San Luis Obispo County Flood Control and Water Conservation District - Zone 3

Lopez Lake and Terminal Reservoir Watershed Sanitary Survey Update - 2010

County of San Luis Obispo, California
Department of Public Works
March 2012

County of San Luis Obispo

Lopez Lake and Terminal Reservoir

Watershed Sanitary Survey Update

Prepared by
Department of Public Works

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County Government Center, Room 2007, San Luis Obispo, CA 93408

LOPEZ WATERSHED SANITARY SURVEY UPDATE

SYSTEM INFORMATION

CDPH System No.: 4010022

System Name: Lopez Project

Survey Period: January 1, 2005 through December 31, 2010

PREPARER INFORMATION

Name of Agency and Address: County of San Luis Obispo, County Government Center,
Room 207, San Luis Obispo, CA 93408

Contact Person, Position/Title, and Telephone Number: John Beaton, Water Quality Manager, 805-781-5109

CDPH Approval, Signature, and Date:

SURVEY DESCRIPTION

Name of Watershed: Lopez Lake and Lopez Terminal Reservoir

Total Watershed Size in acres: Lopez Lake – 43,000 acres
Lopez Terminal Reservoir – 424 acres

Location (list counties in which watershed is located or attach map):
San Luis Obispo

Name(s) of water treatment plant using the watershed as a source:

Lopez Water Treatment Plant

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TERMS, ACRONYMS, AND ABBREVIATIONS

µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
CDPH	California Department of Public Health
CFU	Colony Forming Unit
CU	Color Unit
DBP	Disinfection Byproduct
District	San Luis Obispo County Flood Control and Water Conservation District – Zone 3
DLR	Detection Limit for the Purposes of Reporting
DOC	Dissolved Organic Carbon
DWSAP	Drinking Water Source Assessment and Protection
HAA	Haloacetic Acid
HPC	Heterotrophic Plate Count
IEWSWTR	Interim Enhanced Surface Water Treatment Rule
L	Liter
LWTP	Lopez Water Treatment Plant
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
MPN	Most Probable Number
ND	Not Detected
NTU	Nephelometric Turbidity Unit
RAA	Running Annual Average
SOC	Synthetic Organic Compound (also Synthetic Organic Chemical)
TDS	Total Dissolved Solids
THM	Trihalomethane
TKN	Total Kjeldahl Nitrogen
TOC	Total Organic Carbon
TON	Threshold Odor Number
U. S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound (also Volatile Organic Chemical)

WATERSHED SURVEY CHECKLIST

(Changes since the last survey are highlighted in red.)

Category	Significant	Not Significant	Comments
I. GENERAL			
A. Changes in available water quantity?		X	No change in safe yield
B. Construction of water diversion or reservoir projects.	X		New treatment plant in 2007
C. Relocation of intakes		X	No change
II. CONTAMINANT SOURCES			
A. Wastewater Treatment at Lopez Lake			
1. Treatment plant effluent discharges		X	No discharge to waters
2. Storage, transport, treatment, disposal to land	X		Land discharged of effluent
3. Residential septic systems		X	No change
B. Reclaimed Water		X	No reclaimed water
C. Urban Areas		X	No change
D. Agricultural Crop Land Use		X	No change
E. Pesticide/Herbicide Use		X	No change
F. Grazing Animals		X	No change
G. Concentrated Animal Facilities (feedlots, etc)		X	No feedlots
H. Wild Animal Populations		X	No change
I. Mines			
1. Active		X	No mines
2. Inactive		X	No mines
J. Disposal Facilities at Lopez Lake			
1. Solid waste		X	No landfills
2. Hazardous waste		X	No disposal
K. Logging		X	No logging
L. Recreation			
1. Reservoir body contact	X (Lake)	X (Terminal)	Swimming in Lake only
2. Reservoir non-body contact	X (Lake)	X (Terminal)	Boating, fishing in Lake only
M. Unauthorized Activity			
1. Illegal dumping		X	No change
2. Underground storage tank leaks		X	No change
N. Traffic Accidents/Spills			
1. Transportation corridors	X (Terminal)	X	Minor roads in watershed
2. History of accidents/spills		X	No spills to water recorded
O. Groundwater Discharges			
1. Natural discharge		X	No change
2. Gas, oil, geothermal wells		X	No change
P. Seawater Intrusion		X	No change
Q. Geologic Hazards			
1. Landslides	X		No change
2. Earthquakes	X		No change (See Landslide Hazards Map, appendix A4)
3. Floods		X	No change (See Fault Hazards Map, appendix A3)
R. Fires	X		No change (See Fire Hazards Zone Map, appendix A5)
III. GROWTH			
A. Population/General Urban Area Increase		X	No change
B. Land Use Changes		X	No change
C. Industrial Use Increase		X	No industry
IV. WATER QUALITY			
A. Changes in Raw Water Quality		X	No change
B. Difficulty meeting drinking water standards		X	All standards met

1.0 CURRENT SURVEY UPDATE SUMMARY

A watershed sanitary survey is required by the California Department of Public Health for all surface water influenced water supplies. The survey must be updated every five years, identifying existing or potential hazards to the water supply source. The original survey of the Lopez Lake and Terminal Reservoir watersheds was completed in December 1995. Updates were completed in March 2001, and January 2006. This watershed sanitary survey update includes all sampling and field observations from 2006 through 2010. A significant upgrade to the Lopez Water Treatment Plant was completed in 2007, but **no significant change to the watershed was noted since the last survey.**

The Lopez Project encompasses Lopez Lake, the raw water piping from the Lopez Lake intakes to the Terminal Reservoir, the Terminal Reservoir, the Lopez Water Treatment Plant (LWTP), and the treated water distribution system. The Lopez Project is owned by the San Luis Obispo County Flood Control and Water Conservation District – Zone 3 (District) and provides water to Arroyo Grande, Grover Beach, Oceano Community Services District, Pismo Beach, County Service Area 12, and Avila Beach Community Services District.

The Lopez Lake and Terminal Reservoir watersheds continue to be sparsely populated. There are no existing or abandoned mines, no significant concentrated animal populations, and no major transportation corridors traversing the watershed.

Full body contact recreation activities at Lopez Lake have the potential to affect water quality, but no adverse effects have been noted. Lopez Lake is well patrolled daily by County staff. The Lopez Lake Recreation Area is serviced by an extended aeration sewage treatment plant which is maintained by the County General Services Department. All sludge is transported out of the watershed for final disposal. A raw sewage force main is suspended over Wittenberg Creek and a treated wastewater force main delivers effluent to a land disposal area.

The Terminal Reservoir acts as a raw water impoundment providing 30 to 45 days detention time for Lopez Lake water prior to being treated at the LWTP. Runoff from a half mile segment of Orcutt Road drains into the Terminal Reservoir, but a diversion channel encircles the remainder of the Terminal Reservoir and prevents runoff from entering the reservoir.

In May 2007, the Lopez WTP was upgraded from a conventional coagulation, sedimentation, filtration plant to a dissolved air flotation/low pressure membrane microfiltration plant. The use of chlorine dioxide, chlorine, and chloramines for disinfection was not changed.

Security was increased at the LWTP in 2006. A "passcode" operated gate now controls access to the Terminal Reservoir and the LWTP 24 hours per day. Unrestricted public access is not allowed and all visitors are required to register at the facility office. The LWTP and Terminal Reservoir are completely enclosed with chain-linked or barbed wire fencing. No trespassing signs are posted around the Terminal Reservoir. Similarly, the Lopez Lake Recreation Area is fenced and posted. Public access to Lopez Lake is fee based and controlled by County Parks staff.

Wastewater collection and disposal, recreational activities, landslides, earthquakes, and fire continue to represent the most significant potential sources of contamination to the Lopez Lake watershed. Runoff from, or accidents on, Orcutt Road remains the most significant potential source of contamination to Lopez Terminal Reservoir.

2.0 WATERSHED AND WATER SUPPLY SYSTEM

2.1 Description of Lopez Lake and Terminal Reservoir Watershed

The "Lopez Project" is a water delivery system consisting of Lopez Lake and Lopez Terminal Reservoir, each with an outlet structure. They are interconnected by a 3 mile long gravity line. The Terminal Reservoir supplies raw water to the Lopez Treatment Plant which delivers potable water to a clearwater reservoir and 25 miles of distribution line. This sanitary survey update examines both the Lopez Lake watershed and the smaller Terminal Reservoir watershed.

The Lopez Lake watershed is comprised of 43,000 acres of land, which lies predominantly in the Los Padres National Forest. The remainder of the property which makes up the watershed is owned by the San Luis Obispo County Flood Control and Water Conservation District – Zone 3, private campgrounds, and private landowners. All property immediately adjacent to Lopez Lake is owned by the District. The soils range from a silty clay loam on alluvial plains to well-drained soils on hills and mountains. As shown in Figure 1, Vasquez Creek, Lopez Creek, Wittenberg Creek, Arroyo Grande Creek, and Clapboard Canyon Creek feed Lopez Lake. Lopez Lake has a maximum surface area of approximately 974 acres and a storage capacity of 49,200 acre-feet. No population centers are located within the watershed. Scattered residential dwellings, horse ranches, croplands, and cattle grazing areas, are located within the watershed. Wildlife in the area consists of deer, resident and migratory birds, and various small mammals. Wild animal populations are considered to be moderate to light. No mining or logging activities are known to occur within the Lopez Lake watershed.

The Terminal Reservoir watershed is comprised of 424 acres immediately adjacent to Lopez Lake Water Treatment Plant which is located approximately 12 miles northeast of the City of Arroyo Grande. The topography is similar to the Lopez Lake watershed. The property which makes up the watershed is owned by the San Luis Obispo County Flood Control and Water Conservation District and private parties. All property immediately adjacent to the Terminal Reservoir is owned by the district. There are two residences located within the Terminal Reservoir watershed, occupied by county staff and their families. There are no defined waterways within the watershed which are tributary to the Terminal Reservoir. Runoff from much of the area is diverted away from the reservoir by means of an 8 to 10 foot wide diversion channel. The only significant inflow to Terminal Reservoir is the influent line from Lopez Lake. Orcutt Road traverses the Terminal Reservoir, essentially dividing the reservoir into two sections. Surface runoff from the watershed to the Terminal Reservoir is minimal and occurs from precipitation and minor runoff from within the non-diverted portion of approximately 23.8 acres. If not captured and removed, any spills that occur along the half-mile section of Orcutt Road have the potential to drain into Terminal Reservoir. The Reservoir has a maximum capacity of 844 acre-feet of water. Aerial photos of both watersheds are attached in appendix A.

3.0 PAST SANITARY SURVEY SUMMARIES

3.1 Summary of Original Sanitary Survey

The original watershed survey was conducted by Boyle Engineering in 1995. Boyle Engineering concluded that the location of the reservoirs helped preserve watershed water quality. The Lopez Lake watershed was considered sparsely populated. There were no records of existing or abandoned mines, no concentrated animal populations, and no major transportation corridors traversing the watershed.

The heavy recreation activities at the lake, including full body contact at the reservoir, were considered unfavorable watershed activities from a water quality perspective. The main recreation area was deemed to be well patrolled and fully sewered with an extended aeration treatment plant.

The Terminal Reservoir watershed was viewed as susceptible to runoff and accident spills along the section of Orcutt Road which drains directly into the reservoir. The operation of the reservoir was viewed as favorable as it provides a buffer between Lopez Lake and the water treatment plant in the event of adverse water quality at the lake.

Boyle Engineering concluded that the Lopez Lake and Terminal Reservoir watersheds were susceptible to the following sources of contamination: wastewater, animal grazing, fuel storage, recreational activities, unauthorized activities, use of pesticides and herbicides, geologic formations, and hazardous materials spills.

Recommendations included:

1. Regarding wastewater generation, construct a properly installed emergency underground storage tank of approximately 3,000 to 5,000 gallons in capacity at Lopez Recreation Area Lift Station Nos. 1 and 4. The high level alarm in the wet well at Sewage Lift Station No. 5 should be set at a level that would inform the operations staff that the first upstream manhole is filling. The District should consider replacement of the sewer at the low spot near the Marina Store. Reconstruct the manhole and/or install a high level alarm in the manhole upstream of Lift Station No. 2 to alert operators. District staff should continue to inspect the sewer force main from the Boy Scout Camp that crosses over the Wittenberg Arm of Lopez Lake and keep records of such inspections.

Status: Implemented. Emergency underground storage tanks, each having a 5,000 gallon capacity, were installed at Lift Stations No. 1, 2, 3, and 4 in 2003. All four tanks are alarmed to alert operators in case a tank starts to fill due to an upstream pneumatic system malfunction. Lift Station No. 5 receives little use and high sewage flows are not anticipated to be an issue. The low spot in the sewer near the Marina Store was replaced in 2003. Reconstruction of the manhole at Lift Station No. 2 was completed in 2003. The sewer force main that crosses over the Wittenberg arm of Lopez Lake is inspected no less than once per week by Fluid Resource Management. Any observed unacceptable conditions are addressed in a timely manner.

2. Regarding wastewater disposal, Percolation Pond No. 4 should not be used in order to minimize the potential for treated effluent entering Wittenberg Creek upstream of the lake. The sewage effluent pond disposal area should be inspected by District staff at least once every two weeks and findings recorded by Fluid Resource Management.

Status: Implemented. The sewer treatment plant operations plan calls for use of percolation ponds in sequence, starting with Pond 1. The plan further states that use Pond 4 should be avoided. To date, only Ponds 1 and 2 have been used for effluent disposal. Based on historic flows and observed percolation rates, use of Ponds 1 and 2 should be sufficient to meet future disposal needs. The effluent pond disposal area is currently inspected no less than once a month, sometimes more by Fluid Resource Management. Inspection records are maintained.

3. Regarding hazardous materials spills, construct a piping system whereby the drainage off Orcutt Road is collected and conveyed away from the Terminal Reservoir or route to an unlined pond and then to the reservoir. Such a pond should be sized to hold a water volume of 5,000 to 10,000 gallons.

Status: Options for re-routing Orcutt Road drainage were evaluated and deemed cost prohibitive. Due to the lack of funds and an unfavorable cost versus benefit ratio, implementation of this recommendation remains a low priority. If a spill were to occur on the vulnerable section of Orcutt Road, attempts would be made to capture and reclaim the spill.

4. Continue the use of the Terminal Reservoir to buffer the water treatment plant from potentially adverse water quality impacts from Lopez Lake.

Status: Implemented. Our current operating permit from the California Department of Public Health mandates continued use of the Terminal Reservoir.

5. Adopt a policy to gain total control of the entire Terminal Reservoir watershed, or continue to provide careful maintenance of the diversion ditch system around the Terminal Reservoir.

Status: Implemented. Continued maintenance and use of the Terminal Reservoir diversion channel is specified in our operations and maintenance plan.

6. Improve access control at the Terminal Reservoir, possibly by extending the chain link fencing around more of the reservoir perimeter.

Status: Partially implemented. Access to the Terminal Reservoir and the Lopez Water Treatment Plant is now controlled 24 hours per day. Entry is limited to personnel and visitors authorized by the County of San Luis Obispo. All visitors must enter through a locked, passcode controlled, security gate and sign in at the facility. The gate includes video surveillance. Additionally, the County maintains two residences on site for operations staff who provide after hours surveillance and deter trespassing. Extension of the chain link fencing is included as a multi-year capital project in the Lopez budget.

7. Continue the level of patrolling of the Lopez Recreation Area to enforce laws and to identify unlawful actions that may threaten lake water quality.

Status: Implemented. There are no plans to change the level of patrol by Park Rangers or inspection by Public Works staff.

8. Permit cattle grazing only within the portions of the Terminal Reservoir watershed that are diverted and fenced.

Status: Significantly implemented. Cattle grazing is not permitted anywhere within the District owned property adjacent to the Terminal Reservoir. Minor cattle grazing may occur on a very small section of privately owned land within the watershed that has the potential for drainage onto Orcutt Road and into the farthest reach of the Terminal Reservoir. Coliform, Giardia, and Cryptosporidium monitoring to date has not found this to be a problem.

9. The District should make efforts to limit or exclude cattle from the area along Wittenberg Creek.

Status: Partially implemented. Cattle are not allowed in the area along Wittenberg Creek that is within the District owed property. It would be difficult to control the area further upstream that is privately held. There are no concentrated feed or dairy operations upstream and coliform levels in Wittenberg Creek have not proved problematic.

10. The District should attempt to keep animal grazing away from the lake and the major creek influent areas so that the animals do not directly use the lake or the creeks for watering.

Status: Significantly implemented. Cattle grazing is not permitted within the property owned by the District in the watersheds. This includes all property directly bordering Lopez Lake and the Terminal Reservoir. When stray cattle are observed on District property, the owner is notified and the cattle are removed. Watershed and raw water monitoring has not revealed problematic levels of coliforms, Giardia, or Cryptosporidium in the water exiting Lopez Lake.

11. An emergency communication procedure should be formulated whereby the District is immediately notified of any fuel spills or leaks into Lopez Lake.

Status: Implemented. The Lopez Lake Recreational Area emergency response plan includes notification of District staff in the event of a fuel or hazardous material spill into Lopez Lake.

12. By July 1, 1997, review the additional data generated by the recommended creek inflow sampling program and then determine if further actions need to be implemented to better control pesticide/herbicide applications to agricultural lands and whether further action is needed to keep cattle and cattle manure constituents from entering any particular creek.

Status: Implemented. The Lopez WTP raw water supply was, and continues to be tested per CDPH requirements for pesticides, herbicides, and other SOCs. To date, none have been detected. Lopez Lake and all the associated creeks were tested for pesticides, herbicides, and other SOCs in 2006. All analytes were not detected. The Lopez WTP raw water supply is tested for coliforms, Giardia, and Cryptosporidium per CDPH requirements. Results to date indicate the current treatment processes are effective and sufficient for treating the raw water supply.

13. The water quality sampling program improvements as recommended in the original Sanitary Survey should be undertaken by the District.

Status: Significantly implemented. The water quality sampling program was modified after the original watershed sanitary survey. Testing results are continuously reviewed and the monitoring program is updated as needed.

3.2 Summary of the 2001 Sanitary Survey Update

Domestic wastewater generation and recreational activities remained the most significant potential sources of contamination at Lopez Lake. The continued efficient operation of the Lopez Lake Recreation Area wastewater collection and treatment facility was noted. Also noted were the alarmed emergency underground storage tanks installed in four lift stations.

Orcutt Road drainage into the Terminal Reservoir was unresolved. The District found it cost prohibitive to address this issue based on the level of threat to the reservoir.

A summary of the water quality monitoring program was included in the update.

Recommendations in the 2001 update included:

1. Regarding wastewater generation, construct a properly installed emergency underground storage tank of approximately 3,000 to 5,000 gallons in capacity at Lopez Recreation Area Lift Station Nos. 1 and 4. Other related improvements are also being considered. (Repeat of recommendation 1 in the initial survey.)

Status: Completed.

2. Regarding hazardous materials spills, construct a piping system whereby the drainage off Orcutt Road is collected and conveyed away from the Terminal Reservoir or route to an unlined pond and then to the reservoir. Such a pond should be sized to hold a water volume of 5,000 to 10,000 gallons. (Repeat of recommendation 3 in the initial survey.)

Status: Options for re-routing Orcutt Road drainage were evaluated and deemed cost prohibitive. Due to the lack of funds and an unfavorable cost versus benefit ratio, implementation of this recommendation remains a low priority. If a spill were to occur on the vulnerable section of Orcutt Road, attempts would be made to capture and reclaim the spill.

3. Fencing of the Terminal Reservoir watershed should be completed, especially in areas not visible from the treatment plant site. (Repeat of recommendation 6 in the initial survey.)

Status: Partially implemented. Access to the Terminal Reservoir and the Lopez Lake Water Treatment Plant is now controlled 24 hours per day. Entry is limited to personnel and visitors authorized by the County of San Luis Obispo. All visitors must enter through a locked, passcode controlled, security gate and sign in at the facility. The gate includes video surveillance. Additionally, the County maintains two residences on site for operations staff who provide after hours surveillance and deter trespassing. Extension of the chain link fencing is included as a multi-year capital project in the Lopez budget.

4. An adequate level of patrolling the Lopez Lake Recreation Area should be continued to enforce the existing water quality regulations. (Repeat of recommendation 7 in the initial survey.)

Status: Implemented. There are no plans to change the level of patrol by Park Rangers or inspection by Public Works staff.

5. HPC testing of all raw water sampling activities should be discontinued as high results are expected.

Status: Implemented. HPC testing of the raw water was ceased.

6. Monthly samples should continue to be tested at all organized swimming beaches in the Lopez Lake Recreation Area.

Status: Not implemented as recommended based on water quality data review. Monthly sampling for total coliform and *E. coli* at the designated swim areas was discontinued as the analysis data indicated the swim areas were not having an adverse impact on the quality of the water exiting Lopez Lake. Weekly coliform testing is performed on the water exiting Lopez Lake and on the raw Lopez Terminal water entering the Treatment Plant.

7. Monthly samples should be collected from the Terminal Reservoir outlet towers and the plant effluent to be analyzed for phosphate.

Status: Partially implemented. The Terminal Reservoir is tested for phosphates monthly. The plant effluent is not tested as it would have minimal value.

8. The scope of the inflow creek sampling program should be maintained and/or expanded in terms of scope and frequency (as suggested in the 2001 survey update).

Status: Significantly implemented. General mineral analyses are performed quarterly, the recommended frequency. Inorganics are analyzed annually rather than quarterly. Nitrates and nitrites are analyzed monthly rather than quarterly. Pesticides and

herbicides are analyzed every nine years rather than annually. There was no recommendation for VOCs analysis but they are analyzed every three years.

9. The Lopez Lake outlet facility sampling program should be maintained and/or expanded in terms of scope and frequency (as suggested in the 2001 survey update).

Status: Implemented.

10. The Terminal Reservoir outlet tower sampling program should be maintained and or expanded in terms of scope and frequency (as suggested in the 2001 survey update).

Status: General minerals and nutrients are analyzed quarterly as recommended. Inorganics are analyzed annually rather than the recommended quarterly frequency. Bacteriological testing is performed weekly rather than recommended monthly frequency. Fecal strep analyses are not performed. SOCs are analyzed at the CDPH required frequency rather than the yearly recommended frequency.

11. The Lopez Water Treatment Plant influent/effluent sampling program should be maintained and improved as suggested.

Status: Bromide, parasitic cysts, asbestos, SOCs, MTBE, and NDMA are all analyzed at the CDPH required frequency rather than at the survey update recommended frequency.

3.3 Summary of the 2006 Sanitary Survey Update

Although there were no reports of sewage spills during this period, domestic sewage collection within the Lopez Lake Recreation Area was still considered to be the biggest threat to the Lopez Lake watershed.

A ramp crossing on Wittenberg Creek had partially collapsed and threatened to expose and damage the sewer and water laterals located beneath the ramp. Repair was recommended.

The survey reported some increase in agricultural activity in the Arroyo Grande arm of the Lopez Lake with some vineyards in this section of the reservoir. An active beaver dam was observed on Arroyo Grande Creek but was considered a low threat for Giardia contamination.

Additional growth and development next to the Terminal Reservoir raised some concern about unauthorized public access to the Terminal Reservoir and the Lopez Water Treatment Plant. Fencing was noted as being good at the most visible locations, but minimal around some less accessible sections of the reservoir. The less accessible sections had barbed-wire fencing and were signed.

Runoff from Orcutt Road was mentioned as a potential problem as was runoff from privately owned grazing land adjacent to the road.

The log boom around the Lopez Lake intake structure had been extended and improved to provide a buffer zone from recreational body contact. Although the distance separating the log

boom from the intake structure was less that the optimal 500 feet, the buffer zone was deemed sufficient, given the Terminal Reservoir provided an additional 30 to 45 day detention time of the water without body contact.

Other recommendations included:

1. District staff should continue to inspect the sewer force main that crosses over the Wittenberg Arm of Lopez Lake as seen in figure 3. District staff should continue to keep records of such inspections. (Part of recommendation 1 in the initial survey.)

Status: Implemented.

2. District staff should repair the Wittenberg Creek crossing to prevent further collapse and potentially cause a sewer line or water line spill into Wittenberg Creek.

Status: Completed.

3. District staff should continue to inspect the sewage effluent disposal area at least once per month and record their findings. Percolation Pond No. 4 should not be used in order to minimize the risk of treated effluent entering Wittenberg Creek upstream of the lake. (Repeat of recommendation 2 in the initial survey.)

Status: Implemented.

4. The District should continue to ship sludge offsite for disposal.

Status: Implemented.

5. District staff should continue to pursue installing a piping system whereby the drainage off Orcutt Road is collected and conveyed away from the Terminal Reservoir or route to an unlined pond. (Repeat of recommendation 3 in the initial survey.)

Status: Options for re-routing Orcutt Road drainage were evaluated and deemed cost prohibitive. Due to the lack of funds and an unfavorable cost versus benefit ratio, implementation of this recommendation remains a low priority. If a spill were to occur on the vulnerable section of Orcutt Road, attempts would be made to capture and reclaim the spill.

6. Continue the use of the Terminal Reservoir to buffer the water treatment plant from potentially adverse water quality impacts from Lopez Lake. (Repeat of recommendation 4 in the initial survey.)

Status: Implemented.

7. Continue to provide careful maintenance of the diversion ditch system around the Terminal Reservoir. (Repeat of recommendation 5 in the initial survey.)

Status: Implemented.

8. Extend the chain link fencing around the reservoir perimeter. (Repeat of recommendation 6 in the initial survey.)

Status: Partially implemented. Access to the Terminal Reservoir and the Lopez Lake Water Treatment Plant is now controlled 24 hours per day. Entry is limited to personnel and visitors authorized by the County of San Luis Obispo. All visitors must enter through a locked, passcode controlled, security gate and sign in at the facility. The gate includes video surveillance. Additionally, the County maintains two residences on site for operations staff to provide after hours surveillance and deter trespassing. Extension of the chain link fencing is included as a multi-year capital project in the Lopez budget.

9. The diversion channel should be extended along Orcutt Road to encompass privately held grazing land that drains onto the road and into the reservoir.

Status: Not implemented. Options for re-routing Orcutt Road drainage were evaluated and deemed cost prohibitive. Due to the lack of funds and an unfavorable cost versus benefit ratio, implementation of this recommendation remains a low priority. If a spill were to occur on the vulnerable section of Orcutt Road, attempts would be made to capture and reclaim the spill.

10. Continue the level of patrolling of the Lopez Recreation Area to enforce laws and to identify unlawful actions that may threaten lake water quality.

Status: Implemented.

11. Continue to maintain the log boom at Lopez Lake to protect the intake structure from public access.

Status: Implemented.

12. The scope of the inflow creek sampling, Lopez Reservoir outlet facility, Terminal Reservoir outlet tower, and Lopez Water Treatment Plant influent/effluent sampling programs should be modified as suggested (in the 2006 survey update).

Status: Essentially implemented. The water quality sampling program continues to be modified based on regulatory requirements and testing results. Algal toxins are only analyzed during significant cyanobacteria blooms. Some nutrients (total nitrogen, phosphates) are not analyzed in the water treatment plant effluent as the results have limited value.

13. The County Planning Department should notify the Public Works Department – Utilities Division whenever there is some type of development or commercial facility planned within the watersheds. The Public Works Department should comment on each planned activity within the watershed as to how it will affect the overall health and security of the watershed.

Status: Implemented.

4.0 WATERSHED DATA EVALUATION

This section will summarize water quality issues in the watershed based on data collected from sampling and field inspections over the past five years. All data is available for review in appendix B. Historical precipitation levels are attached in appendix C.

4.1 Microbiological Summary

Total coliform and *E. coli* levels in the watershed creeks are monitored routinely as a potential indicator of pathogens in the watershed. Less data is available from Wittenberg and Vasquez Creeks, as these are the first to stop flowing during the dry season. As shown in Table 1, Lopez and Arroyo Grande Creeks had the highest total coliform levels while Clapboard Canyon and Arroyo Grande Creeks had the highest *E. coli* levels. Cryptosporidium oocysts were found in Arroyo Grande and Vasquez Creeks. Giardia cysts were found in Clapboard and Wittenberg Creeks. An active beaver dam was observed in Arroyo Grande Creek. Wading birds and other waterfowl were often seen in Section A (Arroyo Grande Creek) and Section K (Clapboard Canyon Creek) of the lake. While wildlife, grazing animals, and agricultural activity have been observed upstream of the sampling locations in all the monitored creeks, Arroyo Grande Creek is believed to have the greatest number of grazing animals and the most agricultural activity.

Table 1: Creek and Terminal Microbiological Data Summary, 2006 through 2010

Site		Total Coliform (MPN/100 mL)	*E. Coli* (MPN/100 mL)	Cryptosporidium (Oocysts/L)	*Giardia* (Cysts/L)
Arroyo Grande	Minimum	36	2	ND	ND
	Maximum	24000	8200	2	ND
	Average	5119	416	1	ND
	Median	3800	200	ND	ND
	Number of Samples	58	58	4	4
Lopez Creek	Minimum	22	ND	ND	ND
	Maximum	110000	650	ND	ND
	Average	6329	65	ND	ND
	Median	2100	27	ND	ND
	Number of Samples	72	72	4	4
Vasquez Creek	Minimum	2	ND	ND	ND
	Maximum	24000	130	1	ND
	Average	3017	13	0.25	ND
	Median	1700	2	ND	ND
	Number of Samples	35	35	4	4
Wittenberg Creek	Minimum	310	25	ND	7
	Maximum	3400	690	ND	7
	Average	1561	148	ND	7
	Median	1300	47	ND	7
	Number of Samples	8	8	1	1

Site		Total Coliform (MPN/100 mL)	*E. Coli* (MPN/100 mL)	Cryptosporidium (Oocysts/L)	*Giardia* (Cysts/L)
Clapboard Canyon Creek	Minimum	81	ND	ND	ND
	Maximum	≥24000	2200	ND	1
	Average	5800	77	ND	0.25
	Median	4100	5	ND	ND
	Number of Samples	54	54	4	4
Influent to Terminal	Minimum	1	ND	ND	ND
	Maximum	24000	2400	ND	ND
	Average	1909	16	ND	ND
	Median	690	ND	ND	ND
	Number of Samples	252	252	23	23
Plant Influent	Minimum	10	ND	ND	ND
	Maximum	≥24000	3700	ND	1
	Average	2455	43	ND	0.04
	Median	520	8	ND	ND
	Number of Samples	278	278	23	23

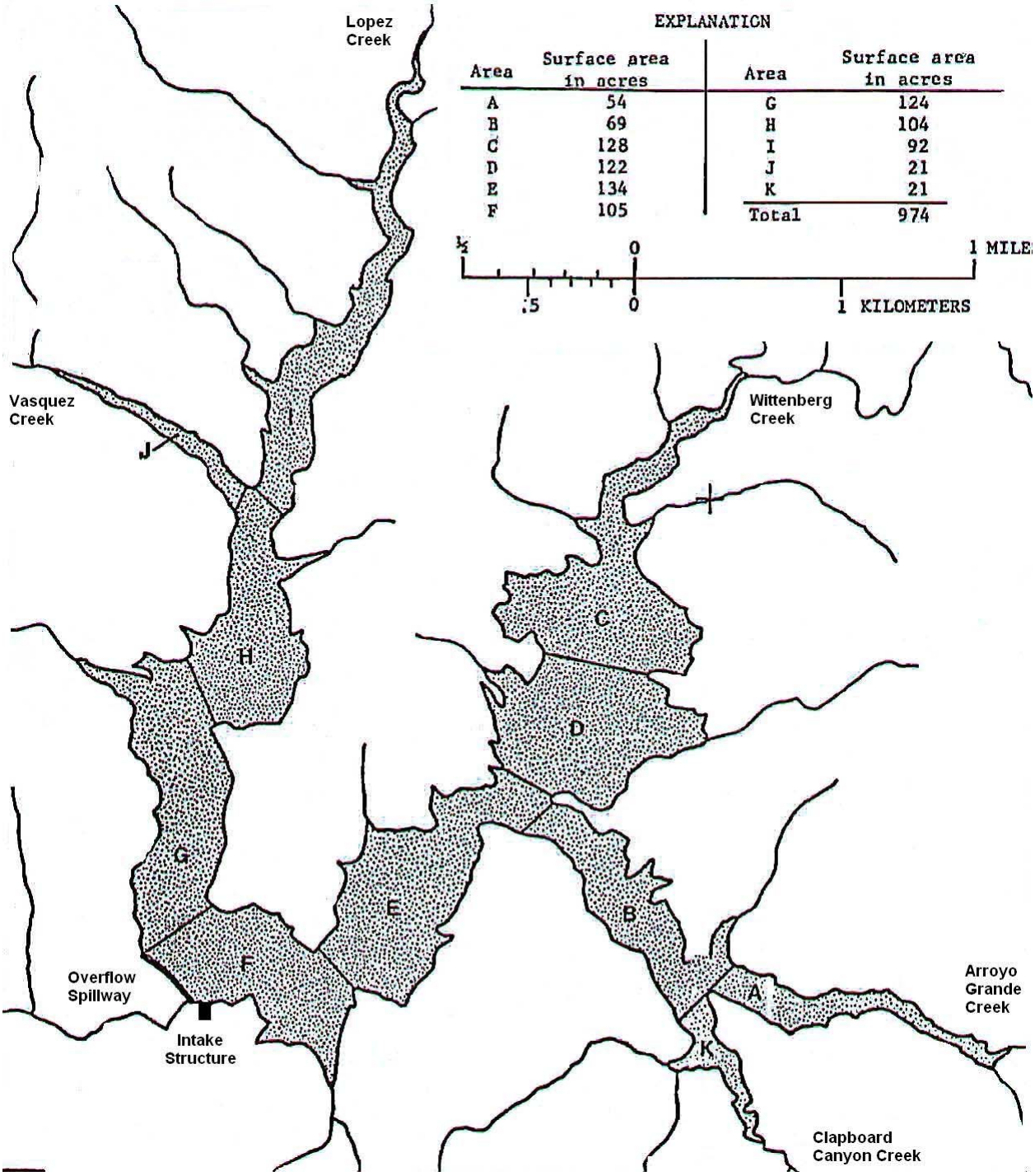


Figure 1: Lopez Reservoir and Creeks at Lopez Lake. The lake has been divided into sections A through K to better identify areas for sampling and monitoring within the reservoir. (Map scale is approximate.)

Lake Section C is fed by Wittenberg Creek. Vista Lago, a designated swim area, is located along the shore of Section C. The wastewater treatment plant for the Lopez Recreation Area is also located adjacent to Section C. As it is shallow and Wittenberg Creek does not flow year round, Section C water can stagnate. The increased water temperature, low circulation, and prevailing wind patterns can promote algae and weed growth in Section C. Wittenberg Creek is routinely

tested for coliform bacteria, but the swim area and Section C has not been tested since 2002. Bacteriological monitoring of lake Section C has been resumed and results will be included in the next watershed survey update.

During the period covered by this survey update, creek coliform and *E. coli* levels have shown little change (See Figures 2, 3, and 4). Never the less, monitoring of the creeks for pathogens or pathogen indicator species should continue as wild and domestic animals can be significant sources of microbial pathogens like *Giardia* and *Cryptosporidium*.

