YEAR-END REPORT
FOR THE 2012 FIELD SEASON
AT LEVIATHAN MINE

Alpine County, California

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Prepared by:
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

Submitted to:
USEPA, Region IX
75 Hawthorne Street, SFD-7-2
San Francisco, CA 94105-3901

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1. INTRODUCTION

Leviathan Mine is a former sulfur mine that the State of California acquired in the early 1980s to address water quality problems caused by historical mining. Jurisdiction over Leviathan Mine rests with the State Water Resources Control Board, which, in turn, has delegated jurisdiction over cleanup work to the California Regional Water Quality Control Board, Lahontan Region (Water Board). On May 11, 2000, the United States Environmental Protection Agency (USEPA) placed Leviathan Mine on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List, thus making Leviathan Mine a federal Superfund site.

On July 19, 2000, pursuant to its authority under CERCLA, USEPA issued an Administrative Abatement Action (AAA) to the Water Board and directed the Water Board to implement certain pollution abatement and site monitoring activities at Leviathan Mine. With slight modifications, USEPA subsequently reissued the AAA in 2001, 2002, 2003, 2004, and 2005. In its 2005 AAA, USEPA decided, instead of issuing the AAA every year, to allow its Remedial Project Manager to notify Water Board of the necessity to continue the Work for an additional year, for each year that the first phase of Non-Time Critical Removal Action (NTCRA) continues.

This Year-End Report for the 2012 Field Season at Leviathan Mine (Year-End Report) has been prepared by the Water Board for the USEPA. This Year-End Report was prepared to comply with Paragraph No. 50 of USEPA's July 14, 2005 AAA, which states:

> "Within thirty (30) days after the LRWQCB [Water Board] concludes that the seasonal work on the NTCRA has been fully performed, the LRWQCB shall so notify EPA and shall schedule and conduct a pre-certification inspection to be attended by the LRWQCB and EPA. The pre-certification inspection shall be followed by a written report submitted within ninety (90) days of the inspection by the LRWQCB's Project Coordinator certifying that all work to date on the NTCRA has been completed in full satisfaction of the requirements of this Administrative Action."

The pre-certification inspection occurred on October 18, 2012.

This Year-End Report constitutes the "*written report*" as referenced in Paragraph No. 50 of the AAA, and contains year-end summaries of Water Board field activities performed in 2012. The activities required of the Water Board by the USEPA are described in Paragraph No. 37 of the AAA. These activities consist of:

1. Summer treatment of Acid Mine Drainage (AMD) captured year-round in a series of ponds;
2. Site maintenance of ponds, drainage and diversion channels, and gates and fences; and
3. Site monitoring of water quality, water quantity, and meteorological information.

Water Board staff conducted the above-listed activities in accordance with the *2012 Work Plan for Leviathan Mine, Alpine County, California* (Work Plan) and the *Addendum to Lahontan Water Board 2012 Work Plan for Leviathan Mine, Alpine County, California* (2012 Work Plan Addendum) prepared by the Water Board.

This report describes the site activities performed in 2012, and is organized into the following sections:

- A background section that describes the site setting and history; collection and storage of AMD; and the treatment process;
- A sludge removal and pond water treatment section describing the removal and disposal of sludge and treatment of AMD in 2012;
- A site meteorological and surface water flow monitoring section; and
- A general site maintenance section.

Pond water treatment data are summarized in seven tables in Appendix A (A-1 through A-7). Laboratory reports and electronic data deliverables for pond water samples, USGS flow and stage data, and meteorological data are included as electronic files on the enclosed disc and organized into Appendices B through D.

2. BACKGROUND

2.1 SITE SETTING AND HISTORY

Leviathan Mine is located on the eastern slope of the Sierra Nevada Mountains in Alpine County, California (Figure 1). The mine is approximately six miles east of Markleeville, California and five miles west of Topaz Lake, Nevada. Based on the Final Title Search and Survey Report conducted by Science Applications International Corporation (SAIC) for the USEPA on January 31, 2000, the Leviathan Mine encompasses thirty-two patented mineral claims and a patented mill site. The majority of land disturbed by mining activities is on state-owned property, with the remainder of the disturbance located on property owned by the United States Department of Agriculture, Forest Service, Humboldt-Toiyabe National Forest (USFS). The USFS owns the majority of land surrounding the mine according to the above-mentioned SAIC report, with the exception of ten private parcels along the southern boundary of the mine site.

Leviathan and Aspen Creeks (Figure 2) flow across the mine site and join below the mine. Approximately 1.5 miles downstream of the confluence of Leviathan and Aspen Creeks, Leviathan Creek joins Mountaineer Creek. The combined flow of Leviathan and Mountaineer Creeks forms Bryant Creek. Approximately 3.5 miles downstream of the confluence of Leviathan and Mountaineer Creeks, Bryant Creek flows across the Nevada state line. Approximately 3.3 miles downstream of the Nevada state line, Bryant Creek joins the East Fork Carson River.

Historical mining activities at Leviathan Mine included underground and open pit extraction of sulfur-rich ore. These activities resulted in the exposure of naturally occurring sulfide minerals to air and water. This exposure triggered a series of chemical reactions that caused local groundwater to become acidic and metal-rich. The acidic groundwater discharges from an old mine tunnel as well as seeps at several locations within the Leviathan Mine site. When this AMD enters local surface water bodies, it adversely affects water quality, which, in turn, affects algae, insect, and fish growth, and damages the in-stream habitat through deposition of metal-rich precipitates.

The Water Board has implemented several projects to abate AMD from entering local surface water bodies. In 1985, the Water Board completed construction of a pollution abatement project at Leviathan Mine to address certain specific problem areas. This project included the construction of AMD storage and evaporation ponds, which are a major component of the Water Board's pond water collection and treatment activities.

2.2 AMD Collection and Storage

The 1985 pollution abatement project included construction of five lined evaporation ponds (Figure 3) to capture and evaporate AMD from remnant underground mine workings. The primary sources of AMD to the pond system are the Adit and the Pit Under-Drain (PUD).

- The Adit is the location where acidic groundwater emanated from a remnant tunnel excavated during underground mining activities in the 1930s. The exact condition of the interior of the tunnel is unknown, but the tunnel is collapsed at its portal. The approximate location of the tunnel and other site features are shown in Figure 3. As part of the 1985 pollution abatement project, the Water Board's contractor installed an underground drain to collect acidic groundwater emanating from the Adit. The underground drain consists of a 12-inch-diameter perforated pipe in a bed of drain rock. The perforated pipe is connected to a non-perforated 12-inch pipe that carries the AMD to a concrete flow control structure. AMD from the Adit has a pH of less than 3.0 and typically has a discharge rate between 9 and 15 gallons per minute (gpm) with rates as high as approximately 50 gpm (flow data collected from1999 to present).
- The Water Board's contractor installed the PUD during construction of the 1985 pollution abatement project to dewater saturated soils in the bottom of the open pit prior to backfilling the pit to its current elevation. The PUD consists of approximately 1,500 linear feet of 12-inch-diameter perforated pipe set in a bed of drain rock beneath the pit bottom, buried in pit backfill material. The perforated pipes connect to a non-perforated 18-inch-diameter pipe that conveys the PUD discharge to the flow control structure. AMD from the PUD has a pH of less than 3.0 and typically has a flow rate between 0.1 and 4 gpm, with rates as high as approximately 42 gpm (flow data collected from 1999 to present).
- The five evaporation ponds (Ponds 1, 2 South, 2 North, 3, and 4; see Figure 3) cover a combined surface area of approximately 12.8 acres with a cumulative holding capacity of approximately 16.5 million gallons, based on an October 1998 survey conducted by ARCO Environmental Remediation, LLC. AMD from the flow control structure can be routed directly to Leviathan Creek or to the pond system via a weir gate. When the AMD is directed to the pond system, it can be distributed by gravity to any combination of Ponds 1, 2 South, and 2 North via a series of valves, as these ponds are interconnected and are at the same elevation. These three ponds are commonly called the "upper ponds" and have a combined volume of approximately 14 million gallons. Pond 3 can receive overflow from the upper ponds by gravity via PVC overflow pipes. Overflow from Pond 3 flows in PVC piping and can be directed by gravity, via valves, to either the Leviathan Creek or to Pond 4. Pond 4 overflows directly to the Leviathan Creek via PVC piping. Pond 4 is being utilized by Atlantic Richfield Company (ARCO) for storage and treatment of other AMD sources. Since the spring of

2006, Pond 4 has been isolated from Pond 3 by a closed valve, and there has been no discharge from the Pond 3 system to Pond 4. Any discharges from Pond 3 are routed to Leviathan Creek.

- In 2012, no AMD was routed directly from the flow control structure to Leviathan Creek.
- In 2012, Pond 3 received no overflow from any of the upper ponds.

2.3 Pond Water Treatment (PWT) Processes

The Water Board treats and discharges treated pond water during the summer (and spring, if needed) to renew pond storage capacity for the subsequent winter and spring months. There was no need for spring treatment in 2012. The Water Board's treatment of AMD contained in the pond system is accomplished through lime neutralization. The neutralization of AMD by the addition of lime has long been accepted as an effective means to raise pH and remove metals in AMD. Lime (calcium hydroxide or $Ca[OH]_2$), is mixed into the AMD from the pond system; the addition of lime causes an increase in pH and the precipitation of dissolved constituents, including metals, contained in the AMD. The precipitated solids are settled out of solution, and the final products are: (1) a practically metal-free effluent with near neutral pH, and (2) a metal-rich waste sludge.

The Water Board assembled the PWT plant (Plant) during the 1999 field season on the northeast corner of Pond 1 and tested the process at full-scale during the 1999 and 2000 field seasons. The Water Board has continued to operate the Plant during the summer months from 2001 through 2012. The typical Water Board field season at Leviathan Mine runs from mid-June through mid-October.

The Plant, which has also been referred to as the Pond 1 lime treatment plant because the treatment system is located on the north side of Pond 1, treats the AMD stored in the three upper ponds. The Plant draws the AMD from Pond 1 for treatment, thereby lowering the water elevation of Pond 1. The lower water level in Pond 1 causes AMD from Pond 2 North and Pond 2 South to flow by gravity to Pond 1 to be treated by the treatment system. As pond water levels decline toward the end of the treatment season, portable transfer pumps have to be used to move water from Ponds 2N and 2S to Pond 1. The Plant conveys the treated AMD and suspended precipitated solids to the Pit Clarifier located in the bottom of the Leviathan Mine open pit. The Pit Clarifier has plan dimensions of approximately 150-feet by 150-feet, and includes a gravel/sand covered perforated pipe underdrain and a 10-inch diameter PVC decanting device, known as the piccolo decant structure.

3. 2012 POND WATER TREATMENT

The 2012 AMD treatment and associated activities included sludge removal from the Pit Clarifier in June and AMD treatment at the Plant in July. Each is discussed below.

3.1 Pit Clarifier Sludge Removal and Disposal

Approximately 1000 tons of sludge generated during operation of the Plant in 2011 was removed from the Pit Clarifier by the Water Board's contractor, URS Corporation Americas (URS), in June 2012. The sludge had been sampled, analyzed, and characterized in the fall of 2011 and again during January of 2012; the results were reported in the Water Board's 2011 year-end report. In addition to analytical results contained in the Water Board's 2011 year-end report, in early May of 2012, URS collected two additional sludge samples (1112PWT029PC-B and 1112PWT030PC-C) for disposal purposes; these additional data from sludge generated during 2011 are summarized in Table A-6 of Appendix A. The sludge was hauled to a Class I hazardous waste landfill in Beatty, Nevada for disposal. Hazardous waste manifests are available for review at the Water Board's office in South Lake Tahoe. The sand drainage layer in the bottom of the pit clarifier was replenished following sludge removal in preparation for receiving treated AMD during the 2012 field season.

3.2 2012 Summer Pond Water Treatment Plant Operation

The Water Board contracted with URS for Plant operations for the 2012 field season. AMD treatment began in early July, with the first treated water entering the Pit Clarifier on July 9, 2012. Discharge to Leviathan Creek began on July 12, 2012, and treatment ceased on July 26, 2012. URS chose to operate the Plant 24 hours per day, 7 days per week during the treatment season.

In 2012 URS used pre-mixed lime slurry delivered to the site in tanker trucks. As specified in the Leviathan Mine Mono-phasic Treatment System Operations and Maintenance Manual (URS, 2007), URS used two points for lime addition in 2012.

URS pumped AMD from Pond 1 to a 10,000-gallon fiberglass reaction tank (R-1). A pH probe installed in R-1 measured pH in R-1 and controlled the amount of lime slurry added to R-1. The lime slurry raised the pH of the AMD from approximately 2.5 to an approximate range of 3.0 to 3.4, as measured in R-1. A mixer and compressed air were used in R-1 to agitate, oxidize, and promote mixing.

The partially-treated AMD flowed by gravity from R-1 through a two-chambered combination flash/flocculation mix tank (FF-1) in which URS used two mixers to maintain high mixing energy and keep the precipitated solids in suspension. The fluid mixture flowed by gravity from FF-1 into a second 10,000 gallon fiberglass tank referred to as R-2. A mixer and compressed air were used in R-2 to further agitate, oxidize, and promote mixing. A pH probe in R-2 measured pH and metered additional lime slurry to R-2. The lime slurry raised the pH of the partially-treated AMD to an approximate range of 8.2 to 8.5, as measured in R-2. The fluid mixture then flowed by gravity through a second flash/flocculation mix tank (FF-2) equipped with two mixers.

The fluid mixture flowed by gravity from FF-2 into a Lamella clarifier (CL-2). A polyacrylamide polymer solution was injected into the fluid mixture at the bottom of CL-2 to promote flocculation and solids settling in the Pit Clarifier. Two 10-hp mud pumps transferred the fluid mixture from the bottom of CL-2 to the Pit Clarifier, where solids settled out in near-quiescent conditions. In 2012, URS monitored a pH probe in FF-2. The pH probe controlled the mud pumps, preventing transfer of treated AMD to the Pit Clarifier if the pH dropped below 7.9. This pH probe, controller, and pump combination provided additional reliability as well as a final confirmation pH measurement.

A small portion of utility water is used to dilute the polyacrylamide polymer that is added into the fluid mixture at the bottom of CL-2. Typically, this utility water is collected from Leviathan Creek upstream of the disturbed portion of the site and is stored in two 15,000 gallon utility water tanks adjacent to the Plant. This year, due to unusually low precipitation over the winter months, flow in Leviathan Creek was insufficient to supply an adequate volume of utility water. As such, the Water Board implemented a field trial using treated AMD from the Water Board's effluent weir box as a source of utility water. Approximately 2.3 million gallons of AMD were neutralized while using treated effluent as utility water. Based on laboratory analytical results of effluent samples and field observations, no negative impacts on treatment efficiency were observed during this limited field trial.

In 2012, the fluid mixture was routed around the Lamella clarifier (CL-1) typically used between FF-1 and R-2. In previous years, CL-1 was used to promote solids settling and as a source of precipitated solids for re-seeding into R-1. Water Board and URS staff monitored treatment plant chemistry and sample analytical results to ensure that removing CL-1 from the treatment system did not have a negative impact on treatment effectiveness. No negative impacts on treatment effectiveness were observed. Removing CL-1 from the treatment system eliminates a significant maintenance issue since precipitates typically cake the inside of CL-1.

In 2012, the treated water was discharged from the Pit Clarifier using both the underdrain and the piccolo decant structure. Stage data and water quality control samples were collected at the 90-degree V-notch weir in the Water Board's effluent weir box. Stage data were recorded at 15-minute intervals using a data logger/pressure transducer system. For 2012, the Water Board's stage data were used to calculate treated effluent discharge volumes. The Water Board weir was flow tested by USGS and Water Board staff at both high flows (approximately 240 gpm) and low flows (less than 50 gpm). The USGS developed a rating curve based on these data; the rating curve was used to convert the 15-minute stage readings into flow rates.

Discharge of treated effluent from the Pit Clarifier to Leviathan Creek began on July 12, 2012. Discharge to Leviathan Creek occurred continuously, with one exception; discharge to Leviathan Creek was stopped for approximately twenty hours spanning June 23 - 24, 2012, due to a canceled lime slurry delivery. After the pond water was treated and the Plant was shut down on July 26, 2012, treated water continued to be discharged from the Pit Clarifier as the accumulated sludge drained. By August 6, 2012, approximately 2.8 million gallons of treated AMD had been discharged to Leviathan Creek, and flows from the Pit Clarifier were well below 5 gpm. A summary of daily flow volumes discharged to Leviathan Creek is presented in Table A-1 of Appendix A.

The 2012 PWT Plant operation consumed approximately 62 standard tons of dry lime, 290 pounds of liquid flocculent, 2,349 gallons of diesel fuel, and 312 gallons of gasoline. The Water Board's treatment effort in 2012, combined with natural evaporation, resulted in the upper pond system having the maximum available storage capacity of approximately 14 million gallons at the end of the treatment effort.

Sludge generated by the Plant in 2012 is contained in the Pit Clarifier to allow for further dewatering. Dewatering of the sludge over the winter will increase solids content and reduce both the volume and mass of the sludge. Water Board staff estimates that approximately 240 - 300 tons of sludge will be disposed of in 2013.

