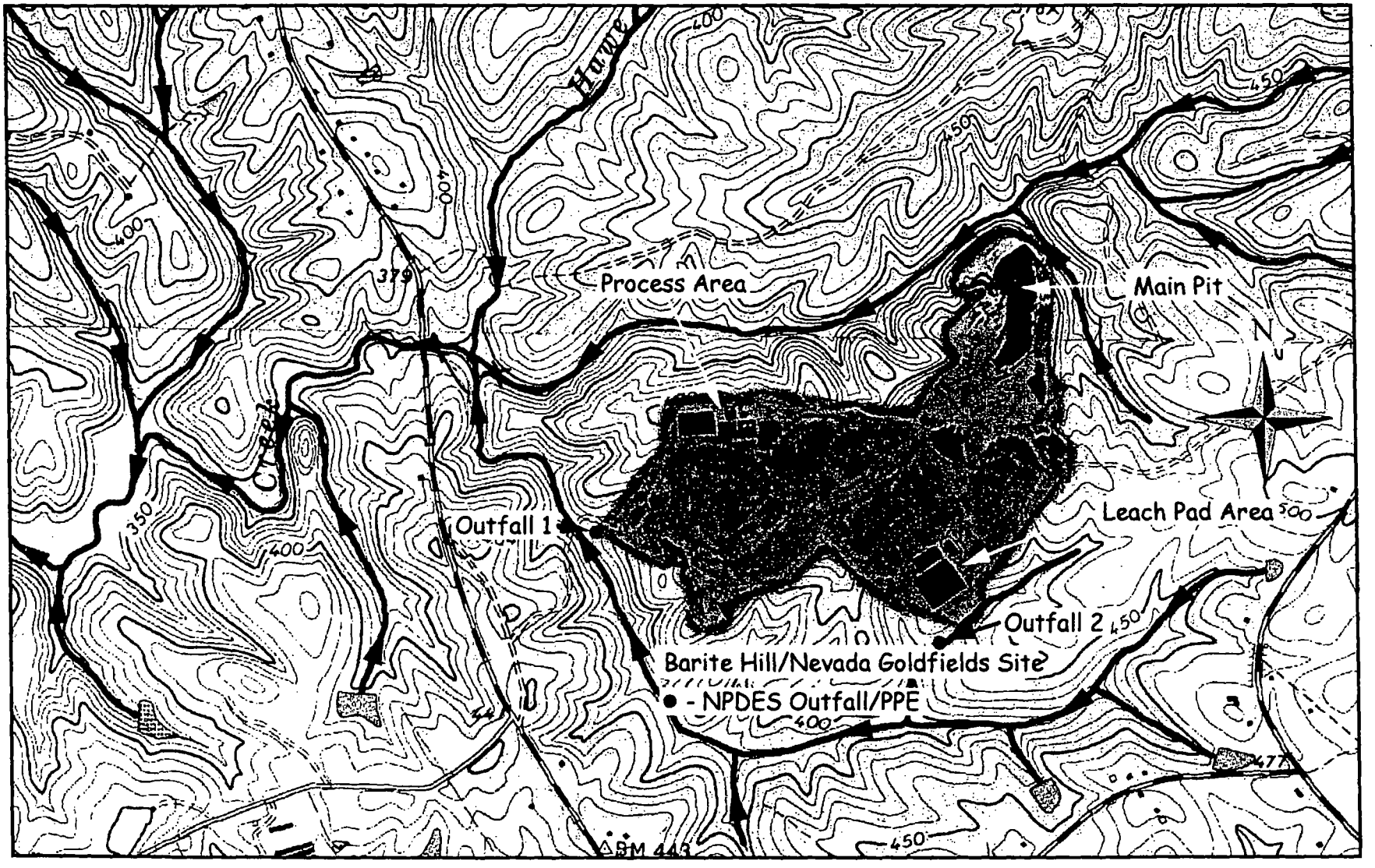
FIELD OBSERVATIONS OF MACROBENTHOS
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

NONE

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

FINAL DRAFT

≈50 YARDS
JUST UPSTREAM OF MEETING
WITH HAWES CREEK



Sample Location: BH247-17

2 2 0074

Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

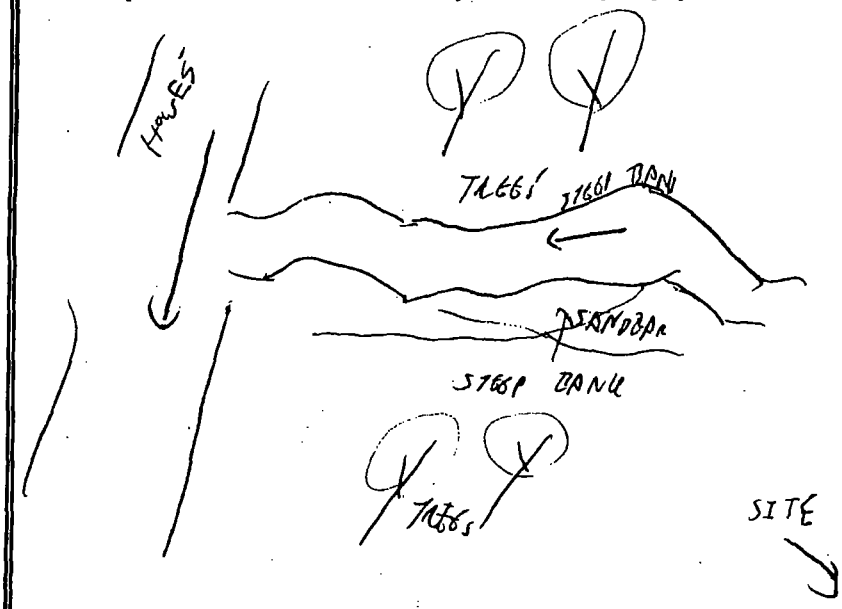
JUST UPSTREAM (≈25M) from Howe's junction

STREAM NAME UNNAMED NORTHERN TRIB	LOCATION BH247-17	
STATION #_____ RIVERMILE_____	STREAM CLASS	
GPS → LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY EPT / REAC / FOW.	
INVESTIGATORS R. HENRY / M. NEERO / C. GUSMAN / S. FREDERICKS		
FORM COMPLETED BY C. GUSMAN	DATE 3/27/07 TIME 3:00 AM (PM)	REASON FOR SURVEY BIOLOGICAL / STREAM IMPACT

WEATHER CONDITIONS	**Now**	**Past 24 hours**	**Has there been a heavy rain in the last 7 days?** ☐ Yes ☒ No
	☐ storm (heavy rain)	☐	**Air Temperature** 27 °C (ESTIMATED)
	☐ rain (steady rain)	☐	
	☐ showers (intermittent)	☐	**Other**_____
	___%☐ %cloud cover	☐___%	
	☒ clear/sunny	☒	

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION	**Stream Subsystem** ☒ Perennial ☐ Intermittent ☐ Tidal	**Stream Type** ☒ Coldwater ☐ Warmwater
	Stream Origin ☐ Glacial ☐ Non-glacial montane ☐ Swamp and bog ☒ Spring-fed ☒ Mixture of origins ☐ Other_____	**Catchment Area**_____km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	**Predominant Surrounding Landuse** ☒ Forest ☐ Commercial ☐ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other _____ ☐ Residential **Local Watershed NPS Pollution** ☐ No evidence ☒ Some potential sources ☒ Obvious sources **Local Watershed Erosion** ☐ None ☒ Moderate ☐ Heavy
RIPARIAN VEGETATION (18 meter buffer)	**Indicate the dominant type and record the dominant species present** ☒ Trees ☐ Shrubs ☐ Grasses ☒ Herbaceous **dominant species present** GOOD MIXTURE TREES Yellow Birch, Arundinaria, Rhododendron,
INSTREAM FEATURES	**Estimated Reach Length** ____ m **Estimated Stream Width** 1 m **Sampling Reach Area** 1.5 m² **Area in km² (m²x1000)** 1.5 km² N/A **Estimated Stream Depth** 0.1 m **Surface Velocity** 0.5 m/sec (at thalweg) MWING, RIPPLE **Canopy Cover** ☒ Partly open ☐ Partly shaded ☒ Shaded **High Water Mark** 1 m **Proportion of Reach Represented by Stream Morphology Types** ☐ Riffle 70 % ☐ Run 20 % ☐ Pool 10 % **Channelized** ☒ Yes ☐ No **Dam Present** ☐ Yes ☒ No
LARGE WOODY DEBRIS	**LWD** 10 m² **Density of LWD** 5 m²/km² (LWD/ reach area)
AQUATIC VEGETATION	**Indicate the dominant type and record the dominant species present** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☐ Floating Algae ☐ Attached Algae **dominant species present** NONE **Portion of the reach with aquatic vegetation** 0 %
WATER QUALITY	**Temperature** 21.74 °C **Specific Conductance** 0.545 mS/cm **Dissolved Oxygen** 96.9% **pH** 4.04 **Turbidity** 0.9 NTU **WQ Instrument Used** YSI **Water Odors** ☒ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other_____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☒ None ☐ Other_____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other_____
SEDIMENT/ SUBSTRATE	**Odors** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☒ None ☐ Other_____ **Oils** ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** ☐ Sludge ☐ Sawdust ☐ Paper fiber ☒ Sand ☐ Relict shells ☐ Other_____ **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock			Detritus	sticks, wood, coarse plant materials (CPOM)	5%
Boulder	> 256 mm (10")	5%			
Cobble	64-256 mm (2.5"-10")	5%	Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1"-2.5")	15%			
Sand	0.06-2mm (gritty)	70%	Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)	5%			

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME	LOCATION BA247-17
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT / REAC / FOW
INVESTIGATORS C. GUSSMAN / R. AGNEW / M. MIGRO / S. FREDERICK	
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/97 TIME 3:10 AM (PM) — REASON FOR SURVEY Biological / Stream Impact

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	(15) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

55

BH247-17

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 (6)	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score 119

55
64
119

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION BA247-17
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT / FAW / RGAC
INVESTIGATORS RICH HENRY / MEG NEGRO / C. GUSMAN / S. Freeborn	LOT NUMBER
FORM COMPLETED BY C. GUSMAN	DATE 3/27/07 TIME 3:15 AM (PM) / REASON FOR SURVEY Biological / STREAM IMPACT

HABITAT TYPES	Indicate the percentage of each habitat type present ☐ Cobble 50 % ☐ Snags____% ☐ Vegetated Banks____% ☐ Sand 50 % ☐ Submerged Macrophytes____% ☐ Other ( )____%
SAMPLE COLLECTION	Gear used ☒ D-frame ☐ kick-net ☐ Other _____ How were the samples collected? ☒ wading ☐ from bank ☐ from boat Indicate the number of jabs/kicks taken in each habitat type. ☐ Cobble 50 ☐ Snags____ ☐ Vegetated Banks____ ☐ Sand 50 ☐ Submerged Macrophytes____ ☐ Other ( )____
GENERAL COMMENTS	POOR DIVERSITY & ~~ABUNDANT~~ Quantity. (2 INDIVIDUALS TOTAL) POOR STREAM QUALITY.

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera *	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4	* = 1 individual					
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda *	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

FINAL DRAFT

Barite Hill/Nevada Goldfields
SCD 987 597 903
Page 19

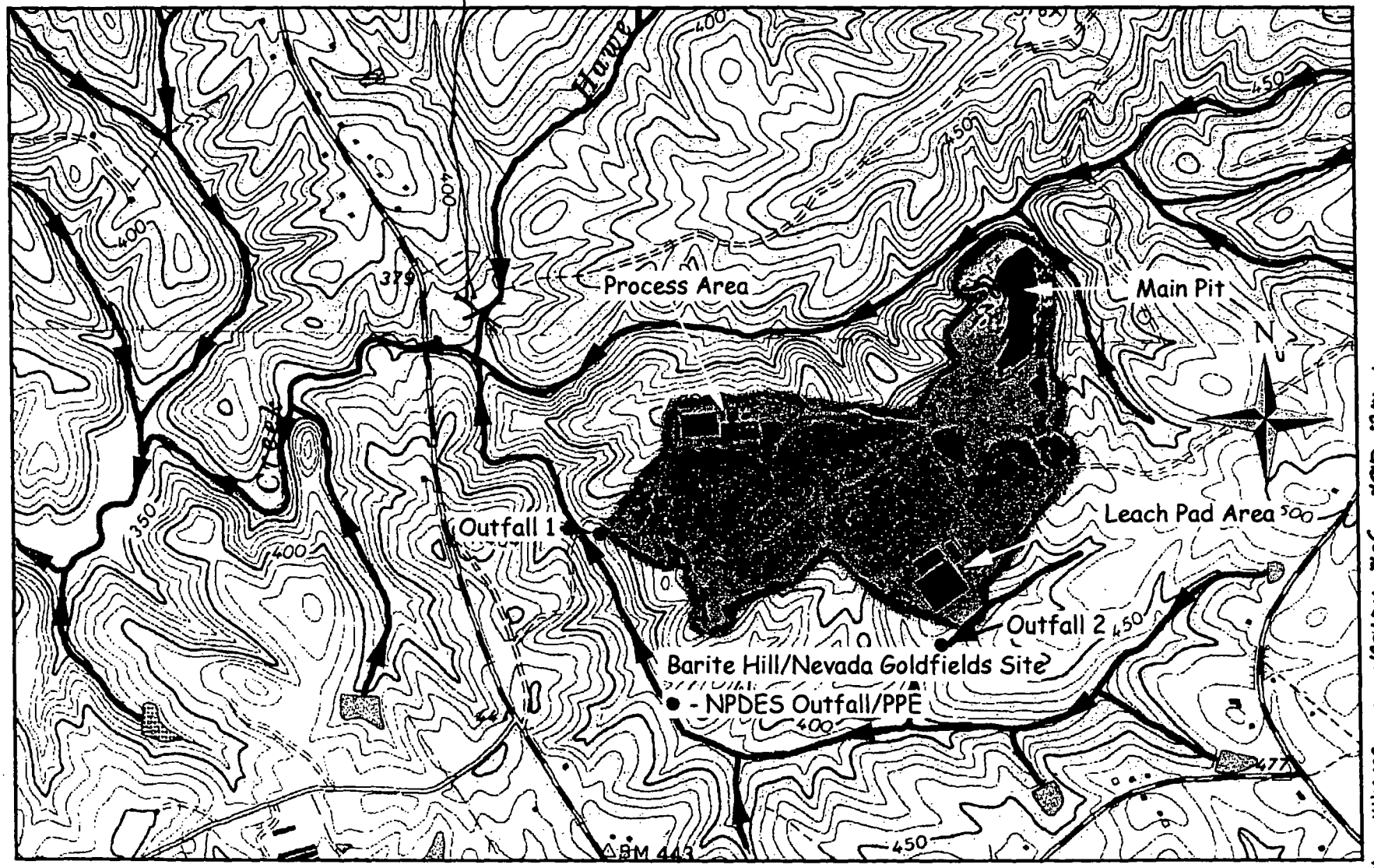


Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

Sample Location: BH247-18
In Hawe's Creek 50m upstream of Hwy. with [illegible]
7/18.

2 2 0080

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME HAWES CREEK	LOCATION BA247-18
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT/REAC/FAV
INVESTIGATORS C. GUSSMAN, R. AGNEW, M. NIAGA, S. FREDERICKS	
FORM COMPLETED BY G. GUSSMAN	DATE 3/27/07 TIME 3:30 AM (PM) — REASON FOR SURVEY Biological / STREAM IMPACT

WEATHER CONDITIONS SUNNY, SOME CLOUD COVER

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___%☐	%cloud cover	☐___%
☒	clear/sunny	☒

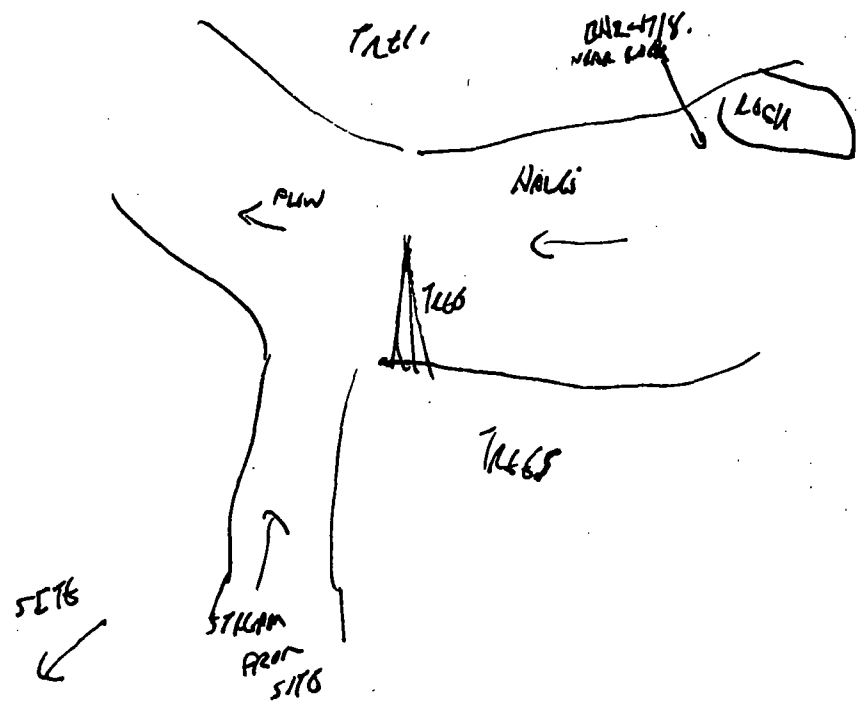
Has there been a heavy rain in the last 7 days? ☐ Yes ☒ No

Air Temperature 27 °C (Estimated)

Other_____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
☒ Perennial ☐ Intermittent ☐ Tidal

Stream Type
☒ Coldwater ☐ Warmwater

Stream Origin
☐ Glacial ☐ Spring-fed
☐ Non-glacial montane ☒ Mixture of origins
☐ Swamp and bog ☐ Other_____

Catchment Area_____km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	**Predominant Surrounding Landuse** ☒ Forest ☐ Commercial ☐ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other _____ ☐ Residential **Local Watershed NPS Pollution** ☒ No evidence ☐ Some potential sources ☐ Obvious sources **Local Watershed Erosion** ☒ None ☐ Moderate ☐ Heavy
RIPARIAN VEGETATION (18 meter buffer)	**Indicate the dominant type and record the dominant species present** ☒ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous **dominant species present** CALPINUS / OAKS - GOOD UNDERSTORY
INSTREAM FEATURES	**Estimated Reach Length** _____ m **Estimated Stream Width** 5 m **Sampling Reach Area** _____ m² **Area in km² (m²x1000)** _____ km² **Estimated Stream Depth** 1 m **Surface Velocity (at thalweg)** 0.25 m/sec ? **Canopy Cover** ☐ Partly open ☐ Partly shaded ☒ Shaded (SHADED) **High Water Mark** 1.5 m (NOW) **Proportion of Reach Represented by Stream Morphology Types** ☐ Riffle 20 % ☐ Run 10 % ☐ Pool 70 % **Channelized** ☒ Yes ☐ No **Dam Present** ☐ Yes ☒ No
LARGE WOODY DEBRIS	**LWD** _____ m² **Density of LWD** _____ m²/km² (LWD/ reach area) MINIMAL, OCCASIONAL "LOG"
AQUATIC VEGETATION	***Indicate the dominant type and record the dominant species present*** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☐ Floating Algae ☐ Attached Algae **dominant species present** NONE VISIBLE (SANDY BOTTOM) **Portion of the reach with aquatic vegetation** 0 %
WATER QUALITY	**Temperature** 20.03 °C **Specific Conductance** 0.163 mS/cm **Dissolved Oxygen** 86.7% **pH** 6.33 **Turbidity** 0.6 NTU **WQ Instrument Used** YSI **Water Odors** ☒ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other _____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☒ None ☐ Other _____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other _____
SEDIMENT/ SUBSTRATE	**Odors** ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None ☐ Other _____ **Oils** ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** ☐ Sludge ☐ Sawdust ☐ Paper fiber ☒ Sand ☐ Relict shells ☐ Other _____ **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		5%	Detritus	sticks, wood, coarse plant materials (CPOM)	3%
Boulder	> 256 mm (10")				
Cobble	64-256 mm (2.5"-10")		Muck-Mud	black, very fine organic (FPOM)	—
Gravel	2-64 mm (0.1"-2.5")	5%			
Sand	0.06-2mm (gritty)	90%	Marl	grey, shell fragments	—
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)				

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME	LOCATION BH247-18	
STATION #_____ RIVERMILE_____	STREAM CLASS	
GPS → LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY ERT/MAC/AW	
INVESTIGATORS RICH HENRY / MIKE NIGRO / C. GUSSMAN /		
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/07 TIME 3:25 AM (PM)	REASON FOR SURVEY Biological / STREAM IMPACT

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	(15) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

55

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 (6)	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score 133

155
78
73

APPENDIX A
STREAM DATA SHEETS
BARITE HILL GOLD MINE
TRIP REPORT
JUNE 2007

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION BH247-18	
STATION #_____ RIVERMILE_____	STREAM CLASS	
GPS → LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY ERT / FOW / RBAC	
INVESTIGATORS R. HENRY / C. GUSSMAN / M. NEGRO / S. FRANCIS		LOT NUMBER
FORM COMPLETED BY C. GUSSMAN	DATE 7/27/07 TIME 3:30 AM (PM)	REASON FOR SURVEY Biological / STREAM IMPACT

HABITAT TYPES	Indicate the percentage of each habitat type present ☐ Cobble 10 % ☐ Snags ____ % ☐ Vegetated Banks 5 % ☐ Sand 80 % ☐ Submerged Macrophytes ____ % ☐ Other (STONE "DAM" (NATURAL)) 5 %
SAMPLE COLLECTION	Gear used ☒ D-frame ☐ kick-net ☐ Other _____ How were the samples collected? ☒ wading ☐ from bank ☐ from boat Indicate the number of jabs/kicks taken in each habitat type. ☐ Cobble ____ ☒ Snags 1 ☐ Vegetated Banks ____ ☐ Sand 4 ☐ Submerged Macrophytes ____ ☒ Other (/ VARIETY) ____
GENERAL COMMENTS	VERY SANDY AREA. POOR HABITAT BUT SOME DIVERSITY & ABUNDANCE.

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera DARTER	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

MOST COMMON = AMPHIPODS

FINAL DRAFT

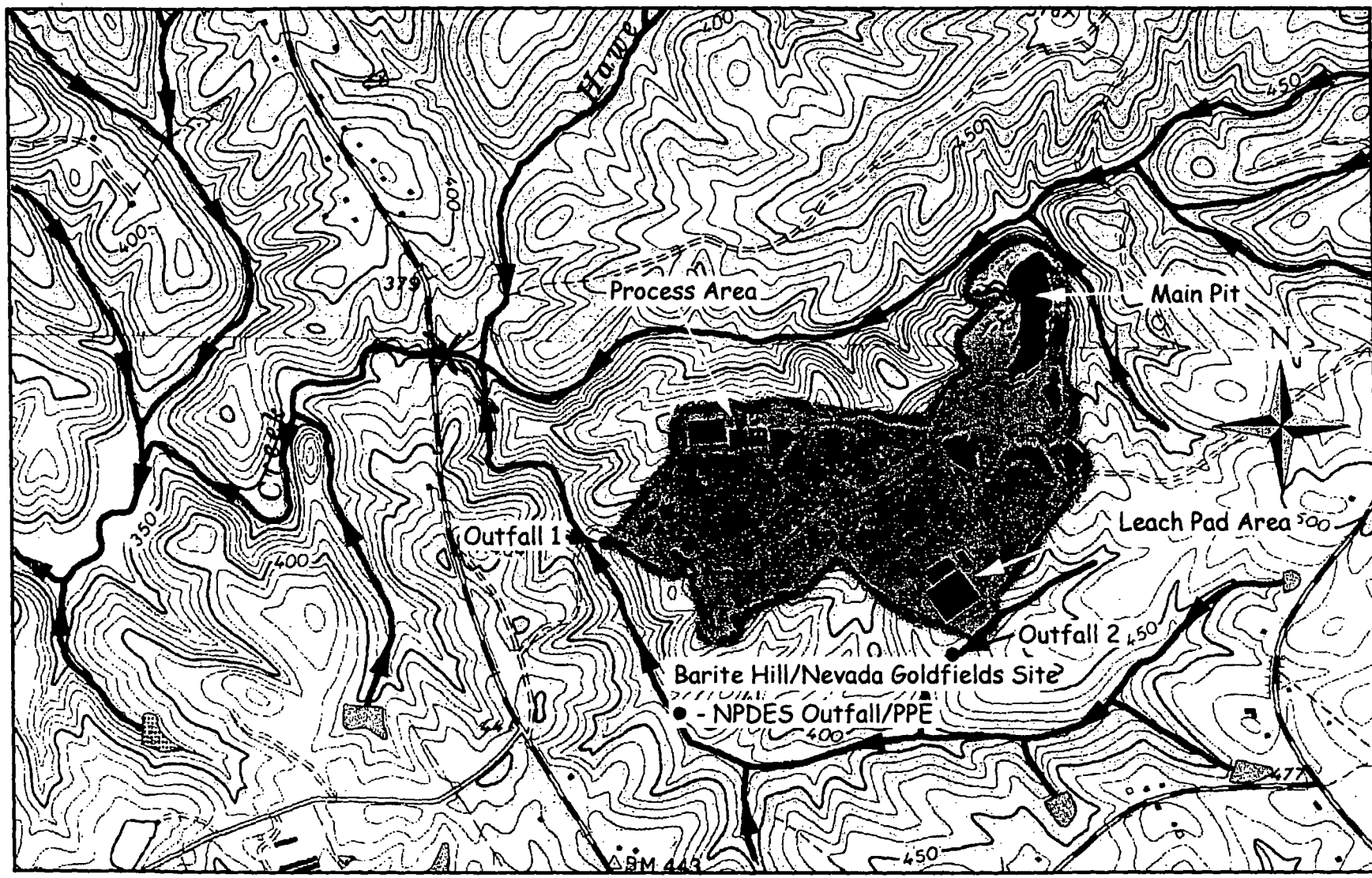


Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

Sample Location: BH247-19 AFTER HAWES CREEK MEET NORTHERN STIG SITE.

2 2 087

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME HAWES CREEK	LOCATION BH247-19
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY EAT / P&W / REAC
INVESTIGATORS R. HENRY / M. NIGRO / C. GUSSMAN / S. FREDERICKS	
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/07 TIME 8:50 AM (PM) — REASON FOR SURVEY BIOLOGICAL / STREAM IMPACT

WEATHER CONDITIONS

SUNNY, WARM. SUNNY, MINIMAL WIND

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___%☐	%cloud cover	☐___%
☑	clear/sunny	☑

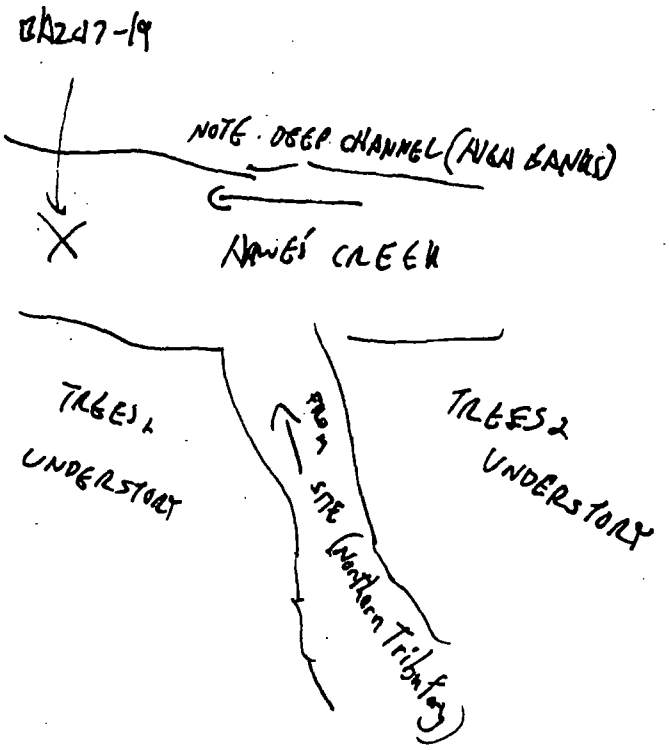
Has there been a heavy rain in the last 7 days? ☐ Yes ☑ No

Air Temperature 27 °C (ESTimated)

Other_____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem: ☑ Perennial ☐ Intermittent ☐ Tidal

Stream Type: ☑ Coldwater ☐ Warmwater

Stream Origin: ☐ Glacial ☐ Non-glacial montane ☐ Swamp and bog ☐ Spring-fed ☑ Mixture of origins ☐ Other_____

Catchment Area_____km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	**Predominant Surrounding Landuse** ☒ Forest ☐ Commercial ☒ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other _____ ☐ Residential **Local Watershed NPS Pollution** ☒ No evidence ☐ Some potential sources ☐ Obvious sources **Local Watershed Erosion** ☒ None ☐ Moderate ☐ Heavy
RIPARIAN VEGETATION (18 meter buffer)	**Indicate the dominant type and record the dominant species present** ☒ Trees ☒ Shrubs ☐ Grasses ☒ Herbaceous **dominant species present** GOOD MIXTURES OF TREES (OAK, BEECH) & Herbaceous understory
INSTREAM FEATURES	**Estimated Reach Length** _____ m **Estimated Stream Width** 5 m NW **Sampling Reach Area** _____ m^2 **Area in km^2 (m^2x1000)** _____ km^2 **Estimated Stream Depth** 0.2 m **Surface Velocity (at thalweg)** _____ m/sec MOVING. **Canopy Cover** ☐ Partly open ☐ Partly shaded ☒ Shaded SUMMER **High Water Mark** 1.5 m **Proportion of Reach Represented by Stream Morphology Types** ☐ Riffle 25 % ☐ Run 50 % ☐ Pool 25 % **Channelized** ☒ Yes ☐ No **Dam Present** ☐ Yes ☒ No
LARGE WOODY DEBRIS	**LWD** _____ m^2 MINIMAL LARGE WOODY DEBRIS **Density of LWD** _____ m^2/km^2 (LWD/ reach area)
AQUATIC VEGETATION	**Indicate the dominant type and record the dominant species present** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☐ Floating Algae ☐ Attached Algae **dominant species present** _____ **Portion of the reach with aquatic vegetation** 0 %
WATER QUALITY	**Temperature** 23.7 °C **Specific Conductance** 0.24 **Dissolved Oxygen** 5.5 **pH** 6.22 **Turbidity** 0.9 **WQ Instrument Used** HCT **Water Odors** ☒ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other _____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☒ None ☐ Other _____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other _____
SEDIMENT/ SUBSTRATE	**Odors** ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None ☐ Other _____ **Oils** ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** ☐ Sludge ☐ Sawdust ☐ Paper fiber ☒ Sand ☐ Relict shells ☐ Other _____ **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock			Detritus	sticks, wood, coarse plant materials (CPOM)	<2%
Boulder	> 256 mm (10")				
Cobble	64-256 mm (2.5"-10")	5	Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1"-2.5")	15			
Sand	0.06-2mm (gritty)	80	Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)				

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

GPS

STREAM NAME	LOCATION BH247-19
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY
INVESTIGATORS M. NILES / R. HENRY	C. GUSSMAN / S. FREDERICKS.
FORM COMPLETED BY C. Gussman	DATE 3/27/07 TIME 4:00 AM (PM) — REASON FOR SURVEY Biological / STREAM IMPACT

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16 (10)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

<18 (8)

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score 132

48
84
132

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION BH247-19
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY EAT / ~~[illegible]~~ / ~~[illegible]~~ FOW/RBAC
INVESTIGATORS C. GUSMAN / R. AGNEW / M. NIERI / S. Fickenscher	LOT NUMBER
FORM COMPLETED BY C. Gusman	DATE 3/22/07 TIME 3:45 AM (PM) / REASON FOR SURVEY Biological / STREAM IMPACT

HABITAT TYPES	Indicate the percentage of each habitat type present ☐ Cobble 30 % ☐ Snags____% ☐ Vegetated Banks____% ☐ Sand 70 % ☐ Submerged Macrophytes____% ☐ Other ( )____%
SAMPLE COLLECTION	Gear used ☐ D-frame ☒ kick-net ☐ Other _____ How were the samples collected? ☒ wading ☐ from bank ☐ from boat Indicate the number of jabs/kicks taken in each habitat type. ☐ Cobble____ ☐ Snags____ ☐ Vegetated Banks____ ☐ Sand 70-1% (3 kicks) ☐ Submerged Macrophytes____ ☐ Other ( )____
GENERAL COMMENTS	SANDY BOTTOM W STONE COBBLE. – NOTE: AMPHIPODS ABSENT (PRESENT UPSTREAM BEFORE NORTHERN SITE STREAM ENCLOSURE) MAYFLIES ABSENT

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera (caddis)	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae (black)	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

NOTE: SHELLS OF ASIATIC CLAM FOUND AT THIS LOCATION (NOT LIVE)