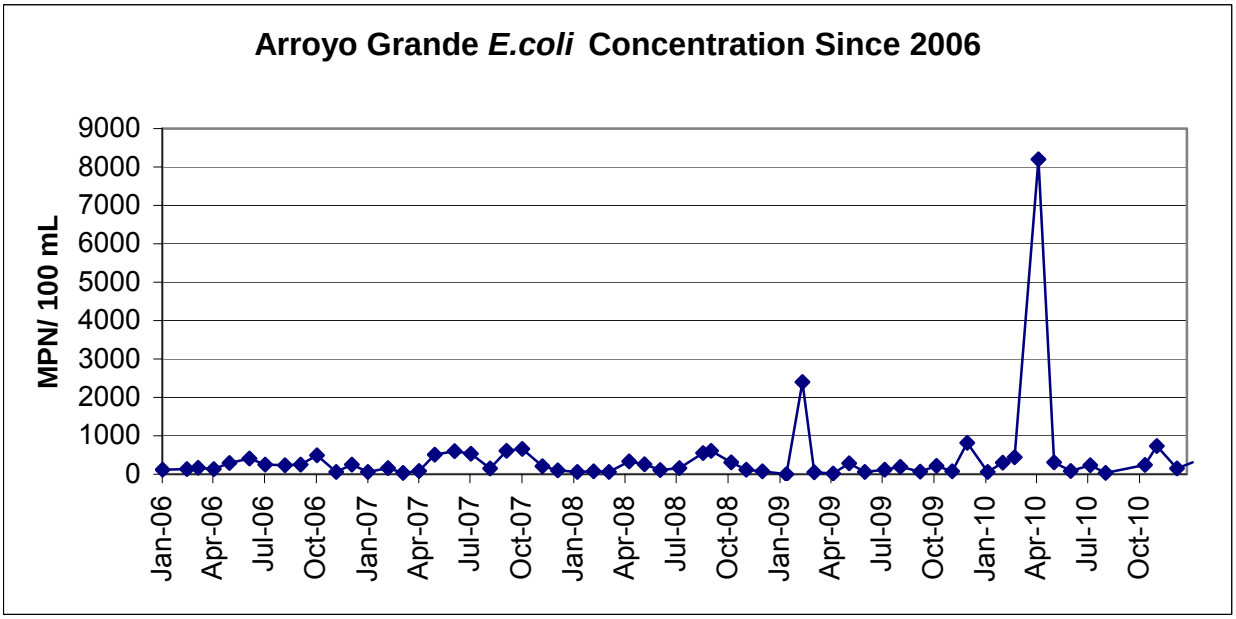


Figure 2: Arroyo Grande Creek E. coli concentration last 5 years

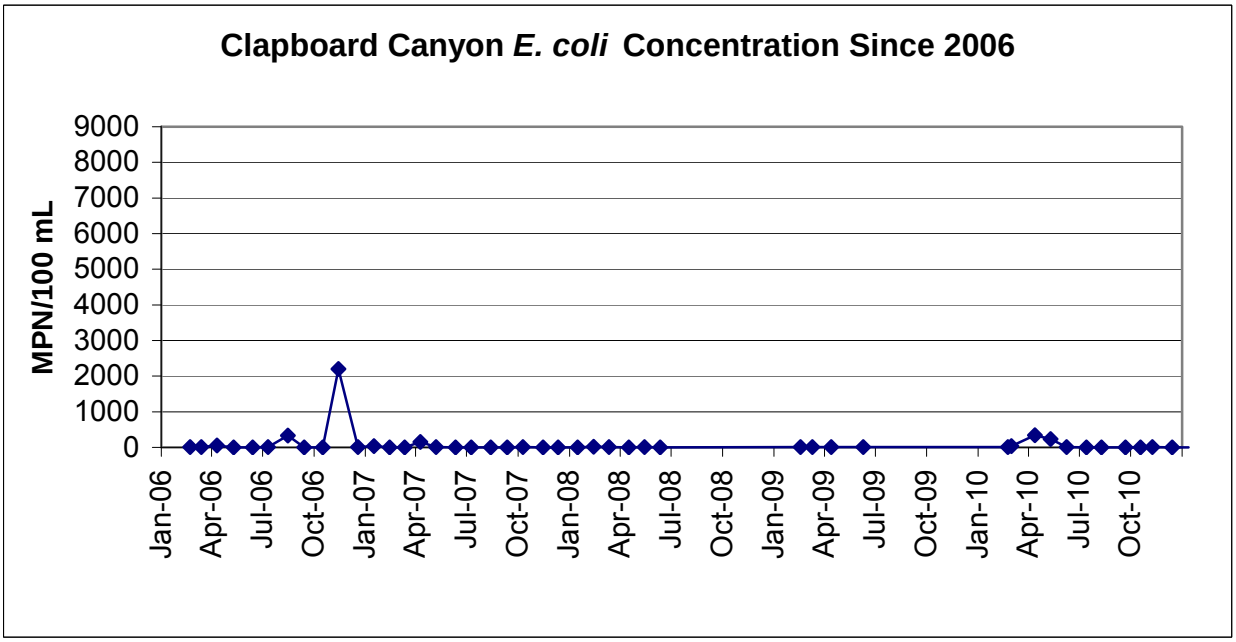


Figure 3: Clapboard Canyon Creek E. coli concentration last 5 years

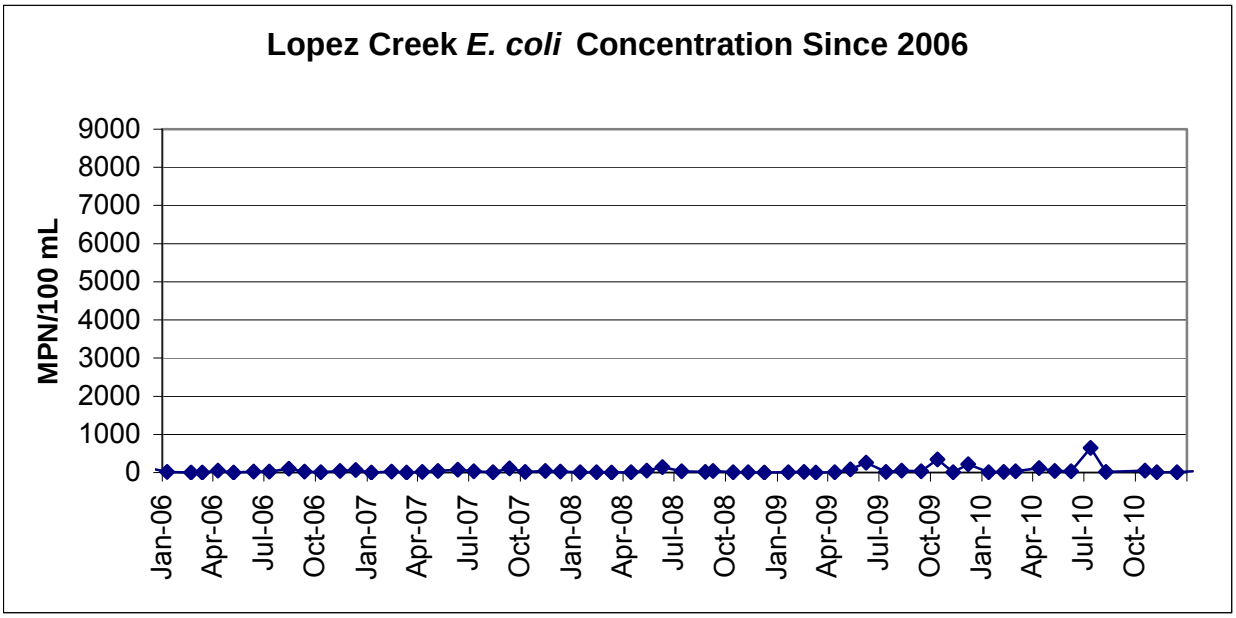


Figure 4: Lopez Creek E. coli concentration last 5 years

The "Influent to Terminal" sample location is used to determine the water quality entering the Terminal Reservoir from Lopez Lake. The "Plant Influent" sample is used to determine the water quality after the 30 to 45 day detention time in the Terminal Reservoir and prior to treatment at the Lopez Water Treatment Plant. Bacteriological quality is similar at these two locations except the Plant Influent does have higher *E. coli* levels. This has always been attributed to water fowl activity and the nesting swallow population. Plotting the treatment plant raw water *E. coli* concentration versus time shows no appreciable trend or change since 2006 (See Figure 5).

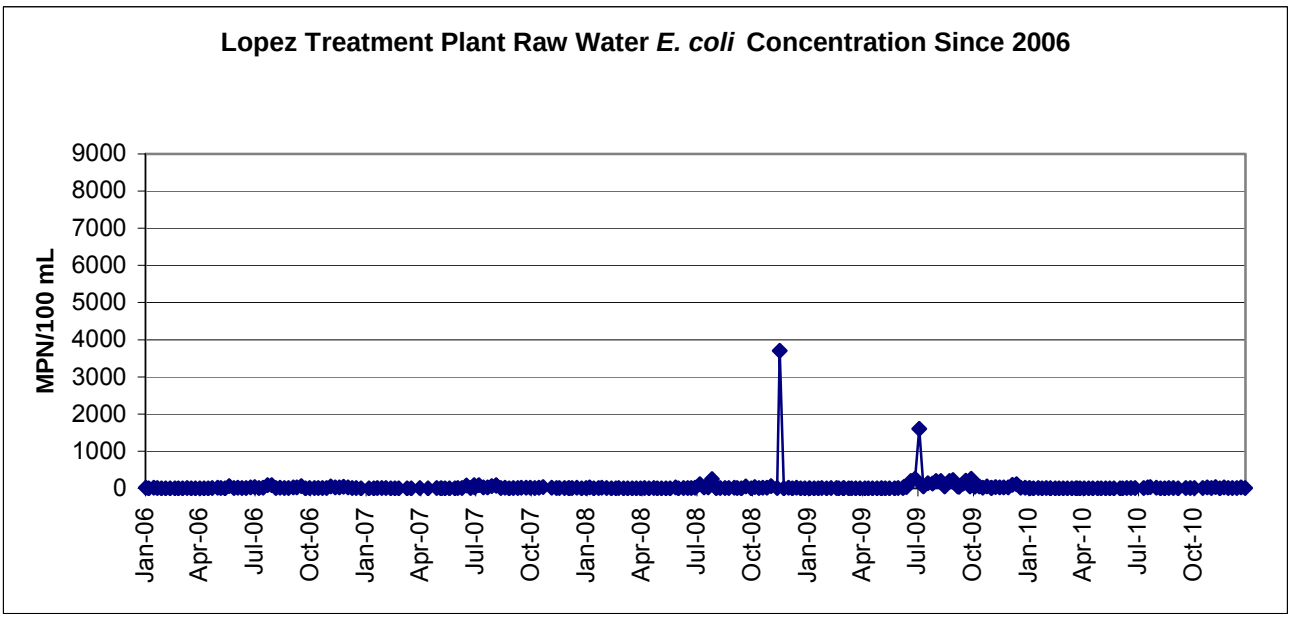


Figure 5: Raw water E. coli concentration last 5 years

4.2 General Mineral and Inorganic Chemical Summary

General mineral and inorganic chemicals are common water quality indicators. Although these chemicals occur naturally in the environment, an increase in concentration may be an indicator of industrial or agricultural contamination in the watershed. Creek and Terminal Reservoir aluminum, arsenic, iron, and manganese levels are summarized in Table 2.

Table 2: General Mineral and Inorganic Chemicals Summary, Creek and Terminal Sites, 2006 through 2010

Sample Site		Aluminum µg/L	Arsenic µg/L	Iron ug/L	Manganese ug/L
Arroyo Grande Creek	Minimum	ND	2.9	140	94
	Maximum	860	22	1900	480
	Average	221	5.7	397	213
	Median	115	5.0	270	200
	Number of Samples	20	20	21	21
Lopez Creek	Minimum	ND	ND	24	ND
	Maximum	110	2.2	200	11
	Average	18	0.66	74	2.3
	Median	ND	ND	53	ND
	Number of Samples	20	20	21	21
Vasquez Creek	Minimum	ND	ND	19	ND
	Maximum	210	5.0	2100	42
	Average	44	2.8	301	18
	Median	26	2.6	87	17
	Number of Samples	11	11	11	11
Wittenberg Creek	Minimum	ND	ND	75	ND
	Maximum	ND	2.3	180	35
	Average	ND	1.2	121	17
	Median	ND	1.2	130	13
	Number of Samples	3	3	5	5
Clapboard Canyon Creek	Minimum	ND	2.0	41	16
	Maximum	1200	8.3	1900	1000
	Average	149	4.3	430	206
	Median	54	4.4	250	130
	Number of Samples	17	16	17	17
Influent to Terminal	Minimum	ND	3.2	23	11
	Maximum	65	5.0	140	300
	Average	17	4.2	48	48.2
	Median	ND	3.9	34	35
	Number of Samples	5	5	20	20
Lopez Raw	Minimum	ND	3.9	7.0	8.0
	Maximum	63	5.0	29	28
	Average	3.71	4.2	14	18
	Median	ND	4.0	12.5	17.5
	Number of Samples	17	4	6	6

The primary MCL for aluminum in drinking water is 1000 ug/L and the secondary MCL is 200 ug/L. As shown in Figures 6, 7, and 8, aluminum levels in the creeks are typically below the secondary MCL. A single sample from Clapboard Canyon exceeded the drinking water primary MCL and was likely due to soil erosion. As shown in Figure 9, the Lopez Water Treatment Plant delivered water aluminum concentration has consistently met all MCL requirements and remained relatively constant. Aluminum concentration does not appear to be a problem in this watershed at this time, but monitoring of aluminum will continue.

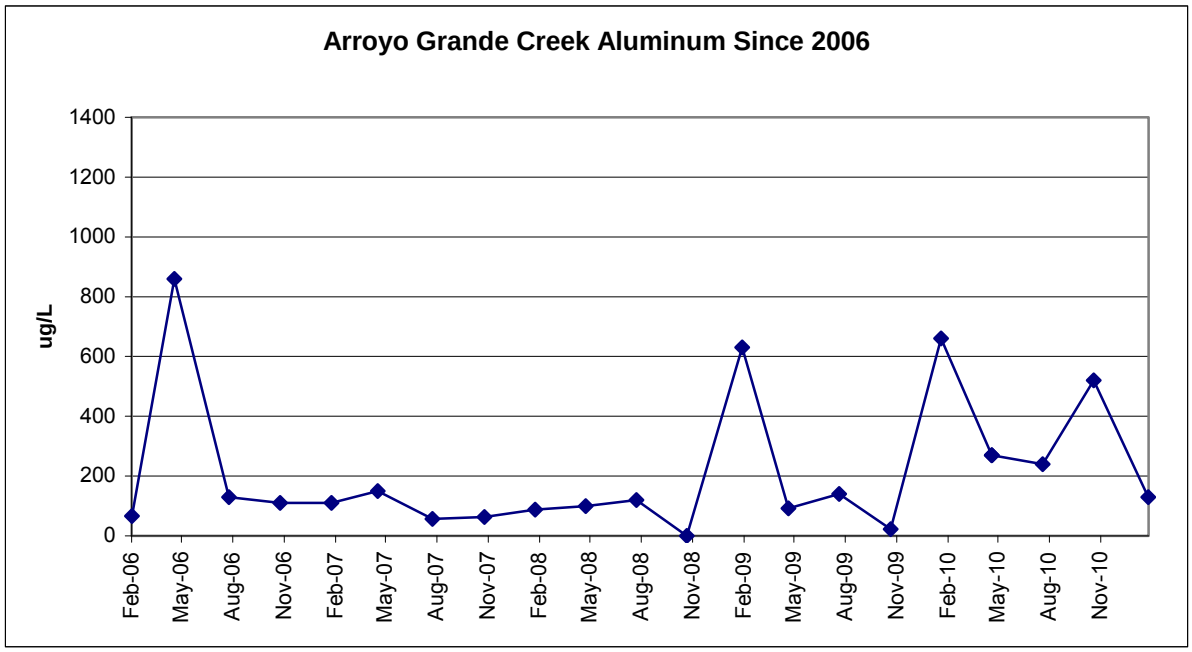


Figure 6: Arroyo Grande Creek aluminum last 5 Years

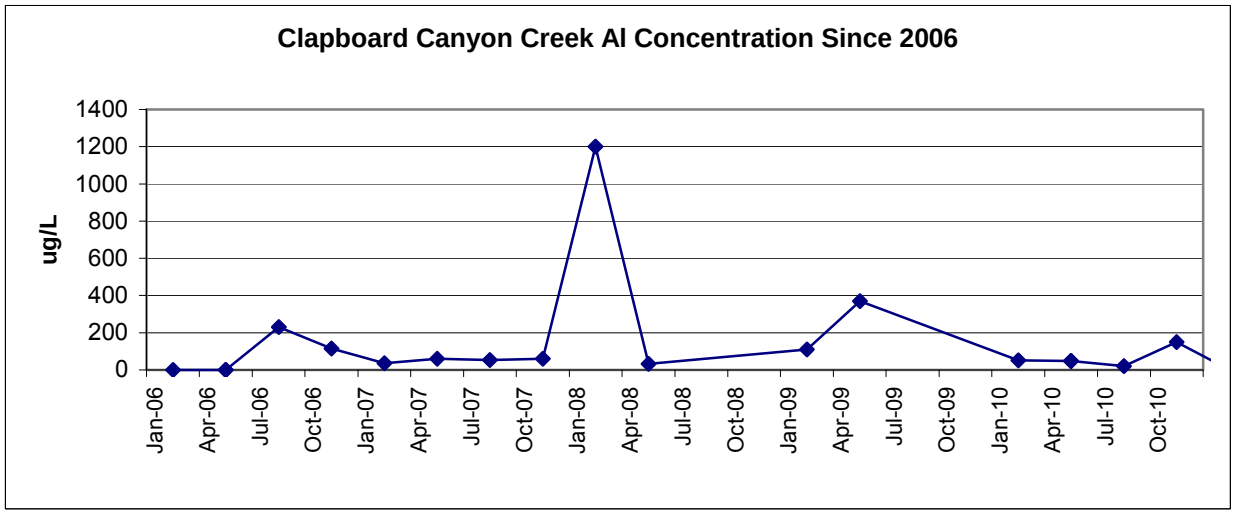


Figure 7: Clapboard Canyon Creek aluminum last 5 Years

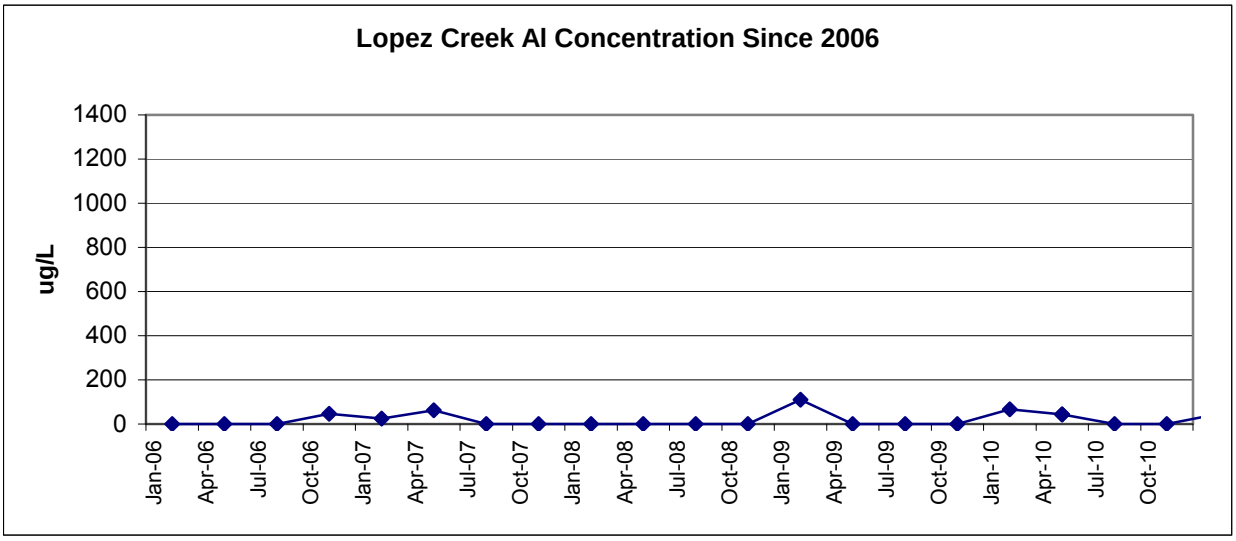


Figure 8: Lopez Creek aluminum last 5 years

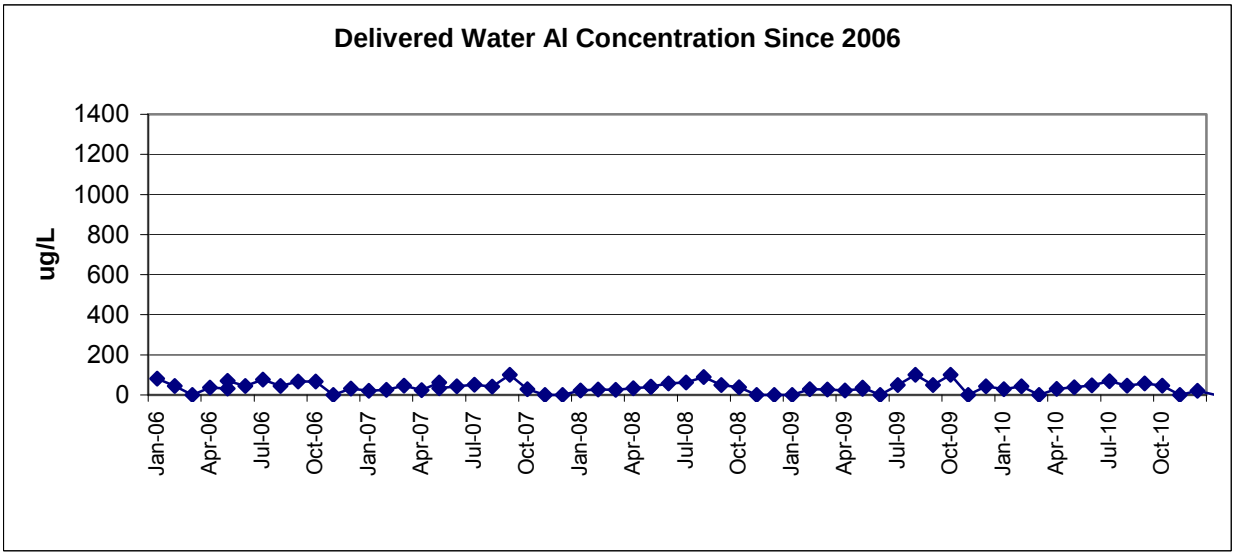


Figure 9: Delivered Water aluminum last 5 years

Arsenic was detected at 22 ug/L in a November 2007 sample taken from Arroyo Grande Creek. A subsequent measurement taken in February 2008 found the level to be 7 ug/L. Arsenic has a primary MCL of 10 ug/L in drinking water and can come from natural or man made sources. The 22 ug/L spike appears to be inconsistent with the Arroyo Grande Creek historical data. Arsenic levels appear to be stable in the creek with no significant trend noted. The 10 ug/L arsenic MCL was not exceeded in any other sample in the watershed, the treatment plant raw water, or the treatment plant treated water during the five year period covered by this update. We plan to continue to the quarterly monitoring for arsenic in the watershed creeks.

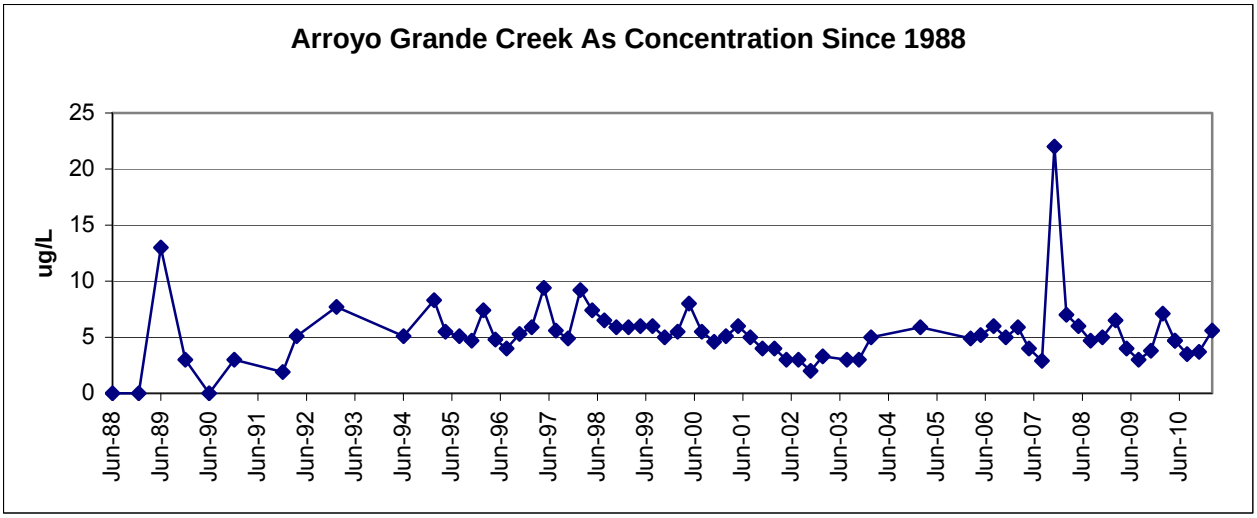


Figure 10: Arroyo Grande Creek arsenic concentration since 1998

Average iron concentrations in the watershed range from 74 ug/L in Lopez Creek to 449 ug/L in Clapboard Canyon Creek. The drinking water secondary MCL for iron is 300 ug/L. Levels above the MCL can cause staining of fixtures and clothing and are aesthetically unacceptable to consumers. Iron in the watershed likely comes from geologic sources rather than anthropogenic sources like agriculture. The Lopez Water Treatment Plant effectively decreases iron in the treated water to levels well below the secondary MCL.

4.3 Nutrient Summary

The growth of macrophytes (aquatic plants) and phytoplankton (algae) can be stimulated by nutrients like phosphorus and nitrogen. Nutrient-stimulated primary production is more often seen in lakes and estuaries as primary production in flowing water is thought to be controlled by physical factors, such as light penetration, timing of flow, and the type of substrate available, rather than by nutrients. (See www.water.ncsu.edu/watershedss/info/no3.html, McCabe et al., 1985)

Nitrogen and phosphate levels are monitored in the watershed creeks to determine nutrient loading on Lopez Lake, and subsequently, on the Terminal Reservoir. When total phosphorus levels exceed 0.025 mg/L in lakes and reservoirs, excessive or nuisance growths of algae and other aquatic plants may be stimulated (EPA Quality Criteria for Water 1986). According to North Carolina State's "WATERSHEDSS" program, "the increasing concentration of available phosphorus allows plants to assimilate more nitrogen before the phosphorus is depleted. Thus, if sufficient phosphorus is available, high concentrations of nitrates will lead to phytoplankton and macrophyte production." (See www.water.ncsu.edu/watershedss/info/no3.html)

Man made nutrient sources of nitrates and phosphorus (generally in the form of orthophosphate) are typically chemical fertilizers. Another potential source is domesticated animals kept in close proximity to creeks. These nutrients are soluble. Whatever amount is not taken up by plants in a field, garden, or lawn, is washed away into groundwater, streams, ponds, and lakes or reservoirs. A rise in nutrients could lead to algal blooms in Lopez Lake or the Terminal Reservoir. Such blooms are usually the first step in the eutrophication of a pond or lake. Clapboard Canyon Creek

(0.9 mg/L) and Arroyo Grande Creek (0.66 mg/L) had the highest average concentrations of total nitrogen. Upstream grazing and agricultural activities may have contributed to Arroyo Grande Creek's elevated levels. The maximum concentration of nitrate as nitrogen was 507 ug/L at the Influent to Terminal site and 384 µg/L at the Lopez Raw site. While 507 and 384 µg/L are far below human health concerns, they may indicate a greater potential for algae blooms in the Terminal Reservoir.

Table 3: Creek and Terminal Nutrient Data Summary, 2006 through 2010

Sample Site		Nitrite as N, µg/L	Nitrate as N, µg/L	Total Kjeldahl Nitrogen, mg/L	Total Nitrogen, mg/L	Total Organic Carbon, mg/L	Total Phosphate as P, mg/L
Arroyo Grande Creek	Minimum	ND	ND	ND	0.21	3.8	0.17
	Maximum	ND	1300	1.00	2.10	8.3	1.50
	Average	ND	142	0.51	0.66	5.3	0.89
	Median	ND	101	0.47	0.59	5.0	0.86
	Number of Samples	58	58	58	58	47	58
Lopez Creek	Minimum	ND	ND	ND	ND	1.1	0.10
	Maximum	ND	140	0.47	0.47	3.4	0.80
	Average	ND	12	0.05	0.06	1.5	0.20
	Median	ND	ND	ND	ND	1.4	0.19
	Number of Samples	60	60	60	59	48	60
Vasquez Creek	Minimum	ND	ND	ND	ND	1.1	ND
	Maximum	ND	320	2.00	1.7	6.8	0.53
	Average	ND	43	0.42	0.4	3.5	0.26
	Median	ND	ND	0.24	ND	2.0	0.29
	Number of Samples	35	35	35	34	31	35
Wittenberg Creek	Minimum	ND	ND	ND	ND	2.6	0.10
	Maximum	ND	450	0.38	0.8	6.5	0.56
	Average	ND	130	0.21	0.4	4.6	0.29
	Median	ND	104	0.27	0.4	4.6	0.32
	Number of Samples	7	7	8	7	5	8
Clapboard Canyon Creek	Minimum	ND	ND	ND	0.2	4.9	0.08
	Maximum	ND	373	2.80	3.1	12.0	1.10
	Average	ND	37	0.84	0.9	7.1	0.39
	Median	ND	ND	0.76	0.8	7.0	0.35
	Number of Samples	45	45	46	45	39	46
Influent to Terminal	Minimum	ND	ND	ND	0.4	4.9	0.21
	Maximum	100	507	0.99	1.1	6.5	0.56
	Average	1.7	135	0.59	0.7	5.6	0.40
	Median	ND	122	0.57	0.7	5.6	0.40
	Number of Samples	58	58	59	57	50	59
Lopez Raw	Minimum	ND	ND	ND	ND	5.3	0.23
	Maximum	101	384	0.96	1.2	6.7	0.54
	Average	1.7	99	0.62	0.7	5.8	0.39
	Median	ND	107	0.63	0.7	5.8	0.40
	Number of Samples	60	60	60	60	71	60

4.4 Limnology and Physical Summary

High concentrations of certain algae can impart taste and odor, clog filters, and cause an increased chlorine demand in the water. During the warm summer months, the staff monitors algae levels in the reservoirs weekly. The District tries to treat the Terminal Reservoir before an algae bloom becomes a significant problem.

Odor levels of the Terminal Reservoir raw water have exceed the secondary MCL of 3 TON as shown in Table 4, but the treatment process is able to remove most objectionable odors prior to delivery to the consumer.

Lopez Lake normally develops a thermocline at a depth of 20 to 40 feet during the summer months. Water from the epilimnion (above the thermocline) typically contains dissolved oxygen in excess of 5 mg/L. This is sufficient for aerobic life forms and will minimize dissolved manganese. Algal concentrations are typically greatest near the water surface and can contribute to unacceptable odors. Epilimnion water below the surface algae and above the thermocline is preferred for delivery to the Terminal Reservoir. In the winter, the surface water temperature drops and the reservoir "turns." The colder and denser surface water sinks and blends with the bottom water which contains less dissolved oxygen and more dissolved manganese. This results in increased dissolved manganese throughout the water column. Hydrogen sulfide may also be present. Dissolved manganese and hydrogen sulfide will exert an oxidant demand at the water treatment plant. The District uses a combination of chlorine dioxide and potassium permanganate to oxidize manganese and hydrogen sulfide. Powdered activated carbon is used to treat odor problems.