3.3 Summer Pond Water Treatment Monitoring

Treatment process monitoring, sampling and analysis were performed in accordance with the Water Board's *Sampling and Analysis Plan for Leviathan Mine Site Pond Water Treatment* (PWT SAP) dated March 2012, with a few deviations, as noted in Section 3.4.4. A summary of the monitoring parameters, locations, and frequencies for the 2012 PWT monitoring program is presented in Table 1. Specific details of sample collection and handling are described in the PWT SAP. Effluent samples were collected and analyzed for comparison with USEPA Discharge Criteria; the USEPA Discharge Criteria are set forth in the September 25, 2008 Non-Time Critical Removal Action for the Leviathan Mine Site and summarized in Table 2. Samples, collected by URS, were submitted for laboratory analysis by off-site laboratories, Microbac, of Marietta, Ohio, and Curtis and Tompkins, Ltd, Analytical Laboratories, of Berkeley, California. Samples, collected by Water Board staff, were submitted for laboratory analysis by TestAmerica Laboratories, located in Irvine, California.

To confirm the quality of treated water discharged to Leviathan Creek, the Water Board's contractor, URS, collected grab samples of the treated effluent twice weekly during the 2012 treatment season. URS collected effluent samples from the Water Board's weir box located near the Pit Clarifier. As specified in the 2012 Work Plan, effluent sample collection stopped when the discharge of effluent dropped below 5 gpm, which occurred on August 2, 2012. The first effluent sample was collected on July 12, 2012, and the last effluent sample was collected on August 2, 2012. Additionally, URS collected Plant influent samples from the line conveying pond water to the treatment plant on a weekly basis to characterize pond water quality.

In summary, the Water Board's contractor collected the following samples for analytical laboratory analysis as part of the 2012 Pond Water Treatment monitoring program:

- 7 treated effluent samples (2 per week)
- 2 treated effluent duplicate samples
- 3 pre-treatment influent samples (1 per week)
- 2 field method blanks

A portion of each grab sample was field filtered, preserved with nitric acid, and submitted to the laboratory to be analyzed for the following dissolved metals/metalloids: aluminum (Al), arsenic (As), copper (Cu), chromium (Cr), cadmium (Cd), nickel (Ni), iron (Fe), lead (Pb), and zinc (Zn). An unfiltered portion of each grab sample was preserved with nitric acid and submitted to the laboratory for Total Recoverable Selenium (Se) analysis. Once per week, in addition to the above analyses, URS submitted to the laboratory samples of influent and treated effluent for total dissolved solids (TDS), and dissolved sulfate (SO_4), calcium (Ca), cobalt (Co), magnesium (Mg), and manganese (Mn). During influent and effluent sample collection activities, URS monitored and recorded pH and temperature in the field on sampling record forms. Sample identification tracking forms and sampling record forms are available for review at the Water Board office in South Lake Tahoe. Analytical and field monitoring results of treated effluent and Plant influent samples are summarized in Tables A-2 and A-3 of Appendix A, respectively.

To provide real-time information on effluent quality and system operation, treatment plant operators measured the pH and temperature approximately every hour while the system was operating at four mid-process locations (R-1, R-2, FF-2, and influent to Pit Clarifier) and at one effluent location (weir box). Operators used these data to modify lime additions, if necessary, and maintain effluent quality. pH and temperature data collected by URS from R-1, R-2, the Pit Clarifier, and the weir box are summarized in Table A-4 of Appendix A. Copies of URS's operator logs are available for review in the Water Board's South Lake Tahoe office.

Sludge generated during the 2012 treatment effort, and contained in the Pit Clarifier, was sampled on October 4, 2012, for waste characterization and disposal purposes. URS collected three sludge samples from three different locations in the Pit Clarifier. The sludge thickness during sampling ranged from seven to 25 inches.

Sludge samples were analyzed for comparisons with Total Threshold Limit Concentrations (TTLCs) and Soluble Threshold Limit Concentrations (STLCs) for Title 22 metals, aluminum, and iron; and percent solids. Analytical results for the sludge samples are summarized in Table A-5 of Appendix A.

3.4 Sampling Results from Summer Pond Water Treatment Monitoring

3.4.1 Monitoring Objectives

Specific objectives of the PWT monitoring program are:

- Identify the chemical characteristics of the treatment plant influent.
- Identify the chemical characteristics of the treated effluent.
- Identify the chemical characteristics of solids generated in the treatment process.
- Monitor field pH at critical points within the treatment system and at the discharge point as a means to monitor and control treatment efficiency.
- Monitor the Plant's effectiveness in meeting USEPA Discharge Criteria.

3.4.2 Data Summary

Laboratory analytical results for treated effluent are summarized in Table A-2. These data are collected for comparison with the USEPA Daily Maximum Discharge Criteria, which are also included in Table A-2. No exceedences of the Daily Maximum Discharge Criteria occurred in 2012. Two samples, 1213PWT015-EFF and 12313PWT016-EFF individually exceeded the more stringent USEPA 4-day Average Discharge Criterion for selenium.

Table A-3 summarizes laboratory analytical results for Plant influent samples. Results are consistent with previous treatment seasons. The pH ranged from 2.16 to 2.46 and TDS ranged from 6,950 to 8,060 milligrams per liter (mg/L) with an average of 7,497 mg/L.

Results of pH and temperature for data collected by Plant operators are included in Table A-4. Measurements of pH taken by Plant operators show that the discharge of treated effluent to Leviathan Creek was within the USEPA Discharge Criteria, and that desired pH levels were achieved in the Plant throughout the treatment season.

A summary of daily discharge from the Pit Clarifier is included in Table A-1. A total of 2.8 million gallons of treated effluent was discharged to Leviathan Creek in 2012. The 15-minute discharge stage data recorded by the data logger (which are the basis of discharge flow calculations) are available for review at the Water Board's South Lake Tahoe office.

Results of the pit clarifier sludge characterization analyses are presented in Table A-5 for sludge generated during the 2012 treatment season. On October 4, 2012, URS collected three sludge samples from the Pit Clarifier to characterize sludge generated during the 2012 treatment season. These three sludge samples averaged approximately 30 percent solids. With the exception of the TTLC analysis for arsenic and the STLC analysis for nickel, the sludge did not exceed any other STLC or TTLC limits. These results are consistent with the past sludge generated at the Pond 1 treatment system. The total concentrations for arsenic exceeded the TTLC in all three samples. The arithmetic average arsenic concentration for these three samples was 723 milligrams per kilogram (mg/kg) on a dry-weight basis. The TTLC for arsenic is 500 mg/kg as measured on a wet-weight basis. Sludge sample results are reported on a dry-weight basis for this sampling effort because the percent solids at the time of disposal is not known, and therefore the dry-weight basis results constitute the most conservative evaluation of sludge quality. At the time of disposal in the late spring or early summer, the concentration of solids in the sludge has typically varied from about 25 to 55 percent. The average concentration of arsenic measured in the sludge would not exceed the TTLC on a wet-weight basis unless the sludge was approximately 69 percent or greater solids by weight; therefore, the sludge likely will not exceed the TTLC when it is disposed of in the late spring or early summer of 2013. The STLC for nickel was exceeded in one of three samples collected. The arithmetic average STLC nickel concentration for the three samples is 19.7 mg/L. The STLC for nickel is 20 mg/L.

Copies of the laboratory's electronic data deliverable (EDD) files for PWT effluent, influent, and sludge samples are in Appendix B on compact disc. Appendix B also includes Portable Document Format (PDF) versions of the hard copy laboratory reports.

3.4.3 Data Quality Evaluation

URS and Water Board staff reviewed the quality of the PWT monitoring results. Sample collection, handling, preservation, and analysis were conducted as specified in the PWT SAP. Field quality control samples, including two Field Method Blank (FMB) and two field duplicate samples, were collected. A Chain of Custody form was completed for each group of samples submitted to the analytical laboratory. Upon receipt of the laboratory report, Water Board staff reviewed the Chain of Custody to ensure that details such as the project name, sample ID numbers, sample dates, sample times, and requested parameters were properly reported. Water Board staff's data review also included an evaluation of sample holding times, an assessment of precision, an assessment of anomalous data, and a review of FMB results.

Laboratory-assigned data qualifiers are presented with the data in Tables A-2, A-3, A-5, and A-6. In 2012, Water Board staff assigned a data qualifier of "*" for data that did not meet our field duplicate assessment (relative percent difference), and an "A" qualifier for anomalous data to effluent data in Table A-2. The only value that was assigned an "A" qualifier was the 1213PWT012-EFF TDS result. It is presumed that the laboratory ran the TDS analysis on the Field Method Blank (sample 1213PWT011-FMB) rather than the actual sample thus resulting in an anomalous data result and the associated data flag.

URS submitted two field duplicate samples to the laboratory to measure the precision of the entire measurement system including sampling and analytical procedures in 2012. The relative percent difference (RPD) was calculated for each analyte in the primary and corresponding duplicate samples, as follows:

- If both the sample and duplicate values were equal to or greater than five times the Reporting Limit (RL), then the RPD was calculated by dividing the absolute value of the difference of the two measurements by the average of the two measurements and multiplying by 100. The RPD must be equal to or less than 25 percent to be within control limits.
- If either the sample or duplicate value was less than five times the RL, then the absolute value of the difference between the sample and duplicate values had to be equal to or less than the RL to be in control limits.

In 2012, the two duplicate samples were within the control limits for RPD with two exceptions. The RPD for dissolved chromium was 31 percent for one of the sample/duplicate pairs (sample 1213PWT007-EFF and duplicate 1213PWT008-EFF) and the RPD for TDS was 184 percent for the other sample/duplicate pair (sample 1213PWT012-EFF and duplicate 1213PWT013-EFF). As discussed above, it is suspected that a mistake was made at the laboratory during the TDS analysis of sample 1213PWT012-EFF leading to the high RPD. Per the PWT SAP, the control limit of 25 percent is based on the analytical precision goals for the laboratory matrix spike duplicate samples.

Two field method blank samples were collected and submitted for laboratory analysis of the same parameters as PWT effluent samples. The field method blanks were collected and processed in the same method as that of effluent samples, except using laboratory-supplied purified deionized water for each FMB. Dissolved calcium was detected in in field method blank 1213PWT006-FMB at 0.214 mg/L; the dissolved calcium concentration in the treated effluent sample analyzed in the same batch as sample 1213PWT006-FMB was 629 mg/L. The EPA does not have established discharge criterion for calcium at Leviathan Mine. Dissolved arsenic was detected in the field method blank 1213PWT011-FMB at 0.00144 mg/L; the dissolved arsenic concentration in the treated effluent sample collected in the same batch as sample 1213PWT011-FMB was 0.00674 mg/L. The EPA maximum discharge criterion for dissolved arsenic at Leviathan Mine is 0.34 mg/L.

3.4.4 Deviations from the PWT SAP

Water Board staff did not format the laboratory-supplied EDDs in accordance with the template provided by ARCO in their September 2006 Database Tech memo report (section B.6.3.1 of the 2010 PWT QAPP). ARCO indicated in early January 2011 that they are trying to improve consistency across the Site-wide database, and therefore the EDD templates are being refined. The Water Board's and URS's laboratory provides laboratory data in an EDD that will require minimal changes by ARCO prior to upload to the database. This information was submitted to ARCO in a letter dated January 13, 2011, and the USEPA was also copied on this communication.

Samples collected pursuant to pond water treatment activities outlined in the Water Board's 2012 Work Plan followed the PWT SAP with two exceptions; pH measurements were not recorded for effluent samples 1213PWT015-EFF and 1213PWT016-EFF as required. Laboratory analytical results for these two samples indicate that the pH was acceptable for discharge to Leviathan Creek.

Water Board staff will continue to coordinate with subcontractors and laboratories during the 2013 Pond Water Treatment activities to ensure that samples required by the Water Board's Work Plan are collected and analyzed in accordance with the PWT SAP.

4. METEOROLOGICAL, SURFACE WATER FLOW, AND POND STAGE MONITORING

In a letter dated March 28, 2011, the USEPA authorized the Water Board to discontinue water quality monitoring and meteorological monitoring responsibilities for the site. As required by the USEPA, the Water Board continued its efforts in the 2012 field season to monitor surface water flow in the vicinity of Leviathan Mine. In addition, pond stage is measured at Pond 1 and Pond 4. Meteorological monitoring activities by the Water Board were continued in 2012. Those data collection efforts are discussed below.

4.1 Meteorological Monitoring

A weather station is located on the Water Board's construction trailer near Pond 1. It is a Davis Integrated Sensor Suite model and has been in operation since November 2002. The system measures the following conditions hourly: wind speed, wind direction, rainfall, outside temperature, outside humidity, ultraviolet radiation, and solar radiation. Water Board staff download data from this weather station periodically. Hourly data organized in monthly files in Microsoft Excel format from October 2011 to September 2012 are included on compact disc in Appendix C.

4.2 Flow and Stage Monitoring

Flow data are reported on the basis of water year. The 2012 water year began October 1, 2011 and ended September 30, 2012. Under contract to the Water Board, the United States Geological Survey (USGS) monitored water flows and pond water level stage at 18 locations during the 2012 water year. Flow monitoring locations, USGS station numbers, and equipment are detailed in Table 3 and shown on Figure 4. As shown in Table 3, 16 of the 18 stations have continuous stage records, one of the 18 stations (Station 16, Aspen Creek above the confluence of Aspen and Leviathan Creeks) is monitored manually only during USGS field visits, and one station (Station 24, Mountaineer Creek) is a calculated relationship derived by subtracting Station 23 (Leviathan Creek above the confluence of Mountaineer and Leviathan Creeks) from Station 25 (Bryant Creek below the confluence of Mountaineer and Leviathan Creeks). Tables D-1 through D-16 (Appendix D) contain the final provisional data for the 2012 water year. The USGS typically publishes the data by the spring following the completion of the water year. Once published, the data is no longer provisional, and will then be submitted to ARCO by the Water Board for uploading to the Site-Wide Database. Some flow and stage data may have been impacted by snow and/or ice and modified accordingly by the USGS.

Real-time provisional flow and stage recordings can be viewed on the web for the following five stations: Adit, PUD, Station 15, Station 25, and Pond 1. The real-time data can be accessed through the USGS's website at: http://waterdata.usgs.gov/ca/nwis/current?type=flow.

Published data reports can be searched by USGS station number at the USGS website: http://ca.water.usgs.gov/waterdata/.

In early-October 2012, following the 2012 water year, flow and stage monitoring activities were discontinued by the Water Board at three locations: (1) the Channel Under Drain (CUD), (2) the overburden seep (Aspen Seep), and (3) Pond 4. The USGS discontinued flow and stage monitoring activities at these three locations because of access and health and safety concerns. More than 12 years of continuous flow and stage data are available for these three locations.

5. SITE MAINTENANCE

The Water Board conducted site maintenance work during the 2012 field season in accordance with the 2012 Work Plan and 2012 Work Plan Addendum. Maintenance activities included both routine and non-routine maintenance.

5.1 Routine Maintenance

Routine maintenance activities performed in 2012 included repairing perimeter fencing, removing sediment from storm water conveyances, and coordinating invasive plant control.

The perimeter fencing is barbed-wire and surrounds the majority of the site. In mid-June 2012, Water Board staff inspected the perimeter fence and noted that minor repairs to the fence were required in several locations around the site. Water Board staff repaired the perimeter fence as time was available in July through September 2012.

Water Board staff visually inspected storm water conveyances in the pit and around the ponds for the presence of accumulated sediment. Water Board staff directed URS staff to remove accumulated sediment from the storm water conveyance ditches in the pit, Pond 2 North/South area, and Pond 1 area. Sediment removal from the storm water conveyances was completed in early to mid-June 2012.

The El Dorado County, Department of Agriculture (EDCDA) visited Leviathan Mine on September 14, 2012 and spot applied an herbicide (Telar®) on invasive plants. This year, as in 2002 through 2011, the EDCDA sprayed to eradicate tall whitetop (*Lepidium latifolium*).

5.2 Non-Routine Maintenance

Due to the unusually dry winter of 2011-2012, the Water Board was able to complete a number of non-routine maintenance activities, in large part because less time was needed to treat AMD stored in the upper ponds. Non-routine maintenance activities performed in 2012 included: (1) removal of sediment and vegetation from the Upper Tributary concrete channel; (2) sludge removal from Pond 1; (3) piping and pipe penetration boot repairs in Pond 3; (4) pond liner leak detection surveys conducted in Ponds 1, 2 North, 2 South, and 3; and (5) pond liner repairs.

5.2.1 Upper Tributary Sediment Removal

Accumulated sediment and vegetation within the Upper Tributary concrete channel was removed by URS in late-August 2012. Sediment and vegetation was removed with a tracked excavator and placed in a dump truck for relocation to a flat area north east of the Water Board's upper staging area. Approximately 190 cubic yards of sediment and vegetation was removed from the Upper Tributary concrete channel.

5.2.2 Pond 1 Sludge Removal

Since 1999, partially treated AMD and sludge has been occasionally directed into Pond 1 during treatment startup and testing operations. Accumulated sludge in Pond 1 was removed to facilitate pond liner testing discussed below in section 5.2.4.