FINAL DRAFT

BH247-21

ON HAWE'S CREEK, AFTER ALL STREAMS MEET

Sample Location: BH247-21

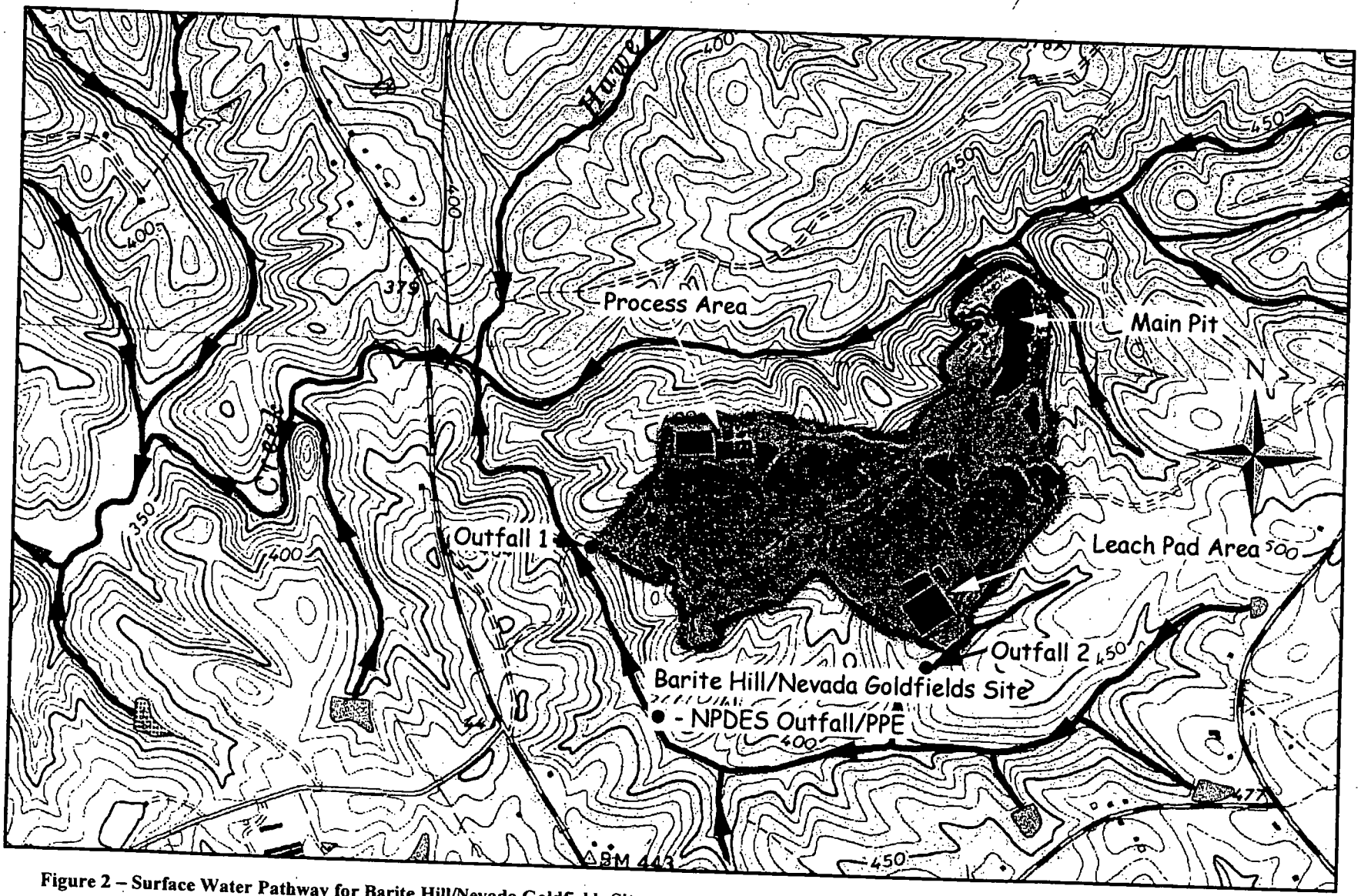


Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME - DAWES	LOCATION BA247-21
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT/ REAC/ FOW
INVESTIGATORS R. HENRY / M. NIGRO / C. GUSMAN / S. FREDERICKS	
FORM COMPLETED BY C. GUSMAN	DATE 3/27/07 TIME 5:00 AM (PM) — REASON FOR SURVEY BIOLOGICAL / STREAM IMPACT

WEATHER CONDITIONS
SUNNY

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___%☐	%cloud cover	☐___%
☒	clear/sunny	☒

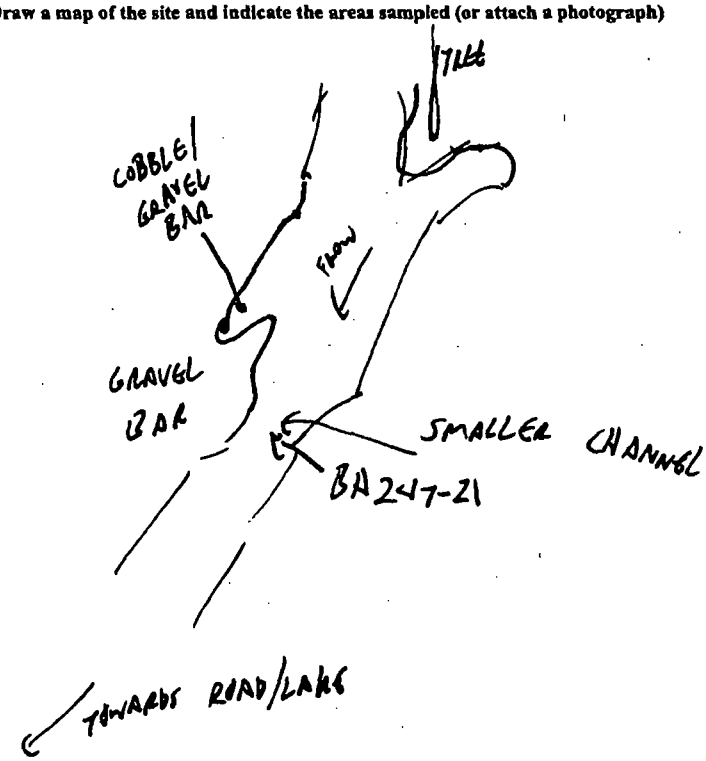
Has there been a heavy rain in the last 7 days? ☐ Yes ☒ No

Air Temperature 24 °C

Other_____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
☒ Perennial ☐ Intermittent ☐ Tidal

Stream Type
☒ Coldwater ☐ Warmwater

Stream Origin
☐ Glacial ☐ Spring-fed
☐ Non-glacial montane ☒ Mixture of origins
☐ Swamp and bog ☐ Other_____

Catchment Area_____km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	**Predominant Surrounding Landuse** ☒ Forest ☐ Commercial ☐ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other _____ ☐ Residential **Local Watershed NPS Pollution** ☐ No evidence ☒ Some potential sources ☐ Obvious sources **Local Watershed Erosion** ☐ None ☒ Moderate ☐ Heavy
RIPARIAN VEGETATION (18 meter buffer)	**Indicate the dominant type and record the dominant species present** ☒ Trees ☒ Shrubs ☐ Grasses ☒ Herbaceous **dominant species present** ALGO COMMUNITY, GOLD TOOG, Shrub Lobelia
INSTREAM FEATURES	**Estimated Reach Length** _____m **Estimated Stream Width** _____m NOW ↗ **Sampling Reach Area** _____m² **Area in km² (m²x1000)** _____km² **Estimated Stream Depth** _____m **Surface Velocity (at thalweg)** _____m/sec **Canopy Cover** SUMMER ☐ Partly open ☐ Partly shaded ☒ Shaded **High Water Mark** 1.5 m **Proportion of Reach Represented by Stream Morphology Types** ☐ Riffle 40 % ☐ Run 40 % ☐ Pool 20 % **Channelized** ☒ Yes ☐ No **Dam Present** ☐ Yes ☒ No
LARGE WOODY DEBRIS	**LWD** _____m² OCCASIONAL SIGN **Density of LWD** _____m²/km² (LWD/ reach area)
AQUATIC VEGETATION	**Indicate the dominant type and record the dominant species present** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☐ Floating Algae ☐ Attached Algae **dominant species present** NO. **Portion of the reach with aquatic vegetation** _____%
WATER QUALITY	**Temperature** 20.93 °C **Specific Conductance** 0.234 mS/cm **Dissolved Oxygen** 64.1% **pH** 6.88 **Turbidity** 7.7 NTU **WQ Instrument Used** YSI **Water Odors** ☐ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other _____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☒ None ☐ Other _____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other _____
SEDIMENT/ SUBSTRATE	**Odors** ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None ☐ Other _____ **Oils** ☐ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** ☐ Sludge ☐ Sawdust ☐ Paper fiber ☒ Sand SUM 6 ☐ Relict shells ☐ Other _____ **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☐ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		20%	Detritus	sticks, wood, coarse plant materials (CPOM)	<2%
Boulder	> 256 mm (10")	5%			
Cobble	64-256 mm (2.5"-10")	30%	Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1"-2.5")	30%			
Sand	0.06-2mm (gritty)	15%	Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)				

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME ITAWES	LOCATION BA247-21
STATION #_____ RIVERMILE_____	STREAM CLASS
GN → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT/REAC/FAW
INVESTIGATORS R. HENRY / M. NIGRO / S. FREDERICKS / C. GUSSMAN	
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/07 TIME 5:05 AM (PM) REASON FOR SURVEY BIOLOGICAL MONITORING / STREAM IMPACT

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation. o.k.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0

49

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 128

179
-49
128

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME HAWE	LOCATION BH2017-X 21
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT/REAC/FIW
INVESTIGATORS R. HENRIK / M. NIGRO	LOT NUMBER
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/07 TIME 5:10 AM PM — REASON FOR SURVEY Biological / STREAM IMPACT

HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Cobble 40 % ☐ Snags____% ☐ Vegetated Banks____% ☐ Sand 20 % ☐ Submerged Macrophytes____% ☐ Other ( )____%
SAMPLE COLLECTION	**Gear used** ☒ D-frame ☐ kick-net ☐ Other _____ **How were the samples collected?** ☒ wading ☐ from bank ☐ from boat **Indicate the number of jabs/kicks taken in each habitat type.** ☐ Cobble 3 ☐ Snags____ ☐ Vegetated Banks____ ☐ Sand____ ☐ Submerged Macrophytes____ ☐ Other ( )____
GENERAL COMMENTS	NARROW CHANNEL, RIFFLED. LOW HABITAT DIVERSITY.

QUALITATIVE LISTING OF AQUATIC BIOTA
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

FINAL DRAFT

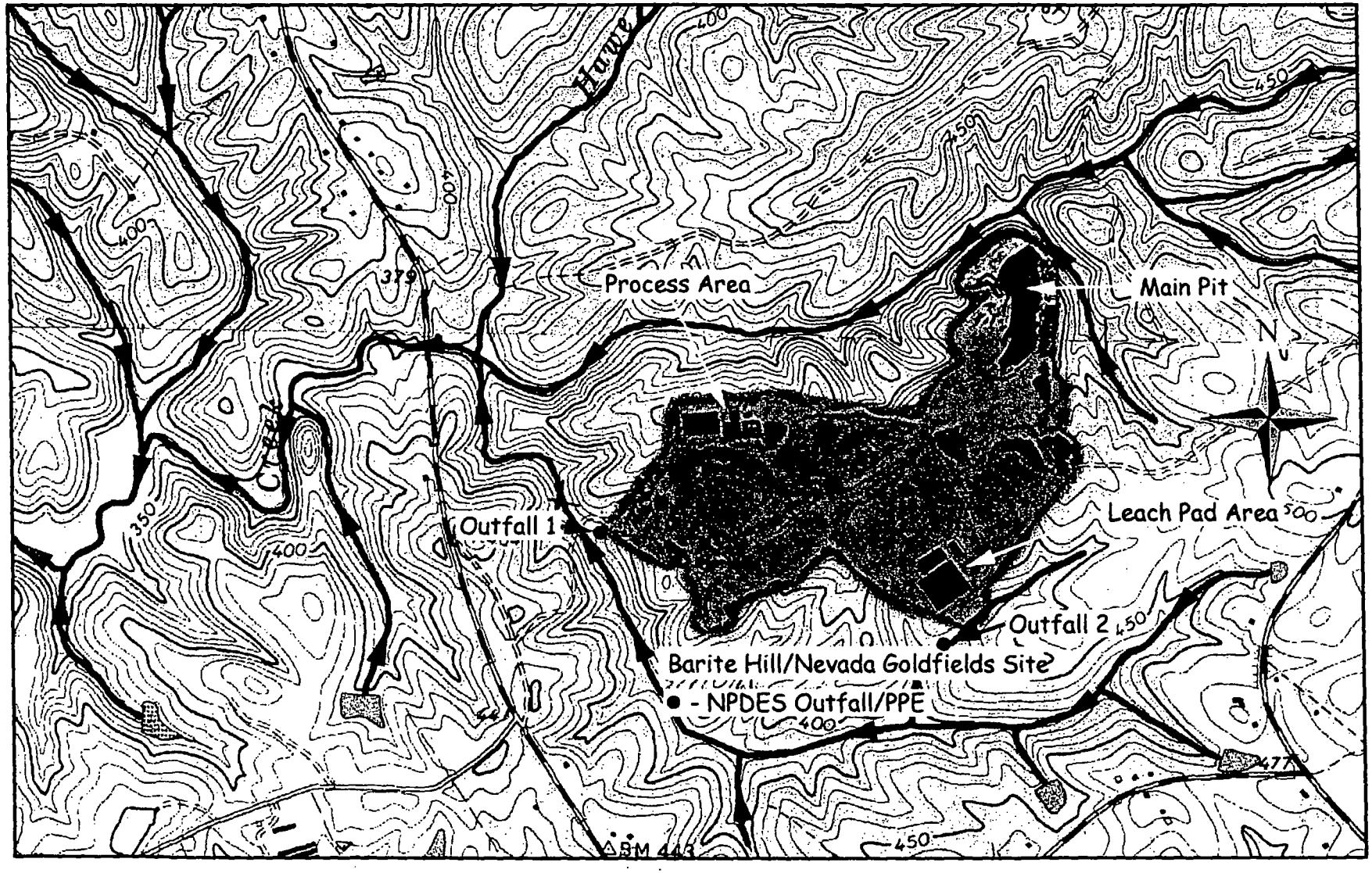


Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

Location: BH247-25 - Downstream of outfall-1

BH247-25

BH247-25 2 2 0100

DOWNSTREAM OF OU1

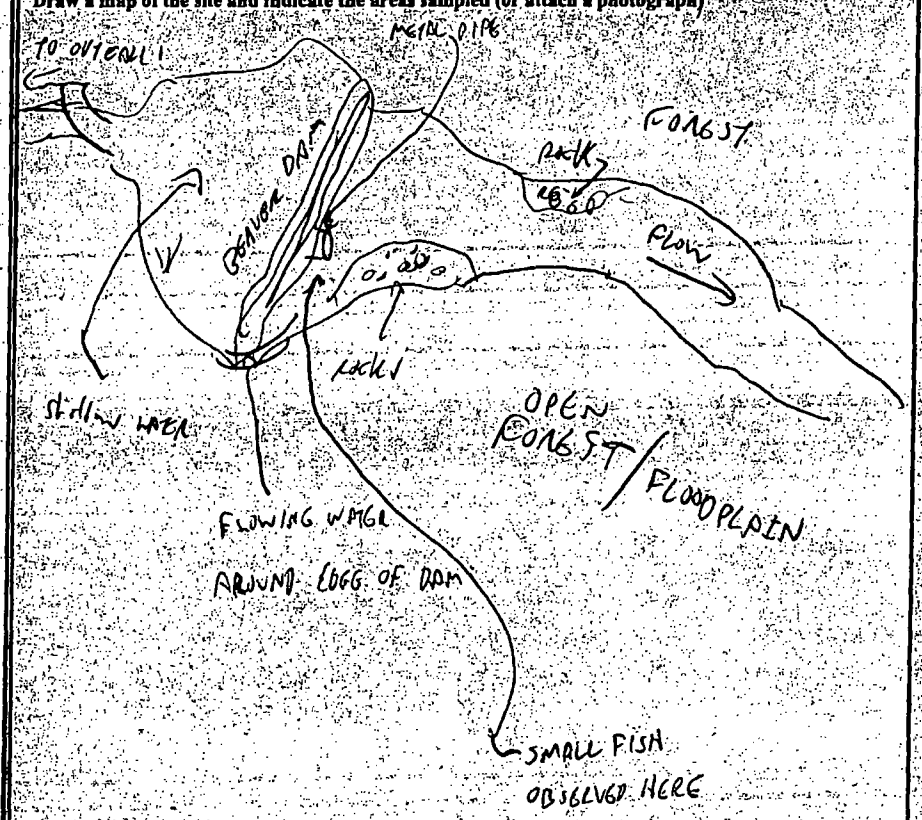
PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME	LOCATION BH247-25
STATION # RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN
STORET #	AGENCY GRT / NBAC / FISA2 WILDLIFE
INVESTIGATORS R. HENRAY / G. GUSSMAN / S. FIGERKAS / M. MCNICHOLAS	
FORM COMPLETED BY C. GUSSMAN	DATE 3/27/97 TIME 3:00 AM PM / REASON FOR SURVEY Biological / STREAM IMPACT

WEATHER CONDITIONS SUNNY, SLIGHT BREEZE, WARM	Now: ☐ storm (heavy rain) ☐ rain (steady rain) ☐ showers (intermittent) ___% ☐ %cloud cover ☒ clear/sunny	Past 24 hours: ☐ ☐ ☐ ___% ☒
	Has there been a heavy rain in the last 7 days? ☐ Yes ☒ No	Air Temperature 26 °C (ESTIMATE) Other

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION	Stream Subsystem: ☒ Perennial ☐ Intermittent ☐ Tidal Stream Type: ☒ Coldwater ☐ Warmwater Stream Origin: ☐ Glacial ☐ Non-glacial montane ☐ Swamp and bog ☐ Spring-fed ☒ Mixture of origins UNKNOWN ☐ Other Catchment Area ___ km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	**Predominant Surrounding Landuse** ☒ Forest ☐ Commercial ☐ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other _____ ☐ Residential **Local Watershed NPS Pollution** ☐ No evidence ☒ Some potential sources ☐ Obvious sources **Local Watershed Erosion** ☐ None ☒ Moderate ☐ Heavy
RIPARIAN VEGETATION (18 meter buffer)	**Indicate the dominant type and record the dominant species present** ☒ Trees ☐ Shrubs ☐ Grasses ☒ Herbaceous **dominant species present** OAK, OSTYRA, UNDERSTORY OF FERNS/GRASSES ETC.
INSTREAM FEATURES	**Estimated Reach Length** _____m **Estimated Stream Width** 3 m **Sampling Reach Area** _____m² **Area in km² (m²x1000)** _____km² **Estimated Stream Depth** 0.5 m **Surface Velocity (at thalweg)** _____m/sec SLOW FLOW **Canopy Cover** ☒ Partly open ☐ Partly shaded ☐ Shaded **High Water Mark** 2.5 m **Proportion of Reach Represented by Stream Morphology Types** ☒ Riffle 50 % ☒ Run 50 % ☐ Pool _____% **Channelized** ☒ Yes ☐ No 60 YDS **Dam Present** ☒ Yes ☐ No ← UPSTREAM
LARGE WOODY DEBRIS	**LWD** _____m² A FEW SCATTERED LARGE TREES/WOODY DEBRIS SCATTERED. **Density of LWD** _____m²/km² (LWD/ reach area)
AQUATIC VEGETATION	**Indicate the dominant type and record the dominant species present** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☐ Floating Algae ☐ Attached Algae **dominant species present** _____ **Portion of the reach with aquatic vegetation** _____% NOT OBSERVED
WATER QUALITY	**Temperature** 21.12 C **Specific Conductance** 0.365 m/cm **Dissolved Oxygen** —— **pH** 7.15 **Turbidity** 44.9 NTU **WQ Instrument Used** YSI **Water Odors** ☒ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other_____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☒ None ☐ Other_____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other_____
SEDIMENT/ SUBSTRATE	**Odors** ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None ☐ Other_____ **Oils** ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** ☐ Sludge ☐ Sawdust ☐ Paper fiber ☐ Sand ☐ Relict shells ☐ Other_____ **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock			Detritus	sticks, wood, coarse plant materials (CPOM)	<5%
Boulder	> 256 mm (10")				
Cobble	64-256 mm (2.5"-10")	30	Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1"-2.5")	10			
Sand	0.06-2mm (gritty)	15	Marl	grey, shell fragments	
Silt	0.004-0.06 mm	40			
Clay	< 0.004 mm (slick)				

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME	LOCATION BH24 7-25	
STATION #_____ RIVERMILE_____	STREAM CLASS	
LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY ERT/RBAC/FISH&WILDLIFE	
INVESTIGATORS C. GUSSMAN / R. HENRY / S. FREDERICK / M. NICKO		
FORM COMPLETED BY C. GUSSMAN	DATE 11/2/07 TIME 3:50 AM PM	REASON FOR SURVEY Biological / Stream IMPACT /

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

54

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 (7) 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 (7) 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 (7) 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 6	(5) 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	8 7 (6)	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank (0) 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank (0) 9	8 7 6	5 4 3	2 1 0

Total Score 123

54
69
123

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION BA247-25	
STATION #_____ RIVERMILE_____	STREAM CLASS	
LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY	
INVESTIGATORS		LOT NUMBER
FORM COMPLETED BY	DATE 3/28/07 TIME 3:50 AM (PM)	REASON FOR SURVEY

HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Cobble_____% ☐ Snags_____% ☐ Vegetated Banks_____% ☐ Sand_____% ☐ Submerged Macrophytes_____% ☐ Other ( )_____%
SAMPLE COLLECTION	**Gear used** ☑ D-frame ☐ kick-net ☐ Other _____ **How were the samples collected?** ☑ wading ☐ from bank ☐ from boat **Indicate the number of jabs/kicks taken in each habitat type.** ☑ Cobble 2 ☐ Snags_____ ☑ Vegetated Banks_____ ☐ Sand_____ ☐ Submerged Macrophytes_____ ☑ Other (FINS BOTTOM) 2
GENERAL COMMENTS	SLOW MOVING PIRS, STEEP BANK W/ VEGETATION

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

N/A

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

FINAL DRAFT

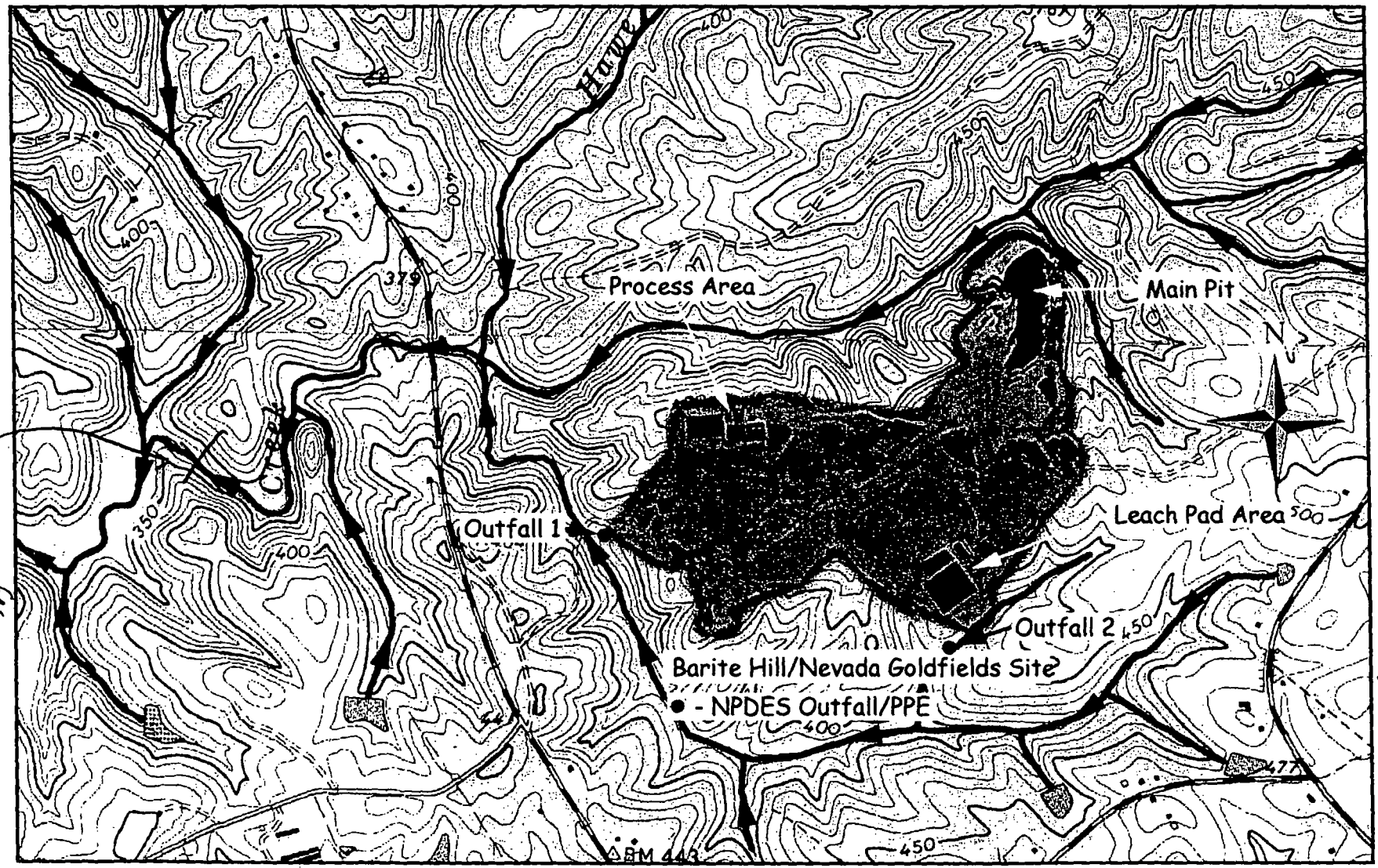


Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

Along stream (location unknown) approximately 1 km from road/bridge

Location: BH247-22 3/28/07 11:00

BH247-22 Benthos Sediment Chemist

2 2 0105

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

Downstream 2/km from bridge

STREAM NAME Howes Creek	LOCATION BH247-22
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS → LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT / Fish and Wildlife / REAC
INVESTIGATORS R. Henry / S. Fredericks / M. Nigro / C. Gussman	
FORM COMPLETED BY C. Gussman	DATE 3/28/07 TIME 11:00 (AM) PM / REASON FOR SURVEY Biological / STREAM IMPACT

WEATHER CONDITIONS

SUNNY, WARM, STILL

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___% ☐	%cloud cover	☐ ___%
☑	clear/sunny	☑

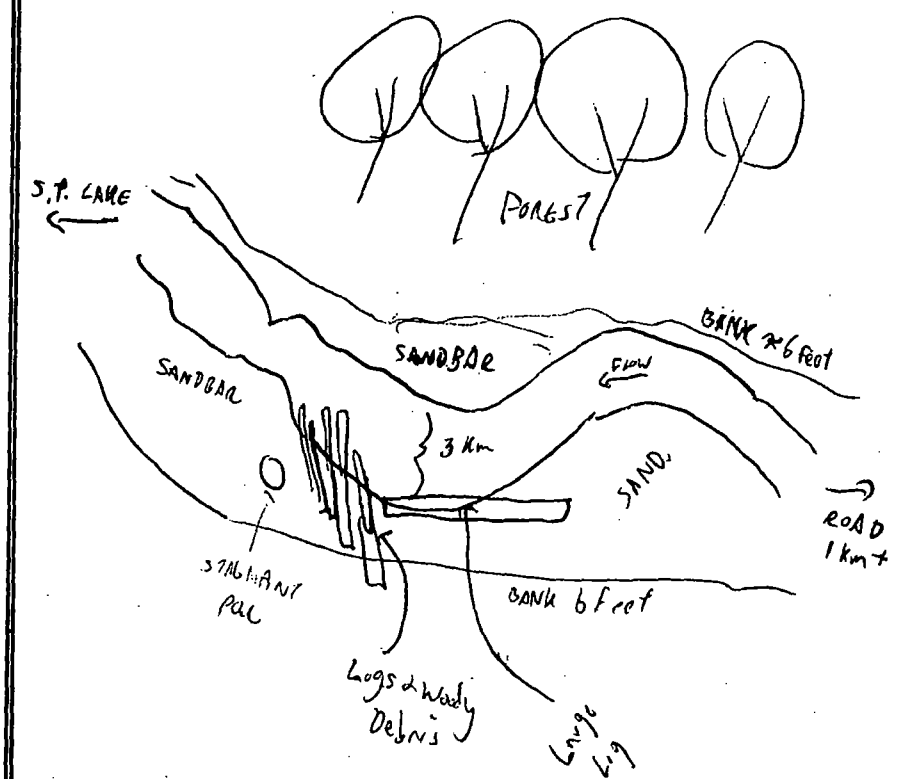
Has there been a heavy rain in the last 7 days? ☐ Yes ☑ No

Air Temperature 26 °C (Estimate)

Other_____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
☑ Perennial ☐ Intermittent ☐ Tidal

Stream Type
☑ Coldwater ☐ Warmwater

Stream Origin
☐ Glacial ☐ Spring-fed
☐ Non-glacial montane ☑ Mixture of origins
☐ Swamp and bog ☐ Other_____

Catchment Area_____km²

BH247-22 2 2 0107

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES

Predominant Surrounding Landuse
☒ Forest ☐ Commercial
☐ Field/Pasture ☐ Industrial
☐ Agricultural ☐ Other _____
☐ Residential

Local Watershed NPS Pollution
☒ No evidence ☐ Some potential sources
☐ Obvious sources

Local Watershed Erosion
☐ None ☒ Moderate ☐ Heavy

RIPARIAN VEGETATION (18 meter buffer)

Indicate the dominant type and record the dominant species present
☒ Trees ☐ Shrubs ☐ Grasses ☐ Herbaceous
dominant species present Pawpaws, OAKS, Some Pine, Good Mixed understory

INSTREAM FEATURES

Estimated Reach Length _____ m
Estimated Stream Width 3.5 m (water) NOW
Sampling Reach Area _____ m²
Area in km² (m²x1000) _____ km²
Estimated Stream Depth 0.1 m
Surface Velocity _____ m/sec
(at thalweg) Definite flow

Canopy Cover SUMMER
☒ Partly open ☐ Partly shaded ☒ Shaded
High Water Mark 3 m
Proportion of Reach Represented by Stream Morphology Types
☐ Riffle 25 % ☐ Run 75 %
☐ Pool _____ %
Channelized ☒ Yes ☐ No
Dam Present ☐ Yes ☒ No

LARGE WOODY DEBRIS

LWD _____ m² Frequent SNAGS & Large woody Debris in scattered clumps.
Density of LWD _____ m²/km² (LWD/ reach area)

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating
☐ Floating Algae ☐ Attached Algae
dominant species present _____
Portion of the reach with aquatic vegetation 0 %

WATER QUALITY

Temperature 16.36 °C
Specific Conductance 0.222
Dissolved Oxygen BAD READING
pH 7.33
Turbidity 0.1
WQ Instrument Used YSI

Water Odors
☒ Normal/None ☐ Sewage
☐ Petroleum ☐ Chemical
☐ Fishy ☐ Other _____

Water Surface Oils
☐ Slick ☐ Sheen ☐ Globs ☐ Flecks
☒ None ☐ Other _____

Turbidity (if not measured)
☐ Clear ☐ Slightly turbid ☐ Turbid
☐ Opaque ☐ Stained ☐ Other _____

SEDIMENT/ SUBSTRATE

Odors
☒ Normal ☐ Sewage ☐ Petroleum
☐ Chemical ☐ Anaerobic ☐ None
☐ Other _____

Oils
☒ Absent ☐ Slight ☐ Moderate ☐ Profuse

Deposits
☐ Sludge ☐ Sawdust ☐ Paper fiber ☒ Sand
☐ Relict shells ☒ Other Pollen

Looking at stones which are not deeply embedded, are the undersides black in color?
☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock			Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")				
Cobble	64-256 mm (2.5"-10")		Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1"-2.5")				
Sand	0.06-2mm (gritty)	70%	Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)				

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME Howe's Creek	LOCATION BH247-22
STATION # _____ RIVERMILE _____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT/REAC / FISH & WILDLIFE
INVESTIGATORS C. Grossman / R. Henry / M. Nigro / S. Frederick	
FORM COMPLETED BY C. Grossman	DATE 3/28/01 TIME 11:10 AM PM / REASON FOR SURVEY Biological / STORM IMPACT

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	(15) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 (6)	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0

54

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	8 7 (6)	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score 136

82
54
176

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME Hawks Creek	LOCATION BH247-22
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY
INVESTIGATORS R. Henry / C. Gussman / S. Fredericks	LOT NUMBER
FORM COMPLETED BY C. Gussman	DATE 3/28/07 TIME 11:20 (AM) PM / REASON FOR SURVEY Biological / Stream Impact

HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Cobble____% ☐ Snags____% ☐ Vegetated Banks 10 % ☒ Sand 80 % ☐ Submerged Macrophytes____% ☐ Other ( )____%
SAMPLE COLLECTION	**Gear used** ☒ D-frame ☐ kick-net ☐ Other _____ **How were the samples collected?** ☒ wading ☐ from bank ☐ from boat **Indicate the number of jabs/kicks taken in each habitat type.** ☐ Cobble 10 ☐ Snags____ ☒ Vegetated Banks 10 ☐ Sand 80 ☐ Submerged Macrophytes____ ☐ Other ( )____
GENERAL COMMENTS	More habitat than upstream but biota low. Evidence of occasional, major scouring.

