

YEAR-END REPORT FOR THE 2011 FIELD SEASON AT LEVIATHAN MINE

Alpine County, California

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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 2011 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 27, 2011. In a letter dated January 17, 2012, Water Board staff requested an extension of the due date for the 2010 Year-End Report until February 24, 2012. The USEPA granted the requested extension in a letter dated January 26, 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 2011. 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 *2011 Work Plan for Leviathan Mine, Alpine County, California* (Work Plan) prepared by the Water Board. The Work Plan was approved by the USEPA on July 1, 2011. In addition, spring treatment operations were conducted using methods and monitoring described in a March 28, 2011 telephone call and March 30, 2011 email from the Water Board's Leviathan Mine project manager, Chuck Curtis, to the USEPA's Remedial Project Manager, Kevin Mayer, with concurrence on the treatment and monitoring plans provided in a March 28, 2011 email from Mr. Mayer to Mr. Curtis.

This report describes the site activities performed in 2011, 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 2011;
- A site meteorological and surface water flow monitoring section; and
- A site maintenance section.

Pond water treatment data are summarized in five tables in Appendix A (A-1 through A-5). 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 1.8 miles downstream of the Nevada state line, Doud

Springs enters Bryant Creek. Just below this confluence, an irrigation ditch seasonally diverts flow from Bryant Creek to the River Ranch property. Approximately 1.5 miles downstream from the irrigation diversion, 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 45 gpm (flow data collected from 1999 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 at least 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 2011, no AMD was routed directly from the flow control structure to Leviathan Creek. The heavy precipitation during the 2010-2011 winter (approximately 160 percent of normal) recharged groundwater, which increased the flow from the PUD and Adit to the upper ponds. The PUD and Adit flow rates in late April and early May 2011, respectively, were the highest ever measured from those AMD sources. Those increased flows from the Adit and PUD coupled with the direct precipitation on the ponds caused the upper ponds to fill to within 0.1 foot of overflow before the Water Board's spring treatment activities started reducing the volume of water in the ponds.
- In 2011, Pond 3 received no overflow from any of the upper ponds; although AMD from the upper ponds was transferred to Pond 3 as part of spring treatment operations. There was no uncontrolled discharge from Pond 3 in 2011, as the only Pond 3 discharges were treated water associated with the spring treatment activities.

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. 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 $\text{Ca}[\text{OH}]_2$), 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.

2.3.1 Spring Treatment

Following the unusually wet winter of 2010-2011, the Water Board implemented spring treatment of AMD to prevent untreated discharges to Leviathan Creek from the pond system. The Water Board's contractor, TKT Consulting, assembled and operated a rotating cylinder treatment system (RCTS) adjacent to Pond 3 that treated the AMD in batches, as occurred in the springs of 2005 and 2006. The treatment system was operated at the site without requiring the heavy equipment used for operational support of the treatment system adjacent to Pond 1. The RCTS included two rotating cylinder mixers, a 2,000 gallon lime dosing tank, two to three 500-gallon lime slurry tanks, a lime delivery pump, siphon lines, and pumps to circulate water within Pond 3. AMD from Pond 3 was pumped to the RCTS, which mixed lime solution with the AMD, and the mixture was discharged back into Pond 3. Circulation pumps around Pond 3 facilitated further mixing of the lime with the pond water. The lime addition caused an increase in pH and the associated precipitation of dissolved metals. Once the pond water was stabilized at a pH of approximately 7.5 to 8.5 the RCTS and circulation pumps were shut off to allow the precipitated metals to settle overnight. After the neutralized AMD was allowed to settle in Pond 3 overnight, it was pumped through the Pond 3 overflow structure and associated piping to Leviathan Creek. AMD from the upper ponds was then pumped or siphoned down to Pond 3 for the next batch treatment. These operations continued until the threat of uncontrolled discharge from the upper ponds was eliminated. Near continuous flow of water through the RCTS was maintained during the treatment period to prevent water in the RCTS and associated hoses from freezing. Details on the spring treatment process are provided in TKT's report on the spring treatment in Appendix E.

2.3.2 Summer Treatment

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 2011. 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. 2011 POND WATER TREATMENT AND SLUDGE REMOVAL

The 2011 AMD treatment and associated activities included spring treatment of AMD at Pond 3 in April and May, sludge removal from the Pit Clarifier in June, AMD treatment at the Plant in July and August, and sludge removal from Pond 3 in September. Each is discussed below.

3.1 2011 Spring Pond Water Treatment

Prior to spring treatment operations beginning and following consultation with the USFS, the Water Board's spring treatment contractor, TKT Consulting, cleared the snow from Leviathan Mine Road with a rubber-tired loader on April 1 and 2, 2011. Where snow was present, approximately two inches of snow was left on the road surface, as specified by the USFS, and frequent cuts through the snow berms were made so snowmelt on the road could flow off the road. Mobilization of equipment and supplies to Pond 3 began on April 4, 2011, and treatment began on April 5, 2011, when ice and snow still covered much of Pond 3 and the other ponds.

The first batch discharge of treated water from Pond 3 occurred on April 9, 2011. The AMD in Pond 3 when treatment started did not contain high levels of metals and other constituents, as most of the water in Pond 3 was from precipitation and snowmelt that was acidified by the acid generating potential of the pond-liner-cover materials, though some small acidic seeps are collected and also discharge to Pond 3. Subsequent batches of AMD were transferred from the upper ponds, which receive AMD from the Adit and PUD, to Pond 3 for treatment. A total of 17 batches of AMD were treated in Pond 3. Spring treatment operations ended on May 31, 2011. A final discharge of treated water occurred on June 20, 2011, with a total of approximately 8.2 million gallons being treated and discharged. Figure 3.1 in Appendix E presents the days and volumes of treated discharges from Pond 3. Treated discharge volume was determined for each batch based on the starting and ending depths of water in Pond 3 during discharge and the known relationship between the depths and pond volume. The 2011 spring treatment operation consumed approximately 24 standard tons of dry lime, 950 gallons of diesel fuel, and 465 gallons of gasoline.

Field measurements of pH and electro-conductivity in Pond 3 were made daily during spring treatment operations; Appendix B of Appendix E presents these data. Discharge of treated AMD occurred when pH measurement indicated treatment was complete. Discharges of treated AMD from Pond 3 were sampled once daily during each of the 17 discharge events. Monitoring results are presented in Appendix A of Appendix E. Although the spring treatment discharges are not required to meet USEPA discharge criteria used for summer treatment discharges, all discharges met those criteria except for one instance on May 27, 2011, when dissolved iron slightly exceeded the maximum daily discharge criteria.

3.2 Sludge Removal and Disposal

Approximately 1082 tons of sludge generated during operation of the Plant in 2010 was removed from the Pit Clarifier by the Water Board's contractor, URS Corporation Americas (URS), in early- to mid-June 2011. The sludge had been sampled, analyzed,

and characterized in the fall of 2010; the results were reported in the Water Board's 2010 year-end report. 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 evaluated following sludge removal; the sand layer was adequate and replenishment was not necessary.

Sludge resulting from spring treatment operations in Pond 3 during 2011 was excavated from the pond in late-September and early-October of 2011 and hauled to the 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. Approximately 218 tons of sludge were generated by the treatment at Pond 3 and were subsequently disposed.

3.3 2011 Summer Pond Water Treatment Plant Operation

The Water Board contracted with URS for Plant operations for the 2011 field season. AMD treatment began in early July, with the first treated water entering the Pit Clarifier on July 13, 2011. Discharge to Leviathan Creek began on July 15, 2011, and treatment ceased on August 25, 2011, after all the AMD contained in the upper ponds was successfully treated. URS chose to operate the Plant 24 hours per day, 7 days per week during the treatment season.

In 2011 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 2011.

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 3.00 to 3.35, as measured in R-1. A mixer and compressed air were used in R-1 to agitate, oxidize, and promote mixing.

The AMD, lime slurry, and precipitate mixture (fluid mixture) 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 Lamella clarifier (CL-1). A 1.5-inch air diaphragm pump removed a portion of the settled precipitates from the bottom of CL-1 and discharged the solid-rich fluid into the outflow of CL-1 to keep precipitated solids from clogging the bottom of the clarifier. An additional 1.5-inch air diaphragm pump removed the remaining settled precipitates from the bottom of CL-1 and discharged the solid-rich fluid back into R-1 to promote solids precipitation.

The fluid mixture from CL-1 flowed by gravity to 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 8.20 to 8.50, 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 second 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 2011, 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.

In 2011, the treated water was discharged from the Pit Clarifier using both the underdrain and the piccolo decant structure. Prior to discharging treated AMD to the Pit Clarifier, URS re-routed the piping that transfers effluent from the Water Board's weir box into the Pit Junction Box. The pipe was re-routed so that effluent from the Pit Clarifier would enter the Pit Junction Box downstream of the USGS weir. This re-routing allows the USGS to better identify stormwater flow as measured at the USGS weir in the Pit Junction Box. Stage data and water quality control samples were collected at the 90-degree V-notch weir in the Water Board's weir box. Stage data were recorded at 15-minute intervals using a data logger/pressure transducer system. For 2011, 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 gallons per minute) and low flows (less than 50 gallons per minute). 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 15, 2011. Discharge to Leviathan Creek occurred continuously, with two exceptions; discharge to Leviathan Creek was stopped for approximately nine hours on August 16, 2011, and for approximately three hours on August 25, 2011, to perform needed maintenance. After the pond water was treated and the Plant was shut down on August 25, 2011, treated water continued to be discharged from the Pit Clarifier as the accumulated sludge drained. By September 5, 2011, approximately 9.8 million gallons of treated AMD had been discharged to Leviathan Creek, and flows from the Pit Clarifier were well below 5 gallons per minute. A summary of daily flow volumes discharged to Leviathan Creek is presented in Table A-1 of Appendix A.

The 2011 PWT Plant operation consumed approximately 198 standard tons of dry lime, 147 gallons liquid flocculent, 6924 gallons of diesel fuel, and 335 gallons of gasoline. The Water Board's treatment effort in 2011, 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 2011 is contained in the Pit Clarifier to allow for further dewatering. The Plant operation generated an estimated 1500 cubic yards (wet volume) of sludge. 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 the 1500 cubic yards of wet sludge will result in approximately 800 – 1,000 tons of sludge being disposed in 2012.

3.4 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 April 2010, with a few deviations, as noted in Section 3.5.4. A summary of the monitoring parameters, locations, and frequencies for the 2011 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 2011 treatment season. URS collected effluent samples from the Water Board's weir box located near the Pit Clarifier. As specified in the USEPA-approved 2011 Work Plan, effluent sample collection stopped when the discharge of effluent dropped below 5 gpm, which occurred on August 30, 2011. The first effluent sample was collected on July 15, 2011, and the last effluent sample was collected on August 31, 2011. 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 2011 Pond Water Treatment monitoring program:

- 15 treated effluent samples (2 per week)
- 7 pre-treatment influent samples (1 per week)
- 1 pre-treatment duplicate sample
- 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 2011 treatment effort, and contained in the Pit Clarifier, was sampled on October 20, 2011, for waste characterization and disposal purposes. URS collected three sludge samples from three different locations in the Pit Clarifier.

Laboratory results for sludge samples collected by URS on October 20, 2011 were inconsistent with results typically observed by Water Board personnel. As such, on January 10, 2012, Water Board personnel collected three additional sludge samples from three different locations in the Pit Clarifier. Each sludge sample was homogenized from a vertical profile that represented the complete thickness of sludge. The sludge thickness during sampling ranged from 13 to 30 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. Analytical results for the sludge samples are summarized in Table A-5 of Appendix A.

Prior to its removal, soil contained in the concrete V-ditches around Pond 3 was sampled on August 9, 2011. These soil samples were analyzed for comparisons with TTLC and STLC for Title 22 metals, aluminum, and iron. Analytical results for the soil samples are summarized in Table A-7 of Appendix A.

3.5 Sampling Results from Summer Pond Water Treatment Monitoring

3.5.1 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.

3.5.2 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 2011. One sample, 1112PWT007-EFF, individually, exceeded the more stringent USEPA 4-day Average Discharge Criteria for copper, nickel, and selenium.

Table A-3 summarizes laboratory analytical results for Plant influent samples. Results are consistent with previous treatment seasons. The pH ranged from 2.11 to 2.53 and TDS ranged from 5,840 to 11,000 milligrams per liter (mg/L) with an average of 8,763 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 9.8 million gallons of treated effluent was discharged to Leviathan Creek in 2011. 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 sludge characterization analyses are presented in Table A-5 for sludge generated during the 2011 treatment season. On October 20, 2011, URS collected three sludge samples from the Pit Clarifier to characterize sludge generated during the 2011 treatment season. These three sludge samples averaged approximately 44 percent solids. With the exception of the total concentrations for arsenic in one of the three sludge samples, the sludge did not exceed any other STLC or TTLC limits. The arithmetic average arsenic concentration for the three samples was 387 milligrams per kilogram (mg/kg) on a dry-weight basis. Because the results of sludge samples collected by URS on October 20, 2011, were inconsistent with results typically observed, the Water Board collected additional sludge samples.

On January 10, 2012, Water Board staff collected three additional sludge samples from the Pit Clarifier to characterize sludge generated during the 2011 treatment season and to check results obtained from sludge sampling performed by URS as detailed above. These three sludge samples averaged approximately 43 percent solids. The total concentrations for arsenic exceeded the TTLC in all three samples collected by Water Board staff from the Pit Clarifier. The arithmetic average arsenic concentration for these three samples was 943 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 53 percent or greater solids by weight; therefore, the sludge could possibly exceed the TTLC when it is disposed of in the late spring or early summer of 2012.

In addition to samples collected by URS and Water Board staff to characterize sludge generated during the 2011 treatment season, URS collected one sludge sample on June 23, 2011, to further characterize sludge generated during the previous (2010) treatment season. This sample was collected at the request of the disposal facility, US Ecology Corp., and analyzed using the TCLP method prior to the completion of manifests. The results of this additional characterization sampling, for sludge generated during the 2010 treatment season, are presented in Table A-6.

Water Board staff also collected two soil samples from accumulated sediment in the concrete v-ditches around Pond 3 prior to removing the sediment. These data are summarized in Table A-7.

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.

3.5.3 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, and a sampling record form was completed for each sampling event. Field quality control samples, including two Field Method Blank (FMB) and a field duplicate sample, 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 PWT data in Tables A-2, A-3, and A-5. In 2011, Water Board staff did not assign any additional data qualifiers to pond water treatment data.

Water Board staff assessed the data to confirm that holding times were met. One total dissolved solids sample was analyzed past the method specified holding time.

URS submitted one field duplicate sample to the laboratory to measure the precision of the entire measurement system including sampling and analytical procedures in 2011. 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 difference between the sample and duplicate values had to be equal to or less than the RL to be in control limits.

In 2011, the one duplicate sample was within the control limits for 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 both FMB samples (1112PWT011 and 1112FMB018) at 0.120 mg/L and 1.25 mg/L respectively. The dissolved calcium concentration in the treated effluent sample analyzed in the same batch as sample 1112PWT011 was 689 mg/L. The calcium concentration in the treated effluent sample analyzed in the same batch as sample 1112FMB018 was 835 mg/L. The EPA does not have established Discharge Criteria for calcium at Leviathan Mine.

3.5.4 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 by URS during 2011 Pond Water Treatment season did not completely follow the sample designation and labeling system identified in the PWT SAP. Sample names assigned by URS are easily comparable to the system identified in the SAP. Deviations from the system identified in the SAP consist primarily of: (1) the addition or removal of hyphens in the sample name that are or are not specified in the SAP, (2) the addition of "NF" or "NS" after the sample name to designate if the sample was a "normal sample" or a "normal filtered" sample, and (3) improper naming of duplicate samples and field method blanks. Water Board staff have slightly modified the sample names assigned by URS in Tables A-2, A-3, A-5, and A-6 to follow the system identified in the SAP. All samples collected during 2012 Pond Water Treatment activities will follow the sample designation and labeling system identified in the PWT SAP.

In a number of instances the reporting limits specified in the PWT SAP were not met:

- (1) Reporting limits provided by URS's contracted off-site laboratory, Microbac, did not meet the reporting limits specified in Table B2 of the PWT SAP for a number of parameters. Reporting limits were not met at least once for the following parameters: aluminum, arsenic, cadmium, copper, lead, nickel, selenium, and zinc. There were a total of 45 instances where reporting limits were above those specified in Table B2 of the PWT SAP. It is important to note that the reporting limits provided by Microbac were lower than the USEPA Daily Maximum Discharge Criteria; as such, it is possible to determine that no effluent samples exceeded the USEPA Daily Maximum Discharge Criteria. In only one instance, sample 1112PWT006-EFF, were reporting limits provided by Microbac slightly higher than the USEPA 4-day Average Discharge Criteria.
- (2) One "pre-discharge" sample collected by Water Board personnel did not meet the reporting limit for zinc. It is important to note that "pre-discharge" samples are not part of the twice weekly effluent sampling to determine compliance with EPA discharge criteria.
- (3) A number of sludge samples collected by both URS and Water Board personnel did not meet the reporting limits specified in Table B3 of the PWT SAP. In all instances the detection limit provided by the laboratory is low enough to determine if the concentration of parameters in the sludge are below the TTLC and STLC limits. Reporting limits for TTLC on a dry weight basis were not met at least once for the following parameters: antimony, beryllium, lead, molybdenum, selenium, silver, and thallium. The TTLC reporting limit specified in the PWT SAP was not met on 31 occasions. In a number of these instances the laboratory reported sample matrix effects that necessitated the raised reporting limit. Reporting limits for STLC were not met at least once for the following parameters: antimony, beryllium, molybdenum, selenium, and silver. The STLC reporting limit specified in the PWT SAP was not met on 18 occasions.

Water Board staff will coordinate with subcontractors and laboratories as part of the 2012 Pond Water Treatment activities to ensure that reporting limits provided by the laboratories meet the reporting limits specified in the PWT SAP where ever possible.

Field quality control samples (field duplicates and field method blanks) were not collected at a minimum rate of 10 percent of the total number of non-QC samples collected for the project. Based on the number of samples collected, URS should have collected three duplicate samples and three field method blanks. URS collected one duplicate sample and two field duplicate samples during 2011 Pond Water Treatment activities. Additionally, the one duplicate sample was collected from the influent instead of the effluent as specified in the PWT SAP and one of the two field duplicate samples was not analyzed for total recoverable selenium. The appropriate number of field quality control samples will be collected during 2012 Pond Water Treatment activities from the appropriate locations and shall be analyzed for the appropriate parameters. Additionally, URS will collect additional field quality control samples during the 2012 and 2013 Pond Water Treatment activities to ensure that field quality control samples are collected at a minimum rate of 10 percent of the total number of non-QC samples for the three-year duration of the Pond Water Treatment contract.

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 2011 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 2011 so that there would be no loss of data while ARCO set up and began collecting meteorological data as part of the RI/FS program. 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 2010 to September 2011 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 2011 water year begins October 1, 2010 and ends September 30, 2011. 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 2011 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 monthly 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). Appendix D presents the USGS's water-data reports for 2011 in PDF format for the 16 stations with continuous stage recorders. 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 seven stations: Adit, PUD, CUD, Station 15, Station 25, Pond 1, and Pond 4. 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/>.

5. SITE MAINTENANCE

The Water Board conducted site maintenance work during the 2011 field season in accordance with the USEPA-approved Work Plan. Maintenance activities included both routine maintenance and a significant road paving project

5.1 Routine Maintenance

Routine maintenance activities performed in 2011 included repairing perimeter fencing, inspecting pond liners and storm water conveyances, and coordinating invasive plant control.

The perimeter fencing is barbed-wire and surrounds the majority of the site. In mid-June 2011, Water Board staff inspected the perimeter fence and noted that extensive repairs to the fence were required in numerous locations around the site. URS staff and its subcontractor repaired the perimeter fence in August and early September 2011.

Water Board staff visually inspected Ponds 1, 2 North, 2 South, and 3, specifically looking for areas where the earthen cover had eroded and the pond liner was exposed. Water Board staff directed URS staff to add additional cover material around areas of Pond 3 where the pond liner was exposed.

Water Board staff visually inspected storm water conveyances in the pit and around the ponds for the presence of excess sediment that would substantially impede the conveyance of storm water or that would result in a significant amount of sediment to be discharged and therefore warrant a removal activity. Water Board staff directed URS staff to remove accumulated sediment from the storm water conveyance concrete ditches in the Pond 3 area.

The El Dorado County, Department of Agriculture (EDCDA) visited Leviathan Mine on September 6, 2011 and spot applied an herbicide (Telar[®]) on invasive plants. This year (2011), as in 2002 through 2010, the EDCDA sprayed to eradicate tall whitetop (*Lepidium latifolium*).

5.2 Access Road Paving and Drainage Improvements Project

During the summer 2011 field season, the Water Board conducted an on-site Access Road Paving and Drainage Improvements Project. The Water Board's contractor, Sierra Nevada Construction (SNC), began construction activities on July 18, 2011 and completed the majority of the work on August 15, 2011. Water Board staff and the Water Board's contractors coordinated with ARCO and the USFS regarding site access issues throughout the planning, scheduling and implementation of the paving project.

The road improvements consisted of asphalt paving of approximately three quarters of a mile of existing road in and around the Water Board's primary work areas on the site (Figure 5). The paving included the access road around Pond 1, the pit access road which included a truck turn-around area, the main road through the mine from just inside the California gate to just past the entrance to Pond 3, and the access road up to

Ponds 2 North and 2 South. The pavement section consisted of 12 to 13 inches of cement-lime stabilized native soil overlaid by approximately 4 inches of asphalt concrete pavement.

Storm water drainage infrastructure improvements were also installed during the project. The drainage infrastructure improvements included the installation of six drop inlets, of which five were tied into the existing below grade storm drain, 375 feet of 12 inch HDPE culvert, the removal and replacement of 900 linear feet of concrete v-ditch, and the addition of 1,160 linear feet of new concrete v-ditch.

The project also included the removal and replacement of the pit access gate with a wider opening double gate allowing larger equipment to enter the pit and the placement of 3 inch crushed stone on the slope that is on the southeast side of Pond 1 to reduce erosion in this area.