Sludge from Pond 1 was sampled by Water Board staff on September 5, 2012, and was analyzed for comparisons with TTLC and STLC for Title 22 metals plus aluminum and iron, and percent solids. Analytical results for the Pond 1 sludge samples collected by Water Board staff are summarized in Table A-6 of Appendix A. These sludge samples were collected on September 5, 2012, at which time the sludge in Pond 1 had been thoroughly mixed by heavy equipment. These three sludge samples averaged approximately 57 percent solids. With the exception of the TTLC and STLC analysis for arsenic, the sludge did not exceed any other TTLC or STLC limits. The total concentrations for arsenic exceeded the TTLC in all three samples. The arithmetic average arsenic concentration for these three samples was 3443 mg/kg on a dry-weight basis. The TTLC for arsenic is 500 mg/kg as measured on a wet-weight basis. At the time of disposal in mid-September, the concentration of solids in the sludge averaged 57 percent, which resulted in an average arsenic concentration on a wet weight basis of 1963 mg/kg, exceeding the TTLC for arsenic at the time of disposal. The STLC for arsenic was exceeded in two of the three samples collected. The arithmetic average STLC arsenic concentration for the three samples is 33.8 mg/L. The STLC for arsenic is 5 mg/L. Additional analytical results for Pond 1 sludge samples collected by URS for disposal purposes can also be seen in Table A-6 of Appendix A.

Pond 1 sludge removal operations were performed by the Water Board's contractor, URS, from early-August to mid-September 2012. Excavated sludge was stockpiled within the berms of Pond 1 and Pond 3 to allow further dewatering prior to hauling. Approximately 1600 tons of material was removed from Pond 1 during the 2012 season and hauled to a Class I hazardous waste landfill in Beatty, Nevada for disposal. Hazardous waste manifests are available for review at the Water Board's office in South Lake Tahoe. A small stockpile (approximately 40 cubic yards) of sludge excavated from Pond 1 was left within the berms of Pond 3 for disposal during the 2013 treatment season.

5.2.3 Pond 3 Piping and Pipe Penetration Boot Repairs

Repairs were made at each of the three pipe penetrations in Pond 3 including: (1) the Pond 1 inlet into Pond 3, (2) the Pond 2 North and Pond 2 South inlet into Pond 3, and (3) the Pond 3 overflow outlet, during the 2012 treatment season. Repairs were made by the Water Board's contractor, URS, and Thunder Mountain Enterprises, Inc. (TMEI)

Repairs at the Pond 1 inlet into Pond 3 included removal of existing piping at the first pipe joint behind the liner and replacement with approximately 8 feet of SDR 35 PVC pipe, repairs to the concrete pad underneath the liner, installation of a new pipe boot, and installation of a stainless steel anchor strap.

Repairs were performed at the Pond 2 North and Pond 2 South inlet into Pond 3. Repairs included removal of deteriorating concrete, replacement of the existing standpipe with a straight section of SDR 35 PVC pipe, replacement of concrete, installation of a new pipe boot, and installation of a stainless steel anchor strap.

Repairs were also performed at the Pond 3 overflow outlet structure. Repairs included replacement of the standpipe with a new SDR 35 PVC standpipe, installation of a new pipe boot, and replacement of deteriorating concrete.

5.2.4 Pond Liner Leak Detection Survey

Dipole leak detection surveys were conducted on the pond liners in Ponds 1, 2 North, 2 South, and 3 by Geo-Logic Associates (GLA). Liner leak detection surveys were performed during three mobilizations from July 24, 2012 to September 18, 2012.

Dipole leak detection surveys were performed by GLA on the pond liners in Ponds 2 North and 2 South from July 24 - 26, 2012. Prior to the survey, URS electrically isolated the pond liner cover material by excavating a trench around the entire perimeter of each pond to the depth of the pond liner. URS also electrically isolated all concrete penetrations through the liners by removing the liner cover material around the penetrations. GLA located one, one-inch diameter hole near the center of Pond 2 South where a wooden stake punctured through the liner. One anomaly was excavated near the perimeter isolation trench in both Pond 2 North and Pond 2 South; however, upon investigation, these anomalies were not caused by holes in the liners.

A dipole leak detection survey was performed by GLA on the pond liner in Pond 3 on August 20 and 21, 2012. Prior to the survey, URS electrically isolated the pond liner cover material by excavating a trench around the entire perimeter of the pond to the depth of the pond liner. URS also electrically isolated all penetrations through the liners by excavating the liner cover material around the penetrations. GLA located and excavated one anomaly in Pond 3; however, upon investigation, this anomaly was not caused by a hole in the liner.

A dipole leak detection survey was performed by GLA on the pond liner in Pond 1 on September 17 and 18, 2012. Prior to the survey, URS electrically isolated the pond liner cover material by excavating a trench around the entire perimeter of the pond to the depth of the pond liner. URS also electrically isolated all penetrations through the liners by excavating the liner cover material around the penetrations. GLA located one, two-inch diameter hole on the floor of Pond 1. URS indicated that this hole was created in September 2012 during Pond 1 sludge removal activities discussed above in Section 5.2.2.

Additional details on the dipole leak detection surveys are provided in Appendix F – *Final Completion Report, Pond Liner Leak Detection and Repairs for Leviathan Mine Ponds 1, 2 North, 2 South and 3*, URS Corporation, November 2012.

5.2.5 Pond Liner Repairs

Repairs to pond liners and pipe boots were performed by TMEI. Prior to performing repairs, TMEI conducted a liner repair test to determine which currently available repair materials and bonding methods would be best suited for repairs to the 36-mil scrim reinforced Chlorinated Polyethylene (CPE) geomembrane as well as the 36-mil scrim reinforced Chlorosulfonated Polyethylene (CSPE) used in 2004 for pipe boots. Additional details are available in Appendix F – *Final Completion Report, Pond Liner Leak Detection and Repairs for Leviathan Mine Ponds 1, 2 North, 2 South, and 3,* URS Corporation, November 2012.

TMEI repaired the following: (1) the puncture located during the leak detection survey caused by a stake in Pond 2 South, (2) the small tear in Pond 1 located during the leak detection survey created during sludge removal activities in September 2012, (3) numerous holes created during the excavation of isolation trenches above the high water line, (4) three holes above the high water line created by stakes, (5) several pre-existing holes above the high water line discovered in the isolation trenches, (6) one large rip in Pond 1 created during September 2012 sludge removal activities that was repaired prior to the leak detection survey, and (7) several small holes created while investigating an anomaly on the northern bank of Pond 2 North. All liner repairs passed an air lance test following ASTM test method D4437 prior to being backfilled. Additional details are available in Appendix F – *Final Completion Report, Pond Liner Leak Detection and Repairs for Leviathan Mine Ponds 1, 2 North, 2 South, and 3,* URS Corporation, November 2012.

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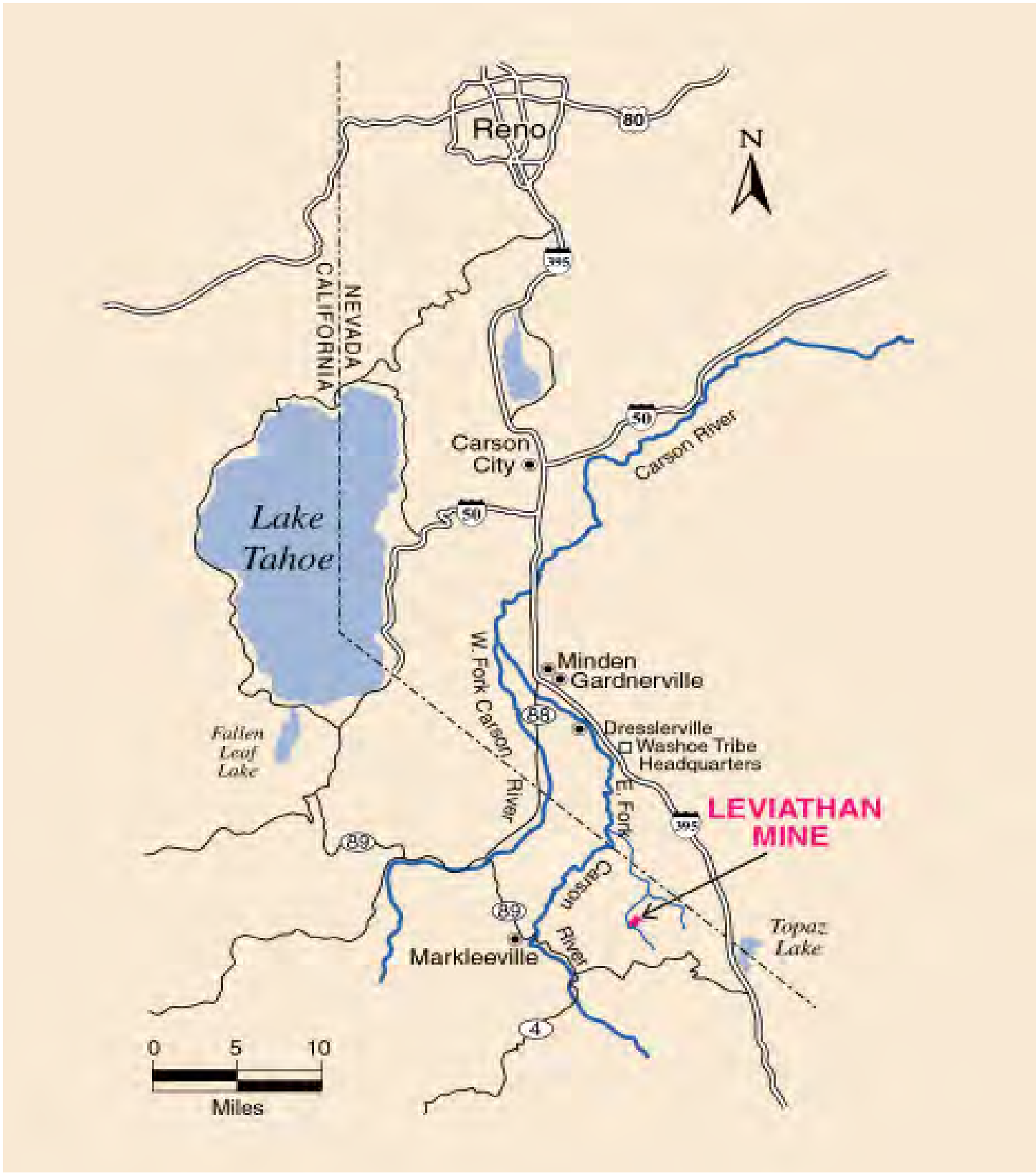

FIGURE 1
SITE LOCATION

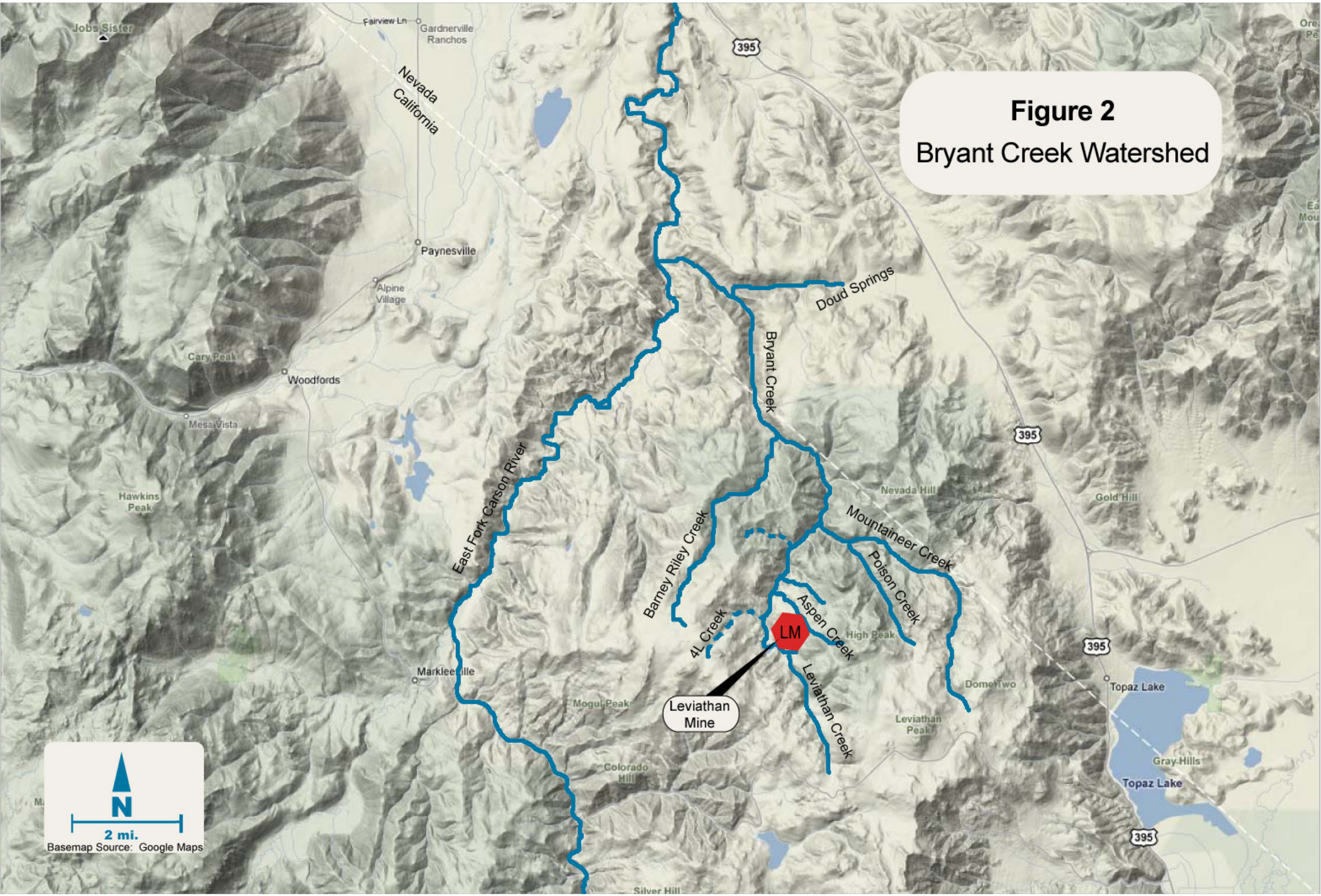
Figure 2
Bryant Creek Watershed
Jobs Sister
Fairview Ln
Gardnerville Ranchos
Nevada
California
395
Paynesville
Alpine Village
Doud Springs
Bryant Creek
Cary Peak
Woodfords
Mesa Vista
East Fork Carson River
Hawkins Peak
Nevada Hill
Gold Hill
Mountaineer Creek
Barney Riley Creek
Poison Creek
Aspen Creek
4L Creek
LM
High Peak
Markleeville
Leviathan Mine
Leviathan Creek
Mogul Peak
Dome Two
Topaz Lake
Leviathan Peak
Gray Hills
Colorado Hill
Silver Hill
N
2 mi.
Basemap Source: Google Maps