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

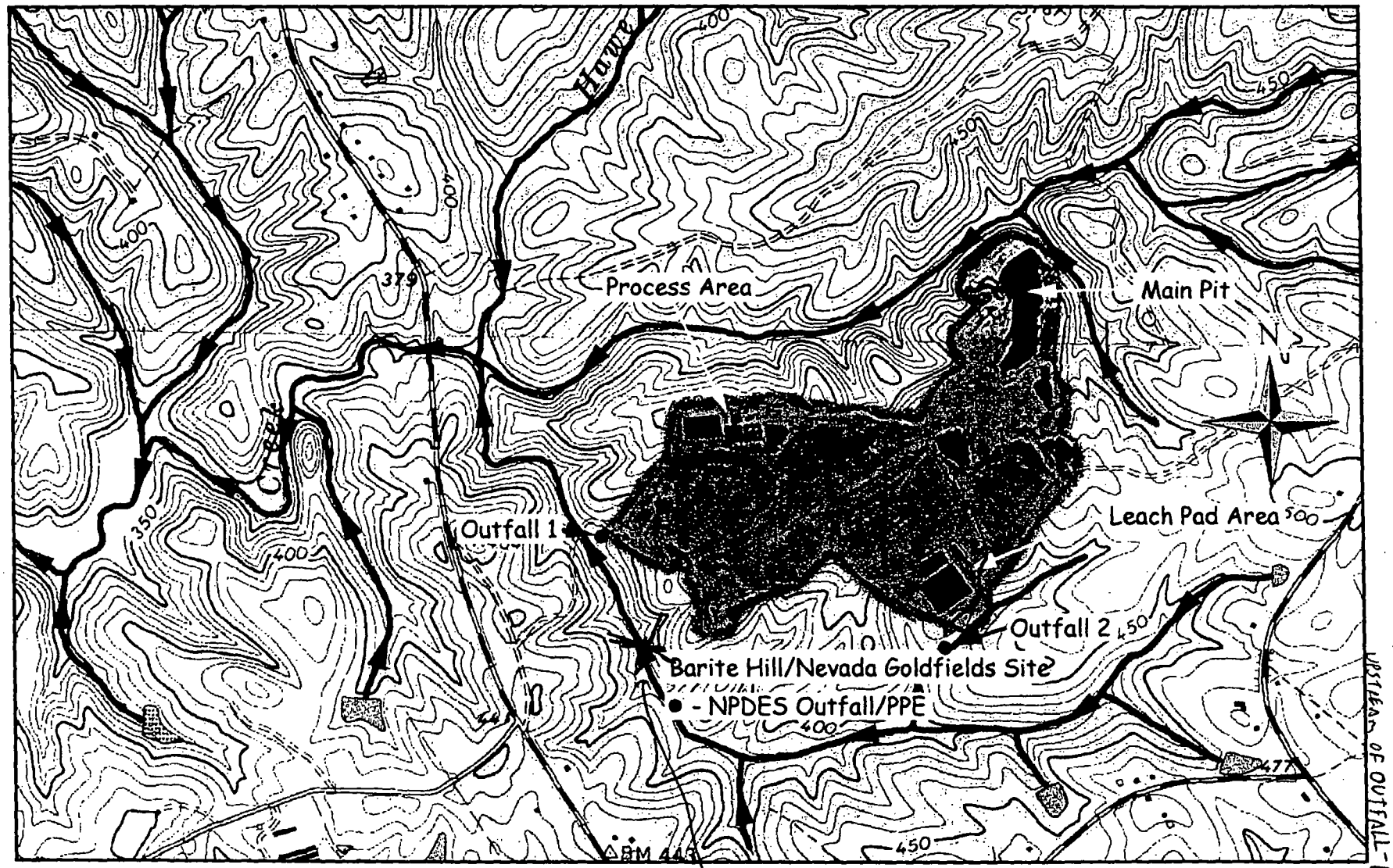
Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

FINAL DRAFT



LOCATION: BH247-26
UPSTREAM OF OUTFALL-1

Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

BH247-26

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

UPSTREAM OF OUTFALL-1

STREAM NAME	LOCATION BH247-26
STATION #_____ RIVERMILE_____	STREAM CLASS
GPS LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT / FISH+WILDLIFE / REAC
INVESTIGATORS R. HENRY / C. GUSSMAN / M. NIGRO / S. FREDERICKS	
FORM COMPLETED BY C. GUSSMAN	DATE 3/29/07 TIME 1130 AM (PM) / REASON FOR SURVEY BIOLOGICAL / STREAM IMPACT

WEATHER CONDITIONS

SUNNY, WARM

Now		Past 24 hours
☐	storm (heavy rain)	☐
☐	rain (steady rain)	☐
☐	showers (intermittent)	☐
___% ☐	%cloud cover	☐ ___%
☑	clear/sunny	☑

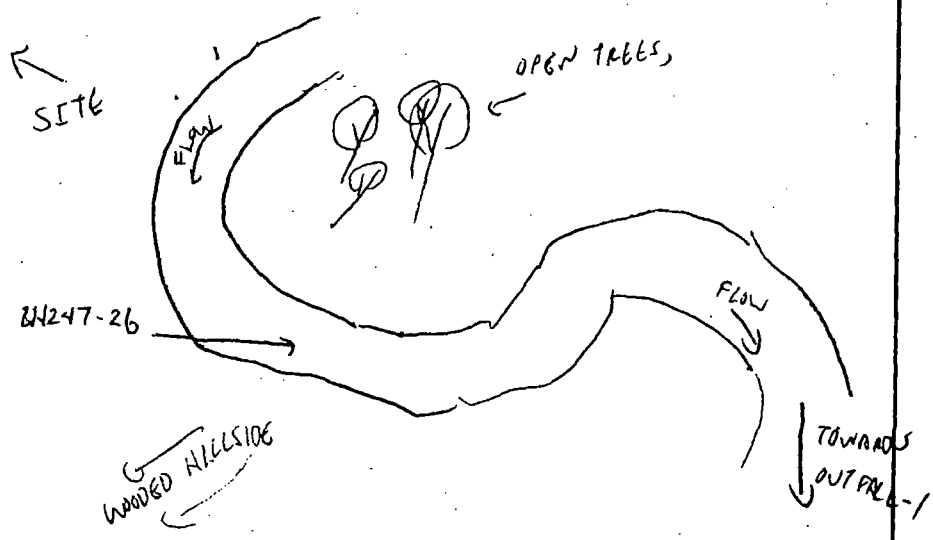
Has there been a heavy rain in the last 7 days? ☐ Yes ☑ No

Air Temperature 26 °C (ESTIMATED)

Other_____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (or attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem: ☑ Perennial ☐ Intermittent ☐ Tidal

Stream Type: ☑ Coldwater ☐ Warmwater

Stream Origin: ☐ Glacial ☐ Spring-fed ☐ Non-glacial montane ☑ Mixture of origins ☐ Swamp and bog ☐ Other_____ UNKNOWN

Catchment Area_____km²

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

BH247-26

WATERSHED FEATURES	**Predominant Surrounding Landuse** (NEARBY) ☒ Forest ☐ Commercial ☒ Field/Pasture ☐ Industrial ☐ Agricultural ☐ Other _____ ☐ Residential **Local Watershed NPS Pollution** ☐ No evidence ☐ Some potential sources ☐ Obvious sources **Local Watershed Erosion** ☐ None ☒ Moderate ☐ Heavy
RIPARIAN VEGETATION (18 meter buffer)	**Indicate the dominant type and record the dominant species present** ☒ Trees ☐ Shrubs ☐ Grasses ☒ Herbaceous **dominant species present** HORNBEAM, short GRASSES / JUNCUS ON EDGE
INSTREAM FEATURES	**Estimated Reach Length** _____ m **Estimated Stream Width** 4 m **Sampling Reach Area** _____ m² **Area in km² (m²x1000)** _____ km² **Estimated Stream Depth** 0.8-1 m **Surface Velocity (at thalweg)** SLOW _____ m/sec **Canopy Cover** ☐ Partly open ☐ Partly shaded ☐ Shaded **High Water Mark** 1.2 m **Proportion of Reach Represented by Stream Morphology Types** ☐ Riffle _____ % ☐ Run 100 % ☐ Pool _____ % **Channelized** ☒ Yes ☐ No **Dam Present** ☐ Yes ☒ No* Much further downstream
LARGE WOODY DEBRIS	**LWD** _____ m² **Density of LWD** _____ m²/km² (LWD/ reach area)
AQUATIC VEGETATION	**Indicate the dominant type and record the dominant species present** ☐ Rooted emergent ☐ Rooted submergent ☐ Rooted floating ☐ Free floating ☐ Floating Algae ☐ Attached Algae **dominant species present** _____ **Portion of the reach with aquatic vegetation** _____ %
WATER QUALITY	**Temperature** 19.9 °C **Specific Conductance** 0.388 **Dissolved Oxygen** — **pH** 6.56 **Turbidity** 3.7 NTU **WQ Instrument Used** YSI **Water Odors** ☒ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐ Other _____ **Water Surface Oils** ☐ Slick ☐ Sheen ☐ Globs ☐ Flecks ☒ None ☐ Other _____ **Turbidity (if not measured)** ☐ Clear ☐ Slightly turbid ☐ Turbid ☐ Opaque ☐ Stained ☐ Other _____
SEDIMENT/ SUBSTRATE	**Odors** ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None ☐ Other _____ **Oils** ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse **Deposits** N/A ☐ Sludge ☐ Sawdust ☐ Paper fiber ☐ Sand ☐ Relict shells ☐ Other _____ **Looking at stones which are not deeply embedded, are the undersides black in color?** ☐ Yes ☒ No

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		30	Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder	> 256 mm (10")	2			
Cobble	64-256 mm (2.5"-10")	15	Muck-Mud	black, very fine organic (FPOM)	
Gravel	2-64 mm (0.1"-2.5")	15			
Sand	0.06-2mm (gritty)		Marl	grey, shell fragments	
Silt	0.004-0.06 mm				
Clay	< 0.004 mm (slick)	30			

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME	LOCATION BH 247-26
STATION #_____ RIVERMILE_____	STREAM CLASS
GPSS LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY ERT / PISH & WILDLIFE / REAL
INVESTIGATORS R. HENRY / S. FREDERICKS / M. NIGRO / C. GUSSMAN	
FORM COMPLETED BY C. Gussman	DATE 3/28/07 TIME 4:45 AM (PM) — REASON FOR SURVEY Biological / STREAM IMPACT

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	(15) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 (4) 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 (9) 8 7 6	5 4 3 2 1 0

48

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION BA247-26	
STATION #_____ RIVERMILE_____	STREAM CLASS	
GPS LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY EA / FISH&WILDLIFE / REAC	
INVESTIGATORS R. HENRY / C. GUSMAN / M. NIGRO / S. FREEDMAN		LOT NUMBER
FORM COMPLETED BY C. GUSMAN	DATE 3/28/07 TIME 4:45 AM PM	REASON FOR SURVEY Biological / STREAM IMPACT

HABITAT TYPES	Indicate the percentage of each habitat type present ☐ Cobble 30 % ☐ Snags____% ☐ Vegetated Banks 30 % ☐ Sand____% ☐ Submerged Macrophytes____% ☒ Other (SOFT SEDIMENT) 30 %
SAMPLE COLLECTION	Gear used ☒ D-frame ☐ kick-net ☐ Other _____ How were the samples collected? ☒ wading ☐ from bank ☐ from boat Indicate the number of jabs/kicks taken in each habitat type. ☐ Cobble 50 ☐ Snags____ ☐ Vegetated Banks 50 ☐ Sand____ ☐ Submerged Macrophytes____ ☐ Other ( )____
GENERAL COMMENTS	THIS LOCATION MUCH DIFFERENT THAN PREVIOUS LOCATIONS (DEEPER, SLOWER MOVING, LESS RIFFLES).

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

N/A.

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

FINAL DRAFT

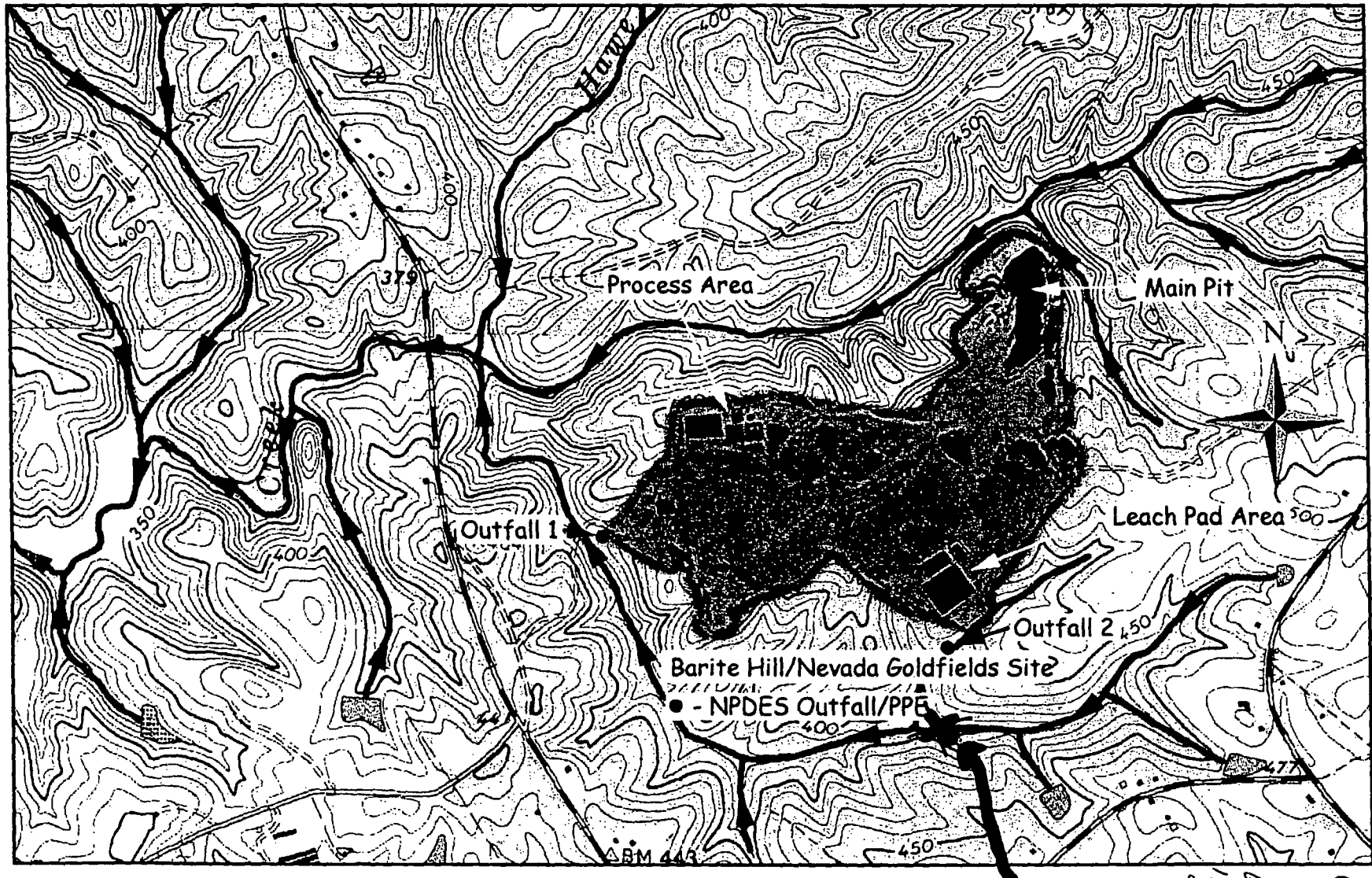


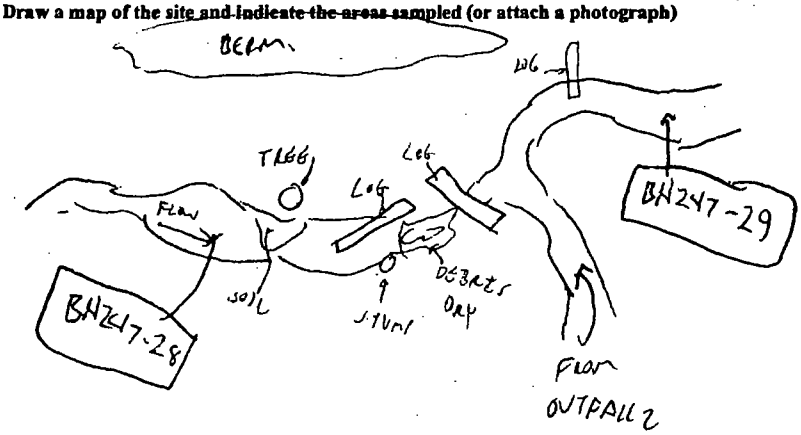
Figure 2 – Surface Water Pathway for Barite Hill/Nevada Goldfields Site

LOCATION: BH247-28 & BH247-29

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME	LOCATION BH247-28 / 30 M UPSTREAM	BH247-29 / 30 YARDS DOWNSTREAM
STATION #_____ RIVERMILE_____	STREAM CLASS	
LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY (D) EPT/REAC/Fish & Wildlife	
INVESTIGATORS C. GUSMAN / M. NIGRO / ~~[illegible]~~ (D) C. Gusman / R. Henry		
FORM COMPLETED BY C. GUSMAN	DATE 3/28/07 TIME 6:40 AM (PM)	REASON FOR SURVEY Biological / Stream IMPACT

WEATHER CONDITIONS SUNNY/WARM EVENING.	**Now** / **Past 24 hours** ☐ storm (heavy rain) ☐ ☐ rain (steady rain) ☐ ☐ showers (intermittent) ☐ ___%☐ %cloud cover ☐___% ☑ clear/sunny ☑	**Has there been a heavy rain in the last 7 days?** ☐ Yes ☐ No **Air Temperature** 24 °C (Estimate) **Other** Evening
SITE LOCATION/MAP	**Draw a map of the site and indicate the areas sampled (or attach a photograph)**	



STREAM CHARACTERIZATION	**Stream Subsystem** ☑ Perennial ☐ Intermittent ☐ Tidal **Stream Type** ☑ Coldwater ☐ Warmwater **Stream Origin** ☐ Glacial ☐ Non-glacial montane ☐ Swamp and bog ☐ Spring-fed ☑ Mixture of origins ☑ Other_____ **Catchment Area**_____km² MINIMAL FLOW

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (FRONT)

STREAM NAME	LOCATION BH247-28 / BH247-29
STATION #_____ RIVERMILE_____	STREAM CLASS
LAT _____ LONG _____	RIVER BASIN
STORET #	AGENCY Ecy / REAC
INVESTIGATORS E. HENRY / M. NIGRO / C. GUSSMAN	
FORM COMPLETED BY C. GUSSMAN	DATE 3/28/07 TIME 7:00 AM (PM) / REASON FOR SURVEY Biological / STREAM IMPACT

GPS-1

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	(5) 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 (8) 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—LOW GRADIENT STREAMS (BACK)

Parameters to be evaluated broader than sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.)	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___ (LB)	Left Bank 10 9	8 (7) 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) Note: determine left or right side by facing downstream.	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___ (LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___ (LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE ___ (RB)	Right Bank (10) 9	8 7 6	5 4 3	2 1 0

Total Score 129

48
81
129

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION BN247 28-2 BN247 29	
STATION #_____ RIVERMILE_____	STREAM CLASS	
LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY RGAC/F&W/ER1	
INVESTIGATORS		LOT NUMBER
FORM COMPLETED BY C. GUSSMAN	DATE 7/28/07 TIME 6:40 AM (PM)	REASON FOR SURVEY Biological Monitoring

HABITAT TYPES	Indicate the percentage of each habitat type present ☐ Cobble 30 % ☐ Snags 20 % ☐ Vegetated Banks 20 % ☐ Sand 30 % ☐ Submerged Macrophytes____% ☐ Other ( )____%
SAMPLE COLLECTION	Gear used ☑ D-frame ☐ kick-net ☐ Other _____ How were the samples collected? ☑ wading ☐ from bank ☐ from boat Indicate the number of jabs/kicks taken in each habitat type. ☑ Cobble 33 ☑ Snags 33 ☑ Vegetated Banks 20 ☐ Sand____ ☐ Submerged Macrophytes____ ☐ Other ( )____
GENERAL COMMENTS	SHALLOW WATER, MORE LOGS/DEBRIS THAN OTHER AREAS. AREA PROBABLY RECEIVES A LOT OF FLOW WATER DURING STORM EVENTS.

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

NO MACROPHYTES. SANDY, SHALLOW WATER.

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

BN247-29

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
only 28 Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
only 28 Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

APPENDIX B
FINAL ANALYTICAL RESULTS REPORT
BARITE HILL GOLD MINE
TRIP REPORT
JUNE 2007

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

May 9, 2007

4SESD-MTSB

MEMORANDUM

SUBJECT: FINAL Analytical Report
07-0377, Barite Hill/Nevada Goldfields
Superfund Emergency Response and Removal

FROM: Denise Goddard
Quality Assurance Section Chemist

THRU: Marilyn Maycock, Chief
Quality Assurance Section

TO: Leo Francendese

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the associated contract Statement Of Work (SOW). In general, project data quality objectives have not been used to evaluate these data prior to release by the Quality Assurance Section. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report.

Analyses Included in this report:	Method Used:
Classical/Nutrient Analyses (CNA)	
Cyanide	CLP Inorganics
Cyanide	CLSOW CN WAD
Cyanide	CLSOW CN WAD
Total Metals (TMTL)	
Total Mercury	CLP Inorganics
Total Metals	CLP Inorganics

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Report Narrative

Data Review and Validation Report
Site Name: Barite Hills/Nevada Goldfields, McCormick, SC
Case No. 36293, Project No. 07-0377 , Work Order No. C071601
ELEMENT Nos. C071601-01 - C071601-89
Inorganic Analysis: Bonner Analytical Testing, Hattiesburg, MS
Date Received from Lab: 04/20/07

The ESAT Work Team has reviewed the above-captioned CLP data package consisting of 18 water and 71 soil samples for Total Metals analysis by ICP-AES and cyanide analysis by SOW ILM05.3, according to the contract Statement of Work and EPA guidelines. This package presents acceptable contractual and technical performance with qualifications. Further details are provided below and in the attached review summary form.

ICP-AES Analysis

Examination of blank samples revealed apparent low-level contamination with several elements listed in Table 1. *Reported detection limits were adjusted as high as five times blank levels to discount possible false positives due* to contamination.

Positives greater than the contract required quantitation limit were reported for arsenic in the water contractor interference check sample solution A (ICSA) for SDG MD3ZK6. The above positives were suspected of being due to interference from aluminum and/or iron. All positive water samples for arsenic in SDG MD3ZK6 less than 170 ug/L in solution, with aluminum and/or iron concentrations in solution greater than 39,000 ug/L were considered estimated and flagged "J". Negative sample results with absolute values greater than the contract required quantitation limit were reported for lead in the water contractor ICSA solution for SDG MD3ZK6. The above negatives were suspected of being due to over-correction for the influence of aluminum and/or iron. All positive water sample results for lead in SDG MD3ZK6 with aluminum and/or iron greater than 85,000 ug/L were considered estimated and flagged "J". All non-detected water sample results for lead in SDG MD3ZK6 with aluminum and/or iron concentrations in solution greater than 85,000 ug/L were considered unusable and flagged "R".

Soil matrix spiked sample recoveries for antimony and arsenic in SDG MD3ZK8 were 54 and 73% respectively. All soil sample results for antimony and arsenic in the above SDG were considered estimated and flagged "J".

Soil matrix spiked sample recovery for copper in SDG MD3Zk8 was 5%. All positive soil sampler results for copper in the above SDG were considered estimated and flagged "J". All non-detected soil sample results for copper were considered unusable and flagged "R".

Soil matrix spiked sample recovery for lead in SDG MD3ZK8 was 134%. In addition, the soil matrix duplicate relative percent difference for lead in SDG MD3ZK8 was 47%. All soil sample results for lead in the above

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

SDG were considered estimated and flagged "J".

Soil matrix spiked sample recovery for antimony in SDG MD3ZN7 was 74%. All soil sample results for antimony in the above SDG were considered estimated and flagged "J".

Soil matrix duplicate relative percent difference for manganese in SDG MD3ZK8 was 69%. All soil sample results for manganese in the above SDG were considered estimated and flagged "J".

Soil performance evaluation sample recovery for copper was scored as warning high by the web-based SPS Web software. All positive soil sample results for copper were considered estimated and flagged "J".

Water serial dilution percent difference for potassium in SDG MD3ZK6 was 17%. All water sample results for potassium in the above SDG were considered estimated and flagged "J".

Soil serial dilution percent difference for zinc in SDG MD3ZK8 was 19%. All soil sample results for zinc in the above SDG were considered estimated and flagged "J".

Soil serial dilution percent differences for aluminum and zinc in SDG MD3ZN7 were 14 and 29% respectively. All soil sample results for aluminum and zinc in the above SDG were considered estimated and flagged "J".

Percent relative standard deviations were greater than 20% for plasma multiple exposures and reported results were greater than the method detection limit, but less than the contract required quantitation limit for arsenic in samples C071601-02, 09, 14, 19, and 37, cadmium in samples C071601-23, 29, 37, and 39, and silver in sample C071601-31. The above sample results were suspected of being potential false positives and, hence, unusable and flagged "R".

Mercury Analysis

Soil matrix spiked sample recovery for mercury in SDG MD3ZN7 was 72%. All soil sample results for mercury in the above SDG were considered estimated and flagged "J".

Cyanide Analysis

Soil matrix spiked sample recovery for cyanide in SDG MD3ZN7 was 8%. All positive soil sample results for cyanide in the above SDG were considered estimated and flagged "J". All non-detected soil sample results for cyanide in the above SDG were considered unusable and flagged "R".

Soil matrix spiked sample recovery for cyanide in SDG MD3ZS0 was 33%. All soil sample results for cyanide in the above SDG were considered estimated and flagged "J".

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cc: Nardina Turner

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SAMPLES INCLUDED IN THIS REPORT

Project: 07-0377, Barite Hill/Nevada Goldfields **Contract Lab Case: 36293**

Sample ID	Laboratory ID	MD#	D#	Matrix	Date Collected	Date Received
PE BLANK	C071601-01	3ZL0		Water	3/28/07 09:50	3/29/07 14:18
FL-a	C071601-02	3ZL1		Surface Water	3/28/07 09:50	3/29/07 14:18
FL-b	C071601-03	3ZL2		Surface Water	3/28/07 09:50	3/29/07 14:18
GL-a	C071601-04	3ZL3		Surface Water	3/28/07 11:24	3/29/07 14:18
GL-b	C071601-05	3ZL4		Surface Water	3/28/07 11:24	3/29/07 14:18
HL-a	C071601-06	3ZL5		Surface Water	3/28/07 12:30	3/29/07 14:18
HL-b	C071601-07	3ZL6		Surface Water	3/28/07 12:30	3/29/07 14:18
ZL-b	C071601-08	3ZS1		Surface Water	3/27/07 09:50	3/29/07 14:18
ZL-a	C071601-09	3ZT2		Water	3/27/07 09:50	3/29/07 14:18
AL-a	C071601-10	3ZT7		Surface Water	3/27/07 09:50	3/29/07 14:18
AL-b	C071601-11	3ZT8		Surface Water	3/27/07 09:50	3/29/07 14:18
BL-a	C071601-12	3ZT9		Surface Water	3/27/07 10:45	3/29/07 14:18
BL-b	C071601-13	3ZW0		Surface Water	3/27/07 10:45	3/29/07 14:18
CL-a	C071601-14	3ZW1		Surface Water	3/27/07 11:20	3/29/07 14:18
CL-b	C071601-15	3ZW2		Surface Water	3/27/07 11:20	3/29/07 14:18
DL-a	C071601-16	3ZW3		Surface Water	3/27/07 12:51	3/29/07 14:18
DL-b	C071601-17	3ZW4		Surface Water	3/27/07 12:51	3/29/07 14:18
BH247-1	C071601-18	3ZL7		Sediment	3/27/07 08:59	3/29/07 14:18
BH247-13	C071601-19	3ZL8		Sediment	3/27/07 11:34	3/29/07 14:18
BH247-17	C071601-20	3ZL9		Sediment	3/27/07 11:46	3/29/07 14:18
BH247-18	C071601-21	3ZM0		Sediment	3/27/07 11:50	3/29/07 14:18
BH247-19	C071601-22	3ZM1		Sediment	3/27/07 12:02	3/29/07 14:18
BH247-20	C071601-23	3ZM2		Sediment	3/28/07 08:59	3/29/07 14:18
BH247-21	C071601-24	3ZM3		Sediment	3/28/07 09:12	3/29/07 14:18
BH247-22	C071601-25	3ZM4		Sediment	3/28/07 09:34	3/29/07 14:18
BH247-25	C071601-26	3ZM5		Sediment	3/28/07 09:50	3/29/07 14:18
BH247-26	C071601-27	3ZM6		Sediment	3/28/07 10:10	3/29/07 14:18
BH247-27	C071601-28	3ZM7		Sediment	3/28/07 10:26	3/29/07 14:18
BH247-28	C071601-29	3ZM8		Sediment	3/28/07 10:58	3/29/07 14:18
BH247-29	C071601-30	3ZM9		Sediment	3/28/07 11:24	3/29/07 14:18
BH247-3	C071601-31	3ZN0		Sediment	3/27/07 09:00	3/29/07 14:18
BH247-5	C071601-32	3ZN1		Sediment	3/27/07 09:10	3/29/07 14:18
BH247-521	C071601-33	3ZN2		Sediment	3/28/07 09:15	3/29/07 14:18
BH247-525	C071601-34	3ZN3		Sediment	3/28/07 09:55	3/29/07 14:18

BH247-529	C071601-35	3ZN4	Sediment	3/28/07 11:30	3/29/07 14:18
BH247-6	C071601-36	3ZN5	Sediment	3/27/07 09:30	3/29/07 14:18
BH247-7	C071601-37	3ZN6	Sediment	3/27/07 10:13	3/29/07 14:18
BH247-8	C071601-38	3ZN7	Sediment	3/27/07 10:45	3/29/07 14:18
Heap Leach Pile Crust	C071601-39	3ZN8	Sediment	3/28/07 11:45	3/29/07 14:18
INDGOT Room Pit	C071601-40	3ZN9	Sediment	3/28/07 15:00	3/29/07 14:18
Pond A	C071601-41	3ZP0	Sediment	3/27/07 08:59	3/29/07 14:18
Pond B	C071601-42	3ZP1	Sediment	3/27/07 10:00	3/29/07 14:18
Pond C	C071601-43	3ZP2	Sediment	3/27/07 11:15	3/29/07 14:18
Pond D	C071601-44	3ZP3	Sediment	3/27/07 11:45	3/29/07 14:18
Pond E	C071601-45	3ZP4	Sediment	3/27/07 12:15	3/29/07 14:18
Pond F	C071601-46	3ZP5	Sediment	3/27/07 12:30	3/29/07 14:18
Pond G	C071601-47	3ZP6	Sediment	3/28/07 13:24	3/29/07 14:18
Pond H	C071601-48	3ZP7	Sediment	3/28/07 13:55	3/29/07 14:18
Pond I	C071601-49	3ZP8	Sediment	3/28/07 14:39	3/29/07 14:18
White Pile	C071601-50	3ZP9	Sediment	3/28/07 10:25	3/29/07 14:18
BH247-1	C071601-51	3ZQ0	Sediment	3/27/07 08:59	3/29/07 14:18
BH247-13	C071601-52	3ZQ1	Sediment	3/27/07 11:34	3/29/07 14:18
BH247-17	C071601-53	3ZQ2	Sediment	3/27/07 11:46	3/29/07 14:18
BH247-18	C071601-54	3ZQ3	Sediment	3/27/07 11:50	3/29/07 14:18
BH247-19	C071601-55	3ZQ4	Sediment	3/27/07 12:02	3/29/07 14:18
BH247-20	C071601-56	3ZQ5	Sediment	3/28/07 08:59	3/29/07 14:18
BH247-21	C071601-57	3ZQ6	Sediment	3/28/07 09:12	3/29/07 14:18
BH247-22	C071601-58	3ZQ7	Sediment	3/28/07 09:34	3/29/07 14:18
BH247-25	C071601-59	3ZQ8	Sediment	3/28/07 09:50	3/29/07 14:18
BH247-26	C071601-60	3ZQ9	Sediment	3/28/07 10:10	3/29/07 14:18
BH247-27	C071601-61	3ZR0	Sediment	3/28/07 10:26	3/29/07 14:18
BH247-28	C071601-62	3ZR1	Sediment	3/28/07 10:58	3/29/07 14:18
BH247-29	C071601-63	3ZR2	Sediment	3/28/07 11:24	3/29/07 14:18
BH247-3	C071601-64	3ZR3	Sediment	3/27/07 09:00	3/29/07 14:18
BH247-5	C071601-65	3ZR4	Sediment	3/27/07 09:10	3/29/07 14:18
BH247-521	C071601-66	3ZR5	Sediment	3/28/07 09:15	3/29/07 14:18
BH247-525	C071601-67	3ZR6	Sediment	3/28/07 09:55	3/29/07 14:18
BH247-529	C071601-68	3ZR7	Sediment	3/28/07 11:30	3/29/07 14:18
BH247-6	C071601-69	3ZR8	Sediment	3/27/07 09:30	3/29/07 14:18
BH247-7	C071601-70	3ZR9	Sediment	3/27/07 10:13	3/29/07 14:18
BH247-8	C071601-71	3ZS0	Sediment	3/27/07 10:45	3/29/07 14:18
INDGOT Room Pit	C071601-72	3ZS2	Sediment	3/27/07 10:45	3/29/07 14:18
Pond A	C071601-73	3ZS3	Sediment	3/27/07 08:59	3/29/07 14:18
Pond B	C071601-74	3ZS4	Sediment	3/27/07 10:00	3/29/07 14:18

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Pond C	C071601-75	3ZS5	Sediment	3/27/07 11:15	3/29/07 14:18
Pond D	C071601-76	3ZS6	Sediment	3/27/07 11:45	3/29/07 14:18
Pond E	C071601-77	3ZS7	Sediment	3/27/07 12:15	3/29/07 14:18
Pond F	C071601-78	3ZS8	Sediment	3/27/07 12:30	3/29/07 14:18
Pond G	C071601-79	3ZS9	Sediment	3/28/07 13:24	3/29/07 14:18
Pond H	C071601-80	3ZT0	Sediment	3/28/07 13:55	3/29/07 14:18
Pond I	C071601-81	3ZT1	Sediment	3/28/07 14:39	3/29/07 14:18
FB01	C071601-82	3ZT3	Sediment	3/27/07 09:00	3/29/07 14:18
FB02	C071601-83	3ZT4	Sediment	3/27/07 09:00	3/29/07 14:18
FB03	C071601-84	3ZT5	Sediment	3/28/07 09:00	3/29/07 14:18
FB04	C071601-85	3ZT6	Sediment	3/28/07 09:00	3/29/07 14:18

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
B-1	Analyte is found in the associated blank as well as in the sample (CLP B-flag).
CLP01	Concentration reported is less than the lowest standard on calibration curve
CLP03	Baseline instability in calibration or preparation blanks
CLP04	Analyte reported as potential false positive (% RSD > 20%, and result > MDL, but < CRQL)
CLP07	PE sample recovery outside warning limits.
CLP14	The analysis did not indicate the presence of the analyte. The data is rejected and the reported value is the Reporting Limit. Resampling and reanalysis are necessary to confirm or deny the presence of the analyte.
CR	10X dilution
CRa	20X dilution
CRb	2X dilution
CRc	3X dilution
CRd	50X dilution
CRe	5X dilution
J	The identification of the analyte is acceptable; the reported value is an estimate.
Q-2	Result greater than MDL but less than MRL.
Q-5	Serial dilution precision outside method control limits
QM-1	Matrix Spike Recovery less than method control limits
QM-2	Matrix Spike Recovery greater than method control limits
QM-4	Matrix Precision outside method control limits
QM-6	Matrix Spike Recovery less than 10%
R	The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable.