Table 4: Lake Limnology and Physical Data Summary, 2006 through 2010

Site		Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH	Temperature	Turbidity	Visibility
Lake Intake 1	Minimum	0	0	0	36	54	6.3	2.0	7.84	10.0	1.5	-----
	Maximum	1600	4400	3800	1400	5800	14.4	20	9.00	24.0	8.5	-----
	Average	306	269	375	285	1233	9.4	6.2	8.48	19.2	3.0	-----
	Median	86	140	68	210	970	8.9	6.0	8.43	20.4	2.6	-----
	Number of Samples	53	53	53	53	53	52	53	53	53	26	-----
Lake Intake 2	Minimum	0	0	0	7	36	2.3	3.0	7.8	9.7	1.2	-----
	Maximum	3600	3800	4000	1700	7500	13.5	49	9.1	23.2	13	-----
	Average	281	138	349	299	1077	8.5	8.0	8.6	18.8	3.8	-----
	Median	39	64	55	230	800	8.5	6.0	8.6	20.0	2.7	-----
	Number of Samples	129	129	129	129	129	125	126	126	125	73	-----
Lake Intake 3	Minimum	0	0	0	0	18	0.10	2.0	7.0	9.7	1.0	-----
	Maximum	2300	3300	1800	1200	5600	12.3	40	9.1	22.8	8.8	-----
	Average	105	88	232	208	632	6.7	7.6	8.5	18.1	2.9	-----
	Median	8	40	33	155	445	6.8	5.8	8.6	19.2	2.5	-----
	Number of Samples	140	140	140	140	140	137	137	139	140	83	-----

Site		Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH	Temperature	Turbidity	Visibility
Lake Intake 4	Minimum	0	0	0	0	0	0.04	2.0	6.83	9.5	0.7	-----
	Maximum	2000	3600	1200	7700	5600	12.0	50	9.60	22.2	7.4	-----
	Average	68	75	126	217	407	4.4	8.0	8.32	16.9	2.5	-----
	Median	3	18	11	80	190	4.8	5.9	8.43	16.9	2.4	-----
	Number of Samples	142	142	142	142	142	135	140	141	137	85	-----
Lake Intake 5	Minimum	0	0	0	0	6	0.02	2.0	4.4	9.4	0.5	-----
	Maximum	1200	570	2100	460	2600	10.9	>100	8.9	21.6	4.6	-----
	Average	22	32	69	76	199	2.8	12.4	8.1	15.0	2.0	-----
	Median	0	11	5	39	96	1.9	6.0	8.1	14.7	2.0	-----
	Number of Samples	139	139	139	139	139	137	137	138	138	84	-----
Lake Intake 6	Minimum	0	0	0	0	0	0.02	2.0	2.7	0.5	0.8	-----
	Maximum	910	710	860	400	780	9.1	>100	8.6	20.0	10.0	-----
	Average	22	23	28	42	100	1.9	16.3	7.9	13.5	2.2	-----
	Median	0	7	0	20	47	0.5	6.0	8.0	13.2	2.0	-----
	Number of Samples	138	137	138	138	138	132	137	137	138	84	-----
Lake Section E	Minimum	0	0	0	3	15	-----	-----	7.6	-----	1.4	2
	Maximum	8700	2200	1700	1400	9700	-----	-----	9.1	-----	35.3	10
	Average	289	139	250	260	933	-----	-----	8.5	-----	4.1	5
	Median	21	55	57	220	650	-----	-----	8.6	-----	3.0	5
	Number of Samples	137	137	137	137	137	-----	-----	137	-----	84	136
Lake Section F	Minimum	0	0	0	13	18	-----	-----	7.7	-----	1.3	3
	Maximum	5900	2800	2400	2000	7300	-----	-----	9.8	-----	14.0	9
	Average	350	128	288	282	1054	-----	-----	8.6	-----	3.6	5
	Median	24	68	56	230	705	-----	-----	8.6	-----	2.8	5
	Number of Samples	128	128	128	128	128	-----	-----	130	-----	83	128
Lake Section G	Minimum	0	0	0	5	20	-----	-----	7.6	-----	1.6	2
	Maximum	7400	1900	1900	2200	8900	-----	-----	9.1	-----	24	9
	Average	331	138	247	289	995	-----	-----	8.6	-----	4.3	5
	Median	33	66	64	210	770	-----	-----	8.6	-----	3.4	5
	Number of Samples	136	136	136	136	136	-----	-----	137	-----	84	136
Influent to Terminal	Minimum	0	0	0	0	8	-----	2	6.96	10.1	0.5	-----
	Maximum	3200	1500	2200	1600	4200	-----	20	8.96	23.7	8.3	-----
	Average	110	122	114	224	577	-----	6	8.19	17.3	2.2	-----
	Median	0	40	21	150	395	-----	5	8.23	17.9	1.8	-----
	Number of Samples	150	150	150	150	150	-----	144	145	143	144	-----

Table 5: Terminal Reservoir Physical and Limnology Data Summary, 2006 through 2010

Site		Temp ºC	Odor TON	True Color CU	Turbidity NTU	Dissolved Oxygen mg/L	Total Nitrogen, mg/L	pH	Total Algae Count Counts /mL
Terminal B 6'	Minimum	9.2	5.0	-----	0.7	3.47	-----	7.62	110
	Maximum	24.6	13	-----	1.1	12.0	-----	8.87	10000
	Average	18.2	7.8	-----	0.9	7.93	-----	8.25	1569
	Median	18.5	6.5	-----	0.9	8.05	-----	8.27	500
	Number of Samples	244	4	-----	4	228	-----	241	10
Terminal B 12'	Minimum	9.2	6.0	-----	0.8	3.3	-----	6.80	200
	Maximum	24.3	30	-----	1.1	15.1	-----	8.78	37000
	Average	17.9	13	-----	0.9	7.75	-----	8.25	5571
	Median	18.2	10	-----	0.9	7.70	-----	8.29	975
	Number of Samples	241	5	-----	4	237	-----	237	10
Terminal B 18'	Minimum	9.2	7.0	-----	0.84	0.40	-----	4.70	82
	Maximum	23.6	15	-----	1.2	12.8	-----	8.61	10000
	Average	17.5	11.0	-----	1.0	6.61	-----	8.18	2352
	Median	18.1	11.0	-----	1.0	6.80	-----	8.22	710
	Number of Samples	241	4	-----	4	237	-----	239	9
Influent to Terminal (from Lopez Lake Intake in Use)	Minimum	8.48	2.0	-----	0.48	-----	ND	6.96	3
	Maximum	23.7	46	-----	24	-----	1.10	8.96	4200
	Average	17.3	6.2	-----	2.1	-----	0.72	8.23	507
	Median	17.4	5.0	-----	1.8	-----	0.72	8.25	290
	Number of Samples	250	251	-----	254	-----	58	248	249
Lopez Raw	Minimum	7.2	1.0	6	0.36	2.30	ND	7.00	0
	Maximum	24.6	100	10	5.7	15.1	1.2	8.78	25000
	Average	18.9	11.4	9	1.3	7.71	0.72	8.21	1144
	Median	19.5	9.0	9	1.1	7.80	0.72	8.22	640
	Number of Samples	338	503	52	274	231	60	268	300

Table 6: Creek Physical, Nitrogen, and pH Data Summary, 2006 through 2010

Site		Temp °C	Odor TON	Turbidity NTU	Total Nitrogen, mg/L	pH
Arroyo Grande Creek	Minimum	8.3	2.5	1.8	ND	7.05
	Maximum	27.0	16	23	2.1	8.30
	Average	16.2	7.2	5.5	0.65	7.87
	Median	15.4	6.0	4.2	0.59	7.95
	Number of Samples	57	21	21	60	21
Lopez Creek	Minimum	11.1	1.9	0.24	ND	7.78
	Maximum	22.4	10	4.9	0.47	8.43
	Average	15.8	3.2	1.1	0.05	8.18
	Median	15.5	2.5	0.69	ND	8.24
	Number of Samples	60	20	20	60	20
Vasquez Creek	Minimum	10.8	2.0	0.22	ND	6.92
	Maximum	22.8	10	6.1	0.98	8.77
	Average	16.1	4.1	2.2	0.18	7.91
	Median	15.4	2.0	1.6	ND	8.31
	Number of Samples	28	7	8	23	11
Wittenberg Creek	Minimum	12.7	2.0	0.26	ND	8.40
	Maximum	22.8	5	0.61	0.82	8.47
	Average	14.9	3.3	0.41	0.34	8.44
	Median	13.5	3.0	0.35	0.35	8.44
	Number of Samples	7	3	3	8	2
Clapboard Canyon Creek	Minimum	9.7	2.0	0.57	ND	6.87
	Maximum	28.3	35	18	3.1	8.86
	Average	19.3	10	5.2	0.88	7.85
	Median	19.8	15	3.9	0.77	7.72
	Number of Samples	46	7	16	47	37

4.5 Radiological Summary

Testing for gross alpha emitting elements (which include the alpha emitting radioactive elements Radium-226 and Uranium-238) is conducted every nine years on the plant effluent water. The next radiological monitoring is scheduled for 2013. The last monitoring occurred in 2004. The highest level of gross alpha particle activity detected was 1.93 pCi/L, well below the 15 pCi/L MCL. No change is expected in gross alpha concentrations in the foreseeable future.

4.6 Volatile and Synthetic Organic Chemicals Summary

Arroyo Grande Creek, Lopez Creek, Wittenberg Creek, Vasquez Creek, Lopez Lake, the Influent to Terminal, Lopez Treatment Plant Raw, Lopez Treatment Plant Treated, and Delivered Water were sampled for VOCs in 2006. Other than the expected THMs in the Treated and Delivered water samples, no VOCs were detected.

Arroyo Grande Creek, Clapboard Canyon Creek, Lopez Creek, the Influent to Terminal, Lopez Treatment Plant Raw, Lopez Treatment Plant Treated, and Delivered Water were sampled for

VOCs in 2009. Again, no VOCs were detected except for the expected THMs in the Treated and Delivered samples.

The Influent to Terminal, Lopez Treatment Plant Raw, and the Lopez Treatment Plant Treated were sampled for SOCs in 2009. No SOCs were detected.

Monitoring for VOCs is conducted every three years in January. Additional monitoring for SOCs is conducted every nine years. Synthetic or volatile organic compounds are not seen as a significant water quality threat to the watershed at this time. No change in potential contaminating activities were identified in the last 5 years and none are anticipated in the foreseeable future.

4.7 Algal Toxins

Cyanobacteria, other freshwater algae, and their toxins are on the EPA's Contaminant Candidate List. Cyanotoxins, from certain types of blue-green algae, in high concentrations have been known to cause illness, paralysis and even death in livestock and wildlife. Algae which have been known to produce toxins, such as *Aphanizomenon, Anabaena, Microcystis,* and *Oscillatoria* were found at Lopez Lake and the Terminal Reservoir during certain times of the year. The District attempts to treat algae using copper sulfate and/or PAC™ 27 (a blue-green algaecide from Peroxide Solutions) before it becomes a problem. The California Water Quality Control Board regulates aquatic pesticide application at Lopez Lake and Terminal under a general NPDES permit. This permit regulates the frequency, application amount, and aquatic pesticide used for algae treatment. During an algal bloom in July, 2010, Lopez Lake was sampled in four locations for microcystin algal toxins. No toxins were detected.

5.0 SANITARY SURVEY UPDATE

5.1 Summary of Findings

This watershed sanitary survey update covers the period from January 2006 through December 2010. There have been no significant changes to the watershed during this period. District staff performed field evaluations of Lopez Terminal, Lopez Lake, and corresponding watershed throughout this period. The overall condition of the watershed is very good.

There is continued agricultural activity, including various crops, vineyards, cattle and horses in the Arroyo Grande arm of the Lopez Lake watershed. Increases in these activities or increases in population density have the potential for adversely impacting water quality in the watershed. Significant increases are unlikely with the present zoning regulations. (Planning Department Rural Land Use Category and Rural Combining Designation Maps are included in appendix A.)

Horse corrals border one section of the Lopez Creek arm upstream from the reservoir. This could decrease water quality if corrals are not properly maintained. A large increase in human population here seems unlikely due to zoning regulations and topography. It is worth noting that there has been very little change in total coliform and E. coli mean and median MPN values for Arroyo Grande and Lopez Creeks during the period of this survey with the existing agricultural activity.

An active beaver dam may still reside on Arroyo Grande creek but due to the dense vegetation, the location of the dam could not be verified. Beavers are known carriers of *Giardia.* Considering the relatively small concentration of beaver within the area, they are not considered a threat to the overall water quality within the watershed.

The sewage collection facility within the Lopez Recreation Area is still considered to be the biggest threat to the watershed. The Lopez Recreation Area sewer system is now operated by a subcontractor hired by the County General Services Agency. The facility is regularly inspected and maintained, mitigating the potential for a contaminating event. Keeping the sludge ponds closest to the creek and lake out of service also helps mitigate this threat. All sludge waste is shipped out of the watershed. The force sewer main crossing over Wittenberg Creek continues to be inspected weekly and the disposal area continues to be inspected monthly. Although sewer overflows were reported during the period of this survey, no sewage entered Lopez Lake or any surface water within the watershed.

Figure 11: Sewer Force Main Over Wittenberg Creek Arm of Lopez Lake

Figure 12: Wastewater Percolation Pond

Figure 13: Sludge Drying Bed at the Lopez Lake Recreation Area Sewer Treatment Plant

The last sanitary survey update noted the partially collapsed ramp crossing Wittenberg Creek that threatened to expose and damage a sewer line. The ramp was repaired in 2007.

As shown in Figure 14, the Terminal Reservoir watershed boundary was updated based on a visual inspection. The red line represents the watershed boundary. A diversion channel surrounds most of the Terminal Reservoir and reduces the threat of contamination from agriculture, grazing animals, and the private homes that surround the terminal. A small section at the south east corner of the watershed, east of Orcutt Road, is not protected by the diversion channel. Following sustained heavy rains, this section and has the potential for draining onto Orcutt Road. Orcutt Road drainage continues to be a potential problem, with runoff making its way into the Terminal Reservoir.

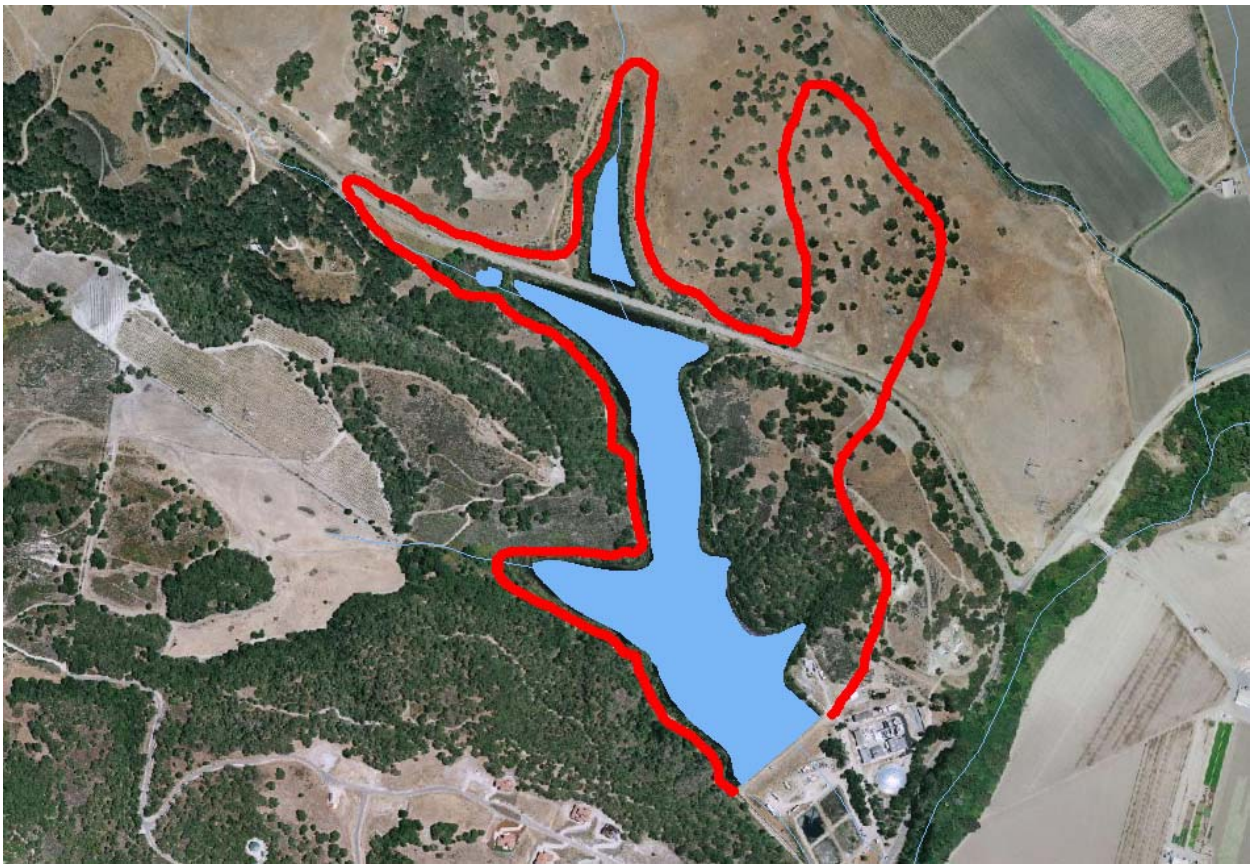


Figure 14: Lopez Terminal Reservoir Watershed Boundary

Figure 15: Diversion Channel

Figure 16: Terminal Reservoir Watershed Section Not Protected by Diversion Channel

Access to the treatment facility is via a passcode controlled locked gate which is monitored during working hours. All visitors are required to check-in at the office. Access via private property adjacent to the treatment facility is not permitted. The most visible portions of the Terminal Reservoir watershed are protected by chain-link fencing with a barbed wire top. Barbed wire fencing surrounds the remainder of the watershed. Although fencing will not keep out a determined intruder, extending the chain-link fencing with the barbed wire top around the entire Terminal Reservoir watershed would help deter trespassing from casual intruders. (Extension of this fencing is listed in the District's multi-year capital improvement projects program.) The District provided housing at the Water Treatment Plant for two employees enhances watershed security during non-working hours.

Figure 17: Terminal Reservoir Chain-link Fencing With Barbed Wire Top

The intake structure at Lopez Lake is protected by fencing on land and a log boom on water.

Figure 18: Lopez Lake Log Boom Looking East and West

5.2 Sanitary Survey Update Recommendations

Recommendation 1 - Potential Hazardous Spills

Continue to pursue the option of taking water into the Lopez Water Treatment Plant directly from Lopez Lake intakes. The ability to bypass the Terminal Reservoir could provide a quick, workable solution if a hazardous materials spill occurred on Orcutt Road. Continue to evaluate the options of diverting Orcutt Road drainage away from the Terminal Reservoir in case of a hazardous materials transportation spill.

Recommendation 2 - Terminal Reservoir Watershed Security

Replacing the existing barbed wire only fence with chain-linked fencing with a barbed wire top would improve security at the Terminal Reservoir watershed. Fencing improvements have been included in the District's recommend capital projects, but funding limitations have prevented implementation of the project. Also under consideration is the District purchase of adjacent property east of the treatment facilities. Acquiring the property would improve watershed security and provide easier access to the District's "Domestic Tank" which stores potable water for the site.

Figure 19: Terminal Reservoir Barbed Wire Only Fencing

Figure 20: Private Property Near Domestic Tank

Recommendation 3 - Water Quality

Algal toxins are an emerging constituent of concern. Under the current program, algal toxins are tested on an ad hoc basis and are not routinely monitored. If blue-green algal blooms increase, or algal toxins are detected, more frequent and/or regular testing for algal toxins is recommended. Sampling and testing should occur at any Lake or Terminal site experiencing a significant blue-green bloom (blue-greens ≥5000/mL), at the Terminal before and 1 week after treatment for blue-green algae (in order to assess the possible release of toxins from dead or dying algae), and at the "Treatment Plant – Raw" and "Treatment Plant – Treated" sites after any detection of algal toxins in the Terminal.

Figure 21: Bloom of Blue-green Algae *Aphanizomenon* Near the Lopez Terminal Reservoir Dam

Figure 22: Blue-green Algal Bloom at Lopez Lake

5.3 Water Quality Monitoring Program

The following sample matrix summarizes suggested sampling for the Lopez Project watersheds.

Table 7: Water Quality Monitoring Matrix.

	Site	Bactiological	Physical	Limnology	Algal Toxins	General Mineral	Aluminum, Arsenic	Inorganic	Nutrients	VOC	SOC	*Giardia, Cryptosporidium*
Lake	Creeks	M	Q	-----	-----	Q	Q	A	M	3	9	A
	Intakes	-----	W/M	W/M	-----	-----	-----	-----	-----	-----	-----	-----
Terminal	Influent to Terminal	W	W	-----	-----	Q	-----	A	M	3	9	A
	Lopez Treatment Plant Raw	W	W	-----	FD	Q	-----	A	M	3	9	A
	Lopez Treatment Plant Treated	W	W	-----	FD	Q	-----	A	-----	3	9	A

W = Weekly sampling; M = Monthly sampling; W/M = Weekly or monthly sampling based on the season; Q = Quarterly sampling; A = Annual sampling; 3 = Sampling every 3 years; 9 = Sampling every 9 years; FD = following toxin detection in Terminal

5.4 Conclusion

Overall, the condition of the watersheds remains very good.

Wastewater contamination, animal grazing, recreational activities, pesticide/herbicide usage, fires, earthquakes, and landslides continue to represent the most significant potential sources of contamination in the Lopez Lake watershed. Monitoring of the watershed should be continued with particular attention paid to Lopez Creek (with the greatest flow) and Arroyo Grande Creek (with the greatest potential for contaminating activities).

Continued attention should be placed on mitigating the potential impact of a hazardous material spill on Orcutt Road. Recognizing that conveying drainage from Orcutt Road to an unlined pond outside the Terminal Reservoir watershed remains cost prohibitive, consider seeking a permit to bypass the Terminal Reservoir and take water directly from the Lopez Lake in an emergency.

If funding becomes available, replacing the remaining barbed-wire fence with chain-linked fence at the Terminal Reservoir is recommended. The improved fencing would deter would be trespassers.

Given the potential for algal toxins and the taste and odor problems associated with algal blooms, reducing the occurrence and magnitude of algal blooms should remain a priority. This is especially true for the Lopez Terminal Reservoir. Prevention or reduction of blooms by non-algaecide methods is preferable.

6.0 SYSTEM COMPLIANCE WITH NEW AND FUTURE REGULATIONS

6.1 Arsenic Rule

A new arsenic rule lowering the MCL from 50 ppb to 10 ppb took effect in January 2006. There are additional reporting requirements when a system exceeds 5 ppb of arsenic. The district has fully complied with the Arsenic Rule.

6.2 Stage 2 Disinfectant/Disinfection Byproduct Rule

The Stage 2 Disinfectants and Disinfection Byproducts (D/DBP) Rule was published in the Federal Register on January 4, 2006. This rule supplements existing regulations by requiring that each monitoring site in the distribution meet the MCL for disinfection byproducts. In June 2006, Lopez Project completed an "Initial Distribution System Evaluation" to identify locations with high disinfection byproduct concentrations. A "Locational Running Annual Average" must now be determined for each of these distribution sites. Peaks or "significant excursions" in the disinfection byproduct levels must also be identified. The district has fully complied with the Stage 2 D/DPD Rule.

6.3 Long Term 2 Enhanced Surface Water Treatment Rule

The Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) applies to all systems that use surface or ground water under the direct influence of surface water. This rule supplements other existing regulations by targeting *Cryptosporidium* and other pathogenic microorganisms in drinking water. Since all historical testing has not detected any *Cryptosporidium* in the Raw or Treated water, Lopez Project is classified in the lowest risk category, which carries no additional treatment requirement. Lopez Project will continue monitor *Cryptosporidium* and other pathogenic microorganisms. The Lopez Project has duly complied with the LT2ESWTR.

7.0 SECURITY OF WATERSHED AND TREATMENT FACILITIES

A security and vulnerability assessment has been completed for the system. The County is a member of the WaterISAC Water Security Network.

The Lopez Terminal Reservoir and Water Treatment Plant facility are entirely fenced with chain-linked or barbed wire fencing. "No trespassing" signs are prominently posted around the facility. The remoteness of the treatment facility and the housing of two District employees at the site enhance security.

Access to the Lopez Water Treatment Plant is controlled by a locked entrance gate. All visitors are required to sign-in at the plant's main office.

Other than an occasional fisherman, trespassing in the Lopez Terminal watershed has not been a problem. When trespassers are encountered, they are asked to leave. If they refuse or are problematic in any way, the County Sheriff is notified and asked to respond.

Overall the security of the Lopez Lake, Terminal Reservoir, and treatment facilities are good. New fencing around sections of the Terminal Reservoir watershed is included in the recommended capital improvement projects.

8.0 DESCRIPTION OF WATERSHED CONTROL AND MANAGEMENT PRACTICES

The following summarizes watershed control and management practices currently used.

- The Lopez Lake Recreation Area is inspected no less than weekly and an "Inspection of Domestic Water Reservoir Facilities" report is submitted monthly to the California Department of Public Health.
- The intake structure is located "upwind" of the prevailing wind direction.
- The Terminal Reservoir provides 30 to 45 days of detention time (The Terminal allows for sedimentation and "solar/UV" disinfection prior to treatment.).
- All the grazing permits for areas adjoining the Lopez Lake were revoked.
- The wastewater plant is located at the opposite end of the lake from the intake structure.
- The wastewater plant effluent percolation pond disposal area is remote (>1/2 mile) from lake and intake structure (~3 miles).
- The District has an established water quality monitoring program for the Lopez Lake and Terminal Reservoir watersheds.
- The closed/restricted zone at the Lopez Lake intake area includes posted buoys and a cable log boom.
- Public access to Lopez Lake is controlled and routed through the main gate of the park.
- The Lopez Terminal Reservoir is fenced and posted.
- No public access is allowed to the Terminal Reservoir.
- SLO County Parks (General Services) and Utilities (Public Works) oversee lake management.
- There are an adequate number of Parks and Utilities personnel for management of the watershed.
- Significant portions of the watershed are designated wilderness areas, with associated use restrictions.
- Boating on Lopez Lake is only allowed when the lake is patrolled.
- Fueling facilities are located off the lake and have acceptable secondary containment precautions.
- No fuel storage is allowed on Lopez Lake or the Terminal Reservoir.
- No floating facilities requiring sewage disposal are permitted.
- Patrol personnel enforce California Harbor and Navigation Code as well as local regulations.
- Fish cleaning facilities with adequate water supply and disposal systems provided and are set back at least 100 feet from the lake. No overflow from the facilities into the lake is allowed.
- Swimming facilities are located down-wind of the intake structure, at the opposite end of the lake.
- Toilets are conveniently located and properly maintained.

- Toilets are emptied or cleaned daily in developed areas.
- Toilets are set back at least 200 feet from the high water line.
- Chemical toilets are seasonally available and located at least 50' from the water line.
- Hook-ups are provided for trailers, campers, etc.
- A sewage dump station is provided at Lopez Lake.
- There are no septic tanks around Lopez Lake.
- Septic tanks for facilities near Lopez Terminal are located remotely and "downstream" of the Terminal Reservoir.
- Sewers and appurtenances are located above the Lopez Lake high water mark.
- Sewage facilities are alarmed and designed to prevent overflow
- The waterslide facility at Lopez Lake is properly operated and does not drain into the lake.
- Sewer force mains are designed to be fail-safe.
- Emergency storage and standby power is available.
- The sewer system is operated and maintained by trained and experienced staff of Fluid Resource Management.
- Treatment plant operators are on-call and available 24 hours/day.
- Wastewater effluent disposal to Lopez Lake is prohibited.
- Surface drainage is diverted from the sewage treatment and disposal facilities.
- A surface drainage diversion culvert is located around the Terminal Reservoir (except for Orcutt Road).
- Dumping of refuse into the water or along shoreline is prohibited. Acceptable refuse containers are located conveniently around Lopez Lake. Containers are anchored as needed and are routinely inspected and emptied. Refuse is properly transported and disposed.
- Equestrian corrals, stables, staging areas at Lopez Lake are located at the opposite end from the intake structure.
- Storm water drainage from stables or corral areas is prevented from entering the reservoir as much as is feasible.
- Horses are prohibited from entering Lopez Lake and the Terminal Reservoir.
- There is an emergency plan for handling actual or threatened water contamination.
- The public is notified (posted) that terminal is a drinking water reservoir. Lake users are informed that lake is ultimately a drinking water supply for South County residents.
- The County Agriculture Department issues pesticide use permits for pesticide use in the watershed.

9.0 REFERENCES

AWWA, December 1993. Watershed Sanitary Survey Guidance Manual

Boyle Engineering Corporation, December 1995. Lopez Lake and Terminal Reservoir Sanitary Survey

Boyle Engineering Corporation, March 2001. Lopez Lake and Terminal Reservoir Sanitary Survey Update

Boyle Engineering Corporation, July 2001. Drinking Water Source Assessment for Lopez Lake and Terminal Reservoir

County of San Luis Obispo County Department of Public Works, January 2006, Lopez Lake and Terminal Reservoir Watershed Survey Update

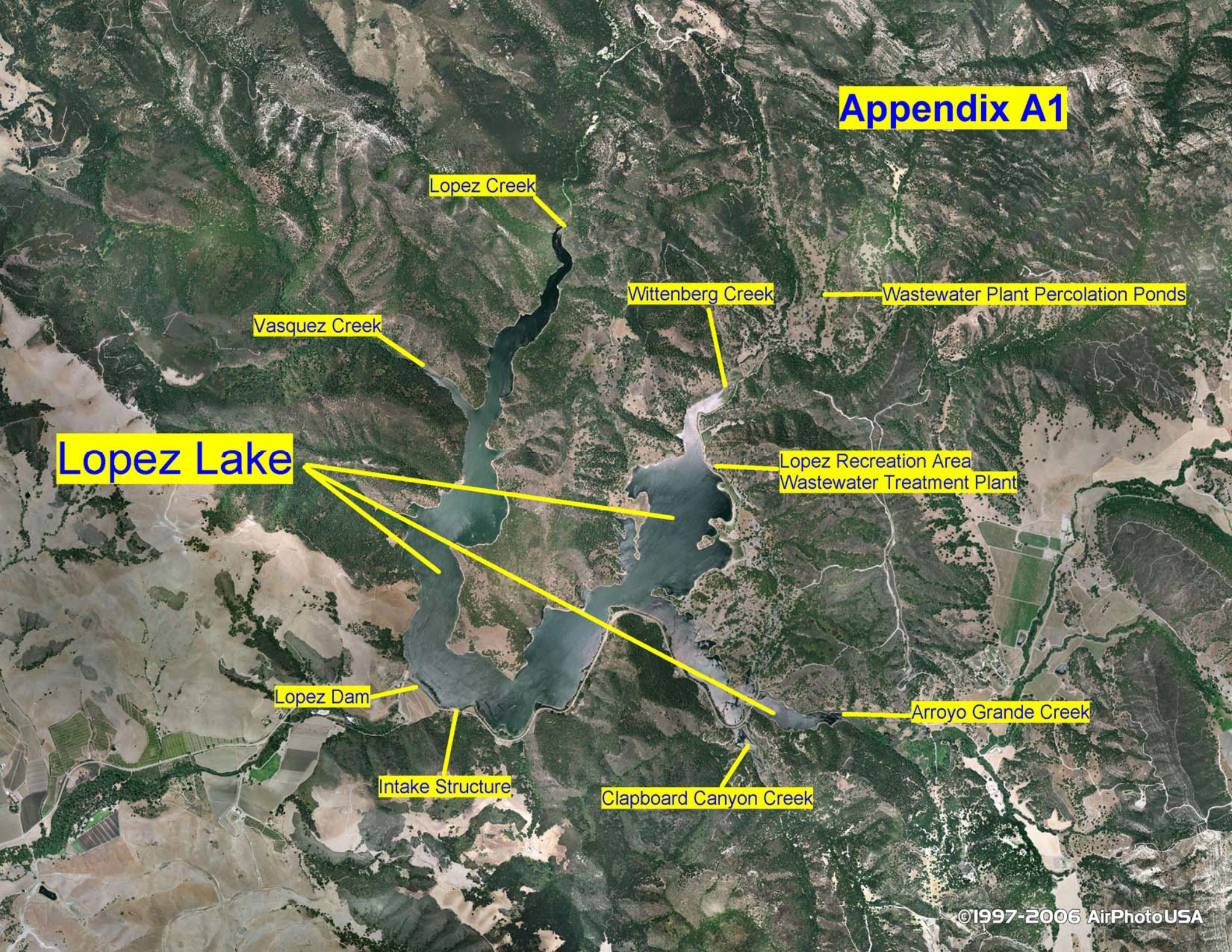
EPA, September 2006. Proposed Long Term 2 Enhanced Surface Water Treatment Rule fact sheet

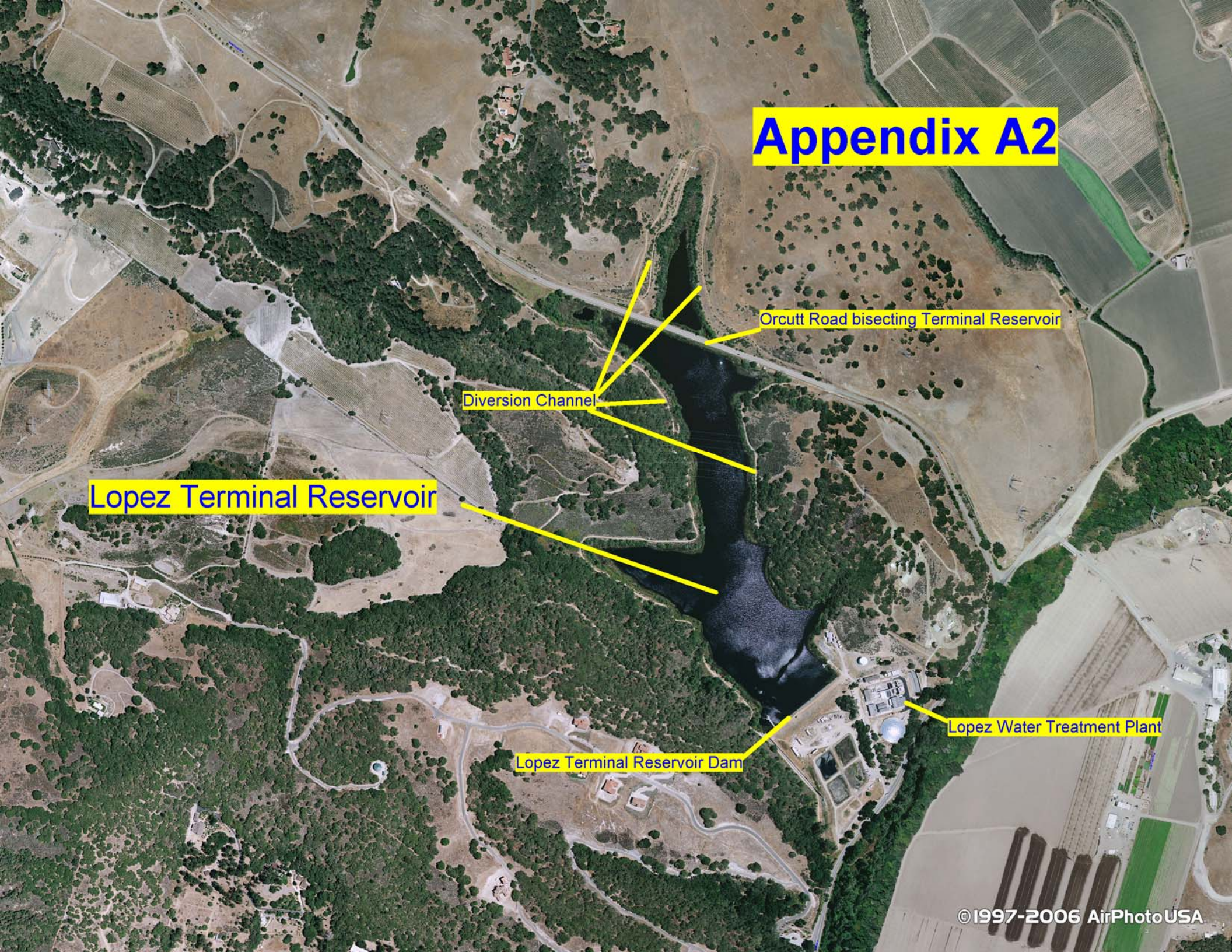
EPA, December 2005. Proposed Stage 2 Disinfectants and Disinfection Byproducts Rule fact sheet

EPA, October 2009. Fact Sheet: The Drinking Water Contaminant Candidate List – The Source of Priority Contaminants for the Drinking Water Program

North Carolina State University (NCSU) Water Quality Group, WATERSHEDSS (WATER, Soil, and Hydro- Environmental Decision Support System), www.water.ncsu.edu/watershedss

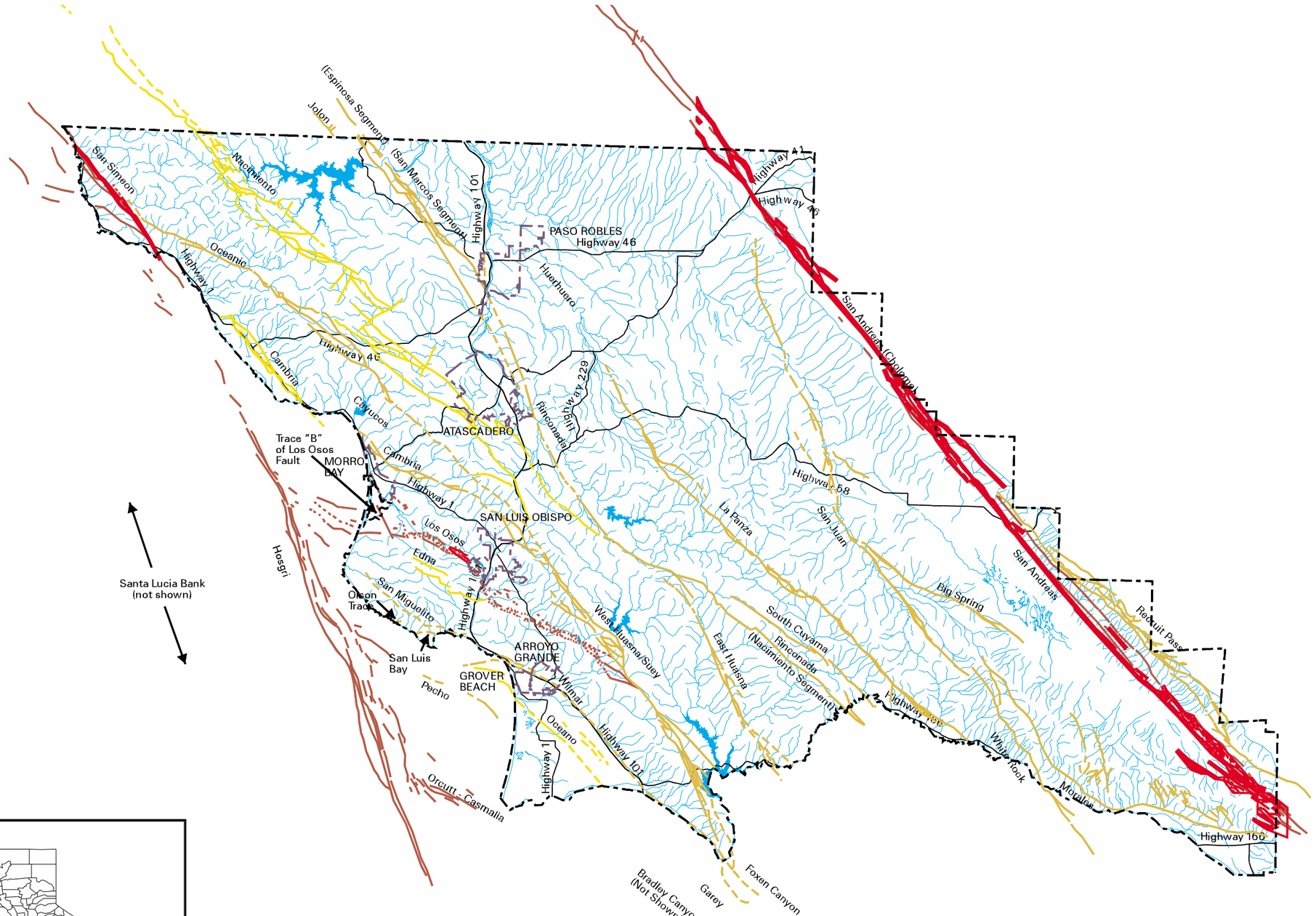
APPENDICES


Appendix A1
Lopez Creek
Wittenberg Creek
Wastewater Plant Percolation Ponds
Vasquez Creek
Lopez Lake
Lopez Recreation Area
Wastewater Treatment Plant
Lopez Dam
Arroyo Grande Creek
Intake Structure
Clapboard Canyon Creek
©1997-2006 AirPhotoUSA