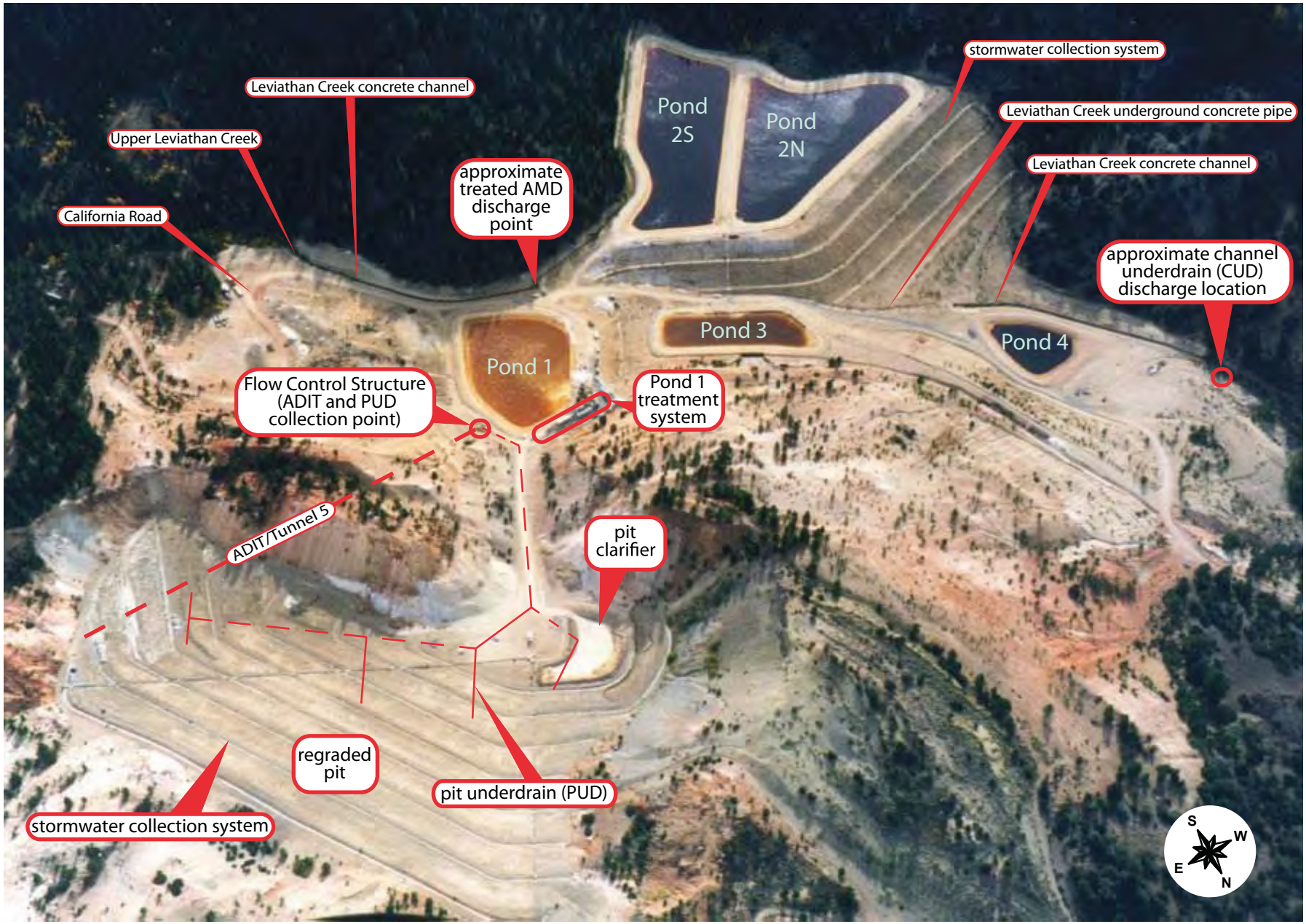

FIGURE 3
LAHONTAN WATER BOARD AMD CAPTURE AND TREATMENT SYSTEM

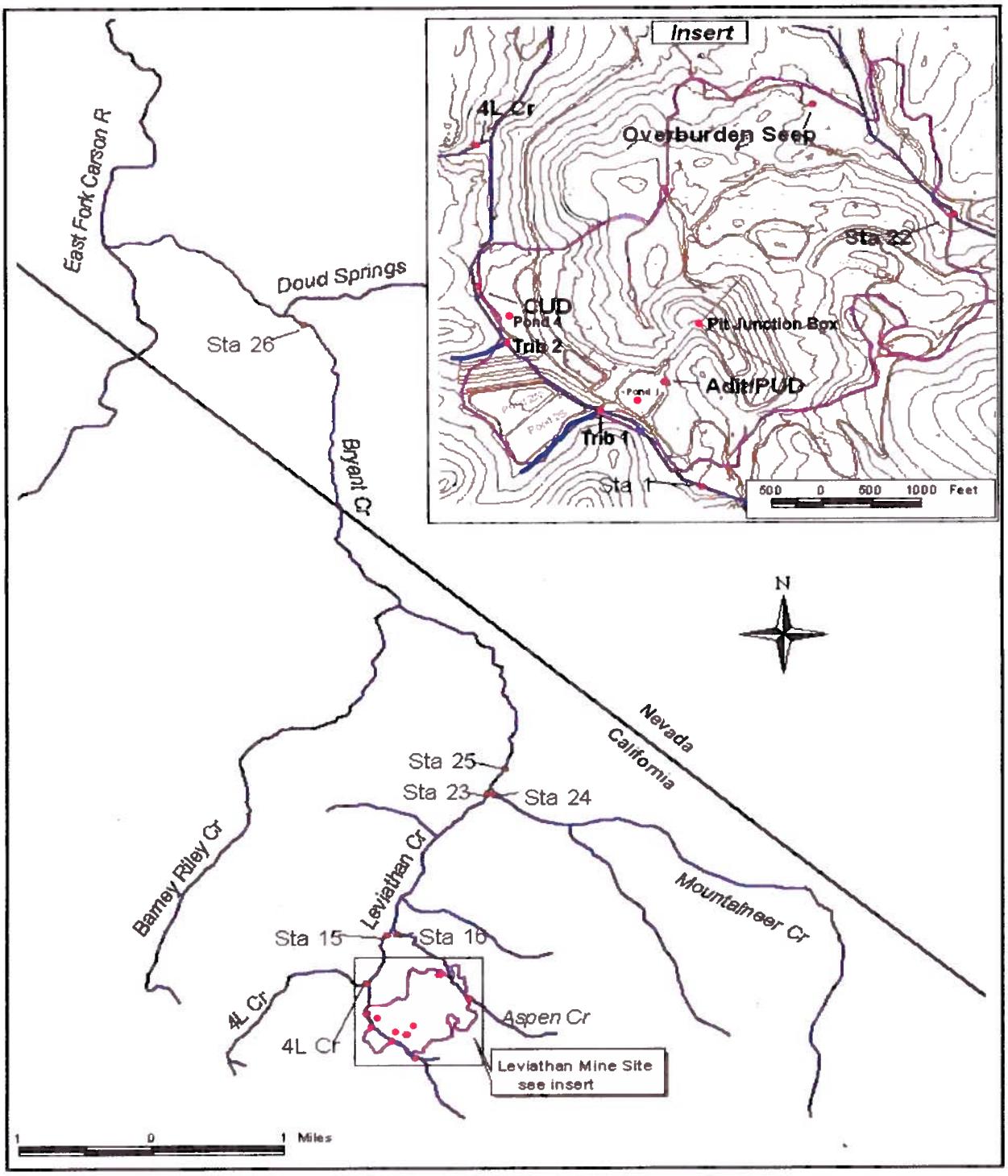

FIGURE 4
FLOW AND STAGE MONITORING LOCATIONS

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Table 2: USEPA Discharge Criteria
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TABLE 1
2012 SUMMER POND WATER TREATMENT MONITORING PROGRAM
LEVIATHAN MINE, ALPINE COUNTY, CALIFORNIA

SAMPLE LOCATION	LOCATION DESCRIPTION	ANALYSES	SCHEDULE	SAMPLER
Influent	Sampling port prior to lime addition	EPA-Required Discharge Criteria[1] with Additional Analytes[2]	weekly	Contractor
Mid Process	Various	pH, Temperature (field)	several times per day, as needed	Contractor
Effluent	Weir Box	pH, Temperature (field)	several times per day, as needed	Contractor
		EPA-Required Discharge Criteria	twice per week[5]	Contractor
		EPA-Required Discharge Criteria with Additional Analytes	weekly	Contractor
Duplicate Samples	Effluent samples at weir box	EPA-Required Discharge Criteria	minimum of 10%	Contractor
Field Method Blank	Collected at Weir Box using laboratory-supplied inorganic blank water	EPA-Required Discharge Criteria	minimum of 10%	Contractor
Sludge	Pit Clarifier	CAM-17[3] metals plus Al and Fe (for comparison with STLC and TTLC)[4]	three composite samples collected once per year after treatment	Contractor

Notes:
1. Dissolved As, Al, Cd, Cr, Cu, Fe, Pb, Ni, Zn (off-site laboratory); total recoverable Se (off-site laboratory); pH (field); temperature (field)
2. Dissolved Ca, Co, Mg, Mn, sulfate, TDS (off-site laboratory analysis)
3. Refers to 22 CCR 66261.24(a)(2)(A); CAM-17 metals: Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Tl, V, Zn (off-site lab analysis)
4. STLC is the Soluble Threshold Limit Concentration and TTLC is the Total Threshold Limit Concentration.
5. Effluent samples were collected twice per week until discharge from the Pit Clarifier dropped below 5 gallons per minute.

Table 2
USEPA Discharge Criteria
Leviathan Mine, Alpine County, California

Water Quality Parameter	**Maximum** f2	**Average** f4
pH	Between 6.0 – 9.0 SU f1	
Arsenic (dissolved)	0.34 mg/l	0.15 mg/l f3
Aluminum (dissolved)	4.0 mg/l	2.0 mg/l f3
Cadmium (dissolved)	0.009 mg/l	0.004 mg/l f3
Chromium (dissolved)	0.97 mg/l	0.31 mg/l f3
Copper (dissolved)	0.026 mg/l	0.016 mg/l f3
Iron (dissolved)	2.0 mg/l	1.0 mg/l f3
Lead (dissolved)	0.136 mg/l	0.005 mg/l f3
Nickel (dissolved)	0.84 mg/l	0.094 mg/l f3
Selenium (Total Recoverable)	Not Promulgated	0.005 mg/l f3
Zinc (dissolved)	0.21 mg/l	0.21 mg/l f3

Notes:
f1: pH measurement based on 24-hour (single day) average discharge.
f2: Concentrations based on a daily grab samples, each grab sample field-filtered and acid fixed promptly after collection.
f3: Concentrations based on four daily grab samples, each grab sample field-filtered and acid fixed promplty after collection.
f4: If the concentration detected by the contract laboratory is less than the detection limit, 1/2 the detection limit shall be used in calculating the Average concentration.

TABLE 3
2012 FLOW AND STAGE MONITORING LOCATIONS
LEVIATHAN MINE, ALPINE COUNTY, CALIFORNIA

Station ID (USGS Number)	Station Description	Equipment	Installation of Gaging Station
Continuous Stage Measurement and Calculated Flow			
Station 1 (10308783)	Leviathan Creek above the mine	Continuous flow recorder and appurtenances, solar power supply.	October 1998
Pit Under Drain (PUD) (10308785)	Drainage from shallow ground water collection pipes in pit, diverted into evaporation ponds	Continuous flow recorder and appurtenances, solar power supply, telemetry (real time provisional data available).	October 1999
Adit (10308784)	Drainage from tunnel #5 diverted into evaporation ponds	Continuous flow recorder and appurtenances, solar power supply, telemetry (real time provisional data available).	October 1999
Channel Under Drain (CUD) (103087885)	Discharge from channel under drain below Leviathan Creek concrete channel	Continuous flow recorder and appurtenances, solar power supply, telemetry (real time provisional data available).	October 1999
Overburden Seep (OS) (103087892)	Overburden seepage (a.k.a. Aspen Seep), above the Bioreactors	Continuous flow recorder and appurtenances, solar power supply.	October 1998
4L Creek (103087889)	4L Creek just above confluence with Leviathan Creek	Continuous flow recorder and appurtenances, solar power supply.	October 2003
Station 15 (10308789)	Leviathan Creek, above the confluence of Leviathan and Aspen creeks	Continuous flow recorder and appurtenances, solar power supply, telemetry (real time provisional data available).	October 1998
Station 22 (103087891)	Aspen Creek above mine	Continuous flow recorder and appurtenances, solar power supply.	October 2003
Station 23 (10308792)	Leviathan Creek above the confluence of Leviathan and Mountaineer creeks	Continuous flow recorder and appurtenances, solar power supply	November 1999
Station 25 (10308794)	Bryant Creek below the confluence of Leviathan and Mountaineer creeks	Continuous flow recorder and appurtenances, solar power supply, telemetry (real time provisional data available).	October 1998
Station 26 (10308800)	Bryant Creek above the confluence of Doud Springs and Bryant Creek	Continuous flow recorder and appurtenances, solar power supply, telemetry (real time provisional data available).	August 2001
Pit Junction Box (103087855)	Storm water collection vault in open pit	Continuous flow recorder and appurtenances, solar power supply.	October 2009
Unnamed Trib 2 (103087865)	Ephemeral tributary north of Pond 2 North (Commonly referred to as the Lower Tributary)	Continuous flow recorder and appurtenances, solar power supply.	November 2009
Unnamed Trib 1 (103087835)	Ephemeral tributary south of Pond 2 South (Commonly referred to as the Upper Tributary)	Continuous flow recorder and appurtenances, solar power supply.	November 2009
Continuous Stage Measurement			
Pond 1 Stage (103087853)	Water level in Pond 1	Continuous stage recorder and appurtenances, solar power supply, telemetry (real time provisional data available).	October 1999
Pond 4 Stage (103087887)	Water level in Pond 4	Continuous stage recorder and appurtenances, solar power supply, telemetry (real time provisional data available).	October 1999
Other Flow Data			
Station 16 (103087898)	Aspen Creek, above the confluence of Leviathan and Aspen creeks	Hand-held flow meters. Monthly flow measurements to establish relationship with STA 15.	not applicable
Station 24	Mountaineer Creek above the confluence of Leviathan and Mountaineer creeks	None. Flow calculated by difference on a monthly basis: (STA 25 – STA 23 = STA 24).	not applicable

APPENDICES

Appendix A - Data Summary for 2012 Pond Water Treatment

Table A-1: 2012 Pond Water Treatment, Daily Discharge Summary
Table A-2: 2012 Pond Water Treatment Effluent Field and Analytical Results
Table A-3: 2012 Pond Water Treatment Influent Field and Analytical Results
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Table A-6: 2012 Pond 1 Sludge and Additional Pit Clarifier 2011 Sludge Analytical Results

Table A-1
2012 Pond Water Treatment
Daily Discharge Summary

Date	Daily Discharge (Gallons)	Cumulative Discharge (Gallons)
7/12/2012	51,300	51,300
7/13/2012	187,200	238,500
7/14/2012	244,800	483,300
7/15/2012	76,320	559,620
7/16/2012	109,440	669,060
7/17/2012	224,190	893,250
7/18/2012	244,800	1,138,050
7/19/2012	228,960	1,367,010
7/20/2012	214,560	1,581,570
7/21/2012	201,600	1,783,170
7/22/2012	187,200	1,970,370
7/23/2012	129,930	2,100,300
7/24/2012	67,800	2,168,100
7/25/2012	162,720	2,330,820
7/26/2012	175,680	2,506,500
7/27/2012	139,680	2,646,180
7/28/2012	83,520	2,729,700
7/29/2012	44,640	2,774,340
7/30/2012	27,360	2,801,700
7/31/2012	17,280	2,818,980
8/1/2012	10,080	2,829,060
8/2/2012	4,320	2,833,380
8/3/2012	3,600	2,836,980
8/4/2012	2,592	2,839,572
8/5/2012	1,728	2,841,300
8/6/2012	1,152	2,842,452

Note:
Volume of treated AMD discharged to Leviathan Creek as measured at the Water Board weir box

Table A-2
2012 Pond Water Treatment Effluent Field and Analytical Results

SAMPLE ID	Sample Description	Sample Date	pH (SU)	TEMP	Aluminum		Arsenic		Cadmium		Calcium		Chromium		Cobalt		Copper		Iron		Lead		Magnesium		Manganese		Nickel		Selenium		Sulfate (as SO4)		Total Dissolved Solids		Zinc	
USEPA Daily Maximum Discharge Criteria			**6.0 - 9.0**		**4**		**0.34**		**0.009**		**NP**		**0.97**		**NP**		**0.026**		**2**		**0.136**		**NP**		**NP**		**0.84**		**NP**		**NP**		**NP**		**0.21**	
USEPA 4-Day Average Discharge Criteria			**NA**		**2**		**0.15**		**0.004**		**NP**		**0.31**		**NP**		**0.016**		**1**		**0.005**		**NP**		**NP**		**0.094**		**0.005**		**NP**		**NP**		**0.21**	
					Result	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**
1213PWT001-PC	Pre-Discharge	07/10/2012	7.27	26.7 °C	0.58	B	0.0053		0.00029	J	NA		0.0034		NA		0.0036	B	0.062		0.00020	ND	NA		NA		0.017		0.0016		NA		NA		0.0020	ND
1213PWT002-PC	Pre-Discharge	07/11/2012	7.59	25.0 °C	0.34		0.0058		0.00041	J	NA		0.0050		NA		0.0025		0.087		0.00020	ND	NA		NA		0.052		0.0018		NA		NA		0.0020	ND
1213PWT004-EFF	PWT Effluent	07/12/2012	7.40	70.4 °F	0.0500	U	0.00565		0.000300	U	699	B	0.00553		0.00181		0.00216		0.0500	U	0.000500	U	56.1	B	0.0547		0.0222		0.00536		1940		3030		0.0100	U
1213PWT007-EFF	PWT Effluent	07/17/2012	6.95	66.4 °F	0.0500	U	0.00703		0.000300	U	629		0.00358	*	0.00122		0.00188	J	0.0500	U	0.000500	U	50.2		0.214		0.0170		0.00540		1720		2640		0.0100	U
1213PWT008-EFF	Duplicate	07/17/2012	6.95	66.4 °F	0.0500	U	0.00681		0.000300	U	617		0.00261		0.00121		0.00169	J	0.0500	U	0.000500	U	49.1		0.217		0.0165		0.00500		1710		2640		0.0100	U
1213PWT009-EFF	PWT Effluent	07/19/2012	7.98	62.9 °F	0.0500	U	0.00789		0.000300	U	625		0.00179	J	0.00167		0.00191	J	0.0500	U	0.000500	U	45.5		0.247		0.0189		0.00481		1700		2820		0.0100	U
1213PWT012-EFF	PWT Effluent	07/25/2012	7.52	64.2 °F	0.0500	U	0.00674		0.000300	U	585		0.00217		0.00146		0.00277		0.0500	U	0.000500	U	43.1		0.174		0.0239		0.00511		1450		104	A,*	0.0100	U
1213PWT013-EFF	Duplicate	07/25/2012	7.52	64.2 °F	0.0500	U	0.00635		0.000300	U	579		0.00197	J	0.00138		0.00256		0.0500	U	0.000500	U	43.1		0.166		0.0236		0.00507		1420		2570		0.0100	U
1213PWT014-EFF	PWT Effluent	07/26/2012	7.83	69.2 °F	0.0500	U	0.00538		0.000300	U	580		0.00200	J	0.00145		0.00253		0.0500	U	0.000500	U	45.3		0.149		0.0228		0.00492	J	1520		2460		0.0100	U
1213PWT015-EFF	PWT Effluent	07/30/2012	--	--	0.0500	U	0.00356	J	0.00150	U	531		0.00557	J	0.00255	J	0.00523		0.0500	U	0.000500	U	47.6		0.0786		0.0234		0.00582		1570		2440		0.0100	U
1213PWT016-EFF	PWT Effluent	08/02/2012	--	--	0.0500	U	0.00411	J	0.00150	U	NA		0.00166	J	NA		0.00428		0.0500	U	0.000500	U	NA		NA		0.0230		0.00613		NA		NA		0.0100	U

Notes:

PC indicates sample collected from Pit Clarifier prior to the start of discharge of treated AMD to Leviathan Creek.