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Figure 1: Site Location

Figure 2: Bryant Creek Watershed

Figure 3: Lahontan Water Board AMD Capture and Treatment System

Figure 4: Surface Water Monitoring Locations

Figure 5: Lahontan Water Board 2011 Road Paving Project

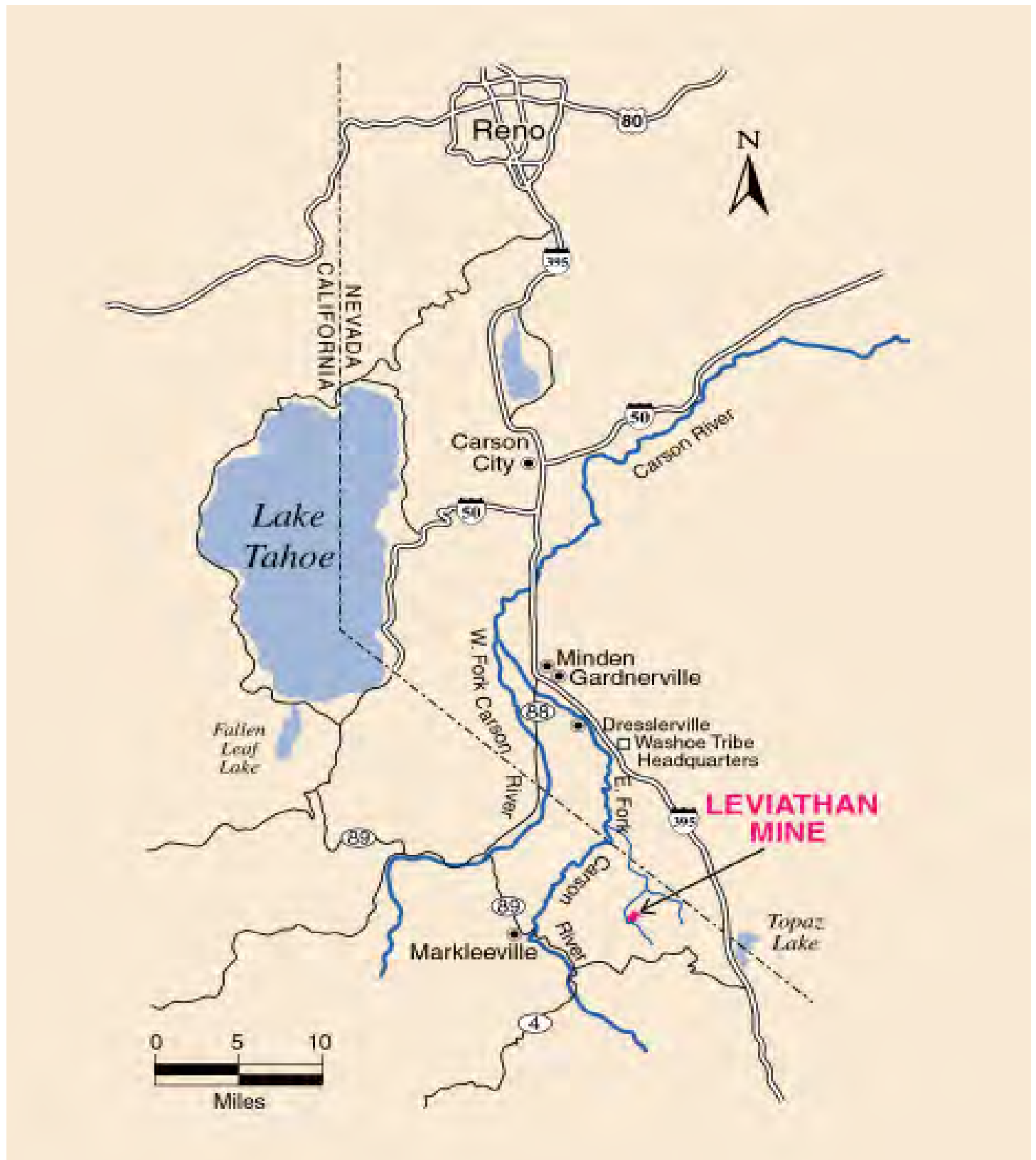


FIGURE 1
SITE LOCATION



FIGURE 2
BRYANT CREEK WATERSHED



FIGURE 3
LAHONTAN WATER BOARD AMD CAPTURE AND TREATMENT SYSTEM

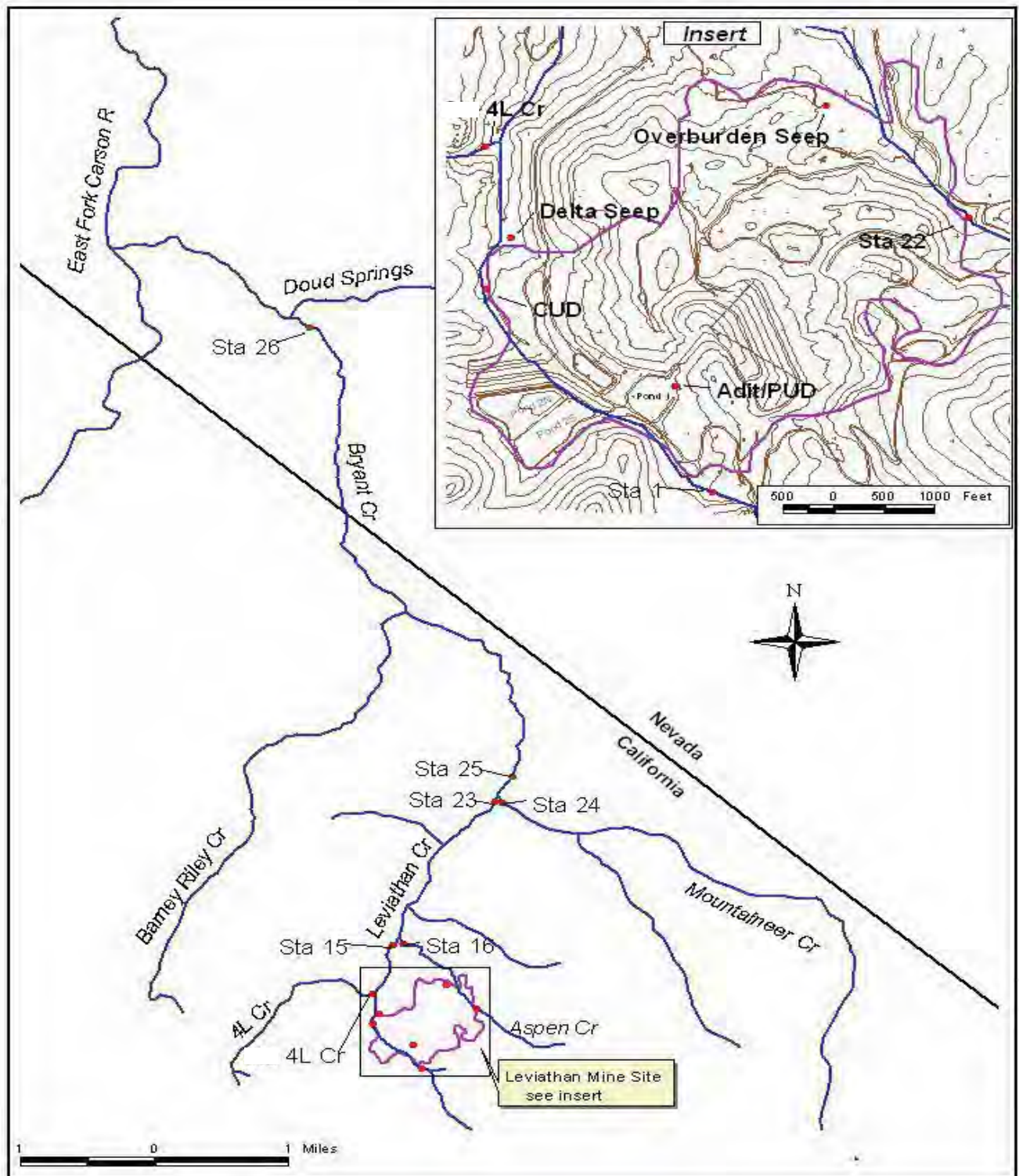
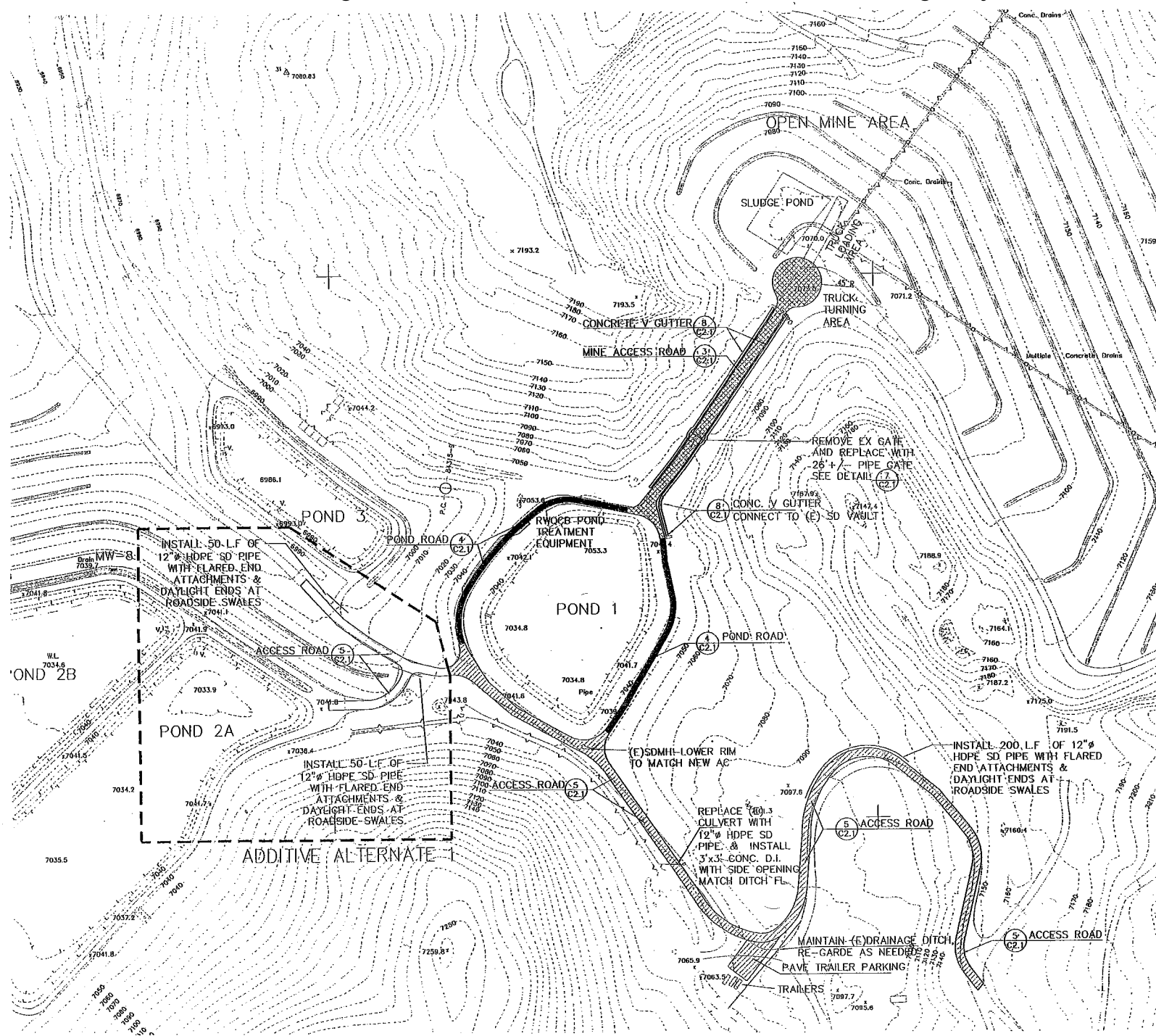


FIGURE 4
SURFACE WATER MONITORING LOCATIONS

Figure 5. Lahontan Water Board 2011 Road Paving Project



PAVING LEGEND

-  20' MINE ACCESS ROAD $\left(\frac{3}{C2.1} \right)$
 10' POND ROAD $\left(\frac{4}{C2.1} \right)$
 14' ACCESS ROAD $\left(\frac{5}{C2.1} \right)$

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Table 1: 2011 Pond Water Treatment Monitoring Program

Table 2: USEPA Discharge Criteria

Table 3: 2011 Flow and Stage Monitoring Locations

TABLE 1
2011 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 promptly 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
2011 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 2010
Tributary A (103087865)	Ephemeral tributary north of Pond 2 North (USGS refers to this site as Unnamed Trib 2)	Continuous flow recorder and appurtenances, solar power supply.	November 2010
Tributary B (103087835)	Ephemeral tributary south of Pond 2 South (USGS refers to this site as unnamed Trib1)	Continuous flow recorder and appurtenances, solar power supply.	November 2010
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 2010 Pond Water Treatment

Table A-1: 2011 Pond Water Treatment, Daily Discharge Summary

Table A-2: 2011 Pond Water Treatment Effluent Field and Analytical Results

Table A-3: 2011 Pond Water Treatment Influent Field and Analytical Results

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

Table A-5: 2011 Pond Water Treatment Sludge Analytical Results

Table A-6: 2010 Pond Water Treatment Sludge TCLP Analytical Results

Table A-7: 2011 Pond 3 V-Ditch Soil Analytical Results

Table A-1
2011 Pond Water Treatment
Daily Discharge Summary

Date	Daily Discharge (Gallons)	Cumulative Discharge (Gallons)
7/15/2011	50,160	51,300
7/16/2011	119,520	170,820
7/17/2011	119,520	290,340
7/18/2011	129,600	419,940
7/19/2011	162,720	582,660
7/20/2011	244,800	827,460
7/21/2011	285,120	1,112,580
7/22/2011	276,480	1,389,060
7/23/2011	260,640	1,649,700
7/24/2011	244,800	1,894,500
7/25/2011	295,510	2,190,010
7/26/2011	293,760	2,483,770
7/27/2011	260,640	2,744,410
7/28/2011	214,560	2,958,970
7/29/2011	234,708	3,193,678
7/30/2011	193,671	3,387,349
7/31/2011	276,480	3,663,829
8/1/2011	276,480	3,940,309
8/2/2011	244,800	4,185,109
8/3/2011	228,960	4,414,069
8/4/2011	244,800	4,658,869
8/5/2011	293,760	4,952,629
8/6/2011	293,760	5,246,389
8/7/2011	189,435	5,435,824
8/8/2011	141,165	5,576,989
8/9/2011	293,760	5,870,749
8/10/2011	276,480	6,147,229
8/11/2011	244,800	6,392,029
8/12/2011	260,640	6,652,669
8/13/2011	260,640	6,913,309
8/14/2011	260,640	7,173,949
8/15/2011	276,480	7,450,429
8/16/2011	147,900	7,598,329
8/17/2011	201,600	7,799,929
8/18/2011	244,800	8,044,729
8/19/2011	244,800	8,289,529
8/20/2011	228,960	8,518,489
8/21/2011	228,960	8,747,449
8/22/2011	244,800	8,992,249
8/23/2011	260,640	9,252,889
8/24/2011	222,795	9,475,684
8/25/2011	165,810	9,641,494
8/26/2011	92,160	9,733,654
8/27/2011	30,240	9,763,894
8/28/2011	10,080	9,773,974
8/29/2011	7,200	9,781,174
8/30/2011	5,760	9,786,934
8/31/2011	4,320	9,791,254
9/1/2011	3,600	9,794,854
9/2/2011	3,600	9,798,454
9/3/2011	2,592	9,801,046
9/4/2011	1,728	9,802,774
9/5/2011	1,728	9,804,502

Note:

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

Table A-2: 2011 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		0.34		0.009		n/a		0.97		n/a		0.026		2.0		0.136		n/a		n/a		0.84		n/a		n/a		n/a		0.21	
USEPA 4-Day Average Discharge Criteria			-	-	2.0		0.15		0.004		n/a		0.31		n/a		0.016		1.0		0.005		n/a		n/a		0.094		0.005		n/a		n/a		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
1112PWT001-PC	Pre-Discharge	7/13/2011	8.15	22.5 °C	3.9	MHA	0.015		0.00054	RL1, J	NA		0.013		NA		0.023		2.3	B-1	0.00040	ND, RL1	NA		NA		0.052		0.0030	RL1, J	NA		NA		0.0085	RL1, J
1112PWT002-PC	Pre-Discharge	7/14/2011	8.31	18.6 °C	2.2	MHA	0.0048		0.00025	J	NA		0.0031		NA		0.0067		0.62	MHA, B-1	0.00020	ND	NA		NA		0.023		0.0033		NA		NA		0.0040	ND
1112PWT004-EFF	PWT Effluent	7/15/2011	7.36	68.9 °F	0.0764	J	0.00178		0.00025	U	736	J+	0.00511		0.00258	J	0.00608		0.526		0.00118		47.2		0.0332		0.0224		0.00313		2120		3330		0.01	U
1112PWT006-EFF	PWT Effluent	7/18/2011	7.65	68.9 °F	0.05	U	0.005	U	0.00025	U	642		0.0025	U	0.0025	U	0.01	U	0.457		0.005	U	39.7		0.048		0.02	U	0.005	U	1760		2700		0.01	U
1112PWT007-EFF	PWT Effluent	7/21/2011	8.1	70.5 °F	0.1		0.0121		0.00025	U	687	B	0.0025	U	0.0025	U	0.021		0.519		0.0025	U	34.3		0.043		0.105		0.0149						0.01	U
1112PWT009-EFF	PWT Effluent	7/26/2011	7.9	69.5 °F	0.507		0.00922		0.00025	U	661		0.0025	U	0.00385	J	0.0101		0.928		0.0025	U	27.2		0.0831		0.0313		0.0025	U	1870		3990		0.01	U
1112PWT010-EFF	PWT Effluent	7/28/2011	7.77	66.5 °F	0.05	U	0.00305	J	0.00025	U	576		0.0025	U	0.0025	U	0.00508	J	0.375		0.0025	U	30.9		0.0382		0.0227		0.0025	U					0.01	U
1112PWT012-EFF	PWT Effluent	8/2/2011	8.07	70.3 °F	0.381		0.0022		0.0003	U	689		0.0025	U	0.0025	U	0.00427		0.501		0.0005	U	33.9		0.123		0.0271		0.00377	J	1930		3020		0.01	U
1112PWT013-EFF	PWT Effluent	8/4/2011	8.1	71.9 °F	0.437		0.00222		0.0003	U	714		0.0025	U	0.00423	J	0.00423		0.548		0.0005	U	36.8		0.158		0.0316		0.00307	J					0.01	U
1112PWT015-EFF	PWT Effluent	8/9/2011	7.57	60 °F	0.134		0.00292		0.0006	U	671		0.0025	U	0.00478	J	0.00449		0.535		0.001	U	33.7		0.258		0.0287		0.00317	J	1770		2880		0.01	U
1112PWT016-EFF	PWT Effluent	8/10/2011	7.63	67.7 °F	0.134		0.00232		0.0006	U	719		0.0025	U	0.00432	J	0.00525		0.496		0.001	U	34.9		0.306		0.0357		0.00299	J					0.01	U
1112PWT018-EFF	PWT Effluent	8/15/2011	7.98	65 °F	0.607		0.0034		0.0006	U	835		0.0025	U	0.00479	J	0.00515		0.611		0.001	U	38.5		0.259		0.0352		0.00393		2040		3390		0.01	U
1112PWT019-EFF	PWT Effluent	8/17/2011	8.02	66.1 °F	0.05	U	0.0024		0.0006	U	589		0.0025	U	0.0025	U	0.00415		0.494		0.001	U	37.6		0.202		0.0232		0.00421						0.01	U
1112PWT021-EFF	PWT Effluent	8/22/2011	7.96	65.2 °F	0.517		0.00398		0.0006	U	728		0.0025	U	0.0038	J	0.00638		0.499		0.001	U	39.8		0.299		0.0376		0.00499		1920		3150		0.01	U
1112PWT022-EFF	PWT Effluent	8/24/2011	7.65	69 °F	0.291		0.00512		0.0003	U	738		0.0025	U	0.00476	J	0.0123		0.461		0.0005	U	41.4		0.336		0.084		0.00419						0.01	U
1112PWT023-EFF	PWT Effluent	8/29/2011	7.12	67.2 °F	0.05	U	0.00275		0.0006	U	579	B	0.0025	U	0.00352	J	0.00437		0.5		0.001	U	61.8		0.686		0.0231		0.00209		1630		2590		0.01	U
1112PWT024-EFF	PWT Effluent	8/31/2011	7.2	63.7 °F	0.05	U	0.00326		0.0006	U	614	B	0.0025	U	0.00415	J	0.00468		0.465		0.001	U	67.5		0.813		0.0237		0.00194	J					0.01	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.
Dup indicates sample is a duplicate.

Qualifiers (Q):
J - Analyte positively identified, but the quantitation was below the reporting limit.
U - Not detected at or above adjusted sample detection limit.
B - Analyte present in method blank.
B-1 - Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.
MHA - due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.
RL1 - Reporting limit raised due to sample matrix effects.
ND - Analyte not detected at or above the method detection limit.
NA - Not Analyzed

Table A-3: 2011 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
1112PWT003-INF		7/14/2011	2.47	72 °F	436		4.91		0.067		291	B	1.29		2.35		6.25		784		0.00233		63.3		12.1		6.42		0.00192		4800		7820		1.4	
1112PWT005-INF		7/18/2011	2.53	75.4 °F	443		7.19		0.0717		278		1.38		2.47		7.1		844		0.005	U	63.4		12.7		6.63		0.005	U	4920		9400		2.09	
1112PWT008-INF		7/26/2011	2.21	71.2 °F	423		8.14		0.025	U	247		1.41		2.49		7.88		860		0.00332	J	60.2		12.3		6.7		0.00541		4690		5840		2.15	
1112PWT011-INF		8/2/2011	3.28	75.2 °F	387		7.95		0.0667		285		1.26		2.34		3.88		775		0.00306	J	56.1		11.5		6.36		0.0031	J	4460		7800		1.81	
1112PWT014-INF		8/9/2011	2.11	46.5 °F	433		9.09		0.0806		277		1.41		2.55		4.33		857		0.00249	J	61.7		12.7		7.13		0.00545		4570		9480	J	1.69	
1112PWT014-INF	Duplicate	8/9/2011	2.11	46.5 °F	423		8.8		0.0811		272		1.39		2.49		4.24		809		0.00239	J	58.5		12.3		6.93		0.00517		4560		8160	J	1.52	
1112PWT017-INF		8/15/2011	2.17	74.8 °F	513		9.52		0.0854		258		1.65		2.91		5.11		981		0.00156	J	70.8		14.4		7.56		0.00277		5750		10600		2.63	
1112PWT020-INF		8/22/2011	2.5	68.2 °F	525		10.2		0.0858		331		1.72		3.08		5.28		991		0.00256		74.4		15.2		8.24		0.00271		5470		11000		2.45	

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.
Dup indicates sample is a duplicate.

Qualifiers (Q):

J - Analyte positively identified, but the quantitation was below the reporting limit.
U - Not detected at or above adjusted sample detection limit.
B - Analyte present in method blank.
B-1 - Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.
MHA - due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.
RL1 - Reporting limit raised due to sample matrix effects.
ND - Analyte not detected at or above the reporting limit or method detection limit, if method detection limit is specified.