Appendix A2
Orcutt Road bisecting Terminal Reservoir
Diversion Channel
Lopez Terminal Reservoir
Lopez Water Treatment Plant
Lopez Terminal Reservoir Dam
©1997-2006 AirPhotoUSA

Appendix A3

FAULT HAZARDS COUNTY OF SAN LUIS OBISPO



- County Boundary
- City and District Boundaries
- Highways
- Rivers, Lakes, and Streams
- Active Faults
- Potentially Active Faults
- Inactive Faults
- CDMG Earthquake Fault Zones

Dashed where Inferred

Source: Digitized at Cal Poly

Ref: PG&E (1988), Asquith (1997), Dibblee (1973), CDMG

SCALE: 1" = 50000'

0' 50000' 100000'

COUNTY OF SAN LUIS OBISPO AND CITIES SAFETY ELEMENT UPDATE

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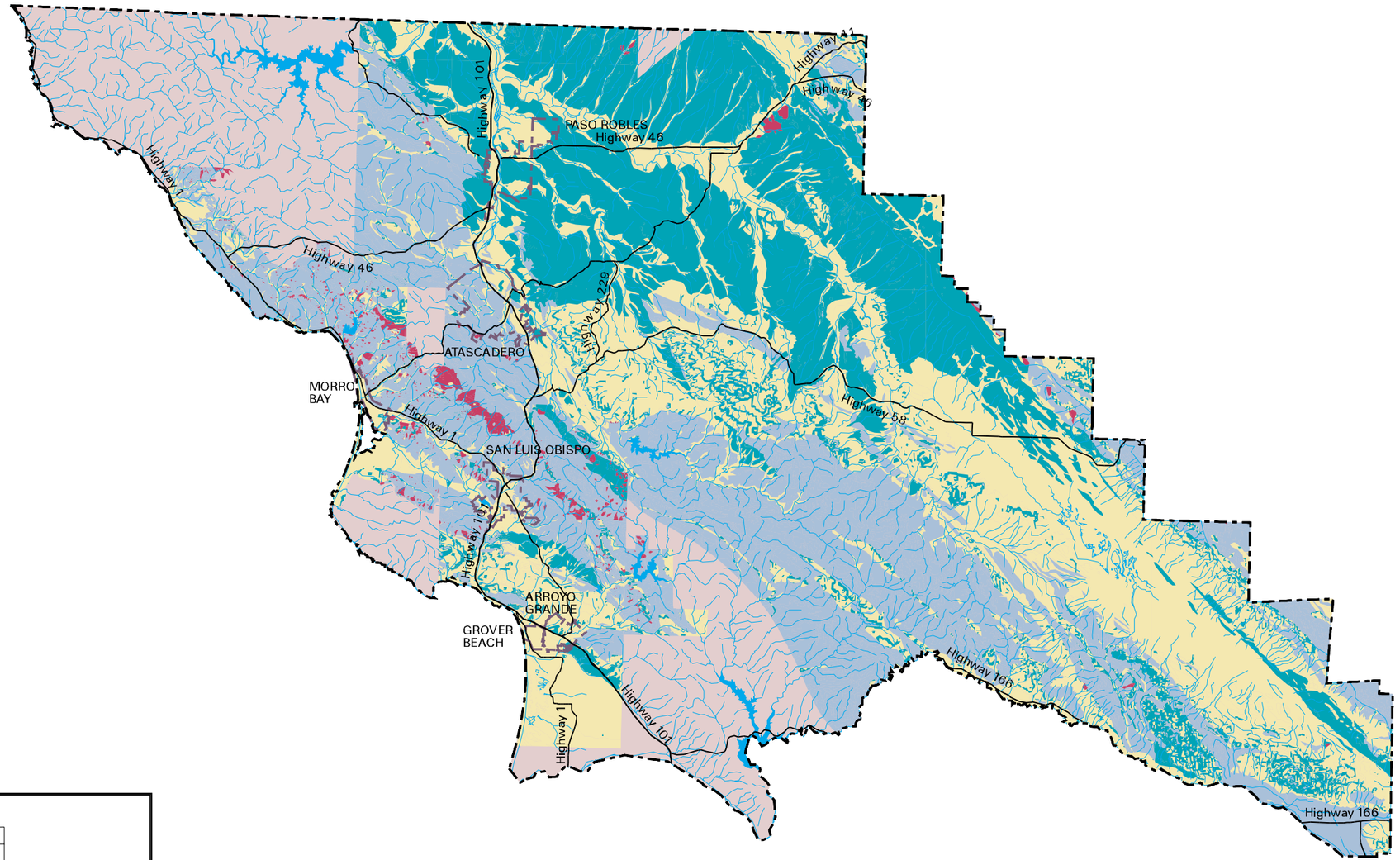
Appendix A4

LANDSLIDE HAZARDS COUNTY OF SAN LUIS OBISPO



County Boundary
City Boundaries
Highways
Rivers, Lakes, and Streams

LANDSLIDE POTENTIAL

- Very High
  Existing Mapped Landslide
  (Qls, Qlsa)
- High Potential
  Franciscan and Other Potentially Unstable Rocks (KJfme, KJfmv, KJt, KJfg, Tm, s, Tr, KJs, K)
  and/or Slope Gradient > 50%
- Moderate Potential
  Formations Known to Have Localized Areas of Instability (QTp, Ka, K)
  and/or Slope Gradient > 20%
- Low Potential
  Slope Gradient < 20%
- No Landslide Data

Source: Digitized at Cal Poly

Ref: Dibblee (1973, 1974), Hall (1973, 1973b), McClean (1994, 1995), Hall and Others (1975), Hall and Prior (1975)

SCALE: 1" = 50000'

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COUNTY OF SAN LUIS OBISPO AND CITIES SAFETY ELEMENT UPDATE

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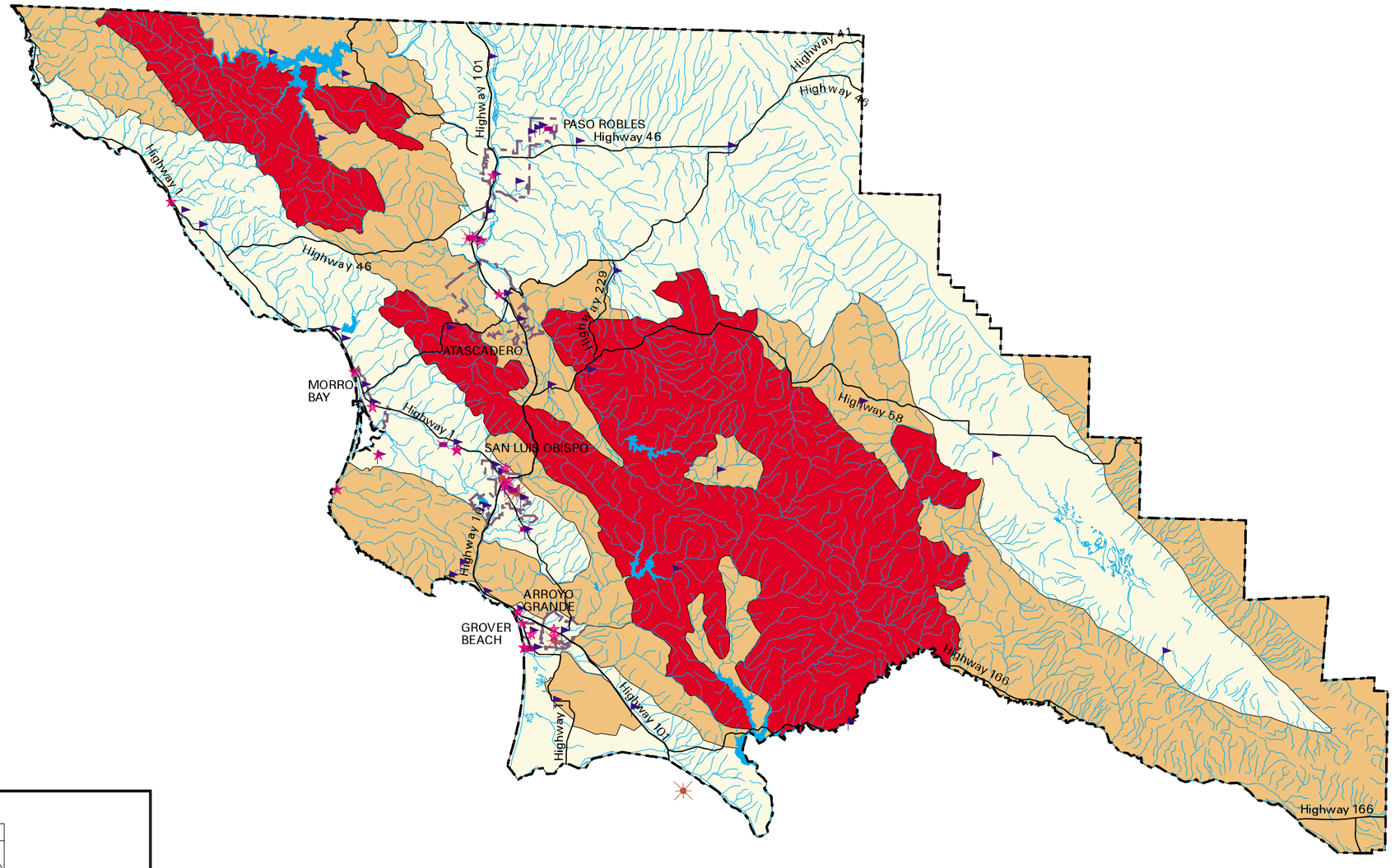
Appendix A5

FIRE HAZARD ZONES COUNTY OF SAN LUIS OBISPO



County Boundary
City Boundaries
Highways
Rivers, Lakes, and Streams

FIRE HAZARD ZONES

- Very High
- High
- Medium

Emergency Response Facility
Aviation Facility
Fire Station/Facility
Law Enforcement Station

Source: County of San Luis Obispo, Office of Emergency Services

Notes: This map displays information prepared in 1984 by the California Department of Forestry Fire Protection. A reevaluation of Fire Hazard Zone is being done as part of the current California Fire Plan. Areas with local hazard and development will influence fire hazard designations

Also see Table 3.3 in the Technical Background Report for Urban/Wildland Interface Areas subject to increased risk of wildfire-related risks.

N
W E
S

SCALE: 1" = 50000'

0' 50000' 100000'

COUNTY OF SAN LUIS OBISPO AND CITIES SAFETY ELEMENT UPDATE

FUGRO

COUNTY OF SAN LUIS OBISPO CALIFORNIA

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Appendix A6

DEPARTMENT OF PLANNING & BUILDING

0 5,000 10,000 20,000

Feet

HUASNA-LOPEZ PLANNING AREA
RURAL LAND USE CATEGORY MAP

San Luis Obispo Planning Area

Los Padres Planning Area

San Luis Bay Inland Planning Area

South County Inland Planning Area

Lopez Lake

Orcutt

Los Berros

Willow

Pomeroy

Thompson

Tefft

Orchard

Joshua

Cuyama

State Highway 166

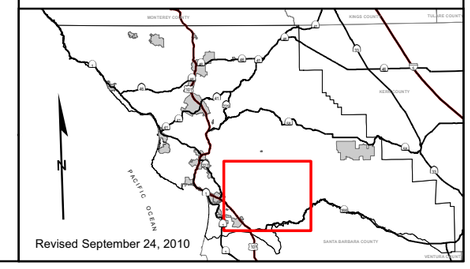
SANTA BARBARA COUNTY

LEGEND

- Lake or Pond
- Coastal Zone Boundary
- Planning Area Boundaries
- URL - VRL

Huasna-Lopez Planning Area

- Agriculture
- Commercial Retail
- Commercial Service
- City
- Industrial
- Multi-Land Use Category
- Office Professional
- Open Space
- Public Facility
- Recreation
- Rural Lands
- Residential Multi Family
- Residential Rural
- Residential Suburban
- Residential Single Family



Revised September 24, 2010

Appendix A7

DEPARTMENT OF PLANNING & BUILDING

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Feet

HUASNA-LOPEZ PLANNING AREA
RURAL COMBINING DESIGNATION MAP

Los Padres Planning Area

San Luis Obispo Planning Area

Lopez

Lopez Lake

Orcutt

San Luis Bay Inland Planning Area

LOS BERROS

South County Inland Planning Area

BLACK LAKE

Willow

Pomeroy

Tefft

Thompson

WOODLANDS

NIPOMO

Orchard

Joshua

101

166

Cuyama

State Highway 166

SANTA BARBARA COUNTY

- Major Lakes
- Coastal Zone Boundary
- Planning Area Boundaries
- City Limits
- URL - VRL

Land Use Element Combining Designations

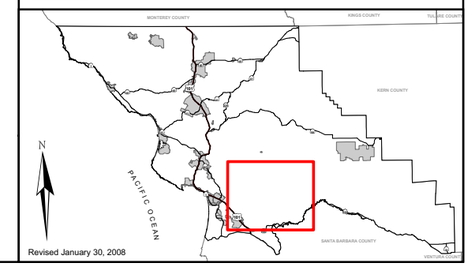
- V - Visitor Serving Area
- H - Historic
- AR - Airport Review Area
- GSA - Geologic Study Area
- FH - Flood Hazard
- GSA - Fault/Alquist-Priolo
- EX - Extractive Area
- EX 1- Energy Extractive Area
- SRA - Sensitive Resource Area
- ASA - Archaeological Sensitive Area

Coastal Zone - Environmentally Sensitive Habitats

- Marine Habitat
- Terrestrial Habitat
- Coastal Stream
- Riparian Vegetation
- Wetland

Proposed Public Facilities

- HS - High School
- JHS - Jr. High School
- E - Elementary School
- Park
- Police/Public Safety Facility
- WT - Water Treatment Facility
- SW - Solid Waste Facility
- ST - Sewage Treatment Facility
- GF - Government Facility
- L - Library
- Reservoir



Revised January 30, 2008

Appendix A8

DEPARTMENT OF PLANNING & BUILDING

0 4,750 9,500 19,000

Feet

SAN LUIS OBISPO PLANNING AREA
RURAL LAND USE CATEGORY MAP

SANTA MARGARITA

Salinas River Planning Area

Pozo

Las Pilitas Planning Area

Estero Planning Area

LOS OSOS

Los Osos Valley

Cabrillo

Los Osos Valley

Foothill

Los Padres Planning Area

Laguna Lake

SAN LUIS OBISPO

Prado

Tank Farm

Broad

Broad

Los Osos Valley

Higuera

Higuera

Orcutt

LOS RANCHOS/EDNA

Orcutt

Chrisptine Canyon

Price Canyon

Corbett Canyon

San Luis Bay Inland Planning Area

Huasna-Lopez Planning Area

Lopez

Lopez Lake

AVILA BEACH

San Luis Bay Coastal Planning Area

PISMO BEACH

Pacific Ocean

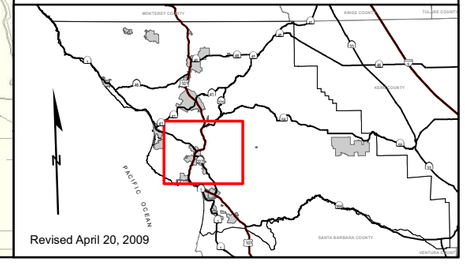
Pacific Ocean

LEGEND

- Lake or Pond
- Coastal Zone Boundary
- URL - VRL

San Luis Obispo Planning Area Land Use

- Agriculture
- Commercial Retail
- Commercial Service
- City
- Industrial
- Multi-Land Use Category
- Office Professional
- Open Space
- Public Facility
- Recreation
- Rural Lands
- Residential Multi Family
- Residential Rural
- Residential Suburban
- Residential Single Family



Revised April 20, 2009

Appendix A9

DEPARTMENT OF PLANNING & BUILDING

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Feet

SAN LUIS OBISPO PLANNING AREA - RURAL COMBINING DESIGNATION MAP

Major Lakes
Coastal Zone Boundary
Planning Area Boundaries
City Limits
URL - VRL

Land Use Element Combining Designations

V - Visitor Serving Area
H - Historic
AR - Airport Review Area
GSA - Geologic Study Area
FH - Flood Hazard
GSA - Fault/Alquist-Priolo
EX - Extractive Area
EX 1- Energy Extractive Area
SRA - Sensitive Resource Area
ASA - Archaeological Sensitive Area

Coastal Zone - Environmentally Sensitive Habitats

Marine Habitat
Terrestrial Habitat
Coastal Stream
Riparian Vegetation
Wetland

Proposed Public Facilities

High School
Jr. High School
Elementary School
Park
Police/Public Safety Facility
Water Treatment Facility
Solid Waste Facility
Sewage Treatment Facility
Government Facility
Library
Reservoir

Revised September 2, 2008

Appendix B1: Water Quality Data
Microbiological Analysis Results
January 2006 through December 2010

Arroyo Grande Creek				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
2/21/06	2400	130	-----	-----
3/13/06	2500	170	-----	-----
4/10/06	11000	130	-----	-----
5/8/06	11000	290	-----	-----
6/12/06	8700	410	-----	-----
7/10/06	24000	250	-----	-----
8/14/06	9200	230	-----	-----
9/11/06	4100	250	-----	-----
10/10/06	5800	490	-----	-----
11/13/06	1600	62	-----	-----
12/11/06	3900	250	-----	-----
1/8/07	440	58	-----	-----
2/13/07	2400	160	-----	-----
3/12/07	1600	32	-----	-----
4/9/07	2400	80	-----	-----
4/10/07	-----	-----	0	0
5/7/07	1200	510	-----	-----
6/11/07	24000	600	-----	-----
7/10/07	10000	530	-----	-----
8/13/07	4400	150	-----	-----
9/11/07	4900	610	-----	-----
10/9/07	3300	660	-----	-----
11/14/07	2200	210	-----	-----
12/11/07	1200	96	-----	-----
1/15/08	460	61	-----	-----
2/13/08	580	79	-----	-----
3/11/08	1100	58	-----	-----
4/16/08	4600	330	0	0
5/13/08	6100	260	-----	-----
6/10/08	2200	110	-----	-----
7/14/08	11000	160	-----	-----
8/25/08	4900	550	-----	-----
9/8/08	5200	610	-----	-----
10/14/08	2200	310	-----	-----
11/10/08	4400	120	-----	-----
12/8/08	3900	73	-----	-----
1/20/09	870	2	-----	-----
2/17/09	17000	2400	-----	-----

Appendix B1: Water Quality Data
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Arroyo Grande Creek				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
3/10/09	2400	48	-----	-----
4/13/09	36	20	0	0
5/11/09	5800	280	-----	-----
6/8/09	4900	56	-----	-----
7/13/09	2100	120	-----	-----
8/10/09	2700	190	-----	-----
9/14/09	6900	68	-----	-----
10/13/09	20000	220	-----	-----
11/10/09	2000	75	-----	-----
12/7/09	>24000	820	-----	-----
1/12/10	980	57	-----	-----
2/8/10	4900	300	-----	-----
3/1/10	>2400	440	-----	-----
3/16/10	-----	-----	2	0
4/12/10	>24000	8200	-----	-----
5/10/10	3800	310	-----	-----
6/8/10	4600	82	-----	-----
7/13/10	3100	230	-----	-----
8/9/10	1300	30	-----	-----
10/18/10	3400	240	-----	-----
11/8/10	4600	730	-----	-----
12/14/10	1300	150	-----	-----

Clapboard Canyon Creek				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
2/21/06	5500	10	-----	-----
3/13/06	820	6	-----	-----
4/10/06	11000	57	-----	-----
5/10/06	2000	3	-----	-----
6/13/06	980	0	-----	-----
7/10/06	4400	13	-----	-----
8/15/06	24000	330	-----	-----
9/13/06	24000	3	-----	-----
10/16/06	1000	1	-----	-----
11/13/06	9200	2200	-----	-----
12/18/06	2600	9	-----	-----
1/16/07	730	33	-----	-----
2/13/07	190	3	-----	-----

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Microbiological Analysis Results
January 2006 through December 2010

Clapboard Canyon Creek				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
3/12/07	190	0	-----	-----
4/9/07	700	150	-----	-----
4/10/07	-----	-----	0	0
5/7/07	980	11	-----	-----
6/11/07	2500	3	-----	-----
7/9/07	6500	0	-----	-----
8/13/07	5800	1	-----	-----
9/11/07	2400	1	-----	-----
10/9/07	2400	10	-----	-----
11/14/07	5500	4	-----	-----
12/11/07	2100	2	-----	-----
1/15/08	20000	1	-----	-----
2/13/08	610	19	-----	-----
3/11/08	6900	10	0	0
4/16/08	14000	1	-----	-----
5/14/08	2800	10	-----	-----
6/11/08	3300	2	-----	-----
7/15/08	6900	0	-----	-----
1/12/09	340		-----	-----
2/17/09	4100	5	-----	-----
3/10/09	>24000	11	-----	-----
4/13/09	81	10	0	1
5/11/09	9200	1	-----	-----
6/9/09	12000	10	-----	-----
2/23/10	3300	5	-----	-----
3/1/10	>2400	33	-----	-----
3/16/10	-----	-----	0	0
4/12/10	5200	340	-----	-----
5/10/10	16000	230	-----	-----
6/8/10	4400	7	-----	-----
7/13/10	6500	0	-----	-----
8/9/10	6900	0	-----	-----
9/21/10	9800	0	-----	-----
10/18/10	7700	0	-----	-----
11/8/10	3100	5	-----	-----
12/14/10	2400	0	-----	-----
2/21/06	5500	10	-----	-----
3/13/06	820	6	-----	-----

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Microbiological Analysis Results
January 2006 through December 2010

Clapboard Canyon Creek				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
4/10/06	11000	57	-----	-----
5/10/06	2000	3	-----	-----
6/13/06	980	0	-----	-----
7/10/06	4400	13	-----	-----
8/15/06	24000	330	-----	-----
9/13/06	24000	3	-----	-----
10/16/06	1000	1	-----	-----
11/13/06	9200	2200	-----	-----
12/18/06	2600	9	-----	-----

Lopez Creek				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
1/9/06	2000	20	-----	-----
2/21/06	340	2	-----	-----
3/13/06	210	4	-----	-----
4/10/06	2400	53	-----	-----
5/8/06	1000	1	-----	-----
6/12/06	6500	29	-----	-----
7/10/06	110000	21	-----	-----
8/14/06	24000	100	-----	-----
9/11/06	11000	27	-----	-----
10/10/06	2000	12	-----	-----
11/13/06	1700	41	-----	-----
12/11/06	1700	68	-----	-----
1/8/07	360	0	-----	-----
2/13/07	210	23	-----	-----
3/12/07	67	3	-----	-----
4/10/07	-----	-----	0	0
5/7/07	2400	39	-----	-----
6/11/07	2600	74	-----	-----
7/10/07	8200	33	-----	-----
8/13/07	13000	10	-----	-----
9/11/07	5500	110	-----	-----
10/9/07	5800	19	-----	-----
11/14/07	960	40	-----	-----
12/11/07	550	26	-----	-----
1/15/08	460	11	-----	-----
2/13/08	260	6	-----	-----

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Microbiological Analysis Results
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Lopez Creek				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
3/11/08	340	2	-----	-----
4/15/08	300	8	0	0
5/13/08	2500	51	-----	-----
6/10/08	5000	140	-----	-----
7/14/08	24000	37	-----	-----
8/25/08	20000	16	-----	-----
9/8/08	16000	41	-----	-----
10/14/08	3200	10	-----	-----
11/10/08	1400	10	-----	-----
12/8/08	1200	2	-----	-----
1/20/09	650	7	-----	-----
2/17/09	>2400	20	-----	-----
3/10/09	1300	3	-----	-----
4/13/09	22	10	0	0
5/11/09	5500	84	-----	-----
6/8/09	5500	260	-----	-----
7/13/09	8200	19	-----	-----
8/10/09	17000	48	-----	-----
9/14/09	2100	35	-----	-----
10/13/09	13000	340	-----	-----
11/10/09	1300	6.3	-----	-----
12/7/09	7300	220	-----	-----
1/12/10	560	5	-----	-----
2/8/10	520	15	-----	-----
3/1/10	650	34	-----	-----
3/16/10	-----	-----	0	0
4/12/10	1600	120	-----	-----
5/10/10	2100	39	-----	-----
6/8/10	2500	30	-----	-----
7/13/10	6500	650	-----	-----
8/9/10	10000	13	-----	-----
10/18/10	8700	54	-----	-----
11/8/10	3300	12	-----	-----
12/14/10	550	9	-----	-----

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Microbiological Analysis Results
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Vasquez Creek Arm				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
1/9/06	1700	4	-----	-----
2/14/06	73	0	-----	-----
3/7/06	820	3	-----	-----
4/17/06	3300	2	-----	-----
5/9/06	24000	6	-----	-----
6/12/06	4600	0	-----	-----
7/10/06	3100	0	-----	-----
8/14/06	2400	0	-----	-----
9/11/06	1400	1	-----	-----
10/10/06	2000	2	-----	-----
11/13/06	1400	3	-----	-----
12/11/06	440	5	-----	-----
1/8/07	120	0	-----	-----
2/14/07	37	0	-----	-----
3/13/07	2	0	-----	-----
4/10/07	290	0	0	0
5/9/07	440	0	-----	-----
6/12/07	2300	2	-----	-----
7/10/07	14000	0	-----	-----
8/13/07	12000	0	-----	-----
9/11/07	7300	0	-----	-----
12/11/07	22	10	-----	-----
1/15/08	250	2	-----	-----
2/13/08	490	3	-----	-----
3/11/08	770	1	-----	-----
4/15/08	230	28	0	0
5/13/08	2000	12	-----	-----
6/10/08	1700	4	-----	-----
2/18/09	550	88	-----	-----
3/9/09	960	1	-----	-----
4/14/09	2000	0	1	0
3/8/10	1700	16	0	0
4/13/10	1700	58	-----	-----
5/19/10	4600	130	-----	-----
6/7/10	6900	86	-----	-----

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Wittenberg Creek Arm				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
1/9/06	3400	41	-----	-----
3/13/06	1200	52	-----	-----
4/10/06	1400	93	-----	-----
5/8/06	1700	25	-----	-----
2/13/08	310	36	-----	-----
2/8/10	920	210	-----	-----
3/1/10	660	37	-----	-----
3/16/10	-----	-----	0	7
4/12/10	2900	690	-----	-----

Influent to Terminal				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
1/3/06	84	5	-----	-----
1/9/06	240	0	-----	-----
1/17/06	80	0	-----	-----
1/23/06	650	1	-----	-----
1/30/06	130	1	-----	-----
2/6/06	1200	0	-----	-----
2/14/06	160	0	-----	-----
2/21/06	690	0	-----	-----
2/27/06	170	0	-----	-----
3/7/06	330	0	-----	-----
3/13/06	2600	0	-----	-----
3/20/06	2400	0	-----	-----
3/27/06	370	0	-----	-----
4/3/06	520	0	-----	-----
4/10/06	290	3	-----	-----
4/17/06	200	0	-----	-----
4/24/06	250	0	-----	-----
5/1/06	220	1	-----	-----
5/9/06	730	0	-----	-----
5/15/06	5500	4	-----	-----
5/22/06	2500	0	-----	-----
5/30/06	650	0	-----	-----
6/5/06	250	0	-----	-----
6/12/06	580	0	-----	-----
6/19/06	690	0	-----	-----
6/26/06	730	0	-----	-----

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Microbiological Analysis Results
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Influent to Terminal				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
7/3/06	690	0	-----	-----
7/10/06	610	1	-----	-----
7/17/06	550	0	-----	-----
7/24/06	770	0	-----	-----
7/31/06	1400	0	-----	-----
8/7/06	280	0	-----	-----
8/14/06	360	0	-----	-----
8/21/06	2000	1	-----	-----
8/28/06	2400	0	-----	-----
9/5/06	190	0	-----	-----
9/11/06	330	0	-----	-----
9/18/06	270	0	-----	-----
9/25/06	550	0	-----	-----
10/2/06	520	0	-----	-----
10/10/06	460	0	-----	-----
10/16/06	580	1	-----	-----
10/23/06	1400	1	-----	-----
10/30/06	2800	0	-----	-----
11/6/06	2400	0	-----	-----
11/13/06	1600	1	-----	-----
11/20/06	2400	0	-----	-----
11/27/06	690	0	-----	-----
12/4/06	290	0	-----	-----
12/11/06	61	0	-----	-----
12/18/06	61	0	-----	-----
12/26/06	160	0	-----	-----
1/8/07	120	0	-----	-----
1/16/07	66	0	-----	-----
1/22/07	99	0	-----	-----
1/29/07	32	0	-----	-----
2/5/07	210	0	-----	-----
2/13/07	310	0	-----	-----
2/20/07	7700	0	-----	-----
2/26/07	20000	1500	-----	-----
3/6/07	11000	0	-----	-----
3/12/07	8700	1	-----	-----
3/19/07	110	0	-----	-----
3/26/07	17	0	-----	-----

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Influent to Terminal				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
4/2/07	68	0	-----	-----
4/9/07	44	1	-----	-----
4/16/07	190	1	-----	-----
4/23/07	120	0	-----	-----
4/30/07	280	0	-----	-----
5/7/07	310	0	0	0
5/22/07	340	0	-----	-----
5/29/07	22	0	-----	-----
6/4/07	920	0	0	0
6/11/07	580	0	-----	-----
6/18/07	460	0	-----	-----
6/25/07	580	0	-----	-----
7/1/07	390	1	0	0
7/2/07	550	1	-----	-----
7/9/07	1000	0	-----	-----
7/16/07	2400	1	-----	-----
7/23/07	820	0	-----	-----
7/30/07	730	0	-----	-----
8/6/07	1100	0	0	0
8/14/07	4400	0	-----	-----
8/21/07	1200	0	-----	-----
8/28/07	520	0	-----	-----
9/4/07	2000	0	0	0
9/11/07	690	0	-----	-----
9/18/07	690	0	-----	-----
9/25/07	550	1	-----	-----
10/2/07	870	0	0	0
10/9/07	690	0	-----	-----
10/16/07	370	1	-----	-----
10/23/07	820	0	-----	-----
11/6/07	820	0	0	0
11/14/07	4200	1	-----	-----
11/19/07	2400	0	-----	-----
11/27/07	210	0	-----	-----
12/4/07	870	0	0	0
12/10/07	820	0	-----	-----
12/18/07	180	0	-----	-----
12/26/07	980	1	-----	-----

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Influent to Terminal				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
1/2/08	440	1	-----	-----
1/8/08	1200	7	0	0
1/15/08	390	0	-----	-----
1/23/08	520	2	-----	-----
1/28/08	260	1	-----	-----
2/5/08	1700	5	0	0
2/20/08	2400	1	-----	-----
2/25/08	1800	1	-----	-----
3/4/08	2700	1	0	0
3/11/08	2400	0	-----	-----
3/18/08	520	0	-----	-----
3/25/08	4400	0	-----	-----
4/1/08	96	0	-----	-----
4/8/08	91	0	0	0
4/15/08	230	1	-----	-----
4/23/08	160	0	-----	-----
4/29/08	330	0	-----	-----
5/6/08	180	0	0	0
5/14/08	1700	0	-----	-----
5/20/08	55	6	-----	-----
5/29/08	1600	0	-----	-----
6/3/08	390	0	0	0
6/11/08	2000	0	-----	-----
6/17/08	110	1	-----	-----
6/24/08	610	0	-----	-----
7/1/08	440	0	-----	-----
7/8/08	310	0	0	0
7/23/08	690	0	-----	-----
7/28/08	330	0	-----	-----
8/5/08	1200	0	0	0
8/13/08	470	1	-----	-----
8/19/08	4400	1	-----	-----
8/25/08	1200	3	-----	-----
9/3/08	1600	0	0	0
9/8/08	5000	0	-----	-----
9/16/08	1400	1	-----	-----
9/22/08	2000	2	-----	-----
10/7/08	5000	1	0	0

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Influent to Terminal				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
10/14/08	4100	0	-----	-----
10/20/08	5200	0	-----	-----
10/27/08	5800	1	-----	-----
11/3/08	6100	0	0	0
11/10/08	5200	0	-----	-----
11/17/08	1	2400	-----	-----
11/24/08	820	0	-----	-----
12/2/08	520	0	0	0
12/8/08	290	0	-----	-----
12/15/08	140	0	-----	-----
12/22/08	1200	5	-----	-----
12/29/08	46	1	-----	-----
1/6/09	65	0	0	0
1/12/09	29	0	-----	-----
1/20/09	16	0	-----	-----
1/26/09	63	2	-----	-----
2/3/09	22	0	0	0
2/17/09	36	0	-----	-----
2/23/09	84	0	-----	-----
3/3/09	160	0	0	0
3/9/09	2400	0	-----	-----
3/16/09	7700	0	-----	-----
3/24/09	2800	0	-----	-----
3/30/09	650	0	-----	-----
4/6/09	1400	0	-----	-----
4/13/09	4	0	-----	-----
4/20/09	360	0	-----	-----
4/28/09	690	0	-----	-----
5/5/09	770	0	-----	-----
5/11/09	880	0	-----	-----
5/18/09	1800	0	-----	-----
5/28/09	20000	1	-----	-----
6/1/09	2400	2	-----	-----
6/9/09	1100	0	-----	-----
6/22/09	1300	1	-----	-----
6/29/09	820	0	-----	-----
7/9/09	730	0	-----	-----
7/14/09	610	1	-----	-----

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Influent to Terminal				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
7/21/09	290	0	-----	-----
7/29/09	2500	0	-----	-----
8/4/09	370	0	-----	-----
8/10/09	1300	1	-----	-----
8/18/09	1200	0	-----	-----
8/27/09	1400	0	-----	-----
8/31/09	1700	0	-----	-----
9/9/09	1300	0	-----	-----
9/15/09	1300	0	-----	-----
9/21/09	650	0	-----	-----
9/29/09	870	1	-----	-----
10/6/09	520	1	-----	-----
10/13/09	310	0	-----	-----
10/19/09	1600	1	-----	-----
10/27/09	440	4	-----	-----
11/3/09	520	2	-----	-----
11/9/09	1700	2	-----	-----
11/16/09	870	2	-----	-----
11/23/09	1400	0	-----	-----
11/30/09	580	0	-----	-----
12/7/09	320	2	-----	-----
12/15/09	440	1	-----	-----
12/21/09	490	1	-----	-----
12/28/09	550	0	-----	-----
1/5/10	1000	3	-----	-----
1/12/10	310	0	-----	-----
1/19/10	330	1	-----	-----
1/25/10	870	4	-----	-----
2/3/10	440	1	-----	-----
2/9/10	2400	0	-----	-----
2/16/10	24000	0	-----	-----
2/22/10	5800	0	-----	-----
2/23/10	20000	0	-----	-----
3/1/10	11000	0	-----	-----
3/9/10	2000	1	-----	-----
3/15/10	7300	0	-----	-----
3/22/10	2300	0	-----	-----
3/29/10	16000	0	-----	-----