EFF indicates sample is a sample of effluent discharged to Leviathan Creek.

All values reported in milligrams per liter (mg/L) except pH which are in Standard Units and temperature which are in the units specified above.

All parameters are dissolved except Selenium which is total recoverable.

NA - Not Analyzed

-- Not recorded

NP - Not Promulgated

Qualifiers (Q):

J - Analyte positively identifed, but the quantitation was below the reporting limit.

U - Not detected at or above adjusted sample detection limit.

B - Analyte present in method blank.

A - anomalous data

ND - Analyte not detected at or above the method detection limit.

* - failed Relative Percent Difference (RPD) assessment

Table A-3
2012 Pond Water Treatment Influent Field and Analytical Results

SAMPLE ID	Sample Description	Sample Date	pH (SU)	Temp.	Aluminum		Arsenic		Cadmium		Calcium		Chromium		Cobalt		Copper		Iron		Lead		Magnesium		Manganese		Nickel		Selenium		Sulfate (as SO4)		Total dissolved solids		Zinc	
					Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1213PWT003-INF	PWT Influent	07/12/2012	2.36	72.5 °F	569		7.27		0.0737		422		1.56		4.11		2.57		751		0.00101		86.8		17.7		10.1		0.00474		5940		7480		2.09	
1213PWT005-INF	PWT Influent	07/17/2012	2.16	63.5 °F	625		7.93		0.0780		472		1.77		4.66		3.02		763		0.000810	J	88.2		20.4		11.1		0.00545		5710		8060		6.63	
1213PWT010-INF	PWT Influent	07/25/2012	2.46	59.5 °F	519		4.14		0.0748		517		1.43		3.95		2.24		606		0.00138		84.4		15.3		8.88		0.00513		5980		6950		3.72	

Notes:
All values reported in milligrams per liter (mg/L) except pH which are in Standard Units and temperature which are in the units specified above.
All parameters are dissolved except Selenium which is total recoverable.

Qualifiers (Q):
J - Analyte positively identifed, but the quantitation was below the reporting limit.

Table A-4
Summary of 2012
Pond Water Treatment Plant Operator's Logs

Date/Time		Influent Flowrate (gpm)	R-1 Setpoint	R-1 pH	R-1 temp	R-2 Setpoint	R-2 pH	R-2 temp	FF-2 pH	Clarifier Pit pH	Clarifier Pit temp	Discharge Weir pH	Discharge Weir temp
07/09/12	11:00	40	3.20	3.34	74.70	8.20	3.92	70.50	3.15	ND	ND	ND	ND
07/09/12	11:30	--	3.20	2.63	74.50	8.20	8.32	71.40	8.60	ND	ND	ND	ND
07/09/12	12:30	200	3.20	3.21	75.70	8.23	8.29	71.70	8.24	ND	ND	ND	ND
07/09/12	13:30	--	3.20	3.30	77.60	8.20	8.39	72.40	8.24	ND	ND	ND	ND
07/09/12	14:30	160	3.20	3.60	79.00	8.40	8.57	74.20	8.28	ND	ND	ND	ND
07/09/12	15:30	--	3.20	2.94	69.50	8.40	8.34	74.90	8.40	7.80	70.60	ND	ND
07/09/12	16:30	100	3.20	2.75	70.20	8.40	8.36	76.60	8.43	7.63	76.90	ND	ND
07/09/12	17:30	--	3.20	3.32	71.40	8.40	8.37	77.20	8.23	7.76	73.70	ND	ND
07/09/12	18:30	75	3.20	3.43	71.40	8.40	8.36	77.90	7.57	ND	ND	ND	ND
07/09/12	19:30	--	3.20	3.24	70.90	8.40	8.37	78.00	8.39	7.95	23.60	ND	ND
07/09/12	20:30	74	3.20	3.33	69.70	8.40	8.39	78.20	8.43	8.07	22.90	ND	ND
07/09/12	21:30	--	3.20	3.29	69.70	8.30	8.32	78.10	8.43	8.18	22.70	ND	ND
07/09/12	22:30	21	3.20	3.41	69.20	8.00	8.31	77.90	8.32	8.23	21.90	ND	ND
07/09/12	23:30	110	3.00	3.08	68.00	7.80	7.79	77.00	7.62	7.98	21.30	ND	ND
07/10/12	0:30	40	3.00	3.04	67.30	7.90	8.07	76.60	7.79	7.82	21.00	ND	ND
07/10/12	1:30	--	3.10	3.28	66.60	8.00	8.30	76.20	8.03	7.77	20.60	ND	ND
07/10/12	2:30	40	3.20	3.31	66.10	8.20	8.25	75.50	8.25	7.87	20.80	ND	ND
07/10/12	3:30	--	3.20	3.32	65.40	8.30	8.39	74.90	8.34	8.01	20.40	ND	ND
07/10/12	4:30	40	3.20	3.24	64.90	8.30	8.27	73.90	8.40	8.12	20.00	ND	ND
07/10/12	5:30	--	3.20	3.42	64.20	8.30	8.27	74.00	8.42	8.13	19.70	ND	ND
07/10/12	6:30	40	3.20	3.39	63.50	8.30	8.29	73.50	8.42	8.19	19.60	ND	ND
07/10/12	7:30	--	3.20	3.38	63.00	8.30	8.41	72.80	8.42	7.70	68.30	ND	ND
07/10/12	8:30	40	3.20	3.23	62.80	8.30	8.29	72.40	8.61	7.60	71.30	ND	ND
07/10/12	9:30	--	3.20	3.27	62.50	8.30	8.29	72.40	8.53	7.60	73.50	ND	ND
07/10/12	10:30	40	3.20	3.29	63.50	8.30	8.46	72.40	8.51	7.80	75.40	ND	ND
07/10/12	12:00	--	3.20	3.22	64.40	8.30	8.45	72.80	8.63	7.63	82.20	ND	ND
07/10/12	12:30	40	3.20	3.26	65.40	8.30	8.38	73.40	8.51	--	--	ND	ND
07/10/12	13:30	--	3.20	3.37	66.70	8.30	8.38	73.60	8.51	7.65	82.80	ND	ND
07/10/12	14:30	40	3.20	3.39	67.80	8.30	8.40	74.30	8.51	8.00	82.80	ND	ND
07/10/12	15:30	--	3.20	3.25	69.20	8.30	8.09	73.40	8.17	7.68	80.00	ND	ND
07/10/12	16:30	140	3.20	3.36	71.30	8.30	8.78	77.70	8.02	7.35	77.50	ND	ND
07/10/12	17:30	--	3.20	3.23	71.10	8.30	8.81	78.50	8.50	7.44	77.70	ND	ND
07/10/12	18:30	140	3.20	3.36	70.40	8.30	8.26	78.40	8.44	7.44	77.50	ND	ND
07/10/12	19:30	--	3.20	3.24	70.10	8.35	8.11	78.20	8.50	7.68	24.30	ND	ND
07/10/12	20:30	140	3.20	3.28	69.90	8.45	8.32	78.20	8.68	8.05	23.90	ND	ND
07/10/12	21:30	--	3.20	3.23	69.70	8.35	8.18	77.80	8.57	8.10	23.40	ND	ND
07/10/12	22:30	140	3.20	3.23	68.90	8.30	8.14	77.50	8.54	8.14	23.00	ND	ND
07/10/12	23:30	--	3.20	3.17	68.50	8.20	8.01	77.20	8.30	8.11	22.40	ND	ND
07/11/12	0:30	140	3.20	3.05	67.00	8.20	8.01	76.10	8.18	7.95	21.40	ND	ND
07/11/12	1:30	--	3.20	3.48	66.80	8.20	8.13	75.50	8.23	7.85	21.40	ND	ND
07/11/12	2:30	140	3.20	3.37	65.90	8.32	8.36	74.60	8.43	8.03	20.80	ND	ND
07/11/12	3:30	--	3.20	3.34	64.90	8.30	8.34	73.80	8.39	8.03	20.10	ND	ND
07/11/12	4:30	140	3.20	3.22	64.20	8.30	8.13	73.10	8.39	8.01	19.90	ND	ND
07/11/12	5:30	--	3.20	3.27	63.70	8.30	8.22	72.40	8.47	8.09	20.00	ND	ND
07/11/12	6:30	140	3.20	3.35	63.00	8.30	8.18	71.60	8.44	8.68	19.20	ND	ND
07/11/12	7:30	--	3.20	3.27	62.30	8.30	8.26	71.00	8.34	8.19	71.00	ND	ND
07/11/12	8:30	210	3.20	3.35	62.00	8.30	8.52	70.60	7.79	7.30	74.00	ND	ND
07/11/12	9:30	--	3.20	3.31	62.00	8.30	8.26	70.50	7.69	7.32	72.00	ND	ND
07/11/12	10:30	210	3.20	3.31	62.80	8.30	8.43	71.10	8.05	7.60	73.20	ND	ND
07/11/12	11:30	--	3.20	3.21	64.70	8.30	8.37	72.00	8.50	8.01	73.10	ND	ND
07/11/12	12:30	210	3.20	3.36	64.90	8.32	8.72	73.70	8.22	7.71	78.40	ND	ND
07/11/12	13:30	--	3.20	3.26	65.60	8.32	8.56	74.00	8.72	8.00	75.40	ND	ND
07/11/12	14:30	210	3.20	3.35	66.30	8.32	8.67	74.50	8.80	8.18	77.30	ND	ND
07/11/12	15:30	--	3.20	3.32	67.80	8.32	8.09	75.10	8.47	8.11	77.40	ND	ND
07/11/12	16:30	210	3.20	3.35	69.60	8.32	8.14	76.30	8.42	8.08	77.30	ND	ND
07/11/12	17:30	--	3.20	3.50	71.10	--	--	--	--	--	--	ND	ND
07/11/12	18:30	210	3.20	3.26	70.90	8.30	8.23	78.10	8.54	8.05	76.80	ND	ND
07/11/12	19:30	--	3.20	3.27	71.30	8.30	8.30	78.80	8.48	7.59	74.20	ND	ND
07/11/12	20:45	--	3.20	3.20	71.30	8.40	8.24	79.30	8.71	8.04	73.90	ND	ND
07/11/12	21:30	--	3.20	3.36	70.90	8.40	8.61	79.00	8.77	8.13	74.00	ND	ND
07/11/12	22:30	200	3.20	3.32	69.70	8.35	8.27	78.10	8.70	8.18	73.10	ND	ND

Table A-4
Summary of 2012
Pond Water Treatment Plant Operator's Logs

Date/Time		Influent Flowrate (gpm)	R-1 Setpoint	R-1 pH	R-1 temp	R-2 Setpoint	R-2 pH	R-2 temp	FF-2 pH	Clarifier Pit pH	Clarifier Pit temp	Discharge Weir pH	Discharge Weir temp
07/11/12	23:30	--	3.20	3.33	68.70	8.30	8.51	77.20	8.67	8.29	72.40	ND	ND
07/12/12	0:30	200	3.20	3.35	67.50	8.20	8.40	76.20	8.62	8.25	70.80	ND	ND
07/12/12	1:30	--	3.20	3.33	66.30	8.15	8.17	75.10	8.53	8.26	70.30	ND	ND
07/12/12	2:30	200	3.20	3.23	65.10	8.10	8.15	74.10	8.45	8.25	69.30	ND	ND
07/12/12	3:30	--	3.20	3.33	64.70	8.10	8.29	73.30	8.49	8.23	68.60	ND	ND
07/12/12	4:30	200	3.20	3.28	64.00	8.10	7.99	72.40	8.48	8.23	68.20	ND	ND
07/12/12	5:30	--	3.20	3.26	63.00	8.15	7.94	71.90	8.58	8.24	66.90	ND	ND
07/12/12	6:30	200	3.20	3.24	62.50	8.20	8.06	71.20	8.63	8.04	66.30	ND	ND
07/12/12	7:30	--	3.20	3.24	62.30	8.30	8.17	70.90	8.67	8.35	66.70	ND	ND
07/12/12	8:30	200	3.20	3.35	62.00	8.30	8.50	70.50	8.45	8.24	68.70	ND	ND
07/12/12	9:30	--	3.20	3.33	62.30	8.30	8.48	70.60	8.42	8.30	68.50	ND	ND
07/12/12	10:30	200	3.20	3.22	63.00	8.30	8.38	71.30	8.43	8.18	77.30	ND	ND
07/12/12	11:30	--	3.20	3.29	63.20	8.20	8.26	71.50	8.42	8.37	73.90	ND	ND
07/12/12	12:30	200	3.20	3.27	65.10	8.20	8.31	72.30	8.42	8.43	75.00	ND	ND
07/12/12	13:30	--	3.20	3.29	66.10	8.10	8.09	74.10	8.28	8.12	76.50	ND	ND
07/12/12	14:30	180	3.20	3.27	67.50	8.10	--	--	--	--	--	ND	ND
07/12/12	15:30	--	3.20	3.31	68.70	8.10	8.02	75.60	8.44	7.42	75.20	7.46	70.80
07/12/12	16:30	200	3.20	3.33	68.90	8.10	8.35	76.60	8.42	8.01	75.20	7.86	70.30
07/12/12	17:30	--	3.20	3.25	68.70	8.10	8.16	77.00	8.39	8.04	75.30	7.96	72.00
07/12/12	18:30	200	3.20	3.29	69.40	8.10	8.13	77.30	8.35	8.03	75.40	7.92	72.80
07/12/12	19:30	--	3.20	3.29	69.40	8.20	8.06	77.40	8.45	8.02	72.70	7.84	71.60
07/12/12	20:30	212	3.20	3.32	68.50	8.20	8.18	76.80	8.27	7.91	68.00	7.85	70.40
07/12/12	21:30	--	3.20	3.35	68.00	8.20	8.27	76.30	8.38	8.00	69.60	8.05	67.70
07/12/12	22:30	204	3.20	3.30	67.50	8.20	8.26	75.80	8.37	8.06	70.40	8.13	69.50
07/12/12	23:30	--	3.20	3.26	66.80	8.20	8.23	75.30	8.25	8.09	70.60	8.13	69.20
07/13/12	0:30	212	3.20	3.32	66.60	8.20	8.18	74.80	8.22	8.05	68.70	8.06	67.90
07/13/12	1:30	--	3.20	3.24	66.10	8.20	8.38	74.30	8.13	8.00	69.70	8.06	68.00
07/13/12	2:30	200	3.20	3.20	65.40	8.20	8.24	74.10	8.25	8.05	67.60	8.03	66.50
07/13/12	3:30	--	3.20	3.20	64.90	8.20	8.15	73.30	8.18	8.00	66.70	8.04	65.60
07/13/12	4:30	204	3.20	3.30	64.00	8.20	8.28	72.60	8.23	7.84	67.20	8.00	65.60
07/13/12	5:30	--	3.20	3.19	63.70	8.20	8.29	72.10	8.10	7.91	64.80	7.94	63.30
07/13/12	6:30	204	3.20	3.28	63.20	8.20	8.20	71.60	8.11	7.87	64.80	7.96	63.20
07/13/12	7:30	--	3.20	3.23	62.80	8.20	8.26	71.10	8.13	7.86	66.80	7.84	66.30
07/13/12	8:30	180	3.20	3.25	62.50	8.20	8.11	70.80	7.98	7.85	69.80	7.83	69.90
07/13/12	9:30	--	3.20	3.33	62.80	8.20	8.13	70.80	8.25	8.14	71.40	8.12	69.80
07/13/12	10:30	190	3.20	2.74	62.50	8.30	8.62	71.30	7.98	8.11	72.40	7.97	72.50
07/13/12	11:30	--	3.20	3.34	64.40	8.30	8.27	71.90	8.37	8.20	72.70	8.10	72.90
07/13/12	12:30	200	3.20	3.31	65.40	8.30	8.14	72.60	8.29	8.25	73.90	7.25	70.40
07/13/12	13:30	--	3.20	3.22	68.20	8.30	8.25	74.60	8.33	8.34	74.30	8.17	72.50
07/13/12	14:30	200	3.20	3.19	68.80	8.30	8.28	75.50	8.30	8.36	75.10	8.19	72.70
07/13/12	15:30	--	3.20	3.36	68.00	8.30	8.27	81.60	8.39	8.43	75.80	8.07	73.20
07/13/12	16:30	200	3.20	3.29	69.70	8.30	8.34	76.40	8.12	8.38	76.70	8.10	74.00
07/13/12	17:30	--	3.20	3.30	70.60	8.30	8.31	77.50	8.29	8.34	75.40	8.08	74.00
07/13/12	18:30	200	3.20	3.22	71.00	8.30	8.38	78.20	8.45	8.36	75.10	8.11	73.60
07/13/12	19:30	--	3.20	2.96	69.90	8.30	8.21	83.00	8.12	8.12	72.90	8.10	70.00
07/13/12	20:30	200	3.20	2.84	69.20	8.30	8.16	82.70	8.29	8.02	72.50	7.87	66.00
07/13/12	21:30	--	3.20	2.79	68.20	8.30	8.27	82.20	8.35	7.80	72.20	7.96	68.50
07/13/12	22:30	208	3.20	2.77	67.30	8.30	8.08	81.50	8.10	7.89	71.50	8.01	69.00
07/13/12	23:30	--	3.20	2.76	66.80	8.30	8.16	80.80	8.28	7.90	69.80	8.06	64.00
07/14/12	0:30	212	3.20	2.82	65.60	8.30	7.20	79.40	6.49	7.86	68.20	7.84	65.10
07/14/12	1:30	--	3.20	3.22	65.90	8.30	8.04	79.20	7.24	8.45	66.30	8.30	63.70
07/14/12	2:30	208	3.20	3.29	65.40	8.30	8.25	78.60	7.43	8.14	67.70	8.15	63.70
07/14/12	3:30	--	3.20	3.25	64.70	8.30	8.22	77.80	7.45	6.03	67.50	6.13	65.00
07/14/12	4:30	200	3.20	3.28	64.00	8.30	8.22	77.20	7.33	8.01	62.80	7.98	62.20
07/14/12	5:30	--	3.20	3.35	63.00	8.30	8.25	76.40	7.40	7.65	65.10	7.64	62.00
07/14/12	6:30	216	3.20	3.23	62.30	8.30	8.22	75.60	7.40	7.59	64.80	7.73	61.10
07/14/12	7:30	--	3.20	3.30	61.60	8.30	8.03	75.00	7.39	7.57	64.30	7.56	64.30
07/14/12	8:30	216	3.20	3.38	61.20	8.30	8.36	74.80	7.56	7.77	66.90	7.69	65.20
07/14/12	9:30	--	3.20	3.35	61.60	8.30	8.29	74.70	7.59	7.73	69.80	7.55	67.50
07/14/12	10:30	200	3.20	3.30	62.30	8.30	8.37	75.30	7.86	8.18	75.80	7.70	71.20
07/14/12	11:30	--	3.20	3.32	62.80	8.40	8.34	75.90	8.32	7.94	71.20	7.71	70.20

