

**POST-REMOVAL REPORT**  
of  
**Talache Mine Tailings**  
**Atlanta, Idaho**

**Prepared for:**

**Monarch Greenback, LLC**  
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**MTI File Number: B61567R**  
**March 10, 2007**

MONARCH GREENBACK, LLC  
C/O Mr. Joseph Baird  
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2117 Hillway Drive  
Boise, Idaho 83702

Re: **Post Removal Site Control Report  
Talache Mine Tailings Site  
Atlanta, Idaho**

Gentlemen:

In compliance with the Post-Removal Site Control Plan, MTI conducted site inspections and water quality sampling and contracted for surveying services for the above mentioned Talache Mine Tailings Reclamation Areas located in Atlanta, Idaho. Data have been analyzed to evaluate pertinent geotechnical, geological, botanical and hydrogeological conditions. Results of the inspection, together with our recommendations, are to be found in each related section within the following report.

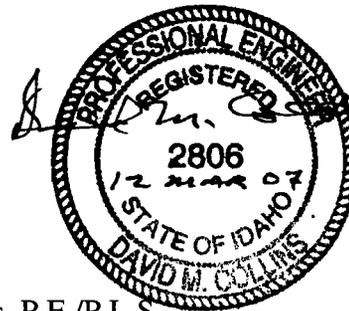
We appreciate this opportunity to be of service to you and we look forward to working with you in the future. If you have questions, please call us at (208)376-4748.

Respectfully Submitted,  
**Materials Testing & Inspection, Inc.**

  
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Environmental Project Manager



David Collins, P.E./P.L.S.  
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## 1.0 INTRODUCTION

This Post-Removal Site Control Report (PRSCR) has been prepared by Materials Testing & Inspection, Inc., (MTI) on behalf of the St. Joe Minerals Corporation (“St. Joe”) and Monarch Greenback, LLC (“Monarch”) for the Tailings Piles Area of the Talache Mine Tailings Site (Site) located near Atlanta, Idaho. This PRSCR includes the inspection findings and maintenance activities for the tailings piles area as required by the Statement of Work issued by the U.S. Environmental Protection Agency in conjunction with the June 2000 AOC.

### 1.1 Purpose and Scope of Inspections

The PRSCR is intended for documentation of inspections for the operations and maintenance (O&M) of the Tailings Piles and associated closure facilities as outlined in the Post-Removal Site Control Plan (PRSCP). The required facilities inspection and related maintenance includes the Upper Tailings Pile (UTP) and Lower Tailings Pile (LTP), all associated run-on and run-off control facilities, the seep collection and treatment facilities downstream of the tailings piles, and the areas downstream of the infiltration system at Pond 6 (north of Forest Service Road No. 268). Groundwater is monitored from a single monitoring well (MW-1) located immediately north of Forest Service Road 268 and approximately 150 feet east of the south end of Pond 6 and additionally from a private domestic well located at the Aastum summer cabin located several hundred feet northwest of MW-1. Vegetation surveys were conducted within the UTP, LTP, and down-gradient areas using point line intercept methodology.

The O&M requirements included inspection, monitoring and maintenance procedures necessary to provide for long-term stability and integrity of the tailings piles closures and to provide for continued protection of human and other environmental receptors at or adjacent to the tailings piles Area. Maintenance activities will include control of noxious weeds, among other items as prescribed in the PRSC Plan.

### 1.2 Site Access

Monarch Greenback, at the time of the 2006 inspection, provided site access. The USEPA has oversight responsibility for all post-removal site operations and maintenance procedures.

### 1.3 Qualifications of Inspection Personnel

Regular inspections and monitoring of the tailings piles closures and Seep Management Systems are performed by personnel experienced in the work to be performed. Stability assessments of the tailings piles closures, including associated run-on and run-off control systems, are performed by an experienced Professional Civil Engineer registered in the State of Idaho. Surveying of settlement monuments and other site features requiring topographic or property line surveys, are performed by a Professional Land Surveyor licensed in Idaho.

MTI geotechnical division was awarded the contract through Monarch Greenback. Surveying requirements at the site were subcontracted to Quadrant Consulting, Inc., a licensed Idaho land surveying company.

The appointment of a local Atlanta resident or qualified on site resident to conduct weekly inspections of discharge from the seep management system during the spring runoff, as of the date of this report, has yet to be determined.

The MTI Inspection team was led by:

1. Mr. David Collins, an Idaho registered professional Civil Engineer and PLS.

The remainder of the MTI inspection team was comprised of:

1. Mr. John Anderson, an Idaho registered professional Geologist and nationally registered Environmental Hydrogeologist
2. Mr. Ben Lehinger, Environmental Scientist/Certified Wetland Assessor

The phases of inspection of the UTP and LTP areas and related run-on and run-off systems in addition to the sediment and infiltration ponds and borrow source area was conducted in October of 2006. The UTP and LTP inspection with elevation surveying, water monitoring and sampling also took place in October, 2006. The weather during the days of inspection was partly cloudy, winds 0-5 mph, and temperature ranging from 50 to 58 degrees F.

## 2.0 TAILINGS PILE CLOSURE INSPECTION

This section provides the results of the inspection for the UTP and LTP closures including the embankments, closure surfaces and associated run-on and run-off control facilities. The inspection of these facilities are to be conducted semi-annually for the first two years of inspection, once in the spring and once in the fall. After the first two years of semi-annual inspections, long-term inspections will then be performed annually each spring, following major storm and flood events, or as additionally described in the PRSC plan.

This inspection was conducted in October of 2006 and includes completion of the Forms and a photographic log as prescribed in section 2.0 of the PRSC plan.

### 2.1 Upper Tailings Pile Inspection

The inspection of the UTP included the closure top surface, embankment, upgradient run-on control channel and culverts, and the run-off control chutes on the north and south sides and the run-off control and seepage ditch along the embankment toe. The total inspection area for the UTP closure and associated run-on and run-off controls included approximately 25 acres within the eastern portion of the Tailings Piles area. The completed UTP inspection forms 1, 2, and 3 are located in Appendix A. Related photographs are located in Appendix F.

#### 2.1.1 UTP Inspection Summary

- a. Embankment and Top Closure Surface
- b. Run-on Control Channel
- c. Run-off Controls and Toe Seep/Runoff Ditch
- d. Vegetative Cover

During the inspections, MTI observed the UTP as well as its associated run-on and run-off control features. At the time of the inspections, no deficiencies were noted within the UTP or associated erosion control and water flow features. No visible erosion was identified within the areas of the UTP embankments or top closure surfaces, nor along the run-on or run-off control channels nor the seep runoff ditch. It was noted that areas along the north lip of the UTP run-off diversion structure, paralleling the east side of the UTP that were covered by a geo-fabric stabilization material, were rather barren of plant growth. The geo-fabric material appeared sound. The lack of plant growth within these areas may be due to poor soil conditions.

Two weeks prior to the inspection, water sampling point #1, located near the northeast corner of the toe of the UTP, was re-established within the toe seep drainage ditch. This was completed by setting a 12 inch diameter, corrugated high-density polyethylene (HDPE) pipe, manufactured by Advanced Drainage Systems (ADS), within the ditch, allowing non-restricted flow to permit proper seep water sample collection. The pipe was anchored in place and partially covered using native soil and rock. This work was completed by Roger Braun, John Anderson, David Collins and John Inama. See photos in Appendix F.

NOTE: A wind fallen tree was found to be located within the channel of the East Fork of Montezuma Creek near the diversion embankment. This fallen tree should be removed from the creek channel. It was also noted that just downstream from the diversion embankment, the north side of the channel bank had been undercut and

partially washed away during the 2006 spring runoff. Both the washed out area and fallen tree positions were flagged. See photographs of these two noted areas with issues in Appendix F.

## **2.2 Lower Tailings Pile Inspection**

The inspection of the LTP included the closure top surface, embankments and runoff control system. The total inspection area included approximately 10 acres on the west side of the Tailings Piles area. The completed LTP inspection forms 4 & 5 are located in Appendix A of this report.

### **2.2.1 LTP Inspection Summary**

- a. Embankment and Top Closure Surface
- b. Runoff control & Runoff Outfall System to Montezuma Creek.
- c. Vegetative Cover

During the inspections, MTI observed the LTP as well as its associated run-on and run-off control features. At the time of the inspections, no deficiencies were noted within the LTP or associated erosion control and water flow features. No visible erosion was identified within the areas of the LTP embankments or Top Closure Surface, nor along the run-on or run-off control channels nor the seep runoff ditch.

Two weeks prior to the inspection, water sampling point #2, located just north of the northeast corner of the toe of the LTP, was re-established within the toe seep drainage ditch containing both UTP & LTP seep water. This was completed by setting an 18 inch diameter ADS pipe within the ditch, allowing non-restricted flow, to permit proper seep water sample collection. The pipe was anchored in place and partially covered using native soil and rock. This work was completed by Roger Braun, John Anderson, David Collins and John Inama. See photos in Appendix F.

NOTE: An additional water seep was sampled at the request of USEPA. This seep was emanating from near the northwest corner of the toe of the LTP and appeared to be migrating from beneath the seep collection ditch. This seep flowed eastward for approximately 70 feet into the borrow ditch along the east side of the Montezuma Creek Road just up gradient from the inflow culvert which directs precipitation and UTP & LTP diverted runoff water into Montezuma Creek. The seep was identified from heavy iron staining. As described in the Site Characterization Report, this seep water may be emanating from the covered springs beneath the LTP.

See vegetation coverage and noxious weed inspection report for the LTP area in Section 6.0.

### **3.0 MONITORING SYSTEMS AT THE TAILINGS PILES**

The inspection of the monitoring systems installed at the tailings piles closures to assess stability of the facilities included established settlement monuments and piezometers.

#### **3.1 Settlement Monuments**

The settlement monitoring devices included 6-inch diameter by 4-foot long reinforced concrete monuments with brass caps. Three settlement monuments are located at the UTP and two settlement monuments are located at the LTP. See Monument Survey Data in Appendix B.

##### **3.1.1 Settlement Monument Inspection Summary**

- a. No significant (more than 0.07 feet) of movement was identified.
- b. Settlement Monument SM-4 exhibited a cracked concrete base in 2005. During the inspection of 2006, this monument base was repaired by the survey crew from Quadrant Engineering.
- c. See Survey report Appendix B.

#### **3.2 Piezometers**

Two open-tube piezometers were installed at the tailings piles closures, one at the UTP and one at the LTP, to monitor water levels within the closures. The UTP piezometer should normally indicate water levels to about 53 feet below top of casing. The LTP piezometer should normally indicate a water level to about 25 feet below top of casing. See piezometer monitoring records in Appendix B.

##### **3.2.1 Piezometer Monitoring Summary**

- a. UTP piezometer water level on 10/20/2005 = 60.61 feet below top of casing
- b. LTP piezometer water level on 10/20/2005 = 29.47 feet below top of casing
- c. UTP piezometer water level on **10/12/2006** = 57.92 feet below top of casing
- d. LTP piezometer water level on **10/12/2006** = 27.41 feet below top of casing

#### **4.0 SEEP MANAGEMENT SYSTEM INSPECTIONS AND MONITORING**

The Seep Management System inspection, comprising parts of both the UTP and LTP, was recorded on forms 7 & 8 and the related monitoring results were recorded on records 3 & 4 of Appendix A. See Section 4.0, page 14 of the PRSC Plan for a detailed description of the Seep Management System.

##### **4.1 Seep Outfall chute and Combined Seep Outfall**

The seepage outflow from the lined collection ditch along the toe of the UTP is conveyed into a 200 foot long, riprap lined outfall chute located along the east side of the LTP closure embankment (face). This portion of the seepage outflow system was inspected for undercutting at the inlet and outlet of the chute as well as displacement of the rock in the chute. The LTP closure embankment was inspected for stability and erosion, particularly adjacent to the edges of the chute riprap.

The seepage flows from the UTP and LTP merge at the north toe of the LTP embankment in a small ditch and 12 inch plastic pipe with riprap outfall to Sedimentation Pond No. 1. This seepage flow outfall extends underneath the runoff chute (24" half-round pipe). This part of the seepage system was inspected for erosion and containment of the seepage flow to insure complete separation from the runoff chute waters that are bypassed into Montezuma Creek. This seepage flow and outfall systems showed no evidence of deficiencies nor erosion.

##### **4.1.1 Summary of Inspection for the Seep Outfall Chute and Combined Outfall**

No degradation nor erosion was identified in either the seep outfall chute or the combined outfall channel. See forms 7 & 8, Appendix A.

##### **4.2 Sedimentation Ponds and Infiltration Areas**

The sedimentation pond system consists of a series of ponds and infiltration areas located northwest of the tailings piles. These ponds and connecting ditches were designed to direct the collected seepage flows through sedimentation traps and aeration treatment with in-pond infiltration. The first two sedimentation ponds cover an area of approximately 0.1 acres and are connected by an open ditch. The third pond (Pond 3-4 combined) covers an area of approximately 0.3 acres and serves as an infiltration unit for the seepage management system. Excess seepage water, as occurring from storm events, is then routed from pond 3-4 to Pond 6, via piping (under road FS268), and then open ditch for final infiltration.

Note: Sampling point #3 was firmly established at the discharge end of the third tier of concrete step downs, which directs the seepage flow water into Pond 2. This sampling point was established to allow for proper sample collection at this point.

##### **4.2.1 Summary of Sediment Ponds and Infiltration Area Inspections**

The inspection showed no sediment buildup, erosion, overtopping, blockages, clogging, nor structural inadequacies for those components of the sedimentation ponds and infiltration areas.

### 4.3 Final Infiltration Area

The final infiltration area was located within Pond 6, northwest of the seep management ponds, north of USFS road No. 268. Wet season overflow from Pond 3-4 is diverted into Pond 6. An emergency spillway is located at the north end of Pond 6. The inspections of the sedimentation ponds and infiltration system will be made at the frequency and duration shown in Table 2-1 of the PRSC. The inspection showed no blockages, clogging, sediment buildup, nor erosion within the final infiltration area.

Two weeks prior to the inspection, water sampling point #4, located just north of FS road 268, was established within the channel that conveys water from Pond 3-4 to Pond 6. This measurement location was completed by setting a 12 inch diameter ADS pipe within the ditch, allowing non-restricted flow, to permit proper seep water sample collection. The pipe was anchored and partially covered using native soil and rock. This work was completed by Roger Braun, John Anderson, David Collins and John Inama. See photos in Appendix F.