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

Date/Time	Influent Flowrate (gpm)	R-1 Setpoint	R-1 pH	R-1 temp	R-2 Setpoint	R-2 pH	R-2 temp	Clarifier Pit pH	Clarifier Pit temp	Discharge Weir pH	Discharge Weir temp
7/13/2011 9:00	125	3.20	3.14	67.30	8.40	8.70	67.80	ND	ND	ND	ND
7/13/2011 9:30	125	3.20	3.25	67.30	8.80	8.51	67.50	ND	ND	ND	ND
7/13/2011 10:30	125	3.20	3.26	67.30	8.60	8.61	67.70	7.72	64.40	ND	ND
7/13/2011 11:30	--	3.20	3.28	68.50	8.80	9.05	68.00	8.72	66.60	ND	ND
7/13/2011 12:30	125	3.20	3.33	69.00	8.80	8.82	68.60	9.17	67.40	ND	ND
7/13/2011 13:30	--	3.20	3.34	69.50	8.60	8.65	69.40	9.11	68.10	ND	ND
7/13/2011 14:30	125	3.20	3.33	70.70	8.70	8.99	69.40	8.96	69.00	ND	ND
7/13/2011 15:30	--	3.20	3.21	71.10	8.70	8.66	70.50	8.65	68.00	ND	ND
7/13/2011 16:30	125	3.20	3.19	73.00	8.70	8.65	70.90	8.76	68.30	ND	ND
7/13/2011 17:30	--	3.20	3.21	73.30	8.70	8.63	71.90	--	--	ND	ND
7/13/2011 18:30	125	3.20	3.31	74.00	8.70	8.70	72.90	9.05	67.20	ND	ND
7/13/2011 19:30	--	3.20	3.17	74.00	8.70	8.64	73.20	9.05	67.02	ND	ND
7/13/2011 20:30	125	3.20	3.14	72.80	8.70	8.50	73.20	10.16	67.90	ND	ND
7/13/2011 21:30	--	3.20	3.08	72.30	8.70	8.65	73.00	10.69	64.70	ND	ND
7/13/2011 22:30	125	3.20	3.06	71.60	8.70	8.74	72.70	8.85	66.20	ND	ND
7/13/2011 23:30	--	3.20	3.06	71.10	8.70	9.06	72.00	8.89	65.70	ND	ND
7/14/2011 0:30	125	3.20	3.07	70.40	8.70	8.92	71.30	8.72	64.50	ND	ND
7/14/2011 1:30	--	3.20	3.06	70.30	8.70	8.81	71.10	8.78	64.10	ND	ND
7/14/2011 2:30	125	3.20	3.07	69.00	8.70	8.79	69.80	8.85	62.50	ND	ND
7/14/2011 3:30	--	3.20	3.08	68.80	8.70	8.84	69.70	8.82	62.20	ND	ND
7/14/2011 4:30	125	3.20	3.08	67.60	8.71	8.97	68.20	8.65	60.80	ND	ND
7/14/2011 5:30	--	3.20	3.09	66.60	8.71	8.86	66.70	9.19	60.20	ND	ND
7/14/2011 6:30	125	3.20	3.08	65.90	8.78	8.57	66.90	8.90	60.70	ND	ND
7/14/2011 7:30	--	3.20	3.09	65.70	8.60	8.86	66.30	8.85	--	ND	ND
7/14/2011 8:30	--	--	--	--	--	--	--	--	--	ND	ND
7/14/2011 9:30	125	3.20	3.17	65.70	8.60	8.75	65.80	8.80	--	ND	ND
7/14/2011 10:30	--	3.00	3.19	65.90	8.60	8.51	66.20	6.50	--	ND	ND
7/14/2011 11:30	125	3.20	3.18	67.10	8.60	8.67	66.90	7.40	--	ND	ND
7/14/2011 12:30	--	3.20	3.17	67.80	8.30	8.72	67.80	8.30	65.60	ND	ND
7/14/2011 13:30	125	3.20	3.18	68.80	8.30	8.60	67.90	8.15	70.90	ND	ND
7/14/2011 14:30	--	3.20	3.16	70.40	8.30	8.50	69.20	8.09	73.10	ND	ND
7/14/2011 15:30	125	3.20	3.16	70.40	8.30	8.25	69.90	8.03	73.70	ND	ND
7/14/2011 16:30	--	3.20	2.83	71.10	8.30	8.23	70.80	8.12	73.00	ND	ND
7/14/2011 17:30	125	3.20	3.00	71.90	8.30	8.20	71.30	8.08	71.30	ND	ND
7/14/2011 18:30	--	3.20	2.68	73.00	8.30	8.31	71.70	8.10	67.70	ND	ND
7/14/2011 19:30	125	3.20	3.00	72.60	8.30	8.23	72.70	7.90	68.00	ND	ND
7/14/2011 20:30	125	3.20	3.25	73.80	8.30	8.52	72.90	8.30	67.40	ND	ND
7/14/2011 21:30	130	3.20	3.24	74.00	8.30	8.35	73.00	8.45	66.20	ND	ND
7/14/2011 22:30	130	3.20	3.29	72.90	8.30	8.40	73.10	--	--	ND	ND
7/14/2011 23:30	--	3.20	3.24	72.80	8.30	8.34	73.00	8.38	64.40	ND	ND
7/15/2011 0:30	130	3.20	3.24	71.90	8.30	8.37	72.40	8.22	62.20	ND	ND
7/15/2011 1:30	--	3.20	3.33	71.10	8.30	8.33	71.80	8.29	62.00	ND	ND
7/15/2011 2:30	130	3.20	3.27	69.90	8.30	8.34	71.20	8.00	59.80	ND	ND

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

7/15/2011 3:30	--	3.20	3.29	69.50	8.30	8.52	70.20	8.00	60.30	ND	ND
7/15/2011 4:30	130	3.20	3.01	68.30	8.30	8.40	69.10	8.10	59.70	ND	ND
7/15/2011 5:30	--	3.20	3.19	67.60	8.30	8.37	68.80	8.10	59.40	ND	ND
7/15/2011 6:30	128	3.20	3.28	67.10	8.30	8.34	67.90	7.90	58.40	ND	ND
7/15/2011 7:30	--	3.20	3.32	66.40	8.30	8.76	67.30	8.50	61.60	ND	ND
7/15/2011 8:30	125	3.20	3.16	66.40	8.30	8.30	67.00	8.48	62.80	ND	ND
7/15/2011 9:30	--	3.20	3.32	66.90	8.30	8.40	66.90	8.53	63.70	ND	ND
7/15/2011 10:30	125	3.20	3.23	67.10	8.30	8.25	67.20	8.73	66.00	ND	ND
7/15/2011 11:30	--	3.20	3.28	69.50	8.20	8.70	67.90	8.40	68.30	ND	ND
7/15/2011 12:30	125	3.20	3.32	69.20	8.20	8.83	68.40	8.45	68.20	ND	ND
7/15/2011 13:30	--	3.20	3.07	70.40	8.20	8.38	69.40	8.53	70.50	7.36	68.90
7/15/2011 14:30	125	3.20	3.07	71.10	8.20	8.40	70.50	8.49	71.60	8.29	68.90
7/15/2011 15:30	--	3.20	3.17	70.70	8.20	8.34	71.00	8.62	70.70	8.12	69.70
7/15/2011 16:30	125	3.20	3.27	70.90	8.20	8.25	71.30	8.54	72.40	8.17	69.70
7/15/2011 17:30	--	3.20	3.05	72.30	8.20	8.32	71.20	8.35	70.30	8.21	67.90
7/15/2011 18:30	125	3.20	3.18	72.60	8.20	8.20	71.70	8.38	67.30	7.91	67.60
7/15/2011 19:30	--	3.20	3.30	73.00	8.20	8.34	71.90	8.21	68.90	7.65	68.10
7/15/2011 20:30	127	3.20	3.27	72.60	8.20	8.17	72.10	8.16	66.00	7.65	65.50
7/15/2011 21:30	--	3.20	3.32	72.10	8.20	8.38	72.10	8.16	64.60	7.72	65.10
7/15/2011 22:30	127	3.20	3.32	71.60	8.20	8.47	72.00	8.18	62.00	7.76	63.20
7/15/2011 23:30	--	3.20	3.32	71.40	8.20	8.14	71.40	8.22	60.90	7.77	62.40
7/16/2011 0:30	128	3.20	3.25	70.70	8.20	8.22	71.00	8.17	58.00	7.75	61.50
7/16/2011 1:30	--	3.20	3.34	69.70	8.20	8.31	70.20	8.19	57.40	7.70	60.80
7/16/2011 2:30	128	3.20	3.35	69.00	8.20	8.22	69.80	8.22	57.20	7.75	61.00
7/16/2011 3:30	--	3.20	3.24	68.30	8.20	8.65	69.00	8.19	57.10	7.64	61.00
7/16/2011 4:30	128	3.20	3.32	67.60	8.20	8.32	68.30	8.17	54.90	7.71	58.10
7/16/2011 5:30	--	3.20	3.23	67.60	8.20	8.49	67.80	8.24	55.20	7.73	52.60
7/16/2011 6:30	--	3.20	3.27	66.40	8.20	8.65	67.20	8.30	54.70	7.75	58.40
7/16/2011 7:30	--	3.20	3.25	65.70	8.20	8.45	66.30	8.45	59.10	8.04	58.00
7/16/2011 8:30	125	3.20	3.30	65.70	8.20	8.23	66.10	8.53	62.70	8.17	62.10
7/16/2011 9:30	--	3.20	3.29	65.90	8.20	8.59	66.00	8.46	63.70	8.15	62.40
7/16/2011 10:30	125	3.20	3.33	66.40	8.20	8.16	66.40	8.39	68.10	8.17	66.20
7/16/2011 11:30	--	3.20	3.25	67.60	8.20	8.39	67.00	8.43	68.50	7.93	64.40
7/16/2011 12:30	125	3.20	3.34	68.80	8.20	8.24	67.50	8.42	70.60	7.96	68.30
7/16/2011 13:30	--	3.20	3.22	69.20	8.20	8.36	68.80	8.38	72.60	7.95	69.20
7/16/2011 14:30	125	3.20	3.26	70.90	8.20	8.36	69.90	8.35	69.50	8.10	67.30
7/16/2011 15:30	--	3.20	3.31	71.40	8.20	8.73	70.30	8.43	70.30	7.96	66.30
7/16/2011 16:30	125	3.20	3.28	72.10	8.20	8.27	71.40	8.46	67.90	8.07	67.60
7/16/2011 17:30	--	3.20	3.25	72.60	8.20	8.31	71.70	8.45	69.70	8.08	66.90
7/16/2011 18:30	125	3.20	3.30	73.80	8.20	8.26	72.50	8.45	73.00	8.06	67.80
7/16/2011 19:30	125	3.20	3.36	74.50	8.20	8.14	73.20	8.20	70.40	7.83	67.20
7/16/2011 20:30	125	3.20	3.25	74.70	8.20	8.40	73.80	8.20	68.40	7.84	67.70
7/16/2011 21:30	--	3.20	3.20	74.20	8.20	8.27	73.60	8.17	64.20	7.85	65.10
7/16/2011 22:30	125	3.20	3.06	73.50	8.20	8.29	73.20	8.19	62.90	7.78	65.70
7/16/2011 23:30	--	3.20	3.32	73.00	8.20	8.26	73.60	8.14	60.80	7.76	64.10
7/17/2011 0:30	125	3.20	3.25	71.90	8.20	8.55	72.20	8.11	59.00	7.72	63.60
7/17/2011 1:30	--	3.20	3.27	70.70	8.20	8.30	72.00	8.16	60.20	7.74	63.70

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

7/17/2011 2:30	125	3.20	3.26	69.50	8.20	8.43	71.00	8.20	58.50	7.73	62.60
7/17/2011 3:30	--	3.20	3.21	68.50	8.20	8.56	69.90	8.22	56.50	7.77	61.00
7/17/2011 4:30	125	3.20	3.35	67.80	8.20	8.37	68.90	8.21	56.20	7.74	61.10
7/17/2011 5:30	--	3.20	3.31	66.90	8.20	8.25	68.10	8.23	54.90	7.75	60.50
7/17/2011 6:30	125	3.20	3.27	66.10	8.20	8.47	67.30	8.30	54.60	7.77	59.90
7/17/2011 7:30	--	--	--	--	--	--	--	--	--	--	--
7/17/2011 8:30	125	3.20	3.25	65.40	8.20	8.34	66.20	7.79	62.30	7.90	61.80
7/17/2011 9:30	--	3.20	3.31	66.60	8.20	8.31	65.90	7.93	62.80	7.65	61.00
7/17/2011 10:30	125	3.20	3.25	67.10	8.20	8.21	66.40	8.13	65.10	7.95	63.10
7/17/2011 11:30	--	3.20	3.21	68.30	8.20	8.25	67.40	7.93	66.00	7.79	64.10
7/17/2011 12:30	130	3.20	3.29	69.50	8.20	8.22	68.40	7.95	67.10	6.50	64.80
7/17/2011 13:30	--	3.20	3.33	71.10	8.20	8.24	69.50	6.78	68.30	7.52	65.60
7/17/2011 14:30	125	3.20	3.35	70.80	8.20	8.18	70.70	8.00	69.60	7.81	66.50
7/17/2011 15:30	--	3.20	3.35	71.90	8.20	8.20	71.00	8.13	70.00	7.87	67.90
7/17/2011 16:30	125	3.20	3.35	72.60	8.20	8.38	71.80	8.15	70.00	7.92	67.90
7/17/2011 17:30	--	3.20	3.33	74.20	8.20	8.31	72.20	8.06	69.80	6.34	67.80
7/17/2011 18:30	130	3.20	2.84	73.30	8.20	8.13	73.00	7.95	69.50	7.62	67.20
7/17/2011 19:30	--	3.20	3.26	73.50	8.20	8.41	72.90	7.86	69.50	7.64	67.30
7/17/2011 20:30	128	3.20	3.27	74.00	8.20	8.46	73.40	8.19	66.50	7.90	67.50
7/17/2011 21:30	--	3.20	3.24	73.80	8.20	8.35	73.20	8.03	67.00	7.96	66.00
7/17/2011 22:30	128	3.20	3.21	72.80	8.20	8.29	73.10	7.78	66.20	7.85	65.50
7/17/2011 23:30	--	3.20	3.26	72.40	8.20	8.32	72.80	8.01	66.00	7.94	65.30
7/18/2011 0:30	128	3.20	3.19	70.90	8.20	8.27	72.00	7.73	65.00	7.78	64.60
7/18/2011 1:30	--	3.20	3.22	70.20	8.20	8.30	70.40	7.70	63.50	7.74	62.70
7/18/2011 2:30	128	3.20	3.20	69.50	8.20	8.33	69.10	7.72	62.80	7.82	62.10
7/18/2011 3:30	--	3.20	3.31	69.10	8.20	8.31	68.40	7.70	61.90	7.80	61.60
7/18/2011 4:30	128	3.20	3.25	68.30	8.20	8.38	69.00	7.67	62.50	7.72	61.30
7/18/2011 5:30	--	3.20	3.29	68.10	8.20	8.35	68.80	7.69	62.10	7.81	61.00
7/18/2011 6:30	128	3.20	3.20	67.10	8.20	8.56	67.90	7.68	64.00	7.75	62.30
7/18/2011 7:30	--	3.20	3.33	66.60	8.20	8.15	67.20	7.84	61.90	7.70	61.00
7/18/2011 9:00	130	3.20	3.17	66.40	8.20	8.23	66.80	7.76	64.10	7.70	--
7/18/2011 9:30	--	3.20	3.22	66.60	8.20	8.30	66.80	7.74	--	7.62	61.30
7/18/2011 10:30	130	3.20	3.21	67.20	8.20	8.47	67.10	7.80	64.70	7.95	63.30
7/18/2011 11:30	--	3.20	3.20	69.00	8.40	8.39	68.10	8.08	67.10	8.07	64.60
7/18/2011 12:30	130	3.20	3.10	70.70	8.40	8.49	68.90	8.23	68.50	7.63	63.60
7/18/2011 13:30	--	--	--	--	--	--	--	--	--	--	--
7/18/2011 14:30	140	3.20	--	--	8.40	--	--	8.47	70.10	8.48	66.10
7/18/2011 15:30	--	3.20	--	--	8.40	--	--	--	--	--	--
7/18/2011 16:30	--	--	--	--	--	--	--	--	--	--	--
7/18/2011 17:30	125	3.20	3.10	74.20	8.40	8.65	72.50	8.25	70.60	8.11	68.10
7/18/2011 18:30	125	3.20	3.22	75.50	8.40	8.46	73.10	6.42	69.40	7.72	68.30
7/18/2011 19:30	--	3.20	3.21	75.40	8.40	8.46	74.10	7.75	71.10	7.75	67.80
7/18/2011 20:30	126	3.20	3.21	75.40	8.40	8.35	74.80	7.94	69.50	7.89	67.00
7/18/2011 21:30	--	3.20	3.22	75.40	8.40	8.36	74.70	7.89	69.40	7.87	67.00
7/18/2011 22:30	126	3.20	3.16	73.80	8.40	8.43	74.40	7.91	69.20	7.84	66.80
7/18/2011 23:30	--	3.20	3.21	73.60	8.40	8.41	74.20	7.88	69.00	7.86	66.50
7/19/2011 0:30	125	3.20	3.24	71.40	8.40	8.46	72.70	8.26	66.30	8.13	64.50

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

7/19/2011 1:30	--	3.20	3.22	70.80	8.40	8.45	71.60	8.17	65.80	7.98	64.10
7/19/2011 2:30	125	3.20	3.21	69.60	8.40	8.43	70.60	8.27	65.10	8.11	63.50
7/19/2011 3:30	--	3.20	3.25	69.00	8.40	8.35	70.10	8.22	65.00	8.09	63.00
7/19/2011 4:30	125	3.20	3.28	68.20	8.40	8.37	69.30	7.74	62.40	8.00	61.20
7/19/2011 5:30	--	3.20	3.27	67.80	8.40	8.40	68.80	8.06	62.10	8.03	61.10
7/19/2011 6:30	125	3.20	3.27	67.30	8.40	8.53	68.20	7.67	63.40	7.76	63.10
7/19/2011 7:30	--	3.20	3.30	66.90	8.40	8.41	67.60	8.03	63.50	8.21	61.90
7/19/2011 8:30	125	3.20	3.24	67.60	8.40	8.41	67.30	7.95	64.30	8.24	62.10
7/19/2011 9:30	--	3.20	3.22	66.60	8.40	8.32	67.60	8.05	65.70	8.25	63.10
7/19/2011 10:30	180	3.20	3.28	67.30	8.40	8.45	67.70	8.47	66.00	8.49	63.60
7/19/2011 11:30	--	3.20	3.24	68.40	8.40	8.44	68.20	8.23	66.60	8.40	64.50
7/19/2011 12:30	185	3.20	3.19	68.80	8.40	8.54	69.30	8.14	68.40	7.76	66.60
7/19/2011 13:30	--	3.20	3.14	70.20	8.40	8.41	69.60	8.24	68.10	8.14	66.60
7/19/2011 14:30	185	3.20	3.12	71.60	8.40	8.35	70.30	8.14	68.30	8.32	67.30
7/19/2011 15:30	--	3.20	3.14	72.60	8.40	8.36	71.30	8.26	69.90	7.68	69.60
7/19/2011 16:30	190	3.20	3.21	74.00	8.40	8.31	72.70	8.22	71.10	8.30	68.90
7/19/2011 17:30	--	3.20	3.19	74.70	8.40	8.32	73.40	8.32	69.60	8.50	68.10
7/19/2011 18:30	200	3.20	3.18	75.40	8.40	8.49	74.10	8.20	71.50	8.09	68.40
7/19/2011 19:30	--	3.20	3.26	75.30	8.40	8.68	74.90	7.81	73.20	7.69	69.20
7/19/2011 20:30	180	3.20	3.27	75.20	8.40	8.74	74.90	7.78	73.00	7.61	69.10
7/19/2011 21:30	--	3.20	3.28	74.70	8.40	8.64	74.90	8.04	69.70	7.88	67.30
7/19/2011 22:30	170	3.20	3.29	74.00	8.40	8.65	74.00	8.01	67.90	8.07	65.70
7/19/2011 23:30	--	3.20	3.27	73.80	8.40	8.63	73.70	8.03	67.10	8.03	65.10
7/20/2011 0:30	180	3.20	3.28	71.60	8.40	8.47	72.70	8.04	64.90	8.17	64.10
7/20/2011 1:30	--	3.20	3.26	70.90	8.40	8.51	71.50	8.05	63.70	8.09	63.80
7/20/2011 2:30	180	3.20	3.29	69.50	8.40	8.59	70.70	8.12	62.60	8.11	63.00
7/20/2011 3:30	--	3.20	3.28	68.40	8.40	8.46	69.60	8.08	62.10	8.07	62.80
7/20/2011 4:30	180	3.20	3.24	68.40	8.40	8.48	69.40	8.14	62.10	8.13	62.50
7/20/2011 5:30	--	3.20	3.29	67.30	8.40	8.47	68.10	8.06	59.10	8.13	61.10
7/20/2011 6:30	180	3.20	3.30	66.90	8.40	8.29	67.50	8.09	59.10	8.12	60.40
7/20/2011 7:30	--	3.20	3.27	66.40	8.40	8.64	67.00	8.69	51.40	8.17	57.30
7/20/2011 8:30	180	3.20	2.94	66.40	8.40	8.58	66.70	8.96	69.50	8.28	68.20
7/20/2011 9:30	--	3.20	2.99	67.10	8.40	8.42	66.90	8.57	71.90	8.06	68.90
7/20/2011 10:30	180	3.20	2.94	67.80	8.40	8.38	67.70	8.57	67.90	8.05	67.10
7/20/2011 11:30	--	3.20	2.93	67.60	8.40	8.29	68.30	8.49	69.30	8.00	69.50
7/20/2011 12:30	180	3.20	2.90	69.20	8.40	8.44	68.90	8.38	72.10	8.04	70.60
7/20/2011 13:30	--	3.20	2.90	69.50	8.40	8.47	69.90	8.34	77.00	7.95	72.60
7/20/2011 14:30	180	3.20	2.90	69.90	8.40	8.30	70.20	8.53	69.20	8.08	70.80
7/20/2011 15:30	--	3.20	2.87	72.30	8.40	8.31	70.80	8.52	78.90	8.12	74.80
7/20/2011 16:30	180	3.20	2.87	74.50	8.40	8.56	71.90	8.46	76.80	7.94	74.50
7/20/2011 17:30	--	3.20	2.87	74.50	8.40	8.65	73.20	8.50	75.70	7.93	72.60
7/20/2011 18:30	180	3.20	2.97	74.70	8.40	8.90	74.50	8.41	81.40	8.06	75.80
7/20/2011 19:30	180	3.20	2.97	74.50	8.40	8.70	74.80	8.46	68.90	7.76	68.50
7/20/2011 20:30	180	3.20	3.00	74.90	8.40	8.36	74.60	8.55	68.40	7.72	68.70
7/20/2011 21:30	--	3.20	3.04	74.70	8.40	8.59	74.60	8.49	64.80	7.71	66.70
7/20/2011 22:30	180	3.20	3.15	74.20	8.40	8.45	74.50	8.52	65.80	7.75	66.80
7/20/2011 23:30	--	3.20	3.21	72.80	8.40	8.61	73.80	8.40	63.90	7.73	64.60