Table A-4
Summary of 2012
Pond Water Treatment Plant Operator's Logs

Date/Time		Influent Flowrate (gpm)	R-1 Setpoint	R-1 pH	R-1 temp	R-2 Setpoint	R-2 pH	R-2 temp	FF-2 pH	Clarifier Pit pH	Clarifier Pit temp	Discharge Weir pH	Discharge Weir temp
07/14/12	12:30	200	3.20	3.24	63.20	8.40	8.32	76.60	8.00	7.85	70.20	7.52	68.70
07/14/12	13:30	--	3.20	3.32	65.10	8.40	8.29	77.40	8.25	8.36	71.10	7.86	70.20
07/14/12	14:30	200	3.20	3.22	65.60	8.40	8.18	78.40	8.31	8.33	76.60	7.78	72.90
07/14/12	15:30	--	3.20	3.28	67.30	8.40	8.42	79.20	8.29	8.42	75.10	7.84	73.10
07/14/12	16:30	200	3.20	3.26	67.80	8.40	8.36	80.10	8.31	8.38	76.30	7.75	74.70
07/14/12	17:30	--	3.20	3.35	68.90	8.40	8.25	81.20	8.32	8.32	76.00	7.82	74.60
07/14/12	18:30	200	3.20	3.30	69.20	8.40	8.26	81.70	8.36	8.41	75.60	7.72	74.20
07/14/12	19:30	--	3.20	3.21	69.20	8.40	8.23	81.80	8.42	8.36	73.00	8.06	70.80
07/14/12	20:30	200	3.20	3.28	68.70	8.30	8.22	81.80	8.39	8.13	71.90	8.16	67.90
07/14/12	21:30	--	3.20	3.25	68.00	8.30	8.15	81.30	8.29	8.00	70.00	8.04	66.70
07/14/12	22:30	200	3.20	3.24	67.30	8.30	8.23	80.70	8.25	7.88	70.00	7.95	66.40
07/14/12	23:30	--	3.20	3.36	66.90	8.30	8.21	80.20	8.23	7.85	68.80	7.90	65.40
07/15/12	0:30	200	3.20	2.94	65.60	8.30	--	--	--	--	--	--	--
07/15/12	1:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	2:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	3:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	4:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	5:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	6:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	7:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	8:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	9:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	10:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	11:30	--	--	--	--	--	--	--	--	--	--	--	--
07/15/12	12:30	200	3.20	3.05	65.00	8.30	8.32	77.40	8.64	8.95	73.80	--	--
07/15/12	13:30	--	3.20	3.68	67.80	8.30	8.68	78.80	8.82	8.56	71.70	7.80	71.70
07/15/12	14:30	140	3.20	3.14	66.60	8.30	8.51	79.80	8.37	7.91	71.80	7.63	67.80
07/15/12	15:30	--	3.20	3.05	66.60	8.30	8.09	79.80	8.25	8.06	72.90	7.67	69.90
07/15/12	16:30	170	3.20	3.14	67.30	8.30	8.36	80.20	8.71	8.70	73.40	7.75	69.50
07/15/12	17:30	--	3.20	3.15	66.80	8.30	8.04	80.20	7.84	8.13	75.40	7.91	66.60
07/15/12	18:30	170	3.20	3.19	67.80	8.30	8.59	80.20	8.77	8.66	71.70	8.32	63.40
07/15/12	19:30	--	3.20	3.20	68.00	8.30	7.96	80.60	7.81	8.02	71.10	7.72	65.50
07/15/12	20:30	160	3.20	3.20	68.00	8.30	8.48	80.90	8.48	6.71	--	6.96	--
07/15/12	21:30	--	3.20	3.21	67.30	8.30	8.53	80.60	8.65	8.55	69.20	8.03	64.50
07/15/12	22:30	160	3.20	3.23	66.80	8.30	8.46	80.20	8.63	8.62	70.50	8.12	65.50
07/15/12	23:30	--	3.20	3.24	66.40	8.30	8.37	79.70	8.61	8.45	68.80	8.05	65.10
07/16/12	0:30	160	3.20	3.23	65.90	8.30	8.39	79.20	8.59	8.38	69.20	7.95	66.30
07/16/12	1:30	--	3.20	3.23	65.10	8.30	8.40	78.60	8.61	8.46	--	8.17	64.60
07/16/12	2:30	160	3.20	3.21	64.00	8.30	8.42	77.80	8.57	8.41	66.60	8.25	63.40
07/16/12	3:30	--	3.20	3.19	63.50	8.30	8.32	76.90	8.47	8.20	65.90	8.16	62.60
07/16/12	4:30	160	3.20	3.17	62.50	8.30	8.36	76.20	8.37	8.10	65.50	8.13	62.00
07/16/12	5:30	--	3.20	3.17	61.80	8.30	8.19	75.40	8.31	8.05	65.50	8.11	61.70
07/16/12	6:30	160	3.20	3.17	61.10	8.30	8.18	74.70	8.25	7.99	64.80	7.75	60.90
07/16/12	7:30	--	3.20	3.18	60.60	8.30	8.31	74.30	8.27	7.47	63.40	7.58	64.00
07/16/12	8:30	170	3.20	3.29	60.10	8.30	8.37	73.80	8.40	8.08	67.70	7.92	64.40
07/16/12	9:30	--	3.20	3.28	60.40	8.30	8.03	73.80	8.26	8.17	68.30	7.85	66.50
07/16/12	10:30	170	3.20	3.30	61.10	8.30	8.67	74.20	8.51	8.03	69.20	7.87	68.30
07/16/12	11:30	--	3.20	3.31	62.00	8.30	8.41	74.80	8.17	8.10	68.20	7.99	68.60
07/16/12	12:30	170	3.20	3.30	63.00	8.30	8.34	75.60	8.53	8.07	68.00	7.85	68.50
07/16/12	13:30	--	3.20	3.28	64.70	8.30	8.08	76.70	8.08	8.02	74.20	7.82	74.70
07/16/12	14:30	180	3.20	3.29	65.40	8.30	8.31	77.80	8.52	8.20	74.70	7.93	73.00
07/16/12	15:30	--	3.20	3.30	66.10	8.30	8.18	78.40	8.28	8.11	71.10	7.85	70.00
07/16/12	16:30	180	3.20	3.31	66.60	8.30	8.08	79.10	8.27	8.00	75.10	7.94	68.60
07/16/12	17:30	--	3.20	3.31	66.60	8.30	8.21	79.60	8.29	7.99	72.70	7.88	71.00
07/16/12	18:30	200	3.20	3.28	66.80	8.30	8.37	79.60	8.07	7.97	70.60	7.83	69.40
07/16/12	19:30	--	3.20	3.17	67.00	8.30	8.23	79.70	8.47	8.23	70.00	8.17	67.50
07/16/12	20:30	200	3.20	3.16	66.60	8.30	8.28	79.60	8.19	8.01	72.10	8.08	67.00
07/16/12	21:30	--	3.20	3.16	65.60	8.30	8.59	79.00	8.80	8.09	69.10	7.98	65.80
07/16/12	22:30	200	3.20	3.15	64.70	8.30	7.74	78.30	7.85	--	--	7.56	67.70
07/16/12	23:30	--	3.25	3.20	64.20	8.30	8.65	77.60	8.59	7.78	67.20	7.74	64.30
07/17/12	0:30	200	3.25	3.22	63.20	8.30	8.44	77.00	8.43	8.05	65.90	8.06	63.70

Table A-4
Summary of 2012
Pond Water Treatment Plant Operator's Logs

Date/Time		Influent Flowrate (gpm)	R-1 Setpoint	R-1 pH	R-1 temp	R-2 Setpoint	R-2 pH	R-2 temp	FF-2 pH	Clarifier Pit pH	Clarifier Pit temp	Discharge Weir pH	Discharge Weir temp
07/17/12	1:30	--	3.20	3.15	62.50	8.30	8.35	76.20	8.64	8.11	66.40	8.16	62.20
07/17/12	2:30	200	3.25	3.13	61.60	8.30	8.37	75.50	8.70	8.20	65.20	8.22	61.40
07/17/12	3:30	--	3.30	3.14	60.60	8.30	8.26	74.60	8.52	8.08	63.90	8.09	61.10
07/17/12	4:30	200	3.30	3.14	59.90	8.30	8.43	74.00	8.64	8.04	65.00	8.11	61.20
07/17/12	5:30	--	3.30	3.14	59.20	8.30	8.45	73.10	8.56	8.04	67.30	8.07	62.20
07/17/12	6:30	200	3.20	3.13	58.70	8.30	8.33	72.70	8.44	8.02	64.20	8.02	60.50
07/17/12	7:30	--	3.20	3.12	58.50	8.30	7.69	72.00	7.97	6.80	59.70	7.03	59.60
07/17/12	8:30	210	3.20	3.15	58.50	8.30	8.28	71.70	7.63	--	--	6.60	63.60
07/17/12	9:30	--	3.20	3.18	59.00	8.30	8.33	72.10	8.20	6.86	68.00	7.18	66.20
07/17/12	10:30	210	3.20	3.19	59.70	8.30	8.03	72.70	7.68	7.06	67.90	7.11	64.40
07/17/12	11:30	--	3.20	3.20	61.90	8.30	8.38	73.50	8.25	7.35	70.10	7.15	65.20
07/17/12	12:30	205	3.20	3.19	61.80	8.30	8.45	74.70	8.29	7.46	70.40	7.77	66.90
07/17/12	13:30	--	3.20	3.20	63.50	8.30	8.36	75.70	8.31	7.13	70.10	6.95	66.40
07/17/12	14:30	205	3.20	3.18	65.40	8.30	8.24	77.00	8.33	7.19	74.10	7.04	69.30
07/17/12	15:30	--	3.20	3.23	65.60	8.30	8.18	78.11	8.04	7.15	71.40	6.97	70.10
07/17/12	16:30	205	3.20	3.22	66.60	8.30	8.54	78.20	8.54	8.08	70.10	7.57	69.00
07/17/12	17:30	--	3.20	3.23	66.70	8.30	8.53	79.60	8.28	8.10	71.10	7.95	68.50
07/17/12	18:30	205	3.20	3.23	67.80	8.30	8.23	80.20	8.16	7.94	73.00	7.83	66.40
07/17/12	19:30	--	3.20	3.27	66.80	8.30	8.11	80.00	8.30	7.97	72.10	7.77	67.50
07/17/12	20:30	200	3.20	3.27	66.10	8.30	8.51	79.60	8.55	7.63	70.50	7.47	66.40
07/17/12	21:30	--	3.20	3.28	65.40	8.30	8.28	78.70	7.68	--	--	--	--
07/17/12	22:30	200	3.20	3.29	64.40	8.30	8.34	78.00	8.51	7.82	68.10	7.64	64.40
07/17/12	23:30	--	3.20	3.29	63.70	8.30	8.43	77.10	8.63	8.12	66.50	7.90	63.60
07/18/12	0:30	200	3.20	3.28	63.20	8.30	8.52	76.60	8.66	8.07	65.40	7.95	63.10
07/18/12	1:30	--	3.20	3.28	62.30	8.30	8.46	76.00	8.65	8.03	66.90	8.00	63.40
07/18/12	2:30	200	3.20	3.27	61.60	8.30	8.51	75.20	8.70	8.10	66.10	8.01	63.70
07/18/12	3:30	--	3.20	3.27	60.90	8.30	8.51	74.70	8.77	8.01	66.00	7.98	62.30
07/18/12	4:30	200	3.20	3.28	60.40	8.30	8.65	73.80	8.81	8.03	66.90	8.01	62.10
07/18/12	5:30	--	3.20	3.27	59.40	8.30	8.70	73.00	8.73	8.09	69.00	8.00	62.90
07/18/12	6:30	200	3.20	3.27	59.20	8.30	8.47	72.50	8.34	7.88	66.30	7.94	61.70
07/18/12	7:30	--	3.20	3.26	58.20	8.30	8.40	72.00	8.31	7.92	61.80	7.86	60.60
07/18/12	8:30	210	3.20	3.10	58.00	8.30	8.35	71.70	8.47	7.82	63.90	7.83	63.40
07/18/12	9:30	--	3.20	3.13	58.50	8.30	8.68	71.90	8.54	8.04	64.50	6.79	63.80
07/18/12	10:30	210	3.20	3.13	58.70	8.30	8.34	72.20	8.61	7.92	69.20	6.92	65.00
07/18/12	11:30	--	3.20	3.13	59.40	8.30	8.34	72.60	8.50	7.40	68.00	6.72	65.80
07/18/12	12:30	210	3.20	3.06	60.30	8.30	7.97	73.80	8.33	7.50	72.20	7.02	65.70
07/18/12	13:30	--	3.20	3.22	62.30	8.30	8.13	75.60	8.33	7.70	70.50	6.58	67.40
07/18/12	14:30	210	3.20	3.27	63.00	8.30	8.24	76.10	8.40	7.58	69.40	7.32	67.90
07/18/12	15:30	--	3.20	3.28	64.70	8.30	7.96	76.70	8.28	7.62	70.90	7.32	67.30
07/18/12	16:30	210	3.20	3.24	66.30	8.30	7.15	78.00	8.45	7.78	66.80	7.27	67.80
07/18/12	17:30	--	3.20	3.23	66.80	8.30	8.14	79.20	8.19	7.42	71.30	7.05	69.00
07/18/12	18:30	210	3.20	3.23	66.10	8.30	8.21	79.30	8.39	7.53	70.30	7.13	67.40
07/18/12	19:30	--	3.50	3.28	65.90	8.30	8.06	78.90	8.14	6.66	69.60	6.74	66.20
07/18/12	20:30	200	3.50	3.28	65.60	8.60	8.20	78.80	8.15	--	--	--	--
07/18/12	21:30	--	3.50	3.29	65.10	8.42	8.32	78.20	8.44	7.44	68.90	7.47	65.30
07/18/12	22:30	200	3.50	3.28	64.40	8.42	8.25	77.90	8.28	7.48	68.80	7.62	65.00
07/18/12	23:30	--	3.50	3.29	63.50	8.47	8.18	76.90	8.32	7.59	68.30	7.67	64.30
07/19/12	0:30	200	3.50	3.29	62.80	8.50	8.27	76.40	8.44	7.79	68.70	7.89	63.70
07/19/12	1:30	--	3.50	3.28	62.30	8.53	8.33	75.90	8.57	7.80	68.50	7.88	64.20
07/19/12	2:30	200	3.50	3.29	61.80	8.50	8.44	75.30	8.56	7.84	67.90	7.90	63.70
07/19/12	3:30	--	3.50	3.29	61.80	8.45	8.35	74.70	8.33	7.79	67.20	7.86	63.10
07/19/12	4:30	200	3.50	3.29	61.30	8.50	8.34	74.40	8.45	7.82	67.70	7.90	63.10
07/19/12	5:30	--	3.50	3.28	60.90	8.49	8.31	74.00	8.37	7.89	67.00	8.00	62.60
07/19/12	6:30	200	3.50	3.28	60.60	8.47	8.43	73.70	8.47	7.84	66.70	7.91	62.40
07/19/12	7:30	--	3.50	3.26	59.70	8.40	8.36	73.20	8.65	8.23	63.20	7.78	61.80
07/19/12	8:30	--	--	--	--	--	--	--	--	--	--	--	--
07/19/12	9:30	--	--	--	--	--	--	--	--	--	--	--	--
07/19/12	10:30	100	3.50	3.68	59.40	8.40	8.48	73.10	8.77	8.43	63.60	8.08	62.60
07/19/12	11:30	--	3.50	3.17	59.20	8.40	8.41	72.60	8.55	8.37	64.20	8.06	62.20
07/19/12	12:30	200	3.50	3.42	59.40	8.35	8.45	81.50	8.67	8.43	64.00	8.03	62.10
07/19/12	13:30	--	3.50	3.35	59.40	8.35	8.57	72.90	8.58	8.36	65.20	7.98	62.90