#### 4.3.1 Summary of Final Infiltration Area Inspection

The inspection showed no erosion or debris buildup in the inflow ditch, infiltration area nor the emergency spillway.

### 4.4 Monitoring Sampling & Analysis

Sampling and analysis for monitoring of the seep water management system was performed in accordance with existing procedures that were utilized previously at the site (MFG, 2003c). Monitoring locations 2-6 were designated in the PRSC as follows, Monitoring location #1 was added during the initial inspection:

1. Sampling point #1, UTP seep water collected at a point just below the UTP
2. Sampling point #2, Combined UTP & LTP seep water collected at a point just below the LTP
3. Sampling point #3, Partially treated seep water entering Pond 2.
4. Sampling point #4, seep water that may seasonally flow via pipeline/ditch to Pond 6
5. MW-1, Groundwater downgradient of Pond 3/4 (monitoring well)
6. Aastum well, Groundwater down gradient of Pond 6
7. Periodic discharges from Pond 6

#### 4.4.1 Summary of Sampling & Analysis Results

#### 2006 Water Quality Data

**Table 1 – Summary of Talache Mine Water Quality Results – Atlanta, Idaho**

Sample ID	Date	Total Arsenic mg/l	Dissolved Arsenic mg/l	Total Iron mg/l	Dissolved Iron mg/l	D.O. ppm	ORP (Eh) (mV)	pH	Cond. (uS/cm)	Temp. (F)	Flow gpm
S-1	10-12-06	0.837	0.738	5.18	4.39	7.50	-068	7.1	270	48.0	6.0
S-2	10-12-06	3.700	3.31	4.38	3.64	7.40	-061	7.2	311	48.7	7.5
S-3	10-12-06	0.769	0.699	0.14	0.04	9.29	+080	7.9	308	48.6	7.9
S-4	10-12-06	0.625	0.612	0.03	<0.01	8.13	112	7.9	275	50.2	4.3
M - Well #1	10-12-06	0.036	0.006	6.06	<0.01	5.96	121	7.0	248	54.0	NA
Aastum well	10-12-06	<0.003	0.006	0.38	<0.01	5.26	90	7.0	168	53.1	NA
LTP new Seep Disch.	10-12-06	4.36	NA	21.3	NA	NA	NA	NA	2000	NA	1.6

D.O. = Dissolved Oxygen, ORP = Oxydation Reduction Potential, pH = Acidity, Cond. = Conductivity, Temp. = Temperature

**NOTE:** Sample collection for sampling points #1 through #4, Monitoring Well #1 and the Aastum well was accomplished by the following, See Appendix F for Complete Water Quality Results Spread Sheet:

- a. collecting water in two gallon dedicated buckets;
- b. measuring water flow using buckets and stop watch;
- c. using Hanna, hand held, digital instruments for the measurements of D.O., ORP, pH, Cond., and Temp.;
- d. using a Geotech model hand pump for filtered (0.45 micron) sample collection for dissolved metals analysis;
- e. Monitoring Well #1 was purged of three well volumes prior to sample collection using a battery operated peristaltic low volume pump;
- f. The Aastum well was purged of a minimum of three well volumes prior to sample collection using the dedicated submersible pump;
- g. Clean latex rubber gloves were utilized at each sampling point and the Geotech hand pump was decontaminated following each sample collection with de-ionized water and the tubing replaced.
- h. Following sample collection, each sample was placed in a cooler on ice for transport to the laboratory.

## 5.0 COLLUVIAL BORROW AREA

The colluvial borrow area is located approximately ½ mile northeast of the tailings piles area along the southeast side of USFS Road No. 268. The area is approximately 11 acres in size and was reclaimed following development. The borrow area was inspected for erosion rills and gullies. The inspection results were recorded on form 9 located in Appendix A. In summary, there were no erosion rills, gullies, or melt water washouts. Vegetation was noted to be sparse.

### 5.1 Colluvial Borrow Area Drainage and Runoff Control Facilities

Drainage from the borrow area is diverted to the north along USFS Road No. 268 via a drainage ditch approximately 900 feet long. The collected drainage water at the northeast side of the borrow area is diverted north, under the USFS Road via 24 inch culvert, into a natural north trending drainage way located north of borrow area. The Colluvial Borrow Area Drainage control was inspected for erosion and the drainage culvert inspected for blockage at the inlet and erosion at the outlet side. During the inspection, some sedimentation was noted on the outlet side of this culvert, although no action is required at this time. No erosion was identified along the drainage ditch. See Appendix A for inspection forms.

#### 5.1.1 Colluvial Borrow Area Drainage and Runoff Inspection Summary

Other than mentioned above, no erosion, build-up, nor blockage of the Drainage and Runoff Control Facilities was observed.

## 6.0 VEGETATION SURVEY REPORT

As per the PRSC Plan requirements, Mr. Benjamin Lehinger, environmental scientist for MTI, performed a Vegetation Assessment on the Talache Mine Tailings Site using the point-intercept method (Bonham, C.D. 1989 Measurements for Terrestrial Vegetation, John Wiley & Sons, NY. 338p.) The assessment was completed on October 12 and 13, 2006.

### 6.1 Survey Methodology

Point Intercept (PO) method is used to assess changes in plant species cover or ground cover for a macroplot. This method uses a narrow diameter-sampling pole or sampling pins, placed at systematic intervals along line transects to sample within plot variation and quantify statistically valid changes in plant species cover and height over time. Plant species or ground cover classes, which touch the pin, are recorded as “hits” along a transect. The type of material (e.g. vegetation biomass, soil, rock, etc.) is recorded at each assigned point, or intercept, along the transect line. Percent cover is calculated by dividing the number of hits for each plant species or ground cover class by the total number of points along a transect.

Vegetation cover measurements were taken using two (2) transects per assessment of the revegetated areas. Each transect was 50 meters long and were randomly placed. The type of ground cover was observed and recorded at one meter intervals along the transect line. Thus 100 points per transect were recorded.

The vegetation assessment addressed percent ground coverage, species abundance, vegetation quality, and noxious weeds. Due to the time of the assessment, in late fall, MTI was unable to assess the condition of the

vegetation because the majority of the plants were dead. Because this was MTI's first vegetation assessment of the Talache Mine Tailings Site a vegetation trend was not assessed.

Revegetation success standards were judged by the percent ground cover of the existing vegetation and litter, and by the percent of species represented by the original seed mix. Ground cover was defined as the area of ground surface covered by the combination of the aerial portion of the vegetation plus the litter that is produced naturally by the existing on-site vegetation. This measurement excludes rock materials and bare ground. The combination of plant canopy cover and litter shall be at least 70% of that of a reference/background area of adjacent undisturbed native vegetation.

Vegetation quality criteria were based on the abundance of species on the site and vegetation condition. Species abundance describes the number of times a particular species is encountered in a given number of sample points, or the number of hits in the point-intercept line transect, and is expressed as a percentage. Vegetation quality criteria shall be proclaimed successful if at least 50% of the species counted in the plant canopy cover measurements are from the original seed mixture. Additionally, noxious weeds shall represent not more than 5% of the plant canopy cover.

## 6.2 Vegetation Survey Areas

One vegetation assessment was conducted in the revegetated area of lots 2, 3, and 4; one transect was conducted in the revegetated area of lots 9 and 10; three transects were conducted in the revegetated recreational area; two transects were conducted on the upper tailings pile, and one transect was conducted on the lower tailings pile. A transect north of the recreational area and a transect located on a vacant lot west of and adjacent to Mine Hill road were completed for background comparison. See Appendix D for Transect location Maps.

## 6.3 Vegetation Survey Results

The results of the vegetation assessment are in detail on the attached spreadsheet in the appendix. Field forms are also included in the appendix. The following are the results of the Vegetation Assessment excluding species types and species abundances.

### Lots 2, 3, 4 Transect

- Percent Ground Cover: 75%
- Vegetation Quality (Percent Seeded): 61%
- Noxious Weeds: 0%

### Lots 9 & 10 Transect

- Percent Ground Cover: 74%
- Vegetation Quality (Percent Seeded): 50%
- Noxious Weeds: 0%

Recreational Area Transect 1

- Percent Ground Cover: 87%
- Vegetation Quality (Percent Seeded): 85%
- Noxious Weeds: 0%

Recreational Area Transect 2

- Percent Ground Cover: 81%
- Vegetation Quality (Percent Seeded): 65%
- Noxious Weeds: 0%

Recreational Area Transect 3

- Percent Ground Cover: 77%
- Vegetation Quality (Percent Seeded): 66%
- Noxious Weeds: 0%

Upper Tailings Pile Transect 1

- Percent Ground Cover: 75%
- Vegetation Quality (Percent Seeded): 47%
- Noxious Weeds: 5%

Upper Tailings Pile Transect 2

- Percent Ground Cover: 73%
- Vegetation Quality (Percent Seeded): 74%
- Noxious Weeds: 0%

Lower Tailings Pile Transect

- Percent Ground Cover: 73%
- Vegetation Quality (Percent Seeded): 74%
- Noxious Weeds: 11%

Background Transect 1

- Percent Ground Cover: 96%
- Vegetation Quality (Percent Seeded): 3%
- Noxious Weeds: 0%

Background Transect 2

- Percent Ground Cover: 82%
- Vegetation Quality (Percent Seeded): 3%
- Noxious Weeds: 0%

### 6.3.1 *Vegetation Assessment Survey Summary*

According to the results of the Vegetation Assessment, all of the areas had greater than 70% coverage in comparison to that of a reference/background area of adjacent undisturbed native vegetation. The results also show that 50% of the species counted in the plant canopy cover measurements are from the original seed mixture. Only one transect had noxious weeds greater than 5%, which was the Lower Tailings Pile Transect. Lower Tailings Pile Transect had 11% Spotted Knapweed, *Centaurea stoebe*.

## 7.0 DISCUSSION OF PRSC INSPECTION AND RECOMMENDED ACTIONS

During the inspections, MTI observed the UTP as well as its associated run-on and run-off control features. At the time of the inspections, no deficiencies were noted within the UTP or associated erosion control and water flow features. No visible erosion was identified within the areas of the UTP embankments or top closure surfaces, nor along the run-on or run-off control channels nor the seep runoff ditch. It was noted that areas along the north lip of the UTP run-off diversion structure, paralleling the east side of the UTP that were covered by a geo-fabric stabilization material, were rather barren of plant growth. The geo-fabric material appeared sound. The lack of plant growth within these areas may be due to poor soil conditions. There are no recommended actions at this time.

A wind fallen tree was found to be located within the channel of the East Fork of Montezuma Creek near the diversion embankment. This fallen tree should be removed from the creek channel. It was also noted that just downstream from the diversion embankment the north side of the channel bank had been undercut and partially washed away during the 2006 spring runoff. The creek channel should be stabilized within the area that was undercut.

During the inspections, MTI observed the LTP as well as its associated run-on and run-off control features. At the time of the inspections, no deficiencies were noted within the LTP or associated erosion control and water flow features. No visible erosion was identified within the areas of the LTP embankments or Top Closure Surface, nor along the run-on or run-off control channels nor the seep runoff ditch. There are no recommended actions at this time.

The results of the survey indicated a maximum of 0.02 inches of movement for the UTP and LTP areas. Settlement Monument SM-4 exhibited a cracked concrete base in 2005. During the inspection of 2006, this monument base was repaired by the survey crew from Quadrant Engineering. There are no further recommended repair actions at this time.

The Seep Management Systems inspection, comprising parts of both the UTP and LTP showed no degradation nor erosion in either the seep outfall chute or the combined outfall channel. There are no recommended actions at this time.

The inspection showed no sediment buildup, erosion, overtopping, blockages, clogging, nor structural inadequacies for those components of the sedimentation ponds and infiltration areas. There are no recommended actions at this time.

The inspection of the Final Infiltration area showed no erosion or debris buildup in the inflow ditch, infiltration area, nor the emergency spillway. There are no recommended actions at this time.

The inspection within the Colluvial Borrow Source Area indicated no erosion rills, gullies, or melt water washouts. The Colluvial Borrow Area Drainage and Runoff control structures showed no erosion, build-up, nor blockages; therefore, there are no recommended actions at this time

Water quality sampling indicated relatively high concentrations of arsenic occur at location S-2 located below the LTP. The majority of the arsenic concentration occurs as the dissolved phase. In addition, the relatively high concentration of dissolved iron indicates the primary source at this area is from groundwater. Concentrations decrease at water sampling points down gradient of S-2. Future sampling results will allow further evaluation and assessment of water quality trends.

According to the results of the Vegetation Assessment, all of the areas had greater than 70% coverage in comparison to that of a reference/background area of adjacent undisturbed native vegetation. The results also show that 50% of the species counted in the plant canopy cover measurements are from the original seed mixture. Only one transect had noxious weeds greater than 5%, which was the Lower Tailings Pile Transect. The Lower Tailings Pile Transect had 11% Spotted Knapweed, *Centaurea stoebe*. If further Vegetation Assessments indicate an increase in Spotted Knapweed, corrective action is recommended.