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Influent to Terminal				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
4/5/10	24000	1	-----	-----
4/12/10	2400	4	-----	-----
4/19/10	3700	0	-----	-----
4/27/10	1600	0	-----	-----
5/4/10	10000	0	-----	-----
5/11/10	2400	2	-----	-----
5/17/10	1600	0	-----	-----
5/24/10	1200	0	-----	-----
6/8/10	1000	0	-----	-----
6/15/10	5800	0	-----	-----
6/21/10	3100	0	-----	-----
6/30/10	7700	0	-----	-----
7/7/10	1600	0	-----	-----
7/12/10	1200	0	-----	-----
7/20/10	2000	0	-----	-----
7/26/10	8200	0	-----	-----
8/3/10	2400	1	-----	-----
8/9/10	14000	0	-----	-----
8/23/10	570	0	-----	-----
8/30/10	340	0	-----	-----
9/7/10	610	1	-----	-----
9/20/10	2800	0	-----	-----
9/27/10	2400	1	-----	-----
10/5/10	3200	0	-----	-----
10/12/10	460	1	-----	-----
10/18/10	440	1	-----	-----
10/25/10	320	2	-----	-----
11/1/10	320	0	-----	-----
11/8/10	580	0	-----	-----
11/15/10	2000	1	-----	-----
11/22/10	650	0	-----	-----
11/29/10	120	0	-----	-----
12/6/10	170	1	-----	-----
12/13/10	330	1	-----	-----
12/21/10	41	0	-----	-----
12/28/10	190	32	-----	-----

Appendix B1: Water Quality Data
Microbiological Analysis Results
January 2006 through December 2010

Terminal Intake @ 6’				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
6/15/09	7300	18	-----	-----
6/22/09	28000	130	-----	-----
6/29/09	11000	81	-----	-----
7/6/09	27000	290	-----	-----
7/14/09	2300	81	-----	-----
7/20/09	770	140	-----	-----
7/28/09	650	91	-----	-----
8/3/09	690	55	-----	-----
8/12/09	150	20	-----	-----
8/17/09	690	59	-----	-----

Terminal Intake @ 12’				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
6/11/09	>24000	81	-----	-----
6/12/09	>24000	15	-----	-----
6/15/09	5500	5	-----	-----
6/22/09	24000	2000	-----	-----
6/29/09	12000	730	-----	-----
7/6/09	25000	390	-----	-----
7/14/09	2900	99	-----	-----
7/20/09	1200	200	-----	-----
7/28/09	1600	120	-----	-----
8/3/09	580	82	-----	-----
8/12/09	130	340	-----	-----
8/17/09	610	84	-----	-----

Terminal Intake @ 18’				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
6/15/09	>2400	3	-----	-----
6/22/09	112000	70	-----	-----
6/29/09	24000	36	-----	-----
7/6/09	34000	330	-----	-----
7/14/09	2600	22	-----	-----
7/20/09	980	49	-----	-----
7/28/09	1000	130	-----	-----
8/3/09	820	86	-----	-----

Appendix B1: Water Quality Data
Microbiological Analysis Results
January 2006 through December 2010

Terminal Intake @ 18'				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
8/12/09	1000	390	-----	-----
8/17/09	1200	140	-----	-----

Lopez Treatment Plant Raw				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
1/9/06	2400	2	-----	-----
1/17/06	13000	18	-----	-----
1/23/06	5800	7	-----	-----
1/30/06	2000	1	-----	-----
2/6/06	7700	1	-----	-----
2/13/06	3100	0	-----	-----
2/21/06	240	0	-----	-----
2/27/06	240	4	-----	-----
3/6/06	260	3	-----	-----
3/13/06	140	5	-----	-----
3/20/06	46	2	-----	-----
3/27/06	61	2	-----	-----
4/3/06	28	0	-----	-----
4/10/06	88	1	-----	-----
4/17/06	120	1	-----	-----
4/24/06	360	5	-----	-----
5/3/06	460	16	-----	-----
5/8/06	1100	7	-----	-----
5/15/06	390	0	-----	-----
5/22/06	1600	62	-----	-----
5/30/06	170	8	-----	-----
6/5/06	520	15	-----	-----
6/12/06	460	9	-----	-----
6/19/06	440	11	-----	-----
6/26/06	920	25	-----	-----
7/3/06	650	38	-----	-----
7/10/06	170	10	-----	-----
7/17/06	390	21	-----	-----
7/24/06	2000	89	-----	-----
7/31/06	1700	84	-----	-----
8/7/06	980	12	-----	-----
8/14/06	2000	21	-----	-----
8/21/06	920	10	-----	-----

Appendix B1: Water Quality Data
Microbiological Analysis Results
January 2006 through December 2010

Lopez Treatment Plant Raw				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
8/28/06	1200	11	-----	-----
9/5/06	390	24	-----	-----
9/11/06	260	23	-----	-----
9/18/06	370	56	-----	-----
9/25/06	20	1	-----	-----
10/2/06	130	10	-----	-----
10/10/06	2500	11	-----	-----
10/16/06	340	5	-----	-----
10/23/06	250	12	-----	-----
10/30/06	24000	11	-----	-----
11/6/06	6100	55	-----	-----
11/13/06	980	30	-----	-----
11/20/06	3700	24	-----	-----
11/27/06	3000	43	-----	-----
12/4/06	5800	23	-----	-----
12/11/06	8200	12	-----	-----
12/18/06	1600	11	-----	-----
12/26/06	2400	4	-----	-----
1/8/07	2000	3	-----	-----
1/16/07	6500	4	-----	-----
1/22/07	2400	5	-----	-----
1/29/07	400	12	-----	-----
2/5/07	160	7	-----	-----
2/13/07	110	4	-----	-----
2/20/07	460	1	-----	-----
2/26/07	1600	1	-----	-----
3/12/07	3100	1	-----	-----
3/19/07	3700	2	-----	-----
4/2/07	5200	11	-----	-----
4/16/07	2300	1	-----	-----
4/30/07	220	12	-----	-----
5/7/07	34	1	-----	-----
5/8/07	460	2	0	0
5/14/07	3700	2	-----	-----
5/21/07	230	1	-----	-----
5/30/07	65	0	-----	-----
6/4/07	2700	7	0	0
6/11/07	690	6	-----	-----

Appendix B1: Water Quality Data
Microbiological Analysis Results
January 2006 through December 2010

Lopez Treatment Plant Raw				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
6/18/07	550	79	-----	-----
6/25/07	290	10	-----	-----
7/1/07	920	83	0	0
7/2/07	460	28	-----	-----
7/9/07	4000	86	-----	-----
7/16/07	41	26	-----	-----
7/23/07	79	23	-----	-----
7/30/07	460	57	-----	-----
8/6/07	650	87	0	0
8/6/07	140	70	-----	-----
8/14/07	33	10	-----	-----
8/21/07	86	15	-----	-----
8/28/07	10	1	-----	-----
9/4/07	340	10	0	0
9/11/07	55	5	-----	-----
9/17/07	130	14	-----	-----
9/25/07	240	19	-----	-----
10/2/07	230	20	0	0
10/9/07	110	11	-----	-----
10/16/07	150	15	-----	-----
10/23/07	1700	32	-----	-----
11/6/07	9800	10	0	0
11/19/07	20000	11	-----	-----
11/27/07	24000	10	-----	-----
12/4/07	10000	12	0	0
12/5/07	24000	3	-----	-----
12/10/07	20000	10	-----	-----
12/18/07	2400	14	-----	-----
12/26/07	3600	4	-----	-----
1/2/08	8700	5	-----	-----
1/8/08	6100	27	0	1
1/15/08	16000	4	-----	-----
1/23/08	400	6	-----	-----
1/28/08	5200	20	-----	-----
2/5/08	690	5	0	0
2/13/08	19	1	-----	-----
2/20/08	240	2	-----	-----
2/25/08	2400	6	-----	-----

Appendix B1: Water Quality Data
Microbiological Analysis Results
January 2006 through December 2010

Lopez Treatment Plant Raw				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
3/4/08	6500	3	0	0
3/11/08	520	1	-----	-----
3/18/08	1000	0	-----	-----
3/25/08	2600	0	-----	-----
4/1/08	180	2	-----	-----
4/8/08	250	10	-----	-----
4/15/08	1400	3	-----	-----
4/23/08	1300	5	-----	-----
4/29/08	33	1	-----	-----
5/6/08	330	0	0	0
5/6/08	330	0	-----	-----
5/13/08	130	4	-----	-----
5/20/08	360	0	-----	-----
5/29/08	220	26	-----	-----
6/3/08	-----	-----	0	0
6/3/08	490	3	-----	-----
6/11/08	340	5	-----	-----
6/18/08	37	10	-----	-----
6/24/08	210	8	-----	-----
6/30/08	81	17	-----	-----
7/8/08	-----	-----	0	0
7/8/08	410	110	-----	-----
7/15/08	490	25	-----	-----
7/22/08	770	24	-----	-----
7/28/08	2400	250	-----	-----
8/4/08	490	10	-----	-----
8/5/08	1000	18	0	0
8/11/08	250	9	-----	-----
8/19/08	1200	6	-----	-----
8/25/08	2000	10	-----	-----
9/3/08	1400	13	0	0
9/8/08	5500	10	-----	-----
9/15/08	20000	3	-----	-----
9/22/08	17000	52	-----	-----
10/1/08	9800	3	-----	-----
10/7/08	980	33	0	0
10/14/08	130	6	-----	-----
10/20/08	410	17	-----	-----

Appendix B1: Water Quality Data
Microbiological Analysis Results
January 2006 through December 2010

Lopez Treatment Plant Raw				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
10/27/08	2000	20	-----	-----
11/3/08	-----	-----	0	0
11/3/08	3700	58	-----	-----
11/13/08	4600	12	-----	-----
11/17/08	<1	3700	-----	-----
11/24/08	12000	3	-----	-----
12/2/08	17000	16	-----	-----
12/8/08	-----	-----	0	0
12/8/08	4100	3	-----	-----
12/15/08	1700	16	-----	-----
12/22/08	70	0	-----	-----
12/29/08	820	3	-----	-----
1/5/09	1800	3	-----	-----
1/6/09	-----	-----	0	0
1/6/09	2800	4	-----	-----
1/13/09	1700	0	-----	-----
1/20/09	520	0	-----	-----
1/26/09	5800	10	-----	-----
2/3/09	-----	-----	0	0
2/3/09	650	1	-----	-----
2/10/09	920	5	-----	-----
2/19/09	330	7	-----	-----
2/23/09	55	0	-----	-----
3/2/09	1300	0	-----	-----
3/3/09	-----	-----	0	0
3/3/09	16000	6	-----	-----
3/11/09	260	1	-----	-----
3/16/09	1900	0	-----	-----
3/23/09	200	1	-----	-----
3/30/09	62	1	-----	-----
4/7/09	28	0	-----	-----
4/13/09	150	2	-----	-----
4/20/09	440	1	-----	-----
4/27/09	1900	3	-----	-----
5/4/09	770	1	-----	-----
5/5/09	650	0	-----	-----
5/11/09	70	2	-----	-----
5/18/09	75	0	-----	-----

Appendix B1: Water Quality Data
Microbiological Analysis Results
January 2006 through December 2010

Lopez Treatment Plant Raw				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
5/26/09	75	3	-----	-----
6/1/09	200	5	-----	-----
6/9/09	>24000	8	-----	-----
6/11/09	24000	47	-----	-----
6/13/09	6900	33	-----	-----
6/15/09	2000	33	-----	-----
6/15/09	2000	33	-----	-----
6/22/09	20000	200	-----	-----
6/29/09	24000	260	-----	-----
7/6/09	24000	1600	-----	-----
7/13/09	1900	54	-----	-----
7/20/09	770	140	-----	-----
7/28/09	1200	130	-----	-----
8/3/09	1100	200	-----	-----
8/11/09	1200	200	-----	-----
8/17/09	410	49	-----	-----
8/25/09	5200	200	-----	-----
8/31/09	3700	220	-----	-----
9/8/09	5500	73	-----	-----
9/8/09	2500	54	-----	-----
9/10/09	>24000	190	-----	-----
9/10/09	4600	46	-----	-----
9/17/09	1300	130	-----	-----
9/21/09	2000	210	-----	-----
9/28/09	>2400	53	-----	-----
9/30/09	2000	260	-----	-----
10/6/09	610	40	-----	-----
10/6/09	820	120	-----	-----
10/13/09	580	55	-----	-----
10/19/09	290	19	-----	-----
10/26/09	240	50	-----	-----
11/2/09	170	7	-----	-----
11/2/09	150	16	-----	-----
11/9/09	690	37	-----	-----
11/16/09	380	23	-----	-----
11/23/09	920	28	-----	-----
11/30/09	330	27	-----	-----
12/7/09	1200	99	-----	-----

Appendix B1: Water Quality Data
Microbiological Analysis Results
January 2006 through December 2010

Lopez Treatment Plant Raw				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
12/14/09	340	110	-----	-----
12/21/09	86	14	-----	-----
12/28/09	110	13	-----	-----
1/4/10	140	12	-----	-----
1/5/10	75	2	-----	-----
1/11/10	50	2	-----	-----
1/12/10	50		-----	-----
1/19/10	85	7	-----	-----
1/25/10	46	1	-----	-----
2/1/10	>2400	10	-----	-----
2/3/10	>2400	3	-----	-----
2/8/10	4100	0	-----	-----
2/8/10	6900	4	-----	-----
2/16/10	690	0	-----	-----
2/22/10	870	0	-----	-----
3/1/10	93	1	-----	-----
3/8/10	260	0	-----	-----
3/15/10	3200	1	-----	-----
3/22/10	>2400	1	-----	-----
3/24/10	>2400	0	-----	-----
3/24/10	290	0	-----	-----
3/29/10	>2400	0	-----	-----
4/5/10	300	0	-----	-----
4/12/10	1300	3	-----	-----
4/19/10	730	1	-----	-----
4/27/10	3300	1	-----	-----
5/3/10	190	0	-----	-----
5/10/10	1200	1	-----	-----
5/17/10	220	0	-----	-----
5/24/10	310	3	-----	-----
6/3/10	70	3	-----	-----
6/7/10	93	1	-----	-----
6/14/10	170	5	-----	-----
6/21/10	460	5	-----	-----
6/28/10	300	9	-----	-----
7/7/10	130	4	-----	-----
7/12/10	100	5.2	-----	-----
7/19/10	160	22	-----	-----

Appendix B1: Water Quality Data
Microbiological Analysis Results
January 2006 through December 2010

Lopez Treatment Plant Raw				
Date	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Cryptosporidium (Oocyst/L)	*Giardia* (Cysts/L)
7/23/10	640	37	-----	-----
8/2/10	170	21	-----	-----
8/9/10	160	1	-----	-----
8/16/10	170	0	-----	-----
8/23/10	120	5.2	-----	-----
8/30/10	190	12	-----	-----
9/7/10	440	3	-----	-----
9/20/10	180	12	-----	-----
9/27/10	35	5	-----	-----
10/4/10	63	6	-----	-----
10/18/10	8700	10	-----	-----
10/25/10	880	27	-----	-----
11/1/10	145	7.5	-----	-----
11/8/10	520	32	-----	-----
11/15/10	130	3	-----	-----
11/22/10	340	22	-----	-----
11/29/10	160	9	-----	-----
12/6/10	69	6	-----	-----
12/13/10	81	6	-----	-----
12/20/10	460	26	-----	-----
12/27/10	170	5	-----	-----

Appendix B2: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Arroyo Grande Creek

Date	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
2/21/06	13.2	330	130	28.0	0	<25	860	290	420	330	-----	<0.1	24	120	37	0	7.90	120	600	12.0	<25
5/8/06	13.1	310	120	26.0	0	<25	830	550	390	310	-----	<0.1	23	130	37	0	-----	120	530	22.0	<25
8/14/06	13.0	300	110	25.0	0	<25	780	240	360	300	-----	<0.1	19	120	35	0	7.96	110	550	20.3	<25
11/13/06	13.0	340	120	28.0	0	<25	900	260	400	340	-----	<0.1	28	200	41	0	7.47	98	600	15.4	<25
2/13/07	12.8	360	130	32.0	0	<25	960	370	440	360	-----	<0.1	26	150	43	0	7.05	130	620	9.7	<25
5/7/07	12.8	350	120	28.0	0	<5	890	270	400	350	-----	<0.1	24	220	42	0	7.65	98	610	14.4	<25
8/13/07	12.9	340	110	27.0	0	<5	870	180	380	340	-----	<0.1	24	220	48	0	8.05	97	560	25.6	<25
11/14/07	12.5	360	110	28.0	0	<5	930	620	380	360	-----	<0.1	24	230	48	0	7.91	81	580	15.6	<25
2/13/08	13.3	330	130	32.0	0	<5	930	340	430	330	-----	<0.1	25	160	43	0	8.30	140	660	13.3	<25
5/13/08	13.3	320	120	22.0	40	<5	810	150	380	280	-----	<0.1	22	110	36	0	8.18	97	550	19.0	<25
8/12/08	13.0	320	110	29.0	80	<5	820	200	350	240	1.02	<0.1	21	170	40	0	8.06	86	550	20.9	<25
11/10/08	12.9	350	120	32.0	0	<5	890	270	400	350	0.85	<0.1	23	240	49	0	8.03	99.7	580	16.5	<25
2/17/09	12.7	300	110	33.8	0	<25	840	1900	370	300	0.51	<0.1	21	130	42	0	7.98	119	590	11.2	<25
5/11/09	13.0	390	130	31.4	0	<25	970	260	440	390	1.00	<0.1	27	370	33	0	7.78	103	640	21.2	<25
8/10/09	12.6	360	120	28.0	0	<25	900	310	380	360	0.50	<0.1	22	480	50	0	7.53	76.7	570	16.9	<25
11/10/09	12.8	360	120	28.8	0	<25	820	140	380	360	0.62	<0.1	20	94	42	0	8.14	70.7	550	13.4	<25
2/8/10	13.3	350	140	35.6	0	<5	880	610	450	350	1.10	<0.1	22	210	44	0	8.19	129	680	12.9	<25
5/10/10	12.3	330	130	29.1	0	<5	870	150	410	330	0.29	<0.1	20	200	40	0	7.63	120	610	13.9	<25
5/10/10	12.3	330	130	29.1	0	<25	870	150	410	330	0.29	<0.1	20	200	40	0	7.63	120	610	13.9	<25
8/9/10	13.0	340	64	31.7	0	<50	870	420	401	340	1.01	<0.1	58	370	47	0	7.95	102	610	21.6	<25
11/8/10	13.0	330	110	32.0	0	<25	830	650	360	330	0.95	<0.1	21	340	46	0	7.75	81	570	16.1	<25
Min	12.3	300	64	22.0	0	<25	780	140	350	240	0.29	<0.1	19	94	33	0	7.05	70.7	530	9.7	<25
Max	13.3	390	140	35.6	80	<25	970	1900	450	390	1.10	<0.1	58	480	50	0	8.3	140	680	25.6	<25
Average	12.9	338	118	29.4	5.71	<25	872	397	397	332	0.74	<0.1	24	213	42	0	7.48	105	591	16.5	<25
Median	13.0	340	120	29.0	0	<25	870	270	400	340	0.85	<0.1	23	200	42	0	7.91	102	590	15.6	<25
n	21	21	21	21	21	21	21	21	21	21	11	21	21	21	21	21	20	21	21	21	21

Appendix B2: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Clapboard Canyon Creek

Date	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
2/21/06	11.8	220	86	28.0	0	<25	800	87	350	220	-----	<0.1	33	52	41	0	6.90	160	560	16.6	<25
5/10/06	12.0	210	71	26.0	0	<25	730	41	290	210	-----	<0.1	28	16	43	0	7.20	150	480	17.5	<25
8/15/06	12.1	290	79	24.0	0	<25	850	650	360	290	-----	<0.1	40	540	46	0	6.87	130	570	20.2	<25
11/13/06	12.8	280	79	18.0	0	<25	730	460	350	280	-----	<0.1	36	240	24	0	7.66	88	480	15.7	<25
2/13/07	12.7	270	78	18.0	0	<25	720	150	340	270	-----	<0.1	35	130	24	0	7.64	110	450	13.2	<25
5/7/07	13.0	290	85	21.0	24	<5	790	170	370	270	-----	<0.1	38	220	27	0	8.04	110	520	21.8	<25
8/13/07	13.4	260	70	21.0	59	<5	710	110	330	200	-----	<0.1	39	37	31	0	8.86	100	460	25.0	<25
11/14/07	13.3	260	80	19.0	40	<5	780	280	370	220	-----	<0.1	41	82	26	0	8.15	100	490	20.8	<25
2/13/08	13.0	170	68	22.0	0	5	680	470	290	170	-----	<0.1	29	160	27	0	8.57	160	470	15.2	<25
5/14/08	12.8	260	85	28.0	0	<25	810	170	360	260	-----	<0.1	35	79	39	0	8.06	170	530	21.2	<25
2/17/09	12.6	250	73	20.4	0	<5	740	1000	340	250	0.42	<0.1	38	280	28	0	8.37	128	480	12.0	<25
5/11/09	12.5	270	90	23.4	0	<25	860	1900	390	270	0.68	<0.1	41	1000	32	0	7.72	143	560	26.5	<25
2/23/10	12.2	260	110	25.5	0	<25	910	560	440	260	0.07	<0.1	40	290	36	0	7.28	211	630	14.2	<25
5/10/10	12.0	260	100	23.7	0	<25	840	240	410	260	0.18	<0.1	38	90	34	0	7.56	169	570	21.5	<25
5/10/10	12.0	260	100	23.7	0	<25	840	240	410	260	0.18	<0.1	38	90	34	0	7.56	169	570	21.5	<25
8/9/10	13.4	250	54	20.7	23	<50	706	250	358	230	1.47	<0.1	54	62	29	0	8.77	131	490	24.3	<25
11/8/10	13.0	260	71	21.0	0	<25	730	530	340	260	0.99	<0.1	40	130	30	0	8.14	120	490	19.3	<25
Min	11.8	170	54	18.0	0	<25	680	41	290	170	0.07	<0.1	28	16	24	0	6.87	88	450	12.0	<25
Max	13.4	290	110	28.0	59	5	910	1900	440	290	1.47	<0.1	54	1000	46	0	8.86	211	630	26.5	<25
Average	12.6	254	81.1	22.6	8.59	0.29	778	430	359	246	0.57	<0.1	38	206	32	0	7.84	138	518	19.2	<25
Median	12.7	260	79	22.0	0	<25	780	250	358	260	0.42	<0.1	38	130	31	0	7.72	131	490	20.2	<25
n	17	17	17	17	17	17	17	17	17	17	7	17	17	17	17	17	17	17	17	17	17

Appendix B2: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Influent to Terminal

Date	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
2/6/06	12.9	260	78	17.0	0	<5	690	61	350	260	-----	<0.1	38	68	22	0	7.42	100	440	13.0	<25
5/1/06	12.9	230	70	16.0	0	<25	640	85	300	230	-----	<0.1	32	12	20	0	8.25	92	460	16.4	<25
8/7/06	12.8	260	73	15.0	0	<25	660	33	310	260	-----	<0.1	32	42	21	0	7.95	93	460	19.0	<25
11/6/06	13.0	260	79	17.0	0	<25	700	25	330	260	-----	<0.1	32	19	22	0	8.01	95	470	18.0	<25
2/5/07	12.9	270	88	17.0	0	<25	700	34	370	270	-----	<0.1	38	25	23	0	8.16	100	450	10.5	<25
5/7/07	13.2	270	80	17.0	40	<5	720	26	350	230	-----	<0.1	38	14	23	0	8.64	100	470	18.0	<25
8/6/07	13.3	260	75	17.0	31	<5	680	66	340	230	-----	<0.1	37	87	24	0	8.71	100	440	22.0	<25
11/6/07	13.1	270	79	17.0	50	<5	730	24	370	220	-----	<0.1	41	44	25	0	8.52	110	450	16.7	<25
2/5/08	12.6	260	76	16.0	27	<5	700	91	340	230	-----	<0.1	36	33	23	0	8.23	100	460	11.2	<25
5/6/08	13.4	270	79	18.0	83	<5	710	24	340	190	-----	<0.1	35	11	23	0	8.96	110	460	17.8	<25
8/5/08	13.3	230	61	18.0	77	<5	670	23	310	150	1.33	<0.1	38	14	25	0	8.69	110	430	22.4	<25
11/3/08	12.8	240	65	19.0	0	<5	690	140	320	240	0.77	<0.1	40	300	26	0	8.27	110	440	17.8	<25
2/3/09	12.8	250	68	19.0	0	<25	710	42	330	250	0.62	<0.1	39	37	26	0	8.15	111	460	12.8	<25
5/5/09	13.0	250	69	19.4	0	<25	700	29	330	250	0.93	<0.1	39	15	26	0	8.08	113	450	16.8	<25
8/4/09	13.0	240	70	19.5	0	<25	700	39	340	240	1.03	<0.1	40	47	28	0	8.36	111	460	21.6	<25
11/3/09	12.8	240	70	20.7	0	<25	720	47	350	240	0.83	<0.1	43	77	29	0	8.26	112	510	18.2	<25
2/2/10	12.7	240	74	18.6	0	<5	720	76	330	240	0.58	<0.1	37	11	26	0	8.07	112	460	13.1	<25
5/4/10	12.9	240	76	18.5	0	<25	700	33	330	240	0.85	<0.1	35	19	26	0	8.13	119	450	16.4	<25
8/3/10	13.0	250	55	19.0	0	<50	709	34	350	250	1.03	<0.1	52	49	28	0	8.52	127	480	22.0	<25
11/8/10	12.9	250	68	20.0	0	<25	710	28	340	250	0.95	<0.1	41	39	27	0	8.22	120	440	19.3	<25
Min	12.6	230	55	15.0	0	<50	640	23	300	150	0.58	<0.1	32	11	20	0	7.42	92	430	10.5	<25
Max	13.4	270	88	20.7	83	<50	730	140	370	270	1.33	<0.1	52	300	29	0	8.96	127	510	22.4	<25
Average	13.0	252	72.7	17.9	15.4	<50	698	48	337	237	0.89	<0.1	38	48.2	25	0	8.28	107	457	17.2	<25
Median	12.9	250	73.5	18.0	0	<50	700	34	340	240	0.89	<0.1	38	35	25	0	8.24	110	460	17.8	<25
n	20	20	20	20	20	20	20	20	20	20	10	20	20	20	20	20	20	20	20	20	20

Appendix B2: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Creek

Date	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
2/21/06	13.2	350	91	11.0	0	<25	760	33	410	350	-----	<0.1	44	ND	14	0	7.85	110	510	13.2	<25
5/8/06	13.1	300	86	11.0	0	<25	730	71	400	300	-----	<0.1	45	ND	15	0	-----	100	440	19.8	<25
8/14/06	13.1	330	94	11.0	0	<25	780	53	420	330	-----	<0.1	44	ND	14	0	8.11	110	520	19.0	<25
11/13/06	13.0	330	89	10.0	0	<25	780	110	420	330	-----	<0.1	47	ND	13	0	8.01	91	510	16.7	<25
2/13/07	13.1	330	91	11.0	0	<25	800	47	420	330	-----	<0.1	47	5	14	0	7.85	110	490	11.8	<25
5/7/07	13.0	330	91	9.8	0	<5	800	94	380	330	-----	<0.1	38	ND	14	0	7.78	100	490	13.7	<25
8/13/07	13.0	340	70	11.0	0	<5	800	46	340	340	-----	<0.1	39	ND	14	0	8.41	110	510	22.4	<25
11/14/07	13.0	340	93	9.5	50	<5	860	42	430	290	-----	<0.1	49	8	14	0	8.34	100	520	17.3	<25
2/13/08	13.0	290	83	11.0	0	<5	700	24	370	290	-----	<0.1	39	11	14	0	8.24	100	450	13.2	<25
5/13/08	13.3	320	94	12.0	55	<5	760	38	410	270	-----	<0.1	43	ND	14	0	8.36	100	480	18.3	-----
8/12/08	13.2	340	92	11.0	90	<5	820	51	410	250	1.14	<0.1	45	6	15	0	8.24	110	520	18.4	<25
11/10/08	13.1	350	99	11.0	30	<5	810	31	440	320	1.05	<0.1	46	ND	14	0	8.38	108	500	15.7	<25
2/17/09	12.8	290	82	12.2	0	<25	740	200	380	290	0.68	<0.1	43	9	17	0	8.26	118	490	12.1	<25
5/11/09	13.2	340	96	11.9	0	<25	830	42	430	340	1.15	<0.1	46	ND	15	0	8.24	111	520	18.2	<25
8/10/09	13.0	340	100	11.1	0	<25	840	85	430	340	1.01	<0.1	46	10	16	0	8.11	104	520	17.5	<25
11/10/09	13.3	330	110	12.8	0	<25	840	32	460	330	1.19	<0.1	44	ND	16	0	8.31	114	540	13.8	<25
2/8/10	13.1	260	79	10.3	22	<5	620	100	350	240	0.98	<0.1	36	ND	14	0	8.43	87	440	12.8	<25
5/10/10	12.3	310	100	11.5	0	<25	760	120	420	310	0.32	<0.1	42	ND	15	0	7.78	110	490	14.3	<25
5/10/10	12.3	310	100	11.5	0	<25	760	120	420	310	0.32	<0.1	42	ND	15	0	7.78	110	490	14.3	<25
8/9/10	13.1	340	48	11.4	0	<50	788	120	440	340	1.08	<0.1	78	ND	15	0	8.29	118	530	18.6	<25
11/8/10	13.3	340	91	11.0	0	<25	790	98	420	340	1.17	<0.1	47	ND	14	0	8.14	110	510	15.2	<25
Min	12.3	260	48	9.5	0	<50	620	24	340	240	0.32	<0.1	36	ND	13	0	7.78	87	440	11.8	<25
Max	13.3	350	110	12.8	90	<50	860	200	460	350	1.19	<0.1	78	11	17	0	8.43	118	540	22.4	<25
Average	13.0	324	89.5	11.1	11.8	<50	779	74	410	313	0.92	<0.1	45	2.3	15	0	8.15	106	499	16.0	<25
Median	13.1	330	91	11.0	0	<50	788	53	420	330	1.05	<0.1	44	ND	14	0	8.24	110	510	15.7	<25
n	21	21	21	21	21	21	21	21	21	21	11	21	21	21	21	21	20	21	21	21	20

Appendix B2: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Treatment Plant Raw

Date	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
5/3/06	12.8	240	73	18.0	0	0	660	29	330	240	-----	<0.1	36	27	22	0	8.2	100	460	18.2	<25
5/7/07	12.9	290	82	17.0	0	62	730	15	350	290	-----	<0.1	36	22	23	0	8.28	100	480	18.5	<25
8/6/07	13.0	280	75	17.0	0	300	710	14	340	280	-----	<0.1	37	8	25	0	8.27	110	440	22.9	<25
5/6/08	13.1	270	79	19.0	51	150	730	7	340	220	-----	<0.1	35	11	23	0	8.4	110	470	19.0	<25
5/4/09	12.9	250	68	19.7	0	60	710	9	330	250	0.9	<0.1	40	13	26	0	8.32	115	440	19.3	<25
5/3/10	12.8	250	68	20.1	0	ND	700	11	340	250	0.76	<0.1	42	28	27	0	8.1	118	460	18.0	<25
Min	12.8	240	68	17.0	0	ND	660	7	330	220	0.76	<0.1	35	8	22	0	8.1	100	440	18.0	<25
Max	13.1	290	82	20.1	51	300	730	29	350	290	0.9	<0.1	42	28	27	0	8.4	118	480	22.9	<25
Average	12.9	263	74.2	18.5	8.5	95.3	707	14	338	255	0.83	<0.1	38	18	24	0	8.26	109	458	19.3	<25
Median	12.9	260	74	18.5	0	61	710	12.5	340	250	0.83	<0.1	37	18	24	0	8.28	110	460	18.8	<25
n	6	6	6	6	6	6	6	6	6	6	2	6	6	6	6	6	6	6	6	6	6

Lopez Treatment Plant Treated

Date	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
2/6/06	12.6	250	79	23.0	0	7	720	ND	350	250	-----	<0.1	37	ND	23	0	7.13	110	430	15.2	<25
5/3/06	12.5	240	71	23.0	0	ND	670	6	330	240	-----	<0.1	36	ND	23	0	7.92	95	450	19.1	<25
8/7/06	12.4	250	71	22.0	0	ND	690	ND	320	250	-----	<0.1	36	ND	23	0	7.9	100	460	24.2	<25
11/6/06	12.6	260	74	23.0	0	ND	730	ND	340	260	-----	<0.1	36	11	23	0	7.98	97	450	21.4	<25
2/5/07	12.5	260	81	21.0	0	ND	720	ND	360	260	-----	<0.1	38	ND	23	0	7.77	99	450	14.1	<25
5/8/07	12.8	270	80	20.0	0	20	740	ND	350	270	-----	<0.1	36	7	24	0	8.00	97	460	20.5	<25
8/6/07	13.0	260	78	23.0	0	290	720	ND	370	260	-----	<0.1	43	ND	27	0	8.4	110	440	23.3	<25

Appendix B2: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Treatment Plant Treated

Date	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
11/6/07	12.8	270	77	23.0	0	300	760	9	360	270	-----	<0.1	40	ND	28	0	8.2	100	470	18.0	<25
2/5/08	12.7	270	76	21.0	0	130	720	6	340	270	-----	<0.1	37	ND	23	0	8.14	100	450	13.5	<25
5/6/08	13.0	260	80	27.0	0	290	740	ND	340	260	-----	<0.1	35	ND	27	0	8.37	110	470	19.6	<25
8/5/08	13.2	250	66	25.0	62	180	720	7	320	190	1.32	<0.1	39	ND	29	0	8.51	110	450	24.0	<25
11/3/08	12.8	250	68	25.0	0	150	720	ND	330	250	0.76	<0.1	38	ND	29	0	8.05	114	440	18.9	<25
2/2/09	12.9	250	67	24.9	0	130	710	ND	320	250	0.72	<0.1	39	ND	28	0	8.23	111	450	13.8	<25
5/4/09	12.9	250	68	26.1	0	190	700	ND	330	250	0.93	<0.1	39	ND	29	0	8.35	107	450	19.0	<25
5/3/10	12.8	240	72	25.5	0	170	720	ND	330	240	0.82	<0.1	37	ND	30	0	8.20	115	460	17.0	<25
Min	12.4	240	66	20.0	0	ND	670	ND	320	190	0.72	<0.1	35	ND	23	0	7.13	95	430	13.5	<25
Max	13.2	270	81	27.0	62	300	760	9	370	270	1.32	<0.1	43	11	30	0	8.51	115	470	24.2	<25
Average	12.8	255	74	23.5	4.1	124	719	2	339	251	0.91	<0.1	38	1.2	26	0	8.08	105	452	18.8	<25
Median	12.8	250	74	23.0	0	130	720	ND	340	250	0.82	<0.1	37	ND	27	0	8.14	107	450	19.0	<25
n	15	15	15	15	15	15	15	15	15	15	5	15	15	15	15	15	15	15	15	15	15