Table A-4
Summary of 2012
Pond Water Treatment Plant Operator's Logs

Date/Time		Influent Flowrate (gpm)	R-1 Setpoint	R-1 pH	R-1 temp	R-2 Setpoint	R-2 pH	R-2 temp	FF-2 pH	Clarifier Pit pH	Clarifier Pit temp	Discharge Weir pH	Discharge Weir temp
07/19/12	14:30	200	3.50	3.37	59.70	8.35	8.30	73.00	8.58	8.33	66.30	8.05	63.30
07/19/12	15:30	--	3.50	3.35	60.10	8.35	8.21	73.20	8.54	8.27	67.50	7.93	65.00
07/19/12	16:30	200	3.50	3.38	61.30	8.35	8.18	73.90	8.42	8.17	71.30	8.00	66.50
07/19/12	17:30	--	3.50	3.38	61.80	8.35	8.36	74.80	8.65	8.23	71.60	7.98	65.70
07/19/12	18:30	200	3.50	3.36	62.00	8.25	8.34	74.60	8.32	8.07	71.60	7.91	65.70
07/19/12	19:30	--	3.30	3.38	62.50	8.25	8.28	75.00	8.40	8.20	68.30	8.00	64.90
07/19/12	20:30	200	3.30	3.37	62.00	8.25	8.38	75.10	8.34	8.06	67.10	8.05	64.70
07/19/12	21:30	--	3.20	3.35	61.60	8.25	8.36	75.20	8.40	8.20	66.40	8.10	67.90
07/19/12	22:30	200	3.20	3.34	61.10	8.25	8.15	75.00	8.40	8.14	65.50	8.06	64.10
07/19/12	23:30	--	3.20	3.38	60.60	8.20	8.46	74.10	8.22	8.33	64.10	8.16	62.10
07/20/12	0:30	200	3.20	3.43	59.70	8.20	8.10	73.00	8.30	8.10	63.10	8.10	61.00
07/20/12	1:30	--	3.20	3.33	59.00	8.25	8.08	72.50	8.30	8.09	62.50	8.04	61.50
07/20/12	2:30	200	3.20	3.31	58.70	8.25	8.40	72.20	8.33	8.17	61.70	8.03	61.20
07/20/12	3:30	--	3.20	3.31	58.20	8.35	8.39	71.70	8.33	8.14	60.70	7.97	60.50
07/20/12	4:30	200	3.20	3.30	57.80	8.30	8.34	71.30	8.35	8.24	60.50	8.05	59.80
07/20/12	5:30	--	3.20	3.30	57.10	8.30	8.40	70.70	8.32	8.13	59.30	8.10	59.30
07/20/12	6:30	200	3.20	3.29	56.60	8.30	8.34	70.10	8.37	8.05	58.30	7.76	59.30
07/20/12	7:30	--	3.30	3.29	55.90	8.30	8.34	69.20	8.38	8.28	60.20	8.01	60.40
07/20/12	8:30	200	3.30	3.17	56.10	8.30	8.37	69.30	8.49	8.25	64.10	7.91	62.40
07/20/12	9:30	--	3.30	3.19	56.10	8.30	8.15	69.60	8.59	8.32	64.60	7.91	62.40
07/20/12	10:30	200	3.30	3.13	57.50	8.30	8.44	70.10	8.56	8.29	65.70	7.88	63.10
07/20/12	11:30	--	3.30	3.45	59.40	8.30	8.29	71.60	8.60	8.24	67.60	8.04	64.90
07/20/12	12:30	140	3.30	3.47	60.40	8.30	8.25	72.70	8.58	8.28	71.10	7.96	65.50
07/20/12	13:30	--	3.30	3.56	60.00	8.20	8.20	73.80	8.48	8.25	71.30	7.77	67.40
07/20/12	14:30	140	3.30	3.59	64.90	8.20	8.25	75.90	8.47	8.22	71.80	7.73	68.10
07/20/12	15:30	--	3.30	3.58	65.80	8.20	8.27	77.70	8.48	8.01	88.20	8.00	75.40
07/20/12	16:30	140	3.30	3.60	65.90	8.20	8.39	78.10	8.44	8.25	74.00	7.76	68.50
07/20/12	17:30	--	3.30	3.60	66.80	8.20	8.45	78.50	8.47	8.22	76.40	8.04	73.60
07/20/12	18:30	140	3.30	3.60	66.80	8.20	8.22	79.20	8.48	8.36	70.70	7.96	68.50
07/20/12	19:30	--	3.20	3.36	66.30	8.10	8.10	79.60	8.39	8.33	71.10	7.80	68.20
07/20/12	20:30	145	3.20	3.32	66.60	8.20	8.32	79.80	8.45	8.23	70.60	8.05	68.70
07/20/12	21:30	--	3.20	3.27	66.30	8.10	8.15	79.30	8.38	8.16	70.40	8.07	67.80
07/20/12	22:30	145	3.20	3.28	66.60	8.10	8.20	79.30	8.35	8.14	69.30	8.12	66.70
07/20/12	23:30	--	3.20	3.03	65.40	8.20	8.36	78.90	8.46	8.07	69.70	8.10	66.40
07/21/12	0:30	145	3.40	2.97	64.80	8.20	8.40	77.90	8.49	8.10	69.50	8.03	66.70
07/21/12	1:30	--	3.20	3.36	64.00	8.15	8.45	77.60	8.32	8.08	67.00	8.06	64.90
07/21/12	2:30	145	3.20	3.19	62.50	8.15	8.36	76.50	8.40	8.13	66.00	8.10	64.20
07/21/12	3:30	--	3.20	3.24	62.00	8.15	8.53	75.80	8.40	8.16	64.50	8.14	63.30
07/21/12	4:30	145	3.20	3.31	61.10	8.15	8.05	75.00	8.39	8.14	63.90	8.05	63.00
07/21/12	5:30	--	3.20	3.36	60.40	8.15	8.43	74.20	8.36	8.03	60.40	8.06	62.40
07/21/12	6:30	145	3.20	3.29	59.40	8.15	8.19	73.40	8.43	8.08	63.30	8.07	62.70
07/21/12	7:30	--	3.20	3.20	58.50	8.15	8.27	72.50	8.28	8.00	64.90	7.87	64.10
07/21/12	8:30	145	3.20	3.20	58.20	8.15	8.18	72.00	8.31	8.05	66.70	7.94	64.40
07/21/12	9:30	--	3.20	3.36	58.70	8.15	8.12	72.30	8.24	8.00	66.60	7.88	66.50
07/21/12	10:30	145	3.20	3.31	59.70	8.30	8.18	72.50	8.28	8.09	66.80	7.87	67.10
07/21/12	11:30	--	3.20	3.23	61.80	8.30	8.33	74.10	8.26	8.03	67.50	7.92	66.00
07/21/12	12:30	145	3.20	3.34	62.30	8.30	8.23	76.10	8.37	8.01	70.10	7.78	67.40
07/21/12	13:30	--	3.20	3.28	65.10	8.30	8.21	76.80	8.33	8.08	71.30	7.86	66.40
07/21/12	14:30	145	3.20	3.24	66.10	8.30	8.18	77.70	8.20	8.05	71.30	7.69	70.10
07/21/12	15:30	--	3.20	3.15	67.30	8.30	8.20	79.20	8.14	8.02	77.20	7.86	67.80
07/21/12	16:30	145	3.20	3.35	67.20	8.30	8.10	79.50	8.35	8.13	77.30	7.73	71.40
07/21/12	17:30	--	3.20	3.24	67.80	8.30	8.25	80.40	8.28	8.10	76.80	7.72	73.30
07/21/12	18:30	145	3.20	3.23	68.00	8.30	8.31	80.50	8.33	8.16	77.30	7.86	73.70
07/21/12	19:30	--	3.20	3.23	68.00	8.30	8.22	80.90	8.37	8.15	71.80	7.80	69.60
07/21/12	20:30	145	3.20	3.19	67.50	8.30	8.40	81.00	8.21	8.06	72.40	7.85	69.80
07/21/12	21:30	--	--	--	--	--	--	--	--	--	--	--	--
07/21/12	22:30	145	3.20	3.27	67.30	8.20	8.17	80.90	8.36	8.11	71.20	7.86	66.70
07/21/12	23:30	--	3.20	3.20	66.10	8.20	8.28	79.90	8.43	8.15	70.50	7.93	66.30
07/22/12	0:30	145	3.20	3.38	65.10	8.20	8.14	79.10	8.42	8.20	68.90	7.84	66.50
07/22/12	1:30	--	3.10	3.18	64.00	8.20	8.24	78.10	8.39	8.25	66.90	7.82	65.00
07/22/12	2:30	145	3.20	3.29	63.20	8.20	8.34	77.20	8.38	8.26	67.20	7.83	65.70

Table A-4
Summary of 2012
Pond Water Treatment Plant Operator's Logs

Date/Time		Influent Flowrate (gpm)	R-1 Setpoint	R-1 pH	R-1 temp	R-2 Setpoint	R-2 pH	R-2 temp	FF-2 pH	Clarifier Pit pH	Clarifier Pit temp	Discharge Weir pH	Discharge Weir temp
07/22/12	3:30	--	3.20	3.38	62.50	8.20	8.28	76.50	8.50	8.23	66.40	7.82	65.40
07/22/12	4:30	145	3.20	3.31	61.60	8.25	8.27	76.30	8.39	8.17	66.00	7.85	65.20
07/22/12	5:30	--	3.20	3.33	60.60	8.25	8.56	74.70	8.37	8.48	64.10	7.93	64.20
07/22/12	6:30	145	3.20	3.30	59.90	8.20	8.13	74.00	8.19	--	--	7.98	62.20
07/22/12	7:30	--	3.20	3.34	59.20	8.30	8.20	73.20	8.23	7.87	64.30	7.39	65.10
07/22/12	8:30	145	3.20	3.31	58.70	8.37	8.40	72.70	8.60	8.07	70.30	7.85	66.80
07/22/12	9:30	--	3.20	3.32	59.20	8.50	8.60	72.60	8.27	8.04	72.00	7.95	68.00
07/22/12	10:30	145	3.20	3.34	60.40	8.30	8.61	73.30	8.39	8.30	70.20	8.14	69.60
07/22/12	11:30	--	3.20	3.27	61.80	8.30	8.40	74.50	8.37	8.48	70.30	8.32	69.30
07/22/12	12:30	185	3.20	3.20	62.80	8.33	8.20	75.70	8.28	8.24	74.80	8.18	71.40
07/22/12	13:30	--	3.20	3.15	65.10	8.33	8.30	77.00	8.31	8.13	75.20	8.02	72.50
07/22/12	14:30	185	3.20	3.12	67.00	8.33	8.10	79.00	8.26	8.04	76.10	8.00	72.70
07/22/12	15:30	--	3.20	3.23	68.00	8.33	8.60	80.40	8.34	8.05	76.10	7.95	72.80
07/22/12	16:30	180	3.20	3.26	68.90	8.31	8.30	81.20	8.21	8.02	77.60	7.97	73.00
07/22/12	17:30	--	3.20	3.27	69.40	8.30	8.20	82.00	8.54	8.28	81.50	8.13	75.20
07/22/12	18:30	180	3.20	3.27	70.10	8.30	8.50	82.40	8.47	8.19	78.10	7.93	74.20
07/22/12	19:30	--	3.50	3.05	71.10	8.30	8.26	83.50	8.57	8.23	73.90	8.07	70.80
07/22/12	20:30	180	3.50	3.14	70.40	8.30	8.19	83.40	8.57	8.12	73.50	7.72	69.90
07/22/12	21:30	--	--	--	--	--	--	--	--	--	--	--	--
07/22/12	22:30	--	--	--	--	--	--	--	--	--	--	--	--
07/22/12	23:30	--	--	--	--	--	--	--	--	--	--	--	--
07/23/12	0:30	180	3.50	3.10	66.10	8.32	8.20	79.90	8.59	7.63	68.80	7.47	67.90
07/23/12	1:30	--	3.50	3.30	65.40	8.43	8.13	78.90	8.37	--	--	--	--
07/23/12	2:30	180	3.50	3.37	65.10	8.45	8.14	78.30	8.43	8.11	71.90	7.81	68.70
07/23/12	3:30	--	3.50	3.28	64.70	8.53	8.24	78.00	8.47	8.04	70.10	7.75	67.40
07/23/12	4:30	180	3.50	3.30	64.00	8.50	8.35	77.50	8.49	8.19	69.50	7.85	66.90
07/23/12	5:30	--	3.50	3.48	63.20	8.25	8.16	76.90	8.49	8.32	67.60	7.84	66.20
07/23/12	6:15	180	3.50	3.49	62.30	8.30	8.41	76.40	8.59	8.43	68.50	7.99	66.50
07/23/12	7:30	--	3.50	3.31	61.10	8.20	8.07	75.70	8.41	8.26	65.70	7.80	64.90
07/23/12	8:30	130	3.50	3.20	60.90	8.18	8.18	74.50	8.44	8.29	66.00	7.84	65.30
07/23/12	9:30	--	3.50	3.14	60.90	8.16	8.20	74.80	8.36	8.17	67.70	7.91	66.20
07/23/12	10:30	128	3.50	3.12	61.90	8.14	8.08	74.40	8.36	8.09	68.00	7.44	67.20
07/23/12	11:30	--	3.50	3.12	62.50	8.14	8.16	75.00	8.35	8.22	68.70	7.64	67.80
07/23/12	12:30	128	3.50	3.14	63.70	8.14	8.24	75.80	8.36	8.20	71.40	7.63	71.70
07/23/12	13:30	--	3.50	3.16	65.10	8.14	8.27	77.00	8.34	8.22	72.30	7.79	71.10
07/23/12	14:30	128	3.50	3.18	66.10	8.14	8.25	78.30	8.37	8.18	72.60	7.70	70.60
07/23/12	15:30	--	3.50	3.17	67.00	8.14	8.18	79.10	8.38	8.14	73.40	7.67	71.10
07/23/12	16:30	118	3.50	3.16	67.00	8.14	8.05	79.60	8.37	8.10	76.60	7.70	72.50
07/23/12	17:30	--	3.50	3.16	67.00	8.14	8.08	79.90	8.38	8.12	74.80	7.72	71.40
07/23/12	18:30	--	--	--	--	--	--	--	--	--	--	--	--
07/23/12	19:30	--	--	--	--	--	--	--	--	--	--	--	--
07/23/12	20:30	--	--	--	--	--	--	--	--	--	--	--	--
07/23/12	21:30	--	--	--	--	--	--	--	--	--	--	--	--
07/23/12	22:30	--	--	--	--	--	--	--	--	--	--	--	--
07/23/12	23:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	0:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	1:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	2:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	3:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	4:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	5:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	6:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	7:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	8:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	9:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	10:30	--	--	--	--	--	--	--	--	--	--	--	--
07/24/12	11:30	--	3.50	3.10	63.20	8.35	8.60	77.60	8.46	8.19	71.00	--	--
07/24/12	12:30	180	3.50	3.10	64.70	8.35	8.45	77.70	8.40	8.22	74.30	--	--
07/24/12	13:30	--	3.50	3.09	65.60	8.35	8.45	78.30	8.43	8.15	74.60	--	--
07/24/12	14:30	180	3.50	3.07	66.30	8.35	8.60	79.10	8.40	8.33	76.10	7.89	72.80
07/24/12	15:30	--	3.50	3.18	67.30	8.28	8.35	79.80	8.33	8.15	76.60	7.92	73.20