**8.0**

**APPENDICES**

**APPENDIX A**

**Inspection & Maintenance Forms**

**Form 1 - UTP Embankments and Top Closure Surface - cont.**

	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>MISCELLANEOUS</b>			
Damage to settlement monuments	<i>None</i>		
Damage to piezometer	<i>None</i>		
Barbed wire fence/gates	<i>OK where fence</i>		
Other	<i>—</i>		

Form 2  
 Inspection and Maintenance  
 Upper Tailings Pile  
 Runon Control Channel, Seepage Collection System and  
 East Fork Montezuma Creek Diversion

DATE/TIME: <i>12 October 2006</i>		WEATHER CONDITIONS: <i>Clear, Calm</i>	
PERSONNEL:		TEMPERATURE: <i>~ 60°F</i>	
	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>RUNON CONTROL CHANNEL</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Channel riprap stability	<i>Stable</i>		
Geotextile	<i>OK</i>		
Vegetative growth	<i>Not Growing ± 60%</i>		
Ponding	<i>None</i>		
Sedimentation	<i>None</i>		
Drainage swale convergence	<i>OK</i>		
Other	—		
<b>EMBANKMENT</b>			
General condition	<i>Good</i>		
Stability	<i>Stable</i>		
Erosion	<i>None</i>		
Rock buttress movement	<i>None</i>		
Rock slope erosion	<i>None</i>		
Turf Reinforcement Mat	<i>Good</i>		
Vegetative growth	<i>Not Growing @ 60% ±</i>		
Other	—		

**Form 2 - UTP Runon Control Channel, Seepage Collection System  
and E. Fork Montezuma Creek Diversion - cont.**

	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>ROCK SLOPE PROTECTION AND ROCK BUTTRESS</b>			
General condition	<i>Good</i>		
Rock displacement	<i>None</i>		
Undercutting	<i>None</i>		
Erosion	<i>None</i>		
Other	<i>—</i>		
<b>SEDIMENT CONTROL STRUCTURES</b>			
General condition	<i>Good</i>		
Stability	<i>Stable</i>		
Erosion	<i>None</i>		
Debris	<i>None</i>		
Other	<i>—</i>		
<b>SEEPAGE COLLECTION SYSTEM</b>			
General condition/Ponding	<i>Good/None</i>		
Seep area	<i>OK</i>		
8" HDPE drain pipe inlet	<i>OK</i>		
Concrete drain box	<i>OK</i>		
4" ADS drain pipe outlet	<i>OK</i>		
Overflow port	<i>OK</i>		
Other	<i>—</i>		

**Form 2 - UTP Runon Control Channel, Seepage Collection System  
and E. Fork Montezuma Creek Diversion - cont.**

	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>24" GMPs (2) AT FOREST SERVICE RD. 207</b>			
General condition	Good		
Inlet	Clear		
Sedimentation	None		
Outlet	Clear		
Other	—		
<b>EAST FORK MONTEZUMA CREEK DIVERSION</b>			
General condition	FAIR	Fallen tree in channel — to be removed	
Erosion of Banks	yes	a short length of the north side of channel Eroded	Need backhoe for repair
Sedimentation	None		
Other	—		

**Form 3**  
**Inspection and Maintenance**  
**Upper Tailings Pile**  
**Runoff Controls and Toe Seep/Runoff Ditch**

DATE/TIME: <i>12 October, 2006</i>		WEATHER CONDITIONS: <i>Clear, Calm</i>	
PERSONNEL: <i>Dave Collins</i> <i>John Anderson</i>		TEMPERATURE: <i>~60°F</i>	
	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>RUNOFF CONTROL CHUTE TO LOWER TAILINGS PILE</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Sedimentation	<i>None</i>		
Ponding	<i>None</i>		
Placement of riprap	<i>Good</i>		
Geotextile	<i>OK</i>		
Turf Reinforcement Mat	<i>OK</i>		
Vegetative growth	<i>OK - ~70%</i>		
Other	<i>—</i>		
<b>SEEP COLLECTION DITCH TO TOP OF LTP EMBANKMENT</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Sedimentation	<i>MINOR</i>		
Turf Reinforcement Mat	<i>OK - minimally exposed</i>		
Vegetative growth	<i>OK - ~70%</i>		
Other	<i>—</i>		

Form 3 - UTP Runoff Controls and Toe Seep/Runoff Ditch - cont.

	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>RUNOFF CONTROL CHANNEL (SOUTH)</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Sedimentation	<i>None</i>		
Vegetative growth	<i>OK - ~70%</i>		
Diked deflection area (overtopping)	<i>None</i>		
Other	<i>—</i>		
<b>18" CMP AT FOREST SERVICE RD 207</b>			
Inlet	<i>Clear</i>		
Sedimentation	<i>Minor</i>		
Outlet	<i>Clear</i>		
Other	<i>—</i>		
<b>MISCELLANEOUS</b>			
Barbed wire fence/gates	<i>OK</i>		
Other			

**Form 4**  
**Inspection and Maintenance**  
**Lower Tailings Pile**  
**Embankments and Top Closure Surface**

DATE/TIME: <i>12 October, 2006</i>		WEATHER CONDITIONS: <i>Clear, Calm</i>	
PERSONNEL: <i>John Anderson</i> <i>David Collins</i>		TEMPERATURE: <i>~60°F</i>	
	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>TOP CLOSURE SURFACE</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Stability	<i>Stable</i>		
Vegetative growth	<i>Not Growing</i>		
Vegetative coverage	<i>OK - ~60%</i>		
Ponding	<i>None</i>		
Other	<i>—</i>		
<b>RUNOFF CONTROL BERM</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Stability	<i>Stable</i>		
Other			
<b>EMBANKMENTS</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Stability	<i>Stable</i>		
Sloughing	<i>None</i>		
Vegetative growth	<i>Not Growing</i>		
Vegetative coverage	<i>~58%</i>		
Seepage (visible)	<i>None</i>		
Toe Seep/Runoff Ditch	<i>OK</i>		
Other	<i>— Minor Seepage coming under seep ditch near N.W. corner of L.T.P.</i>		

**Form 4 - LTP Embankments and Top Closure Surface - cont.**

	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>MISCELLANEOUS</b>			
Damage to settlement monuments	<i>Repaired</i>	<i>cracked Base re-concreted</i>	<i>concrete</i>
Damage to piezometer	<i>None</i>		
Barbed wire fence/gates	<i>OK</i>		
Other			

Form 5  
 Inspection and Maintenance  
 Lower Tailings Pile  
 Runoff Controls and Runoff Outfall System to Montezuma Creek

DATE/TIME: <i>12 October, 2006</i>		WEATHER CONDITIONS: <i>Clear, Calm</i>	
PERSONNEL: <i>John Anderson David Collins</i>		TEMPERATURE: <i>~60°F</i>	
	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>RUNOFF CONTROL DITCH (NORTH) TO RUNOFF CHUTE</b>			
<b>CHANNEL</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Sedimentation	<i>None</i>		
Vegetative growth	<i>OK ± 50%</i>		
Other	—		
<b>24" CMP</b>			
Inlet	<i>Clear</i>		
Sedimentation	<i>None</i>		
Outlet to runoff chute (erosion)	<i>No Erosion</i>		
Other	—		
<b>RUNOFF CONTROL DITCH (SOUTH) TO CULVERT</b>			
<b>CHANNEL</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Sedimentation	<i>None</i>		
Vegetative growth	<i>OK - ± 40%</i>		
Other	—		
<b>CULVERT UNDER FOREST SERVICE RD. 207</b>			
Inlet	<i>Clear</i>		
Sedimentation	<i>None</i>		
Outlet	<i>Clear</i>		
Other	—		

Form 5

LTP Runoff Controls and Runoff Outfall System to Montezuma Creek - cont.

	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>TOE DRAINAGE DITCH</b>			
<b>DITCH</b>			
General condition	Good		
Erosion	None		
Sedimentation	None		
Turf Reinforcement Mat	OK		
Vegetative growth	OK ± 50%		
Other	—		
<b>6" PVC PIPE AT TOE</b>			
Inlet	Clear		
Sedimentation	None		
Outlet	Clear		
Other	—		
<b>RUNOFF CONTROL GULCH - TOP OF LTP EMBANKMENT TO DIVERSION DAM</b>			
General condition	Good		
Concrete cutoff wall	OK		
Channel erosion	None		
Stability	stable		
Sedimentation	None		
Placement of riprap	OK		
Riprap stability	stable		
Other			
<b>DIVERSION DAM</b>			
General condition	Good		
Stability	stable		
Rock displacement	None		
Undercutting	None		
Debris	None		
Geomembrane exposed?	No		
Other	—		

Form 5

LTP Runoff Controls and Runoff Outfall System to Montezuma Creek - cont.

	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>HALF ROUND 36" GMP</b>			
Inlet	Clear		
Joints	OK		
Erosion along edges	None		
Coating	Good		
Outlet	Clear		
Other	—		
<b>DISSIPATION AREA</b>			
General condition	Good		
Stability	Stable		
Rock displacement	OK		
Undercutting	None		
Debris	Clear		
Other	—		
<b>24" GMP UNDER FOREST SERVICE RD. 207</b>			
Inlet	Clear		
Sedimentation	None		
Outlet	Clear		
Other	—		
<b>CHANNEL TO MONTEZUMA CREEK</b>			
General condition	Good		
Erosion	None		
Sedimentation	Minor		
Placement of riprap	OK		
Geotextile	OK		
Vegetative growth	Good ± 20%		
Overland flow to Montezuma Creek	Highly Vegetated		
Other	—		

**Form 6**  
**Inspection and Maintenance**  
**Monitoring Systems at Tailings Piles**

DATE/TIME: <i>12 October, 2006</i>		WEATHER CONDITIONS: <i>Calm, Clear</i>	
PERSONNEL: <i>John Anderson</i> <i>David Collins</i>		TEMPERATURE: <i>60°F</i>	
	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
Settlement Monuments	<i>Good</i>		
Condition of Concrete Monuments	<i>Good</i>	<i>monument SM-4 repaired</i>	<i>re-concrete base</i>
Erosion or Material Displacement Around Monument	<i>None</i>		
UTP Piezometer Condition - Casing, Locking Top, Verticality Erosion	<i>Good</i>	<i>new lock</i>	
LTP Piezometer Condition - Casing, Locking Top, Verticality Erosion	<i>Good</i>	<i>new lock</i>	

**Form 7**  
**Inspection and Maintenance**  
**Seep Control System**  
**Seep Outfall Chute and Combined Seep Outfall**

<b>DATE/TIME:</b> 12-October, 2006		<b>WEATHER CONDITIONS:</b> Clear, Calm	
<b>PERSONNEL:</b> John Anderson David Collins		<b>TEMPERATURE:</b> ~60°F	
	<b>CONDITION</b>	<b>COMMENTS</b> (Maintenance/Repair Needed)	<b>MAINTENANCE PROCEDURE</b>
<b>SEEP OUTFALL DITCH</b>			
General condition	Good		
Erosion	None		
Sedimentation	None		
Riprap stability	Good		
Geotextile	OK		
Vegetative growth	OK ±50%		
Convergence with toe ditch flow below LTP	OK		
Other	—		
<b>12" ADS PIPE OUTFALL</b>			
Inlet	Clear		
Sedimentation	None		
Other	—		

**Form 8**  
**Inspection and Maintenance**  
**Seep Control System**  
**Sedimentation Ponds and Infiltration Areas**

DATE/TIME: <i>12 October, 2006</i>		WEATHER CONDITIONS: <i>Calm, Clear</i>	
PERSONNEL: <i>John Anderson</i> <i>Dave Collins</i>		TEMPERATURE: <i>~ 60° F</i>	
	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>SEDIMENTATION POND NO 1</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Sedimentation	<i>minimal</i>		
Embankments	<i>stable</i>		
Vegetative growth	<i>Good on Banks</i>		
Seepage	<i>None Visible</i>		
Spillway	<i>Good Cond.</i>		
Other	<i>—</i>		
<b>SEDIMENTATION POND NO 2</b>			
General condition	<i>Good</i>		
Erosion	<i>None</i>		
Sedimentation	<i>minimal</i>		
Embankments	<i>Stable</i>		
Vegetative growth	<i>Good on Banks</i>		
Seepage	<i>Non Visible</i>		
Spillway	<i>Good Cond.</i>		
Other	<i>—</i>		

**Form 8 - Seep Control System - Sedimentation Ponds - cont.**

	CONDITION	COMMENTS (Maintenance/Repair Needed)	MAINTENANCE PROCEDURE
<b>SEDIMENTATION INFILTRATION POND NO 3-4</b>			
General condition	Good		
Erosion	None		
Sedimentation	minimal		
Embankments	Good		
Vegetative growth	Good on banks		
Seepage	Non visible		
Inflow into Pond No. 4	Good		
Overflow pipe, supports and trashrack	Good		
Barbed wire fence/gates	Good	new lock	
Other	_____		
<b>INFILTRATION AREA POND 6 (NORTH OF FOREST SERVICE RD. 268)</b>			
General condition	Good		
Pipeline from Pond 3-4 to Pond 6	Low flow w 2 gpm		
Inflow ditch to Pond 6	Low flow w 3 gpm		
Dike Adjacent to Infiltration Trench	Good		
Top of Infiltration Trench	OK - clear		
Erosion	None		
Ponding (water depth)	None		
Discharge from Pond 6	None		
Vegetative growth	Good on pond banks		
Other	_____		

**Form 9**  
**Inspection and Maintenance**  
**Colluvial Borrow Area**

<b>DATE/TIME:</b> 12 October, 2006		<b>WEATHER CONDITIONS:</b> Clear, Calm	
<b>PERSONNEL:</b> John Anderson Dave Collins		<b>TEMPERATURE:</b> ~60°F	
	<b>CONDITION</b>	<b>COMMENTS</b> (Maintenance/Repair Needed)	<b>MAINTENANCE PROCEDURE</b>
<b>Borrow Area</b>			
General condition	Stable		
Erosion	minimal		
Stability	Stable		
Vegetative growth	Good ~60%		
Ponding	None		
Other	—		
<b>24" CMP GULVERT AT FOREST SERVICE RD. 268</b>			
General condition	Good		
Inlet	Clear		
Sedimentation	minimal		
Outlet	Clear	- minor sediment buildup	
Other	—		

**APPENDIX B**

**Monitoring Records**

**RECORD 1  
MONITORING RECORDS  
SETTLEMENT MONUMENTS AT TAILINGS PILES**

DATE/TIME:		WEATHER CONDITIONS:	
PERSONNEL:		TEMPERATURE:	
SETTLEMENT MEASUREMENTS	NORTHING	EASTING	ELEVATION
UPPER TAILINGS PILE	8667.44	14064.66	5689.75
Settlement Monument SM-1	8676.44	14038.70	5689.64 (ft, AMSL)
Settlement Monument SM-2	8775.49	14231.34	5690.99 (ft, AMSL)
Settlement Monument SM-3	9025.24	14151.87	5688.27 (ft, AMSL)
LOWER TAILINGS PILE	9189.22	13471.54	5599.42
Settlement Monument SM-4	9065.57	13600.83	5606.00 (ft, AMSL)
Settlement Monument SM-5	9207.77	13451.52	5598.12 (ft, AMSL)

Note: Indicate any significant movement (>2") from previous measurement.