Vasquez Creek Arm

Date	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
2/14/06	12.4	340	99	18.0	0	ND	820	280	430	340	-----	<0.1	46	21	14	0	6.92	110	530	13.7	<25
5/9/06	13.0	260	71	15.0	20.0	ND	630	87	320	240	-----	<0.1	34	17	20	0	8.31	91	400	20.3	<25
8/14/06	13.3	260	77	16.0	60.0	ND	660	110	330	200	-----	<0.1	33	14	21	0	8.54	96	470	23.3	<25
11/13/06	13.1	270	78	17.0	40.0	ND	700	55	340	230	-----	<0.1	34	42	22	0	8.36	83	450	16.7	<25
2/14/07	12.8	280	81	17.0	59.0	ND	720	100	380	220	-----	<0.1	43	27	22	0	8.77	100	450	13.1	<25
5/9/07	12.5	340	100	16.0	0	ND	850	370	450	340	-----	<0.1	47	11	14	0	7.41	100	520	17.0	<25

Appendix B2: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Vasquez Creek Arm

Date	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
8/13/07	13.3	270	74	17.0	62.0	ND	700	70	340	210	-----	<0.1	38	25	24	0	8.70	110	470	22.5	<25
2/13/08	11.7	290	92	16.0	0	ND	750	19	400	290	-----	<0.1	42	7	13	0	6.92	110	470	13.1	<25
5/13/08	12.6	360	110	18.0	0	ND	840	38	450	360	-----	<0.1	45	ND	14	0	7.48	100	520	16.7	<25
2/18/09	12.2	380	120	17.9	0	ND	960	2100	510	380	0.14	<0.1	55	35	17	0	7.02	154	640	14.7	<25
5/19/10	13.5	350	110	17.9	0	ND	830	79	460	350	1.44	<0.1	45	ND	15	0	8.58	109	530	18.5	<25
Min	11.7	260	71	15.0	0	ND	630	19	320	200	0.14	<0.1	33	ND	13	0	6.92	83	400	13.1	<25
Max	13.5	380	120	18.0	62.0	ND	960	2100	510	380	1.44	<0.1	55	42	24	0	8.77	154	640	23.3	<25
Average	12.8	309	92	16.9	21.9	ND	769	301	401	287	0.79	<0.1	42	18	18	0	7.91	106	495	17.2	<25
Median	12.8	290	92	17.0	0	ND	750	87	400	290	0.79	<0.1	43	17	17	0	8.31	100	470	16.7	<25
n	11	11	11	11	11	11	11	11	11	11	2	11	11	11	11	11	11	11	11	11	11

Wittenberg Creek Arm

Date	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
2/7/05	13.1	290	91	15.0	0	ND	830	180	390	290	-----	<0.1	40	26	23	0	7.82	160	570	13.4	<25
5/3/05	13.2	280	85	14.0	35.0	ND	730	88	350	240	-----	<0.1	33	ND	33	0	8.36	140	510	24.8	<25
5/8/06	12.6	270	90	17.0	0	ND	760	130	360	270	-----	<0.1	32	35	32	0		130	470	22.8	<25
2/13/08	13.2	250	86	15.0	26.0	ND	780	75	370	220	-----	<0.1	39	13	35	0	8.47	170	530	15.1	<25
2/8/10	13.2	260	92	15.1	24.0	ND	740	130	380	230	1.00	<0.1	37	11	34	0	8.40	159	550	13.5	<25
Min	12.6	250	85	14.0	0	ND	730	75	350	220	1.00	<0.1	32	ND	23	0	7.82	130	470	13.4	<25
Max	13.2	290	92	17.0	35.0	ND	830	180	390	290	1.00	<0.1	40	35	35	0	8.47	170	570	24.8	<25
Average	13.1	270	89	15.2	17.0	ND	768	121	370	250	1.00	<0.1	36	17	31	0	8.26	152	526	17.9	<25

Appendix B2: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Wittenberg Creek Arm																					
	Aggressive Index	Total Alkalinity	Calcium	Chloride	Carbonate Alkalinity	Copper	Electrical Conductivity	Iron	Hardness	Bicarbonate Alkalinity	Langlier Index	MBAS	Magnesium	Manganese	Sodium	Hydroxide Alkalinity	pH-Field	Sulfate	Total Dissolved Solids	Temperature	Zinc
Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umohs/ cm	ug/L	mg/L	mg/L	-----	mg/L	ug/L	ug/L	ug/L	mg/L		mg/L	mg/L	ºC	mg/L
Median	13.2	270	90	15.0	24.0	ND	760	130	370	240	1.00	<0.1	37	13	33	0	8.38	159	530	15.1	<25
n	5	5	5	5	5	5	5	5	5	5	1	5	5	5	5	5	4	5	5	5	5

Appendix B3: Water Quality Data
Inorganic Analysis Results
January 2006 through December 2010

Arroyo Grande Creek

	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
2/21/06	66	4.9	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/8/06	860	5.2	41	ND	0.62	ND	1.4	0.49	ND	7.5	-----	ND	ND	ND
8/14/06	130	6.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/13/06	110	5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/13/07	110	5.9	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/7/07	150	4.0	31	ND	ND	ND	ND	0.40	ND	ND	-----	ND	ND	ND
8/13/07	57	2.9	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/14/07	63	22.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/13/08	88	7.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/13/08	100	6.0	56	ND	ND	ND	ND	0.23	ND	ND	-----	ND	ND	ND
8/12/08	120	4.7	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/10/08	0	5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/17/09	630	6.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/11/09	92	4.0	36	ND	ND	ND	1.6	0.39	ND	ND	-----	ND	ND	ND
8/10/09	140	3.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/10/09	22	3.8	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/8/10	660	7.1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/10/10	270	4.7	37	ND	ND	ND	ND	0.39	ND	5.7	-----	ND	ND	ND
8/9/10	240	3.5	-----	-----	-----	-----	-----	0.35	-----	-----	-----	-----	-----	-----
11/8/10	520	3.7	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Min	ND	2.9	31	ND	ND	ND	ND	0.23	ND	ND	-----	ND	ND	ND
Max	860	22.0	56	ND	0.62	ND	1.6	0.49	ND	7.5	-----	ND	ND	ND
Average	221	5.7	40	ND	0.12	ND	0.6	0.37	ND	2.6	-----	ND	ND	ND
Median	115	5.0	37	ND	ND	ND	ND	0.39	ND	ND	-----	ND	ND	ND
n	20	20	5	5	5	5	5	6	5	5	0	5	5	5

Clapboard Canyon Creek Arm

	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
2/21/06	0	2.6	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/10/06	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/10/06	0	2.5	18	ND	1.60	ND	ND	0.64	ND	13.0	-----	ND	ND	ND
8/15/06	230	5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/13/06	115	5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/13/07	36	3.8	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/7/07	61	5.0	13	ND	ND	ND	ND	0.52	ND	5.0	-----	ND	ND	ND
8/13/07	54	8.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/14/07	60	2.6	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/13/08	1200	2.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/14/08	33	4.0	40	ND	ND	ND	ND	0.44	ND	4.9	-----	ND	ND	ND
2/17/09	110	4.7	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/11/09	370	5.6	38	ND	0.65	ND	1.8	0.49	ND	8..1	-----	ND	ND	ND

Appendix B3: Water Quality Data
Inorganic Analysis Results
January 2006 through December 2010

Clapboard Canyon Creek Arm

	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**mg/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
2/23/10	52	3.1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/10/10	49	3.8	24	ND	0.69	ND	ND	0.46	ND	10.0	-----	ND	ND	ND
8/9/10	21	5.3	-----	-----	-----	-----	-----	0.40	-----	-----	-----	-----	-----	-----
11/8/10	150	5.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Min	ND	2.0	13	ND	ND	ND	ND	0.40	0	4.9	-----	ND	ND	ND
Max	1200	8.3	40	ND	1.60	ND	1.8	0.64	0	13.0	-----	ND	ND	ND
Average	149	4.3	27	ND	0.59	ND	0.4	0.49	0	8.2	-----	ND	ND	ND
Median	54	4.4	24	ND	0.65	ND	0.0	0.47	0	7.5	-----	ND	ND	ND
n	17	16	5	5	5	5	5	6	5	4	0	5	5	5

Influent to Terminal

	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**mg/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
5/1/06	65	3.2	25	ND	ND	ND	ND	0.36	ND	7.9	-----	ND	ND	ND
5/7/07	ND	5.0	27	ND	ND	ND	ND	0.44	ND	ND	-----	ND	ND	ND
5/6/08	ND	5.0	36	ND	ND	ND	ND	0.35	-----	ND	-----	ND	ND	ND
6/3/08	-----	-----	-----	-----	-----	-----	-----	-----	ND	-----	-----	-----	-----	-----
5/5/09	ND	3.8	26	ND	ND	ND	ND	0.41	ND	ND	-----	ND	ND	ND
5/4/10	20	3.9	28	ND	ND	ND	ND	0.40	ND	ND	-----	ND	ND	ND
8/3/10	-----	-----	-----	-----	-----	-----	-----	0.34	-----	-----	-----	-----	-----	-----
11/8/10	-----	-----	-----	-----	-----	-----	-----	0.41	-----	-----	-----	-----	-----	-----
Min	ND	3.2	25	ND	ND	ND	ND	0.34	ND	ND	-----	ND	ND	ND
Max	65	5.0	36	ND	ND	ND	ND	0.44	ND	7.9	-----	ND	ND	ND
Average	17	4.2	28	ND	ND	ND	ND	0.39	ND	1.6	-----	ND	ND	ND
Median	ND	3.9	27	ND	ND	ND	ND	0.40	ND	ND	-----	ND	ND	ND
n	5	5	5	5	5	5	5	7	5	5	0	5	5	5

Lopez Creek

	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**mg/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
2/21/06	0	2.1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/8/06	0	0.0	41	ND	0.53	ND	ND	0.32	ND	ND	-----	ND	ND	ND
8/14/06	0	0.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/13/06	46	0.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/13/07	25	2.1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/7/07	63	0.0	27	ND	0.30	ND	ND	0.44	ND	ND	-----	ND	5	ND
8/13/07	0	0.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/14/07	0	0.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Appendix B3: Water Quality Data
Inorganic Analysis Results
January 2006 through December 2010

Lopez Creek

	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**mg/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
2/13/08	0	0.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/13/08	0	0.0	57	ND	0.30	ND	ND	0.28	ND	ND	-----	ND	ND	ND
8/12/08	0	0.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/10/08	ND	1.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/17/09	110	2.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/11/09	ND	1.1	37	ND	ND	ND	ND	0.38	ND	ND	-----	ND	ND	ND
8/10/09	ND	ND	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/10/09	ND	1.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/8/10	67	ND	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/10/10	43	1.1	36	ND	ND	ND	ND	0.34	ND	ND	-----	ND	ND	ND
8/9/10	ND	1.1	-----	-----	-----	-----	-----	0.34	-----	-----	-----	-----	-----	-----
11/8/10	ND	1.1	-----	-----	-----	-----	-----	0.35	-----	-----	-----	-----	-----	-----
Min	ND	ND	27	ND	ND	ND	ND	0.28	ND	ND	-----	ND	ND	ND
Max	110	2.2	57	ND	0.53	ND	ND	0.44	ND	ND	-----	ND	5	ND
Average	18	0.7	40	ND	0.23	ND	ND	0.35	ND	ND	-----	ND	1	ND
Median	ND	ND	37	ND	0.30	ND	ND	0.34	ND	ND	-----	ND	ND	ND
n	20	20	5	5	5	5	5	7	5	5	0	5	5	5

Lopez Treatment Plant Raw

	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**mg/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
2/6/06	ND	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
5/3/06	ND	4.0	32	ND	ND	ND	ND	0.35	ND	6.2	-----	ND	ND	ND
8/7/06	ND	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
11/6/06	ND	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
2/5/07	63	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
3/26/07	ND	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/7/07	ND	5.0	29	ND	ND	ND	ND	0.45	ND	ND	-----	ND	ND	ND
8/6/07	ND	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
11/6/07	ND	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
2/5/08	ND	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
5/6/08	ND	4.0	45	ND	ND	ND	ND	0.35	-----	ND	-----	ND	ND	ND
6/3/08	-----	-----	-----	-----	-----	-----	-----	-----	ND	-----	-----	-----	-----	-----
8/5/08	ND	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
9/9/08	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/3/08	ND	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
2/2/09	ND	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
5/4/09	ND	-----	-----	ND	-----	ND	-----	0.42	ND	-----	-----	ND	-----	ND
8/4/09	ND	-----	-----	ND	-----	-----	-----	-----	-----	-----	-----	ND	-----	ND
5/3/10	ND	3.9	26	ND	0.00	ND	ND	0.40	ND	ND	-----	ND	ND	ND
Min	ND	3.9	26	ND	ND	ND	ND	0.35	ND	ND	-----	ND	ND	ND
Max	63	5.0	45	ND	ND	ND	ND	0.45	ND	6.2	-----	ND	ND	ND

Appendix B3: Water Quality Data
Inorganic Analysis Results
January 2006 through December 2010

Lopez Treatment Plant Raw														
	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Average	4	4.2	33	ND	ND	ND	ND	0.39	ND	1.6	-----	ND	ND	ND
Median	ND	4.0	31	ND	ND	ND	ND	0.40	ND	0.0	-----	ND	ND	ND
n	17	4	4	16	4	5	4	5	5	4	0	16	4	16

Lopez Water Treatment Plant Treated														
	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
2/13/06	74	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3/13/06	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4/10/06	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/3/06	0	3.4	26	ND	ND	ND	ND	0.31	ND	ND	-----	ND	ND	ND
6/12/06	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7/10/06	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8/14/06	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
9/11/06	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10/10/06	67	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/13/06	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12/11/06	20	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1/8/07	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/13/07	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3/12/07	26	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4/9/07	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/8/07	0	5.0	33	ND	ND	ND	ND	0.37	ND	ND	-----	ND	ND	ND
6/11/07	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7/9/07	32	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8/14/07	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
9/10/07	30	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10/9/07	22	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/14/07	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12/10/07	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1/9/08	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1/15/08	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/13/08	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3/10/08	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4/15/08	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/6/08	0	4.0	46	ND	ND	ND	ND	0.36	-----	ND	-----	ND	ND	ND
6/3/08	0	-----	-----	-----	-----	-----	-----	-----	ND	-----	-----	-----	-----	-----
6/11/08	22	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7/15/08	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	ND	-----	-----	-----
8/12/08	28	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
9/9/08	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10/14/08	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Appendix B3: Water Quality Data
Inorganic Analysis Results
January 2006 through December 2010

Lopez Water Treatment Plant Treated														
	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
11/13/08	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12/8/08	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1/15/09	30	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/10/09	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3/9/09	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4/13/09	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/4/09	0	2.7	23	ND	ND	ND	ND	0.40	ND	ND	ND	ND	ND	ND
6/8/09	46	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7/13/09	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8/10/09	26	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
9/14/09	20	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10/13/09	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/9/09	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12/14/09	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1/11/10	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/8/10	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3/8/10	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4/12/10	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/3/10	0	3.5	26	ND	ND	ND	ND	0.40	ND	ND	ND	ND	ND	ND
6/7/10	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7/12/10	20	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8/9/10	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
9/13/10	20	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10/12/10	20	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/8/10	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12/13/10	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Min	ND	2.7	23	ND	ND	ND	ND	0.31	ND	ND	ND	ND	ND	ND
Max	74	5.0	46	ND	ND	ND	ND	0.40	ND	ND	ND	ND	ND	ND
Average	8	3.7	31	ND	ND	ND	ND	0.37	ND	ND	ND	ND	ND	ND
Median	ND	3.5	26	ND	ND	ND	ND	0.37	ND	ND	ND	ND	ND	ND
n	62	5	5	5	5	5	5	5	5	5	3	5	5	5

Vasquez Creek Arm														
	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
2/14/06	210	0.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/9/06	0	2.6	28	ND	ND	ND	ND	0.33	ND	5.7	-----	ND	ND	ND
8/14/06	28	5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11/13/06	26	5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/14/07	21	4.8	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/9/07	140	2.0	44	ND	1.30	ND	ND	0.32	ND	2.6	-----	ND	5	ND
8/13/07	27	4.8	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Appendix B3: Water Quality Data
Inorganic Analysis Results
January 2006 through December 2010

Vasquez Creek Arm														
	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
2/13/08	0	0.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/13/08	0	3.0	67	ND	0.80	ND	ND	0.26	ND	ND	-----	ND	ND	ND
2/18/09	0	2.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5/19/10	29	1.4	34	0	0.00	0	0.0	0.28	0	0.0	-----	ND	ND	ND
Min	ND	ND	28	ND	ND	ND	ND	0.26	ND	ND	-----	ND	ND	ND
Max	210	5.0	67	ND	1.30	ND	ND	0.33	ND	5.7	-----	ND	5	ND
Average	44	2.8	43	ND	0.53	ND	ND	0.30	ND	2.1	-----	ND	1.25	ND
Median	26	2.6	39	ND	0.40	ND	ND	0.30	ND	1.3	-----	ND	ND	ND
n	11	11	4	4	4	4	4	4	4	4	0	4	4	4

Wittenberg Creek														
	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cyanide	Chromium	Fluoride	Mercury	Nickel	Perchlorate	Antimony	Selenium	Thallium
Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
5/8/06	ND	2.3	41	ND	ND	ND	ND	0.50	0	5.3	-----	ND	ND	ND
2/13/08	ND	ND	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2/8/10	ND	1.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Min	ND	ND	41	ND	ND	ND	ND	0.50	ND	5.3	-----	ND	ND	ND
Max	ND	2.3	41	ND	ND	ND	ND	0.50	ND	5.3	-----	ND	ND	ND
Average	ND	1.2	41	ND	ND	ND	ND	0.50	ND	5.3	-----	ND	ND	ND
Median	ND	1.2	41	ND	ND	ND	ND	0.50	ND	5.3	-----	ND	ND	ND
n	3	3	1	1	1	1	1	1	1	1	0	1	1	1

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Arroyo Grande Creek							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
02/21/06	<100	180	0.57	0.75	45	5.4	0.57
03/13/06	<100	220	0.59	0.81	48	6.0	0.70
04/10/06	<100	1300	0.77	2.10	48	7.6	0.98
05/08/06	<100	970	0.75	1.72	52	5.3	0.89
06/12/06	<100	610	0.46	1.07	52	4.7	0.81
07/10/06	<100	330	0.84	1.17	51	5.0	0.67
08/14/06	<100	270	0.55	0.82	47	4.3	0.69
09/11/06	<100	220	0.88	1.10	49	4.1	0.64
10/10/06	<100	220	0.41	0.63	49	4.2	0.76
11/13/06	<100	120	0.43	0.55	49	4.9	0.79
12/11/06	<100	160	0.45	0.61	44	6.0	0.65
01/08/07	<100	170	0.45	0.62	48	4.7	-----
02/13/07	<100	110	0.60	0.71	44	6.1	0.79
03/12/07	<100	130	0.34	0.47	45	4.9	0.77
04/09/07	<100	<100	0.42	0.42	31	4.5	0.75
05/07/07	<100	120	0.34	0.46	46	4.7	0.88
06/11/07	<100	<100	0.49	0.49	48	4.7	1.10
07/10/07	<100	150	0.49	0.64	50	5.0	1.20
08/13/07	<100	<100	0.47	0.47	41	5.2	0.94
09/11/07	<100	<100	0.44	0.44	50	4.8	1.00
10/09/07	<100	<100	0.39	0.39	49	4.9	0.86
11/14/07	<100	<100	0.40	0.40	48	5.2	0.97
12/11/07	<100	<100	0.28	0.28	47	4.9	0.71
01/15/08	<100	150	0.42	0.57	48	6.3	0.80
02/13/08	<100	380	0.42	0.80	49	6.7	0.82
03/11/08	<100	250	0.33	0.58	45	5.3	0.71
04/16/08	<100	220	0.36	0.58	47	4.5	0.83
05/13/08	<100	<100	0.44	0.44	48	4.3	0.74
06/10/08	<100	<100	0.41	0.41	50	4.9	0.97
07/14/08	<100	<100	0.21	0.21	34	4.5	0.17
08/12/08	<100	<100	0.60	0.60	-----	4.6	0.76
08/25/08	-----	-----	-----	-----	51	-----	-----
09/08/08	<100	<100	0.59	0.59	50	5.6	0.83
10/14/08	<100	<100	0.32	0.32	48	3.8	0.62
11/10/08	<100	<100	0.41	0.41	43	4.8	0.92
12/08/08	<100	<100	0.26	0.26	48	4.8	0.70
01/20/09	<100	<100	0.42	0.42	47	5.6	0.83
02/17/09	<100	214	0.72	0.93	43	8.3	0.82
03/10/09	<100	<100	0.47	0.47	47	5.9	0.91
04/13/09	<100	<100	0.44	0.44	22	5.3	0.86
05/11/09	<100	<100	0.60	0.60	-----	6.0	1.30

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Arroyo Grande Creek							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
06/08/09	<100	<100	0.47	0.47	-----	5.5	1.10
07/13/09	<100	<100	0.66	0.66	-----	6.0	1.50
08/10/09	<100	115	0.54	0.66	51	5.8	1.30
09/14/09	<100	124	0.55	0.67	-----	-----	1.40
10/13/09	<100	515	0.77	1.30	-----	-----	1.20
11/10/09	<100	<100	0.28	0.28	52	4.3	0.72
12/07/09	<100	<100	0.78	0.78	-----	-----	1.20
01/12/10	<100	<100	0.56	0.56	47	-----	0.98
02/08/10	<100	189	0.44	0.63	47	-----	0.86
02/23/10	-----	-----	-----	-----	46	-----	-----
03/01/10	-----	-----	0.00	-----	-----	-----	0.33
04/12/10	<100	318	1.00	1.30	-----	-----	1.10
05/10/10	<100	172	0.51	0.68	46	5.2	0.83
06/08/10	<100	114	0.72	0.83	-----	-----	1.40
7/13/10	<100	<100	0.59	0.59	-----	-----	1.30
8/9/10	<100	<100	0.61	0.61	51	5.2	0.98
9/13/10	<100	102	0.44	0.54	-----	-----	1.10
10/12/10	<100	<100	0.45	0.45	-----	-----	0.93
11/8/10	<100	100	0.87	0.97	57	7.0	0.90
12/14/10	<100	<100	-----	0.54	-----	-----	0.85

Clapboard Canyon Creek Arm							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
02/21/06	<100	<100	0.36	0.36	32	5.4	0.41
03/13/06	<100	320	2.80	3.10	32	6.5	0.49
04/10/06	<100	120	1.00	1.10	21	11.0	0.64
05/10/06	<100	<100	0.36	0.36	36	5.5	0.52
06/13/06	<100	<100	0.30	0.30	36	4.9	0.48
07/10/06	<100	<100	0.65	0.65	33	12.0	1.10
08/15/06	<100	<100	0.76	0.76	39	7.1	0.60
09/13/06	<100	<100	1.50	1.50	32	8.2	0.66
10/16/06	<100	<100	0.93	0.93	22	7.1	0.50

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Clapboard Canyon Creek Arm							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
11/13/06	<100	<100	0.74	0.74	18	6.8	0.32
12/18/06	<100	<100	0.55	0.55	17	6.1	0.29
01/16/07	<100	170	0.85	1.00	16	5.8	0.33
02/13/07	<100	<100	0.60	0.60	12	6.1	0.18
03/12/07	<100	<100	0.68	0.68	8	7.1	0.14
04/09/07	<100	<100	0.59	0.59	8	7.1	0.15
05/07/07	<100	<100	0.67	0.67	14	7.6	0.19
06/11/07	<100	<100	0.78	0.79	21	8.4	0.26
07/09/07	<100	<100	0.99	0.99	22	9.5	0.63
08/12/07	-----	-----	-----	-----	-----	8.9	-----
08/13/07	<100	<100	0.89	0.89	15	-----	0.84
09/11/07	<100	<100	1.00	1.00	19	8.0	0.80
10/09/07	<100	<100	0.70	0.70	17	6.3	0.41
11/14/07	<100	<100	0.62	0.62	18	6.5	0.42
12/11/07	<100	110	0.00	0.21	19	6.2	0.37
01/15/08	<100	100	0.67	0.77	19	5.9	0.23
02/13/08	<100	<100	0.61	0.61	34	9.3	0.26
03/11/08	<100	<100	0.54	0.54	27	7.0	0.08
04/16/08	<100	<100	0.48	0.48	20	6.1	0.09
05/14/08	<100	<100	0.62	0.62	19	6.6	0.08
06/11/08	<100	<100	0.86	0.86	19	7.2	0.28
07/15/08	<100	<100	1.10	1.10	10	8.7	0.28
01/12/09	<100	373	0.99	1.36	18	6.0	0.30
02/17/09	<100	125	1.10	1.20	20	5.6	0.27
03/10/09	<100	<100	0.75	0.75	21	6.1	0.24
04/13/09	<100	<100	1.20	1.20	10	6.8	0.35
05/11/09	<100	<100	2.10	2.10	-----	7.1	0.52
06/09/09	<100	<100	1.10	1.10	-----	6.4	0.31
02/23/10	-----	-----	-----	-----	34	-----	-----
03/01/10	-----	-----	0.00	-----	-----	-----	0.38
04/12/10	<100	111	0.63	0.74	-----	-----	0.22
05/10/10	<100	<100	0.80	0.80	26	7.1	0.28
06/08/10	<100	<100	0.50	0.50	-----	-----	0.34
07/13/10	<100	<100	0.97	0.97	-----	-----	0.35
08/09/10	<100	<100	1.10	1.10	17	7.3	0.49
9/21/10	<100	<100	0.57	0.57	-----	-----	0.46
10/12/10	<100	<100	0.99	0.99	-----	-----	0.52
11/8/10	<100	<100	1.50	1.50	25	7.2	0.50
12/14/10	<100	230	1.20	1.40	-----	-----	0.50

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Influent to Terminal							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
01/03/06	<100	<100	0.56	0.56	20	5.2	0.44
02/06/06	<100	300	0.75	1.00	20	5.3	0.41
03/07/06	<100	<100	0.75	0.75	14	5.2	0.39
04/03/06	<100	<100	0.53	0.53	12	4.9	0.33
05/01/06	<100	<100	0.56	0.56	15	5.1	0.35
06/05/06	<100	180	0.54	0.72	17	5.3	0.45
07/03/06	<100	<100	0.50	0.50	16	5.6	0.56
08/07/06	<100	<100	0.64	0.64	13	5.3	0.50
09/05/06	<100	<100	0.53	0.53	15	5.6	0.42
10/02/06	<100	110	0.57	0.68	16	6.4	0.41
11/06/06	<100	<100	0.60	0.60	17	5.7	0.45
12/04/06	<100	210	0.71	0.93	17	5.4	0.48
01/02/07	<100	330	0.54	0.87	19	5.4	0.49
02/05/07	<100	200	0.40	0.60	19	5.1	0.48
03/12/07	<100	<100	0.53	0.53	-----	5.4	0.39
04/02/07	100	100	0.52	0.72	-----	5.4	0.37
05/07/07	<100	<100	0.60	0.60	16	5.7	0.36
06/04/07	<100	<100	0.80	0.80	-----	5.7	0.37
06/11/07	-----	-----	-----	-----	17	-----	-----
07/02/07	<100	270	0.81	1.10	-----	6.2	0.29
07/09/07	-----	-----	-----	-----	15	-----	-----
08/06/07	<100	<100	0.99	1.10	-----	6.2	0.56
08/14/07	-----	-----	-----	-----	9	-----	-----
09/04/07	<100	100	0.62	0.62	-----	6.5	0.39
10/02/07	<100	<100	0.58	0.58	-----	6.0	0.42
10/09/07	-----	-----	-----	-----	16	-----	-----
11/06/07	<100	<100	0.52	0.52	-----	5.9	0.46
11/14/07	-----	-----	-----	-----	16	-----	-----
12/04/07	<100	220	0.53	0.75	-----	5.5	0.53
12/10/07	-----	-----	-----	-----	18	-----	-----
01/08/08	<100	320	0.49	0.81	-----	5.6	0.49
01/15/08	-----	-----	-----	-----	18	-----	-----
02/05/08	<100	270	0.43	0.70	-----	5.4	0.41
03/04/08	<100	<100	0.60	0.60	-----	5.4	0.32
03/11/08	-----	-----	-----	-----	17	-----	-----
04/08/08	<100	<100	0.47	0.47	-----	5.1	0.34
05/06/08	<100	<100	0.75	0.75	-----	5.5	0.30
05/14/08	-----	-----	-----	-----	18	-----	-----
06/03/08	<100	130	0.98	1.10	-----	5.9	0.32
06/11/08	-----	-----	-----	-----	17	-----	-----
07/08/08	<100	250	0.89	1.10	-----	5.7	0.35

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Influent to Terminal							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
08/05/08	<100	<100	0.71	0.71	-----	6.1	0.21
08/13/08	-----	-----	-----	-----	12	-----	-----
09/02/08	<100	<100	0.62	0.62	-----	-----	0.27
09/08/08	-----	-----	-----	-----	13	-----	-----
09/16/08	-----	-----	-----	-----	-----	5.8	-----
10/07/08	<100	<100	0.60	0.60	-----	5.6	0.29
10/14/08	-----	-----	-----	-----	15	-----	-----
11/03/08	<100	160	0.63	0.79	-----	5.6	0.26
11/10/08	-----	-----	-----	-----	15	-----	-----
12/02/08	<100	279	0.50	0.78	-----	5.9	0.38
12/08/08	-----	-----	-----	-----	17	-----	-----
01/06/09	<100	507	0.49	1.00	-----	5.6	0.46
01/12/09	-----	-----	-----	-----	18	-----	-----
02/03/09	<100	446	0.55	1.00	-----	5.3	0.40
03/03/09	<100	320	0.54	0.86	-----	5.0	0.35
03/09/09	-----	-----	-----	-----	17	-----	-----
04/06/09	<100	<100	0.68	0.68	-----	5.7	0.30
04/13/09	-----	-----	-----	-----	7	-----	-----
05/05/09	<100	128	0.63	0.76	-----	5.4	0.29
05/11/09	-----	-----	-----	-----	17	-----	-----
06/01/09	<100	235	0.55	0.79	-----	5.2	0.39
07/14/09	<100	176	0.44	0.62	-----	5.6	0.38
08/04/09	<100	<100	0.37	0.37	-----	6.1	0.41
08/10/09	-----	-----	-----	-----	16	-----	-----
09/09/09	<100	119	0.66	0.78	-----	-----	0.45
10/06/09	<100	124	0.60	0.72	-----	-----	0.49
11/03/09	<100	161	0.58	0.74	-----	5.8	0.46
11/09/09	-----	-----	-----	-----	20	-----	-----
12/07/09	<100	291	0.61	0.90	-----	-----	0.46
01/05/10	<100	360	0.60	0.96	-----	-----	0.46
02/02/10	<100	354	0.34	0.69	-----	5.7	0.39
02/09/10	-----	-----	-----	-----	20	-----	-----
03/01/10	-----	-----	0.00	-----	-----	-----	0.33
04/05/10	<100	171	0.47	0.64	-----	-----	0.33
05/04/10	<100	173	0.47	0.64	-----	5.5	0.36
05/11/10	-----	-----	-----	-----	20	-----	-----
07/07/10	<100	114	0.56	0.67	-----	-----	0.37
08/03/10	<100	<100	0.62	0.62	-----	6.5	0.42
08/09/10	-----	-----	-----	-----	19	-----	-----
9/7/10	<100	146	0.71	0.86	-----	-----	0.43
10/12/10	<100	120	0.64	0.76	-----	-----	0.46

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Influent to Terminal							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
11/1/10	-----	-----	-----	-----	-----	5.6	-----
11/8/10	<100	150	0.57	-----	23	5.9	0.48
12/13/10	<100	311	0.53	0.84	-----	-----	0.53

Intake							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
01/09/06	<100	250	0.76	1.00	20	5.2	0.37
02/06/06	<100	250	0.60	0.85	19	5.2	0.44
03/07/06	<100	<100	0.87	0.87	14	5.4	0.39
04/11/06	<100	<100	0.61	0.61	13	5.3	0.33
05/01/06	<100	<100	0.72	0.72	15	5.2	0.34
06/05/06	<100	140	0.46	0.60	17	5.5	0.46
07/03/06	<100	<100	0.37	0.37	15	6.4	0.43
08/07/06	<100	<100	0.71	0.71	17	5.5	0.60
09/05/06	<100	<100	0.58	0.58	15	5.7	0.37
10/02/06	<100	<100	0.54	0.54	15	6.4	0.38
11/06/06	<100	<100	0.90	0.90	17	5.7	0.43
12/04/06	<100	<100	0.63	0.63	16	5.7	0.47
01/02/07	<100	300	0.51	0.81	19	5.3	0.50
02/05/07	<100	190	0.60	0.79	18	5.2	0.48
03/06/07	-----	-----	-----	-----	15	-----	-----
03/13/07	<100	<100	0.59	0.59	14	5.7	0.42
04/02/07	<100	<100	0.50	0.50	-----	5.4	0.37
04/10/07	-----	-----	-----	-----	14	-----	-----
05/09/07	<100	<100	0.65	0.65	16	5.7	0.38
06/05/07	<100	<100	0.88	0.88	-----	5.7	0.36
07/03/07	<100	120	0.99	1.10	-----	5.8	0.23
07/10/07	-----	-----	-----	-----	15	-----	-----
08/07/07	<100	<100	0.78	1.10	-----	7.0	0.33
08/13/07	-----	-----	-----	-----	11	-----	-----
09/11/07	<100	<100	0.67	0.67	15	6.1	0.38
10/02/07	<100	<100	0.60	0.60	-----	6.0	0.40

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Intake							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
10/09/07	-----	-----	-----	-----	16	-----	-----
11/06/07	<100	<100	0.61	0.61	-----	6.0	0.47
11/14/07	-----	-----	-----	-----	16	-----	-----
12/04/07	<100	180	0.53	0.71	-----	5.7	0.51
12/11/07	-----	-----	-----	-----	17	-----	-----
01/15/08	<100	300	0.50	0.80	19	5.8	0.48
02/05/08	<100	250	0.44	0.69	-----	5.6	0.39
02/13/08	-----	-----	-----	-----	18	-----	-----
03/04/08	<100	<100	0.73	0.73	-----	5.9	0.32
03/10/08	-----	-----	-----	-----	17	-----	-----
04/08/08	<100	<100	0.48	0.48	-----	5.2	0.34
04/15/08	-----	-----	-----	-----	16	-----	-----
05/06/08	<100	<100	0.77	-----	-----	5.6	0.32
05/13/08	-----	-----	-----	-----	20	-----	-----
06/03/08	<100	<100	1.20	1.20	-----	6.0	0.33
06/10/08	-----	-----	-----	-----	18	-----	-----
07/08/08	<100	200	0.95	1.15	-----	6.0	0.32
07/14/08	-----	-----	-----	-----	15	-----	-----
08/05/08	<100	<100	0.72	0.72	-----	6.2	0.22
08/19/08	-----	-----	-----	-----	13	-----	-----
09/02/08	<100	<100	0.68	0.68	-----	6.3	0.25
09/09/08	-----	-----	-----	-----	13	-----	-----
10/07/08	<100	<100	0.92	0.92	-----	6.0	0.29
10/14/08	-----	-----	-----	-----	15	-----	-----
11/04/08	<100	<100	0.69	0.69	-----	5.9	0.25
12/08/08	-----	-----	-----	-----	17	-----	-----
01/06/09	<100	488	0.54	1.03	-----	5.8	0.46
01/12/09	-----	-----	-----	-----	17	-----	-----
02/03/09	<100	416	0.50	0.92	-----	5.2	0.40
02/18/09	-----	-----	-----	-----	18	-----	-----
03/03/09	<100	295	0.61	0.91	-----	5.3	0.35
03/09/09	-----	-----	-----	-----	16	-----	-----
04/14/09	<100	<100	0.75	0.75	7	5.7	0.30