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - The analyte concentration which corresponds to the lowest quantitative point on the calibration curve or the lowest demonstrated level of acceptable quantitation.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZL0 BONNER

D No:

Sample ID: **PE BLANK** **Lab ID:** **C071601-01**

Matrix: ***Water***

Date Collected: 3/28/07 9:50

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	4/13/07	4/13/07	CLP ILM05.4 CV
7429-90-5	Aluminum	200	U	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-36-0	Antimony	60	U	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P
7440-38-2	Arsenic	10	U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-39-3	Barium	200	U	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-41-7	Beryllium	5.0	U	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-43-9	Cadmium	5.0	U	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-70-2	Calcium	5000	U	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7440-47-3	Chromium	10	U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-48-4	Cobalt	50	U	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-50-8	Copper	25	U	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7439-89-6	Iron	100	U	ug/L	100	4/09/07	4/10/07	CLP ILM05.4 P
7439-92-1	Lead	10	U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7439-95-4	Magnesium	5000	U	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7439-96-5	Manganese	15	U	ug/L	15	4/09/07	4/10/07	CLP ILM05.4 P
7440-02-0	Nickel	40	U	ug/L	40	4/09/07	4/10/07	CLP ILM05.4 P
7440-09-7	Potassium	5000	U	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7782-49-2	Selenium	35	U	ug/L	35	4/09/07	4/10/07	CLP ILM05.4 P
7440-22-4	Silver	10	U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-23-5	Sodium	5000	U	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7440-28-0	Thallium	25	U	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7440-62-2	Vanadium	50	U	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-66-6	Zinc	3.9	J	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL1 BONNER
D No:

Sample ID: FL-a **Lab ID:** C071601-02

Matrix: Surface Water

Date Collected: 3/28/07 9:50

CAS Number	Analyte	Result Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20 U	ug/L	0.20	4/13/07	4/13/07	CLP ILM05.4 CV
7429-90-5	Aluminum	51 U, J, Q-2, B-1	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-36-0	Antimony	60 U	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P
7440-38-2	Arsenic	6.6 R, Q-2, CLP04	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-39-3	Barium	25 J, Q-2	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-41-7	Beryllium	5.0 U	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-43-9	Cadmium	5.0 U	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-70-2	Calcium	110000	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7440-47-3	Chromium	4.7 U, J, Q-2, CLP03	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-48-4	Cobalt	350	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-50-8	Copper	620	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7439-89-6	Iron	160	ug/L	100	4/09/07	4/10/07	CLP ILM05.4 P
7439-92-1	Lead	8.2 U, J, Q-2, CLP03	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7439-95-4	Magnesium	4000 J, Q-2	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7439-96-5	Manganese	110	ug/L	15	4/09/07	4/10/07	CLP ILM05.4 P
7440-02-0	Nickel	19 J, Q-2	ug/L	40	4/09/07	4/10/07	CLP ILM05.4 P
7440-09-7	Potassium	53000 J, Q-5	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7782-49-2	Selenium	130	ug/L	35	4/09/07	4/10/07	CLP ILM05.4 P
7440-22-4	Silver	8.6 J, Q-2	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-23-5	Sodium	1500000	ug/L	100000	4/09/07	4/10/07	CLP ILM05.4 P
7440-28-0	Thallium	25 U	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7440-62-2	Vanadium	1.9 J, Q-2	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-66-6	Zinc	4.4 U, J, Q-2, CLP03	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZL1 BONNER

D No:

Sample ID: FL-a

Lab ID: C071601-02

Matrix: Surface Water

Date Collected: 3/28/07 9:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	53		ug/L	10	4/10/07	4/10/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL2 BONNER
D No:

Sample ID: FL-b
Lab ID: C071601-03

Matrix: Surface Water
Date Collected: 3/28/07 9:50

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prep Date	Analyze Date	Method
57-12-5	Cyanides	10	U	ug/L	10	4/12/07	4/12/07	CLSOW,CN,WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL3 BONNER
D No:

Sample ID: GL-a **Lab ID:** C071601-04

Matrix: Surface Water

Date Collected: 3/28/07 11:24

CAS Number	Analyte	Results Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20 U	ug/L	0.20	4/13/07	4/13/07	CLP ILM05.4 CV
7429-90-5	Aluminum	240	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-36-0	Antimony	60 U	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P
7440-38-2	Arsenic	30	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-39-3	Barium	63 J, Q-2	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-41-7	Beryllium	5.0 U	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.63 U J, Q-2 CLP03	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-70-2	Calcium	40000	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7440-47-3	Chromium	10	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-48-4	Cobalt	190	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-50-8	Copper	160	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7439-89-6	Iron	13000	ug/L	100	4/09/07	4/10/07	CLP ILM05.4 P
7439-92-1	Lead	8.6 U J, Q-2 CLP03	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7439-95-4	Magnesium	4600 J, Q-2	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7439-96-5	Manganese	10 U J, Q-2 CLP03	ug/L	15	4/09/07	4/10/07	CLP ILM05.4 P
7440-02-0	Nickel	13 J, Q-2	ug/L	40	4/09/07	4/10/07	CLP ILM05.4 P
7440-09-7	Potassium	52000 J, Q-5	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7782-49-2	Selenium	750	ug/L	35	4/09/07	4/10/07	CLP ILM05.4 P
7440-22-4	Silver	10 U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-23-5	Sodium	1600000	ug/L	100000	4/09/07	4/10/07	CLP ILM05.4 P
7440-28-0	Thallium	25 U	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7440-62-2	Vanadium	19 J, Q-2	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-66-6	Zinc	4.4 U J, Q-2 CLP03	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL3 BONNER
D No:

Sample ID: GL-a **Lab ID:** C071601-04

Matrix: Surface Water
Date Collected: 3/28/07 11:24

CAS Number	Name	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	30000		ug/L	1000	4/10/07	4/11/07	CLP ILM05.4 AS

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZL4 BONNER

D No:

Sample ID: GL-b

Lab ID: C071601-05

Matrix: Surface Water

Date Collected: 3/28/07 11:24

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method	Lab
57-12-5	Cyanide	.75		ug/L	10	4/12/07	4/12/07	CLP3W CN-WAD	

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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL5 BONNER
D No:

Sample ID: HL-a **Lab ID:** C071601-06

Matrix: Surface Water

Date Collected: 3/28/07 12:30

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.083 U, J, Q-2 CLP01		ug/L	0.20	4/13/07	4/13/07	CLP ILM05.4 CV
7429-90-5	Aluminum	76 U, J, Q-2, B-1		ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-36-0	Antimony	12 U, J, Q-2 CLP03		ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P
7440-38-2	Arsenic	24		ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-39-3	Barium	16 J, Q-2		ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-41-7	Beryllium	5.0 U		ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-43-9	Cadmium	29		ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-70-2	Calcium	160000		ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7440-47-3	Chromium	0.88 U, J, Q-2 CLP03		ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-48-4	Cobalt	270		ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-50-8	Copper	1400		ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7439-89-6	Iron	46 U, J, Q-2, B-1		ug/L	100	4/09/07	4/10/07	CLP ILM05.4 P
7439-92-1	Lead	4.4 U, J, Q-2 CLP03		ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7439-95-4	Magnesium	6600		ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7439-96-5	Manganese	360		ug/L	15	4/09/07	4/10/07	CLP ILM05.4 P
7440-02-0	Nickel	89		ug/L	40	4/09/07	4/10/07	CLP ILM05.4 P
7440-09-7	Potassium	45000 J, Q-5		ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7782-49-2	Selenium	2700		ug/L	35	4/09/07	4/10/07	CLP ILM05.4 P
7440-22-4	Silver	10 U		ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-23-5	Sodium	1300000		ug/L	100000	4/09/07	4/10/07	CLP ILM05.4 P
7440-28-0	Thallium	25 U		ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7440-62-2	Vanadium	50 U		ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-66-6	Zinc	340		ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZL5 BONNER

D No:

Sample ID: HL-a

Lab ID: C071601-06

Matrix: Surface Water

Date Collected: *3/28/07 12:30*

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	5.8	U J Q2 GLP03	ug/L	10	4/10/07	4/11/07	CLP ILM05.4 AS

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL6 BONNER
D No:

Sample ID: HL-b **Lab ID:** C071601-07

Matrix: Surface Water
Date Collected: 3/28/07 12:30

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	10	U	ug/L	10	4/12/07	4/12/07	CLSOWCNWAD

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZS1 BONNER
D No:

Sample ID: ZL-b

Lab ID: C071601-08

Matrix: Surface Water

Date Collected: 3/27/07 9:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	10	U	ug/L	10	4/12/07	4/12/07	CLSOW.CN.WAD

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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZT2 BONNER
D No:

Sample ID: ZL-a **Lab ID:** C071601-09

Matrix: Water

Date Collected: 3/27/07 9:50

Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20 U		ug/L	0.20	4/13/07	4/13/07	CLP ILM05.4 CV
7429-90-5	Aluminum	140	J, Q-2	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-36-0	Antimony	60 U		ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P
7440-38-2	Arsenic	4.3	R, Q-2, CLP04	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-39-3	Barium	17	J, Q-2	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-41-7	Beryllium	5.0 U		ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.20 U	J, Q-2, CLP03	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-70-2	Calcium	14000		ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7440-47-3	Chromium	1.1 U	J, Q-2, CLP03	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-48-4	Cobalt	3.5	J, Q-2	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-50-8	Copper	1.10		ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7439-89-6	Iron	150		ug/L	100	4/09/07	4/10/07	CLP ILM05.4 P
7439-92-1	Lead	3.8 U	J, Q-2, CLP03	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7439-95-4	Magnesium	810	J, Q-2	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7439-96-5	Manganese	48		ug/L	15	4/09/07	4/10/07	CLP ILM05.4 P
7440-02-0	Nickel	140		ug/L	40	4/09/07	4/10/07	CLP ILM05.4 P
7440-09-7	Potassium	17000	J, Q-5	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7782-49-2	Selenium	56		ug/L	35	4/09/07	4/10/07	CLP ILM05.4 P
7440-22-4	Silver	10 U		ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-23-5	Sodium	590000		ug/L	50000	4/09/07	4/10/07	CLP ILM05.4 P
7440-28-0	Thallium	25 U		ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7440-62-2	Vanadium	0.53	J, Q-2	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-66-6	Zinc	14 U	J, Q-2, CLP03	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZT2 BONNER

D No:

Sample ID: ZL-a

Lab ID: C071601-09

Matrix: Water

Date Collected: 3/27/07 9:50

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	10	U	ug/L	10	4/10/07	4/11/07	CLP ILM05.4 AS

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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZT7 BONNER

Sample ID: AL-a **Lab ID:** C071601-10

D No:

Matrix: Surface Water

Date Collected: 3/27/07 9:50

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	4/13/07	4/13/07	CLP ILM05.4 CV
7429-90-5	Aluminum	110	J, Q-2	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-36-0	Antimony	60	U	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P
7440-38-2	Arsenic	8.1	J, Q-2	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-39-3	Barium	16	J, Q-2	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-41-7	Beryllium	5.0	U	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.17	U, J, Q-2, CLP03	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-70-2	Calcium	14000		ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7440-47-3	Chromium	0.93	U, J, Q-2, CLP03	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-48-4	Cobalt	3.7	J, Q-2	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-50-8	Copper	100		ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7439-89-6	Iron	130		ug/L	100	4/09/07	4/10/07	CLP ILM05.4 P
7439-92-1	Lead	10	U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7439-95-4	Magnesium	800	J, Q-2	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7439-96-5	Manganese	47		ug/L	15	4/09/07	4/10/07	CLP ILM05.4 P
7440-02-0	Nickel	130		ug/L	40	4/09/07	4/10/07	CLP ILM05.4 P
7440-09-7	Potassium	17000	J, Q-5	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7782-49-2	Selenium	57		ug/L	35	4/09/07	4/10/07	CLP ILM05.4 P
7440-22-4	Silver	10	U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-23-5	Sodium	600000		ug/L	50000	4/09/07	4/10/07	CLP ILM05.4 P
7440-28-0	Thallium	25	U	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7440-62-2	Vanadium	0.46	J, Q-2	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-66-6	Zinc	12	U, J, Q-2, CLP03	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZT7 BONNER

D No:

Sample ID: AL-a

Lab ID: C071601-10

Matrix: Surface Water

Date Collected: 3/27/07 9:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	6.4	U J Q2	ug/L	10	4/10/07	4/10/07	CLP ILM05.4 AS

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980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZT8 BONNER
D No:

Sample ID: AL-b **Lab ID:** C071601-11

Matrix: Surface Water
Date Collected: 3/27/07 9:50

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	10	U	ug/L	10	4/12/07	4/12/07	CLSOW,CN,WAD

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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZT9 BONNER

D No:

Sample ID: BL-a

Lab ID: C071601-12

Matrix: Surface Water

Date Collected: 3/27/07 10:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20 U		ug/L	0.20	4/13/07	4/13/07	CLP ILM05.4 CV
7429-90-5	Aluminum	120 J, Q-2		ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-36-0	Antimony	60 U		ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P
7440-38-2	Arsenic	10 U		ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-39-3	Barium	33 J, Q-2		ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-41-7	Beryllium	5.0 U		ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.38 U, J, Q-2	CLP03	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-70-2	Calcium	21000		ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7440-47-3	Chromium	10 U		ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-48-4	Cobalt	31 J, Q-2		ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-50-8	Copper	730		ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7439-89-6	Iron	210		ug/L	100	4/09/07	4/10/07	CLP ILM05.4 P
7439-92-1	Lead	10 U		ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7439-95-4	Magnesium	940 J, Q-2		ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7439-96-5	Manganese	220		ug/L	15	4/09/07	4/10/07	CLP ILM05.4 P
7440-02-0	Nickel	96		ug/L	40	4/09/07	4/10/07	CLP ILM05.4 P
7440-09-7	Potassium	12000 J, Q-5		ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7782-49-2	Selenium	110		ug/L	35	4/09/07	4/10/07	CLP ILM05.4 P
7440-22-4	Silver	10 U		ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-23-5	Sodium	370000		ug/L	50000	4/09/07	4/10/07	CLP ILM05.4 P
7440-28-0	Thallium	25 U		ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7440-62-2	Vanadium	1.2 J, Q-2		ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-66-6	Zinc	24 U, J, Q-2	CLP03	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZT9 BONNER
D No:

Sample ID: BL-a **Lab ID:** C071601-12

Matrix: Surface Water
Date Collected: 3/27/07 10:45

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide, Total	3.7	U, J, Q-2, CLP03	ug/L	10	4/10/07	4/10/07	CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZW0 BONNER
D No:

Sample ID: BL-b **Lab ID:** C071601-13

Matrix: Surface Water
Date Collected: 3/27/07 10:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	10	U	ug/L	10	4/12/07	4/12/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZW1 BONNER
D No:

Sample ID: CL-a **Lab ID:** C071601-14

Matrix: Surface Water

Date Collected: 3/27/07 11:20

CAS Number	Analyte	Result Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20 U	ug/L	0.20	4/13/07	4/13/07	CLP ILM05.4 CV
7429-90-5	Aluminum	41 U, J, Q-2, B-1	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-36-0	Antimony	60 U	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P
7440-38-2	Arsenic	4.0 R, Q-2, CLP04	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-39-3	Barium	20 J, Q-2	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-41-7	Beryllium	5.0 U	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.68 U, J, Q-2, CLP03	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-70-2	Calcium	13000	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7440-47-3	Chromium	10 U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-48-4	Cobalt	11 J, Q-2	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-50-8	Copper	120	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7439-89-6	Iron	180	ug/L	100	4/09/07	4/10/07	CLP ILM05.4 P
7439-92-1	Lead	10 U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7439-95-4	Magnesium	620 J, Q-2	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7439-96-5	Manganese	100	ug/L	15	4/09/07	4/10/07	CLP ILM05.4 P
7440-02-0	Nickel	93	ug/L	40	4/09/07	4/10/07	CLP ILM05.4 P
7440-09-7	Potassium	12000 J, Q-5	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7782-49-2	Selenium	110	ug/L	35	4/09/07	4/10/07	CLP ILM05.4 P
7440-22-4	Silver	10 U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-23-5	Sodium	380000	ug/L	50000	4/09/07	4/17/07	CLP ILM05.4 P
7440-28-0	Thallium	25 U	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7440-62-2	Vanadium	0.57 J, Q-2	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-66-6	Zinc	5.1 U, J, Q-2, CLP03	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZW1 BONNER
D No:

Sample ID: CL-a **Lab ID:** C071601-14

Matrix: Surface Water

Date Collected: 3/27/07 11:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	2.3	U J, O-2 GLP03	ug/L	10	4/10/07	4/10/07	CLP ILM05.4 AS

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZW2 BONNER

D No:

Sample ID: CL-b

Lab ID: C071601-15

Matrix: Surface Water

Date Collected: 3/27/07 11:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	2.3	U J Q-2 CLP03	ug/L	10	4/12/07	4/12/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZW3 BONNER
D No:

Sample ID: DL-a **Lab ID:** C071601-16

Matrix: Surface Water

Date Collected: 3/27/07 12:51

CAS Numbers	Analyte	Results Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20 U	ug/L	0.20	4/13/07	4/13/07	CLP ILM05.4 CV
7429-90-5	Aluminum	17000	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-36-0	Antimony	60 U	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P
7440-38-2	Arsenic	10 U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-39-3	Barium	12 J, Q-2	ug/L	200	4/09/07	4/10/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.38 U, J, Q-2, CLP03	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-43-9	Cadmium	3.6 U, J, Q-2, CLP03	ug/L	5.0	4/09/07	4/10/07	CLP ILM05.4 P
7440-70-2	Calcium	38000	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7440-47-3	Chromium	5.2 U, J, Q-2, CLP03	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-48-4	Cobalt	130	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-50-8	Copper	320	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7439-89-6	Iron	450	ug/L	100	4/09/07	4/10/07	CLP ILM05.4 P
7439-92-1	Lead	4.6 U, J, Q-2, CLP03	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7439-95-4	Magnesium	3000 J, Q-2	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7439-96-5	Manganese	330	ug/L	15	4/09/07	4/10/07	CLP ILM05.4 P
7440-02-0	Nickel	150	ug/L	40	4/09/07	4/10/07	CLP ILM05.4 P
7440-09-7	Potassium	11000 J, Q-5	ug/L	5000	4/09/07	4/10/07	CLP ILM05.4 P
7782-49-2	Selenium	44	ug/L	35	4/09/07	4/10/07	CLP ILM05.4 P
7440-22-4	Silver	10 U	ug/L	10	4/09/07	4/10/07	CLP ILM05.4 P
7440-23-5	Sodium	270000	ug/L	50000	4/09/07	4/17/07	CLP ILM05.4 P
7440-28-0	Thallium	25 U	ug/L	25	4/09/07	4/10/07	CLP ILM05.4 P
7440-62-2	Vanadium	1.3 J, Q-2	ug/L	50	4/09/07	4/10/07	CLP ILM05.4 P
7440-66-6	Zinc	210	ug/L	60	4/09/07	4/10/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZW3 BONNER
D No:

Sample ID: DL-a **Lab ID:** C071601-16

Matrix: Surface Water
Date Collected: 3/27/07 12:51

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	11		ug/L	10	4/10/07	4/10/07	CLP ILM05.4 AS

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZW4 BONNER
D No:

Sample ID: DL-b

Lab ID: C071601-17

Matrix: Surface Water

Date Collected: 3/27/07 12:51

CAS Number	Analyte	Results	Qualifiers	Units	RL	Dilution	Date Prepared	Date Analyzed	Method
57-12-5	Cyanide	4.9	U J Q-2 CLP03	ug/L	10	4/12/07	4/12/07	CLSOW CN WAD	

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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL7 BONNER
D No:

Sample ID: BH247-1 **Lab ID:** C071601-18

Matrix: Sediment
Date Collected: 3/27/07 8:59

CAS Number	Analyte	Result Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.14 U	mg/kg dry	0.68	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	74	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	8400	mg/kg dry	27	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	1.5 U, J, Q-2, QM-1, CLP03	mg/kg dry	8.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	48 J, QM-1	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	1700	mg/kg dry	27	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.56 U J, Q-2, CLP03	mg/kg dry	0.68	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.19 J, Q-2	mg/kg dry	0.68	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	930	mg/kg dry	680	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	110	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	7.9	mg/kg dry	6.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	96 J, QM-6, CLP07	mg/kg dry	3.4	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	52000	mg/kg dry	14	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	270 J, QM-2, QM-4	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	410 J, Q-2	mg/kg dry	680	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	340 J, QM-4	mg/kg dry	2.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	2.5 J, Q-2	mg/kg dry	5.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	150 J, Q-2	mg/kg dry	680	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	1.5 U J, Q-2, CLP03	mg/kg dry	4.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.4 U	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	680 U	mg/kg dry	680	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	1.4 U, J, Q-2, CLP03	mg/kg dry	3.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	81	mg/kg dry	6.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	60 J, Q-5	mg/kg dry	8.1	4/04/07	4/05/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL7 BONNER
D No:

Sample ID: BH247-1 **Lab ID:** C071601-18

Matrix: Sediment
Date Collected: 3/27/07 8:59

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	33.4	U	mg/kg dry	3.4	4/05/07	4/05/07	CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL8 BONNER
D No:

Sample ID: BH247-13 **Lab ID:** C071601-19

Matrix: Sediment
Date Collected: 3/27/07 11:34

CAS Number	Analyte	Result, Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.26 U	mg/kg dry	1.3	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	39	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	15000	mg/kg dry	52	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	16 U, J, QM-1	mg/kg dry	16	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	5.0 R, Q-2, QM-1, CLP04	mg/kg dry	2.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	330	mg/kg dry	52	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.34 U, J, Q-2, CLP03	mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	44	mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	450 J, Q-2	mg/kg dry	1300	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	11	mg/kg dry	2.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	51	mg/kg dry	13	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	3700 J, QM-6, CLP07	mg/kg dry	6.4	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	15000	mg/kg dry	26	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	35 J, QM-2, QM-4	mg/kg dry	2.6	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	1200 J, Q-2	mg/kg dry	1300	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	140 J, QM-4	mg/kg dry	3.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	12	mg/kg dry	10	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	170 J, Q-2	mg/kg dry	1300	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	9.0 U	mg/kg dry	9.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	2.6 U	mg/kg dry	2.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	84 J, Q-2	mg/kg dry	1300	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	1.2 U, J, Q-2, CLP03	mg/kg dry	6.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	30	mg/kg dry	13	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	1300 J, Q-5	mg/kg dry	16	4/04/07	4/05/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL8 BONNER
D No:

Sample ID: **BH247-13** **Lab ID:** **C071601-19**

Matrix: **Sediment**
Date Collected: **3/27/07 11:34**

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	6.4	U	mg/kg dry	6.4	4/05/07	4/05/07	CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL9 BONNER
D No:

Sample ID: BH247-17 **Lab ID:** C071601-20

Matrix: Sediment
Date Collected: 3/27/07 11:46

Number	Analyte	Result, Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.16 U	mg/kg dry	0.81	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	62	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	4600	mg/kg dry	32	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	9.7 U, J, QM-1	mg/kg dry	9.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	4.0 J, QM-1	mg/kg dry	1.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	120	mg/kg dry	32	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.19 U, J, Q-2, CLP03	mg/kg dry	0.81	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.61 J, Q-2	mg/kg dry	0.81	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	180 J, Q-2	mg/kg dry	810	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	25	mg/kg dry	1.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	3.9 J, Q-2	mg/kg dry	8.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	320 J, QM-6, CLP07	mg/kg dry	4.0	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	14000	mg/kg dry	16	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	15 J, QM-2, QM-4	mg/kg dry	1.6	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	550 J, Q-2	mg/kg dry	810	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	150 J, QM-4	mg/kg dry	2.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	1.6 J, Q-2	mg/kg dry	6.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	53 J, Q-2	mg/kg dry	810	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	1.4 U, J, Q-2, CLP03	mg/kg dry	5.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.6 U	mg/kg dry	1.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	48 J, Q-2	mg/kg dry	810	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	4.0 U	mg/kg dry	4.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	28	mg/kg dry	8.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	42 J, Q-5	mg/kg dry	9.7	4/04/07	4/05/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZL9 BONNER
D No:

Sample ID: BH247-17 **Lab ID:** C071601-20

Matrix: Sediment

Date Collected: 3/27/07 11:46

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide,	4.0	U	mg/kg dry	4.0	4/05/07	4/05/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM0 BONNER
D No:

Sample ID: BH247-18 **Lab ID:** C071601-21

Matrix: Sediment

Date Collected: 3/27/07 11:50

CAS Number	Analyte	Result Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.13 U	mg/kg dry	0.63	4/13/07	4/13/07	CLP ILM05.4 GV
E1642941	% Solids	79	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	4000	mg/kg dry	25	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	7.6 U, J, QM-1	mg/kg dry	7.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	1.3 U, J, QM-1	mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	37	mg/kg dry	25	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.14 U, J, Q-2, CLP03	mg/kg dry	0.63	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.63 U	mg/kg dry	0.63	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	280 J, Q-2	mg/kg dry	630	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	14	mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	3.1 J, Q-2	mg/kg dry	6.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	11 J, QM-6, CLP07	mg/kg dry	3.2	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	6900	mg/kg dry	13	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	9.7 J, QM-2, QM-4	mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	610 J, Q-2	mg/kg dry	630	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	120 J, QM-4	mg/kg dry	1.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	1.8 J, Q-2	mg/kg dry	5.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	75 J, Q-2	mg/kg dry	630	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	4.4 U	mg/kg dry	4.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.3 U	mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	51 J, Q-2	mg/kg dry	630	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	1.1 U, J, Q-2, CLP03	mg/kg dry	3.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	22	mg/kg dry	6.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	15 J, Q-5	mg/kg dry	7.6	4/04/07	4/05/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM0 BONNER
D No:

Sample ID: BH247-18 **Lab ID:** C071601-21

Matrix: Sediment
Date Collected: 3/27/07 11:50

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.2	U	mg/kg dry	3.2	4/05/07	4/05/07	CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM1 BONNER
D No:

Sample ID: BH247-19 **Lab ID:** C071601-22

Matrix: Sediment
Date Collected: 3/27/07 12:02

CAS Number	Analyte	Results Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.16 U	mg/kg dry	0.82	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	61	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	7600	mg/kg dry	33	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	9.9 U, J, QM-1	mg/kg dry	9.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	3.3 J, QM-1	mg/kg dry	1.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	110	mg/kg dry	33	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.34 U, J, QM-2, CLP03	mg/kg dry	0.82	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	2.8	mg/kg dry	0.82	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	610 J, Q-2	mg/kg dry	820	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	24	mg/kg dry	1.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	8.1 J, Q-2	mg/kg dry	8.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	300 J, QM-6, CLP07	mg/kg dry	4.1	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	22000	mg/kg dry	16	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	26 J, QM-2, QM-4	mg/kg dry	1.6	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	1300	mg/kg dry	820	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	230 J, QM-4	mg/kg dry	2.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	4.2 J, Q-2	mg/kg dry	6.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	140 J, Q-2	mg/kg dry	820	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	5.7 U	mg/kg dry	5.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.6 U	mg/kg dry	1.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	65 J, Q-2	mg/kg dry	820	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	2.0 U, J, Q-2, CLP03	mg/kg dry	4.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	48	mg/kg dry	8.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	76 J, Q-5	mg/kg dry	9.9	4/04/07	4/05/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM1 BONNER
D No:

Sample ID: BH247-19 **Lab ID:** C071601-22

Matrix: Sediment

Date Collected: 3/27/07 12:02

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	4.1	U	mg/kg dry	4.1	4/05/07	4/05/07	CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM2 BONNER
D No:

Sample ID: BH247-20 **Lab ID:** C071601-23

Matrix: Sediment

Date Collected: 3/28/07 8:59

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	mg/kg dry	0.98	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	51		%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	13000		mg/kg dry	39	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	12	U, J, QM-1	mg/kg dry	12	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	2.0	U, J, QM-1	mg/kg dry	2.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	350		mg/kg dry	39	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.41	U, J, Q-2, CLP03	mg/kg dry	0.98	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.16	R, Q-2, CLP04	mg/kg dry	0.98	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	1000		mg/kg dry	980	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	25		mg/kg dry	2.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	114		mg/kg dry	9.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	38	J, QM-6, CLP07	mg/kg dry	4.9	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	16000		mg/kg dry	20	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	29	J, QM-2, QM-4	mg/kg dry	2.0	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	1200		mg/kg dry	980	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	390	J, QM-4	mg/kg dry	3.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	4.9	J, Q-2	mg/kg dry	7.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	300	J, Q-2	mg/kg dry	980	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	1.6	U, J, CLP03, Q-2	mg/kg dry	6.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	2.0	U	mg/kg dry	2.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	110	J	mg/kg dry	980	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	1.1	U, J, Q-2, CLP03	mg/kg dry	4.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	55		mg/kg dry	9.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	39	J, Q-5	mg/kg dry	12	4/04/07	4/05/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM2 BONNER
D No:

Sample ID: BH247-20 **Lab ID:** C071601-23

Matrix: Sediment
Date Collected: 3/28/07 8:59

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	4.9	U	mg/kg dry	4.9	4/05/07	4/05/07	CLP ILM05.4 AS

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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM3 BONNER
D No:

Sample ID: BH247-21 **Lab ID:** C071601-24

Matrix: Sediment
Date Collected: 3/28/07 9:12

CAS Number	Analyte	Result	Qualifier	Unit	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.13 U		mg/kg dry	0.64	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	78		%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	3700		mg/kg dry	26	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	7.7 U, J, QM-1		mg/kg dry	7.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	2.4 J, QM-1		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	71		mg/kg dry	26	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.17 U, J, Q-2, CLP03		mg/kg dry	0.64	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.44 J, Q-2		mg/kg dry	0.64	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	310 J, Q-2		mg/kg dry	640	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	20		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	6.6		mg/kg dry	6.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	57 J, QM-6, CLP07		mg/kg dry	3.2	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	16000		mg/kg dry	13	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	12 J, QM-2, QM-4		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	520 J, Q-2		mg/kg dry	640	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	400 J, QM-4		mg/kg dry	1.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	2.0 J, Q-2		mg/kg dry	5.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	61 J, Q-2		mg/kg dry	640	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	4.5 U		mg/kg dry	4.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.3 U		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	640 U		mg/kg dry	640	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	3.2 U		mg/kg dry	3.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	34		mg/kg dry	6.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	29 J, Q-5		mg/kg dry	7.7	4/04/07	4/05/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM3 BONNER
D No:

Sample ID: BH247-21 **Lab ID:** C071601-24

Matrix: Sediment
Date Collected: 3/28/07 9:12

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.2	U	mg/kg dry	3.2	4/05/07	4/05/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM4 BONNER
D No:

Sample ID: BH247-22 **Lab ID:** C071601-25

Matrix: Sediment

Date Collected: 3/28/07 9:34

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.13 U	mg/kg dry	0.65	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	77	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	2500	mg/kg dry	26	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	7.8 U, J, QM-1	mg/kg dry	7.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	0.92 J, Q-2, QM-1	mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	20 J, Q-2	mg/kg dry	26	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.13 U, J, Q-2, CLP03	mg/kg dry	0.65	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.39 J, Q-2	mg/kg dry	0.65	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	170 J, Q-2	mg/kg dry	650	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	16	mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	3.0 J, Q-2	mg/kg dry	6.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	54 J, QM-6, CLP07	mg/kg dry	3.2	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	8900	mg/kg dry	13	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	8.3 J, QM-2, QM-4	mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	410 J, Q-2	mg/kg dry	650	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	180 J, QM-4	mg/kg dry	1.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	1.3 J, Q-2	mg/kg dry	5.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	41 J, Q-2	mg/kg dry	650	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	0.97 U, J, Q-2, CLP03	mg/kg dry	4.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.3 U	mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	42 J, Q-2	mg/kg dry	650	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	3.2 U	mg/kg dry	3.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	24	mg/kg dry	6.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	25 J, Q-5	mg/kg dry	7.8	4/04/07	4/05/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM4 BONNER
D No:

Sample ID: BH247-22 **Lab ID:** C071601-25

Matrix: Sediment

Date Collected: 3/28/07 9:34

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.2	U	mg/kg dry	3.2	4/05/07	4/05/07	CLP ILM03.4 AS

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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM5 BONNER
D No:

Sample ID: BH247-25 **Lab ID:** C071601-26

Matrix: Sediment
Date Collected: 3/28/07 9:50

CAS Number	Analyte	Result Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.14 U	mg/kg dry	0.71	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	70	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	12000	mg/kg dry	28	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	8.5 U, J, QM-1	mg/kg dry	8.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	1.1 J, QM-1	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	990	mg/kg dry	28	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.33 U, J, CLP03, Q-2	mg/kg dry	0.71	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.32 J, Q-2	mg/kg dry	0.71	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	420 J, Q-2	mg/kg dry	710	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	36	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	20	mg/kg dry	7.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	180 J, QM-6, CLP07	mg/kg dry	3.6	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	37000	mg/kg dry	14	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	55 J, QM-2, QM-4	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	3300	mg/kg dry	710	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	620 J, QM-4	mg/kg dry	2.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	6.8	mg/kg dry	5.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	140 J, Q-2	mg/kg dry	710	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	2.9 U, J, Q-2, CLP03	mg/kg dry	5.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.4 U	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	710 U	mg/kg dry	710	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	1.3 U, J, Q-2, CLP03	mg/kg dry	3.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	74	mg/kg dry	7.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	74 J, Q-5	mg/kg dry	8.5	4/04/07	4/05/07	CLP ILM05.4 P

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980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM5 BONNER
D No:

Sample ID: BH247-25 **Lab ID:** C071601-26

Matrix: Sediment
Date Collected: 3/28/07 9:50

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.6	U	mg/kg dry	3.6	4/05/07	4/05/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM6 BONNER
D No:

Sample ID: BH247-26 **Lab ID:** C071601-27

Matrix: Sediment

Date Collected: 3/28/07 10:10

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.14 U	mg/kg dry	0.69	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	72	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	8100	mg/kg dry	28	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	8.3 U, J, QM-1	mg/kg dry	8.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	1.4 U, J, QM-1	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	64	mg/kg dry	28	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.25 U, J, Q-2, CLP03	mg/kg dry	0.69	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.69 U	mg/kg dry	0.69	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	540 J, Q-2	mg/kg dry	690	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	11	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	6.6 J, Q-2	mg/kg dry	6.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	10 J, QM-6, CLP07	mg/kg dry	3.5	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	13000	mg/kg dry	14	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	12 J, QM-2, QM-4	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	840	mg/kg dry	690	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	150 J, QM-4	mg/kg dry	2.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	2.7 J, Q-2	mg/kg dry	5.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	140 J, Q-2	mg/kg dry	690	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	4.8 U	mg/kg dry	4.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.4 U	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	59 J, Q-2	mg/kg dry	690	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	3.5 U	mg/kg dry	3.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	39	mg/kg dry	6.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	17 J, Q-5	mg/kg dry	8.3	4/04/07	4/05/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM6 BONNER
D No:

Sample ID: BH247-26 **Lab ID:** C071601-27

Matrix: Sediment
Date Collected: 3/28/07 10:10

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide, Total	3.5	U	mg/kg dry	3.5	4/05/07	4/05/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM7 BONNER
D No:

Sample ID: BH247-27 **Lab ID:** C071601-28

Matrix: Sediment

Date Collected: 3/28/07 10:26

CAS Number	Analyte	Result Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.17 U	mg/kg dry	0.85	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	59	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	10000	mg/kg dry	34	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	10 U, J, QM-1	mg/kg dry	10	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	27 J, QM-1	mg/kg dry	1.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	2200	mg/kg dry	34	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.17 U, J, Q-2, CLP03	mg/kg dry	0.85	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.15 J, Q-2	mg/kg dry	0.85	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	290 J, Q-2	mg/kg dry	850	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	13	mg/kg dry	1.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	3.3 J, Q-2	mg/kg dry	8.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	220 J, QM-6, CLP07	mg/kg dry	4.3	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	41000	mg/kg dry	17	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	110 J, QM-2, QM-4	mg/kg dry	1.7	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	340 J, Q-2	mg/kg dry	850	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	270 J, QM-4	mg/kg dry	2.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	2.2 J, Q-2	mg/kg dry	6.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	210 J, Q-2	mg/kg dry	850	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	3.1 U, J, Q-2, CLP03	mg/kg dry	6.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.7 U	mg/kg dry	1.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	850 U	mg/kg dry	850	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	1.2 U, J, Q-2, CLP03	mg/kg dry	4.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	65	mg/kg dry	8.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	36 J, Q-5	mg/kg dry	10	4/04/07	4/05/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM7 BONNER
D No:

Sample ID: BH247-27 **Lab ID:** C071601-28

Matrix: Sediment
Date Collected: 3/28/07 10:26

CAS Number	Analyte	Results	Qualifier	Dilution	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	4.3	U	1	mg/kg dry	4.3	4/05/07	4/05/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM8 BONNER
D No:

Sample ID: BH247-28 **Lab ID:** C071601-29

Matrix: Sediment

Date Collected: 3/28/07 10:58

CAS Number	Analyte	Result Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.14 U	mg/kg dry	0.72	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	69	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	13000	mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	8.6 U, J, QM-1	mg/kg dry	8.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	3.6 J, QM-1	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	150	mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.62 U, J, Q-2, CLP03	mg/kg dry	0.72	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.050 R, Q-2, CLP04	mg/kg dry	0.72	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	2100	mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	80	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	19	mg/kg dry	7.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	28 J, QM-6, CLP07	mg/kg dry	3.6	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	56000	mg/kg dry	14	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	18 J, QM-2, QM-4	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	2700	mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	1600 J, QM-4	mg/kg dry	2.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	5.6 J, Q-2	mg/kg dry	5.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	340 J, Q-2	mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	5.0 U	mg/kg dry	5.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.4 U	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	38 J, Q-2	mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	2.1 U, J, Q-2, CLP03	mg/kg dry	3.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	150	mg/kg dry	7.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	33 J, Q-5	mg/kg dry	8.6	4/04/07	4/05/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZM8 BONNER

D No:

Sample ID: **BH247-28**

Lab ID: **C071601-29**

Matrix: **Sediment**

Date Collected: **3/28/07 10:58**

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.6	U	mg/kg dry	3.6	4/05/07	4/05/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM9 BONNER
D No:

Sample ID: BH247-29 **Lab ID:** C071601-30

Matrix: Sediment
Date Collected: 3/28/07 11:24

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.13 U		mg/kg dry	0.63	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	79		%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	8400		mg/kg dry	25	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	7.6 U, J, QM-1		mg/kg dry	7.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	3.7 J, QM-1		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	71		mg/kg dry	25	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.34 U, J, Q-2, CLP03		mg/kg dry	0.63	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.27 J, Q-2		mg/kg dry	0.63	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	980		mg/kg dry	630	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	17		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	8.9		mg/kg dry	6.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	110 J, QM-6, CLP07		mg/kg dry	3.2	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	23000		mg/kg dry	13	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	18 J, QM-2, QM-4		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	860		mg/kg dry	630	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	330 J, QM-4		mg/kg dry	1.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	3.6 J, Q-2		mg/kg dry	5.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	170 J, Q-2		mg/kg dry	630	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	3.8 U, J, Q-2, CLP03		mg/kg dry	4.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	0.99 J, Q-2		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	61 J, Q-2		mg/kg dry	630	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	1.1 U, J, Q-2, CLP03		mg/kg dry	3.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	55		mg/kg dry	6.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	26 J, Q-5		mg/kg dry	7.6	4/04/07	4/05/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZM9 BONNER
D No:

Sample ID: BH247-29 **Lab ID:** C071601-30

Matrix: Sediment

Date Collected: 3/28/07 11:24

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.2	U	mg/kg dry	3.2	4/05/07	4/05/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN0 BONNER
D No:

Sample ID: BH247-3 **Lab ID:** C071601-31

Matrix: Sediment

Date Collected: 3/27/07 9:00

CAS Number	Analyte	Results, Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.23	mg/kg dry	0.73	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	68	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	6400	mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	8.8 U, J, QM-1	mg/kg dry	8.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	23 J, QM-1	mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	910	mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.070 U, J, Q-2, CLP03	mg/kg dry	0.73	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.80	mg/kg dry	0.73	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	350 J, Q-2	mg/kg dry	730	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	18	mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	3.3 J, Q-2	mg/kg dry	7.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	370 J, QM-6, CLP07	mg/kg dry	3.7	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	45000	mg/kg dry	15	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	41 J, QM-2, QM-4	mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	370 J, Q-2	mg/kg dry	730	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	160 J, QM-4	mg/kg dry	2.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	1.5 J, Q-2	mg/kg dry	5.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	100	mg/kg dry	730	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	1.3 U, J, Q-2, CLP03	mg/kg dry	5.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	0.57 R, Q-2, CLP04	mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	730 U	mg/kg dry	730	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	1.3 U, J, Q-2, CLP03	mg/kg dry	3.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	48	mg/kg dry	7.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	57 J, Q-5	mg/kg dry	8.8	4/04/07	4/05/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN0 BONNER
D No:

Sample ID: BH247-3 **Lab ID:** C071601-31

Matrix: Sediment
Date Collected: 3/27/07 9:00

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	0.16	U J Q2 CLP01	mg/kg dry	3.7	4/05/07	4/05/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN1 BONNER
D No:

Sample ID: BH247-5 **Lab ID:** C071601-32

Matrix: Sediment

Date Collected: 3/27/07 9:10

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	10.44		mg/kg dry	0.72	4/13/07	4/13/07	CLP ILM05.4 CVP
E1642941	% Solids	69		%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	4500		mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	8.7	U, J, QM-1	mg/kg dry	8.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	28	J, QM-1	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	470		mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.080	U, J, Q-2, CLP03	mg/kg dry	0.72	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.87		mg/kg dry	0.72	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	230	J, Q-2	mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	25		mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	2.1	J, Q-2	mg/kg dry	7.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	390	J, QM-6, CLP07	mg/kg dry	3.6	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	79000		mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	55	J, QM-2, QM-4	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	240	J, Q-2	mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	150	J, QM-4	mg/kg dry	2.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	0.88	J, Q-2	mg/kg dry	5.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	62	J, Q-2	mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	1.6	U, J, Q-2, CLP03	mg/kg dry	5.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.4	U	mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	720	U	mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	0.95	U, J, Q-2, CLP03	mg/kg dry	3.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	53		mg/kg dry	7.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	57		mg/kg dry	8.7	4/04/07	4/05/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN1 BONNER
D No:

Sample ID: BH247-5 **Lab ID:** C071601-32

Matrix: Sediment

Date Collected: 3/27/07 9:10

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	0.54	J, Q-5	mg/kg dry	3.6	4/05/07	4/05/07	CLP.ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN2 BONNER
D No:

Sample ID: BH247-521 **Lab ID:** C071601-33

Matrix: Sediment
Date Collected: 3/28/07 9:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.14 U		mg/kg dry	0.72	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	69		%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	5600		mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	8.7 U, J, QM-1		mg/kg dry	8.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	2.5 J, QM-1		mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	220		mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.19 U, J, Q-2, CLP05		mg/kg dry	0.72	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.69 J, Q-2		mg/kg dry	0.72	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	530 J, Q-2		mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	18		mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	7.7		mg/kg dry	7.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	110 J, QM-6, CLP07		mg/kg dry	3.6	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	14000		mg/kg dry	14	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	22 J, QM-2, QM-4		mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	780		mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	550 J, QM-4		mg/kg dry	2.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	2.7 J, Q-2		mg/kg dry	5.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	99 J, Q-2		mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	5.1 U		mg/kg dry	5.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.4 U		mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	68 J, Q-2		mg/kg dry	720	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	3.6 U		mg/kg dry	3.6	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	31		mg/kg dry	7.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	39 J, Q-5		mg/kg dry	8.7	4/04/07	4/05/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN2 BONNER
D No:

Sample ID: BH247-521 **Lab ID:** C071601-33

Matrix: Sediment
Date Collected: 3/28/07 9:15

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.6	U	mg/kg dry	3.6	4/05/07	4/05/07	CLP ILM05.4 AS

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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN3 BONNER
D No:

Sample ID: BH247-525 **Lab ID:** C071601-34

Matrix: Sediment

Date Collected: 3/28/07 9:55

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.15 U		mg/kg dry	0.73	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	68		%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	14000		mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	8.8 U, J, QM-1		mg/kg dry	8.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	11 J, QM-1		mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	980		mg/kg dry	29	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.52 U, J, Q-2, CLP03		mg/kg dry	0.73	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.37 J, Q-2		mg/kg dry	0.73	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	420 J, Q-2		mg/kg dry	730	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	70		mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	23		mg/kg dry	7.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	200 J, QM-6, CLP07		mg/kg dry	3.7	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	49000		mg/kg dry	15	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	51 J, QM-2, QM-4		mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	3700		mg/kg dry	730	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	600 J, QM-4		mg/kg dry	2.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	7.5		mg/kg dry	5.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	140 J, Q-2		mg/kg dry	730	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	2.5 U, J, Q-2, CLP03		mg/kg dry	5.1	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.5 U		mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	730 U		mg/kg dry	730	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	1.5 U, J, Q-2, CLP03		mg/kg dry	3.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	110		mg/kg dry	7.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	85 J, Q-5		mg/kg dry	8.8	4/04/07	4/05/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN3 BONNER
D No:

Sample ID: BH247-525 **Lab ID:** C071601-34

Matrix: Sediment
Date Collected: 3/28/07 9:55

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.7	U	mg/kg dry	3.7	4/05/07	4/05/07	CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN4 BONNER
D No:

Sample ID: BH247-529 **Lab ID:** C071601-35

Matrix: Sediment
Date Collected: 3/28/07 11:30

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.13 U		mg/kg dry	0.65	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	77		%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	9000		mg/kg dry	26	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	7.8 U, J, QM-1		mg/kg dry	7.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	7.1 J, QM-1		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	52		mg/kg dry	26	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.50 U, J, Q-2, CLP03		mg/kg dry	0.65	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.25 J, Q-2		mg/kg dry	0.65	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	940		mg/kg dry	650	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	25		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	8.2		mg/kg dry	6.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	39 J, QM-6, CLP07		mg/kg dry	3.2	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	35000		mg/kg dry	13	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	21 J, QM-2, QM-4		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	920		mg/kg dry	650	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	270 J, QM-4		mg/kg dry	1.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	3.8 J, Q-2		mg/kg dry	5.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	180 J, Q-2		mg/kg dry	650	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	2.1 U, J, CLP03, Q-2		mg/kg dry	4.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.3 U		mg/kg dry	1.3	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	60 J, Q-2		mg/kg dry	650	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	1.7 U, J, Q-2, CLP03		mg/kg dry	3.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	86		mg/kg dry	6.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	27 J, Q-5		mg/kg dry	7.8	4/04/07	4/05/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN4 BONNER
D No:

Sample ID: BH247-529 **Lab ID:** C071601-35

Matrix: ***Sediment***

Date Collected: 3/28/07 11:30

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.2	U	mg/kg dry	3.2	4/05/07	4/05/07	CLP,ILM05.4,AS

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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN5 BONNER
D No:

Sample ID: BH247-6 **Lab ID:** C071601-36

Matrix: Sediment
Date Collected: 3/27/07 9:30

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.15 U, Q-2	mg/kg dry	0.74	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	67	%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	6400	mg/kg dry	30	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	8.9 U, J, QM-1	mg/kg dry	8.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	7.3 J, QM-1	mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	470	mg/kg dry	30	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.21 U, J, Q-2, CLP03	mg/kg dry	0.74	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	3.3	mg/kg dry	0.74	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	440 J, Q-2	mg/kg dry	740	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	11	mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	5.4 J, Q-2	mg/kg dry	7.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	300 J, QM-6, CLP07	mg/kg dry	3.7	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	13000	mg/kg dry	15	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	46 J, QM-2, QM-4	mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	560 J, Q-2	mg/kg dry	740	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	100 J, QM-4	mg/kg dry	2.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	2.4 J, Q-2	mg/kg dry	5.9	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	110 J, Q-2	mg/kg dry	740	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	5.2 U	mg/kg dry	5.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.5 U	mg/kg dry	1.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	49 J, Q-2	mg/kg dry	740	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	3.7 U	mg/kg dry	3.7	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	29	mg/kg dry	7.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	110 J, Q-5	mg/kg dry	8.9	4/04/07	4/05/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN5 BONNER
D No:

Sample ID: BH247-6 **Lab ID:** C071601-36

Matrix: Sediment
Date Collected: 3/27/07 9:30

CAS No.	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.7	U	mg/kg dry	3.7	4/05/07	4/05/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN6 BONNER
D No:

Sample ID: BH247-7 **Lab ID:** C071601-37

Matrix: Sediment

Date Collected: 3/27/07 10:13

Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.14 U		mg/kg dry	0.68	4/13/07	4/13/07	CLP ILM05.4 CV
E1642941	% Solids	73		%		4/05/07	4/05/07	CLP Inorganics
7429-90-5	Aluminum	9200		mg/kg dry	27	4/04/07	4/05/07	CLP ILM05.4 P
7440-36-0	Antimony	8.2 U, J, QM-1		mg/kg dry	8.2	4/04/07	4/05/07	CLP ILM05.4 P
7440-38-2	Arsenic	1.4 R, Q-2, CLP04		mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-39-3	Barium	150		mg/kg dry	27	4/04/07	4/05/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.24 U, CLP03		mg/kg dry	0.68	4/04/07	4/05/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.080 R, Q-2, CLP04		mg/kg dry	0.68	4/04/07	4/05/07	CLP ILM05.4 P
7440-70-2	Calcium	1100		mg/kg dry	680	4/04/07	4/05/07	CLP ILM05.4 P
7440-47-3	Chromium	11		mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-48-4	Cobalt	7.8		mg/kg dry	6.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-50-8	Copper	30 J, QM-6, CLP07		mg/kg dry	3.4	4/04/07	4/05/07	CLP ILM05.4 P
7439-89-6	Iron	15000		mg/kg dry	14	4/04/07	4/05/07	CLP ILM05.4 P
7439-92-1	Lead	47 J, QM-2, QM-4		mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7439-95-4	Magnesium	1300		mg/kg dry	680	4/04/07	4/05/07	CLP ILM05.4 P
7439-96-5	Manganese	360 J, QM-4		mg/kg dry	2.0	4/04/07	4/05/07	CLP ILM05.4 P
7440-02-0	Nickel	3.2 J, Q-2		mg/kg dry	5.5	4/04/07	4/05/07	CLP ILM05.4 P
7440-09-7	Potassium	170 J, Q-2		mg/kg dry	680	4/04/07	4/05/07	CLP ILM05.4 P
7782-49-2	Selenium	4.8 U		mg/kg dry	4.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-22-4	Silver	1.4 U		mg/kg dry	1.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-23-5	Sodium	58 J, Q-2		mg/kg dry	680	4/04/07	4/05/07	CLP ILM05.4 P
7440-28-0	Thallium	3.4 U		mg/kg dry	3.4	4/04/07	4/05/07	CLP ILM05.4 P
7440-62-2	Vanadium	34		mg/kg dry	6.8	4/04/07	4/05/07	CLP ILM05.4 P
7440-66-6	Zinc	47 J, Q-5		mg/kg dry	8.2	4/04/07	4/05/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN6 BONNER
D No:

Sample ID: BH247-7 **Lab ID:** C071601-37

Matrix: Sediment
Date Collected: 3/27/07 10:13

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	0.22	U J Q-2 CLP01	mg/kg dry	3.4	4/05/07	4/05/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN7 BONNER
D No:

Sample ID: BH247-8 **Lab ID:** C071601-38

Matrix: Sediment
Date Collected: 3/27/07 10:45

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.28 J, QM-1	mg/kg dry	0.78	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	64	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	27000 J, Q-5	mg/kg dry	31	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	9.4 U, J, QM-1	mg/kg dry	9.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	1.6 U	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	230	mg/kg dry	31	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.34 U, J, Q-2 CLP03	mg/kg dry	0.78	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	1.9	mg/kg dry	0.78	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	11400	mg/kg dry	780	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	5.8	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	10	mg/kg dry	7.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	540 J, CLP07	mg/kg dry	3.9	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	34000	mg/kg dry	16	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	13	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	15000	mg/kg dry	780	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	620	mg/kg dry	2.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	7.3	mg/kg dry	6.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	87 J, Q-2	mg/kg dry	780	4/11/07	4/13/07	CLP ILM05.4 P
7782-49-2	Selenium	5.5 U	mg/kg dry	5.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	1.6 U	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	65 U, J, Q-2, B-1	mg/kg dry	780	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	3.9 U	mg/kg dry	3.9	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	39	mg/kg dry	7.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	280 J, Q-5	mg/kg dry	9.4	4/11/07	4/13/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN7 BONNER
D No:

Sample ID: BH247-8 **Lab ID:** C071601-38

Matrix: Sediment

Date Collected: 3/27/07 10:45

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	3.9	U	mg/kg dry	3.9	4/10/07	4/10/07	CLP ILM05.4 AS CLP14

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN8 BONNER
D No:

Sample ID: Heap Leach Pile Crust **Lab ID:** C071601-39

Matrix: Sediment

Date Collected: 3/28/07 11:45

CAS Number	Analyte	Result Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.13 U, J, QM-1	mg/kg dry	0.63	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	79	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	3200 J, Q-5	mg/kg dry	25	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	7.6 U, J, QM-1	mg/kg dry	7.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	29	mg/kg dry	1.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	67	mg/kg dry	25	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.18 U, J, Q-2, CLP03	mg/kg dry	0.63	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.11 R, Q-2, CLP04	mg/kg dry	0.63	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	3500	mg/kg dry	630	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	1.5	mg/kg dry	1.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	12	mg/kg dry	6.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	260 J, CLP07	mg/kg dry	3.2	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	13000	mg/kg dry	13	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	17	mg/kg dry	1.3	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	2200	mg/kg dry	630	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	100	mg/kg dry	1.9	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	1.1 J, Q-2	mg/kg dry	5.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	1500	mg/kg dry	630	4/11/07	4/13/07	CLP ILM05.4 P
7782-49-2	Selenium	7.2	mg/kg dry	4.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	1.3 U	mg/kg dry	1.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	95000	mg/kg dry	6300	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	3.2 U	mg/kg dry	3.2	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	13	mg/kg dry	6.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	100 J, Q-5	mg/kg dry	7.6	4/11/07	4/13/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN8 BONNER
D No:

Sample ID: Heap Leach Pile Crust **Lab ID:** C071601-39

Matrix: Sediment

Date Collected: 3/28/07 11:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Date Prepared	Date Analyzed	Method
57-12-5	Cyanide	1.4	U, J, Q-2, OM-6, CLP03	mg/kg dry	3.2	4/10/07	4/10/07	CLP.ILM05.4.AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN9 BONNER
D No:

Sample ID: INDGOT Room Pit **Lab ID:** C071601-40

Matrix: Sediment

Date Collected: 3/28/07 15:00

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	3.6 J, QM-1		mg/kg dry	0.67	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	74		%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	8100 J, Q-5		mg/kg dry	27	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	41	U, J, CRe, QM-1	mg/kg dry	40	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	24		mg/kg dry	6.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	1200		mg/kg dry	27	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.090	U, J, Q-2, GLP03	mg/kg dry	0.67	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	6.2		mg/kg dry	3.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	31000		mg/kg dry	680	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	370		mg/kg dry	6.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	6.6	J, Q-2	mg/kg dry	6.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	6300	J, CRe	mg/kg dry	17	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	210000		mg/kg dry	68	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	160		mg/kg dry	6.7	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	1100		mg/kg dry	680	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	1200		mg/kg dry	10	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	170		mg/kg dry	5.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	7600		mg/kg dry	680	4/11/07	4/13/07	CLP ILM05.4 P
7782-49-2	Selenium	360		mg/kg dry	24	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	120		mg/kg dry	1.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	20000		mg/kg dry	3400	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	17	U, CRe	mg/kg dry	17	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	44		mg/kg dry	34	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	16000	J, Q-5, CRe	mg/kg dry	40	4/11/07	4/13/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZN9 BONNER
D No:

Sample ID: ***INDGOT Room Pit*** **Lab ID:** ***C071601-40***

Matrix: **Sediment**

Date Collected: **3/28/07 15:00**

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	620	J CRd QM-6	mg/kg dry	1.70	4/10/07	4/10/07	CLP ILM03.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP0 BONNER
D No:

Sample ID: Pond A **Lab ID:** C071601-41

Matrix: Sediment

Date Collected: 3/27/07 8:59

CAS Number	Analyte	Results Qualifiers	Units	CRL	Prepared	Analyzed	Method
7439-97-6	Mercury	4.0 J, QM-1	mg/kg dry	0.98	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	51	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	7100 J, Q-5	mg/kg dry	39	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	4.3 U, J, QM-1	mg/kg dry	12	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	470	mg/kg dry	2.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	4400	mg/kg dry	39	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.15 U, J, Q-2, CLP03	mg/kg dry	0.98	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	8.2	mg/kg dry	0.98	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	170000	mg/kg dry	980	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	120	mg/kg dry	2.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	13	mg/kg dry	9.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	52000 J, CRe, CLP07	mg/kg dry	25	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	31000	mg/kg dry	20	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	150	mg/kg dry	2.0	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	620 J, Q-2	mg/kg dry	980	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	160	mg/kg dry	2.9	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	55	mg/kg dry	7.9	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	380 J, Q-2	mg/kg dry	980	4/11/07	4/13/07	CLP ILM05.4 P
7782-49-2	Selenium	1000	mg/kg dry	6.9	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	260	mg/kg dry	2.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	3000	mg/kg dry	980	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	4.9 U	mg/kg dry	4.9	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	44	mg/kg dry	9.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	300 J, Q-5	mg/kg dry	12	4/11/07	4/13/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP0 BONNER
D No:

Sample ID: **Pond A** **Lab ID:** **C071601-41**

Matrix: **Sediment**

Date Collected: **3/27/07 8:59**

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	2200	J	mg/kg dry	250	4/10/07	4/10/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP1 BONNER
D No:

Sample ID: Pond B **Lab ID:** C071601-42

Matrix: Sediment

Date Collected: 3/27/07 10:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	1.7 J, QM-1		mg/kg dry	5.8	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	8.6		%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	14000 J, Q-5		mg/kg dry	230	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	10 U, J, QM-1		mg/kg dry	70	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	53		mg/kg dry	12	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	380		mg/kg dry	230	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.23 U, J, Q-2	CLP03	mg/kg dry	5.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	2.5 J, Q-2		mg/kg dry	5.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	11000		mg/kg dry	5800	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	55		mg/kg dry	12	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	660		mg/kg dry	58	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	37000 J, CLP07		mg/kg dry	29	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	37000		mg/kg dry	120	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	21		mg/kg dry	12	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	5500 J, Q-2		mg/kg dry	5800	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	260		mg/kg dry	17	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	130		mg/kg dry	46	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	940 J, Q-2		mg/kg dry	5800	4/11/07	4/13/07	CLP ILM05.4 P
7782-49-2	Selenium	5900		mg/kg dry	41	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	1000		mg/kg dry	12	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	8100		mg/kg dry	5800	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	29 U		mg/kg dry	29	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	65		mg/kg dry	58	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	190 J, Q-5		mg/kg dry	70	4/11/07	4/13/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZP1 BONNER

D No:

Sample ID: Pond B

Lab ID: C071601-42

Matrix: Sediment

Date Collected: *3/27/07 10:00*

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	2.2	U,J,Q-2, QM-6,CLP03	mg/kg dry	29	4/10/07	4/10/07	CLP JLM05.4 AS-C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP2 BONNER
D No:

Sample ID: Pond C **Lab ID:** C071601-43

Matrix: Sediment

Date Collected: 3/27/07 11:15

CAS Number	Analyte	Result/Qualifiers	Units	RL	Prepared	Analyzed	Method
7439-97-6	Mercury	1.6 J, QM-1	mg/kg dry	1.1	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	44	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	9000 J, Q-5	mg/kg dry	46	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	4.1 U, J, QM-1	mg/kg dry	14	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	200	mg/kg dry	2.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	2500	mg/kg dry	46	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.20 U, J, Q-2, CLP03	mg/kg dry	1.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	14	mg/kg dry	1.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	160000	mg/kg dry	1100	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	70	mg/kg dry	2.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	9.8 J, Q-2	mg/kg dry	12	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	78000 J, CRe, CLP07	mg/kg dry	29	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	32000	mg/kg dry	23	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	66	mg/kg dry	2.3	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	380 J, Q-2	mg/kg dry	1100	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	230	mg/kg dry	3.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	230	mg/kg dry	9.2	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	110 J, Q-2	mg/kg dry	500	4/11/07	4/18/07	CLP ILM05.4 P
7782-49-2	Selenium	1500	mg/kg dry	8.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	180	mg/kg dry	2.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	2300	mg/kg dry	1100	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	5.7 U	mg/kg dry	5.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	68	mg/kg dry	12	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	720 J, Q-5	mg/kg dry	14	4/11/07	4/13/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP2 BONNER
D No:

Sample ID: **Pond C** **Lab ID:** **C071601-43**

Matrix: **Sediment**

Date Collected: **3/27/07 11:15**

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	1700	J	mg/kg dry	290	4/10/07	4/10/07	CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP3 BONNER
D No:

Sample ID: Pond D **Lab ID:** C071601-44

Matrix: Sediment

Date Collected: 3/27/07 11:45

CAS Number	Analyte	Result Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	2.2 J, QM-1	mg/kg dry	1.1	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	48	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	5500 J, Q-5	mg/kg dry	42	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	5.7 U, J, QM-1	mg/kg dry	13	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	110	mg/kg dry	2.15	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	3700	mg/kg dry	42	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.13 U, J, Q-2, CLP03	mg/kg dry	1.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	1.7	mg/kg dry	1.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	270000	mg/kg dry	3200	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	19	mg/kg dry	2.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	8.4 J, Q-2	mg/kg dry	10	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	16000 J, CRc, CLP07	mg/kg dry	16	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	21000	mg/kg dry	21	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	130	mg/kg dry	2.1	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	380 J, Q-2	mg/kg dry	1100	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	94	mg/kg dry	3.2	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	290	mg/kg dry	8.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	500 U	mg/kg dry	500	4/11/07	4/18/07	CLP ILM05.4 P
7782-49-2	Selenium	210	mg/kg dry	7.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	270	mg/kg dry	2.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	300 U, J, Q-2, B-1	mg/kg dry	1100	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	5.3 U	mg/kg dry	5.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	24	mg/kg dry	10	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	280 J, Q-5	mg/kg dry	13	4/11/07	4/13/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP3 BONNER
D No:

Sample ID: Pond D **Lab ID:** C071601-44

Matrix: *Sediment*

Date Collected: 3/27/07 11:45

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	400 J	CR	mg/kg dry	53	4/10/07	4/10/07	CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP4 BONNER
D No:

Sample ID: Pond E **Lab ID:** C071601-45

Matrix: Sediment

Date Collected: 3/27/07 12:15

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.15 U, J, Q-2, QM-1, CLP01	mg/kg dry	0.87	4/16/07	4/17/07	CLP ILM05.4 CV P
E1642941	% Solids	57	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	10000 J, Q-5	mg/kg dry	35	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	11 U, J, QM-1	mg/kg dry	10	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	2.9 J	mg/kg dry	1.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	44	mg/kg dry	35	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.40 U, J, Q-2, CLP03	mg/kg dry	0.87	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.30 J, Q-2	mg/kg dry	0.87	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	420 J, Q-2	mg/kg dry	870	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	55	mg/kg dry	1.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	2.9 J, Q-2	mg/kg dry	8.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	130 J, CLP07	mg/kg dry	4.4	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	56000	mg/kg dry	17	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	19	mg/kg dry	1.7	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	230 J, Q-2	mg/kg dry	870	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	460	mg/kg dry	2.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	8.5	mg/kg dry	7.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	170 J, Q-2	mg/kg dry	500	4/11/07	4/18/07	CLP ILM05.4 P
7782-49-2	Selenium	1.6 J, Q-2	mg/kg dry	6.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	1.7 U	mg/kg dry	1.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	720 J, Q-2	mg/kg dry	870	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	4.4 U	mg/kg dry	4.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	160	mg/kg dry	8.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	90 J, Q-5	mg/kg dry	10	4/11/07	4/13/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZP4 BONNER

D No:

Sample ID: Pond E

Lab ID: C071601-45

Matrix: Sediment

Date Collected: 3/27/07 12:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	0.66	U J QM-6 CLP03	mg/kg dry	4.4	4/10/07	4/10/07	CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP5 BONNER
D No:

Sample ID: Pond F **Lab ID:** C071601-46

Matrix: Sediment

Date Collected: 3/27/07 12:30

CAS Number	Analyte	Result Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.63 J, QM-1	mg/kg dry	0.82	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	61	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	6100 J, Q-5	mg/kg dry	33	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	9.8 U, J, QM-1	mg/kg dry	9.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	210	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	2600	mg/kg dry	33	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.20 U, J, Q-2 CLP03	mg/kg dry	0.82	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	1.5	mg/kg dry	0.82	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	130000	mg/kg dry	820	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	35	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	15	mg/kg dry	8.2	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	7300 J, CLP07	mg/kg dry	4.1	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	28000	mg/kg dry	16	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	110	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	230 J, Q-2	mg/kg dry	820	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	54	mg/kg dry	2.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	12	mg/kg dry	6.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	170 J, Q-2	mg/kg dry	500	4/11/07	4/18/07	CLP ILM05.4 P
7782-49-2	Selenium	470	mg/kg dry	5.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	96	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	1700	mg/kg dry	820	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	4.1 U	mg/kg dry	4.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	36	mg/kg dry	8.2	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	110 J, Q-5	mg/kg dry	9.8	4/11/07	4/13/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP5 BONNER
D No:

Sample ID: Pond F

Lab ID: C071601-46

Matrix: Sediment

Date Collected: 3/27/07 12:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	2.86	J, CRe, QM-6	mg/kg dry	20	4/10/07	4/10/07	CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP6 BONNER
D No:

Sample ID: Pond G **Lab ID:** C071601-47

Matrix: Sediment

Date Collected: 3/28/07 13:24

CAS Number	Analyte	Result Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.42 J, QM-1	mg/kg dry	0.80	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	62	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	10000 J, Q-5	mg/kg dry	32	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	1.7 U, J, QM-1	mg/kg dry	9.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	77	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	5000	mg/kg dry	32	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.29 U, J, Q-2 CLP03	mg/kg dry	0.80	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.42 J, Q-2	mg/kg dry	0.80	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	9800	mg/kg dry	800	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	19	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	7.3 J, Q-2	mg/kg dry	8.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	3100 J, CLP07	mg/kg dry	4.0	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	32000	mg/kg dry	16	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	150	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	1200	mg/kg dry	800	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	210	mg/kg dry	2.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	10	mg/kg dry	6.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	380 J, Q-2	mg/kg dry	500	4/11/07	4/18/07	CLP ILM05.4 P
7782-49-2	Selenium	89	mg/kg dry	5.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	29	mg/kg dry	1.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	1500	mg/kg dry	800	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	4.0 U	mg/kg dry	4.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	48	mg/kg dry	8.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	56 J, Q-5	mg/kg dry	9.6	4/11/07	4/13/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP6 BONNER
D No:

Sample ID: Pond G

Lab ID: C071601-47

Matrix: Sediment

Date Collected: 3/28/07 13:24

CAS Number	Analyte	Results	Qualifier	SQL	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	210	J, CR, QM-6		mg/kg dry	40	4/10/07	4/10/07	CLP ILM05.4 AS-C

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Region 4 Science and Ecosystem Support Division
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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP7 BONNER
D No:

Sample ID: Pond H **Lab ID:** C071601-48

Matrix: Sediment

Date Collected: 3/28/07 13:55

CAS Number	Analyte	Result Qualifier	Unit	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.76 J, QM-1	mg/kg dry	0.89	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	56	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	9300 J, Q-5	mg/kg dry	36	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	5.0 U, J, QM-1	mg/kg dry	11	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	300	mg/kg dry	1.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	6500	mg/kg dry	36	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.24 U, J, Q-2, CLP03	mg/kg dry	0.89	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	2.4	mg/kg dry	0.89	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	12000	mg/kg dry	890	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	20	mg/kg dry	1.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	22	mg/kg dry	8.9	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	10000 J, CLP07	mg/kg dry	4.5	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	46000	mg/kg dry	18	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	250	mg/kg dry	1.8	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	900	mg/kg dry	890	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	150	mg/kg dry	2.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	26	mg/kg dry	7.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	170 J, Q-2	mg/kg dry	500	4/11/07	4/18/07	CLP ILM05.4 P
7782-49-2	Selenium	330	mg/kg dry	6.2	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	52	mg/kg dry	1.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	1500	mg/kg dry	890	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	4.5 U	mg/kg dry	4.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	50	mg/kg dry	8.9	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	240 J, Q-5	mg/kg dry	11	4/11/07	4/13/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP7 BONNER
D No:

Sample ID: Pond H

Lab ID: C071601-48

Matrix: Sediment

Date Collected: 3/28/07 13:55

CAS Number	Analyte	Results	Qualifiers	Units	DF	SIRL	Prepared	Analyzed	Method
57-12-5	Cyanide	200	J	mg/kg dry	45	4/10/07	4/10/07		CLP ILM05.4 AS

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZP8 BONNER

D No:

Sample ID: Pond I

Lab ID: C071601-49

Matrix: Sediment

Date Collected: 3/28/07 14:39

CAS Number	Analyte	Results Qualifiers	Units	MRL	Preparation	Analyzed	Method
7439-97-6	Mercury	0.13 U, J, Q-2, QM-1, CLP01	mg/kg dry	0.77	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	65	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	18000 J, Q-5	mg/kg dry	31	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	9.2 U, J, QM-1	mg/kg dry	9.2	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	110	mg/kg dry	1.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	2200	mg/kg dry	31	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.47 U, J, CLP03, Q-2	mg/kg dry	0.77	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	37	mg/kg dry	0.77	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	65000	mg/kg dry	770	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	18	mg/kg dry	1.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	21	mg/kg dry	7.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	2000 J, CLP07	mg/kg dry	3.9	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	35000	mg/kg dry	15	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	98	mg/kg dry	1.5	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	1000	mg/kg dry	770	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	450	mg/kg dry	2.3	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	9.4	mg/kg dry	6.2	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	570	mg/kg dry	500	4/11/07	4/18/07	CLP ILM05.4 P
7782-49-2	Selenium	8.2	mg/kg dry	5.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	1.5 U	mg/kg dry	1.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	130 U, J, Q-2, B-1	mg/kg dry	770	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	3.9 U	mg/kg dry	3.9	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	49	mg/kg dry	7.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	440 J, Q-5	mg/kg dry	9.2	4/11/07	4/13/07	CLP ILM05.4 P

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP8 BONNER
D No:

Sample ID: Pond I

Lab ID: C071601-49

Matrix: Sediment

Date Collected: 3/28/07 14:39

CAS Number	Analyte	Results	Qualifiers	Units	RL	Prepared	Analyzed	Method
57-12-5	Cyanide	0.26	U J Q2 QM6	mg/kg dry	3.9	4/10/07	4/10/07	CLP ILM05.4 AS CLP03

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP9 BONNER
D No:

Sample ID: White Pile **Lab ID:** C071601-50

Matrix: Sediment

Date Collected: 3/28/07 10:25

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.11 U, J, QM-1	mg/kg dry	0.55	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	90	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	4700 J, Q-5	mg/kg dry	22	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	6.6 U, J, QM-1	mg/kg dry	6.6	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	5.1 J	mg/kg dry	1.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	62	mg/kg dry	22	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.95 J	mg/kg dry	0.55	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.080 J, Q-2	mg/kg dry	0.55	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	380000 J	mg/kg dry	2200	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	3.4	mg/kg dry	1.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	0.19 J, Q-2	mg/kg dry	5.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	7.2 J, CLP07	mg/kg dry	2.8	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	1000 J	mg/kg dry	11	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	2.8	mg/kg dry	1.1	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	350 J, Q-2	mg/kg dry	550	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	9.4	mg/kg dry	1.7	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	2.4 J, Q-2	mg/kg dry	4.4	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	63 J, Q-2	mg/kg dry	500	4/11/07	4/18/07	CLP ILM05.4 P
7782-49-2	Selenium	3.9 U	mg/kg dry	3.9	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	1.1 U	mg/kg dry	1.1	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	39 U, J, Q-2, B-1	mg/kg dry	550	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	2.8 U	mg/kg dry	2.8	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	6.4	mg/kg dry	5.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	3.6 U, J, Q-5	mg/kg dry	6.6	4/11/07	4/13/07	CLP ILM05.4 P

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZP9 BONNER
D No:

Sample ID: White Pile
Lab ID: C071601-50
Matrix: Sediment
Date Collected: 3/28/07 10:25

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	0.67	U J Q-2 QM-6 CLP03	mg/kg dry	2.8	4/10/07	4/10/07	CLP ILM05.4 AS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZQ0 BONNER
D No:

Sample ID: BH247-1 **Lab ID:** C071601-51

Matrix: Sediment
Date Collected: 3/27/07 8:59

CAS No. Number	Analyte	Result Qualifier	Units	MRL	Prepared	Analyzed	Method
E164294I	% Solids	60	%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	4.1 U	mg/kg dry	4.1	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZQ1 BONNER
D No:

Sample ID: BH247-13 **Lab ID:** C071601-52

Matrix: Sediment
Date Collected: 3/27/07 11:34

Number	Analyte	Result	Qualifier	Unit	MRL	Prepared	Analyzed	Method
E1642941	% Solids	49		%	1	4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	5.1	U	mg/kg dry	5.1	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZQ2 BONNER
D No:

Sample ID: BH247-17 **Lab ID:** C071601-53

Matrix: Sediment
Date Collected: 3/27/07 11:46

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
E164294L	% Solids	62.2		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	0.18	J, Q-2	mg/kg dry	4.0	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZQ3 BONNER
D No:

Sample ID: BH247-18 **Lab ID:** C071601-54

Matrix: Sediment

Date Collected: 3/27/07 11:50

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	74		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.4	U	mg/kg dry	3.4	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZQ4 BONNER
D No:

Sample ID: BH247-19 **Lab ID:** C071601-55

Matrix: Sediment

Date Collected: 3/27/07 12:02

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	52		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	4.8 U		mg/kg dry	4.8	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZQ5 BONNER

D No:

Sample ID: BH247-20

Lab ID: C071601-56

Matrix: Sediment

Date Collected: 3/28/07 8:59

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	65		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.9	U	mg/kg dry	3.9	4/06/07	4/06/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZQ6 BONNER
D No:

Sample ID: BH247-21 **Lab ID:** C071601-57

Matrix: Sediment
Date Collected: 3/28/07 9:12

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	79		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.2 U		mg/kg dry	3.2	4/06/07	4/06/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZQ7 BONNER
D No:

Sample ID: BH247-22 **Lab ID:** C071601-58

Matrix: *Sediment*

Date Collected: 3/28/07 9:34

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	79		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.2	U	mg/kg dry	3.2	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZQ8 BONNER
D No:

Sample ID: BH247-25 **Lab ID:** C071601-59

Matrix: Sediment
Date Collected: 3/28/07 9:50

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	66		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.8 U		mg/kg dry	3.8	4/06/07	4/06/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZQ9 BONNER
D No:

Sample ID: BH247-26 **Lab ID:** C071601-60

Matrix: Sediment

Date Collected: 3/28/07 10:10

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
ET642941	% Solids	68		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.7	U	mg/kg dry	3.7	4/06/07	4/06/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZR0 BONNER
D No:

Sample ID: BH247-27 **Lab ID:** C071601-61

Matrix: Sediment
Date Collected: 3/28/07 10:26

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
B1642941	% Solids	66		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.8	U	mg/kg dry	3.8	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZR1 BONNER
D No:

Sample ID: BH247-28 **Lab ID:** C071601-62

Matrix: Sediment

Date Collected: 3/28/07 10:58

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	70		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.6	U	mg/kg dry	3.6	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZR2 BONNER
D No:

Sample ID: BH247-29 **Lab ID:** C071601-63

Matrix: Sediment

Date Collected: 3/28/07 11:24

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
EI642941	% Solids	79		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.2	U	mg/kg dry	3.2	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZR3 BONNER

D No:

Sample ID: BH247-3

Lab ID: C071601-64

Matrix: Sediment

Date Collected: 3/27/07 9:00

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	69		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.6	U	mg/kg dry	3.6	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZR4 BONNER
D No:

Sample ID: BH247-5 **Lab ID:** C071601-65

Matrix: Sediment
Date Collected: 3/27/07 9:10

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	59		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	4.2 U		mg/kg dry	4.2	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZR5 BONNER
D No:

Sample ID: BH247-521 **Lab ID:** C071601-66

Matrix: Sediment

Date Collected: 3/28/07 9:15

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	67		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.7	U	mg/kg dry	3.7	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZR6 BONNER
D No:

Sample ID: BH247-525 **Lab ID:** C071601-67

Matrix: Sediment
Date Collected: 3/28/07 9:55

CAS Number	Analyte	Result/Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	70	%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	2.2 J, Q-2	mg/kg dry	3.5	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZR7 BONNER

D No:

Sample ID: **BH247-529**

Lab ID: **C071601-68**

Matrix: **Sediment**

Date Collected: **3/28/07 11:30**

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	78		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.2 U		mg/kg dry	3.2	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZR8 BONNER
D No:

Sample ID: BH247-6 **Lab ID:** C071601-69

Matrix: Sediment

Date Collected: 3/27/07 9:30

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	66		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.8	U	mg/kg dry	3.8	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZR9 BONNER
D No:

Sample ID: BH247-7 **Lab ID:** C071601-70

Matrix: Sediment

Date Collected: 3/27/07 10:13

CAS Number	Analytes	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	78		%		4/06/07	4/06/07	CLSOW CN WAD
57-12-5	Cyanide	3.2	U	mg/kg dry	3.2	4/06/07	4/06/07	CLSOW CN WAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZS0 BONNER
D No:

Sample ID: BH247-8 **Lab ID:** C071601-71

Matrix: Sediment
Date Collected: 3/27/07 10:45

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
E164294	% Solids	68		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	0.16	U, J, Q-2, QM-1, CLP03	mg/kg dry	3.7	4/09/07	4/09/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZS2 BONNER
D No:

Sample ID: **INDGOT Room Pit** **Lab ID:** **C071601-72**

Matrix: **Sediment**

Date Collected: **3/27/07 10:45**

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	71		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	280	J, CRa, QM-1	mg/kg dry	70	4/09/07	4/09/07	CLSOW CN WAD

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZS3 BONNER
D No:

Sample ID: Pond A **Lab ID:** C071601-73

Matrix: Sediment
Date Collected: 3/27/07 8:59

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	49		%	1	4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	230 J, CR, QM-1		mg/kg dry	51	4/09/07	4/09/07	CLSOW CN WAD

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZS4 BONNER

D No:

Sample ID: Pond B

Lab ID: C071601-74

Matrix: Sediment

Date Collected: 3/27/07 10:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	30		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	1.1	U, J, Q-2, QM-1, CLP03	mg/kg dry	8.4	4/09/07	4/09/07	CLSOW CN WAD

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZS5 BONNER
D No:

Sample ID: Pond C **Lab ID:** C071601-75

Matrix: Sediment

Date Collected: 3/27/07 11:15

CAS Number	Analyte	Result	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	41.8		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	230	J, CR, QM-1	mg/kg dry	62	4/09/07	4/09/07	CLSOW CN WAD

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZS6 BONNER
D No:

Sample ID: Pond D **Lab ID:** C071601-76

Matrix: Sediment

Date Collected: 3/27/07 11:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	47		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	6.6	J, QM-1	mg/kg dry	5.3	4/09/07	4/09/07	CLSOW CN WAD

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZS7 BONNER
D No:

Sample ID: Pond E **Lab ID:** C071601-77

Matrix: Sediment

Date Collected: 3/27/07 12:15

CAS Number	Analyte Name	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	58		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	4.3	U, J, QM-1	mg/kg dry	4.3	4/09/07	4/09/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZS8 BONNER

D No:

Sample ID: Pond F

Lab ID: C071601-78

Matrix: Sediment

Date Collected: 3/27/07 12:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	61		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	7.3	J, QM-1	mg/kg dry	4.1	4/09/07	4/09/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZS9 BONNER
D No:

Sample ID: Pond G **Lab ID:** C071601-79

Matrix: Sediment
Date Collected: 3/28/07 13:24

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	60		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	110 J	CRe, QM-1	mg/kg dry	21	4/09/07	4/09/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZT0 BONNER

D No:

Sample ID: Pond H

Lab ID: C071601-80

Matrix: Sediment

Date Collected: 3/28/07 13:55

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	50		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	59	J, CRb, QM-1	mg/kg dry	10	4/09/07	4/09/07	CLSOW CN WAD

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZT1 BONNER
D No:

Sample ID: Pond I **Lab ID:** C071601-81

Matrix: Sediment
Date Collected: 3/28/07 14:39

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	67		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	0.23	U, J, Q-2, QM-1, CLP03	mg/kg dry	3.7	4/09/07	4/09/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZT3 BONNER

D No:

Sample ID: FB01 **Lab ID:** C071601-82

Matrix: Sediment

Date Collected: 3/27/07 9:00

CAS Number	Analyte	Results Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.048 U, J, Q-2, QM-1, CLP01	mg/kg dry	0.50	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	100	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	240 J, Q-5	mg/kg dry	20	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	6.0 U, J, QM-1	mg/kg dry	6.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	1.0 U	mg/kg dry	1.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	1.0 J, Q-2	mg/kg dry	20	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.030 U, J, Q-2, CLP03	mg/kg dry	0.50	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.50 U	mg/kg dry	0.50	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	1300	mg/kg dry	500	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	1.3	mg/kg dry	1.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	5.0 U	mg/kg dry	5.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	0.19 J, Q-2, CLP07	mg/kg dry	2.5	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	1000	mg/kg dry	10	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	1.0 U	mg/kg dry	1.0	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	16 J, Q-2	mg/kg dry	500	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	1.5	mg/kg dry	1.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	0.25 J, Q-2	mg/kg dry	4.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	15 J, Q-2	mg/kg dry	500	4/11/07	4/18/07	CLP ILM05.4 P
7782-49-2	Selenium	3.5 U	mg/kg dry	3.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	1.0 U	mg/kg dry	1.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	46 U, J, Q-2, B-1	mg/kg dry	500	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	2.5 U	mg/kg dry	2.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	1.1 J, Q-2	mg/kg dry	5.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	0.85 U, J, Q-2, Q-5, CLP03	mg/kg dry	6.0	4/11/07	4/13/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZT3 BONNER
D No:

Sample ID: FB01 **Lab ID:** C071601-82

Matrix: Sediment
Date Collected: 3/27/07 9:00

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	0.17	U UJ Q-24	mg/kg dry	2.5	4/10/07	4/10/07	CLP ILM03.4 AS-1 OM-6 CLP03

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZT4 BONNER

D No:

Sample ID: **FB02**

Lab ID: **C071601-83**

Matrix: **Sediment**

Date Collected: **3/27/07 9:00**

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	100		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	2.5	U, J, QM-1	mg/kg dry	2.5	4/09/07	4/09/07	CLSOW CN WAD

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Region 4 Science and Ecosystem Support Division
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Total Metals

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZT5 BONNER
D No:

Sample ID: FB03 **Lab ID:** C071601-84

Matrix: Sediment

Date Collected: 3/28/07 9:00

CAS Number	Analyte	Result Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.048 U, J, Q-2, QM-1, CLP01	mg/kg dry	0.50	4/16/07	4/17/07	CLP ILM05.4 CV
E1642941	% Solids	100	%		4/10/07	4/10/07	CLP Inorganics
7429-90-5	Aluminum	210 J, Q-5	mg/kg dry	20	4/11/07	4/13/07	CLP ILM05.4 P
7440-36-0	Antimony	6.0 U, J, QM-1	mg/kg dry	6.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-38-2	Arsenic	1.0 U	mg/kg dry	1.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-39-3	Barium	0.93 J, Q-2	mg/kg dry	20	4/11/07	4/13/07	CLP ILM05.4 P
7440-41-7	Beryllium	0.040 U, J, Q-2, CLP03	mg/kg dry	0.50	4/11/07	4/13/07	CLP ILM05.4 P
7440-43-9	Cadmium	0.50 U	mg/kg dry	0.50	4/11/07	4/13/07	CLP ILM05.4 P
7440-70-2	Calcium	1500	mg/kg dry	500	4/11/07	4/13/07	CLP ILM05.4 P
7440-47-3	Chromium	0.72 U, J, Q-2, CLP03	mg/kg dry	1.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-48-4	Cobalt	5.0 U	mg/kg dry	5.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-50-8	Copper	0.20 J, Q-2, CLP07	mg/kg dry	2.5	4/11/07	4/13/07	CLP ILM05.4 P
7439-89-6	Iron	790	mg/kg dry	10	4/11/07	4/13/07	CLP ILM05.4 P
7439-92-1	Lead	1.0 U	mg/kg dry	1.0	4/11/07	4/13/07	CLP ILM05.4 P
7439-95-4	Magnesium	12 J, Q-2	mg/kg dry	500	4/11/07	4/13/07	CLP ILM05.4 P
7439-96-5	Manganese	1.2 J, Q-2	mg/kg dry	1.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-02-0	Nickel	0.21 J, Q-2	mg/kg dry	4.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-09-7	Potassium	12 J, Q-2	mg/kg dry	500	4/11/07	4/18/07	CLP ILM05.4 P
7782-49-2	Selenium	3.5 U	mg/kg dry	3.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-22-4	Silver	1.0 U	mg/kg dry	1.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-23-5	Sodium	45 U, J, Q-2, B-1	mg/kg dry	500	4/11/07	4/13/07	CLP ILM05.4 P
7440-28-0	Thallium	2.5 U	mg/kg dry	2.5	4/11/07	4/13/07	CLP ILM05.4 P
7440-62-2	Vanadium	0.71 J, Q-2	mg/kg dry	5.0	4/11/07	4/13/07	CLP ILM05.4 P
7440-66-6	Zinc	0.63 U, J, Q-2, Q-5, CLP03	mg/kg dry	6.0	4/11/07	4/13/07	CLP ILM05.4 P

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293

MD No: 3ZT5 BONNER

D No:

Sample ID: FB03

Lab ID: C071601-84

Matrix: Sediment

Date Collected: 3/28/07 9:00

CAS Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
57-12-5	Cyanide	2.5	U, R, QM-6, CLP14	mg/kg dry	2.5	4/10/07	4/10/07	CLP ILM05.3 AS

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Classical/Nutrient Analyses

07-0377, Barite Hill/Nevada Goldfields

Contract Lab Case: 36293
MD No: 3ZT6 BONNER
D No:

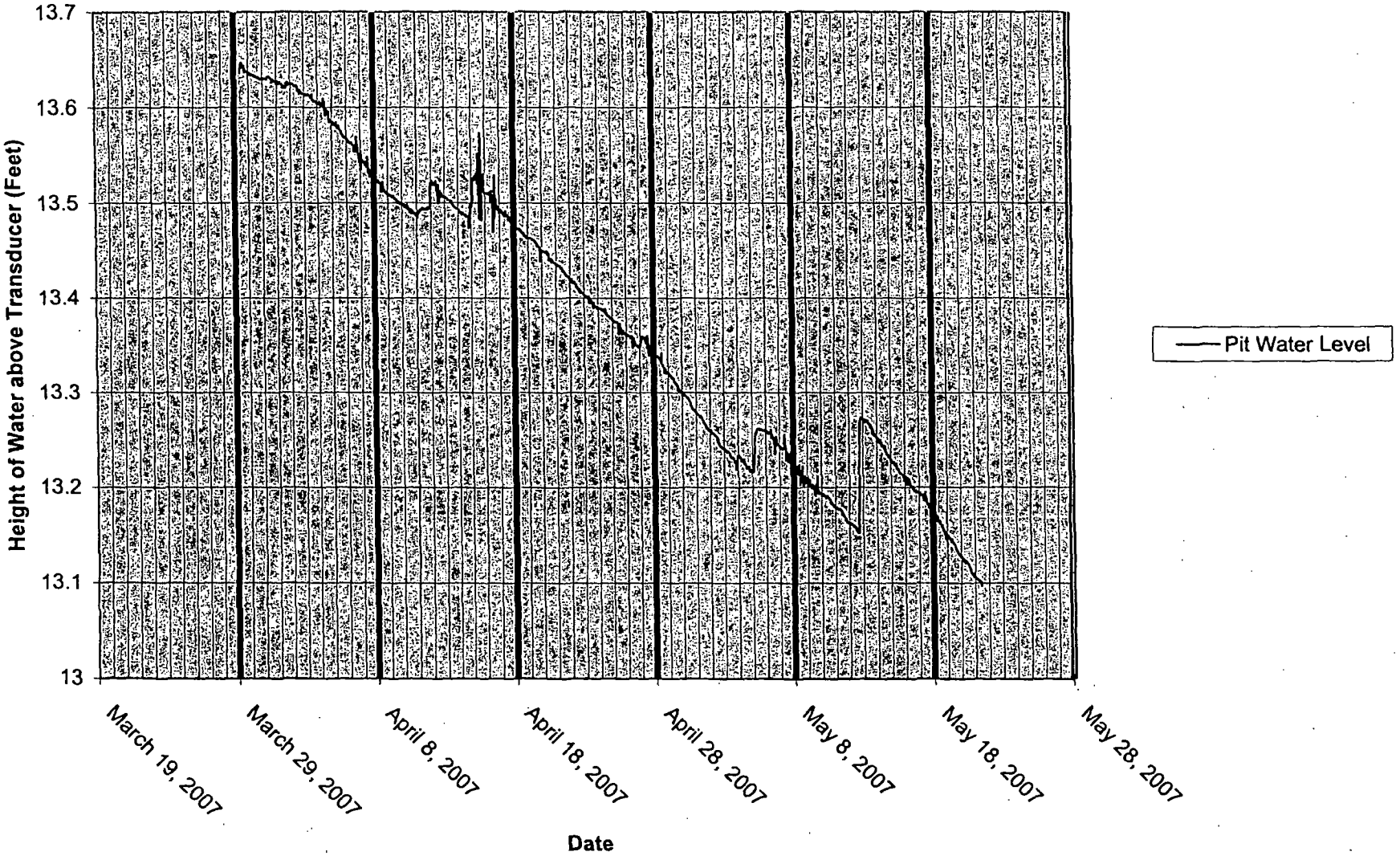
Sample ID: FB04 **Lab ID:** C071601-85

Matrix: Sediment
Date Collected: 3/28/07 9:00

Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	100		%		4/09/07	4/09/07	CLSOW CN WAD
57-12-5	Cyanide	2.5	U, J, QM-1	mg/kg dry	2.5	4/09/07	4/09/07	CLSOW CN WAD

APPENDIX C
MAIN PIT WATER LEVEL DATA
BARITE HILL GOLD MINE
TRIP REPORT
JUNE 2007

Water Level Data



In-Situ Inc. MiniTroll Pro

Report generated: 5/23/2007 12:40:16
Report from file: ...\SN02234 2007-03-29 100000 Barite Hill Data.bin
Win-Situ® Version 4.57.0.0

Serial number: 2234
Firmware Version 3.09
Unit name: (#2234)MW13

Test name: Barite Hill Data

Test defined on: 3/29/2007 6:25:19
Test scheduled for: 3/29/2007 10:00:00
Test started on: 3/29/2007 10:00:00
Test stopped on: N/A N/A

Data gathered using Linear testing
Time between data poi Seconds.
Number of data sampl 1275

TOTAL DATA SAMPLES 1275

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSIG.
Sensor Offset: 0.000 psi
Density: 1.000 g/cm3
Latitude: 45 degrees
Elevation: 0.000 meters (0.000 feet)

Date	Time	ET (sec)		Chan[2] Pressure Feet H2O	Chan[1] Temperature Fahrenheit
3/29/2007	10:00:00	0	3/29/2007 10:00	13.636	55.47
3/29/2007	11:00:00	3600	3/29/2007 11:00	13.643	55.5
3/29/2007	12:00:00	7200	3/29/2007 12:00	13.647	55.54
3/29/2007	13:00:00	10800	3/29/2007 13:00	13.647	55.5
3/29/2007	14:00:00	14400	3/29/2007 14:00	13.642	55.5
3/29/2007	15:00:00	18000	3/29/2007 15:00	13.642	55.5
3/29/2007	16:00:00	21600	3/29/2007 16:00	13.643	55.52
3/29/2007	17:00:00	25200	3/29/2007 17:00	13.643	55.5
3/29/2007	18:00:00	28800	3/29/2007 18:00	13.636	55.52
3/29/2007	19:00:00	32400	3/29/2007 19:00	13.639	55.52

3/29/2007	20:00:00	36000	3/29/2007 20:00	13.637	55.52
3/29/2007	21:00:00	39600	3/29/2007 21:00	13.637	55.54
3/29/2007	22:00:00	43200	3/29/2007 22:00	13.637	55.52
3/29/2007	23:00:00	46800	3/29/2007 23:00	13.637	55.52
3/30/2007	0:00:00	50400	3/30/2007 0:00	13.636	55.52
3/30/2007	1:00:00	54000	3/30/2007 1:00	13.636	55.52
3/30/2007	2:00:00	57600	3/30/2007 2:00	13.636	55.52
3/30/2007	3:00:00	61200	3/30/2007 3:00	13.636	55.52
3/30/2007	4:00:00	64800	3/30/2007 4:00	13.634	55.52
3/30/2007	5:00:00	68400	3/30/2007 5:00	13.635	55.54
3/30/2007	6:00:00	72000	3/30/2007 6:00	13.634	55.52
3/30/2007	7:00:00	75600	3/30/2007 7:00	13.633	55.54
3/30/2007	8:00:00	79200	3/30/2007 8:00	13.633	55.54
3/30/2007	9:00:00	82800	3/30/2007 9:00	13.634	55.52
3/30/2007	10:00:00	86400	3/30/2007 10:00	13.634	55.52
3/30/2007	11:00:00	90000	3/30/2007 11:00	13.633	55.54
3/30/2007	12:00:00	93600	3/30/2007 12:00	13.632	55.52
3/30/2007	13:00:00	97200	3/30/2007 13:00	13.633	55.56
3/30/2007	14:00:00	100800	3/30/2007 14:00	13.632	55.54
3/30/2007	15:00:00	104400	3/30/2007 15:00	13.632	55.54
3/30/2007	16:00:00	108000	3/30/2007 16:00	13.631	55.56
3/30/2007	17:00:00	111600	3/30/2007 17:00	13.631	55.59
3/30/2007	18:00:00	115200	3/30/2007 18:00	13.632	55.54
3/30/2007	19:00:00	118800	3/30/2007 19:00	13.63	55.54
3/30/2007	20:00:00	122400	3/30/2007 20:00	13.629	55.56
3/30/2007	21:00:00	126000	3/30/2007 21:00	13.629	55.56
3/30/2007	22:00:00	129600	3/30/2007 22:00	13.63	55.54
3/30/2007	23:00:00	133200	3/30/2007 23:00	13.63	55.54
3/31/2007	0:00:00	136800	3/31/2007 0:00	13.63	55.54
3/31/2007	1:00:00	140400	3/31/2007 1:00	13.629	55.56
3/31/2007	2:00:00	144000	3/31/2007 2:00	13.631	55.56
3/31/2007	3:00:00	147600	3/31/2007 3:00	13.63	55.54
3/31/2007	4:00:00	151200	3/31/2007 4:00	13.63	55.54
3/31/2007	5:00:00	154800	3/31/2007 5:00	13.63	55.54
3/31/2007	6:00:00	158400	3/31/2007 6:00	13.63	55.54
3/31/2007	7:00:00	162000	3/31/2007 7:00	13.629	55.56
3/31/2007	8:00:00	165600	3/31/2007 8:00	13.63	55.54
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3/31/2007	15:00:00	190800	3/31/2007 15:00	13.631	55.59
3/31/2007	16:00:00	194400	3/31/2007 16:00	13.626	55.56
3/31/2007	17:00:00	198000	3/31/2007 17:00	13.629	55.56
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4/3/2007	22:00:00	475200	4/3/2007 22:00	13.606	55.59
4/3/2007	23:00:00	478800	4/3/2007 23:00	13.604	55.59
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4/4/2007	6:00:00	504000	4/4/2007 6:00	13.602	55.59
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4/5/2007	9:00:00	601200	4/5/2007 9:00	13.579	55.61
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4/5/2007	13:00:00	615600	4/5/2007 13:00	13.579	55.63
4/5/2007	14:00:00	619200	4/5/2007 14:00	13.576	55.61
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4/6/2007	22:00:00	734400	4/6/2007 22:00	13.543	55.61
4/6/2007	23:00:00	738000	4/6/2007 23:00	13.547	55.63
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4/8/2007	0:00:00	828000	4/8/2007 0:00	13.525	55.68
4/8/2007	1:00:00	831600	4/8/2007 1:00	13.525	55.72
4/8/2007	2:00:00	835200	4/8/2007 2:00	13.525	55.68
4/8/2007	3:00:00	838800	4/8/2007 3:00	13.525	55.72
4/8/2007	4:00:00	842400	4/8/2007 4:00	13.524	55.68
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4/8/2007	6:00:00	849600	4/8/2007 6:00	13.523	55.74
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4/9/2007	4:00:00	928800	4/9/2007 4:00	13.509	55.77
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4/9/2007	18:00:00	979200	4/9/2007 18:00	13.502	55.72
4/9/2007	19:00:00	982800	4/9/2007 19:00	13.5	55.7
4/9/2007	20:00:00	986400	4/9/2007 20:00	13.5	55.74
4/9/2007	21:00:00	990000	4/9/2007 21:00	13.5	55.7
4/9/2007	22:00:00	993600	4/9/2007 22:00	13.499	55.7
4/9/2007	23:00:00	997200	4/9/2007 23:00	13.5	55.77
4/10/2007	0:00:00	1000800	4/10/2007 0:00	13.498	55.74
4/10/2007	1:00:00	1004400	4/10/2007 1:00	13.499	55.68
4/10/2007	2:00:00	1008000	4/10/2007 2:00	13.498	55.72
4/10/2007	3:00:00	1011600	4/10/2007 3:00	13.498	55.74
4/10/2007	4:00:00	1015200	4/10/2007 4:00	13.498	55.74
4/10/2007	5:00:00	1018800	4/10/2007 5:00	13.496	55.72
4/10/2007	6:00:00	1022400	4/10/2007 6:00	13.497	55.7
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5/21/2007	12:00:00	4586400	5/21/2007 12:00	13.098	56.44

APPENDIX D
RAW SURVEY DATA
BARITE HILL GOLD MINE
TRIP REPORT
JUNE 2007

Raw Survey Data Main Pit to Impacted Stream

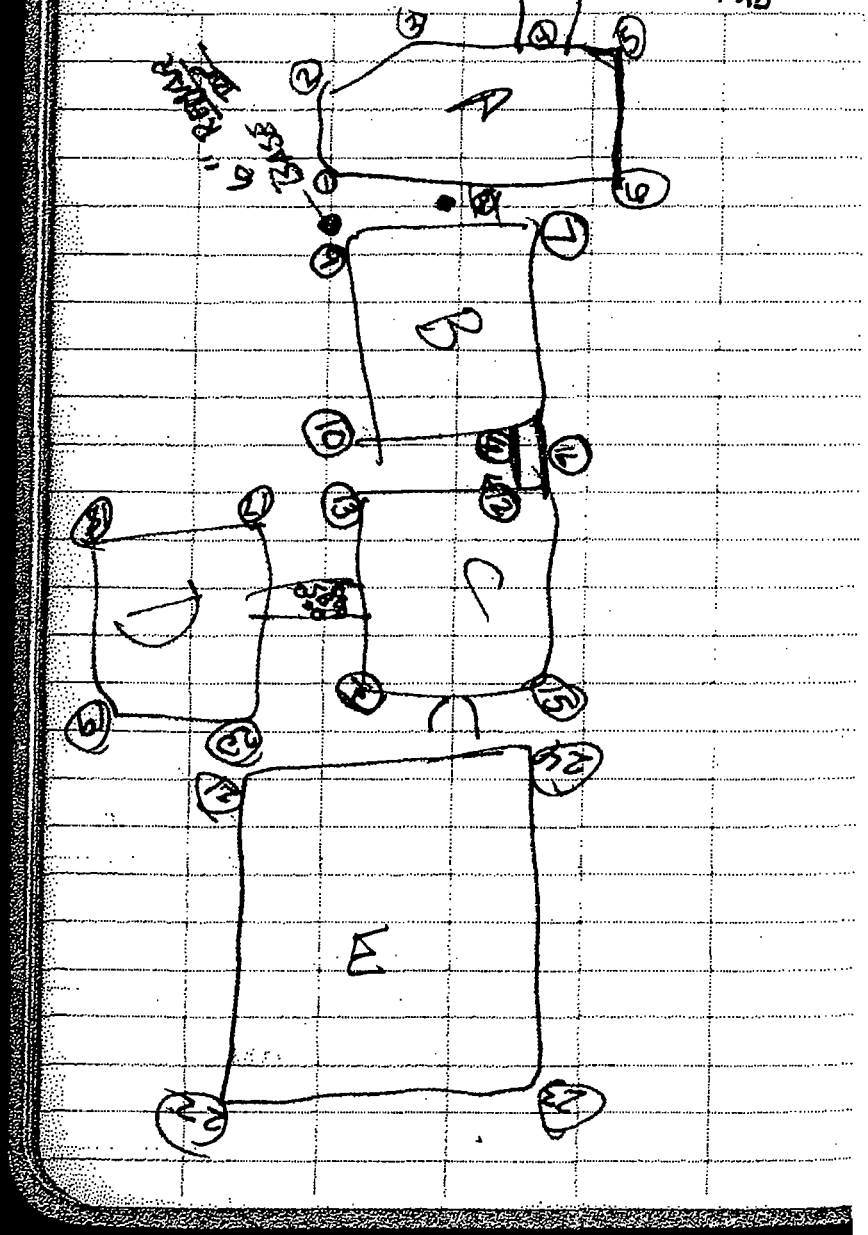
Base Elevation	READING Feet	Inches	Decimal Feet	(+)	Hi	(-)	(elev.) 100
Loc 1 → Pond Edge	15	5.8125	15.484	15.484	115.484		
Loc 1 → TP1	13	9.125	13.760		115.484	13.760	101.724
Loc 2 → TP1		11.5	0.958	0.958	102.682		103.6406
Loc 2 → TP2	13	4	13.333		102.682	13.333	89.34896
Loc 3 → TP2	1	6.5	1.542	1.542	90.891		92.43229
Loc 3 → Stream Edge	14	3.375	14.281		90.891	14.281	76.60938
Loc 3 → BH247-9	15	6.375	15.531		90.891	15.531	75.35938
Loc 3 → Stream Edge	14	3.375	14.281		90.891	14.281	76.60938
Loc 3 → TP3	1	7.875	1.656		90.891	1.656	89.23438
Loc 4 → TP3	13	6.375	13.531	13.531	102.766		116.2969
Loc 4 → TP4	1	0.25	1.021		102.766	1.021	101.7448
Loc 5 → TP4	14	9	14.750	14.750	116.495		131.2448
Loc 5 → TP5	15	5.25	15.438		116.495	15.438	101.0573
Loc 6 → TP5	14	7.875	14.656	14.656	115.714		130.3698
Loc 6 → Pond Edge	15	8.25	15.688		115.714	15.688	100.026

FIELD NOTES: 2 2 0220

J. McBURNEY

Project / Client

INPUT FROM [illegible]