Table A-4
Summary of 2012
Pond Water Treatment Plant Operator's Logs

Date/Time		Influent Flowrate (gpm)	R-1 Setpoint	R-1 pH	R-1 temp	R-2 Setpoint	R-2 pH	R-2 temp	FF-2 pH	Clarifier Pit pH	Clarifier Pit temp	Discharge Weir pH	Discharge Weir temp
07/24/12	16:30	180	3.50	3.31	69.90	8.27	8.35	81.10	8.41	8.18	79.70	7.79	73.30
07/24/12	17:30	--	3.50	3.29	70.60	8.27	8.60	82.50	8.36	8.19	78.00	7.88	74.80
07/24/12	18:30	180	3.50	3.29	70.40	8.27	8.45	83.00	8.42	8.21	62.80	8.02	74.00
07/24/12	19:30	--	3.50	3.28	71.10	8.25	8.27	83.30	8.41	8.06	75.10	7.81	71.90
07/24/12	20:30	180	3.50	3.28	71.10	8.25	8.15	83.70	8.44	8.12	74.10	7.91	71.10
07/24/12	21:30	--	3.50	3.29	70.40	8.25	8.10	83.50	8.42	8.24	73.00	7.98	69.80
07/24/12	22:30	180	3.50	3.30	69.20	8.25	8.22	82.70	8.42	8.16	71.90	7.94	68.60
07/24/12	23:30	--	3.50	3.31	67.30	8.25	8.06	81.40	8.48	8.16	70.00	7.89	67.60
07/25/12	0:30	180	3.50	3.30	65.10	8.30	8.01	79.50	8.40	8.21	67.20	8.01	67.20
07/25/12	1:30	--	3.50	3.30	63.00	8.30	8.13	77.60	8.39	8.07	66.30	7.96	66.10
07/25/12	2:30	180	3.50	3.31	61.30	8.30	8.19	75.80	8.36	8.11	70.80	7.98	67.60
07/25/12	3:30	--	3.50	3.35	59.70	8.30	8.13	74.00	8.33	8.06	68.70	7.96	66.60
07/25/12	4:30	180	3.50	3.36	57.80	8.30	8.17	72.50	8.46	8.12	67.60	7.91	66.50
07/25/12	5:30	--	3.50	3.35	56.60	8.30	8.20	70.90	8.54	8.19	66.60	8.01	65.80
07/25/12	6:30	180	3.50	3.35	55.60	8.30	8.09	69.90	8.43	8.25	63.20	7.97	64.50
07/25/12	7:30	--	3.50	3.35	54.20	8.30	8.21	68.60	8.45	8.28	60.60	7.86	64.60
07/25/12	8:30	180	3.50	3.37	53.00	8.30	8.29	67.20	8.50	8.31	62.70	8.06	66.50
07/25/12	9:30	--	3.50	3.39	53.70	8.30	8.13	67.20	8.42	8.19	60.20	7.52	64.20
07/25/12	10:30	180	3.50	3.43	54.20	8.20	8.38	68.10	8.33	8.23	62.90	7.86	64.60
07/25/12	11:30	--	3.50	3.42	59.70	8.20	8.32	70.20	8.46	8.37	64.60	7.82	65.90
07/25/12	12:30	180	3.50	3.41	61.30	8.20	8.20	73.40	8.38	8.45	66.70	7.83	67.50
07/25/12	13:30	--	3.50	3.40	63.50	8.20	8.34	8.46	8.41	8.49	69.30	7.77	68.70
07/25/12	14:30	180	3.50	3.39	67.50	8.20	8.21	77.60	8.44	8.47	72.30	7.70	69.60
07/25/12	15:30	--	3.50	3.45	66.80	8.20	8.35	80.50	8.42	8.53	73.80	7.64	70.90
07/25/12	16:30	180	3.50	3.46	73.00	8.20	8.28	83.20	8.43	8.41	74.60	7.76	70.40
07/25/12	17:30	--	3.50	3.62	73.70	8.20	8.49	84.60	8.39	8.42	80.30	7.62	72.80
07/25/12	18:30	180	3.50	3.48	73.20	8.20	8.34	85.30	8.32	8.44	80.70	7.76	72.90
07/25/12	19:30	--	3.50	3.41	71.80	8.25	8.20	85.00	8.38	8.16	77.50	7.80	70.90
07/25/12	20:30	180	3.50	3.40	70.10	8.25	8.11	84.20	8.48	8.29	76.80	7.98	70.50
07/25/12	21:30	--	3.50	3.38	68.20	8.25	8.15	82.60	8.50	8.29	73.80	7.97	68.60
07/25/12	22:30	180	3.50	3.38	65.60	8.24	8.04	80.50	8.52	8.41	71.60	7.99	68.00
07/25/12	23:30	--	3.50	3.39	63.20	8.23	8.12	78.20	8.50	8.36	69.60	7.95	67.00
07/26/12	0:30	180	3.50	3.38	61.30	8.23	8.05	76.20	8.47	8.25	67.50	7.82	66.60
07/26/12	1:30	--	3.50	3.40	59.20	8.23	8.08	74.30	8.46	8.22	66.30	7.92	65.70
07/26/12	2:30	180	3.50	3.40	57.30	8.23	8.17	72.30	8.48	8.22	64.90	7.86	65.40
07/26/12	3:30	--	3.50	3.43	55.40	8.23	8.07	70.40	8.46	8.09	64.20	7.85	64.40
07/26/12	4:30	180	3.50	3.39	53.70	8.23	8.08	69.50	8.46	7.93	62.20	7.69	64.20
07/26/12	5:30	--	3.50	3.39	52.10	8.23	8.03	67.20	8.47	8.32	60.50	7.84	63.30
07/26/12	6:30	180	3.50	3.43	50.60	8.18	8.00	65.60	8.54	8.24	59.20	7.77	63.30
07/26/12	7:30	--	3.50	3.42	49.20	8.18	8.03	64.10	8.56	8.47	56.00	7.72	63.50
07/26/12	8:30	140	3.50	3.39	49.40	8.18	8.38	63.40	8.49	8.44	57.40	7.73	64.50
07/26/12	9:30	--	3.50	3.82	50.90	8.10	8.34	64.30	8.58	8.17	69.60	7.81	67.10
07/26/12	10:30	150	3.50	3.55	57.10	8.10	8.45	67.90	8.47	8.65	63.30	7.86	66.20
07/26/12	11:30	--	3.50	3.49	61.80	8.00	8.42	68.80	8.45	8.54	63.50	7.88	66.20
07/26/12	12:30	150	3.50	3.53	62.80	8.00	8.31	69.80	8.45	8.39	67.50	7.85	68.50
07/26/12	13:30	--	3.50	3.61	68.90	8.00	8.39	75.10	8.44	8.37	71.50	7.83	69.20
07/26/12	14:30	150	3.50	3.56	76.80	8.00	8.44	75.10	8.41	8.43	72.80	7.86	70.80
07/26/12	15:30	--	3.50	3.54	76.60	8.00	8.35	85.30	8.35	8.34	78.90	7.80	71.50
07/26/12	16:30	170	3.50	3.06	77.30	8.00	8.43	87.90	8.39	8.37	79.40	7.80	70.80

Table A-5
2012 Pond Water Treatment Sludge Analytical Results

Regulatory Criteria	Date	Percent Solids	Aluminum		Antimony		Arsenic		Barium		Beryllium		Cadmium		Chromium		Cobalt		Copper		Iron		Lead		Mercury		Molybdenum		Nickel		Selenium		Silver		Thallium		Vanadium		Zinc	
TTLC (mg/kg)		NP	NP		500		500		10000		75		100		2500		8000		2500		NP		1000		20		3500		2000		100		500		700		2400		5000	
STLC (mg/L)		NP	NP		15		5		100		0.75		1		560		80		25		NP		5		0.2		350		20		1		5		7		24		250	
Sample ID and Testing Procedure		**Percent Solids**	**Aluminum**		**Antimony**		**Arsenic**		**Barium**		**Beryllium**		**Cadmium**		**Chromium**		**Cobalt**		**Copper**		**Iron**		**Lead**		**Mercury**		**Molybdenum**		**Nickel**		**Selenium**		**Silver**		**Thallium**		**Vanadium**		**Zinc**	
			Result	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**
1213PWT017PC-A	**10/4/2012**	37																																				
TTLC (mg/kg dry)			67000		0.38	ND	690		3.4		2.2		9.0		170		380		280		85000		1.1		0.0044	ND	0.14	ND	990		0.47	J	0.18	ND	3.7		35		170	
STLC (mg/L)			870		0.2	J	0.48		0.062	J	0.060	J	0.074	J	3.4		10		5.5		770		0.1		0.0001	ND	0.012	J	25		0.073	J	0.011	ND	0.14	J	0.31		4.7	
1213PWT018PC-B	**10/4/2012**	26																																				
TTLC (mg/kg dry)			75000		0.59	ND	880		3.6		2.3		9.9		190		420		300		110000		2.3		0.0067	ND	0.21	ND	1100		0.54	ND	0.28	ND	5.7		41		200	
STLC (mg/L)			810		0.17	J	0.69		0.042	J	0.043	J	0.067	J	2.8		7.5		4.3		730		0.088		0.0001	ND	0.011	J	18		0.079	J	0.011	ND	0.11	J	0.31		3.4	
1213PWT019PC-C	**10/4/2012**	28																																				
TTLC (mg/kg dry)			55000		0.57	ND	600		3.0		1.8		7.8		150		330		240		74000		1.8		0.0059	ND	0.20	ND	870		1.7	J	0.27	ND	4.7		32		160	
STLC (mg/L)			550		0.14	J	0.44		0.033	J	0.038	J	0.041	J	2.0		6.6		3.5		460		0.085		0.0001	ND	0.0075	ND	16		0.052	J	0.011	ND	0.082	ND	0.24	J	3	

Notes:

Sludge samples represent a homogenized section through the entire sludge blanket thickenss.

TTLC - Total Threshold Limit Concentration

STLC - Soluble Threshold Limit Concentration

NP - Not Promulgated

Qualifiers: (Q)

U - Not detected at or above adjusted sample detection limit.

J - The analyte was positively identified, but the quantitation was below the reporting limit.

Table A-6
Pond 1 Sludge and Additional Pit Clarifier 2011 Sludge Analytical Results

Regulatory Criteria	Date	Percent Solids	Aluminum		Antimony		Arsenic		Barium		Beryllium		Cadmium		Chromium		Cobalt		Copper		Iron		Lead		Mercury		Molybdenum		Nickel		Selenium		Silver		Thallium		Vanadium		Zinc	
TTLC (mg/kg)		NP	NP		500		500		10000		75		100		2500		8000		2500		NP		1000		20		3500		2000		100		500		700		2400		5000	
STLC (mg/L)		NP	NP		15		5		100		0.75		1		560		80		25		NP		5		0.2		350		20		1		5		7		24		250	
TCLP (mg/L)		NP	NP		NP		5		100		NP		1		5		NP		NP		NP		5		0.2		NP		NP		1		5		NP		NP		NP	
Sample ID and Testing Procedure		**Percent Solids**	**Aluminum**		**Antimony**		**Arsenic**		**Barium**		**Beryllium**		**Cadmium**		**Chromium**		**Cobalt**		**Copper**		**Iron**		**Lead**		**Mercury**		**Molybdenum**		**Nickel**		**Selenium**		**Silver**		**Thallium**		**Vanadium**		**Zinc**	
			Result	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**
1213Pond 1 Sludge A	**9/5/2012**	60.7																																						
TTLC (mg/kg dry)			8000		7.3	ND	4500		200		1.7	ND	1.8	J	82		23		39		100000	B	21		0.19		7.2	J	78		8.3	ND	6.7	ND	110		95		18	J, B
STLC (mg/L)			190		0.14	ND	10		0.12	ND	0.018	ND	0.040	ND	1.2		0.96		0.50		780		0.080	ND	0.0010	ND	0.076	J	2.7		0.16	ND	0.12	ND	0.26		1.4		0.40	
1213Pond 1 Sludge B	**9/5/2012**	54.6																																						
TTLC (mg/kg dry)			23000		4.2	J	930		22		0.74	ND	3.2		98		120		140		80000	B	1.9	ND	0.025	J	5.6	J	350		3.7	ND	3.0	ND	12	J	50		70	B
STLC (mg/L)			690		0.14	ND	1.5		0.12	ND	0.018	ND	0.064	J	1.3		2.7		3.2		630		0.080	ND	0.0010	ND	0.040	J	10		0.16	ND	0.12	ND	0.14	ND	0.10	J	0.59	
1213Pond 1 Sludge C	**9/5/2012**	54.9																																						
TTLC (mg/kg dry)			4600		8.1	ND	4900		250		1.8	ND	1.9	J	91		13		23		150000	B	12	J	0.55		9.5	J	36		9.2	ND	7.3	ND	220		160		9.3	J, B
STLC (mg/L)			220		0.14	ND	90		0.14	J	0.018	ND	0.092	J	3.7		0.79		0.66		3200		0.080	ND	0.0011	J	0.21	J	2.3		0.38	B	0.12	ND	0.14	ND	5.3		0.32	J
1112POND1SLUDGEA	**5/9/2012**	56																																						
TTLC (mg/kg dry)			4600		4.1		2300		250		0.070	J	0.65		58		7.1		18		72000		21		0.40		0.44		31		3.8		0.13	ND	29		82		10	
STLC (mg/L)			80		0.14	ND	8.6		0.22	J	0.011	ND	0.019	ND	1.6		0.51		0.3		1300		0.054	ND	0.00012	J	0.068	J	1.2		0.170	ND	0.056	ND	0.078	ND	0.71		0.27	J
TCLP (mg/L)			4.2		0.011	ND	0.013	ND	0.086		0.002	ND	0.0048	ND	0.015	J	0.014	J	0.016	ND	1.4		0.016	ND	0.00010	ND	0.014	ND	0.068		0.025	ND	0.013	ND	0.035	J	0.007	ND	0.023	ND
1112POND1SLUDGEB	**5/9/2012**	36																																						
TTLC (mg/kg dry)			12000		0.44	ND	1100		40		0.51		1.9		93		61		74		79000		2.8		0.047		0.16	ND	180		0.41	ND	0.21	ND	4.5		69		41	
STLC (mg/L)			360		0.14	ND	5.0		0.058	J	0.011	ND	0.019	ND	1.5		0.87		1.8		740		0.054	ND	0.00010	ND	0.037	ND	2.5		0.170	ND	0.056	ND	0.12	J	0.33		0.11	ND
TCLP (mg/L)			21		0.011	ND	0.43		0.016	J	0.002	ND	0.0048	ND	0.066		0.075		0.058		38		0.016	ND	0.00010	ND	0.014	ND	0.26		0.025	ND	0.013	ND	0.023	J	0.01	J	0.044	J
1112POND1SLUDGEC	**5/9/2012**	45																																						
TTLC (mg/kg dry)			10000		0.33	ND	1900		82		0.35		1.7		120		37		74		130000		5.1		0.25		0.12	ND	110		0.30	ND	0.16	ND	7.8		120		27	
STLC (mg/L)			240		0.14	ND	4.2		0.11	J	0.011	J	0.019	ND	2.4		0.99		0.79		1800		0.054	ND	0.00010	ND	0.041	J	2.7		0.170	ND	0.056	ND	0.078	ND	0.89		0.47	J
TCLP (mg/L)			0.890	J	0.011	ND	0.013	ND	0.013	J	0.002	ND	0.0048	ND	0.006	ND	0.020	J	0.016	ND	0.170	ND	0.016	ND	0.00010	ND	0.014	ND	0.073		0.025	ND	0.013	ND	0.025	J	0.007	ND	0.023	ND
1112PWT029PC-B	**5/9/2012**	50																																						
TTLC (mg/kg dry)			14000		0.29	ND	350		2.7		0.54		3.2		63		110		140		42000		0.79		0.0035	ND	0.10	ND	290		0.27	ND	0.14	ND	3.5		33		48	
TCLP (mg/L)			7.1		0.011	ND	0.013	ND	0.011	J	0.002	ND	0.0048	ND	0.014	J	0.14		0.039	J	0.170	ND	0.016	ND	0.00010	ND	0.014	ND	0.28		0.025	ND	0.013	ND	0.034	J	0.007	ND	0.050	J
1112PWT030PC-C	**5/9/2012**	29																																						
TTLC (mg/kg dry)			40000	J	0.53	ND	830		15		1.4		7.4		140		230		360		85000	ND	2.0		0.039	J	0.19	ND	590		0.48	ND	0.25	ND	1.3	J	59		130	
TCLP (mg/L)			1.7		0.011	ND	0.013	ND	0.013	J	0.002	ND	0.0048	ND	0.009	J	0.2		0.038	J	0.170	ND	0.016	ND	0.00010	ND	0.014	ND	0.270		0.025	ND	0.013	ND	0.022	J	0.007	ND	0.061	J

Notes:

Sludge samples were collected from Pond 1 from three different locations.

TTLC - Total Threshold Limit Concentration

STLC - Soluble Threshold Limit Concentration

TCLP - Toxicity Characteristic Leaching Procedure

NP - Not Promulgated

Samples 1213Pond 1 Sludge A, 1213Pond 1 Sludge B, and 1213Pond 1 Sludge C - Pond 1 sludge samples collected by Water Board personnel for informational purposes

Samples 1112POND1SLUDGEA, 1112POND1SLUDGEB, and 1112POND1SLUDGEC - Pond 1 sludge samples collected by URS personnel for disposal characterization purposes

Samples 1112PWT029PC-B and 1112PWT030PC-C - Pit clarifier sludge samples collected by URS personnel from sludge generated during the 2011 field season for disposal characterization purposes

Qualifiers: (Q)

ND - Not detected at or above adjusted sample detection limit.

J - The analyte was positively identified, but the quantitation was below the reporting limit.

B- Compound was found in the blank and sample.

Appendices B through E (on compact disc)

Appendix B – 2012 Pond Water Treatment Data

Laboratory Reports (PDF format)

Analytical Laboratory Electronic Data Deliverable Files (Microsoft Excel format)

Appendix C – 2012 Water Year Pond 1 Weather Station Data

Hourly data organized by month (Microsoft Excel format)

Appendix D – 2012 Water Year Flow and Stage Annual Data Reports

Annual Water Data Reports for 16 Stations (Microsoft Excel format)

Appendix E – Final Completion Report, Pond Liner Leak Detection and Repairs For Leviathan Mine Ponds 1, 2 North, 2 South and 3 (PDF format)