*None, sm-5 showed an elevation change of -0.07'*

February 15, 2007



Mr. John Anderson  
Materials Testing and Inspection  
7446 W. Lemhi St.  
Boise, ID 83709

RE: Talache Mine Tailings Pile- 2006 Settlement Monument Survey

Dear John,

On October 12, 2006, Quadrant Consulting Inc. surveyed the 3 existing settlement monitoring monuments on the upper tailing pile and 2 monuments on the lower tailings pile at the Talache Mine located Southeast of Atlanta, Idaho.

Using a Sokkia Set 2120 Total station with a Sokkia SDR33 data collector, Quadrant surveyed the monuments. For this survey we held the published position from the May 2004 Data of Settlement Monument 1. The basis of bearing used was calculated inverse between Settlement Monuments Number 1 and Number 3. The monuments appeared to be in good condition with the exception of SM-4, which had a broken concrete base. We surveyed SM-4 "as is" and then repaired the monument. Below you will see data for the SM-4 Monument both before and after the repair.

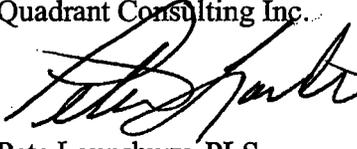
We found the horizontal and vertical coordinates to closely agree with the previous years survey data (Exhibit A). Below are the results of the 2006 settlement monument survey. The final column shows the vertical difference between the October 2006 results and the October 2005 results. The last two rows of data for the upper and lower piezometers are from the 2005 survey. The upper and lower piezometers were not surveyed on the October 2006 trip.

OCTOBER 2006 SETTLEMENT MONUMENT DATA US SURVEY FEET				
MONUMENT	NORTHING	EASTING	ELEVATION	Δ ELEVATION
SM-1	8676.44	14038.70	5689.64	0.00' (HELD)
SM-2	8775.49	14231.34	5690.99	+0.04'
SM-3	9025.24	14151.87	5688.27	+0.02'
SM-4	9065.51	13600.86	5606.09	-0.03' (BROKEN)
SM-4	9065.57	13600.83	5606.00	N/A (REPAIRED)
SM-5	9207.77	13451.52	5598.12	-0.07'
UTP	8667.44	14064.66	5689.75	2005 DATA
LTP	9189.22	13471.54	5599.42	2005 DATA

It should be noted that the horizontal and vertical datum appear to be a local project datum. We have found that the project elevations are approximately 19.2' lower than those on the North American Vertical Datum of 1988 (NAVD 88).

John if you have any questions please don't hesitate to call.

Sincerely,  
Quadrant Consulting Inc.

  
Pete Lounsbury, PLS  
Idaho PLS No. 7876



**EXHIBIT A**

**OCTOBER 2005 SETTLEMENT MONUMENT DATA  
(US SURVEY FEET)**

MONUMENT	NORTHING	EASTING	ELEVATION
SM-1	8676.44	14038.70	5689.64
SM-2	8775.49	14231.36	5690.95
SM-3	9025.24	14151.87	5688.25
SM-4	9065.49	13600.86	5606.12
SM-5	9207.77	13451.52	5598.19
UTP	8667.44	14064.66	5689.75
LTP	9189.22	13471.54	5599.42

**RECORD 2  
MONITORING RECORDS  
PIEZOMETERS AT TAILINGS PILES**

DATE/TIME: <i>12 October, 2006</i>	WEATHER CONDITIONS: <i>Clear, Calm</i>
PERSONNEL: <i>John Anderson Ben Lehinger</i>	TEMPERATURE: <i>~ 50° F</i>
<b>PIEZOMETER MEASUREMENTS AT TAILINGS PILES</b>	
<b>UPPER TAILINGS PILE</b>	
UTP Piezometer: depth to water	<i>57.92 ft. below T.O.C.</i> (ft)
UTP Piezometer: water elevation	<i>5,631.83 ft. AMSL</i> (ft, AMSL)
<b>LOWER TAILINGS PILE</b>	
LTP Piezometer: depth to water	<i>27.41 ft. below T.O.C.</i> (ft)
LTP Piezometer: water elevation	<i>5,662.34 ft. AMSL</i> (ft, AMSL)

Note: Indicate any significant rise in water levels (>3') from previous measurement.

**RECORD 3**  
**SEEP WATER MANAGEMENT SYSTEM**  
**GROUNDWATER MONITORING WELL**

DATE/TIME: <i>12 October, 2006</i>	WEATHER CONDITIONS: <i>Clear, Calm</i>
PERSONNEL: <i>John Anderson</i> <i>Ben Lehinger</i>	TEMPERATURE: <i>~55°F</i>
<b>GROUNDWATER MONITORING WELL BELOW SEEP MANAGEMENT SYSTEM</b>	
Depth to Water	<i>13.13 ft. below T.O.C.</i> (ft)
Water Elevation	<i>No Survey Data</i> (ft, AMSL)
<b>SAMPLING MEASUREMENTS</b>	
Sampling Method	<i>Peristaltic (low volume) Pump</i> (bailer or peristaltic pump)
Sampling Depth	<i>~ 16' below T.O.C.</i> (ft.)
Temperature	<i>50°F</i> (°C)
pH	<i>6.93</i> (std. units)
Specific Conductance	<i>516 uS/cm</i> (Minhos/cm)
Remarks:	
<b>SAMPLING INVENTORY</b>	
Bottles Collected (No. & Vol.; glass or plastic)	<i>Plastic, two Per Sample, 400 ml containers (10 total)</i>
Filtration	<i>- yes - One filtered in field at 0.45 micron - one not filtered</i> (y/n)
Preservation Type	<i>No Preservatives - to Lab within 24 hrs of acquisition</i>
Remarks: <i>Analyzed for Fe, As, totals &amp; dissolved</i>	
<b>QUALITY ASSURANCE</b>	
Methods (Cleaning & Sampling)	<i>Standard EPA Protocols</i>
Instruments	<i>meters - pH, EDC, ORP, Temp, D.O., &amp; Peristaltic Pump</i>
Remarks: <i>Used laboratory supplied bottles</i>	

Note: Perform groundwater monitoring and sampling in accordance with SOP No. 11 (Appendix C).

# SURFACE WATER SAMPLING RECORD-3A

SAMPLE NUMBER: #1 <sup>filtered</sup> ~~non-filtered~~

Project No: B615671 Project Name: Talache Mine Page 1 of 6  
 Sampled by John Anderson Date: 12-October, 2006  
 Weather (@ sampling): Clear, Calm Weather (past 48 hrs.) Clear, Calm

Sampling Location (i.d., description): UTP Seepage - Sample Point #1

Water Body (describe type, flow): Seepage collection ditch, flow ~ 6.0 gpm

## QUALITY ASSURANCE

METHODS (describe):  
 Cleaning Equipment: EPA Decon Procedures / Laboratory supplied Bottles  
 Sampling: Surface water standard sampling technique  
 INSTRUMENTS (indicate make, model, i.d.):  
 Flow Measurement: ~ 4.5 gpm / Bucket <sup>stop watch</sup> Thermometer: Hanna hand held  
 pH Meter: Hanna pH, ep hand held Field Calibration: DI H<sub>2</sub>O  
 Conductivity Meter: Hanna EC, TDS, T Field Calibration: DI H<sub>2</sub>O  
 Filtration: field filtered, 0.45um, Geotech <sup>vacuum pump</sup> Other: LORE latex gloves

## SAMPLING MEASUREMENTS

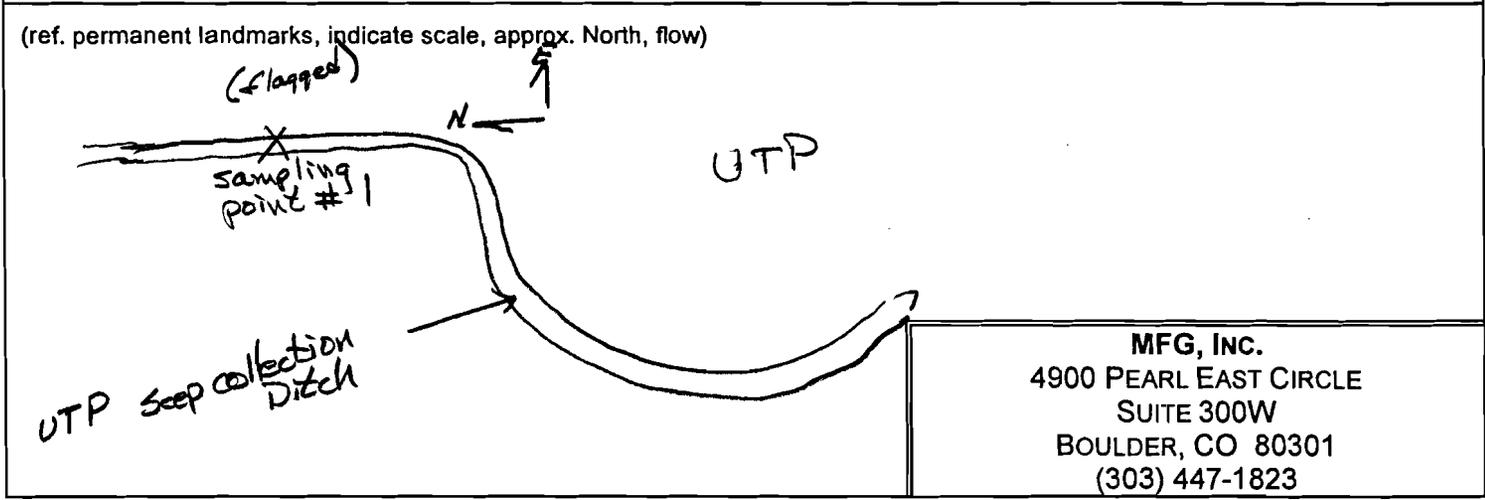
Time	Sampling Depth (ft.)	Water Quality Data				Appearance		Remarks (debris, sheen, etc.)
		Temp. (°C)	pH	Specific Conductance (µmhos/cm)		Color	Turbidity & Sediment	
				@ Field Temp.	@ 25° C.			
<u>10:00am</u>	<u>6"</u>	<u>8.9</u>	<u>7.1</u>	<u>8.9</u>		<u>Clear</u>	<u>None</u>	<u>Light Fe sheen</u>

Flow @ Sampling Point (units): gpm ~ 4.5 Total Depth @ Sampling Point (Ft.): 8 inches

## SAMPLE INVENTORY

Time	Volume	Bottles Collected		Filtration (Y/N)	Preservation (type)	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity			
<u>10:00</u>	<u>800ml</u>	<u>2 Plastic 400ml</u>	<u>2</u>	<u>1 Filtered / 1 Non-filtered</u>	<u>none</u>	<u>N/A</u>

## SAMPLING LOCATION MAP



Note: This form to be completed for all sampling points S1, S2 and S3. Perform water quality sampling in accordance with MFG SOP No. 12 (Appendix C) and water flow rate measurements in accordance with SOP No. 15 (Appendix C), as applicable.

# SURFACE WATER SAMPLING RECORD-3A

SAMPLE NUMBER: # 2 <sup>non filtered</sup>

Project No: 0615671 Project Name: Talache Mine Page 2 of: 6

Sampled by John Anderson Date: 12-October, 2006

Weather (@ sampling): Clear, Calm ~50°F Weather (past 48 hrs.) Clear, Calm

Sampling Location (i.d., description): LTP seepage collection ditch - Sampling point #2

Water Body (describe type, flow): Collection Ditch w 7.5 gpm

## QUALITY ASSURANCE

METHODS (describe):

Cleaning Equipment: Standard EPA Decon Procedures

Sampling: water collection in 400ml plastic containers - One filtered - one non filtered

INSTRUMENTS (indicate make, model, i.d.):

Flow Measurement: Bucket & Stop Watch

Thermometer: Hanna hand held

pH Meter: Hanna hand held

Field Calibration: DI H<sub>2</sub>O

Conductivity Meter: Hanna hand held

Field Calibration: DI H<sub>2</sub>O

Filtration: Vacuum Pump & 0.45um filter

Other: Latex gloves

## SAMPLING MEASUREMENTS

Time	Sampling Depth (ft.)	Water Quality Data				Appearance		Remarks (debris, sheen, etc.)
		Temp. (°C)	pH	Specific Conductance (µmhos/cm)		Color	Turbidity & Sediment	
@ Field Temp.	@ 25° C.							
10:45	6"	9.29	7.2	YES		Clear	None	No Visible Sheen

Flow @ Sampling Point (units): 7.5 gpm

Total Depth @ Sampling Point (Ft.): 12"

## SAMPLE INVENTORY

Time	Volume	Bottles Collected		Filtration (Y/N)	Preservation (type)	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity			
10:45	800ml	2 Plastic 400 ml	2	1 Filtered 1 Non-Filtered	none	N/A

## SAMPLING LOCATION MAP

(ref. permanent landmarks, indicate scale, approx. North, flow)



**MFG, INC.**  
 4900 PEARL EAST CIRCLE  
 SUITE 300W  
 BOULDER, CO 80301  
 (303) 447-1823

Note: This form to be completed for all sampling points S1, S2 and S3. Perform water quality sampling in accordance with MFG SOP No. 12 (Appendix C) and water flow rate measurements in accordance with SOP No. 15 (Appendix C), as applicable.