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

7/21/2011 0:30	190	3.20	3.21	71.60	8.40	8.37	72.60	8.38	63.60	7.74	64.50
7/21/2011 1:30	--	3.20	3.17	70.70	8.40	8.45	71.60	8.43	60.50	7.70	63.00
7/21/2011 2:30	190	3.20	3.12	69.70	8.40	8.48	70.60	8.49	59.00	7.78	60.70
7/21/2011 3:30	--	3.20	3.14	69.00	8.40	8.40	69.80	8.44	58.00	7.82	61.30
7/21/2011 4:30	190	3.20	3.11	68.30	8.40	8.27	68.70	8.37	56.50	7.72	60.60
7/21/2011 5:30	--	3.20	3.13	67.60	8.40	8.46	68.10	8.41	57.00	7.78	59.60
7/21/2011 6:30	190	3.20	3.14	66.60	8.40	8.35	67.50	8.39	58.40	7.79	59.00
7/21/2011 7:30	--	3.20	3.11	65.90	8.40	8.60	66.90	8.34	57.10	8.06	59.90
7/21/2011 8:30	180	3.20	3.17	65.70	8.40	8.25	66.20	8.38	65.80	8.13	64.10
7/21/2011 9:30	--	3.20	3.00	66.40	8.40	8.49	65.90	8.50	66.70	7.93	73.00
7/21/2011 10:30	180	3.20	2.97	66.90	8.4	8.29	66.90	8.40	73.30	8.10	70.50
7/21/2011 11:30	--	3.20	2.96	67.10	8.40	8.48	67.40	8.40	73.60	8.09	69.10
7/21/2011 12:30	180	3.20	2.93	68.80	8.40	8.52	68.20	8.32	68.40	8.01	66.70
7/21/2011 13:30	--	3.20	2.93	70.90	8.40	8.32	69.00	8.41	81.70	8.10	74.00
7/21/2011 14:30	180	3.20	2.99	71.60	8.40	8.36	70.40	8.31	72.00	8.09	73.00
7/21/2011 15:30	--	3.20	2.91	72.10	8.40	8.60	71.70	8.36	80.10	8.13	73.90
7/21/2011 16:30	180	3.20	2.98	73.00	8.40	8.70	72.10	8.52	78.60	8.12	75.20
7/21/2011 17:30	--	3.20	2.93	73.00	8.40	8.45	72.80	8.39	81.50	8.25	76.30
7/21/2011 18:30	180	3.20	3.17	74.00	8.40	8.40	73.10	8.37	87.70	8.05	80.60
7/21/2011 19:30	180	3.20	3.14	74.90	8.40	8.78	73.60	8.34	69.10	7.62	70.20
7/21/2011 20:30	180	3.20	3.16	75.70	8.40	8.37	74.50	8.40	68.90	7.77	70.20
7/21/2011 21:30	--	3.20	3.14	75.70	8.40	8.42	75.00	8.48	67.00	7.89	68.20
7/21/2011 22:30	180	3.20	3.12	74.70	8.40	8.44	75.00	8.45	64.50	7.78	68.10
7/21/2011 23:30	--	3.20	3.16	73.50	8.40	8.34	74.40	8.48	66.50	7.78	67.80
7/22/2011 0:30	180	3.20	3.13	72.60	8.40	8.36	73.50	8.46	65.60	7.80	67.20
7/22/2011 1:30	--	3.20	3.17	70.90	8.40	8.25	72.60	8.46	62.70	7.80	66.60
7/22/2011 2:30	180	3.20	3.14	69.90	8.40	8.50	71.30	8.48	60.50	7.85	65.20
7/22/2011 3:30	--	3.20	3.16	69.20	8.40	8.43	70.10	8.54	62.30	7.86	63.60
7/22/2011 4:30	180	3.20	3.16	68.30	8.40	8.42	69.20	8.53	62.10	7.84	63.70
7/22/2011 5:30	--	3.20	3.17	67.60	8.40	8.54	68.30	8.49	59.70	7.81	63.70
7/22/2011 6:30	180	3.20	3.17	67.30	8.40	8.49	67.70	8.50	61.00	7.95	63.00
7/22/2011 7:30	--	3.20	3.15	66.40	8.40	8.29	67.10	8.54	61.30	8.14	61.90
7/22/2011 8:30	180	3.20	2.94	66.40	8.40	8.44	66.50	8.61	60.90	8.13	63.70
7/22/2011 9:30	--	3.20	3.02	66.60	8.40	8.45	66.90	8.39	64.80	8.03	66.30
7/22/2011 10:30	180	3.20	2.96	67.60	8.40	8.51	67.10	8.44	65.10	8.00	66.90
7/22/2011 11:30	--	3.20	3.01	69.90	8.40	8.33	68.60	8.38	66.00	7.79	68.10
7/22/2011 12:30	180	3.20	3.00	71.10	8.40	8.51	69.80	8.41	71.00	7.89	69.50
7/22/2011 13:30	--	3.20	2.95	73.00	8.40	8.26	71.40	8.47	75.30	7.91	71.50
7/22/2011 14:30	180	3.20	2.93	73.30	8.40	8.27	72.80	8.58	78.60	7.98	72.60
7/22/2011 15:30	--	3.20	2.94	74.00	8.40	8.57	73.50	8.60	76.10	7.97	73.80
7/22/2011 16:30	180	3.20	2.93	74.20	8.40	8.35	74.00	8.67	79.90	7.98	74.10
7/22/2011 17:30	--	3.20	2.94	75.20	8.40	8.26	74.10	8.78	78.10	7.97	73.30
7/22/2011 18:30	180	3.20	3.08	76.10	8.40	8.26	75.60	8.71	79.30	7.94	73.90
7/22/2011 19:30	175	3.20	3.13	76.10	8.40	8.59	75.40	8.21	70.00	7.40	71.20
7/22/2011 20:30	175	3.20	3.11	77.10	8.40	8.46	75.90	8.39	69.40	7.55	71.30
7/22/2011 21:30	--	3.20	3.11	76.60	8.40	8.32	76.20	8.42	68.70	7.65	70.50
7/22/2011 22:30	175	3.20	3.12	75.90	8.40	8.35	76.10	8.43	67.70	7.49	69.70

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

7/22/2011 23:30	--	3.20	3.10	74.90	8.40	8.36	75.40	8.42	67.10	7.23	69.30
7/23/2011 0:30	175	3.20	3.13	74.00	8.40	8.40	74.50	8.64	66.90	7.29	69.00
7/23/2011 1:30	--	3.20	3.12	72.60	8.40	8.50	73.60	8.09	65.20	7.57	67.30
7/23/2011 2:30	175	3.20	3.15	71.40	8.40	8.27	72.40	8.30	65.30	7.79	67.40
7/23/2011 3:30	--	3.20	3.17	70.40	8.40	8.35	71.40	8.21	64.00	7.79	66.70
7/23/2011 4:30	180	3.20	3.18	69.50	8.40	8.33	70.40	8.20	63.20	7.78	66.30
7/23/2011 5:30	--	3.20	3.20	68.80	8.40	8.43	69.40	8.28	63.40	7.87	66.40
7/23/2011 6:30	180	3.20	3.25	68.00	8.40	8.36	68.90	8.27	63.10	7.78	66.00
7/23/2011 7:30	--	3.20	3.26	67.30	8.40	8.45	68.30	8.51	57.70	7.84	69.70
7/23/2011 8:30	180	3.20	3.27	67.10	8.40	8.40	67.80	8.37	61.60	7.80	66.10
7/23/2011 9:30	--	3.20	3.26	67.80	8.40	8.38	67.80	8.36	63.40	7.84	66.50
7/23/2011 10:30	180	3.20	3.16	69.20	8.40	8.44	68.30	8.31	66.90	7.87	67.40
7/23/2011 11:30	--	3.20	3.05	71.90	8.40	8.55	69.80	8.32	70.50	7.90	69.20
7/23/2011 12:30	180	3.20	3.02	71.10	8.40	8.33	71.20	8.34	73.20	7.95	70.30
7/23/2011 13:30	--	3.20	2.98	72.10	8.40	8.43	72.60	8.36	75.60	7.20	71.80
7/23/2011 14:30	180	3.20	3.02	73.00	8.40	8.60	73.00	8.42	72.60	8.02	72.30
7/23/2011 15:30	--	3.20	2.63	74.70	8.40	8.43	74.20	8.08	71.60	7.86	72.00
7/23/2011 16:30	180	3.20	3.08	75.20	8.40	8.42	74.70	8.17	76.30	7.94	72.90
7/23/2011 17:30	--	3.20	2.97	75.90	8.40	8.35	75.00	8.41	77.30	7.98	72.50
7/23/2011 18:30	180	3.20	2.69	77.30	8.40	8.34	75.80	8.41	76.40	7.98	73.10
7/23/2011 19:30	218	3.20	3.12	77.80	8.40	8.33	76.90	8.01	71.00	7.48	73.00
7/23/2011 20:30	218	3.25	3.12	78.80	8.40	8.45	77.40	8.11	70.80	7.69	72.50
7/23/2011 21:30	--	3.25	3.19	78.30	8.40	8.46	77.80	8.10	69.80	7.71	72.00
7/23/2011 22:30	200	3.25	3.15	77.30	8.40	8.50	77.60	8.13	69.00	7.79	71.10
7/23/2011 23:30	--	3.25	3.14	76.40	8.40	8.39	77.00	8.18	68.30	7.85	70.50
7/24/2011 0:30	200	3.25	3.23	75.70	8.40	8.47	76.00	8.17	67.40	7.87	69.70
7/24/2011 1:30	--	3.25	3.25	75.70	8.40	8.37	75.30	8.20	66.90	7.89	69.00
7/24/2011 2:30	200	3.25	3.03	72.80	8.40	8.32	74.10	8.21	66.40	7.89	68.70
7/24/2011 3:30	--	--	--	--	--	--	--	--	--	--	--
7/24/2011 4:30	200	3.20	3.29	70.90	8.40	8.37	71.80	8.22	64.90	7.88	68.20
7/24/2011 5:30	--	3.20	3.29	70.20	8.40	8.44	70.90	8.22	65.50	7.78	67.60
7/24/2011 6:30	200	3.20	3.23	69.20	8.40	8.34	70.00	8.30	64.20	7.82	67.20
7/24/2011 7:30	--	3.20	3.21	68.90	8.40	8.35	69.50	7.84	64.60	7.85	66.40
7/24/2011 8:30	180	3.20	3.28	68.80	8.40	8.47	69.00	8.08	67.30	7.87	68.60
7/24/2011 9:30	--	3.20	2.72	69.00	8.40	8.30	69.00	8.18	68.90	7.98	68.10
7/24/2011 10:30	185	3.20	2.54	69.20	8.40	--	--	--	--	--	--
7/24/2011 11:30	--	--	--	--	--	--	--	--	--	--	--
7/24/2011 12:30	180	3.20	2.45	70.90	8.40	8.44	71.10	8.28	73.60	7.93	72.10
7/24/2011 13:30	205	3.20	2.81	73.30	8.40	8.28	72.30	8.34	74.10	8.11	70.40
7/24/2011 14:30	195	3.20	3.24	73.50	8.40	8.35	73.30	8.42	73.70	8.06	72.80
7/24/2011 15:30	--	3.20	3.14	74.90	8.40	8.15	74.20	8.17	74.50	8.02	73.70
7/24/2011 16:30	215	3.20	3.19	75.10	8.40	8.45	74.50	8.32	74.00	8.06	73.30
7/24/2011 17:30	--	3.20	3.22	76.10	8.40	8.22	75.10	8.44	73.80	8.05	73.50
7/24/2011 18:30	200	3.20	2.86	77.60	8.40	5.71	75.90	--	--	--	--
7/24/2011 19:30	--	3.20	3.10	77.30	8.40	8.25	76.40	8.20	73.60	8.05	72.30
7/24/2011 20:30	200	3.20	3.19	77.60	8.40	8.34	76.60	8.16	73.40	8.02	71.60
7/24/2011 21:30	--	3.20	3.23	77.10	8.40	8.33	76.90	8.19	73.10	8.06	71.40

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

7/24/2011 22:30	205	3.20	3.24	76.40	8.40	8.51	76.50	8.21	73.30	8.09	71.50
7/24/2011 23:30	--	3.20	3.25	76.10	8.40	8.58	75.70	8.27	73.20	8.11	71.20
7/25/2011 0:30	200	3.20	3.25	74.20	8.40	8.54	74.80	8.20	72.80	8.05	71.10
7/25/2011 1:30	--	3.20	3.25	73.80	8.40	8.53	73.70	8.15	65.40	7.97	66.40
7/25/2011 2:30	200	3.20	3.26	72.10	8.40	8.37	72.30	8.19	65.00	8.10	66.20
7/25/2011 3:30	--	3.20	3.24	71.50	8.40	8.36	71.80	8.21	64.20	8.06	65.60
7/25/2011 4:30	200	3.20	3.26	70.40	8.40	8.52	70.90	8.26	63.20	8.13	64.90
7/25/2011 5:30	--	3.20	3.25	69.20	8.40	8.62	69.80	8.24	63.50	8.06	64.80
7/25/2011 6:30	200	3.20	3.26	68.50	8.40	8.28	69.10	8.25	63.10	8.12	64.10
7/25/2011 7:30	--	3.20	3.27	67.30	8.40	8.34	68.10	7.97	62.40	8.03	64.70
7/25/2011 8:30	195	3.20	3.10	67.10	8.40	8.44	67.60	8.15	65.40	8.18	65.90
7/25/2011 9:30	--	3.20	3.11	67.60	8.40	8.37	67.60	8.32	65.80	8.24	66.70
7/25/2011 10:30	195	3.20	3.14	68.00	8.40	8.46	68.60	8.65	66.70	8.32	66.80
7/25/2011 11:30	--	3.20	3.08	68.50	8.40	8.67	69.20	8.37	68.40	7.61	68.80
7/25/2011 12:30	190	3.20	3.24	69.20	8.40	8.33	69.80	8.25	70.80	8.01	69.30
7/25/2011 13:30	--	3.20	3.15	73.50	8.40	8.55	69.60	8.19	68.00	8.05	69.80
7/25/2011 14:30	190	3.20	3.12	75.90	8.40	8.60	72.80	8.26	71.00	8.06	70.00
7/25/2011 15:30	--	3.20	3.19	76.00	8.40	8.35	74.80	8.10	74.20	8.08	71.70
7/25/2011 16:30	195	3.20	3.23	76.50	8.40	8.37	75.90	7.98	74.20	8.00	71.80
7/25/2011 17:30	--	3.20	3.22	77.60	8.40	8.75	76.70	8.50	75.60	8.08	71.70
7/25/2011 18:30	195	3.20	3.27	76.00	8.40	8.63	77.20	8.65	72.00	8.38	69.80
7/25/2011 19:30	--	3.20	3.29	75.90	8.40	8.65	76.40	8.53	72.20	8.43	69.60
7/25/2011 20:30	200	3.20	3.31	75.90	8.40	8.33	76.10	8.54	70.70	7.74	69.00
7/25/2011 21:30	--	3.20	3.28	75.40	8.40	8.36	75.70	8.51	70.10	7.98	68.50
7/25/2011 22:30	200	3.20	3.26	74.30	8.40	8.38	75.90	8.97	67.60	8.47	66.40
7/25/2011 23:30	--	3.20	3.28	74.00	8.40	8.36	75.30	8.54	67.10	8.38	66.10
7/26/2011 0:30	203	3.20	3.30	71.10	8.40	8.34	72.90	8.78	67.00	8.41	66.00
7/26/2011 1:30	--	3.20	3.33	70.90	8.40	8.39	71.30	8.65	65.10	8.39	65.80
7/26/2011 2:30	200	3.20	3.27	69.00	8.40	8.49	70.40	8.25	62.00	8.11	63.10
7/26/2011 3:30	--	3.20	3.26	68.60	8.40	8.36	69.50	8.28	61.60	8.19	62.70
7/26/2011 4:30	200	3.20	3.28	68.20	8.40	8.25	68.80	8.32	61.20	8.29	62.10
7/26/2011 5:30	--	3.20	2.69	65.90	8.40	8.29	67.60	8.24	61.60	8.30	62.40
7/26/2011 6:30	200	3.20	3.00	64.70	8.40	8.26	67.00	8.23	61.80	8.28	62.60
7/26/2011 7:30	--	3.20	3.12	63.80	8.40	8.60	65.60	8.20	60.70	7.85	61.30
7/26/2011 8:30	195	3.20	3.09	64.00	8.40	8.56	64.90	7.95	61.00	7.83	63.20
7/26/2011 9:30	--	--	--	--	--	--	--	--	--	--	--
7/26/2011 10:30	--	--	--	--	--	--	--	--	--	--	--
7/26/2011 11:30	--	--	--	--	--	--	--	--	--	--	--
7/26/2011 12:30	195	3.20	3.06	66.10	8.40	8.34	66.00	8.43	69.00	8.35	68.70
7/26/2011 13:30	--	3.20	3.22	69.20	8.40	8.44	67.90	7.35	67.70	7.64	68.50
7/26/2011 14:30	195	3.20	3.18	71.00	8.40	8.31	69.60	7.89	69.70	7.96	69.20
7/26/2011 15:30	--	3.20	3.20	73.50	8.40	8.44	71.20	8.00	70.10	7.90	69.50
7/26/2011 16:30	185	3.20	3.26	73.90	8.40	8.49	72.70	8.18	72.30	7.90	70.10
7/26/2011 17:30	--	3.20	3.28	73.50	8.40	8.28	73.70	8.15	72.90	8.00	71.00
7/26/2011 18:30	185	3.20	3.26	74.50	8.40	8.43	73.80	8.20	75.90	8.07	69.90
7/26/2011 19:30	--	3.20	3.34	74.00	8.40	8.40	74.10	8.32	70.10	8.25	68.90
7/26/2011 20:30	190	3.20	3.29	74.20	8.40	8.35	74.10	8.15	70.30	8.18	69.70

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

7/26/2011 21:30	--	3.20	3.31	74.00	8.40	8.36	74.00	8.20	69.80	8.21	69.10
7/26/2011 22:00	200	3.20	3.23	72.80	8.40	8.25	73.70	8.11	68.50	8.08	66.90
7/26/2011 23:30	--	3.20	3.36	71.90	8.40	8.28	73.00	8.43	68.10	8.19	66.40
7/27/2011 0:30	200	3.20	3.32	70.90	8.40	8.29	72.00	8.69	67.20	8.52	64.70
7/27/2011 1:30	--	3.20	3.30	69.70	8.40	8.29	70.90	8.51	67.10	8.42	64.20
7/27/2011 2:30	200	3.20	3.29	68.80	8.40	8.28	69.40	8.18	63.00	8.50	64.00
7/27/2011 3:30	--	3.20	3.30	68.30	8.40	8.29	69.10	8.26	62.60	8.41	63.60
7/27/2011 4:30	200	3.20	3.31	67.40	8.40	8.31	68.40	8.29	61.90	8.43	62.80
7/27/2011 5:30	--	3.20	3.31	66.60	8.40	8.28	67.70	8.16	60.40	8.44	62.40
7/27/2011 6:30	200	3.20	3.65	65.70	8.40	8.43	66.80	8.25	60.10	8.50	62.40
7/27/2011 7:30	--	3.20	2.65	64.70	8.40	8.25	65.90	6.88	61.00	7.45	62.40
7/27/2011 8:30	205	3.20	2.87	65.00	8.40	8.30	65.70	--	--	--	--
7/27/2011 9:30	--	3.20	3.20	65.70	8.40	8.21	65.80	--	--	--	--
7/27/2011 10:30	195	3.20	3.17	65.70	8.40	8.54	66.40	8.06	65.20	7.87	65.70
7/27/2011 11:30	--	3.20	3.18	67.30	8.40	8.69	67.10	8.22	65.70	8.12	66.10
7/27/2011 12:30	195	3.20	3.19	70.10	8.40	8.71	68.80	8.27	70.70	8.16	68.40
7/27/2011 13:30	--	3.20	3.18	70.40	8.40	8.24	70.00	8.30	71.00	8.12	69.20
7/27/2011 14:30	190	3.20	3.16	70.80	8.40	8.33	71.50	8.11	73.30	7.74	71.00
7/27/2011 15:30	--	3.20	3.14	72.10	8.40	8.25	72.30	--	--	--	--
7/27/2011 16:30	--	--	--	--	--	--	--	--	--	--	--
7/27/2011 17:30	--	--	--	--	--	--	--	--	--	--	--
7/27/2011 18:30	--	--	--	--	--	--	--	--	--	--	--
7/27/2011 19:30	--	3.20	3.36	73.50	8.40	8.47	74.30	9.38	70.60	8.50	69.60
7/27/2011 20:30	140	3.20	3.32	74.50	8.40	8.33	74.20	9.02	69.70	7.61	69.00
7/27/2011 21:30	--	3.20	3.29	75.20	8.40	8.40	74.50	8.62	69.30	7.82	68.90
7/27/2011 22:30	140	3.20	3.25	74.90	8.40	8.36	74.50	8.88	68.10	8.27	67.60
7/27/2011 23:30	--	3.20	3.30	74.20	8.40	8.35	74.70	8.84	67.60	8.06	67.30
7/28/2011 0:30	140	3.20	3.31	72.80	8.40	8.41	74.50	8.27	67.20	7.80	66.50
7/28/2011 1:30	--	3.20	3.34	71.40	8.40	8.44	74.10	8.32	66.70	7.88	66.10
7/28/2011 2:30	140	3.20	3.39	69.90	8.40	8.33	71.80	8.29	66.50	7.74	66.00
7/28/2011 3:30	--	3.20	3.31	69.70	8.40	8.31	71.30	8.26	66.20	7.98	65.80
7/28/2011 4:30	140	3.20	3.26	68.80	8.40	8.35	70.10	8.31	66.00	7.92	65.20
7/28/2011 5:30	--	3.20	3.31	68.70	8.40	8.41	68.80	8.39	61.80	7.87	63.80
7/28/2011 6:30	140	3.20	3.35	66.40	8.40	8.43	67.80	8.95	61.60	8.43	63.60
7/28/2011 7:30	--	3.20	3.31	65.90	8.40	8.50	67.20	8.53	58.60	7.57	64.30
7/28/2011 8:30	140	3.20	3.33	65.70	8.40	8.51	66.70	8.33	60.30	7.44	64.60
7/28/2011 9:30	--	3.20	3.39	65.40	8.40	8.29	66.50	8.17	66.40	7.77	66.50
7/28/2011 10:30	140	3.20	2.88	66.40	8.40	8.62	67.00	8.25	68.10	7.60	67.60
7/28/2011 11:30	--	3.20	3.21	69.70	8.40	8.54	68.50	8.18	70.50	7.92	67.60
7/28/2011 12:30	160	3.20	3.20	72.10	8.40	8.39	70.10	8.25	73.40	7.80	69.30
7/28/2011 13:30	160	3.20	3.31	74.10	8.40	8.34	70.90	8.47	73.50	7.74	69.00
7/28/2011 14:30	160	3.20	3.22	76.10	8.40	8.36	73.70	8.53	75.10	7.80	71.00
7/28/2011 15:30	--	3.20	3.21	74.20	8.40	8.46	75.80	8.43	80.30	7.78	71.70
7/28/2011 16:30	180	3.20	2.60	75.40	8.40	8.68	75.10	8.47	78.10	7.85	70.70
7/28/2011 17:30	--	3.20	2.96	76.40	8.40	8.45	75.80	8.62	75.70	7.67	71.20
7/28/2011 18:30	180	3.20	2.84	74.90	8.40	8.38	76.30	8.63	76.90	7.99	71.20
7/28/2011 19:30	185	3.20	2.98	75.70	8.40	8.45	75.40	8.43	69.80	7.24	71.20