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Lopez Creek							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
01/09/06	<100	<100	0.22	0.22	20	1.8	0.18
02/21/06	<100	<100	0.22	0.22	18	1.3	0.17
02/21/06	<100	<100	-----	-----	-----	-----	-----
03/13/06	<100	<100	0.00	0.00	18	1.7	0.13
04/10/06	<100	140	0.31	0.45	30	2.1	0.20
05/08/06	<100	<100	0.31	0.31	20	1.6	0.16
06/12/06	<100	<100	0.00	0.00	20	1.5	0.19
07/10/06	<100	<100	0.00	0.00	20	1.9	0.22
08/14/06	<100	<100	0.00	0.00	20	1.4	0.24
09/11/06	<100	<100	0.00	0.00	20	1.4	0.17
10/10/06	<100	<100	0.00	0.00	19	1.3	0.20
11/13/06	<100	<100	0.00	0.00	19	1.3	0.20
12/11/06	<100	<100	0.00	0.00	14	1.4	0.18
01/08/07	<100	<100	0.00	0.00	19	1.4	0.18
02/13/07	<100	<100	0.00	0.00	17	1.7	0.16
03/12/07	<100	<100	0.12	0.12	15	1.4	0.22
04/09/07	<100	<100	0.00	0.00	10	1.3	0.19
05/07/07	<100	<100	0.00	0.00	16	1.4	0.21
06/11/07	<100	<100	0.00	0.00	17	1.4	0.18
07/10/07	<100	<100	0.00	0.00	18	1.3	0.19
08/13/07	<100	<100	0.00	0.00	18	1.8	0.21
09/11/07	<100	<100	0.00	0.00	19	1.4	0.23
10/09/07	<100	<100	0.00	0.00	19	1.1	0.20
11/14/07	<100	<100	0.00	0.00	19	1.3	0.23
12/11/07	<100	<100	0.00	0.00	18	1.3	0.21
01/15/08	<100	<100	0.00	0.00	18	1.8	0.18
02/13/08	<100	<100	0.00	0.00	19	1.9	0.15
03/11/08	<100	<100	0.00	0.00	18	1.5	0.15
04/15/08	<100	<100	0.00	0.00	19	1.7	0.20
05/13/08	<100	<100	0.00	0.00	18	1.3	0.16
06/10/08	<100	<100	0.00	0.00	20	1.3	0.18
07/14/08	<100	<100	0.41	0.41	17	1.3	0.80
08/12/08	<100	<100	0.00	0.00	-----	1.3	0.19
08/25/08	-----	-----	-----	-----	19	-----	-----
09/08/08	<100	<100	0.00	0.00	20	1.4	0.18
10/14/08	<100	<100	0.00	0.00	20	1.3	0.18
11/10/08	<100	<100	0.00	0.00	18	1.1	0.19
12/08/08	<100	<100	0.00	0.00	18	1.3	0.18
01/20/09	<100	<100	0.00	0.00	18	1.2	0.17
02/17/09	<100	<100	0.24	0.24	19	3.4	0.17
03/10/09	<100	<100	0.00	0.00	18	1.4	0.17

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Lopez Creek							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
04/13/09	<100	<100	0.00	0.00	8	1.3	0.16
05/11/09	<100	<100	0.00	0.00	-----	1.2	0.18
06/08/09	<100	<100	0.00	0.00	-----	1.2	0.18
07/13/09	<100	<100	0.00	0.00	-----	1.3	0.18
08/10/09	<100	<100	0.47	0.47	19	1.3	0.18
09/14/09	<100	<100	0.00	0.00	-----	-----	0.20
10/13/09	<100	127	0.31	0.44	-----	-----	0.22
11/10/09	<100	114	0.00	0.00	20	1.4	0.18
12/07/09	<100	102	0.27	0.37	-----	-----	0.19
01/12/10	<100	<100	0.00	0.00	18	-----	0.17
02/08/10	<100	<100	0.15	0.00	18	-----	0.10
02/23/10	-----	-----	-----	-----	19	-----	-----
03/01/10	-----	-----	0.00	-----	-----	-----	0.37
04/12/10	<100	105	0.00	0.00	-----	-----	0.13
05/10/10	<100	<100	0.00	0.00	17	1.5	0.19
06/08/10	<100	104	0.00	0.00	-----	-----	0.20
07/13/10	<100	<100	0.00	0.00	-----	-----	0.18
08/09/10	<100	<100	0.00	0.00	19	1.3	0.19
09/13/10	<100	<100	0.00	0.00	-----	-----	0.19
10/12/10	<100	<100	0.00	0.00	-----	-----	0.21
11/8/10	<100	<100	0.00	0.00	22	1.5	0.20
12/14/10	<100	<100	0.00	0.00	-----	-----	0.20
09/13/10	<100	<100	0.00	0.00	-----	-----	0.19
10/12/10	<100	<100	0.00	0.00	-----	-----	0.21
11/8/10	<100	<100	0.00	0.00	22	1.5	0.20
12/14/10	<100	<100	0.00	0.00	-----	-----	0.20

Lopez Water Treatment Plant Raw							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
01/04/06	<100	290	0.91	1.20	18	5.4	-----
01/30/06	-----	-----	-----	-----	-----	-----	0.40
02/06/06	<100	100	0.69	0.79	19	5.6	0.44

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Lopez Water Treatment Plant Raw							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
02/21/06	-----	-----	-----	-----	-----	5.7	-----
03/06/06	<100	170	0.67	0.84	16	-----	0.38
03/09/06	-----	-----	-----	-----	-----	5.5	-----
04/03/06	<100	0	0.52	0.52	14	5.5	0.33
05/03/06	<100	0	0.58	0.58	12	-----	0.37
05/15/06	-----	-----	-----	-----	-----	5.5	-----
06/05/06	<100	<100	0.71	0.71	9	5.5	0.32
07/03/06	<100	<100	0.48	0.48	9	5.5	0.39
08/07/06	<100	<100	0.63	0.63	11	5.3	0.42
09/05/06	<100	<100	0.65	0.65	15	5.9	0.40
10/02/06	<100	<100	0.86	0.86	17	6.3	0.37
10/18/06	-----	-----	-----	-----	18	-----	-----
11/06/06	<100	<100	0.88	0.88	19	6.4	0.49
12/04/06	<100	160	0.75	0.91	17	5.8	0.47
01/02/07	<100	270	0.72	0.99	19	5.9	0.47
02/05/07	<100	230	0.70	0.93	20	5.6	0.53
03/08/07	-----	-----	-----	-----	18	-----	-----
03/12/07	<100	<100	0.64	0.64	17	5.9	0.46
04/02/07	<100	120	0.75	0.87	-----	5.8	0.44
04/11/07	-----	-----	-----	-----	14	-----	-----
05/07/07	<100	<100	0.53	0.53	14	-----	0.41
05/08/07	-----	-----	-----	-----	-----	5.8	-----
06/04/07	<100	<100	0.48	0.48	-----	5.3	0.34
06/11/07	-----	-----	-----	-----	14	-----	-----
07/02/07	<100	150	0.51	0.66	-----	-----	0.29
07/09/07	-----	-----	-----	-----	15	-----	-----
08/06/07	<100	<100	0.61	0.66	-----	-----	0.32
08/14/07	-----	-----	-----	-----	12	-----	-----
09/04/07	<100	<100	0.76	0.76	-----	-----	0.33
09/11/07	-----	-----	-----	-----	12	-----	-----
10/02/07	<100	<100	0.63	0.63	-----	-----	0.39
10/09/07	-----	-----	-----	-----	16	-----	-----
11/06/07	<100	120	0.57	0.69	-----	6.1	0.44
11/14/07	-----	-----	-----	-----	18	6.1	-----
11/19/07	-----	-----	-----	-----	-----	5.8	-----
11/26/07	-----	-----	-----	-----	-----	5.8	-----
12/04/07	<100	200	0.62	0.82	-----	5.7	0.53
12/10/07	-----	-----	-----	-----	18	5.9	-----
12/17/07	-----	-----	-----	-----	-----	5.9	-----
12/24/07	-----	-----	-----	-----	-----	5.8	-----
01/02/08	-----	-----	-----	-----	-----	5.8	-----

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Lopez Water Treatment Plant Raw							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
01/08/08	<100	250	0.51	0.76	-----	5.7	0.48
01/15/08	-----	-----	-----	-----	17	5.7	-----
01/23/08	-----	-----	-----	-----	-----	5.5	-----
01/28/08	-----	-----	-----	-----	-----	5.6	-----
02/05/08	<100	120	0.49	0.61	-----	5.6	0.39
02/13/08	-----	-----	-----	-----	8	5.9	-----
02/25/08	-----	-----	-----	-----	-----	5.6	-----
03/03/08	<100	<100	0.62	0.62	-----	5.7	0.40
03/10/08	-----	-----	-----	-----	-----	6.0	-----
03/11/08	-----	-----	-----	-----	9	-----	-----
03/20/08	-----	-----	-----	-----	-----	6.0	-----
03/25/08	-----	-----	-----	-----	-----	6.1	-----
04/01/08	-----	-----	-----	-----	-----	5.3	-----
04/07/08	<100	<100	0.46	0.46	-----	5.5	0.41
04/15/08	-----	-----	-----	-----	-----	5.6	-----
04/21/08	-----	-----	-----	-----	-----	5.3	-----
05/02/08	-----	-----	-----	-----	-----	5.4	-----
05/06/08	<100	<100	0.49	0.49	-----	5.6	0.35
05/12/08	-----	-----	-----	-----	13	5.7	-----
05/21/08	-----	-----	-----	-----	-----	5.5	-----
05/28/08	-----	-----	-----	-----	-----	5.6	-----
06/03/08	<100	<100	0.51	0.51	-----	5.7	0.33
06/11/08	-----	-----	-----	-----	16	5.8	-----
06/18/08	-----	-----	-----	-----	-----	5.8	-----
06/24/08	-----	-----	-----	-----	-----	6.0	-----
07/01/08	-----	-----	-----	-----	-----	6.2	-----
07/08/08	<100	<100	0.71	0.71	-----	6.2	0.30
07/15/08	-----	-----	-----	-----	12	6.1	-----
07/22/08	-----	-----	-----	-----	-----	6.0	-----
07/28/08	-----	-----	-----	-----	-----	6.0	-----
08/05/08	<100	<100	0.78	0.78	-----	6.3	0.23
08/11/08	-----	-----	-----	-----	13	-----	-----
08/12/08	-----	-----	-----	-----	-----	6.3	-----
08/21/08	-----	-----	-----	-----	-----	6.2	-----
08/25/08	-----	-----	-----	-----	-----	6.3	-----
09/03/08	<100	<100	0.70	0.70	-----	6.2	0.23
09/08/08	-----	-----	-----	-----	14	-----	-----
09/09/08	-----	-----	-----	-----	-----	6.3	-----
09/16/08	-----	-----	-----	-----	-----	6.5	-----
09/23/08	-----	-----	-----	-----	-----	6.1	-----
10/02/08	-----	-----	-----	-----	-----	6.7	-----

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Lopez Water Treatment Plant Raw							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
10/07/08	<100	100	0.60	0.70	-----	5.7	0.28
10/14/08	-----	-----	-----	-----	15	6.0	-----
10/20/08	-----	-----	-----	-----	-----	5.9	-----
10/28/08	-----	-----	-----	-----	-----	5.9	-----
11/03/08	<100	<100	0.59	0.59	-----	5.9	0.24
11/13/08	-----	-----	-----	-----	13	-----	-----
12/02/08	<100	187	0.77	0.96	-----	-----	0.46
12/08/08	-----	-----	-----	-----	14	-----	-----
01/06/09	101	384	0.65	1.14	-----	-----	0.44
01/13/09	-----	-----	-----	-----	16	-----	-----
02/02/09	<100	190	0.67	0.86	-----	-----	0.40
02/10/09	-----	-----	-----	-----	9	-----	-----
03/03/09	<100	245	0.49	0.74	-----	-----	0.41
03/11/09	-----	-----	-----	-----	12	-----	-----
04/08/09	<100	113	0.61	0.72	-----	-----	0.33
04/13/09	-----	-----	-----	-----	7	-----	-----
05/04/09	<100	124	0.58	0.70	-----	-----	0.31
05/11/09	-----	-----	-----	-----	13	-----	-----
06/01/09	<100	141	0.69	0.83	-----	-----	0.32
07/06/09	<100	<100	0.45	0.45	-----	-----	0.33
08/04/09	<100	<100	0.96	0.96	-----	-----	0.32
08/11/09	-----	-----	-----	-----	15	-----	-----
09/08/09	<100	111	0.63	0.74	-----	-----	0.38
10/06/09	<100	111	0.66	0.77	-----	-----	0.45
11/02/09	<100	248	0.61	0.86	-----	-----	0.46
11/09/09	-----	-----	-----	-----	17	-----	-----
12/07/09	<100	234	0.88	1.11	-----	-----	0.50
01/05/10	<100	222	0.73	0.95	-----	-----	0.52
01/15/10	-----	-----	-----	-----	23	-----	-----
02/01/10	<100	215	0.55	0.76	-----	-----	0.54
02/08/10	-----	-----	-----	-----	19	-----	-----
03/02/10	<100	145	0.00	0.00	-----	-----	0.37
04/05/10	<100	104	0.67	0.77	-----	-----	0.41
05/03/10	<100	<100	0.57	0.57	-----	-----	0.40
05/10/10	-----	-----	-----	-----	16	-----	-----
06/01/10	<100	112	0.45	0.56	-----	-----	0.39
07/06/10	<100	<100	0.49	0.49	-----	-----	0.36
08/03/10	<100	<100	0.50	0.50	-----	-----	0.35
8/9/10	-----	-----	-----	-----	17	-----	-----
9/7/10	<100	109	0.67	0.78	-----	-----	0.38
10/12/10	<100	150	0.56	0.71	-----	-----	0.43

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Lopez Water Treatment Plant Raw							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
11/8/10	<100	310	0.59	0.90	24	-----	0.49
12/13/10	<100	202	0.69	0.89	20	-----	0.53
12/27/10	-----	-----	-----	-----	21	-----	-----

Vasquez Creek Arm							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
01/09/06	<100	320	0.36	0.68	35	2.0	0.53
02/14/06	<100	<100	0.37	0.37	22	1.5	0.19
03/07/06	<100	180	0.24	0.42	22	1.6	0.17
04/17/06	<100	<100	0.66	0.66	15	4.9	0.29
05/09/06	<100	<100	0.81	0.81	16	5.0	0.29
06/12/06	<100	<100	1.70	1.70	15	6.1	0.35
07/10/06	<100	<100	0.33	0.33	14	6.4	0.39
08/14/06	<100	<100	0.54	0.54	15	6.3	0.34
09/11/06	<100	<100	0.79	0.79	16	5.8	0.36
10/10/06	<100	<100	0.66	0.66	16	5.8	0.39
11/13/06	<100	<100	0.67	0.67	17	5.3	0.42
12/11/06	<100	<100	0.62	0.62	16	5.3	0.46
01/08/07	<100	300	0.68	0.98	18	5.6	0.50
02/14/07	<100	<100	2.00	-----	16	-----	0.43
03/13/07	<100	100	0.00	0.00	21	1.1	0.15
04/10/07	<100	<100	0.00	0.00	13	1.2	0.14
05/09/07	<100	100	0.00	0.00	9	1.3	0.15
06/12/07	<100	<100	1.20	1.20	17	5.8	0.32
07/10/07	<100	<100	1.40	1.40	14	6.6	0.32
08/13/07	<100	<100	0.00	0.00	11	6.8	0.39
09/11/07	<100	<100	-----	0.82	14	6.2	-----
09/12/07	-----	-----	0.82	-----	-----	-----	0.39
12/11/07	<100	<100	0.00	0.00	25	1.5	0.34
01/15/08	<100	170	0.00	0.00	23	1.8	0.14
02/13/08	<100	<100	0.00	0.00	21	1.9	0.00
03/11/08	<100	<100	0.00	0.00	21	1.7	0.11

Appendix B4: Water Quality Data
Nutrients Analysis Results
January 2006 through December 2010

Vasquez Creek Arm							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
04/15/08	<100	<100	0.00	0.00	20	1.3	0.13
05/13/08	<100	<100	0.00	0.00	22	1.4	0.12
06/10/08	<100	<100	0.00	0.00	24	1.2	0.14
02/18/09	<100	133	0.00	0.00	23	1.4	0.16
03/09/09	<100	<100	0.00	0.00	20	1.3	0.10
04/14/09	<100	<100	0.58	0.58	10	3.3	0.38
03/08/10	<100	103	0.21	0.31	24	-----	0.15
04/13/10	<100	<100	0.22	0.22	-----	-----	0.16
05/19/10	<100	<100	0.00	0.00	24	1.5	0.15
06/07/10	<100	107	0.00	0.00	-----	-----	0.15

Wittenberg Creek Arm							
	Nitrite as N	Nitrate as N	Total Kjeldahl Nitrogen	Total Nitrogen	Reactive Si	Total Organic Carbon	Total Phosphate as P
Date	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
01/09/06	<100	450	0.37	0.82	22	6.5	0.56
03/13/06	<100	230	0.31	0.54	31	4.6	0.37
04/10/06	<100	180	0.38	0.56	37	4.9	0.27
05/08/06	<100	<100	0.35	0.35	33	4.2	0.41
02/13/08	<100	100	0.00	0.10	28	2.6	0.12
02/08/10	<100	104	0.00	0.00	26	-----	0.10
02/23/10	-----	-----	-----	-----	26	-----	-----
03/01/10	-----	-----	0.00	-----	-----	-----	0.38
04/12/10	<100	106	0.23	0.34	-----	-----	0.13

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Influent to Plant											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
1/3/06	-----	0	0	0	160	160	-----	3.0	8.04	14.0	1.0
1/9/06	-----	0	46	21	360	430	-----	4.0	7.71	19.0	2.2
1/17/06	-----	0	7	0	32	39	-----	2.5	7.22	12.8	1.4
1/23/06	-----	0	18	0	18	36	-----	5.0	7.21	13.8	1.3
1/30/06	-----	0	25	21	57	100	-----	3.0	6.96	13.0	1.2
2/6/06	-----	0	130	29	240	400	-----	5.0	7.42	13.0	2.1
2/14/06	-----	0	430	25	240	700	-----	5.0	7.51	15.0	1.8
2/21/06	-----	0	240	14	32	290	-----	8.0	7.60	12.7	1.6
2/27/06	-----	0	570	0	73	610	-----	6.0	7.43	13.4	2.1
3/7/06	-----	0	460	0	150	610	-----	3.5	8.06	12.0	2.5
3/13/06	-----	0	1100	0	180	1300	-----	5.0	8.31	13.8	2.8
3/20/06	-----	0	0	0	640	640	-----	3.5	8.42	12.0	2.6
3/27/06	-----	0	0	0	310	310	-----	6.0	8.36	14.5	2.3
4/3/06	-----	0	11	0	54	65	-----	7.0	8.00	14.5	1.7
4/10/06	-----	0	61	0	440	660	-----	7.0	7.88	14.9	8.0
4/17/06	-----	0	25	7	120	150	-----	4.0	8.23	14.8	4.3
4/24/06	-----	170	7	21	140	170	-----	2.5	N/A	N/A	3.2
5/1/06	-----	0	21	0	110	130	-----	3.0	8.25	16.4	3.2
5/9/06	-----	50	150	0	100	300	-----	7.0	7.87	16.9	2.2
5/15/06	-----	57	300	0	89	450	-----	4.0	7.82	18.0	1.9
5/22/06	-----	640	130	18	110	900	-----	6.0	8.00	19.7	1.9
5/30/06	-----	950	200	36	68	1300	-----	6.0	8.24	19.8	3.0
6/5/06	-----	11	54	0	39	100	-----	2.5	7.36	16.6	1.5
6/12/06	-----	0	14	7	89	110	-----	3.0	7.46	16.4	1.9
6/22/06	-----	29	36	0	36	100	-----	-----	-----	-----	-----
6/26/06	-----	29	21	0	50	100	-----	4.0	7.79	17.9	1.5
7/3/06	-----	0	61	0	36	97	-----	5.0	7.86	19.5	0.8
7/10/06	-----	4	110	0	61	180	-----	5.0	7.90	19.0	1.4
7/17/06	-----	21	57	0	25	100	-----	4.0	7.77	19.5	1.4
7/24/06	-----	0	110	29	260	400	-----	6.0	7.53	19.9	1.8
7/31/06	-----	0	100	89	280	470	-----	4.0	7.80	19.6	1.6
8/7/06	-----	25	710	0	190	920	-----	3.0	7.95	19.0	1.6
8/14/06	-----	0	260	0	120	380	-----	4.0	8.50	22.6	1.6
8/21/06	-----	7	79	0	68	150	-----	7.0	8.45	22.6	2.0
8/28/06	-----	0	21	0	120	140	-----	2.5	8.41	22.0	1.9
9/5/06	-----	0	29	25	86	140	-----	3.0	8.09	20.6	2.0
9/11/06	-----	11	21	0	140	170	-----	6.0	8.22	21.0	1.5
9/18/06	-----	0	7	61	64	130	-----	4.0	8.26	21.1	1.4
9/25/06	-----	0	11	32	150	190	-----	6.0	8.10	20.8	1.7
10/2/06	-----	190	120	0	75	380	-----	5.0	8.10	20.0	1.4
10/10/06	-----	14	14	0	93	120	-----	6.0	8.08	18.9	1.4
10/16/06	-----	0	25	7	43	75	-----	10.	8.15	18.3	1.1

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Influent to Plant											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
10/23/06	-----	0	11	43	140	190	-----	6.0	8.25	17.9	1.0
10/30/06	-----	0	0	29	180	210	-----	9.0	7.93	17.2	1.3
11/6/06	-----	0	0	36	220	260	-----	2.5	8.01	18.0	1.2
11/13/06	-----	0	0	0	390	390	-----	4.0	7.99	16.6	1.3
11/20/06	-----	0	36	0	410	450	-----	7.0	7.97	16.4	1.4
11/27/06	-----	0	32	18	420	470	-----	10.	7.60	15.5	1.4
12/4/06	-----	0	11	0	270	280	-----	3.0	7.58	15.0	0.9
12/11/06	-----	0	120	0	360	480	-----	2.5	7.60	13.5	0.8
12/18/06	-----	0	21	0	200	220	-----	8.0	7.34	13.4	0.8
12/26/06	-----	0	39	0	240	280	-----	5.0	7.51	12.4	1.3
1/8/07	-----	0	4	0	18	22	-----	3.0	7.50	12.0	1.7
1/16/07	-----	0	39	0	250	290	-----	3.0	7.69	10.8	1.2
1/22/07	-----	0	4	0	4	8	-----	3.0	7.93	10.1	1.7
1/29/07	-----	4	18	4	7	33	-----	4.0	7.63	10.9	0.8
2/5/07	-----	0	160	36	18	210	-----	8.0	8.16	10.5	1.5
2/13/07	-----	0	320	66	300	690	-----	4.0	8.06	12.5	2.2
2/20/07	-----	0	220	120	250	590	-----	6.0	8.47	13.0	2.1
2/26/07	-----	0	240	350	240	830	-----	2.0	8.15	12.1	3.7
3/6/07	-----	3	360	25	300	690	-----	5.0	7.87	13.0	1.9
3/12/07	-----	8	320	68	270	670	-----	6.0	7.80	15.0	1.7
3/19/07	-----	53	210	28	250	520	-----	15.	8.24	14.9	2.0
3/26/07	-----	45	45	23	91	200	-----	15.	8.54	N/A	1.4
4/2/07	-----	710	230	40	380	1400	-----	4.0	8.49	15.9	3.2
4/9/07	-----	0	310	8	190	510	-----	4.0	7.76	16.5	1.9
4/16/07	-----	280	240	23	380	920	-----	3.0	7.78	16.4	2.3
4/23/07	-----	180	210	76	280	1200	-----	4.0	8.01	16.0	2.0
4/30/07	-----	96	160	13	710	980	-----	4.0	8.22	17.6	2.6
5/7/07	-----	170	430	370	1600	2600	-----	4.0	8.64	18.0	2.1
5/15/07	-----	8	5	35	30	78	-----	3.0	7.95	18.4	0.6
5/22/07	-----	28	45	50	93	220	-----	5.0	8.02	19.5	1.9
5/29/07	-----	0	0	0	10	10	-----	4.0	7.90	19.4	4.0
6/4/07	-----	200	88	88	190	1800	-----	4.0	8.21	19.2	6.2
6/11/07	-----	2300	780	130	400	3600	-----	15.	8.78	19.6	2.7
6/18/07	-----	1400	300	170	310	2200	-----	10.	8.42	19.9	3.1
6/25/07	-----	3200	140	240	630	4200	-----	6.0	8.82	22.5	7.0
7/2/07	-----	550	53	280	320	1200	-----	6.0	8.63	21.0	3.1
7/9/07	-----	0	160	1700	350	2200	-----	20.	8.77	22.4	4.9
7/16/07	-----	0	990	280	43	1300	-----	15.	8.47	21.3	3.3
7/23/07	-----	33	0	840	53	930	-----	7.0	8.78	22.0	2.8
7/30/07	-----	5	3	2200	110	2300	-----	10.	8.74	23.2	2.6
8/6/07	-----	3	0	1100	120	1200	-----	10.	8.71	22.0	3.0
8/14/07	-----	13	5	110	100	230	-----	7.0	8.54	22.1	2.4

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Influent to Plant											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
8/21/07	-----	40	40	200	73	350	-----	5.0	8.52	22.7	2.2
9/4/07	-----	55	3	290	50	400	-----	10.	8.85	23.5	1.6
9/11/07	-----	5	15	60	33	110	-----	5.0	7.84	22.7	N/A
9/18/07	-----	0	71	370	230	670	-----	4.0	8.51	21.1	1.6
9/25/07	-----	3	28	640	150	820	-----	5.0	8.42	20.7	1.3
10/2/07	-----	21	210	290	730	1300	-----	2.5	8.46	20.5	1.9
10/9/07	-----	0	23	490	170	680	-----	2.0	8.72	18.2	1.8
10/16/07	-----	0	8	640	250	900	-----	4.0	8.70	18.3	1.5
10/23/07	-----	0	15	110	310	440	-----	4.0	8.62	18.6	1.6
11/6/07	-----	180	79	120	580	960	-----	3.0	8.52	16.7	1.6
11/14/07	-----	0	5	38	190	230	-----	2.0	8.19	18.9	1.4
11/19/07	-----	0	88	38	340	470	-----	2.0	8.50	16.1	1.8
11/27/07	-----	0	3	0	190	190	-----	3.0	8.34	15.2	2.1
12/4/07	-----	0	5	0	160	170	-----	6.0	8.38	14.5	1.3
12/10/07	-----	0	13	0	180	190	-----	2.0	8.24	15.0	1.9
12/18/07	-----	0	13	0	300	310	-----	6.0	8.05	13.0	1.5
12/26/07	-----	0	18	8	420	440	-----	2.5	8.30	12.6	1.6
1/2/08	-----	0	3	0	150	150	-----	3.0	8.32	12.3	1.4
1/15/08	-----	0	10	0	140	150	-----	4.0	7.95	15.4	1.9
1/23/08	-----	3	3	0	150	160	-----	10.	8.33	12.2	5.6
1/28/08	-----	0	0	0	68	68	-----	2.0	8.07	10.5	1.6
2/5/08	-----	0	0	21	450	470	-----	4.0	8.23	11.2	2.7
2/20/08	-----	0	83	23	320	430	-----	3.0	8.52	12.0	2.2
2/25/08	-----	10	120	43	760	930	-----	4.0	8.13	12.7	2.3
3/4/08	-----	0	100	0	630	730	11.0	5.0	8.00	13.6	-----
3/11/08	-----	0	220	38	130	390	-----	7.0	8.64	13.2	2.3
3/18/08	-----	0	300	10	420	730	-----	5.0	8.48		1.9
3/25/08	-----	3	510	8	230	750	-----	4.0	8.46	14.9	2.6
4/1/08	-----	5	250	30	53	340	-----	2.5	8.60	15.9	1.3
4/8/08	-----	280	1500	10	710	2500	-----	4.0	8.50	15.0	1.6
4/23/08	-----	270	91	10	230	600	-----	8.0	8.44	16.0	1.9
4/29/08	-----	20	76	3	100	200	-----	4.0	8.47	16.4	1.5
5/6/08	-----	1000	310	0	590	1900	-----	20.0	8.96	17.8	-----
5/14/08	-----	250	48	5	200	500	-----	7.0	8.76	18.6	3.1
5/20/08	-----	45	13	5	18	81	-----	10.	NR	NR	2.2
5/29/08	-----	1000	35	35	40	1100	-----	8.0	8.63	18.5	5.8
6/11/08	-----	1200	53	110	150	1500	-----	10.	8.69	20.2	8.3
6/17/08	-----	73	8	0	78	160	-----	8.0	8.61	18.9	2.9
6/24/08	-----	20	15	0	130	170	-----	5.0	8.40	18.1	4.8
7/1/08	-----	33	5	0	260	300	-----	7.0	8.27	19.4	1.9
7/8/08	-----	79	310	0	740	1100	-----	8.5	-----	-----	2.8
7/23/08	-----	10	20	86	53	170	-----	15.	8.40	20.3	2.2

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Influent to Plant											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
7/28/08	-----	0	13	0	150	160	-----	15.	8.19	20.8	6.3
8/5/08	-----	0	58	560	71	690	-----	10.	8.69	22.4	2.1
8/13/08	-----	15	35	200	140	390	-----	8.0	8.51	22.5	1.7
8/19/08	-----	86	33	83	120	320	-----	5.0	8.57	23.7	3.0
8/25/08	-----	28	10	170	220	430	-----	8.0	8.42	22.4	2.2
8/30/10	-----	7	140	610	280	1100	-----	10.	8.69	20.9	1.5
9/7/10	-----	0	160	300	350	810	-----	6.0	8.64	21.3	1.8
9/13/10	-----	0	140	250	140	530	-----	4.5	8.59	21.9	1.3
9/20/10	-----	0	71	950	21	1000	-----	2.9	8.53	22.6	1.7
9/22/10	-----	4	52	490	70	620	-----	-----	-----	-----	-----
9/27/10	-----	0	25	180	1100	620	-----	<4	8.49	23.0	-----
10/5/10	-----	71	25	240	140	480	-----	4.0	8.64	20.4	1.4
10/12/10	-----	100	0	120	150	370	-----	9.0	8.42	22.0	0.9
10/18/10	-----	36	0	68	570	670	-----	6.0	8.42	21.1	1.0
10/25/10	-----	0	71	0	160	230	-----	8.0	7.89	20.8	0.8
11/1/10	-----	0	0	36	56	94	-----	4.0	8.12	21.1	1.1
11/8/10	-----	0	25	0	500	530	-----	5.0	8.22	19.3	1.5
11/15/10	-----	0	61	29	460	550	-----	6.0	8.39	18.9	4.1
11/22/10	-----	0	32	21	220	270	-----	3.5	8.04	15.2	1.4
11/29/10	-----	0	64	36	130	230	-----	2.5	8.11	13.9	0.7
12/6/10	-----	0	46	0	130	180	-----	4.0	8.16	13.9	0.9
12/13/10	-----	0	310	32	250	590	-----	3.8	8.02	13.4	0.9
12/21/10	-----	0	18	0	0	18	-----	5.5	8.09	14.8	0.5
12/28/10	-----	0	25	18	96	140	-----	3.0	8.28	14.0	7.8

Lopez Lake Intake 1 (507.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
4/11/06	8	0	130	14	210	350	10.4	3.0	8.43	13.6	8.5
4/17/06	8	0	32	93	200	320	9.7	4.0	8.42	14.4	4.0
5/1/06	10	0	150	0	260	410	9.6	3.0	8.10	16.2	3.2
5/9/06	10	100	220	0	120	440	10.4	7.0	8.25	16.9	2.5
5/15/06	10	260	200	36	82	580	8.8	8.0	8.03	18.7	2.2
5/22/06	10	760	190	0	120	1100	8.7	7.0	8.25	19.1	3.0
5/30/06	10	1200	290	90	110	1700	9.2	5.0	8.38	19.2	3.9

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 1 (507.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
6/5/06	10	990	550	18	110	1700	9.8	7.0	8.37	20.8	4.1
6/12/06	10	390	170	11	320	890	8.7	8.0	8.44	20.5	4.9
6/19/06	10	1600	280	7	540	2400	9.7	7.0	8.63	21.1	4.6
6/26/06	10	1200	110	0	450	1800	8.2	4.0	8.65	21.4	3.8
7/3/06	10	110	200	18	190	520	7.7	7.0	8.65	21.6	3.0
7/10/06	9	96	140	4	82	320	8.2	7.0	8.42	21.6	2.7
7/17/06	9	230	860	57	270	1400	8.2	4.0	8.78	22.5	2.7
7/24/06	8.5	1100	390	150	350	2000	9.6	6.0	8.37	23.7	4.8
7/31/06	9	96	1000	1000	1100	3200	8.1	7.0	8.59	24.0	1.5
8/7/06	9	0	400	0	160	560	7.4	4.0	8.63	23.0	2.5
8/14/06	8	11	210	0	220	440	6.7	3.0	8.54	22.5	2.5
8/21/06	7	0	93	0	89	180	8.5	4.0	8.54	22.1	2.2
8/28/06	7	25	150	0	120	300	7.3	6.0	8.50	21.8	1.8
9/5/06	7	0	110	410	420	940	7.5	4.0	8.21	21.4	2.1
9/11/06	6	86	46	0	120	250	7.6	4.0	8.38	20.9	1.7
9/18/06	6	18	61	130	310	520	7.1	5.0	8.32	20.4	1.7
9/25/06	10	29	18	79	340	470	7.8	10.	8.22	19.9	1.8
10/2/06	12	1400	18	0	46	1500	7.6	4.0	8.62	19.3	1.6
11/6/06	11	0	7	36	270	310	8.9	5.0	8.21	16.8	-----
12/4/06	5	0	0	0	260	260	7.4	3.0	8.06	14.1	-----
1/2/07	5	0	4	14	36	54	7.7	3.0	7.84	11.3	-----
2/5/07	5	0	140	32	54	230	13.4	5.0	8.50	10.0	1.8
3/6/07	5	0	200	68	260	530	13.0	6.0	8.35	12.5	-----
4/2/07	5	610	210	0	600	1400	11.2	3.0	8.54	16.2	-----
4/10/07	5	620	310	13	400	1300	14.4	6.0	8.32	16.9	-----
4/16/07	5	370	270	43	460	1100	14.0	4.0	8.15	16.0	-----
4/23/07	5	45	200	760	1400	2400	12.0	5.0	8.13	16.0	-----
4/30/07	5	160	190	88	730	1200	12.4	7.0	8.36	17.0	-----
5/9/07	5	33	190	71	520	810	12.4	3.0	8.05	18.0	
5/15/07	4	0	10	38	140	190	9.7	8.0	8.24	18.6	-----
5/22/07	3	130	78	68	120	290	10.4	4.0	8.31	19.0	-----
5/29/07	3	480	28	210	260	980	10.8	6.0	8.00	19.0	-----
6/5/07	3	1200	360	250	490	2300	11.8	7.0	8.60	20.0	-----
6/19/07	2	940	520	910	410	2800	13.0	4.0	8.89	21.0	-----
6/26/07	2	1200	100	210	190	1700	9.8	10.	8.85	21.0	-----
7/3/07	1	370	100	260	700	1400	12.2	15.	9.00	22.8	-----
7/17/07	1	13	460	2100	60	2600	9.4	20.	8.99	22.5	-----
7/24/07	1	40	18	3700	78	3800	8.6	15.	8.98	22.8	-----
7/31/07	1	0	41	1100	83	1300	7.7	10.	8.93	22.2	-----
8/7/07	2	0	25	3800	78	3900	8.4	10.	8.91	23.0	-----
8/13/07	2	0	4400	990	360	5800	7.7	5.0	8.89	22.5	-----
8/20/07	2	10	55	840	120	1000	6.3	4.0	8.82	22.0	-----