Project No: 0615671 Project Name: Talache Mine Page 3 of: 6

Sampled by John Anderson Date: 12-October, 2006

Weather (@ sampling): Clear, Calm, ~53°F Weather (past 48 hrs.) Clear, Calm

Sampling Location (i.d., description): Sampling Point #3 - Tiered inlet to Pond #2

Water Body (describe type, flow): Inlet flume to Pond #2, Flow ~ 7.9 gpm

**QUALITY ASSURANCE**

METHODS (describe):  
 Cleaning Equipment: Standard EPA Decon Procedures  
 Sampling: water collect in 400ml plastic containers, one filtered - one non filtered  
 INSTRUMENTS (indicate make, model, i.d.):  
 Flow Measurement: Bucket & stop watch Thermometer: Hanna hand held  
 pH Meter: Hanna hand held Field Calibration: DI H<sub>2</sub>O  
 Conductivity Meter: Hanna hand held Field Calibration: DI H<sub>2</sub>O  
 Filtration: Vacuum Pump & 0.45micron filter Other: latex gloves

**SAMPLING MEASUREMENTS**

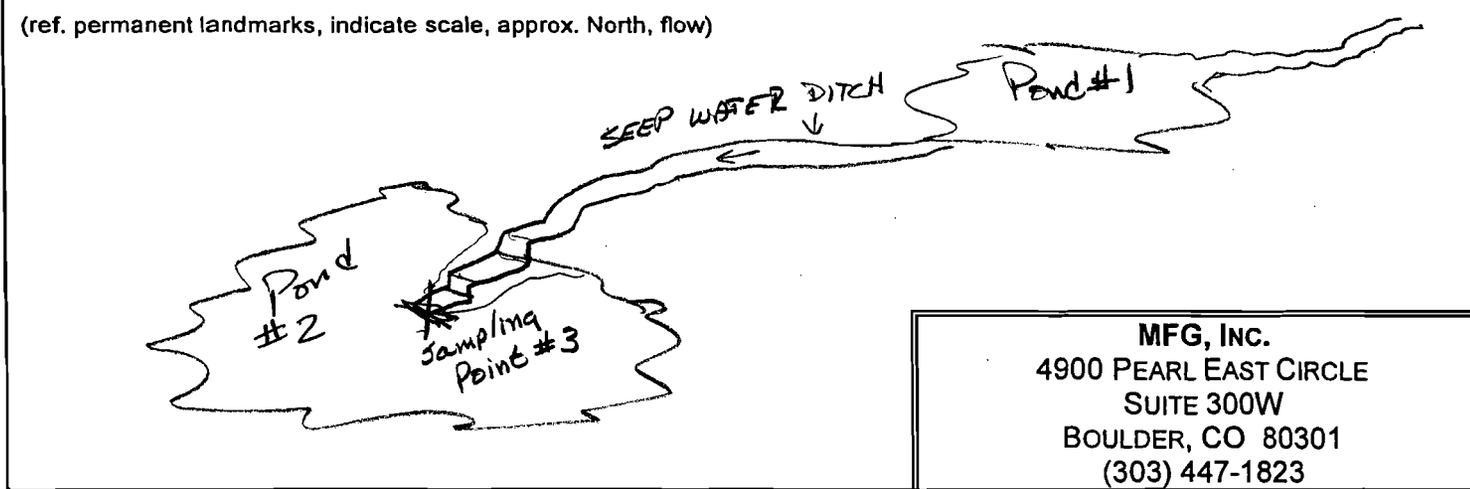
Time	Sampling Depth (ft.)	Water Quality Data				Appearance		Remarks (debris, sheen, etc.)
		Temp. (°C)	pH	Specific Conductance (µmhos/cm)		Color	Turbidity & Sediment	
				@ Field Temp.	@ 25° C.			
<u>11:15</u>	<u>Outfall</u>	<u>9.23</u>	<u>7.9</u>	<u>9.23</u>		<u>Clear</u>	<u>NO</u>	<u>No Visible Sheen</u>

Flow @ Sampling Point (units): \_\_\_\_\_ Total Depth @ Sampling Point (Ft.): \_\_\_\_\_

**SAMPLE INVENTORY**

Time	Volume	Bottles Collected		Filtration (Y/N)	Preservation (type)	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity			
<u>11:15</u>	<u>800ml</u>	<u>2 Plastic 400 ml</u>	<u>2</u>	<u>1 filtered 1 non-filtered</u>	<u>none</u>	<u>N/A</u>

**SAMPLING LOCATION MAP**



Note: This form to be completed for all sampling points S1, S2 and S3. Perform water quality sampling in accordance with MFG SOP No. 12 (Appendix C) and water flow rate measurements in accordance with SOP No. 15 (Appendix C), as applicable.

Project No: B615671 Project Name: Talacke Mine Page 4 of: 6

Sampled by John Anderson Date: 12-October, 2006

Weather (@ sampling): Clear, Calm, ~55°F Weather (past 48 hrs.) Clear, Calm

Sampling Location (i.d., description): Sampling Point #4, Ditch water from Pond 3-4 to Pond 6

Water Body (describe type, flow): Ditch water from Lagoons - ~ 4.3 gpm

**QUALITY ASSURANCE**

METHODS (describe):  
 Cleaning Equipment: Standard EPA Decon Procedures  
 Sampling: water collected in 400ml plastic containers, one filtered, one non filtered  
 INSTRUMENTS (indicate make, model, i.d.):  
 Flow Measurement: Bucket & stopwatch Thermometer: Hanna hand held  
 pH Meter: Hanna hand held Field Calibration: DI H<sub>2</sub>O  
 Conductivity Meter: Hanna hand held Field Calibration: DI H<sub>2</sub>O  
 Filtration: Vacuum Pump & 0.45um filter Other: Latex Gloves

**SAMPLING MEASUREMENTS**

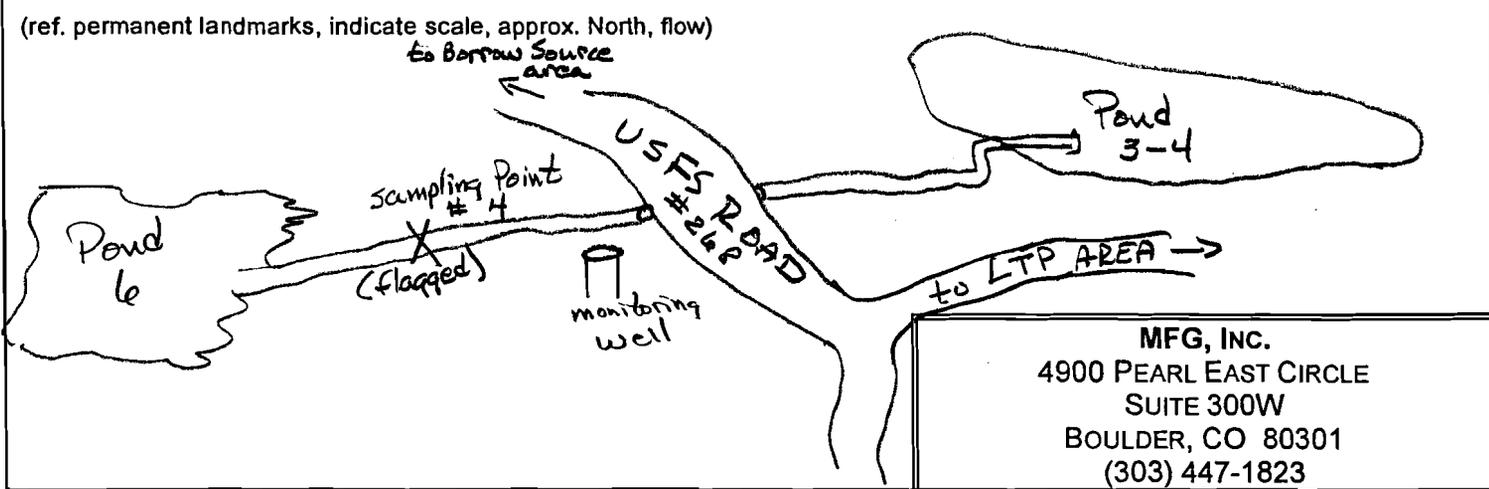
Time	Sampling Depth (ft.)	Water Quality Data				Appearance		Remarks (debris, sheen, etc.)
		Temp. (°C)	pH	Specific Conductance (µmhos/cm)		Color	Turbidity & Sediment	
				@ Field Temp.	@ 25° C.			
12:00	6"	10.12	7.6	10.12		Clear	None	No Sheen

Flow @ Sampling Point (units): 4.3 gpm Total Depth @ Sampling Point (Ft.): 6"

**SAMPLE INVENTORY**

Time	Volume	Bottles Collected		Filtration (Y/N)	Preservation (type)	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity			
12:00	800ml	400 ml Plastic	2	1 filtered 1 non filtered	none	N/A

**SAMPLING LOCATION MAP**



Note: This form to be completed for all sampling points S1, S2 and S3. Perform water quality sampling in accordance with MFG SOP No. 12 (Appendix C) and water flow rate measurements in accordance with SOP No. 15 (Appendix C), as applicable.

Project No: B615675 Project Name: Talache Mine Page 5 of: 6  
 Sampled by John Anderson Date: 12-October, 2006  
 Weather (@ sampling): Clear, Calm w 55°F Weather (past 48 hrs.) Clear, Calm  
 Sampling Location (i.d., description): Monitoring Well MW-1

Water Body (describe type, flow): Groundwater

**QUALITY ASSURANCE**

**METHODS (describe):**

Cleaning Equipment: Standard EPA Decon Procedures  
 Sampling: Low volume Parastatic Pump for purging & sampling collection

**INSTRUMENTS (indicate make, model, i.d.):**

Flow Measurement: None Thermometer: Hanna  
 pH Meter: Hanna hand held Field Calibration: DI H<sub>2</sub>O  
 Conductivity Meter: Hanna Field Calibration: DI H<sub>2</sub>O  
 Filtration: Vacuum Pump & 0.45 micron filter Other: Latex gloves

**SAMPLING MEASUREMENTS**

Time	Sampling Depth (ft.)	Water Quality Data				Appearance		Remarks (debris, sheen, etc.)
		Temp. (°C)	pH	Specific Conductance (µmhos/cm)		Color	Turbidity & Sediment	
				@ Field Temp.	@ 25° C.			
1:00	15'	12.23	7.0	12.23		Slightly Cloudy	Slight	Minor suspended Particles

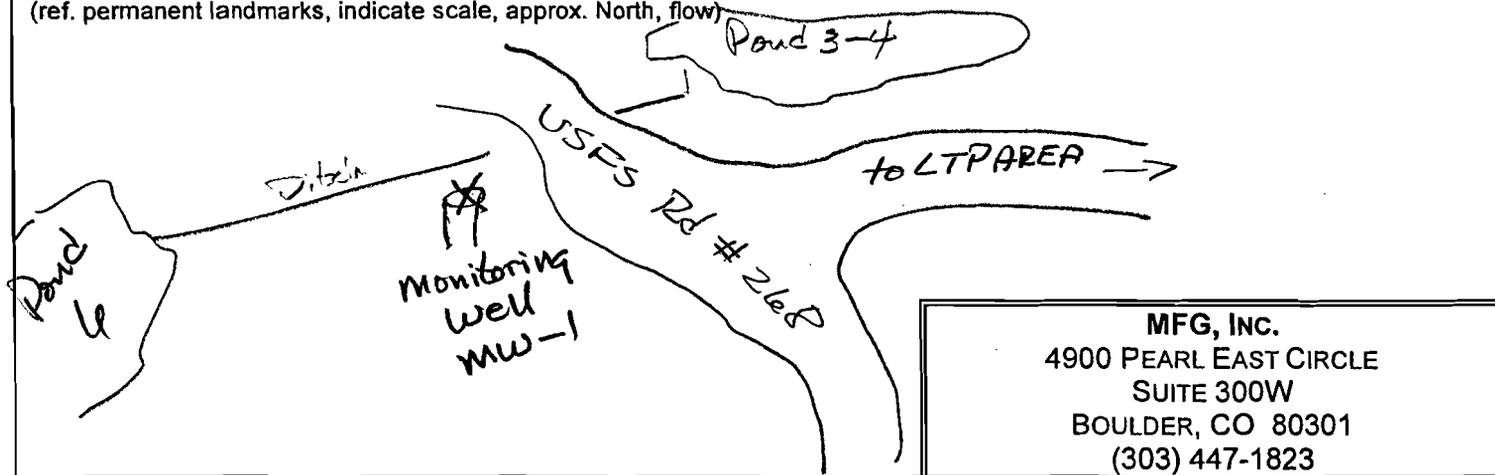
Flow @ Sampling Point (units): Low volume Total Depth @ Sampling Point (Ft.): 15'

**SAMPLE INVENTORY**

Time	Volume	Bottles Collected		Filtration (Y/N)	Preservation (type)	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity			
1:00	800ml	400 ml Plastic	2	1 filtered 1 non-filtered	none	n/a

**SAMPLING LOCATION MAP**

(ref. permanent landmarks, indicate scale, approx. North, flow)



Note: This form to be completed for all sampling points S1, S2 and S3. Perform water quality sampling in accordance with MFG SOP No. 12 (Appendix C) and water flow rate measurements in accordance with SOP No. 15 (Appendix C), as applicable.