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

7/28/2011 20:30	185	3.20	3.14	76.90	8.40	8.54	76.10	8.40	70.00	7.26	70.50
7/28/2011 21:30	--	3.20	3.12	76.60	8.40	8.31	76.50	8.34	69.20	7.26	70.40
7/28/2011 22:30	185	3.20	3.15	75.70	8.40	8.32	76.40	8.36	68.00	7.32	69.60
7/28/2011 23:30	--	3.20	3.16	74.90	8.40	8.34	75.80	8.36	67.30	7.31	69.40
7/29/2011 0:30	180	3.20	3.11	73.50	8.40	8.43	74.20	8.88	66.70	8.30	68.80
7/29/2011 1:30	--	3.20	3.27	72.60	8.40	8.69	73.90	8.48	64.30	7.66	67.30
7/29/2011 2:30	180	3.20	3.11	71.40	8.40	8.41	72.70	8.57	66.20	7.81	65.60
7/29/2011 3:30	--	3.20	3.02	69.90	8.35	8.32	71.50	8.55	62.80	7.87	64.20
7/29/2011 4:30	180	3.20	3.21	69.20	8.35	8.54	70.50	8.58	64.10	7.78	65.20
7/29/2011 5:30	--	3.20	3.26	68.50	8.30	8.43	69.60	8.59	62.10	7.81	65.40
7/29/2011 6:30	189	3.20	3.19	67.60	8.30	8.30	68.60	8.46	60.30	7.44	65.50
7/29/2011 7:30	--	3.20	2.79	66.90	8.30	8.29	68.10	8.58	58.50	7.95	63.40
7/29/2011 8:30	189	3.20	3.35	66.90	8.30	8.26	67.60	8.51	65.00	7.88	66.20
7/29/2011 9:30	--	3.20	3.10	67.10	8.30	8.38	67.70	8.40	78.00	7.95	72.40
7/29/2011 10:30	185	3.20	3.10	67.60	8.30	8.25	68.00	8.46	67.80	7.86	69.00
7/29/2011 11:30	--	3.20	3.13	68.80	8.30	8.35	69.10	8.39	73.10	7.92	70.10
7/29/2011 12:30	185	3.20	3.25	71.60	8.30	8.32	70.10	8.37	73.70	7.98	74.30
7/29/2011 13:30	--	3.20	3.18	73.00	8.30	8.38	71.30	8.46	75.10	8.00	73.30
7/29/2011 14:30	185	3.20	3.15	73.30	8.30	8.28	72.60	8.38	80.90	8.04	73.90
7/29/2011 15:30	--	3.20	3.11	74.50	8.30	8.27	73.70	8.58	78.20	7.99	74.00
7/29/2011 16:30	185	3.20	3.10	74.70	8.30	8.19	74.40	8.60	77.30	8.10	73.50
7/29/2011 17:30	--	3.20	3.11	74.20	8.30	8.22	74.90	8.54	68.90	8.13	67.00
7/29/2011 18:30	185	3.20	3.26	75.40	8.30	8.49	74.90	8.58	65.00	8.11	64.60
7/29/2011 19:30	180	3.20	3.24	74.90	8.25	8.45	74.90	8.44	64.70	7.94	67.40
7/29/2011 20:30	180	3.20	2.80	73.80	8.25	8.38	74.70	8.72	65.00	7.99	68.40
7/29/2011 21:30	--	3.20	3.27	72.80	8.25	8.12	73.90	8.75	64.70	8.12	68.30
7/29/2011 22:30	180	3.20	3.24	72.30	8.05	8.05	73.20	8.83	66.20	8.18	67.80
7/29/2011 23:30	--	3.20	2.97	70.40	--	--	--	--	--	--	--
7/30/2011 0:30	180	3.20	2.97	70.40	8.20	8.06	71.60	8.68	63.00	--	--
7/30/2011 1:30	--	3.20	3.30	69.90	8.20	8.26	70.80	8.61	61.30	--	--
7/30/2011 2:30	180	3.20	3.27	69.20	8.10	8.08	70.30	8.66	60.60	--	--
7/30/2011 3:30	--	3.20	3.33	68.50	8.10	8.13	69.30	--	--	--	--
7/30/2011 4:30	180	3.20	3.32	68.10	8.10	8.04	68.80	8.89	60.00	--	--
7/30/2011 5:30	--	3.20	3.26	66.90	8.10	8.30	67.80	--	--	--	--
7/30/2011 6:30	--	--	--	--	--	--	--	--	--	--	--
7/30/2011 7:30	--	3.20	3.19	65.90	7.25	7.60	66.80	7.96	58.00	--	--
7/30/2011 8:30	180	3.20	3.03	65.70	7.25	7.23	66.40	7.01	69.30	7.45	71.20
7/30/2011 9:30	--	3.20	3.08	66.40	7.25	7.55	66.50	7.87	63.40	8.11	68.50
7/30/2011 10:30	180	3.20	3.21	67.10	7.25	7.44	67.30	7.86	69.50	8.07	70.30
7/30/2011 11:30	--	3.20	3.18	69.00	7.25	7.21	68.70	7.54	70.20	8.02	66.40
7/30/2011 12:30	180	3.20	3.16	69.00	7.25	7.40	69.20	7.52	71.80	8.04	71.80
7/30/2011 13:30	--	3.20	3.15	70.90	7.25	7.58	70.20	7.38	75.20	7.63	73.50
7/30/2011 14:30	180	3.20	3.28	70.70	8.00	8.10	70.80	7.74	72.80	7.98	71.60
7/30/2011 15:30	--	3.20	3.14	71.60	8.00	7.97	71.10	8.06	74.00	8.05	72.20
7/30/2011 16:30	180	3.20	3.12	76.40	7.50	7.77	72.30	8.06	72.10	8.06	70.60
7/30/2011 17:30	--	--	--	--	--	--	--	--	--	--	--
7/30/2011 18:30	180	3.20	3.12	73.50	7.50	7.84	74.20	7.88	62.60	7.89	61.40

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7/30/2011 19:30	175	3.20	3.16	73.00	7.50	7.68	73.40	8.46	63.70	7.84	63.40
7/30/2011 20:30	175	3.20	3.17	72.30	7.30	7.66	72.80	8.45	65.00	7.77	65.30
7/30/2011 21:30	--	3.20	3.22	71.60	7.30	7.74	72.10	8.39	64.50	7.75	65.90
7/30/2011 22:30	180	3.20	2.69	69.90	7.20	7.25	71.40	8.41	62.70	7.78	64.70
7/30/2011 23:30	--	3.20	2.98	69.70	7.10	7.30	70.70	8.37	62.00	7.82	65.70
7/31/2011 0:30	180	3.20	2.62	68.30	7.10	7.49	69.30	8.31	62.80	7.69	66.50
7/31/2011 1:30	--	3.20	3.11	68.00	7.20	7.77	68.50	8.38	62.70	7.77	67.00
7/31/2011 2:30	180	3.20	3.35	67.30	7.20	7.40	68.30	8.56	60.50	7.81	65.80
7/31/2011 3:30	--	3.20	3.30	67.10	7.10	6.97	67.50	8.36	62.80	7.86	68.60
7/31/2011 4:30	185	3.20	3.23	66.60	7.10	7.46	67.10	8.38	60.60	7.58	61.40
7/31/2011 5:30	--	3.20	3.29	66.10	7.70	7.66	67.00	8.35	59.40	7.98	60.40
7/31/2011 6:30	185	3.20	3.20	65.90	8.20	8.29	66.20	8.46	60.50	8.00	59.30
7/31/2011 7:30	--	3.20	3.31	65.20	8.20	8.23	65.80	9.02	--	8.27	63.80
7/31/2011 8:30	175	3.20	3.29	65.40	8.20	8.35	65.90	8.69	63.10	8.05	64.40
7/31/2011 9:30	--	3.20	3.25	66.60	8.40	8.44	66.20	7.49	64.20	7.49	65.40
7/31/2011 10:30	180	3.20	3.24	67.30	8.60	8.49	67.30	7.93	66.50	7.70	66.80
7/31/2011 11:30	--	3.20	3.31	68.50	8.60	8.54	67.70	8.51	65.70	7.87	65.70
7/31/2011 12:30	180	3.20	3.28	69.90	8.50	8.42	68.60	--	--	--	--
7/31/2011 13:30	--	3.20	3.28	70.70	8.50	8.45	69.90	8.49	64.80	8.05	64.60
7/31/2011 14:30	180	3.20	3.22	71.10	8.45	8.32	70.40	8.25	66.20	8.01	65.40
7/31/2011 15:30	--	3.20	3.33	71.40	8.45	8.33	70.80	8.28	66.50	7.75	65.50
7/31/2011 16:30	180	3.20	3.22	71.10	8.45	8.30	71.20	8.08	67.80	7.76	66.40
7/31/2011 17:30	--	3.20	3.28	71.10	8.45	8.34	70.50	8.18	67.70	7.85	66.50
7/31/2011 18:30	180	3.20	3.13	--	8.45	8.35	71.00	8.52	67.30	8.40	66.30
7/31/2011 19:30	--	3.20	3.14	71.10	8.45	8.32	70.90	8.50	72.00	7.93	70.60
7/31/2011 20:30	180	3.20	3.14	71.60	8.20	8.25	70.90	8.28	65.80	7.96	65.30
7/31/2011 21:30	--	3.20	3.11	71.40	8.20	8.14	71.10	8.28	65.10	8.02	64.60
7/31/2011 22:30	180	3.20	3.16	70.70	8.25	8.29	71.40	8.34	62.90	8.03	64.00
7/31/2011 23:30	--	3.20	3.14	69.70	8.10	8.20	70.60	8.40	61.40	8.08	63.00
8/1/2011 0:30	180	3.20	3.06	68.80	8.00	8.16	69.50	7.98	61.00	8.00	60.70
8/1/2011 1:30	--	3.20	3.06	68.50	8.00	8.11	68.80	8.00	60.90	8.00	59.00
8/1/2011 2:30	180	3.20	3.17	68.00	8.10	8.40	68.40	8.02	61.50	8.00	60.20
8/1/2011 3:30	--	3.20	3.24	67.60	8.15	8.33	67.90	8.07	59.70	8.05	59.40
8/1/2011 4:30	180	3.20	3.17	66.40	8.13	8.32	67.50	8.11	61.90	8.07	60.00
8/1/2011 5:30	--	3.20	3.19	66.40	8.13	8.19	66.80	8.09	58.40	8.04	58.00
8/1/2011 6:30	180	3.20	3.20	65.70	8.13	8.11	66.50	7.98	60.70	7.94	59.20
8/1/2011 7:30	--	3.20	3.19	65.40	8.30	8.12	65.80	7.23	62.00	7.56	62.10
8/1/2011 8:30	180	3.20	3.28	65.40	8.45	8.38	65.80	8.42	63.80	7.87	63.60
8/1/2011 9:30	--	3.20	3.27	66.60	8.45	8.25	66.10	8.20	64.60	8.01	64.30
8/1/2011 10:30	180	3.20	3.26	67.10	8.45	8.20	67.00	8.09	67.40	8.03	65.90
8/1/2011 11:30	--	3.20	3.21	69.20	8.45	8.20	67.90	8.08	69.10	7.98	66.80
8/1/2011 12:30	180	3.20	3.21	69.20	8.45	8.14	69.10	8.18	70.40	8.03	68.00
8/1/2011 13:30	--	--	--	--	--	--	--	--	--	--	--
8/1/2011 14:30	--	--	--	--	--	--	--	--	--	--	--
8/1/2011 15:30	--	--	--	--	--	--	--	--	--	--	--
8/1/2011 16:30	--	--	--	--	--	--	--	--	--	--	--
8/1/2011 17:30	--	--	--	--	--	--	--	--	--	--	--

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/1/2011 18:30	--	--	--	--	--	--	--	--	--	--	--
8/1/2011 19:30	--	3.20	3.04	74.90	8.45	8.25	71.80	8.44	70.00	8.15	68.50
8/1/2011 20:30	180	3.20	3.21	76.40	8.00	7.87	73.40	8.59	65.90	8.14	67.00
8/1/2011 21:30	--	3.00	3.25	76.60	8.00	8.17	75.00	8.35	63.20	8.08	66.80
8/1/2011 22:30	180	3.20	3.32	75.40	8.00	8.16	75.50	8.34	62.50	8.04	63.70
8/1/2011 23:30	--	3.20	2.65	73.30	8.00	8.15	74.60	8.03	59.00	8.03	60.20
8/2/2011 0:30	180	3.20	3.07	72.60	8.14	8.27	73.60	7.87	59.50	7.92	61.40
8/2/2011 1:30	--	3.20	3.27	71.60	8.14	8.24	72.70	8.00	60.60	7.83	63.40
8/2/2011 2:30	180	3.20	3.22	70.20	8.14	8.29	71.30	8.25	60.00	7.91	60.20
8/2/2011 3:30	--	3.20	3.31	69.50	8.14	8.21	70.20	8.23	58.10	7.99	60.00
8/2/2011 4:30	180	3.20	3.01	68.50	8.14	8.20	69.50	8.24	56.50	7.98	59.80
8/2/2011 5:30	--	3.20	3.23	67.60	8.14	8.18	68.70	8.13	56.70	7.92	56.50
8/2/2011 6:30	180	3.20	3.24	66.90	8.14	8.27	67.80	7.96	57.10	8.03	59.90
8/2/2011 7:30	--	3.20	3.27	65.90	8.45	8.37	66.80	7.80	61.20	6.61	62.00
8/2/2011 8:30	180	3.20	3.28	65.90	8.70	8.44	66.20	7.90	64.10	7.51	64.10
8/2/2011 9:30	--	3.20	3.24	66.60	8.45	8.29	66.40	8.11	65.30	7.83	65.00
8/2/2011 10:30	175	3.20	3.22	68.30	8.45	8.37	67.10	8.20	67.50	8.02	65.20
8/2/2011 11:30	--	3.20	3.28	68.80	8.40	8.27	68.20	8.94	66.30	8.17	66.00
8/2/2011 12:30	175	3.20	3.23	70.70	8.30	8.31	69.00	8.17	67.80	7.95	66.30
8/2/2011 13:30	--	3.20	3.31	71.40	8.30	8.20	70.60	8.33	70.60	7.98	68.60
8/2/2011 14:30	200	3.20	3.32	72.10	8.30	8.11	71.40	8.37	75.30	8.12	69.60
8/2/2011 15:30	--	3.20	3.24	73.80	8.30	8.29	72.90	8.28	70.60	7.99	69.40
8/2/2011 16:30	180	3.20	3.28	75.20	8.25	8.26	72.80	8.48	71.60	8.07	70.30
8/2/2011 17:30	--	3.20	3.31	75.70	8.25	8.11	74.40	8.45	71.70	8.00	69.60
8/2/2011 18:30	175	3.20	3.27	75.90	8.25	8.10	75.00	8.59	71.60	7.98	70.00
8/2/2011 19:30	--	3.20	3.22	75.70	8.14	8.28	75.50	8.43	71.70	8.01	70.10
8/2/2011 20:30	175	3.20	3.26	76.20	8.14	8.21	75.80	8.20	64.90	7.21	68.40
8/2/2011 21:30	--	3.20	3.30	75.70	8.20	8.22	76.00	8.76	65.30	7.80	68.60
8/2/2011 22:30	175	3.20	3.32	74.50	8.14	8.17	75.30	8.75	61.10	7.99	63.70
8/2/2011 23:30	--	3.20	3.24	73.00	8.10	8.18	74.30	8.75	59.90	8.14	61.10
8/3/2011 0:30	180	3.20	3.20	71.90	8.00	7.98	72.90	8.41	58.40	8.15	60.80
8/3/2011 1:30	--	3.20	3.27	70.40	8.00	8.31	71.40	8.43	59.20	8.23	60.80
8/3/2011 2:30	180	3.20	3.34	69.20	8.00	8.36	70.40	8.44	58.20	8.22	59.10
8/3/2011 3:30	--	3.20	3.21	68.30	7.95	8.15	69.30	8.45	57.00	8.22	60.10
8/3/2011 4:30	180	3.20	3.32	67.10	7.90	8.00	68.10	8.34	59.60	8.17	60.00
8/3/2011 5:30	--	3.20	3.35	66.40	7.90	8.05	67.20	--	--	8.22	58.40
8/3/2011 6:30	180	3.20	2.78	65.20	7.90	8.26	66.50	8.22	59.90	8.14	58.30
8/3/2011 7:30	--	3.20	2.56	64.70	7.90	7.45	65.90	8.14	52.00	8.20	56.40
8/3/2011 8:30	175	3.20	2.52	63.50	7.90	6.80	65.10	8.07	60.00	8.14	63.10
8/3/2011 9:30	--	3.20	3.01	65.00	8.20	8.04	65.00	8.02	67.10	7.84	71.10
8/3/2011 10:30	120	3.20	3.29	65.40	8.20	8.25	65.90	8.21	68.50	8.07	69.70
8/3/2011 11:30	--	3.20	3.23	67.30	8.20	8.27	65.30	8.39	67.00	8.05	67.90
8/3/2011 12:30	115	3.20	3.36	71.10	8.20	8.38	67.60	8.48	72.10	8.15	67.90
8/3/2011 13:30	--	3.20	3.19	72.80	8.20	8.26	69.30	8.63	72.10	8.18	66.80
8/3/2011 14:30	115	3.20	3.28	74.00	8.20	8.22	71.80	8.02	74.90	8.60	76.30
8/3/2011 15:30	--	3.20	3.25	74.00	8.20	8.23	73.00	8.66	70.30	8.19	72.50
8/3/2011 16:30	115	3.20	3.33	74.50	8.20	8.35	73.90	8.83	74.20	8.15	76.90

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/3/2011 17:30	--	3.20	3.31	75.40	8.20	8.30	74.30	8.94	71.90	8.23	73.60
8/3/2011 18:30	115	3.20	3.37	75.90	8.20	8.27	74.80	9.14	67.80	8.29	69.50
8/3/2011 19:30	--	--	--	--	--	--	--	--	--	--	--
8/3/2011 20:30	145	3.20	3.27	75.90	8.20	8.23	75.20	8.42	64.50	8.15	69.40
8/3/2011 21:30	160	3.20	3.34	75.90	8.20	8.32	75.80	8.43	65.80	7.99	67.80
8/3/2011 22:30	160	3.20	3.32	75.20	8.20	8.27	75.70	8.37	65.40	7.98	68.20
8/3/2011 23:30	--	3.20	3.35	74.50	8.20	8.19	75.00	8.38	65.80	7.98	67.20
8/4/2011 0:30	175	3.20	3.27	73.30	8.20	8.19	74.00	8.40	64.00	7.98	66.50
8/4/2011 1:30	--	3.20	3.29	72.30	8.20	8.12	73.30	8.37	63.10	7.98	65.40
8/4/2011 2:30	170	3.20	3.26	70.90	8.20	8.38	72.20	8.42	62.00	7.97	63.80
8/4/2011 3:30	--	3.20	3.26	69.90	8.20	8.45	71.10	8.36	63.20	7.97	63.90
8/4/2011 4:30	170	3.20	3.25	69.00	8.20	8.26	70.00	8.40	60.20	7.98	62.60
8/4/2011 5:30	--	3.20	3.23	67.60	8.20	8.19	69.10	8.34	60.60	7.94	64.60
8/4/2011 6:30	185	3.20	3.15	66.10	8.20	8.19	67.50	8.10	59.60	7.51	61.70
8/4/2011 7:30	--	3.20	3.16	65.20	8.20	8.22	66.60	9.62	65.30	7.62	62.90
8/4/2011 8:30	190	3.20	3.16	65.10	8.20	8.19	65.80	7.64	62.40	7.76	63.90
8/4/2011 9:30	--	3.20	3.15	65.40	8.20	8.17	65.70	8.45	62.40	8.00	65.30
8/4/2011 10:30	190	3.20	3.17	66.10	8.20	8.04	65.90	7.85	67.30	7.85	65.90
8/4/2011 11:30	--	3.20	3.14	66.90	8.20	8.09	67.00	7.83	69.50	7.89	70.00
8/4/2011 12:30	190	3.20	3.15	68.80	8.20	8.11	67.80	8.10	71.90	7.97	69.40
8/4/2011 13:30	--	3.20	3.13	69.70	8.20	8.16	69.20	8.08	71.20	8.07	70.10
8/4/2011 14:30	190	3.20	3.12	71.90	8.20	8.05	70.50	8.19	72.90	8.10	70.40
8/4/2011 15:30	--	3.20	3.19	74.50	8.20	7.99	72.20	8.25	73.90	7.96	71.60
8/4/2011 16:30	190	3.20	3.23	77.10	8.20	8.06	73.90	7.90	77.60	7.93	75.00
8/4/2011 17:30	--	3.20	3.27	77.30	8.20	8.10	75.30	7.89	71.50	7.92	70.10
8/4/2011 18:30	190	3.20	3.27	77.10	8.20	8.21	76.50	7.77	71.90	7.87	68.80
8/4/2011 19:30	185	3.20	3.00	76.40	8.20	8.44	76.30	8.00	64.60	7.39	68.40
8/4/2011 20:30	185	3.20	3.18	76.10	8.20	8.34	76.30	8.00	65.30	7.42	67.30
8/4/2011 21:30	--	3.20	3.27	75.40	8.20	8.25	76.00	7.12	64.40	7.20	63.50
8/4/2011 22:30	185	3.20	3.25	74.20	8.20	8.16	75.00	6.87	61.00	7.32	65.30
8/4/2011 23:30	--	3.20	3.30	72.80	8.40	8.43	73.90	6.88	61.00	7.44	64.00
8/5/2011 0:30	185	3.20	3.26	71.90	8.50	8.50	72.80	6.38	60.00	7.48	65.30
8/5/2011 1:30	--	3.20	3.28	70.20	8.65	8.62	71.60	7.17	52.50	7.44	62.30
8/5/2011 2:30	185	3.20	3.24	68.80	8.65	8.68	70.10	6.93	55.00	7.50	59.90
8/5/2011 3:30	--	3.20	3.27	67.80	8.65	8.51	69.30	6.79	56.90	7.54	58.40
8/5/2011 4:30	185	3.20	3.19	66.40	8.80	8.67	67.80	7.03	56.80	7.55	57.90
8/5/2011 5:30	--	3.20	3.15	65.40	8.80	8.71	66.60	7.28	57.40	7.45	58.00
8/5/2011 6:30	187	3.20	3.33	64.50	8.70	8.69	65.70	7.10	56.20	7.50	60.50
8/5/2011 7:30	--	3.20	3.30	63.00	8.70	8.09	64.40	8.01	57.90	7.62	60.20
8/5/2011 8:30	190	3.20	3.32	62.80	8.70	8.46	63.90	8.05	63.20	7.74	64.10
8/5/2011 9:30	--	3.20	3.28	63.80	8.70	8.37	64.00	8.21	66.20	7.80	66.60
8/5/2011 10:30	180	3.20	3.19	64.00	8.40	8.37	64.50	8.56	64.30	7.84	65.90
8/5/2011 11:30	--	3.20	3.26	65.70	8.40	8.18	66.00	7.71	67.10	7.64	65.50
8/5/2011 12:30	180	3.20	3.30	88.30	8.70	8.47	67.80	8.02	70.80	7.82	69.40
8/5/2011 13:30	--	3.20	3.21	69.00	8.70	8.54	68.10	8.26	72.60	7.80	70.20
8/5/2011 14:30	180	3.20	3.19	70.40	8.70	8.56	70.10	8.15	73.20	7.90	70.30
8/5/2011 15:30	--	3.20	3.36	71.90	8.70	8.62	71.40	8.67	72.80	7.95	70.70