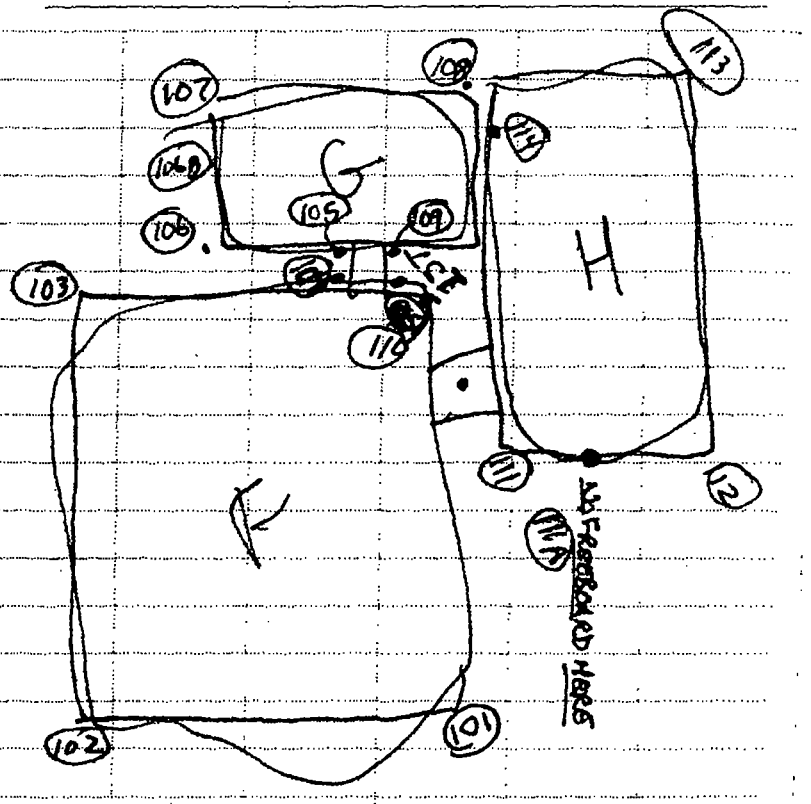


	Location		Angle	Measurement Feet	Measurement Inches	Calculated Feet	Instrument Elevation	Point Elevation	Adjusted to Ft above Water Line	- Feet	- Inches	+ Feet	+ Inches	- Calc Feet	+ Calc Feet	-	+	Check Difference	OK/NOT OK
	Base (Top of Rebar)							100.00	1.24										
	Station 1		0	4	5.75	4.479	104.479		(98.76)					0	0				
		1	12	4	10.375	4.865	104.479	99.61	0.85	4	5.625	5	3.375	4.47	5.28	0.40	0.42	0.02	OK
		2	66	4	9.625	4.802	104.479	99.68	0.92	4	0.75	5	6.5	4.06	5.54	0.74	0.74	0.00	OK
		3	97	4	3	4.250	104.479	100.23	1.47	3	2.25	5	3.5	3.19	5.29	1.06	1.04	-0.02	OK
Pond A		4	140	5	3	5.250	104.479	99.23	0.47	4	3.75	6	2.5	4.31	6.21	0.94	0.96	0.02	OK
	Water A			5	8.625	5.719	104.479	98.76	0.00	4	10.625	6	6.875	4.89	6.57	0.83	0.85	0.02	OK
		5	162	4	6.25	4.521	104.479	99.96	1.20	3	6.375	5	5.875	3.53	5.49	0.99	0.97	-0.02	OK
		6	185	4	4	4.333	104.479	100.15	1.39	3	5.75	5	2.5	3.48	5.21	0.85	0.88	0.02	OK
		7	198	4	6.75	4.563	104.479	99.92	1.16	4	2.625	4	10.75	4.22	4.90	0.34	0.33	-0.01	OK
		8		6	7.25	6.604	104.479	97.88	(0.89)										
	Close		0	4	5.75	4.479	104.479	100.00	1.24										
Pond B		9	356	4	7.5	4.625	104.479	99.85	1.09	4	2.75	5	0.25	4.23	5.02	0.40	0.40	0.00	OK
		10	304	4	2.75	4.229	104.479	100.25	1.49	3	4.25	5	1.5	3.35	5.13	0.88	0.90	0.02	OK
		11	261	4	8.875	4.740	104.479	99.74	0.98	3	11.25	5	6.5	3.94	5.54	0.80	0.80	0.00	OK
	Water B			5	8.5	5.708	104.479	98.77	0.01					0.00	0.00	5.71	-5.71	-11.42	
		12	265	4	7.375	4.615	104.479	99.86	1.10	3	9	5	5.75	3.75	5.48	0.86	0.86	0.00	OK
		13	301	4	5.25	4.438	104.479	100.04	1.28			5	4.5	0.00	5.38	4.44	0.94	-3.50	
	Sand Bags		296	5	5.75	5.479	104.479	99.00	0.24	4	3.25	6	8.25	4.27	6.69	1.21	1.21	0.00	OK
Pond C		14	290	4	9.5	4.792	104.479	99.69	0.93			5	5.5	0.00	5.46	4.79	0.67	-4.13	
	Spillway C to E		285	5	9.5	5.792	104.479	98.69	(0.07)	4	3	7	4.5	4.25	7.38	1.54	1.58	0.04	OK
		15	265	4	1.5	4.125	104.479	100.35	1.59	2	6.5	5	8.75	2.54	5.73	1.58	1.60	0.02	OK
		16	256	4	5.625	4.469	104.479	100.01	1.25	3	6.875	5	4.5	3.57	5.38	0.90	0.91	0.01	OK
	Close			4	5.75	4.479	104.479	100.00	1.24										
	Station 2 to Base		0	5	2	5.167	105.167			4	5.75	5	10.25	4.48	5.85	0.69	0.69	0.00	OK
		17	135	5	3	5.250	105.167	99.92	1.16	5	0.75	5	5	5.06	5.42	0.19	0.17	-0.02	OK
Pond D		18	228	4	8	4.667	105.167	100.50	1.74	4	2	5	2	4.17	5.17	0.50	0.50	0.00	OK
		19	204	5	0	5.000	105.167	100.17	1.41	4	3.75	5	8.25	4.31	5.69	0.69	0.69	0.00	OK
		20	155	4	8.25	4.688	105.167	100.48	1.72	4	1.375	5	3	4.11	5.25	0.57	0.56	-0.01	OK
	Sand Bag Wall Turn			6	0.75	6.063	105.167	99.10	0.34										
	Station 3 to Turn		0	6	4.125	6.344	105.448												
		21	282	4	11	4.917	105.448	100.53	1.77	4	2.75	5	7.25	4.23	5.60	0.69	0.69	0.00	OK
	Water Level E			17	7.75	17.646	105.448	87.80	(10.96)										
Pond E		22	218	5	5	5.417	105.448	100.03	1.27	3	8.5	7	1.5	3.71	7.13	1.71	1.71	0.00	OK
		23	183	5	4.5	5.375	105.448	100.07	1.31	3	9.5	7	0	3.79	7.00	1.58	1.63	0.04	OK
		24	108	5	2	5.167	105.448	100.28	1.52	4	10.25	5	6	4.85	5.50	0.31	0.33	0.02	OK
	Close			5	5	5.417	105.448	100.03	1.27	3	10	7	0	3.83	7.00	1.58	1.58	0.00	OK

FIELD NOTES: J. McBURNEY

Location _____ Date _____

Project / Client 3/28/07



Heap Leach Pile Process Ponds

	Location		Angle	Measurement Feet	Measurement Inches	Calculated Feet	Instrument Elevation	Point Elevation	Elevation Relative to Water Level	- Feet	- Inches	+ Feet	+ Inches	- Calc Feet	+ Calc Feet	-	+	Check Difference	OK/NOT OK
	Water Level Is Base							100	0.00										
	Station 1			5	3.625	5.302	105.3020833												
		101	0	4	5.5	4.458	105.3020833	100.84	0.84	3	0.25	5	10.5	3.02	5.88	1.44	1.42	-0.02	OK
		102	49	4	9.75	4.813	105.3020833	100.49	0.49	2	7.5	7	0	2.63	7.00	2.19	2.19	0.00	OK
Pond F		103	90	4	1.75	4.146	105.3020833	101.16	1.16	2	5.75	5	10	2.48	5.83	1.67	1.69	0.02	OK
		104	96	4	5.75	4.479	105.3020833	100.82	0.82	4	3.875	4	7.75	4.32	4.65	0.16	0.17	0.01	OK
		110	102	4	6.5	4.542	105.3020833	100.76	0.76	4	5.625	4	7.25	4.47	4.60	0.07	0.06	-0.01	OK
	Water Level F			5	3.625	5.302	105.3020833	100.00	0.00	5	1.625	5	5.625	5.14	5.47	0.17	0.17	0.00	OK
		105	127	5	2.25	5.188	105.3020833	100.11	0.11	4	11.5	5	5	4.96	5.42	0.23	0.23	0.00	OK
		106	97	5	1	5.083	105.3020833	100.22	0.22	na	na	6	4						
		107	121	4	0	4.000	105.3020833	101.30	1.30	2	7.25	5	5.25	2.60	5.44	1.40	1.44	0.04	OK
Pond G	106b		107	4	11	4.917	105.3020833	100.39	0.39	3	7.5	6	2.75	3.63	6.23	1.29	1.31	0.02	OK
	Water Level G			5	4.25	5.354	105.3020833	99.95	-0.05	4	4.5	6	4	4.38	6.33	0.98	0.98	0.00	OK
		108	176	4	4.625	4.385	105.3020833	100.92	0.92	3	8.5	5	1	3.71	5.08	0.68	0.70	0.02	OK
		109	154	5	3	5.250	105.3020833	100.05	0.05	5	0.625	5	5.25	5.05	5.44	0.20	0.19	-0.01	OK
	Pond H to Pond F			7	8.75	7.729	105.3020833	97.57	-2.43	7	7.5	7	10	7.63	7.83	0.10	0.10	0.00	OK
		111	320	4	4	4.333	105.3020833	100.97	0.97	4	1.5	4	6.25	4.13	4.52	0.21	0.19	-0.02	OK
	111A		304	5	3.875	5.323	105.3020833	99.98	-0.02	4	10.625	5	9.125	4.89	5.76	0.44	0.44	0.00	OK
Pond H	Water Level H			5	3.875	5.323	105.3020833	99.98	-0.02										
		112	287	4	7.25	4.604	105.3020833	100.70	0.70	3	11	5	3.5	3.92	5.29	0.69	0.69	0.00	OK
		113	221	3	11	3.917	105.3020833	101.39	1.39	2	11.25	4	11	2.94	4.92	0.98	1.00	0.02	OK
		114	192	3	11.375	3.948	105.3020833	101.35	1.35	3	4.25	4	6.5	3.35	4.54	0.59	0.59	0.00	OK
	Water Level G			5	3.75	5.313	105.3020833	99.99	-0.01										

APPENDIX E
CALCULATION OF EVAPORATIVE RATE
BARITE HILL GOLD MINE
TRIP REPORT
JUNE 2007

A request was made to estimate the evaporation from the Main Pit Lake at the Barite Hill Gold Mine Site in McCormick, SC for the period 3/25/2007 through 5/22/2007. The general technique to accomplish the requested task was taken from *Water in Environmental Planning (1978),* by Thomas Dunne and Luna B. Leopold. The steps taken to achieve the final evaporation estimation are as follows:

1. Quality controlled daily weather observations for Greenwood County Airport, SC (GRD) were obtained from an online subscription through the National Climatic Data Center (NCDC). The airport is located at 34.289N and -82.159W.
2. Daily average cloud cover data was obtained for Greenville-Spartanburg, SC Airport (GSP) from the Greenville-Spartanburg National Weather Service Forecast Office online climate information page. GSP is located at 34.896N and -82.219W. Daily numerical cloud cover data is not available for GRD.
3. Sunrise/sunset data was generated through an online program provided by the United States Naval Observatory. Total hours of possible sunshine were multiplied by the average daily cloud cover to provide an estimated daily amount of sunshine.
4. Calculate mean monthly solar radiation by,

$$Q_s = I_o(0.803 - 0.340C - 0.458C^2), \text{ where,}$$

I_o = solar radiation per day received on a horizontal surface at the exterior of the atmosphere (from Dunne & Leopold, Table 4-2)
C = mean monthly cloudiness (decimal fraction)

5. Calculate net radiation by,

$$H = Q_s/l, \text{ where,}$$

l = latent heat of vaporization of water, 590 cal/g

6. Calculate mass transfer contribution to total evaporation by,

$$E_a = (0.013 + 0.00016u_2)*(e_{sa} - e_a), \text{ where,}$$

u_2 = wind speed in km/day
e_{sa} = saturation vapor pressure of a water surface at the air temperature found by,

$$e_{sa} = 6.11 \times 10\text{^}((7.5*T_a)/(237.7*T_a)), \text{ where}$$

T_a = ambient air temperature

e_a = atmospheric vapor pressure found by,

$$e_a = 6.11 \times 10\text{^}((7.5*T_d)/(237.7*T_d)), \text{ where}$$

T_d = dew point temperature

7. Monthly lake evaporation (cm) by,

$$E_o = ((\Delta/\gamma)*H) + E_a) / ((\Delta/\gamma) + 1) * \#days\ in\ month, \text{ where,}$$

Δ/γ = Penman's dimensionless parameter (from Dunne & Leopold, Table 4-6)

Greenwood, SC
Greenwood County Airport

Date	1/10s cloud cover	sunrise	sunset	poss sun	hrs	min	fract hrs	est. hrs sun	avg W_s mph	avg W_s km/day	avg T_h F	avg T_{av} C	avg T_d F	avg T_{dv} C	variation of Δ mb/°C	Penman's parameter dimensionless	saturation vapor pressure, mb	vapor pressure, mb	precip inches	mass transfer contribution, E_a
3/25/2007	0	6:27	18:41	12:14	12	14	12.2	12.2	4.2	162	70	21.1	53	11.7	1.565	2.37	25.0	13.7	0	0.44
3/26/2007	6	6:26	18:42	12:16	12	16	12.3	4.9	6.0	232	66	18.9	53	11.7	1.41	2.14	21.8	13.7	0	0.40
3/27/2007	1	6:24	18:43	12:19	12	19	12.3	11.1	4.8	185	68	20.0	57	13.9	1.41	2.14	23.3	15.9	0	0.32
3/28/2007	1	6:23	18:44	12:21	12	21	12.4	11.1	4.9	189	69	20.6	54	12.2	1.485	2.25	24.2	14.2	0	0.43
3/29/2007	6	6:22	18:44	12:22	12	22	12.4	4.9	8.4	324	57	13.9	51	10.6	1.26	1.91	15.9	12.7	T	0.20
3/30/2007	7	6:21	18:45	12:24	12	24	12.4	3.7	3.0	116	59	15.0	44	6.7	1.115	1.69	17.0	9.8	0	0.23
3/31/2007	4	6:19	18:45	12:26	12	26	12.4	7.5	7.3	282	65	18.3	54	12.2	1.26	1.91	21.0	14.2	0	0.40
4/1/2007	5	6:18	18:46	12:28	12	28	12.5	6.2	8.1	313	68	20.0	59	15.0	1.485	2.25	23.3	17.0	0.1	0.40
4/2/2007	4	6:17	18:47	12:30	12	30	12.5	7.5	7.1	274	70	21.1	60	15.6	1.565	2.37	25.0	17.6	0	0.42
4/3/2007	4	6:15	18:48	12:33	12	33	12.6	7.5	6.4	247	71	21.7	60	15.6	1.64	2.48	25.9	17.6	0.01	0.43
4/4/2007	1	6:14	18:48	12:34	12	34	12.6	11.3	11.5	444	64	17.8	49	9.4	1 64	2.48	20.3	11.8	0.06	0.71
4/5/2007	0	6:13	18:49	12:36	12	36	12.6	12.6	4.7	181	50	10.0	29	-1.7	0.905	1.37	12.3	5.4	0	0.29
4/6/2007	1	6:11	18:50	12:39	12	39	12.7	11.4	8.1	313	47	8.3	23	-5.0	0.86	1.30	11.0	4.2	0	0.43
4/7/2007	1	6:10	18:51	12:41	12	41	12.7	11.4	9.6	371	39	3.9	12	-11.1	0.68	1.03	8.1	2.6	0	0.39
4/8/2007	0	6:09	18:51	12:42	12	42	12.7	12.7	6.7	259	39	3.9	16	-8.9	0.64	0.97	8.1	3.1	T	0.27
4/9/2007	5	6:08	18:52	12:44	12	44	12.7	6.4	5.1	197	46	7.8	26	-3.3	0.64	0.97	10.6	4.8	0	0.26
4/10/2007	1	6:06	18:53	12:47	12	47	12.8	11.5	4.3	166	49	9.4	29	-1.7	0.86	1.30	11.8	5.4	T	0.25
4/11/2007	9	6:05	18:54	12:49	12	49	12.8	1.3	5.4	209	51	10.6	48	8.9	1.19	1.80	12.7	11.4	0.43	0.06
4/12/2007	2	6:04	18:54	12:50	12	50	12.8	10.3	10.7	413	62	16.7	39	3.9	1.33	2.02	18.9	8.1	T	0.86
4/13/2007	0	6:03	18:55	12:52	12	52	12.9	12.9	3.5	135	57	13.9	36	2.2	1.115	1.69	15.9	7.2	0.01	0.30
4/14/2007	3	6:01	18:56	12:55	12	55	12.9	9.0	5.5	212	62	16.7	50	10.0	1.33	2.02	18.9	12.3	0.85	0.31
4/15/2007	8	6:00	18:57	12:57	12	57	13.0	2.6	13.2	510	55	12.8	47	8.3	0.995	1.51	14.7	11.0	0.16	0.36
4/16/2007	0	5:59	18:57	12:58	12	58	13.0	13.0	12.6	487	54	12.2	29	-1.7	1.04	1.58	14.2	5.4	0	0.80
4/17/2007	0	5:58	18:58	13:00	13	0	13.0	13.0	5.5	212	61	16.1	31	-0.6	1.19	1.80	18.3	5.9	T	0.58
4/18/2007	0	5:56	18:59	13:03	13	3	13.1	13.1	3.8	147	61	16.1	39	3.9	1.04	1.58	18.3	8.1	0	0.37
4/19/2007	1	5:55	18:59	13:04	13	4	13.1	11.8	6.7	259	62	16.7	46	7.8	1.115	1.69	18.9	10.6	0.02	0.46
4/20/2007	6	5.54	19:00	13:06	13	6	13.1	5.2	5.7	220	57	13.9	45	7.2	1.04	1.58	15.9	10.2	0	0.27
4/21/2007	0	5:53	19:01	13:08	13	8	13.1	13.1	2.1	81	59	15.0	40	4.4	1.115	1.69	17.0	8.4	0	0.22
4/22/2007	0	5:52	19:02	13:10	13	10	13.2	13.2	4.4	170	61	16.1	40	4.4	1.19	1.80	18.3	8.4	0	0.40
4/23/2007	0	5:51	19:02	13:11	13	11	13.2	13.2	8.1	313	66	18.9	50	10.0	1.26	1.91	21.8	12.3	0	0.60
4/24/2007	1	5:50	19:03	13:13	13	13	13.2	11.9	8.4	324	71	21.7	55	12.8	1.485	2.25	25.9	14.7	0	0.72
4/25/2007	1	5:48	19:04	13:16	13	16	13.3	11.9	9.1	351	71	21.7	54	12.2	1.485	2.25	25.9	14.2	0	0.81
4/26/2007	2	5:47	19:05	13:18	13	18	13.3	10.6	8.2	317	73	22.8	57	13.9	1.64	2.48	27.7	15.9	0.01	0.75
4/27/2007	5	5:46	19:06	13:20	13	20	13.3	6.7	9.5	367	72	22.2	55	12.8	1.7	2.58	26.7	14.7	0.41	0.86
4/28/2007	1	5:45	19:06	13:21	13	21	13.4	12.0	6.2	239	65	18.3	46	7.8	1.33	2.02	21.0	10.6	0	0.54
4/29/2007	0	5:44	19:07	13:23	13	23	13.4	13.4	4.5	174	67	19.4	46	7.8	1.33	2.02	22.6	10.6	0	0.49
4/30/2007	0	5:43	19:08	13:25	13	25	13.4	13.4	3.2	124	68	20.0	45	7.2	1.485	2.25	23.3	10.2	0	0.43
5/1/2007	0	5:42	19:09	13:27	13	27	13.5	13.5	5.1	197	71	21.7	48	8.9	1.565	2.37	25.9	11.4	0	0.64
5/2/2007	2	5:41	19:09	13:28	13	28	13.5	10.8	7.7	297	76	24.4	53	11.7	1.64	2.48	30.6	13.7	0	1.02
5/3/2007	3	5:40	19:10	13:30	13	30	13.5	9.5	6.9	266	75	23.9	56	13.3	1.565	2.37	29.6	15.3	0	0.79
5/4/2007	6	5:39	19:11	13:32	13	32	13.5	5.4	8.7	336	60	15.6	55	12.8	1.565	2.37	17.6	14.7	0	0.19
5/5/2007	9	5:38	19:12	13:34	13	34	13.6	1.4	5.0	193	58	14.4	56	13.3	1.33	2.02	16.4	15.3	0.72	0.05
5/6/2007	7	5:37	19:12	13:35	13	35	13.6	4.1	8.0	309	64	17.8	48	8.9	1.33	2.02	20.3	11.4	0	0.56
5/7/2007	0	5:36	19:13	13:37	13	37	13.6	13.6	10.2	394	57	13.9	34	1.1	1:115	1.69	15.9	6.6	0	0.70
5/8/2007	2	5:36	19:14	13:38	13	38	13.6	10.9	11.0	425	63	17.2	46	7.8	1.33	2.02	19.6	10.6	0	0.73
5/9/2007	6	5:35	19:15	13:40	13	40	13.7	5.5	9.6	371	70	21.1	58	14.4	1.64	2.48	25.0	16.4	0	0.61
5/10/2007	2	5:34	19:15	13:41	13	41	13.7	10.9	3.5	135	70	21.1	59	15.0	1.64	2.48	25.0	17.0	0	0.28
5/11/2007	1	5:33	19:16	13:43	13	43	13.7	12.3	2.3	89	72	22.2	60	15.6	1.64	2.48	26.7	17.6	0	0.25
5/12/2007	2	5:32	19:17	13:45	13	45	13.8	11.0	4.3	166	75	23.9	63	17.2	1.7	2.58	29.6	19.6	0.05	0.39
5/13/2007	3	5:31	19:18	13:47	13	47	13.8	9.6	6.1	236	73	22.8	60	15.6	1.795	2.72	27.7	17.6	0.01	0.51
5/14/2007	0	5:31	19:18	13:47	13	47	13.8	13.8	4.9	189	66	18.9	47	8.3	1.41	2.14	21.8	11.0	0	0.47
5/15/2007	0	5:30	19.19	13:49	13	49	13.8	13.8	5.2	201	65	18.3	51	10.6	1.33	2.02	21.0	12.7	0	0.37
5/16/2007	4	5:29	19:20	13:51	13	51	13.9	8.3	9.2	355	72	22.2	59	15.0	1.565	2.37	26.7	17.0	0.01	0.68
5/17/2007	5	5:29	19:20	13:51	13	51	13.9	6.9	5.4	209	68	20.0	51	10.6	1 485	2.25	23.3	12.7	0	0.49
5/18/2007	2	5:28	19:21	13:53	13	53	13.9	11.1	8.7	336	65	18.3	41	5.0	1.33	2.02	21.0	8.7	0	0.82
5/19/2007	0	5:27	19:22	13:55	13	55	13.9	13.9	4.4	170	60	15.6	38	3.3	1.26	1.91	17.6	7.8	T	0.40
5/20/2007	0	5:27	19:23	13:56	13	56	13.9	13.9	2.5	97	65	18.3	45	7.2	1.33	2.02	21.0	10.2	0	0.31
5/21/2007	0	5:26	19:23	13:57	13	57	14.0	14.0	2.9	112	68	20.0	46	7.8	1.485	2.25	23.3	10.6	0	0.40
5/22/2007	0	5:26	19:24	13:58	13	58	14.0	14.0	4.8	185	71	21.7	52	11.1	1.565	2.37	25.9	13.2	0	0.54
avg. cloud	0.24																			

		APR	MAY
Estimated avg solar radiation (cal/cm² /day) received at the upper edge of the atmosphere at ~33° N latitude		855	930
Mean daily solar radiation (cal/cm² /day) for the month		596	648
Latent heat of vaporization (cal/g)	590		
Net radiation, H, (cm/day of evaporation)		1.01	1.10
Mean wind speed (km/day)		254	247
Psychometric constant, γ (mb/° C)	0.66		
Mean Penman's parameter (dimensionless)		1.79	2.25
Mean ambient temperature (°C)		14.9	20.0
Mean dew point (°C)		5.7	10.7
Mean mass transfer contribution (cm/day)		0.40	0.55
EVAPORATION (cm/month)		23.7	26.9

APPENDIX F
STREAM FLOWRATE CALCULATIONS
BARITE HILL GOLD MINE
TRIP REPORT
JUNE 2007

STREAM FLOWRATE DATA AND CALCULATIONS

By Channel Area

	BH247-2		BH247-3		At Seep Area 1 (under tree)		BH247-4	
Channel Area								
Width	2	in	4	in	1.5	in	5	in
Depth	0.25	in	0.125	in	0.5	in	1.75	in
Area	0.5	in2	0.5	in2	0.75	in2	8.75	in2
	0.003472222	ft2	0.003472222	ft2	0.005208333	ft2	0.060763889	ft2
Distance	4	in	3	in	4	in	NA	in
Time	2	sec	1	sec	0.5	sec	NA	sec
Velocity	0.166666667	ft/sec	0.25	ft/sec	0.666666667	ft/sec	0.11	ft/sec
Flowrate	0.000578704	ft3/sec	0.000868056	ft3/sec	0.003472222	ft3/sec	0.006684028	ft3/sec
	7.48	Gal/Ft3	7.48	Gal/Ft3	7.48	Gal/Ft3	7.48	Gal/Ft3
	0.004328704	gal/sec	0.006493056	gal/sec	0.025972222	gal/sec	0.049996528	gal/sec
	0.259722222	Gal/min gpm	0.389583333	Gal/min gpm	1.558333333	Gal/min gpm	2.999791667	Gal/min gpm

By "Defined Volume Method"	Flow From Under Tree		BH247-7		BH247-8	
Cup Volume	0.07029	gal	0.07029	gal	0.07029	gal
Time	45	sec	3	sec	1	sec
Flowrate	0.001562	gal/sec	0.02343	gal/sec	0.07029	gal/sec
Cup Volume = 9 oz, or .07029 gal	0.09372	gpm	1.4058	gpm	4.2174	gpm

APPENDIX G
DETERMINATION OF 100, 250 and 500 YEAR 24 HOUR RAINFALL EVENTS
BARITE HILL GOLD MINE
TRIP REPORT
JUNE 2007

Determination of 100, 250 and 500 year 24 Hour Rainfall Events

A request was made to determine the 100-year, 250-year, and 500-year 24-hour rainfall in the area of the Barite Hill Gold Mine Site in McCormick, SC. This task was accomplished with the following steps:

1. Hourly rainfall data from Greenville-Spartanburg, SC was obtained from the National Climatic Data Center. The maximum one-hour rainfall for each year was recorded.
2. The maximum one-hour yearly rainfall was entered into one column of an Excel spreadsheet and sorted from the highest value to the lowest value. A column titled rank was entered and values from 1 through 54 were entered to correspond to the highest yearly rainfall values.
3. A column labeled recurrence interval was added and used to calculate the expected interval between rainfall events of particular amounts. This was determined by the formula,

   $R = (N + 1)/M$, where

   N = number of observations
   M = rank

4. The y-intercept and slope for the recurrence intervals and 24-hour rainfall values were calculated by respective Excel built-in functions.

The predicted 100-year, 250-year, and 500-year 24-hour rainfalls were calculated by the formula,

$y = a + bx$, where

a = y-intercept
b = slope
X = time interval

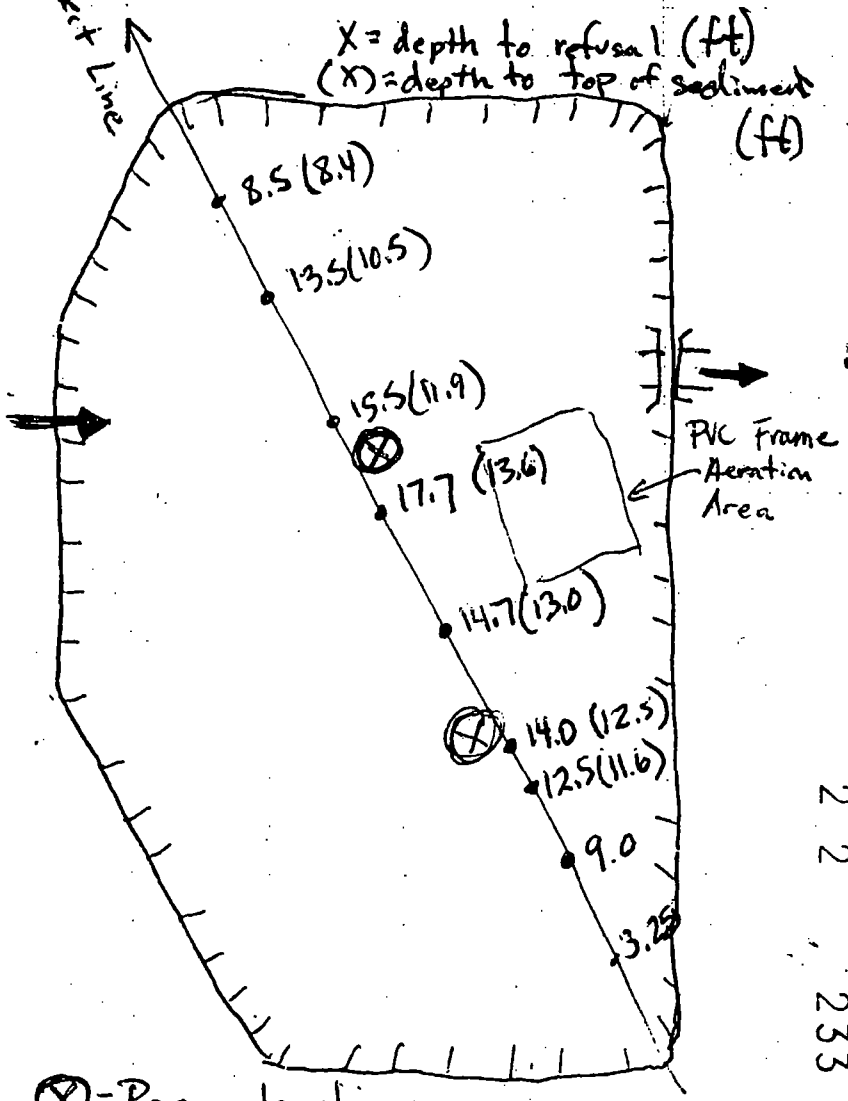
Sheet1

Year	Rank	Recurrence Interval	Max 24-hr Rainfall	
1995	1	55.0	9.32	Hurricane Jerry
1951	2	27.5	6.20	
1949	3	18.3	5.32	
1990	4	13.8	4.48	
1973	5	11.0	4.38	
1956	6	9.2	4.34	
1964	7	7.9	4.21	
1969	8	6.9	4.21	
1966	9	6.1	4.21	
1972	10	5.5	4.19	
1975	11	5.0	3.95	
1963	12	4.6	3.89	
1977	13	4.2	3.86	
1968	14	3.9	3.77	
1997	15	3.7	3.64	
1980	16	3.4	3.58	
1976	17	3.2	3.57	
1987	18	3.1	3.49	
1960	19	2.9	3.29	
1986	20	2.8	3.25	
1979	21	2.6	3.25	
1982	22	2.5	3.24	
1984	23	2.4	3.23	
2002	24	2.3	3.15	
1999	25	2.2	3.01	
2000	26	2.1	2.96	
1994	27	2.0	2.95	
1985	28	2.0	2.90	
1950	29	1.9	2.85	
1967	30	1.8	2.81	
1955	31	1.8	2.77	
1952	32	1.7	2.67	
1992	33	1.7	2.63	
1959	34	1.6	2.59	
1989	35	1.6	2.57	
1953	36	1.5	2.56	
1971	37	1.5	2.56	
1962	38	1.4	2.48	
1961	39	1.4	2.48	
1981	40	1.4	2.46	
1998	41	1.3	2.44	
1974	42	1.3	2.36	
1970	43	1.3	2.35	
1991	44	1.3	2.30	
1978	45	1.2	2.30	
1965	46	1.2	2.27	
1996	47	1.2	2.25	
2001	48	1.1	2.21	
1993	49	1.1	2.02	
1983	50	1.1	2.02	
1958	51	1.1	1.94	
1954	52	1.1	1.90	
1957	53	1.0	1.80	
1988	54	1.0	1.76	

y-intercept	2.571639279
slope	0.14
100-yr 24-hr rainfall	16.21028823
250-yr 24-hr rainfall	36.66826167
500-yr 24-hr rainfall	70.76488406

APPENDIX H
SEDIMENT SAMPLING FIELD NOTES AND SEDIMENT VOLUME CALCULATIONS
BARITE HILL GOLD MINE
TRIP REPORT
JUNE 2007

Process Pond A

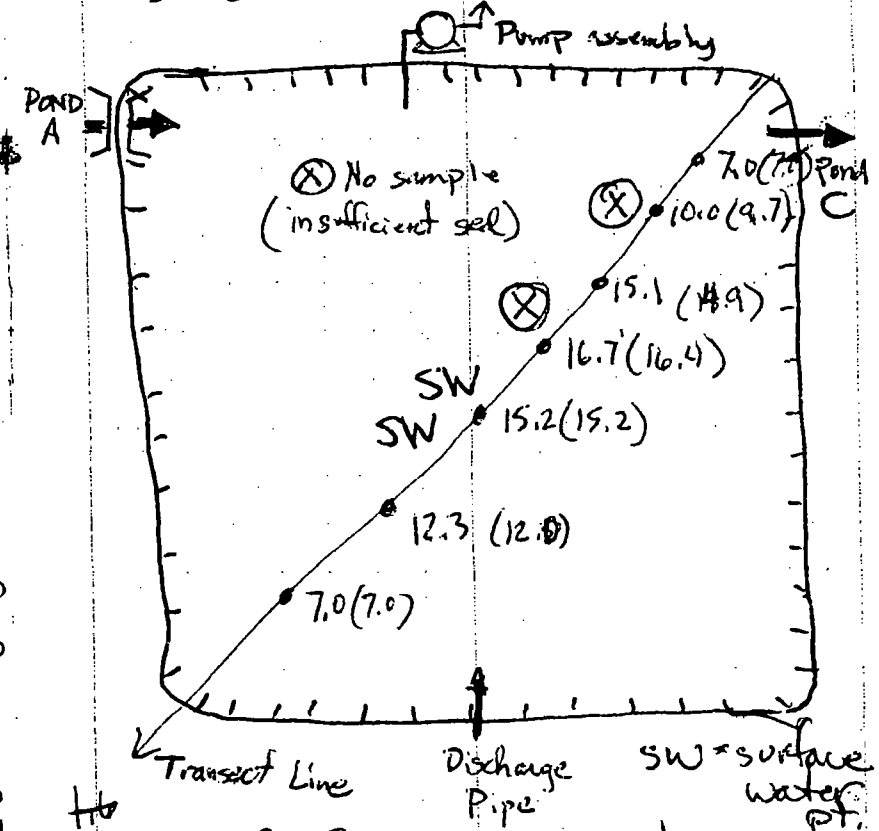


⊗ = Ponar locations
All measurements in 1/10 ft.