Project No: 0615671 Project Name: Talache Mine Page 6 of: 6

Sampled by John Anderson Date: 12-October, 2006

Weather (@ sampling): Clear, Calm ~ 55°F Weather (past 48 hrs.): Clear, Calm

Sampling Location (i.d., description): Aastum Domestic Well

Water Body (describe type, flow): Groundwater

**QUALITY ASSURANCE**

METHODS (describe):  
 Cleaning Equipment: Standard EPA Decon Procedures

Sampling: Collected from well head via permanent submersible pump

INSTRUMENTS (indicate make, model, i.d.):

Flow Measurement: N/A Thermometer: Hanna

pH Meter: Hanna Field Calibration: DE H<sub>2</sub>O

Conductivity Meter: Hanna Field Calibration: DE H<sub>2</sub>O

Filtration: Vacuum Pump & 0.45 micron filter Other: Latex Gloves

**SAMPLING MEASUREMENTS**

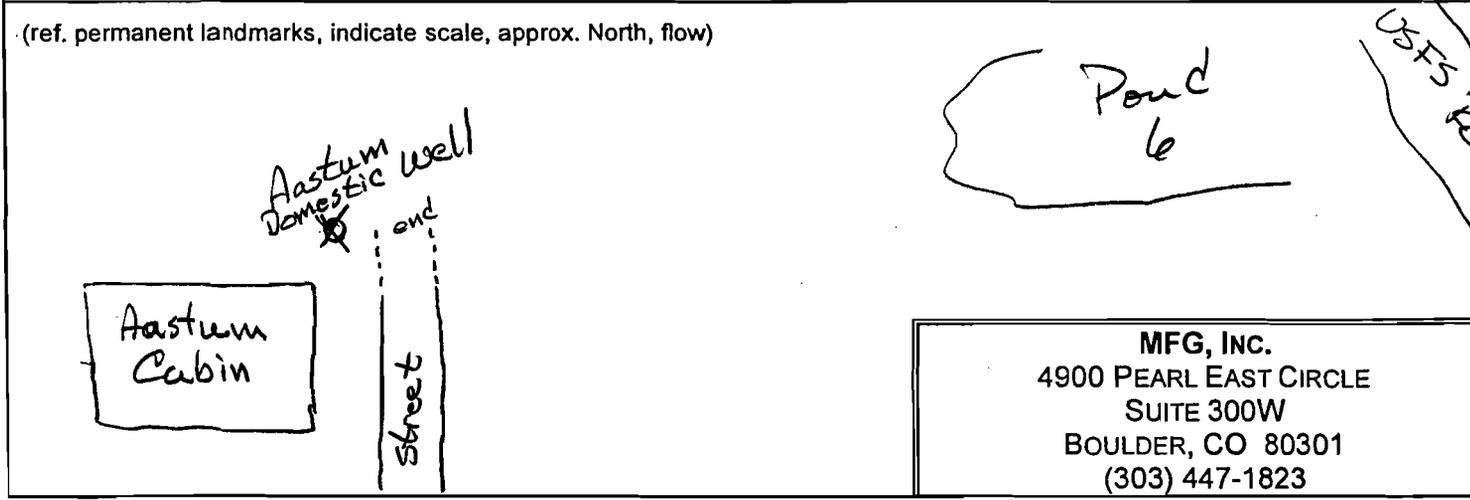
Time	Sampling Depth (ft.)	Water Quality Data				Appearance		Remarks (debris, sheen, etc.)
		Temp. (°C)	pH	Specific Conductance (µmhos/cm)		Color	Turbidity & Sediment	
				@ Field Temp.	@ 25° C.			
<u>2:00</u>	<u>Unknown</u>	<u>11.73</u>	<u>7.0</u>	<u>168.1 µS/cm</u>		<u>Clear</u>	<u>None</u>	

Flow @ Sampling Point (units): \_\_\_\_\_ Total Depth @ Sampling Point (Ft.): ~ 80'

**SAMPLE INVENTORY**

Time	Volume	Bottles Collected		Filtration (Y/N)	Preservation (type)	Remarks (quality control sample, other)
		Composition (glass, plastic)	Quantity			
<u>2:00</u>	<u>800ml</u>	<u>Plastic Containers</u>	<u>2</u>	<u>1 - filtered 1 - non-filtered</u>	<u>None</u>	

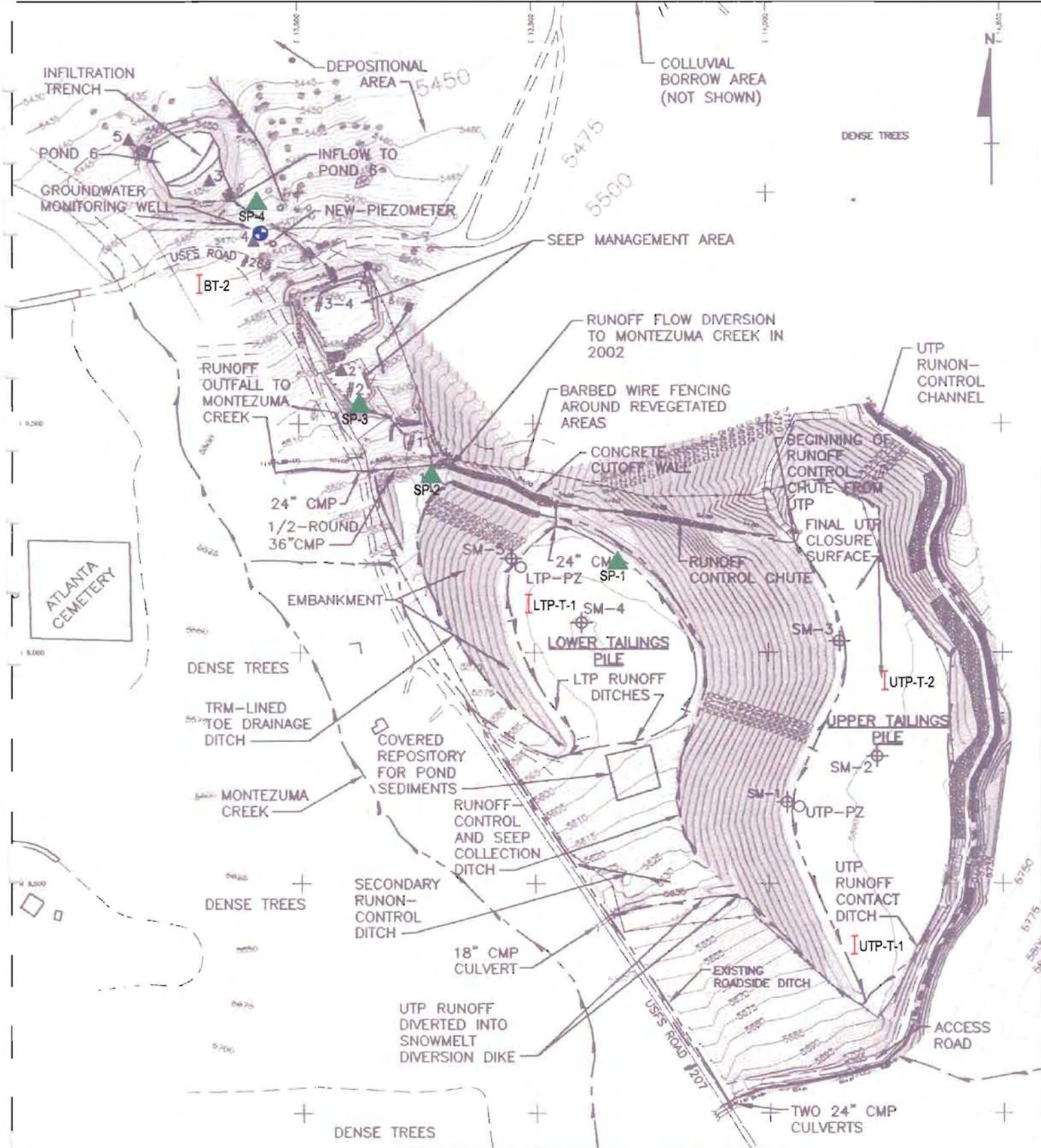
**SAMPLING LOCATION MAP**



Note: This form to be completed for all sampling points S1, S2 and S3. Perform water quality sampling in accordance with MFG SOP No. 12 (Appendix C) and water flow rate measurements in accordance with SOP No. 15 (Appendix C), as applicable.

## **APPENDIX C**

### **Site Vicinity & Plan Maps with Water Sampling Locations**



2791 S. Victory View Way  
Boise, ID 83709-2835  
208 376-4748  
Fax: 208 322-6515  
mti@mti-id.com

Talache Mine Tailings Site  
Atlanta, ID

Drawn by: ZBS  
09 February 2007  
Drawing: B61567r

LEGEND

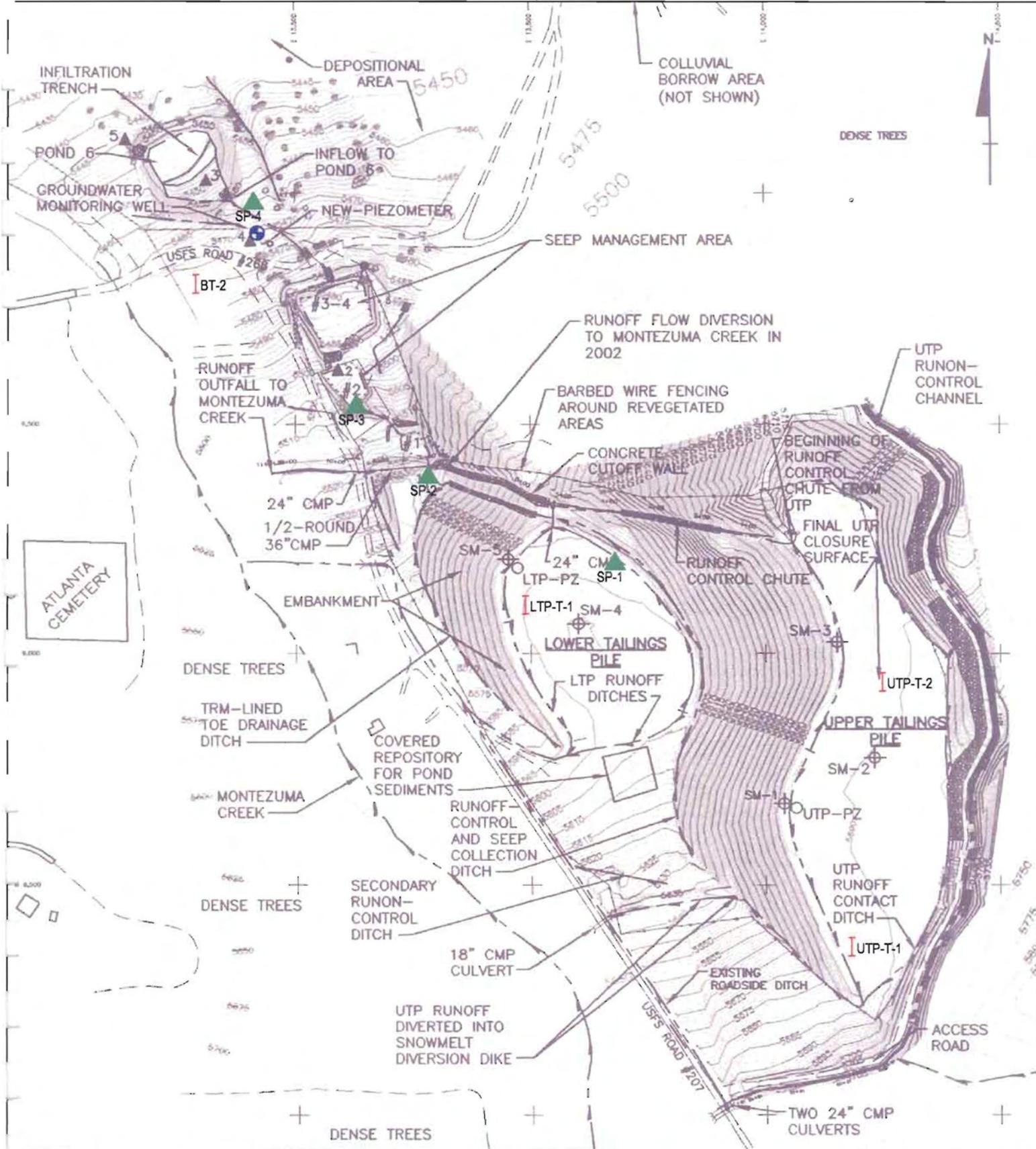
- MTI Transect Locations I
- Seep Water Sampling Points ▲

NOTES:  
Not to Scale



**APPENDIX D**

**Vegetation Survey Transect Location Map & Point Intercept Forms**



**MATERIALS TESTING & INSPECTION**

2791 S. Victory View Way  
Boise, ID 83709-2835

208 376-4748  
Fax: 208 322-6515  
mti@mti-id.com

**Talache Mine Tailings Site**  
Atlanta, ID

Drawn by: ZBS  
09 February 2007  
Drawing: B61567r

**LEGEND**

MTI Transect Locations I

Seep Water Sampling Points ▲

**NOTES:**  
Not to Scale





NOTES:

- Not to Scale

LEGEND



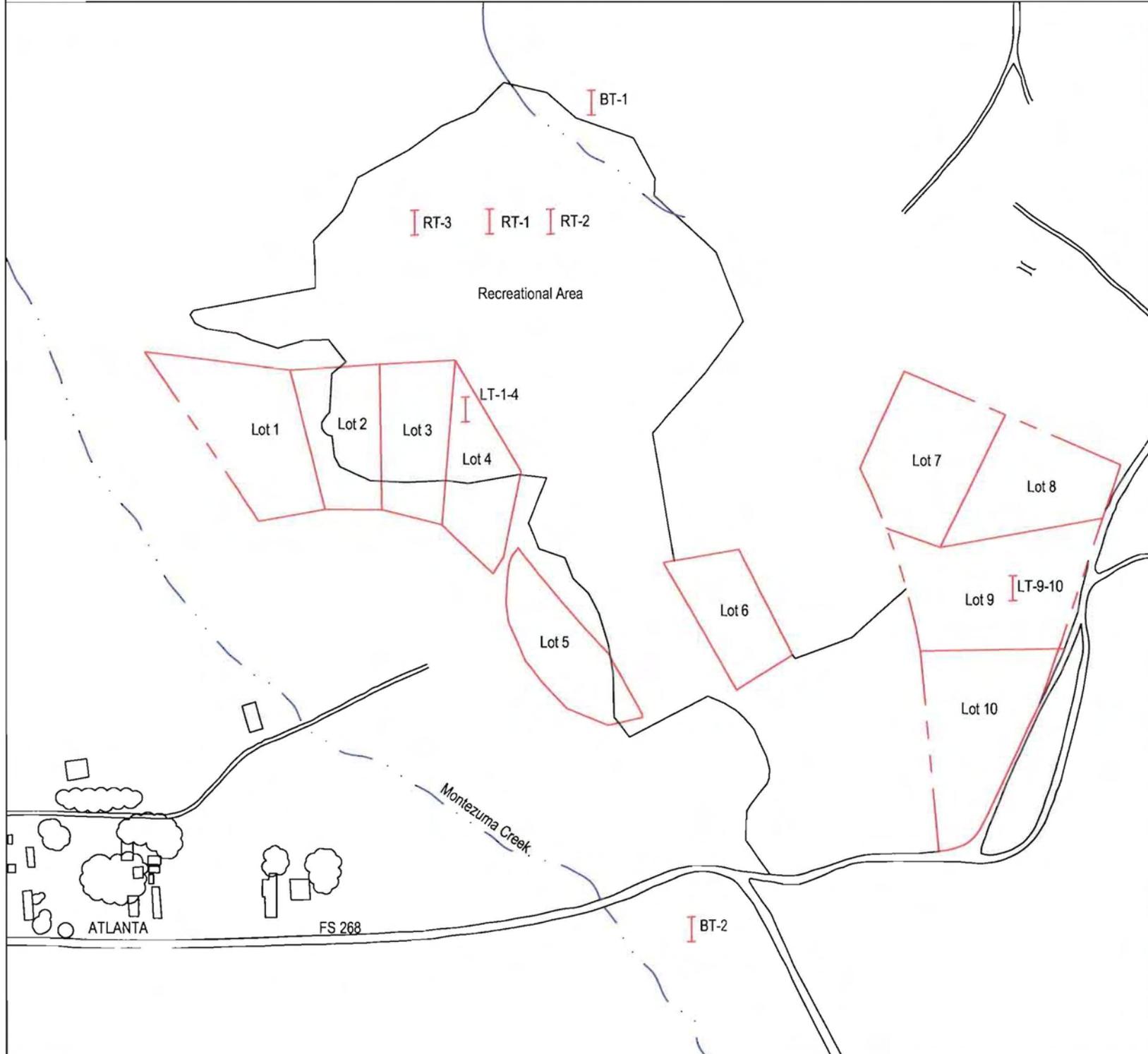
Talache Mine Tailing Site

Atlanta, ID

Modified by: ZBS  
 09 February 2007  
 Drawing: B61567r



2791 S. Victory View Way  
 Boise, ID 83709-2835  
 208 376-4748  
 Fax: 208 322-6515  
 mti@mti-id.com



**NOTES:**

- Not to Scale

**LEGEND**

- Site Boundary 
- MTI Transect Locations 



**Talache Mine Tailing Site**  
Atlanta, ID

Drawn by: ZBS  
09 February 2007  
Drawing: B61567r



2791 S. Victory View Way  
Boise, ID 83709-2835  
208 376-4748  
Fax: 208 322-6515  
mti@mti-id.com

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

UPPER TAILINGS POND TRANSECT 1

	<u>TRANSECT 1</u>		<u>TRANSECT 2</u>		Species Abundance
	Vegetation	Non-vegetation	Vegetation	Non-vegetation	
<b>ACMI2</b>	<b>12</b>	-	<b>16</b>	-	<b>28%</b>
LICHEN	10	-	-	-	10%
GRAVEL	-	2	-	10	0%
STONE	-	3	-	3	0%
CRVU2	5	-	-	-	5%
BARE GROUND	-	5	-	2	0%
LITTER	1	-	4	-	5%
UNK GRASS	4	-	1	-	5%
PASM	7	-	7	-	14%
<b>PEST2</b>	<b>1</b>	-	<b>1</b>	-	<b>2%</b>
<b>AGTR</b>	-	-	<b>5</b>	-	<b>5%</b>
DAGL	-	-	1	-	1%
TOTAL	40	10	35	15	
<b>% GROUND COVER</b>	<b>75%</b>				<b>*Bolted items were seeded</b>
<b>% SEEDED</b>	<b>47%</b>				<b>*Shaded items are noxious weeds</b>

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

**UPPER TAILINGS POND TRANSECT 2**

	<u>TRANSECT 1</u>		<u>TRANSECT 2</u>		Species Abundance
	Vegetation	Non-vegetation	Vegetation	Non-vegetation	
<b>ACMI2</b>	<b>10</b>	-	<b>17</b>	-	<b>27%</b>
LICHEN	4	-	-	-	4%
GRAVEL	-	9	-	6	0%
STONE	-	2	-	3	0%
BARE GROUND	-	3	-	3	0%
LITTER	3	-	7	-	10%
UNK GRASS	-	-	-	-	0%
PASM	3	-	2	-	5%
<b>PEST2</b>	-	-	<b>1</b>	-	<b>1%</b>
<b>AGTR</b>	<b>16</b>	-	<b>10</b>	-	<b>26%</b>
FINE GRAVEL	-	-	-	1	0%
TOTAL	<hr/> 36	14	37	<hr/> 13	
<b>% GROUND COVER</b>	<b>73%</b>				<b>*Boded items were seeded</b>
<b>% SEEDED</b>	<b>74%</b>				

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

**LOWER TAILINGS POND TRANSECT**

	<u>TRANSECT 1</u>		<u>TRANSECT 2</u>		Species Abundance
	Vegetation	Non-vegetation	Vegetation	Non-vegetation	
<b>ACMI2</b>	<b>7</b>	-	<b>11</b>	-	<b>18%</b>
LICHEN	2	-	-	-	2%
GRAVEL	-	3	-	7	0%
STONE	-	6	-	2	0%
<b>CESTA</b>	<b>8</b>	-	<b>8</b>	-	<b>11%</b>
BARE GROUND	-	1	-	6	0%
LITTER	4	-	1	-	5%
SPAR	2	-	1	-	3%
PASM	5	-	4	-	9%
<b>PEST2</b>	<b>1</b>	-	<b>1</b>	-	<b>2%</b>
<b>AGTR</b>	<b>6</b>	-	<b>8</b>	-	<b>14%</b>
<b>BRMA4</b>	<b>6</b>	-	<b>6</b>	-	<b>12%</b>
TOTAL	41	10	35	15	
<b>% GROUND COVER</b>	<b>76%</b>				<b>*Bolted items were seeded</b>
<b>% SEEDED</b>	<b>61%</b>				<b>*Shaded items are noxious weeds</b>

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

**BACKGROUND 2 WEST OF TAILINGS PILES**

	<u>TRANSECT 1</u>		<u>TRANSECT 2</u>		Species Abundance
	Vegetation	Non-vegetation	Vegetation	Non-vegetation	
<b>ACMI2</b>	<b>11</b>	-	<b>6</b>	-	<b>17%</b>
LICHEN	-	-	-	-	0%
GRAVEL	-	3	-	5	0%
STONE	-	3	-	-	0%
<b>ROWO</b>	<b>1</b>	-	-	-	<b>1%</b>
BARE GROUND	-	3	-	4	0%
LITTER	4	-	3	-	7%
SPAR	5	-	3	-	8%
PASM	4	-	3	-	7%
PLLA	5	-	10	-	15%
<b>AGTR</b>	<b>2</b>	-	-	-	<b>2%</b>
<b>BRMA4</b>	<b>9</b>	-	<b>16</b>	-	<b>25%</b>
TOTAL	41	9	41	9	
<b>% GROUND COVER</b>	<b>82%</b>				<b>*Bolted items were seeded</b>
<b>% SEEDED</b>	<b>55%</b>				

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

**LOTS 9 & 10**

	<u>TRANSECT 1</u>		<u>TRANSECT 2</u>		Species Abundance
	Vegetation	Non-vegetation	Vegetation	Non-vegetation	
<b>ACMI2</b>	-	-	-	-	<b>0%</b>
LICHEN	1	-	1	-	2%
GRAVEL	-	2	-	8	0%
STONE	-	1	-	3	0%
DAGL	-	-	1	-	1%
BARE GROUND	-	11	-	1	0%
LITTER	5	-	10	-	15%
SPAR	-	-	-	-	0%
PASM	14	-	5	-	19%
PLLA	-	-	-	-	0%
<b>AGTR</b>	<b>7</b>	-	<b>10</b>	-	<b>17%</b>
<b>BRMA4</b>	<b>9</b>	-	<b>11</b>	-	<b>20%</b>
TOTAL	36	14	38	12	
<b>% GROUND COVER</b>	<b>74%</b>				<b>*Boded items were seeded</b>
<b>% SEEDED</b>	<b>50%</b>				

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

**LOTS 2, 3, & 4**

	<u>TRANSECT 1</u>		<u>TRANSECT 2</u>		Species Abundance
	Vegetation	Non-vegetation	Vegetation	Non-vegetation	
<b>ACMI2</b>	<b>12</b>	-	<b>11</b>	-	<b>23%</b>
LICHEN	3	-	4	-	7%
GRAVEL	-	7	-	4	0%
STONE	-	-	-	-	0%
DAGL	-	-	-	-	0%
BARE GROUND	-	6	-	8	0%
LITTER	11	-	11	-	22%
SPAR	-	-	-	-	0%
PASM	-	-	-	-	0%
PLLA	-	-	-	-	0%
<b>AGTR</b>	<b>3</b>	-	<b>3</b>	-	<b>6%</b>
<b>BRMA4</b>	<b>8</b>	-	<b>9</b>	-	<b>17%</b>
TOTAL	37	13	38	12	
<b>% GROUND COVER</b>	<b>75%</b>				<b>*Bolted items were seeded</b>
<b>% SEEDED</b>	<b>61%</b>				

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

RECREATION AREA 1

	<u>TRANSECT 1</u>		<u>TRANSECT 2</u>		Species Abundance
	Vegetation	Non-vegetation	Vegetation	Non-vegetation	
<b>ACMI2</b>	-	-	-	-	<b>0%</b>
LICHEN	1	-	5	-	6%
GRAVEL	-	2	-	2	0%
STONE	-	-	-	-	0%
DAGL	-	-	-	-	0%
BARE GROUND	-	5	-	4	0%
LITTER	3	-	4	-	7%
SPAR	-	-	-	-	0%
PASM	-	-	-	-	0%
PLLA	-	-	-	-	0%
<b>AGTR</b>	<b>18</b>	-	<b>15</b>	-	<b>33%</b>
<b>BRMA4</b>	<b>21</b>	-	<b>20</b>	-	<b>41%</b>
TOTAL	<hr/> 43	7	44	6	
<b>% GROUND COVER</b>	<b>87%</b>				<b>*Bolted items were seeded</b>
<b>% SEEDED</b>	<b>85%</b>				

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

RECREATION AREA 2

	<u>TRANSECT 1</u>		<u>TRANSECT 2</u>		Species Abundance
	Vegetation	Non-vegetation	Vegetation	Non-vegetation	
<b>ACMI2</b>	-	-	-	-	<b>0%</b>
LICHEN	5	-	4	-	9%
GRAVEL	-	5	-	4	0%
STONE	-	1	-	3	0%
<b>PEST2</b>	<b>1</b>	-	<b>2</b>	-	<b>3%</b>
BARE GROUND	-	3	-	3	0%
LITTER	10	-	9	-	19%
SPAR	-	-	-	-	0%
PASM	-	-	-	-	0%
PLLA	-	-	-	-	0%
<b>AGTR</b>	<b>14</b>	-	<b>15</b>	-	<b>29%</b>
<b>BRMA4</b>	<b>11</b>	-	<b>10</b>	-	<b>21%</b>
TOTAL	41	9	40	10	
<b>% GROUND COVER</b>	<b>81%</b>				<b>*Bolted items were seeded</b>
<b>% SEEDED</b>	<b>65%</b>				

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

RECREATION AREA 3

	<u>TRANSECT 1</u>		<u>TRANSECT 2</u>		Species Abundance
	Vegetation	Non-vegetation	Vegetation	Non-vegetation	
<b>ACMI2</b>	<b>1</b>	-	<b>2</b>	-	<b>3%</b>
LICHEN	2	-	5	-	7%
GRAVEL	-	4	-	3	0%
STONE	-	-	-	-	0%
<b>PEST2</b>	<b>2</b>	-	<b>2</b>	-	<b>4%</b>
BARE GROUND	-	7	-	9	0%
LITTER	9	-	6	-	15%
SPAR	1	-	-	-	1%
PASM	1	-	2	-	3%
PLLA	-	-	-	-	0%
<b>AGTR</b>	<b>14</b>	-	<b>11</b>	-	<b>25%</b>
<b>BRMA4</b>	<b>9</b>	-	<b>10</b>	-	<b>19%</b>
TOTAL	39	11	38	12	
<b>% GROUND COVER</b>	<b>77%</b>				<b>*Bolted items were seeded</b>
<b>% SEEDED</b>	<b>66%</b>				

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

**BACKGROUND 1 NORTH OF RECREATION AREA**

	<u>TRANSECT 1</u>		<u>TRANSECT 2</u>		Species Abundance
	Vegetation	Non-vegetation	Vegetation	Non-vegetation	
<b>ACMI2</b>	<b>1</b>	-	<b>2</b>	-	<b>3%</b>
LICHEN	2	-	4	-	6%
GRAVEL	-	-	-	-	0%
STONE	-	-	-	-	0%
<b>PEST2</b>	-	-	-	-	<b>0%</b>
BARE GROUND	-	2	-	2	0%
LITTER	7	-	4	-	11%
AGST2	27	-	29	-	56%
JUTE	11	-	9	-	20%
PLLA	-	-	-	-	0%
<b>AGTR</b>	-	-	-	-	<b>0%</b>
<b>BRMA4</b>	-	-	-	-	<b>0%</b>
TOTAL	48	2	48	2	
<b>% GROUND COVER</b>	<b>96%</b>				<b>*Bolted items were seeded</b>
<b>% SEEDED</b>	<b>3%</b>				

TALACHE MINE TAILINGS SITE  
ATLANTA, IDAHO

VEGETATION ASSESSEMENT RESULTS

KEY:

Accronim	Scientific Name	Common Name
<b>ACM12</b>	<b><i>Achillea millefolium</i></b>	<b>Yarrow</b>
JUTE	<i>Juncus tenuis</i>	Poverty rush
PLLA	<i>Plantogog lanceolata</i>	narrowleaf plantain
<b>BRMA4</b>	<b><i>Bromus marginatus</i></b>	<b>Mountain brome</b>
CRV02	<i>Crepina vulgaris</i>	Common vrupina
PASM	<i>Agropyron smithii</i>	Western wheatgrass
<b>PEST2</b>	<b><i>Penstemon strictus</i></b>	<b>Rocky Mountain Penstomen</b>
<b>AGTR</b>	<b><i>Agropyron trachycaulum</i></b>	<b>Slender wheatgrass</b>
DAGL	<i>Doctylis glomerata</i>	Orchard grass
SPAR	<i>Spergula arvensis</i>	Corn spurry
CESTA	<i>Centourea stoeb</i>	spotted knapweed
<b>ROWO</b>	<b><i>Rosa woodsii</i></b>	<b>Woods rose</b>
AGST2	<i>Agrostis stolonifera</i>	Creeping bentgrass

\*Bolded items were seeded

\*Shaded items are noxious weeds



# Point Intercept (PO) Form

Transect continuation

PO Page 1 of 1

Field 1	Field 2	Field 3
Number of Transects	Transect Length	Number of Pts./Tran.
2	50 ft	50

Registration ID: \_\_\_\_\_  
 Project ID: B01567r  
 Plot ID: 234 Lots  
 Date: 10/13/2006

Plot Key

Field 4	Field 5	Transect _									
Item Code	Status	Hits	Height (ft/m)								
BARE	NA	6		8							
Dot Tally Space →		HT		HT							
ACMI2	D	12	2.0	11	2.25						
		HT HT		HT HT							
PEST2	D	8	2.5	9	2.5						
		HT		HT							
LITT	NA	11		11							
		HT HT		HT HT							
LICH	L	3		4							
AGTR	D	3		3							
GRAV	NA	7		4							
		HT									

Notes: Location  
 T1 is 30-feet west of the Boulder on Lot 4 & 70 feet south of NW corner of Lot 4  
 T2 is 15-feet west of Boulder  
 T1: N43°48'16.2" W115°07'24.8"  
 T2: N43°48'16.1" W115°07'24.8"  
 79% Cover  
 Crew:



# Point Intercept (PO) Form

Transect continuation

PO Page 1 of 2

Field 1	Field 2	Field 3
Number of Transects	Transect Length	Number of Pts./Tran.
2	50	100

Plot Key

RegistrationID: \_\_\_\_\_  
 ProjectID: B01507r  
 PlotID: Lot 9-10  
 Date: 10-13-2006

Field 4	Field 5	Transect 1		Transect 2		Transect 3		Transect 4		Transect 5	
Item Code	Status	Hits	Height (ft/m)								
AGTR	D	7	2.5	10	2.5						
Dot Tally Space →											
BARE	NA	11		1							
LITT	NA	5		10							
BPMAY	D	9	2.5	11	2.5						
PASM	D	14	2.5	5	2.5						
LICH	NA	1		1							
STON		1		3							

Notes:

Transect begins 80' west of Power Pole on Lot 9.