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/5/2011 16:30	180	3.20	3.31	73.00	8.70	8.51	72.30	8.53	75.30	8.00	74.60
8/5/2011 17:30	--	3.20	3.33	73.50	8.70	8.46	73.40	8.49	75.60	8.02	72.70
8/5/2011 18:30	180	3.20	3.34	74.20	8.70	8.57	73.70	8.22	74.30	7.94	71.40
8/5/2011 19:30	--	3.20	3.13	71.10	8.50	8.52	74.60	8.14	66.90	7.50	69.30
8/5/2011 20:30	185	3.20	3.28	74.50	8.50	8.55	74.70	8.35	68.30	7.70	68.60
8/5/2011 21:30	--	3.20	3.28	74.70	8.40	8.27	74.50	8.02	66.40	7.83	66.10
8/5/2011 22:30	185	3.20	3.30	74.20	8.50	8.32	74.40	8.50	62.00	7.82	65.00
8/5/2011 23:30	--	3.20	3.33	72.80	8.50	8.44	74.00	8.32	64.00	7.84	65.20
8/6/2011 0:30	185	3.20	3.20	72.30	8.50	8.62	73.20	8.65	62.60	7.86	64.70
8/6/2011 1:30	--	3.20	3.28	70.90	8.50	8.79	72.00	7.80	64.60	7.88	63.80
8/6/2011 2:30	185	3.20	3.23	69.70	8.65	8.70	71.00	8.31	61.10	7.77	62.10
8/6/2011 3:30	--	3.20	3.21	68.30	8.65	8.75	70.00	8.60	60.00	7.79	61.90
8/6/2011 4:30	185	3.20	3.27	67.10	8.55	8.49	68.80	8.30	60.00	7.85	61.40
8/6/2011 5:30	--	3.20	2.81	66.10	8.55	8.42	67.80	8.49	61.40	7.80	61.70
8/6/2011 6:30	185	3.20	3.10	65.20	8.50	8.52	66.80	7.85	60.30	7.85	60.20
8/6/2011 7:30	--	3.20	3.25	64.50	8.50	8.51	65.90	7.95	61.00	7.75	63.90
8/6/2011 8:30	180	3.20	3.30	64.20	8.50	8.48	65.60	8.27	65.50	7.83	66.40
8/6/2011 9:30	--	3.20	3.29	64.70	8.50	8.48	65.40	8.62	69.20	7.83	67.50
8/6/2011 10:30	180	3.20	3.22	65.70	8.50	8.50	65.90	8.08	70.40	7.78	69.20
8/6/2011 11:30	--	3.20	3.28	66.90	8.50	8.56	66.60	7.91	71.00	7.73	67.90
8/6/2011 12:30	180	3.20	3.32	70.00	8.50	8.52	68.40	8.04	74.20	7.75	70.20
8/6/2011 13:30	--	3.20	3.29	70.10	8.50	8.56	70.50	7.59	72.20	7.66	71.80
8/6/2011 14:30	180	3.20	3.32	72.60	8.50	8.58	72.80	7.98	76.70	7.71	74.60
8/6/2011 15:30	--	3.20	3.22	73.80	8.50	8.54	72.80	8.83	76.30	7.95	73.50
8/6/2011 16:30	180	3.20	3.32	76.10	8.50	8.52	75.00	8.45	77.80	7.86	73.80
8/6/2011 17:30	--	3.20	3.32	77.10	8.50	8.53	75.80	8.42	77.60	7.86	74.10
8/6/2011 18:30	180	3.20	3.28	77.30	8.50	8.42	76.60	8.82	72.50	8.02	70.70
8/6/2011 19:30	185	3.20	2.89	77.30	8.45	8.33	77.40	8.57	66.80	7.54	69.20
8/6/2011 20:30	--	--	--	--	--	--	--	--	--	--	--
8/6/2011 21:30	185	3.20	2.76	74.70	8.45	8.24	76.60	--	--	--	--
8/6/2011 22:30	--	--	--	--	--	--	--	--	--	--	--
8/6/2011 23:30	--	--	--	--	--	--	--	--	--	--	--
8/7/2011 0:30	110	3.20	2.76	71.40	8.40	8.24	73.40	8.34	62.30	7.46	64.90
8/7/2011 1:30	--	--	--	--	--	--	--	--	--	--	--
8/7/2011 2:30	110	3.20	2.68	71.00	8.55	8.58	71.80	7.27	58.60	7.60	56.80
8/7/2011 3:30	--	3.20	3.26	67.30	8.75	8.50	70.00	7.95	59.30	7.58	57.20
8/7/2011 4:30	110	3.20	3.27	66.60	8.85	8.70	69.30	8.36	60.60	7.69	59.00
8/7/2011 5:30	--	3.20	3.28	65.40	8.85	8.77	68.00	8.68	59.80	7.40	63.10
8/7/2011 6:30	110	3.20	3.23	64.50	8.70	8.63	66.80	8.51	60.00	7.76	63.00
8/7/2011 7:30	--	3.20	3.25	63.10	8.50	8.39	65.40	8.13	63.60	7.92	63.60
8/7/2011 8:30	106	3.20	3.36	62.30	8.50	8.21	64.60	8.27	63.40	7.95	64.90
8/7/2011 9:30	--	3.20	3.31	62.80	8.50	8.38	64.20	8.87	64.30	7.94	64.30
8/7/2011 10:30	182	3.20	3.13	64.50	8.50	8.22	65.10	8.08	64.50	7.75	64.90
8/7/2011 11:30	--	3.20	3.05	65.70	8.50	8.56	65.30	7.98	65.90	7.73	64.90
8/7/2011 12:30	182	3.20	3.06	67.10	8.80	8.55	66.40	8.12	66.40	7.76	65.50
8/7/2011 13:30	--	3.20	3.08	69.20	8.80	8.55	68.50	8.34	66.60	7.92	65.50
8/7/2011 14:30	180	3.20	3.23	71.60	8.70	8.38	69.80	8.29	71.00	7.80	67.60

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/7/2011 15:30	--	3.20	3.27	73.50	8.70	8.37	71.90	8.41	69.70	7.88	67.40
8/7/2011 16:30	182	3.20	3.34	76.40	8.60	8.41	73.40	8.33	72.40	7.85	69.60
8/7/2011 17:30	--	3.20	3.27	77.60	8.60	8.33	75.80	8.17	73.50	7.79	69.70
8/7/2011 18:30	--	--	--	--	--	--	--	--	--	--	--
8/7/2011 19:30	--	--	--	--	--	--	--	--	--	--	--
8/7/2011 20:30	--	--	--	--	--	--	--	--	--	--	--
8/7/2011 21:30	--	--	--	--	--	--	--	--	--	--	--
8/7/2011 22:30	--	--	--	--	--	--	--	--	--	--	--
8/7/2011 23:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 0:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 1:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 2:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 3:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 4:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 5:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 6:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 7:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 8:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 9:30	--	--	--	--	--	--	--	--	--	--	--
8/8/2011 10:30	174	3.20	2.82	64.50	8.30	8.15	66.80	8.42	67.80	7.93	66.50
8/8/2011 11:30	--	3.20	3.10	66.10	8.20	8.22	66.00	8.58	67.40	7.73	68.90
8/8/2011 12:30	180	3.20	3.05	67.80	8.20	8.12	67.40	8.63	68.60	7.76	68.90
8/8/2011 13:30	--	3.20	3.00	70.90	8.10	7.65	68.80	8.41	72.80	7.76	69.60
8/8/2011 14:30	180	3.20	3.09	70.40	8.10	8.14	70.70	8.79	73.80	7.88	70.50
8/8/2011 15:30	--	3.20	3.36	74.20	8.10	8.20	71.70	8.68	74.10	7.82	70.70
8/8/2011 16:30	176	3.20	3.21	75.70	8.00	8.14	73.50	8.58	77.70	7.83	71.70
8/8/2011 17:30	--	3.20	3.28	75.70	8.00	8.11	75.00	8.60	73.10	7.86	70.70
8/8/2011 18:30	180	3.20	3.29	75.90	8.00	8.08	75.60	8.60	73.90	7.99	70.30
8/8/2011 19:30	--	3.20	3.28	75.20	8.00	7.97	75.60	8.41	71.40	7.94	69.80
8/8/2011 20:30	180	3.20	3.32	75.40	8.00	8.15	75.70	8.55	67.40	7.90	69.60
8/8/2011 21:30	--	3.20	3.33	74.70	8.00	8.31	75.50	8.48	65.40	8.01	66.10
8/8/2011 22:30	180	3.20	3.33	73.80	8.00	8.03	74.80	8.35	61.90	8.03	60.20
8/8/2011 23:30	--	3.20	3.34	72.30	8.00	8.05	73.90	8.25	61.10	7.97	65.20
8/9/2011 0:30	180	3.20	3.21	70.70	8.14	8.13	72.60	8.40	58.70	8.01	62.40
8/9/2011 1:30	--	3.20	3.34	69.20	8.14	8.06	70.80	8.25	56.70	8.10	61.20
8/9/2011 2:30	180	3.20	3.31	67.60	8.14	8.28	69.30	8.63	55.90	8.03	59.90
8/9/2011 3:30	--	3.20	3.32	65.90	8.14	8.17	67.80	8.28	53.90	8.02	60.90
8/9/2011 4:30	180	3.20	3.30	64.70	8.14	8.20	66.70	8.28	51.80	8.08	57.70
8/9/2011 5:30	--	3.20	3.34	63.80	8.14	8.33	65.40	8.24	50.60	8.06	58.10
8/9/2011 6:30	180	3.20	3.26	61.90	8.14	8.02	63.90	8.25	50.10	7.99	57.50
8/9/2011 7:30	--	3.20	3.22	60.20	8.14	8.16	62.60	8.26	58.80	7.92	60.00
8/9/2011 8:30	180	3.20	3.31	60.00	8.14	8.10	61.40	8.25	60.10	7.94	63.90
8/9/2011 9:30	--	3.20	3.34	61.40	8.25	8.45	61.20	8.23	61.20	7.93	63.70
8/9/2011 10:30	180	3.20	3.30	62.30	8.30	8.31	62.40	8.25	62.60	7.94	63.60
8/9/2011 11:30	--	3.20	3.34	63.10	8.35	8.33	63.30	8.42	63.10	7.92	64.00
8/9/2011 12:30	180	3.20	3.24	65.00	8.35	8.41	64.30	8.40	66.30	7.89	66.30
8/9/2011 13:30	--	3.20	3.21	67.60	8.40	8.44	66.10	8.51	65.90	7.94	66.30

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/9/2011 14:30	180	3.20	3.27	70.00	8.30	8.41	68.20	8.26	68.70	7.92	68.30
8/9/2011 15:30	--	3.20	3.31	71.90	8.30	8.21	70.10	8.31	71.20	7.99	67.40
8/9/2011 16:30	180	3.20	3.28	73.80	8.35	8.38	71.50	8.59	70.50	7.94	68.30
8/9/2011 17:30	--	3.20	3.22	75.40	8.30	8.43	74.10	8.40	71.70	7.95	69.00
8/9/2011 18:30	180	3.20	3.30	76.10	8.30	8.39	74.90	8.67	71.00	7.94	68.40
8/9/2011 19:30	--	3.20	3.21	75.90	8.30	8.21	75.50	9.19	69.20	8.07	68.80
8/9/2011 20:30	180	3.20	3.28	75.90	7.50	7.65	75.80	8.51	65.70	8.19	68.10
8/9/2011 21:30	--	3.20	3.15	75.00	7.50	7.46	75.70	7.71	65.00	7.38	65.90
8/9/2011 22:30	180	3.20	3.18	72.30	8.10	8.02	74.90	8.51	63.20	7.70	66.80
8/9/2011 23:30	--	3.20	3.18	71.40	8.10	8.05	73.40	8.69	59.90	8.00	57.70
8/10/2011 0:30	180	3.20	3.19	70.20	8.00	8.20	72.10	8.90	60.70	8.00	64.30
8/10/2011 1:30	--	3.20	3.16	68.80	7.90	7.92	70.80	8.70	58.60	8.44	60.70
8/10/2011 2:30	180	3.20	3.17	67.10	7.70	7.71	69.10	8.49	59.30	8.34	59.70
8/10/2011 3:30	--	3.20	3.14	65.90	7.60	7.64	67.70	8.38	57.50	8.28	59.20
8/10/2011 4:30	180	3.20	3.13	64.70	7.60	7.80	66.70	8.19	53.80	8.18	59.20
8/10/2011 5:30	--	3.20	3.14	63.50	7.65	7.80	65.20	8.22	54.90	8.11	58.30
8/10/2011 6:30	180	3.20	3.32	62.60	7.65	7.60	64.20	8.08	52.50	8.05	60.00
8/10/2011 7:30	--	3.20	3.30	61.10	7.65	7.66	62.90	8.27	60.00	7.98	65.00
8/10/2011 8:30	180	3.20	2.82	60.40	7.65	7.62	62.40	--	--	7.67	63.00
8/10/2011 9:30	--	3.20	3.06	61.40	8.00	7.92	62.00	7.74	61.30	7.72	63.60
8/10/2011 10:30	180	3.20	3.15	63.30	8.10	8.48	62.70	8.15	63.40	7.80	63.90
8/10/2011 11:30	--	3.20	3.28	65.70	8.10	8.35	64.40	7.89	65.30	7.80	65.30
8/10/2011 12:30	180	3.20	2.84	67.60	8.20	8.50	66.70	8.20	66.70	7.77	64.10
8/10/2011 13:30	--	3.20	3.15	69.70	8.20	8.36	68.10	7.95	67.10	7.69	65.00
8/10/2011 14:30	180	3.20	3.17	72.60	8.25	8.50	70.20	8.09	69.40	7.66	66.30
8/10/2011 15:30	--	3.20	3.23	75.50	8.25	8.46	72.10	8.10	70.60	7.77	66.70
8/10/2011 16:30	180	3.20	3.30	76.40	8.25	8.52	74.10	8.13	71.40	7.75	67.40
8/10/2011 17:30	--	3.20	2.99	77.60	8.25	8.39	75.80	7.94	71.20	7.63	67.70
8/10/2011 18:30	180	3.20	3.13	78.00	8.20	8.54	76.50	8.66	71.60	7.93	67.70
8/10/2011 19:30	--	3.20	3.31	77.60	8.15	8.30	77.10	8.02	69.40	7.67	67.10
8/10/2011 20:30	180	3.20	2.95	76.10	8.15	8.28	76.50	7.81	70.50	7.40	69.40
8/10/2011 21:30	--	3.20	3.27	74.20	8.20	8.08	75.80	7.91	70.10	7.11	66.80
8/10/2011 22:30	180	3.20	3.25	73.30	8.20	8.32	74.40	8.03	69.50	7.36	66.50
8/10/2011 23:30	--	3.20	3.22	70.70	8.25	8.33	73.20	8.14	63.10	7.65	64.80
8/11/2011 0:30	180	3.20	3.22	69.00	8.25	8.19	71.00	8.20	60.10	7.91	63.70
8/11/2011 1:30	--	3.20	3.27	68.30	8.25	8.27	69.60	8.10	58.60	7.90	62.10
8/11/2011 2:30	180	3.20	3.25	66.80	8.30	8.43	68.20	8.16	61.80	7.83	58.30
8/11/2011 3:30	--	3.20	3.17	65.20	8.30	8.47	66.90	8.22	60.40	7.92	57.60
8/11/2011 4:30	180	3.20	2.91	63.50	8.30	8.29	65.30	8.19	59.30	7.83	56.40
8/11/2011 5:30	--	3.20	3.26	62.10	8.30	8.55	63.80	8.13	54.80	7.86	59.30
8/11/2011 6:30	180	3.20	2.96	60.40	8.30	8.50	62.70	8.35	57.00	7.86	57.40
8/11/2011 7:30	--	3.20	3.22	60.00	8.30	8.65	61.60	7.78	55.70	7.52	60.70
8/11/2011 8:30	115	3.20	3.25	59.50	8.30	8.39	61.00	7.87	59.70	7.69	62.20
8/11/2011 9:30	--	3.20	3.36	60.70	8.30	8.66	60.80	7.85	59.60	7.68	62.80
8/11/2011 10:30	120	3.20	3.20	61.40	8.30	8.53	61.30	7.91	62.20	7.59	64.50
8/11/2011 11:30	--	3.20	3.34	64.20	8.30	8.52	62.40	8.02	62.20	7.80	65.40
8/11/2011 12:30	120	3.20	3.27	66.10	8.30	8.60	64.20	8.00	63.70	7.69	65.50

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/11/2011 13:30	--	3.20	3.25	67.80	8.30	8.29	65.30	7.96	65.00	7.70	66.70
8/11/2011 14:30	175	3.20	3.24	70.90	8.30	8.33	68.70	7.98	70.00	7.71	67.60
8/11/2011 15:30	--	3.20	2.74	73.30	8.30	8.41	71.00	8.05	70.90	7.88	67.20
8/11/2011 16:30	175	3.20	2.98	75.70	8.30	8.45	73.00	8.05	73.00	7.84	68.30
8/11/2011 17:30	--	3.20	3.11	77.80	8.30	8.35	75.30	8.18	72.30	7.99	68.70
8/11/2011 18:30	175	3.20	2.91	78.50	8.30	8.29	76.90	8.01	73.00	7.93	68.40
8/11/2011 19:30	175	3.20	3.01	77.80	8.30	8.33	77.50	8.35	70.90	7.48	70.10
8/11/2011 20:30	175	3.20	3.28	76.60	8.30	8.41	77.30	8.55	68.50	7.75	68.30
8/11/2011 21:30	--	3.20	3.21	75.90	8.25	8.45	76.40	8.46	69.10	7.86	66.90
8/11/2011 22:30	175	3.20	3.25	74.70	8.25	8.16	75.30	8.63	69.60	7.96	66.00
8/11/2011 23:30	--	3.20	3.23	72.80	8.25	8.28	74.20	9.11	65.80	7.98	65.30
8/12/2011 0:30	175	3.20	3.23	71.10	8.15	8.24	72.70	8.49	64.00	8.20	64.30
8/12/2011 1:30	--	3.20	3.21	70.00	8.15	8.11	71.10	8.40	64.00	8.08	63.90
8/12/2011 2:30	175	3.20	3.25	67.80	8.15	8.14	69.70	8.85	62.30	8.11	62.90
8/12/2011 3:30	--	3.20	3.25	66.10	8.10	8.13	68.10	8.62	61.50	8.14	61.50
8/12/2011 4:30	175	3.20	3.24	64.70	8.10	8.30	66.40	8.29	57.00	8.12	61.40
8/12/2011 5:30	--	3.20	3.22	63.50	8.10	8.18	65.20	8.39	56.50	8.08	59.80
8/12/2011 6:30	175	3.20	3.29	62.80	8.10	8.29	64.00	8.56	56.20	8.11	59.40
8/12/2011 7:30	--	3.20	3.26	61.60	8.10	8.08	62.80	8.49	59.20	8.22	60.90
8/12/2011 8:30	175	3.20	3.33	60.70	8.10	8.06	62.10	8.02	61.00	7.14	62.60
8/12/2011 9:30	--	3.20	3.29	61.90	8.30	8.28	61.90	8.19	61.10	8.00	62.80
8/12/2011 10:30	175	3.20	3.33	62.60	8.30	8.41	62.60	8.76	63.30	7.14	62.50
8/12/2011 11:30	--	3.20	3.29	64.20	8.30	8.25	63.60	8.19	63.90	8.03	63.40
8/12/2011 12:30	175	3.20	--	--	8.30	--	--	--	--	--	--
8/12/2011 13:30	--	--	--	--	--	--	--	--	--	--	--
8/12/2011 14:30	--	--	--	--	--	--	--	--	--	--	--
8/12/2011 15:30	--	--	--	--	--	--	--	--	--	--	--
8/12/2011 16:30	175	3.20	2.95	73.80	8.30	8.59	71.00	8.20	68.40	7.97	66.10
8/12/2011 17:30	--	3.20	3.05	74.70	8.40	8.39	73.20	8.39	71.50	7.96	67.20
8/12/2011 18:30	175	3.20	2.51	79.50	8.40	8.44	74.20	8.54	72.00	8.13	67.90
8/12/2011 20:00	160	3.20	2.81	75.00	8.30	8.58	74.80	8.85	69.40	7.35	68.00
8/12/2011 20:30	160	3.20	3.16	74.70	8.15	8.40	74.80	8.50	68.60	7.52	66.60
8/12/2011 21:30	--	3.20	2.99	73.50	8.15	8.21	74.40	8.38	68.50	7.49	67.00
8/12/2011 22:30	160	3.20	3.21	72.80	8.15	8.03	73.70	8.93	65.30	7.56	66.20
8/12/2011 23:30	--	3.20	3.26	71.60	8.05	8.13	72.60	8.80	66.10	7.63	65.20
8/13/2011 0:30	160	3.20	3.30	70.00	8.05	8.11	71.30	8.73	63.20	7.78	63.40
8/13/2011 1:30	--	3.20	3.25	69.00	8.05	8.29	70.20	8.44	62.90	7.91	63.00
8/13/2011 2:30	160	3.20	2.94	67.80	8.08	8.13	68.70	8.35	61.00	7.93	62.10
8/13/2011 3:30	--	3.20	3.20	65.70	8.05	8.48	67.50	8.23	61.40	7.80	62.50
8/13/2011 4:30	160	3.20	3.31	64.00	8.15	8.11	66.10	8.38	59.80	7.91	60.30
8/13/2011 5:30	--	3.20	3.34	63.30	8.15	8.03	65.00	8.42	59.40	7.87	60.50
8/13/2011 6:30	160	3.20	3.38	62.60	8.15	8.13	63.90	9.17	56.40	8.06	59.70
8/13/2011 7:30	--	3.20	2.95	61.40	8.15	8.19	62.90	9.33	60.40	8.15	61.00
8/13/2011 8:30	170	3.20	3.04	60.90	8.15	8.28	62.40	8.31	60.70	7.97	62.30
8/13/2011 9:30	--	3.20	3.06	61.90	8.15	8.09	62.10	8.20	63.30	7.98	63.80
8/13/2011 10:30	180	3.20	3.07	63.80	8.20	8.33	63.00	8.20	65.00	7.95	64.90
8/13/2011 11:30	--	3.20	2.95	63.50	8.20	8.26	64.70	8.30	65.70	8.12	64.40