3/27/07

11:09 Two point Ponar sediment composite taken from Pond A. 2x 8oz jars collected by BH + SG.

11:36 Entered Pond B



12:17 2x 8oz jars of 2pt. Ponar sed. composite collected by BH + SG.

12:25 Collected 2x 1L Poly bottles of surface water from Pond B by BH + SG. Marked as SW by location on sketch.

12:40 Departed for lunch.

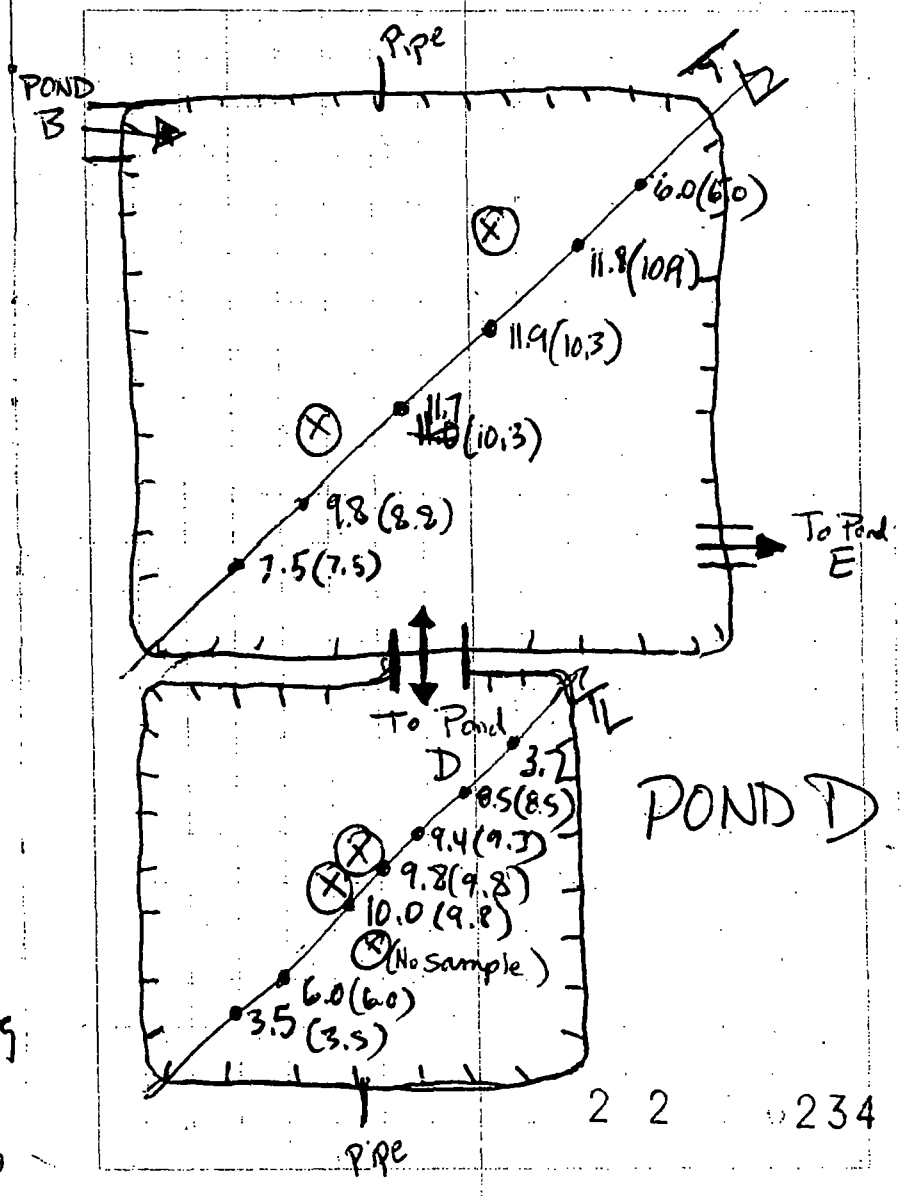
14:00 Entered Pond C

1434 Collected 2x pt ponar composite of sediment from Pond C. Sediment appears to contain metalic colors.
Collected 2x 40mL VOA Vials of surface water for Sulfates and Nitrates analysis.

1420 Entered Pond D

1527 Collected 2x pt ponar composite of sediments. Sediments in this pond appear to be similar in color and texture to surrounding ground soils.
Pond D seems to have longer sloped sides and a narrow flat bottom area.

POND C



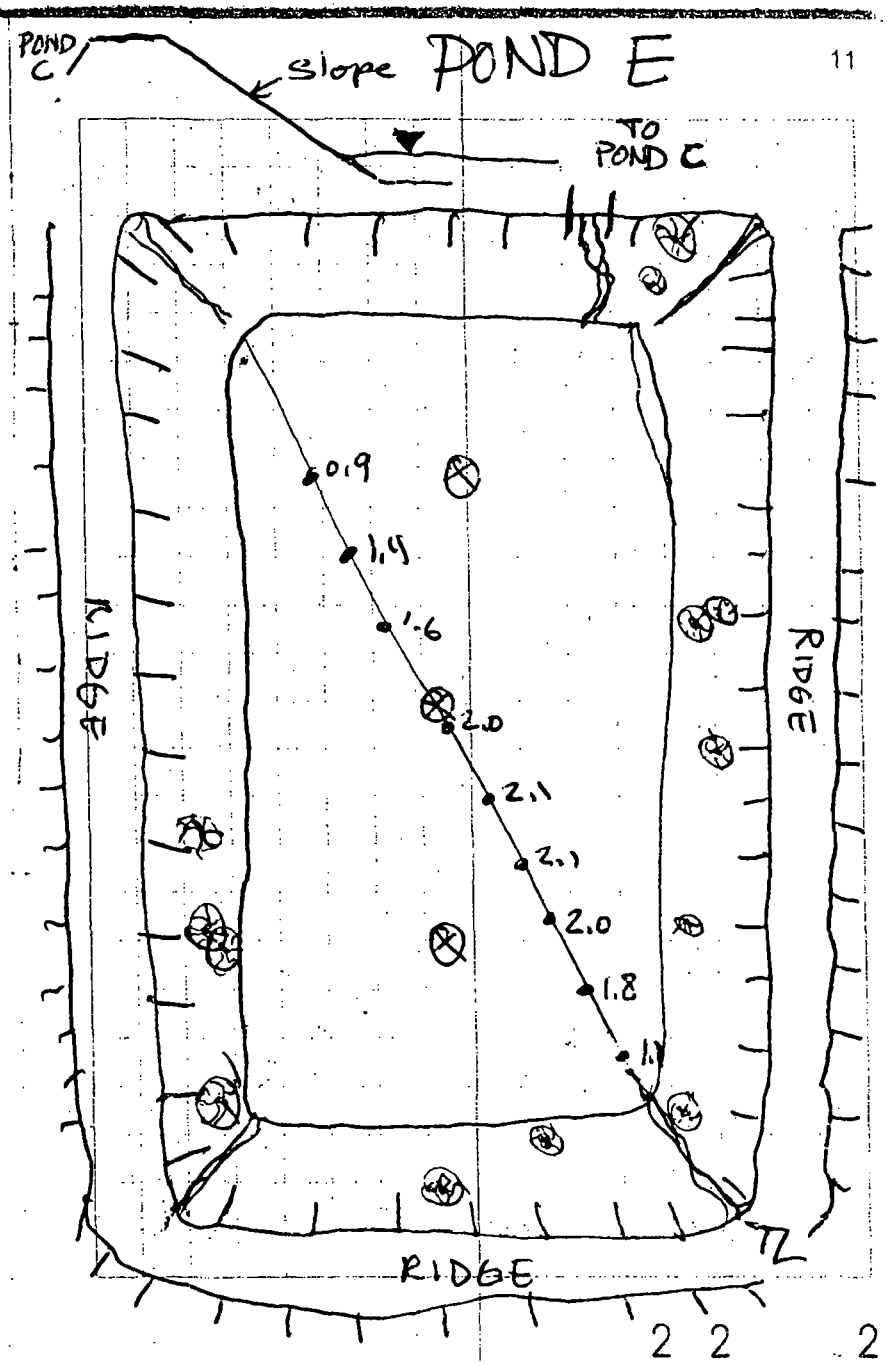
POND D

2 2 234

1535 2x 40ml Surface water samples taken for Sulfates and Nitrates analyses.

1617 Entered Pond E
No depth of sediment measurements taken since there is no existing bottom liner.
Sediments appear to be the same in color and texture to the bank soils.

1634 3pt ponar composite taken. 3 pts were selected due to larger size of pond. There appears to be a high water mark about 1.0ft above the present level as indicated by discoloring of surrounding soils. The presence of young conifer trees within several feet of the present water level (but above the high water mark) indicate



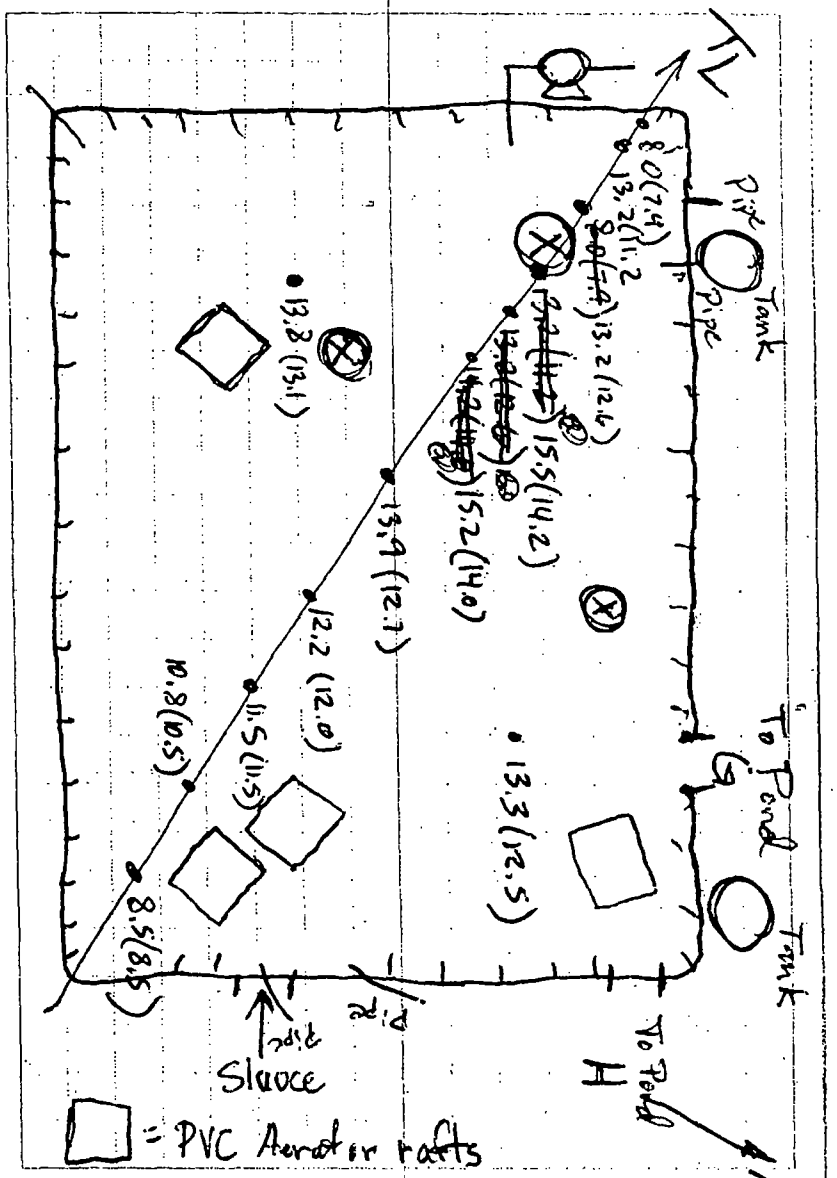
that the level probably does not get much higher seasonally.
1641 02x 40mL surface water samples taken.
1830 Returned to hotel.

3/28/07
0715 Depart for site
0900 Entered Pond
Water has better clarity than previously sampled ponds.

Sediment seems concentrated on the sump end of the pond (North west)
1010 3 pt Ponar composite sample taken. Sediment mostly reddish brown color of native soils with blue-green patina areas indicating possible copper coloration.

2x 40mL water samples taken for Sulfates/Nitrates analyses.

POND F



1050 Entered Pond G

Sediment measurements indicate very thick sediments in this pond poss. due to the proximity of the heap pile to the NW sloping into the pond.

Sediments appear to be similar in color and texture to surrounding soils.

11:40 Collected 12 x pt ponar composite sample

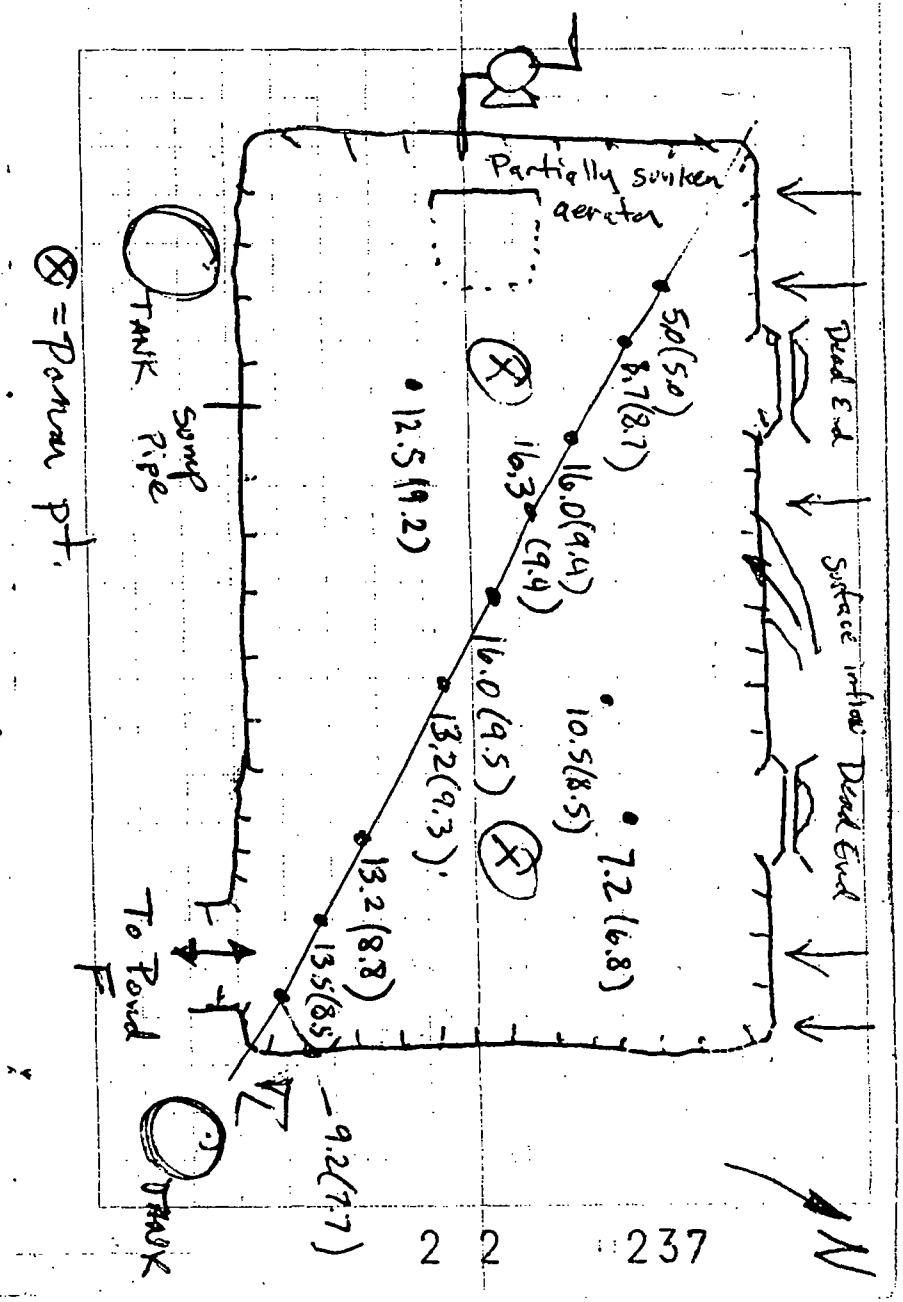
Collected 2 x 40 mL surface water samples.

12:00 Departed for lunch

Samples taken to central staging area for storage.

1400 Entered Pond H

1430 Collected 2 x ponar composite pts and 2 x 40 mL surface water samples for sulfate and nitrate analysis.



Sediments collected from Pond H seem to reflect surrounding reddish soils.

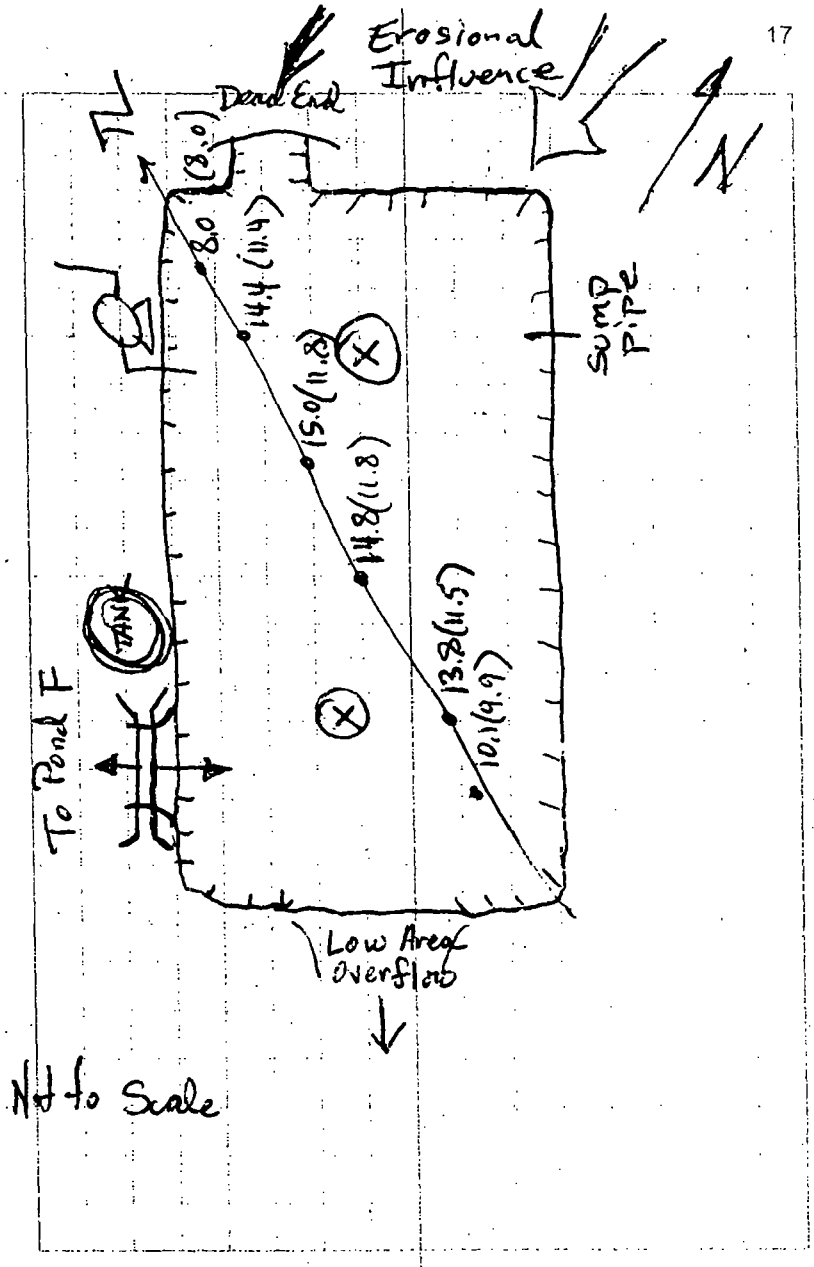
Secured boat sediment/probe gps and helped Jon McBurnie finish with sampling water from pond sumps.

Brought boat back to staging area with remaining samples.

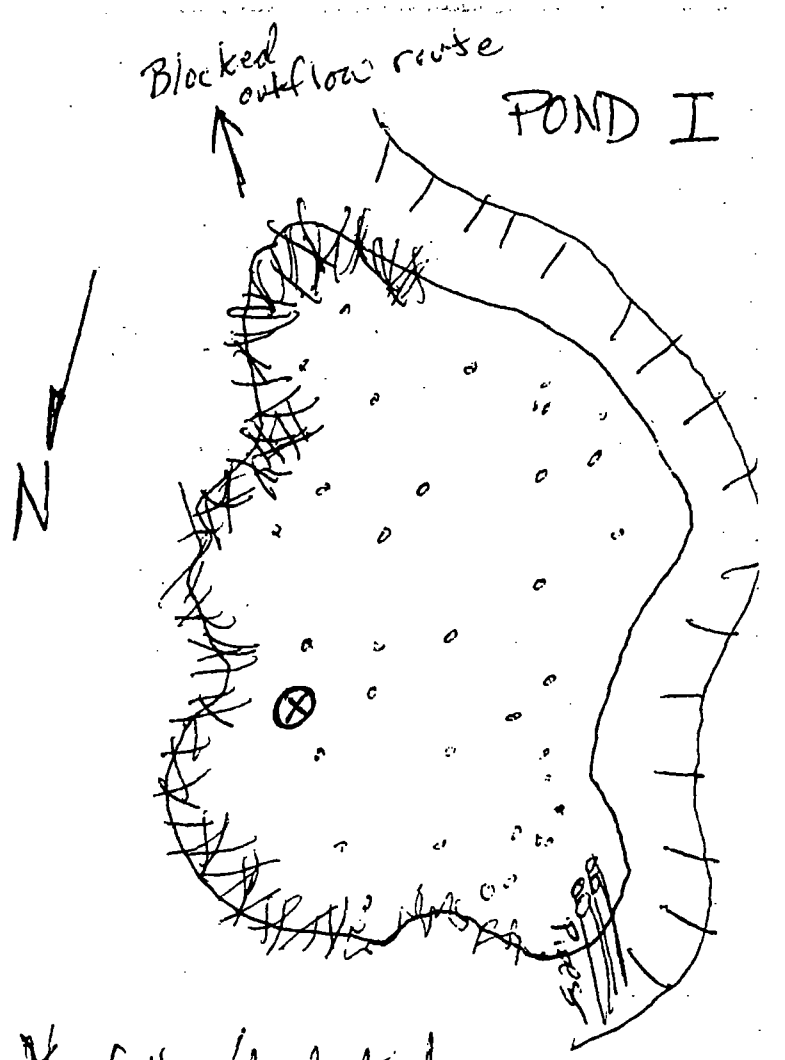
1600 Went to low-lying flooded area for a single pt. ponar sediment sample and 2x 40 mL surface water samples. (Map p.18) ds POND I.

1620 Collected the samples.

1630 Secured equipment and returned to staging area.



18



= fallen/dead timber

⊗ = Ponar + SW sample location

CALCULATION OF SEDIMENT DEPTHS AND VOLUMES

Location	Depth to Bottom	Depth to Sediment	Depth of Sediment
Pond A			
1	3.25	3.25	0
2	9	9	0
3	12.5	11.6	0.9
4	14	12.5	1.5
5	14.7	13	1.7
6	17.7	13.6	4.1
7	15.5	11.9	3.6
8	13.5	10.5	3
9	8.5	8.4	0.1
Average Depth (feet):			1.66
Surface Area (Square Feet):			36700
Average Depth * Surface Area (ft3):			60759
Estimated Sediment Volume (yd3):			2251
Pond B			
1	7	7	0
2	10	9.7	0.3
3	15.1	14.9	0.2
4	16.7	16.4	0.3
5	15.2	15.2	0
6	12.3	12	0.3
7	7	7	0
Average Depth (feet):			0.16
Surface Area (Square Feet):			18200
Average Depth * Surface Area (ft3):			2860
Estimated Sediment Volume (yd3):			106
Pond C			
1	7.5	7.5	0
2	9.8	8.8	1
3	11.7	10.3	1.4
4	11.9	10.3	1.6
5	11.8	10.9	0.9
6	6	6	0
Average Depth (feet):			0.82
Surface Area (Square Feet):			16600
Average Depth * Surface Area (ft3):			13557
Estimated Sediment Volume (yd3):			502
Pond D			
1	3.5	3.5	0
2	6	6	0
3	10	9.8	0.2
4	9.8	9.8	0
5	9.4	9.3	0.1
6	8.5	8.5	0
7	3.2	3.2	0
Average Depth (feet):			0.04
Surface Area (Square Feet):			8300
Average Depth * Surface Area (ft3):			356
Estimated Sediment Volume (yd3):			13

Location	Depth to Bottom	Depth to Sediment	Depth of Sediment
Pond F			
1	8.5	8.5	0
2	10.8	10.5	0.3
3	11.5	11.5	0
4	12.2	12	0.2
5	13.9	12.7	1.2
6	15.2	14	1.2
7	15.5	14.2	1.3
8	13.2	12.6	0.6
9	13.2	11.2	2
10	8	7.9	0.1
11	13.3	12.5	0.8
Average Depth (feet):			0.70
Surface Area (Square Feet):			100,000
Average Depth * Surface Area (ft3):			70000
Estimated Sediment Volume (yd3):			2593
Pond G			
1	5	5	0
2	8.7	8.7	0
3	16	9.4	6.6
4	16.3	9.4	6.9
5	16	9.5	6.5
6	13.2	9.3	3.9
7	13.2	8.8	4.4
8	13.5	8.5	5
9	9.2	7.7	1.5
10	10.5	8.5	2
11	7.2	6.8	0.4
12	12.5	9.2	3.3
Average Depth (feet):			3.38
Surface Area (Square Feet):			26900
Average Depth * Surface Area (ft3):			90788
Estimated Sediment Volume (yd3):			3363
Pond H			
1	10.1	9.9	0.2
2	13.8	11.5	2.3
3	14.8	11.8	3
4	15	11.8	3.2
5	14.4	11.4	3
6	8	8	0
Average Depth (feet):			1.95
Surface Area (Square Feet):			22200
Average Depth * Surface Area (ft3):			43290
Estimated Sediment Volume (yd3):			1603

APPENDIX I
PHOTO DOCUMENTATION (IN CONJUNCTION WITH ENCLOSED CD)
BARITE HILL GOLD MINE
TRIP REPORT
JUNE 2007

Barite Hill Gold Mine Site

– Taken March 26-30, 2007 and May 21, 2007

McCormick, SC
Remedial Site Evaluation
Photo Documentation

Unnamed Tributary to Hawes Creek

Picture 1
Unnamed Tributary to Hawes Creek – Taken March 26, 2007

Picture 2
Unnamed Tributary to Hawes Creek – Taken March 26, 2007

Picture 3
Unnamed Tributary to Hawes Creek – Taken March 26, 2007

Picture 4
Unnamed Tributary to Hawes Creek Dammed by Beaver – Taken March 26, 2007

Picture 5
Pond Caused by Beaver Dam on Unnamed Tributary to Hawes Creek – Taken March 26, 2007

Picture 6
Pond Caused by Beaver Dam on Unnamed Tributary to Hawes Creek – Taken March 26, 2007

Picture 7
Beaver Pond Outfall into Unnamed Tributary to Hawes Creek – Taken March 26, 2007

Picture 8
Stream Discoloration Just Downstream of Beaver Dam Outfall – Taken March 26, 2007

Picture 9
Another Beaver Dam Along The Unnamed Tributary to Hawes Creek – Taken March 26, 2007

Picture 10
Tributary to The Unnamed Tributary to Hawes Creek From the East – Taken March 26, 2007

Picture 11
Stream in the Area of the Seep
– Taken May 21, 2007

Picture 12
Stream Bank Showing Seepage All Along Bank
– Taken May 21, 2007

Picture 13
Seepage From Under a Tree Along Stream
– Taken May 21, 2007

Main Pit

Picture 14
Access Road to Main Pit From Mine Site
– Taken March 26, 2007

Picture 15
Main Pit Looking East
– Taken March 26, 2007

Picture 16
Main Pit Northwest Corner (with Pollen)
– Taken March 26, 2007

Picture 17
Main Pit Northwest Corner (with Pollen)
– Taken March 26, 2007

Picture 18
Main Pit Looking SW
– Taken March 26, 2007

Picture 19
Location of Minitroll on Eastern Bank of Main Pit
– Taken May 21, 2007

Process Area

Picture 20
Process Area
– Taken March 28, 2007

Picture 21
Pole Barn
– Taken March 27, 2007

Picture 22
Drum D-5 Labeled MEK Located In Pole Barn
– Taken March 27, 2007

Picture 23
Drum D-5 Label Close-Up
– Taken March 27, 2007

Picture 24
Discarded Bags of Quikrete in Pole Barn
– Taken March 27, 2007

Picture 25
Tanks T-1 and T-2 in Process Area
– Taken March 27, 2007

Picture 26
Tank T-1
– Taken March 27, 2007

Picture 27
Tank T-1, Demolished
– Taken March 29, 2007

Picture 28
Tank T-1, Demolished, Other Debris
– Taken May 21, 2007

Picture 29
Tank T-2
– Taken March 27, 2007

Picture 30
Tank T-3
– Taken March 27, 2007

Picture 31
Drums D-1, D-2, D-3 and D-4 Outside Water Treatment Building – Taken March 27, 2007

Picture 32
Drum D-2 With Metering Pump
– Taken March 27, 2007

Picture 33
Drum D-3
– Taken March 27, 2007

Picture 34
Drum D-4
– Taken March 27, 2007

Picture 35
Water Treatment Building Showing Outside Drums Removed
– Taken May 21, 2007

Picture 36
Water Treatment Building NW Corner
– Taken March 27, 2007

Picture 37
Water Treatment Building SW Corner
– Taken March 27, 2007

Picture 38
Water Treatment Building SE Corner
– Taken March 27, 2007

Picture 39
Mixing Tank MT-1 NW Corner of Water Treatment Building (Middle Tank on Floor) – Taken March 27, 2007

Picture 40
Mixing Tank MT-1 Contents – Taken March 27, 2007

Picture 41
Unknown Buckets NW Corner of Water Treatment Building - Taken March 27, 2007

Picture 42
Pallet of Caustic Soda NW Corner of Water Treatment Building - Taken March 27, 2007

Picture 43
NW Corner of Treatment Building MT-1, Buckets and Caustic Soda Removed - Taken May 21, 2007

Picture 44
Empty Drum of Hypersperse AF-150 on Floor of Water Treatment Building - Taken March 27, 2007

Picture 45
Mixing Tank MT-2 Contents
- Taken March 27, 2007

Picture 46
Mixing Tank MT-3 Contents
- Taken March 27, 2007

Picture 47
Mixing Tank MT-4 Contents
- Taken March 27, 2007

Picture 48
Pallet of Sodium Metabisulfite on South Wall of Water Treatment Building - Taken March 27, 2007

Picture 49
Pallet of Sodium Metabisulfite with Chemical Removed - Taken May 21, 2007

Picture 50
Drum D-6 Labeled Hydrochloric Acid on South Wall of Water Treatment Building - Taken March 27, 2007

Picture 51
Close Up of Drum D-6 Label
- Taken March 27, 2007

Picture 52
Drum D-6 Removed
- Taken May 21, 2007

Picture 53
Abandoned Process Pads with Water Treatment Building in Background - Taken March 27, 2007

Picture 54
Entrance to Ingot Room Building - Taken March 27, 2007

Picture 55
Pile of Empty Drums Outside Ingot Room - Taken March 27, 2007

Picture 56
Ingot Room - Taken March 27, 2007

Picture 57
Ingot Room Building Removed
- Taken May 21, 2007

Picture 58
Remains of Ingot Room
- Taken May 21, 2007

Picture 59
Flammables Cabinet Outside Ingot Room
- Taken March 27, 2007

Process Area Process Ponds

Picture 60
Pond A
- Taken March 27, 2007

Picture 61
Pond B
- Taken March 27, 2007

Picture 62
Pond C
- Taken March 27, 2007

Picture 63
Pond D
- Taken March 27, 2007

Picture 64
Pond E
- Taken May 21, 2007

Southern Process Ponds

Picture 65
Southern Process Ponds
- Taken March 28, 2007

Picture 66
Pond F
- Taken March 28, 2007

Picture 67
Pond F Sediment
- Taken March 28, 2007

Picture 68
Pond F Outfall to South
- Taken March 28, 2007

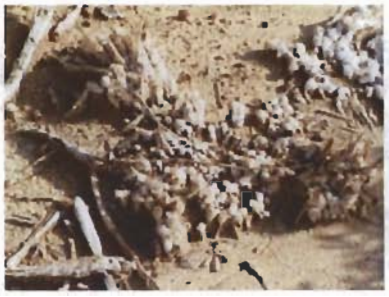
Picture 69
Pond G
- Taken March 28, 2007

Picture 70
Typical Leak Detection Sump Pond G
- Taken March 28, 2007

Picture 71
Pond H
- Taken March 28, 2007

Picture 72
Sediment Depth and Sampling Crew Grossman and Holderness
- Taken March 28, 2007

Picture 73
Crystal Growth North of Ponds G and H in Storm Runoff Areas - Taken March 28, 2007



Picture 74
Lime Pile
- Taken March 29, 2007

Sedimentation Pond

Picture 75
Drainage Leading To Sedimentation Pond South of Process Area - Taken May 21, 2007

Picture 76
Sedimentation Pond
- Taken March 29, 2007

Picture 77
Sedimentation Pond Outfall
- Taken March 29, 2007