T1 - N43°48'11.8" W115°07'09.6"

T2 - N43°48'12.3" W115°07'09.5"

57 vegetation hits  
74% Coverage

Crew:



# Point Intercept (PO) Form

Transect continuation

Field 1	Field 2	Field 3
Number of Transects	Transect Length	Number of Pts./Tran.
2	Soft 50	

RegistrationID: \_\_\_\_\_  
 ProjectID: B51567r  
 PlotID: RECI  
 Date: LO11312006

Field 4	Field 5	Transect _									
Item Code	Status	Hits	Height (ft/m)								
LITT	NA	3		4							
Dot Tally Space →											
AGTR	D	18	2.5	15	2.5						
BRMAY	D	21	3.0	20	2.75						
BARE	D	5		4							
GRAV	D	2		2							
LICH	L	1		5							

Notes:  
 Location:  
 300 feet north of Property Boundary of Lot 1  
 T2 is 10 feet east of T1  
 T1 - N43°04'20.3" W115°07'24.5"  
 T2 - N43°04'20.4" W115°07'24.1"  
 87% Cover  
 Crew:



# Point Intercept (PO) Form

Transect continuation

Field 1	Field 2	Field 3
Number of Transects	Transect Length	Number of Pts./Tran.
2	50ft	50

RegistrationID: \_\_\_\_\_  
 ProjectID: BRISCT  
 PlotID: REC2  
 Date: 10/13/2006

Plot Key

Field 4 Item Code	Field 5 Status	Transect _		Transect _		Transect _		Transect _		Transect _	
		Hits	Height (ft/m)	Hits	Height (ft/m)	Hits	Height (ft/m)	Hits	Height (ft/m)	Hits	Height (ft/m)
<u>BRMA2</u>	<u>D</u>	<u>11</u>	<u>2.5</u>	<u>10</u>	<u>2.5</u>						
Dot Tally Space →		<u> X X X X X X X X X X </u>		<u> X X X X X </u>							
<u>STON</u>	<u>NA</u>	<u>1</u>		<u>3</u>							
		<u> </u>		<u>   </u>							
<u>LICH</u>	<u>L</u>	<u>5</u>		<u>4</u>							
		<u> X X X X X </u>		<u> X X X X </u>							
<u>BARE</u>	<u>NA</u>	<u>3</u>		<u>3</u>							
		<u>   </u>		<u>   </u>							
<u>AGTR</u>	<u>D</u>	<u>14</u>	<u>2.5</u>	<u>15</u>	<u>2.5</u>						
		<u> X X X X X X X X X X X X X X </u>		<u> X X X X X X X X X X X </u>							
<u>LITT</u>	<u>NA</u>	<u>10</u>		<u>9</u>							
		<u> X X X X X X X X X X </u>		<u> X X X X X X X </u>							
<u>GRAV</u>	<u>NA</u>	<u>5</u>		<u>4</u>							
		<u> X X X X X </u>		<u>    </u>							

Notes:

Location:  
 150 East of REC1-T2  
 N43°48'21.0"  
 W115°07'21.8"

50% Coverage

Crew:



# Point Intercept (PO) Form

Transect continuation

Field 1	Field 2	Field 3
Number of Transects	Transect Length	Number of Pts./Tran.
2	50ft	50

RegistrationID: \_\_\_\_\_  
 ProjectID: B015675  
 PlotID: PEC3  
 Date: 10/13/2006

Plot Key

Field 4	Field 5	Transect _									
Item Code	Status	Hits	Height (ft/m)								
GRAV	NA	4		3							
Dot Tally Space →											
AGTR	D	14	2.5	11	2.5						
BARE	NA	7		9							
LITT	L	9		6							
BRMAD	D	9	3.0	10	3.0						
PESTO	D	2	2.5	2	2.5						
PASM	D	1	3.0	2	3.0						

Notes: Location  
 200' West of FRECHT1  
 T1: N43°48'20.0"  
 W115°07'27.3"  
 T2: N43°48'20.4"  
 W115°07'26.3"

Crew:



# Point Intercept (PO) Form

Transect continuation

Field 1	Field 2	Field 3
Number of Transects	Transect Length	Number of Pts./Tran.
2	SOFT	SO

Plot Key

RegistrationID: \_\_\_\_\_  
 ProjectID: B815671  
 PlotID: UTP2  
 Date: 10\_10\_190006

Field 4	Field 5	Transect _									
Item Code	Status	Hits	Height (ft/m)								
ACMI2	D	10	2.5	17	2.5						
Dot Tally Space →											
LICH	L	4		0							
AFTR	D	16	3.0	10	3.0						
STON	NA	2		3							
GRAV	NA	9		6							
LITT	L	3		7							
BARE		3		3							

Notes:  
 Location  
 T1 - SOFT south of fence post  
 in middle of UTP  
 T2 - SOFT east of T1  
 T1 - N43°47'58.1"  
 W 115°08'58.4"  
 T2 - N43°47'58.2"  
 W 115°08'57.9"  
 Crew:



# Point Intercept (PO) Form

Transect continuation

PO Page 1 of 2

Field 1	Field 2	Field 3
Number of Transects	Transect Length	Number of Pts./Tran.
2	50ft	50

RegistrationID: \_\_\_\_\_  
 ProjectID: B01507C  
 PlotID: LTP  
 Date: 10/12/2000

Plot Key

Field 4	Field 5	Transect 1		Transect 2		Transect 3		Transect 4		Transect 5	
Item Code	Status	Hits	Height (ft/m)	Hits	Height (ft/m)	Hits	Height (ft/m)	Hits	Height (ft/m)	Hits	Height (ft/m)
<u>CESTA</u>	<u>D</u>	<u>3</u>	<u>2.5</u>	<u>3</u>	<u>2.5</u>						
Dot Tally Space →		<u>    </u>		<u>   </u>							
<u>LITT</u>	<u>NA</u>	<u>4</u>		<u>1</u>							
		<u>    </u>		<u> </u>							
<u>BRMAY</u>	<u>D</u>	<u>6</u>	<u>2.5</u>	<u>6</u>	<u>2.5</u>						
		<u>     </u>		<u>     </u>							
<u>STON</u>	<u>NA</u>	<u>6</u>		<u>2</u>							
		<u>     </u>		<u>  </u>							
<u>ACMID</u>	<u>D</u>	<u>7</u>	<u>3.0</u>	<u>11</u>	<u>3.0</u>						
		<u>     </u>		<u>       </u>							
<u>AGTR</u>	<u>D</u>	<u>6</u>	<u>2.0</u>	<u>3</u>	<u>2.0</u>						
		<u>     </u>		<u>   </u>							
<u>PASM</u>	<u>D</u>	<u>5</u>	<u>3.0</u>	<u>4</u>	<u>3.0</u>						
		<u>    </u>		<u>    </u>							

Notes:  
T1 - N43°47'57.5" W 119°07'06.1"  
T2 - N43°47'56.7" W 119°07'05.3"  
76% Vegetation Coverage

Crew: \_\_\_\_\_





# Point Intercept (PO) Form

Transect continuation

PO Page 1 of 2

Field 1	Field 2	Field 3
Number of Transects	Transect Length	Number of Pts./Tran.
2	Soft	SD

Plot Key

RegistrationID: \_\_\_\_\_  
 ProjectID: BCISS7r  
 PlotID: Background  
 Date: 10\_12\_1\_0000

Field 4	Field 5	Transect 1		Transect 2		Transect _		Transect _		Transect _	
Item Code	Status	Hits	Height (ft/m)	Hits	Height (ft/m)	Hits	Height (ft/m)	Hits	Height (ft/m)	Hits	Height (ft/m)
GRAV	NA	3		5							
Dot Tally Space →				/ /							
ACMIZ	D	11	2.5	6	2.5						
		/ / / /		/ /							
STON	NA	3									
BRMAY	D	9	3.0	16							
		/ / / / / /		/ / / / / / /							
SPAR	L	5	1.0	3	1.0						
		/ /									
AGTR	D	2	2.5								
LITT	NA	4		3							
		/									

Notes:  
 Transects are 20-foot south of large tree in middle of lot west of Mine Hill Rd. & south of Power Plant Rd.  
 75 total vegetation hits  
 80% ground cover  
 T1-N43°48'04.4"  
 W115°07'16.8"  
 T2-N43°48'04.6"  
 W115°07'16.4"

Crew:

**APPENDIX E**

**Spread Sheet of Historical & Recent Water Quality Data**

**DRAFT TALACHE WATER QUALITY RESULTS**

Site	Date	Total As	Diss As	Total Fe	Diss Fe	D.O.	Eh	pH	Cond.	Temp	Flow		
S-1	12/29/1998	0.798	0.819	8.74	8.51								
S-1	10/7/1999	1.09	<.002	9.27	<.02								
S-1	10/25/2001	0.452	0.388	1.29	1.07								
S-1	12/18/2001	0.742	0.426	3.36	1.07								
S-1	2/20/2002	0.645	0.387	3.01	1.11								
S-1	4/22/2002	0.375	0.324	0.967	0.623								
S-1	6/26/2002	0.516	0.377	1.13	0.479								
S-1	8/22/2002	0.905	0.525	1.79	0.217								
S-1	10/24/2002	0.607	0.387	1.16	0.396								
S-1	10/25/2005	16.6	NA	NA	NA								
S-1	10/12/2006	0.837	0.738	5.18	4.39								
S-2 (Prev. S-5)	10/25/2001	0.362	0.335	0.085	<.02								
S-2 (Prev. S-5)	12/18/2001	0.212	0.020	0.034	<.02								
S-2 (Prev. S-5)	2/20/2002	0.229	0.186	0.60	<.02								
S-2 (Prev. S-5)	4/22/2002	0.546	0.416	0.599	<.02								
S-2 (Prev. S-5)	6/26/2002	0.716	0.694	0.56	.02								
S-2 (Prev. S-5)	8/22/2002	0.745	0.765	0.52	0.025								
S-2 (Prev. S-5)	10/24/2002	0.441	0.447	0.65	0.017								
S-2 (Prev. S-5)	10/25/2005	NA	NA	NA	NA								
S-2 (Prev. S-5)	10/12/2006	3.7	3.31	5.18	3.64								
S-3	10/12/2006	0.769	0.698	0.14	0.04								
S-4	10/12/2006	0.625	0.612	0.03	<0.01								
S-5	10/12/2006	NA	NA	NA	NA								
GW-MW-1	10/12/2006	0.036	0.006	0.606	<0.01								
Aastum Well	10/12/2006	<.003	0.006	0.38	<0.01								

Notes:

< = Less Than

All results in milligrams per liter unless otherwise noted

mg/Kg = Milligrams per kilogram

The monitoring locations are as follows.

S-1 UTP seep water collected at a point just below the UTP (a 12" diameter ADS pipe was installed in the UTP previously)

S-2 Combined UTP and LTP seep water collected at a point just below the LTP (18" diameter ADS pipe was installed; previously sampled and referred to as S-5),

S-3 Partially treated seep water decanted from Pond 2 into Pond 3-4.

S-4 Seasonal flow from Pond 3-4 via 12" HDPE pipe under FS264 to Pond 6 (a pipe extension was installed for measurement/sampling),

S-5 Periodic discharges from Pond 6 (no flow in 10/2006).

GW-1 Groundwater monitoring well downgradient (northwest) of Pond 3-4

The Aastum well (a domestic water well located 500 feet northwest of Pond 6).

**APPENDIX F**

**Photographs of Site Facilities**



E. Fork, Montezuma Crk, north side of channel wash-out



←  
1  
→  
2

Wash-out area flagged for repair



E. Fork Montezuma Crk, wind fall in creek channel just upstream from washout.



←  
3  
→  
4

Nearly barren geo-fabric (black area in center of Photo) along E. side of UTP at top of rip-rap. Low growth of plants in some areas along diversion. Fabric OK.



Marked location of Seep Water Sampling Point #1, just N. of toe of UTP



←  
5  
→  
6

S.W. sampling point #1, exhibiting newly installed pipe for sampling.



S.W. sampling point #1, inlet (south) end of newly installed pipe.



←  
7  
→  
8

Marked location of UTP piezometer.



Marked location of LTP piezometer.



←  
9  
→  
10

Marked location of newly installed sampling pipe at S.W. Sampling Point #2.



Side view of S.W. sampling Point #2.



←  
11  
→  
12

Sampling Point #3, lower tier of S.W. inlet trough to pond 2 (center of photo).



Marked location of Sampling Point #4, north of USFS Road.



←  
13  
→  
14

Newly installed pipe in ditch for sampling at Point #4.



Monitoring well (MW-1) just N. of forest service road.



←  
15  
→  
16

General area of newly identified seep emanating from beneath LTP.



Visible Fe staining along road drainage ditch from newly identified seep.



←  
17  
→  
18

Near east end of Borrow source area.



Near central area of Borrow Source area exhibiting runoff diversion ditch.



←  
19  
→  
20

West end of Borrow source area.