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/13/2011 12:30	175	3.20	3.00	66.10	8.20	8.15	64.90	8.32	67.20	8.13	65.00
8/13/2011 13:30	--	3.20	3.11	67.30	8.30	8.40	67.00	8.44	67.90	8.18	65.20
8/13/2011 14:30	175	3.20	3.10	69.20	8.30	8.25	68.30	8.58	68.90	8.23	66.70
8/13/2011 15:30	--	3.20	3.08	71.40	8.30	8.38	70.00	8.56	70.40	8.20	67.50
8/13/2011 16:30	175	3.20	2.78	72.60	8.30	8.32	71.90	8.39	72.40	8.15	68.40
8/13/2011 17:30	--	3.20	3.02	75.00	8.30	8.21	73.00	8.41	72.60	7.14	69.40
8/13/2011 18:30	175	3.20	3.78	74.70	8.30	8.14	74.20	8.48	73.00	8.14	68.50
8/13/2011 19:30	175	3.20	2.96	75.00	8.20	8.27	74.80	8.70	69.20	7.96	68.10
8/13/2011 20:30	175	3.20	2.74	74.20	8.10	8.24	74.90	8.62	69.20	8.07	68.60
8/13/2011 21:30	--	3.20	3.26	74.00	8.10	8.09	74.60	8.56	66.70	8.15	65.70
8/13/2011 22:30	175	3.20	2.99	72.60	8.10	8.05	73.60	8.68	66.50	8.15	64.50
8/13/2011 23:30	--	3.20	3.26	71.60	8.10	8.27	72.60	8.66	65.00	8.18	65.00
8/14/2011 0:30	175	3.20	3.29	70.20	8.00	7.92	71.50	9.14	64.10	8.17	64.00
8/14/2011 1:30	--	3.20	3.26	69.50	8.00	8.17	70.50	8.45	62.20	7.85	63.50
8/14/2011 2:30	175	3.20	3.32	68.50	8.00	8.20	69.50	8.72	61.70	8.03	62.70
8/14/2011 3:30	--	3.20	3.05	67.30	8.00	8.14	68.60	9.46	61.10	7.97	62.20
8/14/2011 4:30	175	3.20	3.26	66.60	7.60	7.91	67.50	8.30	59.90	8.08	61.70
8/14/2011 5:30	--	3.20	3.00	65.40	7.60	7.63	66.20	8.27	58.70	8.09	60.00
8/14/2011 6:30	175	3.20	3.33	64.70	7.70	7.78	65.70	8.21	58.58	8.10	59.70
8/14/2011 7:30	--	3.20	3.33	64.00	7.70	7.61	65.00	8.18	60.40	7.89	61.60
8/14/2011 8:30	176	3.20	3.25	63.50	7.80	7.93	64.40	8.17	63.60	7.91	62.80
8/14/2011 9:30	--	3.20	3.18	63.50	7.90	7.69	64.30	8.17	64.30	7.88	63.00
8/14/2011 10:30	178	3.20	3.33	63.80	7.90	8.05	64.40	8.47	63.90	7.99	62.70
8/14/2011 11:30	--	3.20	2.75	64.00	7.80	7.92	64.80	7.84	63.50	7.90	62.50
8/14/2011 12:30	180	3.20	3.08	66.10	8.00	8.14	65.50	7.80	64.90	7.86	63.40
8/14/2011 13:30	--	3.20	3.21	68.50	8.00	8.08	67.10	7.99	66.40	7.83	64.30
8/14/2011 14:30	180	3.20	3.20	71.10	8.20	8.26	68.80	7.84	67.70	7.82	65.00
8/14/2011 15:30	--	3.20	3.30	73.00	8.20	8.24	70.90	8.29	67.90	7.93	65.80
8/14/2011 16:30	180	3.20	3.33	73.50	8.20	8.24	72.50	8.15	69.90	7.79	66.60
8/14/2011 17:30	--	3.20	3.22	74.00	8.20	8.41	73.20	7.99	69.20	7.77	66.60
8/14/2011 18:30	180	3.20	2.98	74.20	8.20	8.32	73.50	8.87	68.10	7.97	66.70
8/14/2011 19:30	--	3.20	2.51	73.80	8.20	8.32	73.90	8.38	68.70	7.60	68.10
8/14/2011 20:30	180	3.20	2.34	72.30	8.20	8.36	73.40	8.20	69.90	7.78	67.70
8/14/2011 21:30	--	3.20	2.57	71.60	8.20	8.07	72.90	8.22	62.00	7.86	65.30
8/14/2011 22:30	180	3.20	2.80	71.10	8.20	8.10	71.90	8.21	65.90	7.89	65.40
8/14/2011 23:30	--	3.20	3.03	70.20	8.20	8.08	71.10	9.31	63.50	7.90	62.50
8/15/2011 0:30	180	3.20	3.24	68.50	7.75	7.98	69.70	8.33	61.60	8.09	62.60
8/15/2011 1:30	--	3.20	3.29	68.30	7.95	7.65	69.10	7.76	63.90	7.54	63.70
8/15/2011 2:30	180	3.20	3.33	67.30	7.95	7.99	68.30	7.99	62.10	7.69	63.60
8/15/2011 3:30	--	3.20	3.25	66.10	7.95	8.15	67.10	9.32	60.40	7.68	60.90
8/15/2011 4:30	180	3.20	3.30	64.70	7.75	8.00	66.10	8.50	59.60	7.90	61.30
8/15/2011 5:30	--	3.20	3.14	64.00	7.75	7.77	65.30	8.10	59.90	7.89	61.00
8/15/2011 6:30	180	3.20	3.12	62.80	7.80	7.92	64.30	8.20	57.90	7.88	60.30
8/15/2011 7:30	--	3.20	3.25	61.90	7.80	8.06	63.10	7.51	57.50	7.61	59.20
8/15/2011 8:30	180	3.20	3.23	61.60	8.00	8.18	62.20	7.61	57.90	7.61	59.30
8/15/2011 9:30	--	3.20	3.25	61.90	8.20	8.27	62.40	7.97	59.40	7.89	59.60
8/15/2011 10:30	180	3.20	3.25	62.60	8.20	8.33	62.80	8.26	60.80	7.95	60.00

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/15/2011 11:30	--	3.20	3.26	63.80	8.25	8.27	63.50	7.94	62.10	7.82	60.60
8/15/2011 12:30	180	3.20	3.30	65.40	8.30	8.28	64.60	8.04	63.50	7.88	61.70
8/15/2011 13:30	--	3.20	3.32	66.60	8.30	8.61	66.00	7.94	64.40	7.85	62.30
8/15/2011 14:30	180	3.20	3.08	68.00	8.30	8.28	67.30	8.26	65.20	8.06	63.50
8/15/2011 15:30	--	3.20	2.65	69.20	8.30	8.48	68.40	8.45	66.40	8.25	64.30
8/15/2011 16:30	180	3.20	2.90	71.90	8.30	8.44	70.20	8.10	67.20	7.98	65.00
8/15/2011 17:30	--	3.20	2.79	72.10	8.30	8.36	71.40	8.15	68.70	8.04	65.60
8/15/2011 18:30	180	3.20	2.86	72.80	8.30	8.38	72.00	8.05	69.00	7.94	65.50
8/15/2011 19:30	--	3.20	2.70	73.30	8.30	8.51	72.80	8.54	65.90	7.79	70.20
8/15/2011 20:30	180	3.20	2.78	72.80	8.10	8.19	73.20	8.37	65.40	7.98	64.70
8/15/2011 21:30	--	3.20	3.06	72.30	8.10	8.11	72.90	8.33	63.90	8.05	65.40
8/15/2011 22:30	180	3.20	3.30	71.60	8.10	8.27	72.20	8.45	65.10	7.97	64.50
8/15/2011 23:30	--	3.20	2.84	70.20	8.00	8.02	71.40	8.20	63.90	7.87	65.60
8/16/2011 0:30	180	3.20	2.82	69.20	--	--	--	--	--	--	--
8/16/2011 1:30	--	3.20	3.09	68.30	8.00	7.92	69.40	8.22	55.10	7.89	63.10
8/16/2011 2:30	180	3.20	3.38	67.60	8.00	7.92	68.30	8.74	59.30	7.84	60.90
8/16/2011 3:30	--	3.20	3.27	66.10	7.85	8.08	67.40	8.84	60.00	7.97	51.70
8/16/2011 4:30	180	3.20	3.32	65.70	7.65	7.92	66.40	8.73	60.00	8.00	61.60
8/16/2011 5:30	--	3.20	3.27	65.00	7.65	7.93	65.50	8.14	59.40	7.90	61.90
8/16/2011 6:30	--	3.20	--	--	7.80	--	--	--	--	--	--
8/16/2011 7:30	--	--	--	--	--	--	--	--	--	--	--
8/16/2011 8:30	--	--	--	--	--	--	--	--	--	--	--
8/16/2011 9:30	--	--	--	--	--	--	--	--	--	--	--
8/16/2011 10:30	--	--	--	--	--	--	--	--	--	--	--
8/16/2011 11:30	--	--	--	--	--	--	--	--	--	--	--
8/16/2011 12:30	--	--	--	--	--	--	--	--	--	--	--
8/16/2011 13:30	--	--	--	--	--	--	--	--	--	--	--
8/16/2011 14:30	180	3.20	2.85	67.80	8.30	8.35	67.40	7.78	66.10	--	--
8/16/2011 15:30	--	3.20	3.04	68.30	8.30	8.58	68.30	8.04	66.30	--	--
8/16/2011 16:30	180	3.20	3.21	69.50	8.30	8.37	69.20	7.78	67.90	7.63	62.90
8/16/2011 17:30	--	3.20	3.24	71.10	8.30	8.41	70.20	8.10	67.80	7.93	62.20
8/16/2011 18:30	180	3.20	3.19	71.90	8.30	8.28	70.90	7.43	68.00	7.47	62.10
8/16/2011 19:30	--	3.20	3.23	72.60	8.30	8.37	71.60	8.38	64.10	7.78	67.70
8/16/2011 20:30	180	3.20	3.24	72.60	8.30	8.28	72.40	8.41	67.70	7.87	67.70
8/16/2011 21:30	--	3.20	3.21	72.10	8.30	8.49	72.40	8.48	61.70	7.89	65.20
8/16/2011 22:30	180	3.20	3.25	71.40	8.30	8.48	72.10	8.49	60.40	7.88	64.00
8/16/2011 23:30	--	3.20	3.35	70.00	8.30	8.54	71.00	8.49	59.10	7.89	63.20
8/17/2011 0:30	180	3.20	3.08	69.00	8.30	8.44	69.90	8.81	58.00	7.93	61.90
8/17/2011 1:30	--	3.20	3.35	67.80	8.30	8.37	69.80	8.67	57.90	7.99	61.50
8/17/2011 2:30	180	3.20	3.22	66.90	8.30	8.22	67.90	8.54	61.00	7.97	60.80
8/17/2011 3:30	--	3.20	3.24	65.90	8.30	8.21	66.80	8.57	55.40	7.93	60.50
8/17/2011 4:30	180	3.20	3.27	65.20	8.30	8.38	66.10	8.57	57.30	7.97	58.60
8/17/2011 5:30	--	3.20	3.21	64.20	8.30	8.51	65.50	8.58	54.80	7.95	58.50
8/17/2011 6:30	180	3.20	3.23	63.50	8.10	8.12	64.50	8.46	57.40	8.04	56.80
8/17/2011 7:30	--	3.20	3.32	62.60	8.10	8.06	63.70	8.20	58.00	8.05	59.10
8/17/2011 8:30	--	--	--	--	--	--	--	--	--	--	--
8/17/2011 9:30	--	3.20	3.21	62.80	8.20	8.42	63.40	8.03	66.70	7.92	80.10

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/17/2011 10:30	--	--	--	--	--	--	--	--	--	--	--
8/17/2011 11:30	--	--	--	--	--	--	--	--	--	--	--
8/17/2011 12:30	--	--	--	--	--	--	--	--	--	--	--
8/17/2011 13:30	--	3.20	3.26	65.90	8.30	8.22	65.90	8.01	70.10	8.02	66.10
8/17/2011 14:30	180	3.20	2.81	68.30	8.30	8.23	67.60	7.93	69.50	7.84	69.80
8/17/2011 15:30	--	3.20	2.85	70.00	8.30	8.09	69.20	8.10	74.50	7.92	74.60
8/17/2011 16:30	180	3.20	3.03	70.70	8.30	8.32	70.10	8.17	72.00	7.94	69.40
8/17/2011 17:30	--	3.20	2.67	70.70	8.30	8.33	71.00	8.07	72.90	8.03	64.10
8/17/2011 18:30	180	3.20	2.77	70.70	8.30	8.24	71.50	8.32	77.70	7.96	71.00
8/17/2011 19:30	180	3.20	3.10	72.30	8.20	8.06	71.70	8.19	65.70	7.58	66.80
8/17/2011 20:30	180	3.20	3.28	73.80	8.20	8.18	73.00	8.16	65.70	7.68	65.20
8/17/2011 21:30	--	--	--	--	--	--	--	--	--	--	--
8/17/2011 22:30	--	--	--	--	--	--	--	--	--	--	--
8/17/2011 23:30	--	3.20	2.77	70.00	8.20	8.18	72.10	7.65	62.30	7.64	62.00
8/18/2011 0:30	--	3.20	2.98	69.00	8.30	8.25	70.80	8.06	62.00	7.65	61.50
8/18/2011 1:30	--	3.20	7.78	68.30	8.30	8.24	69.60	7.92	59.80	7.74	60.40
8/18/2011 2:30	--	3.20	3.09	68.80	8.40	8.48	68.90	8.15	59.80	7.74	58.40
8/18/2011 3:30	155	3.20	3.35	67.10	8.40	8.45	68.20	8.43	59.70	7.76	59.70
8/18/2011 4:30	150	3.20	2.80	65.20	8.30	8.26	67.30	8.36	58.70	7.83	59.40
8/18/2011 5:30	--	3.20	3.01	65.20	8.30	8.19	66.70	8.29	58.40	7.79	60.30
8/18/2011 6:30	135	3.20	3.20	64.70	8.30	8.28	65.90	8.50	56.40	7.84	58.40
8/18/2011 7:30	--	3.20	3.29	63.80	8.35	8.35	65.00	8.39	60.70	8.15	61.00
8/18/2011 8:30	130	3.20	3.33	63.50	8.30	8.34	64.40	8.39	65.50	8.10	61.30
8/18/2011 9:30	--	3.20	3.21	63.80	8.30	8.32	64.30	8.27	81.00	8.12	72.90
8/18/2011 10:30	180	3.20	3.01	64.20	8.30	--	--	--	--	--	--
8/18/2011 11:30	--	3.20	2.86	65.90	8.30	8.31	65.70	7.98	72.80	7.95	70.60
8/18/2011 12:30	130	3.20	2.84	67.80	8.30	8.31	67.10	8.04	75.90	8.02	67.10
8/18/2011 13:30	--	3.20	2.54	68.50	--	--	--	--	--	--	--
8/18/2011 14:30	130	3.20	3.08	69.20	8.30	8.47	69.80	7.82	73.20	7.78	67.90
8/18/2011 15:30	--	3.20	3.11	69.50	8.30	8.33	70.20	7.91	69.60	7.67	70.40
8/18/2011 16:30	160	3.20	3.32	69.00	8.30	8.42	70.40	7.95	81.20	7.63	70.40
8/18/2011 17:30	--	3.20	3.29	69.50	8.30	8.38	69.90	8.06	75.60	7.67	72.20
8/18/2011 18:30	160	3.20	3.28	70.20	8.30	8.31	70.10	8.47	71.80	8.12	66.70
8/18/2011 19:30	158	3.20	3.29	72.30	8.20	8.44	71.20	8.49	66.60	7.44	69.70
8/18/2011 20:30	160	3.20	3.33	73.30	8.20	8.27	72.00	8.39	65.20	7.40	67.00
8/18/2011 21:30	--	3.20	3.23	72.80	8.20	8.49	72.70	8.46	65.60	7.39	66.90
8/18/2011 22:30	160	3.20	3.10	72.10	8.10	8.23	72.60	8.23	64.50	7.59	65.10
8/18/2011 23:30	--	3.20	3.22	71.40	8.10	8.66	72.60	8.23	63.20	7.60	63.80
8/19/2011 0:30	160	3.20	3.20	70.20	8.10	8.15	71.30	8.23	61.90	7.64	60.80
8/19/2011 1:30	--	3.20	3.22	68.80	8.10	8.10	70.20	--	--	--	--
8/19/2011 2:30	160	3.20	3.30	67.60	8.10	8.31	68.80	8.33	60.50	7.71	60.40
8/19/2011 3:30	--	3.20	3.33	66.90	8.10	8.19	68.00	8.18	59.70	7.78	60.00
8/19/2011 4:30	160	3.20	3.29	65.70	8.10	8.11	67.20	8.20	59.30	7.77	60.00
8/19/2011 5:30	--	3.20	3.33	65.20	8.10	8.31	66.30	8.17	58.90	7.78	59.10
8/19/2011 6:30	--	--	--	--	--	--	--	--	--	--	--
8/19/2011 7:30	--	3.20	3.34	64.00	8.30	8.31	64.90	8.17	66.90	7.81	63.30
8/19/2011 8:30	160	3.20	3.22	63.80	8.30	8.49	64.40	8.52	65.50	7.85	64.40

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/19/2011 9:30	--	3.20	3.20	64.00	8.30	8.36	68.70	8.42	73.40	7.95	69.10
8/19/2011 10:30	160	3.20	3.34	64.50	8.30	8.28	64.60	8.38	76.10	7.80	70.30
8/19/2011 11:30	--	3.20	3.36	66.60	8.30	8.27	65.80	8.46	72.30	8.02	71.80
8/19/2011 12:30	160	3.20	3.35	67.60	8.30	8.30	67.50	8.49	74.30	7.92	73.10
8/19/2011 13:30	--	3.20	3.18	70.70	8.30	8.32	69.30	8.33	81.60	7.96	72.60
8/19/2011 14:30	160	3.20	3.27	71.40	8.30	8.26	71.20	8.43	82.10	7.88	79.80
8/19/2011 15:30	--	3.20	3.34	74.60	8.30	8.39	71.60	8.42	75.20	7.90	77.20
8/19/2011 16:30	160	3.20	3.28	70.40	8.30	8.45	71.50	8.33	77.30	8.01	69.40
8/19/2011 17:30	--	3.20	3.16	71.40	8.30	8.36	71.30	8.86	80.10	8.30	69.40
8/19/2011 18:30	160	3.20	3.22	71.40	8.30	8.29	71.40	8.71	78.80	8.03	71.60
8/19/2011 19:30	--	--	--	--	--	--	--	--	--	--	--
8/19/2011 20:30	--	--	--	--	--	--	--	--	--	--	--
8/19/2011 21:30	--	3.20	3.22	74.00	8.15	8.25	73.70	8.35	66.00	7.84	69.80
8/19/2011 22:30	150	3.20	3.35	73.10	8.15	8.13	73.40	8.33	64.70	7.84	65.60
8/19/2011 23:30	--	3.20	3.34	72.10	8.15	8.35	72.60	8.31	63.90	7.87	64.50
8/20/2011 0:30	150	3.20	3.25	70.40	8.15	8.33	71.50	8.59	63.20	7.87	64.10
8/20/2011 1:30	--	3.20	3.33	69.50	8.05	8.06	70.60	8.39	62.80	7.90	63.00
8/20/2011 2:30	150	3.20	3.35	68.80	8.05	8.13	69.60	8.16	61.60	7.93	62.90
8/20/2011 3:30	--	3.20	3.31	67.60	8.05	8.12	68.70	8.18	60.80	7.90	61.90
8/20/2011 4:30	150	3.20	3.26	66.90	8.05	8.05	67.70	8.19	60.10	7.91	61.00
8/20/2011 5:30	--	3.20	3.27	66.40	8.05	8.32	67.00	8.19	58.80	7.91	60.20
8/20/2011 6:30	150	3.20	3.28	65.40	8.05	8.07	66.30	8.19	61.30	7.89	61.40
8/20/2011 7:30	--	3.20	3.29	64.90	8.30	8.23	65.60	8.09	64.40	7.98	65.00
8/20/2011 8:30	150	3.20	3.33	64.50	8.30	8.46	65.50	8.46	70.10	8.05	63.70
8/20/2011 9:30	--	3.20	3.21	64.70	8.30	8.41	65.60	8.78	74.00	8.19	64.80
8/20/2011 10:30	150	3.20	2.63	64.50	8.30	8.28	65.90	8.42	72.90	8.00	69.70
8/20/2011 11:30	--	3.20	2.45	64.70	8.30	8.27	66.40	8.26	78.50	8.09	69.30
8/20/2011 12:30	150	3.20	3.06	69.00	8.30	8.26	66.90	8.34	77.10	8.09	69.70
8/20/2011 13:30	--	3.20	2.62	69.70	8.30	8.20	69.10	8.34	79.80	8.06	70.10
8/20/2011 14:30	150	3.20	3.36	70.40	8.30	8.40	70.40	8.48	80.70	8.03	75.80
8/20/2011 15:30	--	3.20	3.27	71.90	8.30	8.21	71.50	8.37	81.10	7.97	76.10
8/20/2011 16:30	150	3.20	3.31	72.10	8.30	8.27	72.20	8.29	90.60	7.93	79.30
8/20/2011 17:30	--	3.20	3.23	72.10	8.30	8.45	72.30	8.33	77.20	8.06	69.20
8/20/2011 18:30	150	3.20	2.92	71.40	8.30	8.25	72.30	8.38	78.30	7.96	71.80
8/20/2011 19:30	155	3.20	3.05	72.30	8.10	8.10	72.30	8.38	68.80	7.71	68.60
8/20/2011 20:30	155	3.20	3.18	73.50	8.10	8.25	72.40	8.28	65.30	7.81	66.80
8/20/2011 21:30	--	3.20	3.25	73.80	8.10	8.12	73.20	8.26	66.00	7.82	66.20
8/20/2011 22:30	155	3.20	3.32	73.00	8.10	8.06	73.20	8.24	64.70	7.82	65.00
8/20/2011 23:30	--	3.20	3.28	71.60	8.10	8.27	72.80	8.28	64.10	7.83	63.70
8/21/2011 0:30	155	3.20	3.31	70.40	8.10	8.15	71.80	8.25	63.30	7.82	62.70
8/21/2011 1:30	--	3.20	3.21	69.50	8.10	8.26	70.80	8.24	62.20	7.81	61.60
8/21/2011 2:30	155	3.20	3.32	68.50	8.10	8.36	69.80	8.24	61.40	7.81	60.80
8/21/2011 3:30	--	3.20	3.27	67.60	8.10	8.23	68.90	8.23	59.90	7.82	59.90
8/21/2011 4:30	155	3.20	3.24	66.10	8.10	8.13	67.80	8.13	59.60	7.82	59.50
8/21/2011 5:30	--	3.20	3.34	65.40	8.10	8.37	66.80	8.05	59.10	7.69	60.30
8/21/2011 6:30	155	3.20	2.97	64.70	8.15	8.15	66.00	8.38	57.10	7.79	57.70
8/21/2011 7:30	--	3.20	3.23	64.00	8.15	8.27	65.10	8.20	62.00	7.70	60.80

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/21/2011 8:30	140	3.20	3.29	63.30	8.20	8.15	64.40	7.50	60.40	7.45	61.70
8/21/2011 9:30	--	3.20	3.32	63.80	8.30	8.48	64.60	8.24	61.20	7.76	61.80
8/21/2011 10:30	140	3.20	3.26	64.00	8.30	8.38	64.70	8.24	62.50	7.82	62.50
8/21/2011 11:30	--	3.20	3.22	66.60	8.30	8.53	65.10	8.22	62.60	7.83	63.50
8/21/2011 12:30	155	3.20	3.26	67.80	8.30	8.58	66.80	7.92	64.40	7.86	65.10
8/21/2011 13:30	--	3.20	3.34	70.00	8.30	8.28	68.30	8.51	65.80	8.06	65.60
8/21/2011 14:30	155	3.20	3.23	71.10	8.30	8.48	69.80	8.72	68.30	8.12	67.20
8/21/2011 15:30	--	3.20	3.28	71.40	8.20	8.09	70.80	9.02	69.10	8.36	68.10
8/21/2011 16:30	150	3.20	3.36	73.30	8.15	8.25	72.10	8.27	69.60	8.00	67.80
8/21/2011 17:30	--	3.20	3.34	73.50	8.15	8.27	72.80	8.20	70.10	7.90	67.00
8/21/2011 18:30	150	3.20	3.25	73.80	8.15	8.45	73.40	8.44	70.30	8.10	67.00
8/21/2011 19:30	--	3.20	3.30	74.50	8.15	8.42	73.70	8.75	67.90	7.93	70.80
8/21/2011 20:30	150	3.20	3.26	74.70	7.85	7.97	74.20	8.54	64.50	7.98	67.20
8/21/2011 21:30	--	3.20	3.21	74.20	7.85	8.01	74.20	8.39	66.50	7.98	64.30
8/21/2011 22:30	150	3.20	3.34	73.30	7.85	7.95	73.70	8.31	63.50	7.99	62.50
8/21/2011 23:30	--	3.20	3.25	71.90	7.85	8.36	72.90	8.50	63.60	7.94	61.80
8/22/2011 0:30	150	3.20	3.30	70.40	7.85	8.06	71.80	8.55	62.00	7.93	60.80
8/22/2011 1:30	--	3.20	3.34	69.20	7.85	8.10	70.60	8.55	61.60	8.06	60.40
8/22/2011 2:30	150	3.20	3.27	67.60	7.85	8.16	69.20	8.35	64.10	8.12	58.20
8/22/2011 3:30	--	3.20	3.24	66.40	7.85	7.87	68.00	8.45	60.30	8.05	58.30
8/22/2011 4:30	150	3.20	3.19	65.20	7.85	8.20	66.70	8.48	58.40	8.05	58.60
8/22/2011 5:30	--	3.20	3.29	63.00	7.85	7.75	65.70	8.27	56.20	8.07	56.10
8/22/2011 6:30	150	3.20	3.34	62.30	7.85	7.98	64.20	8.64	58.40	8.00	60.30
8/22/2011 7:30	--	3.20	3.30	61.40	7.75	7.81	63.20	7.96	57.50	7.88	59.20
8/22/2011 8:30	150	3.20	3.23	60.70	8.15	8.28	62.30	8.04	58.20	7.76	60.10
8/22/2011 9:30	--	3.20	3.23	60.40	8.25	8.45	61.70	7.71	58.20	7.59	60.60
8/22/2011 10:30	150	3.20	3.22	61.10	8.30	8.26	61.90	8.54	61.30	8.02	62.10
8/22/2011 11:30	--	3.20	3.32	62.80	8.30	8.32	62.60	8.40	63.80	7.93	64.00
8/22/2011 12:30	150	3.20	3.25	65.20	8.30	8.31	64.10	8.33	64.30	7.96	65.20
8/22/2011 13:30	--	3.20	3.25	65.70	8.30	8.36	65.20	8.32	66.30	7.77	65.50
8/22/2011 14:30	150	3.20	3.34	67.60	8.30	8.35	66.60	8.19	68.80	7.66	66.60
8/22/2011 15:30	--	3.20	3.32	69.70	8.30	8.49	68.10	8.44	68.60	7.78	67.40
8/22/2011 16:30	150	3.20	3.34	71.90	8.30	8.34	69.50	8.51	70.20	7.76	69.20
8/22/2011 17:30	--	3.20	3.24	72.80	8.30	8.49	71.30	8.64	73.20	7.75	68.30
8/22/2011 18:30	150	3.20	2.90	72.80	8.20	8.34	72.50	8.49	73.30	7.68	69.00
8/22/2011 19:30	--	3.20	3.29	70.80	8.20	8.14	73.40	8.34	68.30	7.57	67.40
8/22/2011 20:30	150	3.20	3.29	72.80	8.20	8.18	72.80	8.36	64.70	7.87	69.20
8/22/2011 21:30	--	3.20	2.91	72.30	8.20	8.14	72.90	8.45	67.60	7.89	66.50
8/22/2011 22:30	150	3.20	3.35	72.10	8.20	8.24	72.50	8.47	61.50	7.92	65.00
8/22/2011 23:30	--	3.20	3.36	71.10	8.20	8.43	71.90	8.45	61.80	7.94	64.80
8/23/2011 0:30	150	3.20	3.28	70.00	8.20	8.81	71.30	8.45	59.30	7.94	62.90
8/23/2011 1:30	--	3.20	3.27	69.80	8.20	8.66	70.40	8.52	63.60	7.95	62.80
8/23/2011 2:30	150	3.20	3.33	67.60	8.10	8.01	69.00	8.35	57.90	7.93	62.50
8/23/2011 3:30	--	3.20	3.26	66.10	8.10	8.14	68.00	8.42	57.80	7.96	60.70
8/23/2011 4:30	150	3.20	3.35	65.00	8.10	8.22	66.80	8.43	55.90	7.98	60.40
8/23/2011 5:30	--	3.20	3.23	64.50	8.10	8.07	65.90	8.45	57.20	7.96	60.00
8/23/2011 6:30	150	3.20	3.34	63.10	8.10	8.13	64.90	8.53	56.90	8.05	61.50

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/23/2011 7:30	--	3.20	3.24	62.10	8.10	8.00	64.10	8.40	63.20	7.97	62.40
8/23/2011 8:30	150	3.20	3.30	61.60	8.20	8.18	63.10	8.43	60.40	8.01	60.20
8/23/2011 9:30	--	3.20	3.29	61.90	8.20	8.26	62.70	8.49	68.00	8.04	63.60
8/23/2011 10:30	150	3.20	3.26	63.10	8.20	8.33	63.00	8.47	64.10	8.02	64.70
8/23/2011 11:30	--	3.20	3.27	65.70	8.20	8.55	64.00	8.56	63.90	7.97	65.20
8/23/2011 12:30	150	3.20	3.28	68.30	8.20	8.27	66.00	8.40	65.30	7.96	64.60
8/23/2011 13:30	--	3.20	3.28	70.00	8.20	8.35	68.00	8.35	67.70	7.84	68.10
8/23/2011 14:30	150	3.20	3.29	73.80	8.20	8.40	70.60	8.27	71.00	7.78	70.00
8/23/2011 15:30	--	3.20	3.26	74.50	8.20	8.41	72.80	8.20	72.70	7.73	70.70
8/23/2011 16:30	150	3.20	3.24	76.40	8.20	8.16	74.30	8.92	75.30	7.90	71.00
8/23/2011 17:30	--	3.20	3.29	77.30	8.20	8.43	75.20	8.85	74.50	7.99	70.60
8/23/2011 18:30	150	3.20	3.29	78.00	8.15	8.38	76.30	8.73	75.50	8.01	70.80
8/23/2011 19:30	--	3.20	3.28	78.30	8.15	8.19	77.30	8.77	72.30	8.14	71.10
8/23/2011 20:30	150	3.20	3.19	78.30	8.00	8.00	77.60	8.75	68.70	8.12	70.80
8/23/2011 21:30	--	3.20	3.29	76.90	7.75	7.70	77.50	8.51	66.20	8.04	68.90
8/23/2011 22:30	150	3.20	3.28	74.70	7.75	7.71	76.40	8.60	66.10	8.01	68.30
8/23/2011 23:30	--	3.20	3.37	73.00	7.75	7.84	74.80	8.52	63.30	8.02	65.50
8/24/2011 0:30	150	3.20	3.31	71.40	7.75	7.74	73.30	8.33	62.90	7.98	64.50
8/24/2011 1:30	--	3.20	3.24	70.00	7.75	7.78	71.80	8.37	61.90	7.96	64.80
8/24/2011 2:30	150	3.20	3.30	68.50	7.75	7.74	70.40	8.48	61.30	7.95	64.30
8/24/2011 3:30	--	3.20	3.23	67.10	7.75	7.99	68.00	8.39	60.00	7.97	62.80
8/24/2011 4:30	150	3.20	3.29	66.10	7.75	7.74	67.80	8.88	58.40	7.94	61.00
8/24/2011 5:30	--	3.20	3.32	64.70	7.75	7.99	66.80	8.33	67.90	7.93	62.40
8/24/2011 6:30	150	3.20	3.36	63.80	7.75	7.68	65.60	8.26	58.00	7.89	62.20
8/24/2011 7:30	--	3.20	3.25	62.80	7.75	8.15	64.60	8.51	61.80	7.86	62.80
8/24/2011 8:30	150	3.20	3.37	62.30	8.10	8.30	63.80	8.48	61.30	7.86	65.10
8/24/2011 9:30	--	3.20	3.00	63.10	8.10	8.17	63.50	8.13	63.90	7.82	63.90
8/24/2011 10:30	150	3.20	3.34	65.20	8.10	8.19	64.20	8.43	64.30	7.73	66.20
8/24/2011 11:30	--	3.20	3.34	67.60	8.20	8.29	65.60	8.60	66.00	7.69	67.60
8/24/2011 12:30	150	3.20	3.26	71.40	8.20	8.26	68.10	8.57	67.50	7.79	65.70
8/24/2011 13:30	--	3.20	3.28	73.50	8.20	8.41	70.70	8.50	70.70	7.65	69.00
8/24/2011 14:30	150	3.20	3.32	75.90	8.20	8.24	72.70	8.38	72.50	7.69	69.70
8/24/2011 15:30	--	3.20	3.33	79.20	8.20	8.36	75.20	8.77	73.20	7.73	70.80
8/24/2011 16:30	150	3.20	3.25	81.40	8.10	8.26	77.50	8.49	75.60	7.73	71.50
8/24/2011 17:30	--	3.20	2.76	82.80	8.10	8.35	79.30	8.27	77.00	7.71	72.00
8/24/2011 18:30	150	3.20	3.24	82.60	8.15	7.35	81.60	9.58	78.80	7.85	72.20
8/24/2011 19:30	--	3.20	3.24	80.70	8.15	7.42	82.50	12.29	76.90	8.29	69.50
8/24/2011 20:30	--	--	--	--	--	--	--	--	--	--	--
8/24/2011 21:30	--	--	--	--	--	--	--	--	--	--	--
8/24/2011 22:30	--	--	--	--	--	--	--	--	--	--	--
8/24/2011 23:30	--	--	--	--	--	--	--	--	--	--	--
8/25/2011 0:30	--	--	--	--	--	--	--	--	--	--	--
8/25/2011 1:30	--	3.20	3.36	68.50	6.50	6.88	71.00	7.61	61.60	--	--
8/25/2011 2:30	150	3.20	3.35	66.90	6.50	6.80	69.30	7.89	60.90	--	--
8/25/2011 3:30	--	3.20	3.20	64.70	6.50	6.91	67.60	7.71	63.50	--	--
8/25/2011 4:30	150	3.20	3.25	62.60	6.50	6.61	65.60	7.75	62.20	--	--
8/25/2011 5:30	--	3.20	3.33	60.20	7.50	8.06	63.70	8.07	57.90	8.35	63.40

Table A-4: Summary of 2011 Pond Water Treatment Plant Operators' Logs

8/25/2011 6:30	150	3.20	3.34	58.30	7.50	8.06	61.70	8.24	61.00	7.98	62.40
8/25/2011 7:30	--	3.20	3.33	55.90	7.50	7.75	59.30	8.26	55.30	8.14	58.80
8/25/2011 8:30	150	3.20	3.23	55.90	7.50	7.43	57.80	8.19	65.20	7.83	66.30
8/25/2011 9:30	--	3.20	3.25	57.80	7.50	7.43	57.50	8.06	71.10	7.97	77.00
8/25/2011 10:30	150	3.20	3.39	61.40	7.50	7.79	59.00	7.92	74.50	7.90	67.90
8/25/2011 11:30	--	3.20	3.34	67.60	7.50	7.50	62.00	7.89	76.70	7.88	74.00
8/25/2011 12:30	150	3.20	3.21	66.90	7.50	7.96	67.60	7.79	81.40	7.75	77.20
8/25/2011 13:30	--	3.20	3.30	79.70	7.50	7.39	71.10	7.86	80.50	7.75	76.20
8/25/2011 14:30	150	3.20	3.22	84.70	7.50	7.65	76.70	7.71	81.9	7.66	76.60
8/25/2011 15:30	--	3.20	3.24	87.20	7.50	7.67	81.60	7.68	85.30	7.65	74.90
8/25/2011 16:30	--	3.20	3.28	88.00	7.50	7.60	83.90	7.72	80.00	7.67	76.30

Table A-5: 2011 Pond Water Treatment Sludge Analytical Results

Regulatory Criteria	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			
1112PWT025PC-A	46.0																																							
TTLc (mg/kg dry)		16600		7.89	U	294		111		0.641	J	4.33		44.8		51.2		92.0		31100	B	26		0.163	J	3.94	U	136		5.78		1.58	U	6.23		41.6		41.6		
STLC (mg/L)		1.51		0.1	U	0.0242		0.144		0.005	U	0.005	U	0.01	U	0.01	U	0.01	U	0.91		0.0158		0.00012	J	0.05	U	0.02	U	0.157		0.00894	J	0.1	U	0.005	U	0.01	U	
1112PWT025PC-B	55.5																																							
TTLc (mg/kg dry)		10100		6.62	U	218		7.40		0.331	U	3.99		41.7		71.9		77.3		25600	B	1.89		0.624		3.31	U	204		0.662	U	1.32	U	4.18		26.4		29.3		
STLC (mg/L)		1.38		0.1	U	0.0206		0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.01	U	0.912		0.0172		0.0001	U	0.05	U	0.02	U	0.156		0.0096	J	0.1	U	0.005	U	0.01	U	
1112PWT025PC-C	31.5																																							
TTLc (mg/kg dry)		31900		11.0	U	650		4.58		0.976	J	11.7		102		180		270		64000	B	2.68		0.0314	U	5.50	U	488		1.20	J	2.20	U	6.44		51.6		90.2		
STLC (mg/L)		2.93		0.1	U	0.0213		0.005	U	0.005	U	0.005	U	0.01	U	0.01	U	0.01	U	0.92		0.0173		0.0001	U	0.05	U	0.02	U	0.143		0.00936	J	0.1	U	0.005	U	0.01	U	
1112PWT026PC-A	28																																							
TTLc (mg/kg dry)		46000		3.2	J	1100		5.7		1.5	J	11		180		280		450		84000		2.9	J	0.043	U	0.94	J	750		3.5	U	2.8	U	19	J	71		150		
STLC (mg/L)		710	MHA	0.14	U	0.46		0.12	U	0.031	J	0.14		2.1		6.0		8.6		690	MHA	0.080	U	0.0010	U	0.040	U	14		0.16	U	0.12	U	0.26		0.25		2.8		
1112PWT027PC-B	44																																							
TTLc (mg/kg dry)		42000		4.0	RL1,U	780		4.6		0.91	RL1,U	7.3		150		220		340		75000		2.3	RL1,U	0.027	U	0.91	RL1,U	570		4.5	RL1,U	3.6	RL1,U	12	RL1,J	53		110		
STLC (mg/L)		720		0.16	J	0.52		0.12	U	0.048	J	0.13		3.4		8.9		10		870		0.80	U	0.0010	U	0.040	U	21		0.16	U	0.12	U	0.52		0.43		4.0		
1112PWT028PC-C	56																																							
TTLc (mg/kg dry)		52000		3.2	RL1,U	950		9.3		1.4	RL1,J	9.0		170		270		460		95000		2.7	RL1,J	0.051		0.72	RL1,U	720		3.6	RL1,U	2.9	RL1,U	15	RL1,J	59		130		
STLC (mg/L)		890		0.14	U	0.42		0.12	U	0.052	J	0.16		3.4		9.9		12		900		0.080	U	0.0010	U	0.040	U	23		0.16	U	0.12	U	0.5		0.26		4.1		

Notes:
Sludge samples 1112PWT025PC-A,B, and C were collected by URS on 10/20/2011.
Sludge samples 1112PWT026PC-A, 1112PWT027PC-B, and 1112PWT028PC-C were collected by Water Board staff on 1/10/2012.
Sludge samples represent a homogenized section through the entire sludge blanket thickness.
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.
MHA - Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See blank spike (LCS).
RL1 - Reporting limit raised due to sample matrix effects.

Table A-6: 2010 Pond Water Treatment Sludge TCLP Analytical Results

Regulatory Criteria	Percent Solids	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc																			
TCLP (mg/L)	NP	NP	NP	5.0	100.0	NP	1.0	5.0	NP	NP	NP	5.0	0.2	NP	NP	1.0	5.0	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		
SLUDGE 1																																							
TCLP (ug/L)	NA	2500		18	U	24	U	38	J	2.0	U	12	U	10	J	350		17.0	J	79	J	36	J	0.39	J	7.7	U	1300		25	U	16	U	37	J	8.8	U	77	J

Notes:
Sample SLUDGE 1 collected on 6/23/2011 at the request of the the disposal facility.

Qualifiers: (Q)
U - Not detected at or above the method detection limit.
J - Estimated value, between method detection limit and reporting limit.

Table A-7: 2011 Pond 3 V-Ditch Soil Analytical Results

Regulatory Criteria	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		
1112Pond3VDitchNE	88																																						
TTLC (mg/kg dry)		13000		11	ND	360		320		0.56	ND	0.56	ND	46		3.7		57		30000		35		3.1		2.2	ND	2.2	ND	19		1.1	ND	14		55		22	
STLC (mg/L)		180		0.20	ND	3.3		0.99		0.080	ND	0.10	ND	0.47		0.20	ND	0.58		120		0.10	ND	0.085		0.40	ND	0.24		0.20	ND	0.20	ND	0.20	ND	0.30		0.40	ND
1112Pond3VDitchSE	92																																						
TTLC (mg/kg dry)		9800		11	ND	290		300		0.54	ND	0.54	ND	41		3.4		59		28000		34		3.2		2.2	ND	7.1		24		1.1	ND	12		54		20	
STLC (mg/L)		270		0.20	ND	3.8		1.3		0.080	ND	0.10	ND	0.66		0.20	ND	1.1		160		0.10	ND	0.039		0.40	ND	0.41		0.20	ND	0.20	ND	0.20	ND	0.50		0.43	

Notes:
Pond 3 V-Ditch samples collected on 8/9/2011.

Qualifiers: (Q)
ND - Analyte Not Detected at or above the reporting limit.

Appendices B through E (on compact disc)

Appendix B – 2011 Pond Water Treatment Data

Laboratory Reports (PDF format)

Analytical Laboratory Electronic Data Deliverable Files (Microsoft Excel format)

Appendix C – 2010 Water Year Pond 1 Weather Station Data

Hourly data organized by month (Microsoft Excel format)

Appendix D – 2010 Water Year Flow and Stage Annual Data Reports

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

Appendix E – Data Summary Report, Early Spring Treatment at the Leviathan Mine, 2011, TKT Consulting, LLC (PDF format)