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 1 (507.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	**Feet**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**mg/L**	**TON**		**ºC**	**NTU**
8/27/07	2	100	38	1200	73	1400	7.4	6.0	8.74	22.8	-----
9/4/07	0	170	140	600	63	970	7.9	6.0	8.97	23.0	-----
2/5/08	2	0	20	180	160	360	10.7	2.0	8.39	10.7	-----
3/4/08	1	0	120	160	390	670	NA	7.0	8.55	12.7	-----

Lopez Lake Intake 2 (492.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	**Feet**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**mg/L**	**TON**		**ºC**	**NTU**
1/3/06	13	0	7	0	170	180	5.0	3.0	8.16	12.3	1.6
2/6/06	14	0	140	25	300	460	10.3	5.0	7.91	12.1	1.9
3/7/06	15	0	680	0	200	880	12.6	4.0	8.37	11.9	3.4
4/11/06	23	0	54	0	140	190	9.0	3.0	8.39	12.7	8.7
4/17/06	23	0	25	7	120	150	9.5	3.0	8.43	14.3	4.3
4/24/06	23	0	14	14	340	370	8.4	4.0	8.53	14.6	3.2
5/1/06	25	0	54	0	180	230	8.0	4.0	7.89	14.6	3.3
5/9/06	25	18	68	0	96	180	6.8	3.0	8.16	14.5	2.4
5/15/06	25	210	140	18	64	430	6.3	3.0	7.83	16.7	2.0
5/22/06	25	110	210	0	80	400	5.0	3.0	8.10	17.6	2.5
5/30/06	25	1200	200	54	79	1500	8.2	3.0	8.41	19.0	3.6
6/5/06	25	43	110	18	54	220	4.0	3.0	N/A	17.7	2.6
6/12/06	25	180	43	0	210	430	6.3	8.0	8.34	20.2	3.7
6/19/06	25	360	79	7	140	590	2.3	3.0	8.18	18.9	1.9
6/26/06	25	1200	120	14	430	1800	7.8	4.0	8.63	21.2	3.2
7/3/06	25	120	140	0	160	420	4.2	7.0	8.59	20.2	2.6
7/10/06	24	39	50	0	110	200	7.2	6.0	8.44	21.6	2.5
7/17/06	24	300	640	36	170	1100	7.4	4.0	8.69	22.5	2.5
7/24/06	23.5	220	200	64	320	800	3.5	3.0	8.21	22.0	1.6
7/31/06	24	43	480	120	610	1300	3.5	5.0	8.54	23.2	1.2
8/7/06	24	0	750	0	210	960	7.3	4.0	8.61	23.0	2.1
8/14/06	23	0	300	18	110	430	6.4	3.0	8.56	22.6	2.6
8/21/06	22	0	170	0	71	210	8.5	4.0	8.52	22.0	1.7
8/28/06	22	14	75	11	93	190	7.0	4.0	8.48	21.7	1.6
9/5/06	22	7	110	93	270	480	6.9	4.0	8.32	21.2	1.9
9/11/06	21	14	43	0	100	160	7.3	4.0	8.37	20.7	1.7

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 2 (492.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	**Feet**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**mg/L**	**TON**		**ºC**	**NTU**
9/18/06	21	11	43	68	240	360	6.8	4.0	8.33	20.2	1.5
9/25/06	25	46	43	43	320	450	7.4	5.0	8.23	19.8	1.7
10/2/06	27	760	61	0	96	920	7.2	4.0	8.26	19.2	1.5
11/6/06	26	0	21	0	240	260	8.8	4.0	8.21	16.7	-----
12/4/06	20	0	0	0	410	410	7.0	3.0	8.05	13.5	-----
1/2/07	20	0	4	4	11	47	6.8	4.0	7.83	11.2	-----
2/5/07	20	0	96	11	89	200	12.6	3.0	8.45	9.7	1.2
3/6/07	20	0	260	60	360	680	13.0	7.0	8.37	12.2	-----
4/2/07	20	520	180	11	440	600	10.8	4.0	8.53	15.0	-----
4/10/07	20	500	210	25	190	920	13.0	6.0	8.20	16.5	-----
4/16/07	20	320	350	33	400	1100	12.0	5.0	8.12	15.5	-----
4/23/07	20	30	180	25	280	510	11.0	4.0	8.13	15.2	-----
4/30/07	20	110	140	60	520	830	11.0	4.0	8.21	17.0	-----
5/9/07	20	5	200	30	400	640	11.2	3.0	8.08	18.0	-----
5/15/07	19	0	20	35	230	290	9.0	10.	8.24	18.5	-----
5/22/07	18	96	38	50	93	2280	9.6	6.0	8.30	18.2	-----
5/29/07	18	580	200	55	190	840	10.8	6.0	8.07	19.0	-----
6/5/07	18	460	290	68	380	1200	11.5	7.0	8.61	19.5	-----
6/19/07	17	530	440	410	250	1600	11.8	4.0	8.81	20.9	-----
6/26/07	17	860	160	58	120	1200	8.7	6.0	8.78	20.5	-----
7/3/07	16	400	99	1900	660	3100	11.5	15.	8.91	21.5	-----
7/10/07	16	50	120	2200	370	2700	11.0	30.	9.05	21.8	-----
7/17/07	16	0	13	1000	1100	2100	9.0	10.	8.92	21.8	-----
7/24/07	15	13	3	1200	35	1300	8.3	10.	8.88	22.0	-----
7/31/07	15	0	5	2100	160	2300	6.5	8.0	8.87	22.0	-----
8/7/07	15	0	6	1400	190	1600	7.2	8.0	8.82	22.0	-----
8/13/07	15	5	40	1200	160	1400	7.4	8.0	8.90	22.1	-----
8/20/07	15	13	50	230	140	430	6.1	3.0	8.77	22.0	-----
8/27/07	15	160	420	240	71	890	7.3	4.0	8.74	22.0	-----
9/4/07	15	110	310	850	86	1400	7.8	5.0	8.97	22.9	-----
9/11/07	13	23	250	520	120	910	7.2	10.	7.88		-----
9/18/07	13	0	61	610	230	900	6.7	4.0	8.92	21.5	-----
9/25/07	13	0	100	580	140	820	5.6	4.0	8.79	20.9	-----
10/2/07	12	0	25	330	270	630	7.9	3.0	8.67	20.0	-----
11/6/07	11	0	10	13	300	320	6.4	4.0	8.84	17.5	-----
12/4/07	10	0	0	0	280	280	8.1	7.0	8.45	14.0	-----
1/8/08	10	0	8	0	190	200	6.0	8.0	8.33	11.5	-----
2/5/08	15	0	20	40	210	270	9.9	3.0	8.45	10.4	-----
3/4/08	15	0	66	73	280	420	NA	5.0	8.63	12.2	-----
4/22/08	15	170	120	13	270	570	9.7	3.0	8.78	15.5	-----
4/29/08	15	120	93	28	240	480	11.2	15.	8.68	17.0	-----
5/6/08	15	380	63	28	250	720	10.1	20.	8.90	16.9	-----

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 2 (492.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	**Feet**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**mg/L**	**TON**		**ºC**	**NTU**
5/13/08	14	640	71	18	500	1200	10.2	40.	8.86	18.2	-----
5/20/08	14	3300	68	150	400	3900	9.7	20.	8.97	20.0	-----
5/28/08	14	720	40	53	93	910	9.2	30.	8.82	18.7	-----
6/3/08	14	1200	53	150	190	1600	9.8	30.	9.01	19.3	-----
6/10/08	13	1900	93	320	460	2800	8.1	20.	9.01	21.0	-----
6/17/08	13	470	78	110	220	880	11.5	10.	9.06	20.9	-----
6/24/08	13	620	60	230	15	930	9.0	4.0	8.86	21.9	-----
7/1/08	12	1100	120	940	610	2800	8.8	7.0	8.81	21.7	-----
7/8/08	13	96	76	2000	1700	3900	8.7	10.	8.87	22.0	-----
7/14/08	12	30	96	180	510	820	NA	5.0	9.03	22.2	-----
7/23/08	11	3	15	1800	130	1900	10.0	10.	8.91	22.4	-----
7/28/08	11	15	78	690	540	1300	7.2	4.0	8.86		-----
8/5/08	11	0	88	900	71	1100	6.8	20.	8.82	22.8	-----
8/13/08	11	48	48	590	300	990	6.6	10.	8.75	22.2	-----
8/19/08	10	8	20	170	210	410	7.7	10.	8.75	22.2	-----
8/25/08	10	25	83	120	71	300	7.6	10.	8.76	23.0	-----
9/2/08	10	5	10	150	96	260	8.9	7.0	8.87	22.8	-----
4/14/09	4	0	88	5	800	890	10.2	5.0	8.57	15.4	2.6
4/15/09	15	100	55	25	200	380	10.6	7.0	8.48	16.0	3.2
4/21/09	4	23	180	20	710	930	13.5	4.0	8.57	17.0	4.5
4/29/09	4	180	60	48	260	550	10.1	3.0	8.55	16.5	2.5
5/6/09	4	430	140	63	350	980	11.4	5.0	8.57	18.3	3.9
5/12/09	34	540	370	130	340	1400	4.7	6.0	8.68	16.3	5.3
5/19/09	3	1100	88	140	700	2000	10.7	5.0	9.01	19.6	7.4
5/26/09	4	900	43	170	390	1500	11.0	10.	8.74	19.9	13.4
6/1/09	3	120	25	190	360	700	10.1	20.	8.64	19.6	6.7
6/22/09	2	140	0	1300	130	1600	-----	7.0	-----	-----	13.4
6/30/09	1	420	3	4000	900	5300	9.7		8.97	21.3	6.9
7/6/09	14	55	15	1400	250	1700	10.9	30.	8.95	21.8	7.2
7/14/09	1	0	15	1300	400	1700	9.6	10.	8.95	21.6	5.0
7/20/09	1	30	190	1600	760	2600	9.6	7.0	8.97	22.0	5.2
7/27/09	0	0	200	1000	750	2000	8.3	7.0	8.88	21.9	3.3
2/1/10	1	0	3	18	15	36	8.9	8.0	8.23	11.6	2.8
3/8/10	5	0	0	16	25	41	10.6	4.0	8.31	12.7	2.3
4/8/10	6	23	8	0	23	54	9.5	5.0	8.34	15.1	2.4
4/13/10	4	0	0	3	25	48	8.8	13.	8.51	14.9	2.1
4/19/10	7	66	23	5	38	130	9.8	6.0	8.46	16.0	2.5
4/26/10	7	83	5	8	68	160	9.7	5.0	8.35	17.8	1.9
5/3/10	7	240	0	38	83	360	8.0	8.0	8.43	18.4	2.8
5/19/10	7	28	18	310	270	630	10.6	10.	8.53	18.1	2.4
5/24/10	9	78	25	710	370	1200	9.4	5.0	8.70	18.1	2.7
6/1/10	7	1500	57	0	390	1900	9.6	49.	8.65	19.6	3.2

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 2 (492.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
6/7/10	9	60	13	93	83	250	9.9	6.0	8.74	21.3	2.1
6/14/10	9	3	0	610	110	720	7.7	9.0	8.82	20.9	3.0
6/21/10	9	0	0	470	40	510	8.1	8.0	8.81	20.4	3.0
6/28/10	5	15	0	390	120	530	8.4	8.0	8.81	20.9	3.3
7/7/10	5	120	79	110	850	1200	6.8	7.0	8.65	20.6	3.0
7/12/10	5	844	3	50	403	1300	9.4	4.0	8.78	21.1	11.9
7/19/10	5	370	64	0	320	750	10.4	5.5	8.84	21.6	6.6
7/19/10	-----	370	64	0	320	750		-----	-----	-----	-----
7/26/10	5	550	86	21	760	1400	7.1	6.0	8.86	21.4	8.6
8/2/10	5	3600	460	43	220	4300	8.7	9.5	8.93	21.6	11.0
8/10/10	5	2200	68	75	7	2400	6.9	6.0	8.88	21.2	10.6
8/18/10	5	1400	3800	740	1600	7500	8.3	8.0	8.89	21.6	5.3
8/31/10	5	39	340	2000	240	2600	6.7	10.	8.86	21.3	3.8
9/9/10	8	11	150	64	500	730	5.1	8.0	8.70	20.9	2.5
9/21/10	2	0	21	1600	1100	2700	7.5	15.	8.56	20.6	2.4
9/28/10	2	0	21	1300	200	1500	8.5	-----	8.68	20.9	2.2
10/5/10	2	140	18	220	310	690	7.1	8.0	8.67	20.7	3.2
11/3/10	2	0	46	54	530	630	5.9	4.5	8.44	18.3	1.9
12/7/10	2	0	110	0	250	360	4.6	4.3	8.12	13.5	2.7

Lopez Lake Intake 3(477.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
1/3/06	28	0	4	0	150	150	5.0	2.5	8.17	12.3	1.7
2/6/06	29	0	68	0	200	270	8.3	4.0	7.89	11.8	1.8
3/7/06	30	0	500	0	160	660	12.3	2.0	8.56	11.8	3.1
4/11/06	38	0	75	21	150	250	8.2	3.0	8.36	12.6	5.5
4/17/06	38	0	4	0	36	40	7.0	3.0	8.30	12.8	4.5
4/24/06	38	0	0	11	170	180	6.4	3.0	8.32	12.4	3.1
5/1/06	40	0	7	0	68	75	6.0	2.5	7.56	12.5	3.6
5/9/06	40	0	0	0	68	68	6.1	3.0	8.08	12.7	2.9
5/15/06	40	0	0	0	46	46	4.1	3.0	7.04	13.3	2.3
5/22/06	40	29	50	21	61	160	3.2	3.0	7.77	13.7	2.0
5/30/06	40	25	64	0	18	110	2.0	4.0	7.82	14.1	2.2

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 3(477.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	**Feet**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**mg/L**	**TON**		**ºC**	**NTU**
6/5/06	40	18	68	18	32	140	1.7	2.5	N/A	13.0	2.5
6/12/06	40	270	21	54	180	270	1.0	4.0	7.65	14.3	2.1
6/19/06	40	100	36	0	79	220	0.2	2.5	7.75	14.1	1.6
6/26/06	40	220	25	4	64	310	0.5	4.0	7.76	15.2	1.6
7/3/06	40	11	50	18	57	140	0.3	4.0	7.89	16.0	1.0
7/10/06	39	14	32	0	61	110	0.5	8.0	7.86	17.4	1.6
7/17/06	39	7	200	0	50	260	0.3	4.0	8.16	17.5	1.5
7/24/06	38.5	130	120	25	160	440	0.3	7.0	7.72	18.0	1.6
7/31/06	39	14	75	39	164	290	0.1	8.0	7.86	17.0	1.2
8/7/06	39	0	130	0	46	180	0.5	30.	7.90	17.5	1.4
8/14/06	38	0	160	0	54	210	0.7	8.0	7.90	18.2	1.4
8/21/06	37	0	210	0	96	310	8.4	4.0	8.43	21.9	2.2
8/28/06	37	64	100	0	110	270	6.6	4.0	8.45	21.7	1.7
9/5/06	37	7	61	220	400	690	1.0	4.0	8.31	19.8	2.5
9/11/06	36	39	32	0	68	140	6.8	3.0	8.36	20.7	1.8
9/18/06	36	0	39	61	350	450	6.7	3.0	8.34	20.2	1.6
9/25/06	40	39	36	36	280	390	7.0	4.0	8.23	19.7	1.5
10/2/06	42	2300	57	0	64	2400	7.1	4.0	8.30	19.2	1.4
11/6/06	41	21	0	0	290	310	8.5	2.0	8.19	16.6	-----
12/4/06	35	0	71	0	410	480	6.6	3.0	8.05	13.4	-----
1/2/07	35	0	0	0	32	32	6.7	5.0	7.81	11.2	-----
2/5/07	35	0	14	0	89	100	12.3	2.0	8.29	9.7	1.0
3/6/07	35	0	250	53	300	600	11.0	3.0	8.37	11.5	-----
4/2/07	35	63	110	0	86	260	6.3	4.0	8.29	12.5	-----
4/10/07	35	280	160	20	100	560	10.5	3.0	8.26	15.0	-----
4/16/07	35	170	170	0	190	530	6.2	3.0	8.01	14.2	-----
4/23/07	35	15	160	15	340	530	10.8	5.0	8.14	15.0	-----
4/30/07	35	0	78	15	220	310	7.3	5.0	7.76	15.2	-----
5/9/07	35	0	140	20	350	510	5.4	3.0	8.06	15.6	-----
5/15/07	34	10	15	45	320	390	5.0	6.0	8.11	16.5	-----
5/22/07	33	35	20	35	86	18	3.4	8.0	8.28	16.2	-----
5/29/07	33	66	78	68	200	410	3.3	4.0	8.02	16.3	-----
6/5/07	33	43	91	23	110	270	4.3	5.0	8.26	18.0	-----
6/19/07	32	150	210	20	110	490	5.7	5.0	8.64	19.8	-----
6/26/07	32	180	110	13	45	350	7.9	4.0	8.71	20.2	-----
7/3/07	31	83	18	140	150	390	9.2	15.	8.84	21.0	-----
7/10/07	31	63	170	880	960	2100	5.7	30.	9.00	21.0	-----
7/17/07	31	0	4	190	530	720	8.2	15.	8.82	21.5	-----
7/24/07	30	3	3	250	45	300	6.6	7.0	8.86	22.0	-----
7/31/07	30	0	0	1800	140	1900	NA	8.0	8.86	22.0	-----
8/7/07	30	3	3	1600	130	1700	6.3	10.	8.86	22.0	-----
8/13/07	30	0	170	180	180	530	6.4	8.0	8.92	22.0	-----

Appendix B5: Water Quality Data
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Lopez Lake Intake 3(477.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
8/20/07	30	23	15	260	86	380	5.9	3.0	8.78	22.0	-----
8/27/07	30	8	200	250	45	500	6.9	3.0	8.74	21.9	-----
9/4/07	30	200	210	440	83	930	7.5	5.0	8.95	22.8	-----
9/11/07	28	0	220	230	180	630	6.8	N/A	8.64	22.0	-----
9/18/07	28	0	20	500	180	700	6.5	4.0	8.93	21.5	-----
9/25/07	28	0	40	270	140	450	5.6	4.0	8.77	20.6	-----
10/2/07	27	0	15	320	170	500	7.1	4.0	8.68	20.0	-----
11/6/07	26	3	18	23	280	320	6.2	6.0	8.83	17.5	-----
12/4/07	25	0	13	13	350	380	6.8	4.0	8.48	14.0	-----
1/8/08	25	0	8	25	180	210	5.7	10.	8.31	11.5	-----
2/5/08	30	0	18	8	200	230	9.9	3.0	8.45	10.3	-----
3/4/08	30	0	71	71	130	270	N/A	5.0	8.82	12.2	-----
4/15/08	30	53	40	15	170	280	9.9	5.0	8.47	15.6	-----
4/22/08	30	71	91	13	250	430	9.7	3.0	8.79	15.4	-----
4/29/08	30	28	71	20	98	220	8.7	6.0	8.53	15.2	-----
5/6/08	30	270	130	10	250	660	9.8	9.0	8.96	16.8	-----
5/13/08	29	370	88	3	350	810	9.6	40.	8.86	18.0	-----
5/20/08	29	98	23	13	140	270	6.1	10.	8.88	18.5	-----
5/28/08	29	370	15	43	20	450	8.7	30.	8.81	18.6	-----
6/3/08	29	1100	63	110	170	1400	9.8	30.	9.05	19.3	-----
6/10/08	28	240	28	23	71	360	5.8	8.0	8.78	19.1	-----
6/17/08	28	110	86	15	93	300	3.2	5.0	8.87	19.6	-----
6/24/08	28	510	63	160	220	950	2.2	4.0	8.83	20.5	-----
7/1/08	27	580	63	170	190	1000	4.5	3.0	8.74	21.2	-----
7/8/08	28	38	76	340	1200	1700	3.9	6.0	8.96	21.4	-----
7/14/08	27	3	53	120	360	540	NA	4.0	8.65	21.3	-----
7/23/08	26	0	18	1700	58	1800	8.0	8.0	8.89	22.4	-----
7/28/08	26	3	66	450	520	1000	6.5	4.0	8.84	22.3	-----
8/5/08	26	0	93	540	230	860	6.0	20.	8.79	22.5	-----
8/13/08	26	25	25	290	140	480	6.3	10.	8.74	22.0	-----
8/19/08	25	0	18	110	140	270	7.3	5.0	8.73	22.2	-----
8/25/08	25	250	25	5	25	300	6.7	15.	8.77	22.7	-----
9/2/08	25	0	13	100	86	370	8.9	5.0	8.86	22.5	-----
4/14/09	19	10	76	10	750	850	9.2	3.0	8.52	15.0	2.5
4/21/09	19	3	150	8	660	820	10.7	3.0	8.54	16.1	3.2
4/30/09	19	130	58	83	340	610	9.5	4.0	8.56	16.3	2.9
5/6/09	19	400	53	130	340	920	10.8	7.0	8.54	17.9	3.4
5/12/09	19	290	350	110	400	1200	9.5	5.0	8.64	18.3	5.2
5/19/09	18	650	73	88	410	1200	9.9	5.0	8.91	19.5	6.2
5/26/09	19	53	40	25	400	520	9.8	9.0	8.65	19.6	7.6
6/1/09	18	45	68	28	35	490	9.3	6.0	8.59	19.3	8.8
6/22/09	17	100	3	980	270	1400	9.1	8.0	8.83	20.5	8.1

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Lopez Lake Intake 3(477.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	**Feet**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**mg/L**	**TON**		**ºC**	**NTU**
6/30/09	16	35	5	770	380	1200	7.5		8.85	21.1	5.6
7/6/09	29	20	8	780	170	980	8.4	20.	8.84	21.4	4.5
7/14/09	14	0	45	1100	400	1500	9.2	9.0	8.90	21.5	5.0
7/20/09	16	10	140	1100	650	1900	8.0	5.0	8.96	21.8	4.3
7/27/09	15	5	130	890	620	1600	7.8	8.0	8.86	21.8	3.6
8/3/09	15	0	68	960	480	1500	8.6	10.	8.62	21.9	3.5
8/10/09	14	0	43	1500	360	1900	6.1	8.0	8.80	21.8	3.3
8/17/09	14	0	48	1000	250	1300	7.1	15.	8.63	21.7	2.8
8/24/09	14	0	13	970	130	1100	6.4	16.	8.55	21.4	-----
9/1/09	14	0	53	500	240	790	7.1	10.	8.54	21.8	2.2
9/8/09	13	0	48	160	88	300	6.6	8.0	8.62	21.7	2.7
9/14/09	13	0	33	760	170	960	6.8	10.	8.44	21.5	2.7
9/21/09	12	8	5	570	170	750	6.3	15.	8.59	21.4	3.9
9/28/09	12	0	18	560	110	690	6.6	30.	8.56	21.1	2.8
10/7/09	11	280	10	280	43	330	6.7	20.	8.32	19.4	2.4
10/19/09	12	0	33	96	140	270	9.3	13.	8.36	19.2	3.0
11/2/09	11	0	15	98	86	200	7.2	8.0	8.34	17.5	2.8
12/8/09	10	0	30	13	38	81	5.2	6.0	8.02	12.5	1.9
1/11/10	11	0	15	0	5	20	8.4	7.0	8.10	11.5	2.3
2/1/10	16	0	0	25	15	40	8.4	15.	8.26	11.2	2.9
3/8/10	20	0	8	0	30	38	9.6	6.0	8.25	12.5	2.1
4/8/10	21	23	15	15	45	98	9.2	5.0	8.34	15.0	2.1
4/13/10	19	0	25	3	18	46	7.9	8.0	8.46	14.6	1.7
4/19/10	22	5	5	3	33	46	7.8	5.0	8.48	15.3	2.1
4/26/10	22	5	0	3	48	56	9.6	5.0	8.31	16.6	1.6
5/3/10	22	40	5	8	35	88	6.5	6.0	8.45	16.2	2.9
5/19/10	22	20	18	33	170	240	9.9	8.0	8.53	18.0	2.1
5/24/10	24	40	38	310	290	680	9.5	6.0	8.65	18.0	2.2
6/1/10	22	190	0	0	46	240	6.8	9.0	8.30	18.5	1.4
6/7/10	24	13	15	8	33	69	6.7	10.	8.57	19.0	2.0
6/10/10	24	0	5	73	81	160	5.5	8.0	8.67	20.1	2.5
6/21/10	24	5	0	180	58	240	7.0	9.0	8.76	20.3	2.7
6/28/10	20	0	13	340	120	470	7.6	8.0	8.80	20.5	3.0
7/7/10	20	0	29	190	710	930	6.4	10.	8.64	20.6	3.6
7/12/10	20	673	0	43	363	1100	8.5	6.0	8.74	20.9	3.0
7/19/10	20	310	61	11	300	680	9.3	5.0	8.80	21.5	3.8
7/26/10	20	310	25	14	290	640	7.0	5.8	8.86	21.4	4.1
8/10/10	20	1300	200	32	0	1500	6.5	5.5	8.87	21.2	8.2
8/18/10	20	750	3300	510	1000	5600	6.7	6.8	8.84	21.3	5.5
8/31/10	20	29	280	1200	230	1700	6.0	6.5	8.87	21.2	2.8
9/9/10	20	0	190	21	470	680	4.7	8.5	8.68	20.8	1.9
9/21/10	17	0	21	1200	400	1600	6.5	10.	8.59	20.4	2.6

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Lopez Lake Intake 3(477.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
9/28/10	17	0	21	1300	220	1500	7.4	-----	8.65	20.7	2.5
10/5/10	17	120	68	820	210	1200	5.9	8.0	8.70	20.4	2.0
11/3/10	16	0	14	21	127	490	5.6	5.8	8.00	17.9	1.8

Lopez Lake Intake 4 (462.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
1/3/06	43	0	0	0	120	120	5.0	2.5	8.15	12.3	1.7
2/6/06	44	0	25	0	61	86	7.2	4.0	7.67	11.6	1.4
3/7/06	45	0	1300	0	220	1500	11.3	4.0	8.54	11.8	3.3
4/11/06	53	0	46	0	140	190	7.3	3.0	8.31	12.3	3.4
4/17/06	53	0	0	0	7	7	-----	3.0	8.20	-----	2.9
4/24/06	53	0	0	0	90	90	-----	3.0	8.32	-----	2.5
5/1/06	55	0	0	0	50	50	4.7	2.5	7.49	-----	3.2
5/9/06	55	0	0	0	39	39	-----	4.0	8.04	-----	2.7
5/15/06	55	4	93	21	39	160	5.0	3.0	6.83	12.4	2.3
5/22/06	55	86	7	0	43	140	-----	3.0	7.87	-----	2.2
5/30/06	55	57	29	0	14	100	3.4	2.0	7.88	12.7	1.9
6/5/06	55	11	7	0	11	29	2.8	2.5	N/A	12.9	1.7
6/12/06	55	14	18	39	54	120	2.6	2.5	7.75	13.0	1.4
6/19/06	55	50	7	11	29	97	1.7	2.5	7.80	12.7	1.5
6/26/06	55	71	7	0	21	99	1.4	3.0	7.79	13.0	1.0
7/3/06	55	0	0	0	21	21	1.0	3.0	7.82	13.0	0.7
7/10/06	54	7	39	0	25	71	0.3	6.0	7.74	13.2	0.7
7/17/06	54	14	7	0	4	25	0.2	3.0	7.83	13.8	1.0
7/24/06	53.5	18	21	7	57	100	0.2	5.0	7.42	13.3	0.8
7/31/06	54	14	39	36	110	200	0.1	6.0	7.64	13.4	1.1
8/7/06	54	0	140	0	25	160	0.2	7.0	7.69	13.4	1.2
8/14/06	53	0	71	0	29	100	0.2	7.0	7.70	13.6	1.5
8/21/06	52	0	36	0	29	65	0.3	7.0	7.72	14.1	1.3
8/28/06	52	0	21	0	32	53	0.4	20.	7.68	14.1	2.0
9/5/06	52	0	14	7	32	53	0.3	7.0	7.42	13.6	7.4
9/11/06	51	0	14	0	50	64	0.4	15.	7.67	14.2	4.7
9/18/06	51	0	0	7	18	25	1.5	20.	7.61	14.5	1.3
9/25/06	55	0	4	7	46	60	0.8	50.	7.51	13.4	3.2

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Lopez Lake Intake 4 (462.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
10/2/06	57	2000	11	0	7	2000	0.5	20.	7.61	13.5	5.2
11/6/06	56	0	0	0	150	150	7.0	2.5	8.16	16.2	-----
12/4/06	50	0	36	0	370	410	6.6	3.0	8.09	13.4	-----
1/2/07	50	0	4	0	14	18	6.7	3.0	7.82	11.2	-----
2/5/07	50	0	110	11	43	160	12.0	5.0	8.45	9.5	1.4
3/6/07	50	3	76	0	130	210	7.5	2.0	8.03	11.0	-----
4/2/07	50	13	23	0	63	99	5.4	2.5	7.98	11.2	-----
4/10/07	50	140	86	0	40	270	6.4	3.0	8.01	12.6	-----
4/16/07	50	23	58	0	55	140	4.3	4.0	7.76	12.8	-----
4/23/07	50	8	35	0	28	71	9.3	2.0	7.90	15.0	-----
4/30/07	50	3	15	0	65	83	5.0	4.0	7.99	14.0	-----
5/9/07	50	0	53	38	66	160	4.4	2.0	7.89	14.0	-----
5/15/07	49	0	10	3	28	41	3.1	5.0	7.93	14.0	-----
5/22/07	48	0	0	3	53	56	1.9	3.0	7.92	15.0	-----
5/29/07	48	8	10	20	53	91	0.6	4.0	7.57	15.1	-----
6/5/07	48	5	130	0	81	220	1.7	4.0	8.17	16.0	-----
6/19/07	47	35	60	63	48	210	0.7	3.0	8.20	16.2	-----
6/26/07	47	8	33	15	28	84	0.7	6.0	8.25	16.2	-----
7/3/07	46	15	13	110	28	170	2.0	5.0	8.38	18.0	-----
7/10/07	46	3	18	120	120	260	1.4	10.	8.52	18.5	-----
7/17/07	46	0	5	58	98	160	1.3	20.	8.43	19.0	-----
7/24/07	45	3	10	230	120	360	0.9	10.	8.47	19.0	-----
7/31/07	45	0	5	330	110	440	1.4	10.	8.61	19.0	-----
8/7/07	45	0	5	130	93	230	2.0	20.	8.61	20.0	-----
8/13/07	45	5	18	290	180	490	2.2	4.0	8.72	19.8	-----
8/20/07	45	23	3	150	35	210	5.8	3.0	8.76	21.3	-----
8/27/07	45	5	5	23	30	63	6.5	4.0	8.62	21.0	-----
9/4/07	45	20	8	260	10	300	2.2	10.	8.71	21.0	-----
9/11/07	43	0	38	220	170	430	1.5	20.	7.48	20.0	-----
9/18/07	43	0	50	440	110	600	6.4	3.0	8.95	21.5	-----
9/25/07	43	0	30	620	300	950	5.5	4.0	8.77	20.5	-----
10/2/07	42	0	5	230	150	390	7.1	4.0	8.68	20.0	-----
11/6/07	41	0	10	15	180	210	6.3	4.0	8.82	17.2	-----
12/4/07	40	0	8	5	250	260	6.8	4.0	8.49	14.0	-----
1/8/08	40	0	20	8	210	240	5.6	4.0	8.30	11.5	-----
2/5/08	45	0	10	28	150	190	9.5	2.0	8.38	10.3	-----
3/4/08	45	0	20	10	120	150	9.6	7.0	9.60	11.1	-----
4/15/08	45	13	50	15	83	160	5.0	2.0	8.29	13.3	-----
4/22/08	45	3	53	3	78	140	4.9	10.	8.52	14.0	-----
4/29/08	45	30	18	3	35	59	4.8	8.	8.41	14.3	-----
5/6/08	45	28	35	5	100	170	4.7	15.	8.52	14.8	-----
5/13/08	44	130	35	5	250	420	4.0	15.	8.68	15.8	-----

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 4 (462.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
5/20/08	44	10	3	5	33	51	4.0	20.	8.59	16.6	-----
5/28/08	44	300	30	5	43	380	3.0	5.0	8.81	16.7	-----
6/3/08	44	930	83	55	190	1300	3.9	30.	9.04	18.2	-----
6/10/08	43	150	13	10	38	210	3.7	8.0	8.65	18.5	-----
6/17/08	43	40	55	0	66	160	1.5	5.0	8.69	18.5	-----
6/24/08	43	50	25	25	91	190	0.0	3.0	8.48	18.7	-----
7/1/08	43	23	13	10	180	230	0.1	5.0	8.34	18.9	-----
7/8/08	43	8	25	43	7700	850	0.1	8.0	8.51	19.5	-----
7/14/08	42	0	10	25	240	280	N/A	4.0	8.50	20.5	-----
7/23/08	41	10	10	25	48	93	N/A	15.	8.47	20.8	-----
7/28/08	41	0	15	55	200	270	0.2	40.	8.46	19.9	-----
8/5/08	41	0	10	18	60	88	0.1	20.	8.48	21.0	-----
8/13/08	41	15	30	270	91	410	2.6	8.0	8.66	22.0	-----
8/19/08	40	0	15	170	71	260	0.3	5.0	8.44	21.5	-----
8/25/08	40	0	13	150	53	220	0.2	15.	8.47	21.9	-----
9/2/08	40	0	13	68	120	200	8.8	10.	8.80	22.2	-----
4/14/09	34	10	110	0	1100	1200	5.0	2.0	8.53	14.0	2.2
4/21/09	34	0	160	5	610	780	7.8	10.	8.36	14.7	3.2
4/30/09	34	76	78	30	300	500	7.3	5.0	8.52	16.0	2.8
5/6/09	34	43	43	40	280	410	5.3	8.0	8.40	15.5	2.3
5/12/09	34	98	160	28	280	570	10.2	5.0	8.62	18.6	3.8
5/19/09	33	55	25	25	120	240	3.8	5.0	8.70	16.7	4.1
5/26/09	34	8	33	0	310	350	3.4	6.0	8.53	17.7	5.2
6/1/09	33	10	43	0	140	190	7.3	7.0	8.48	18.8	3.1
6/22/09	32	45	0	710	250	1000	8.1	5.0	8.71	20.4	4.6
6/30/09	31	38	15	240	270	560	7.1		8.82	21.0	3.7
7/6/09	44	25	8	460	170	660	7.8	20.	8.81	21.3	3.7
7/14/09	29	0	38	650	400	1100	7.9	9.0	8.86	21.4	4.4
7/20/09	31	10	130	640	550	1300	6.4	4.0	8.86	21.6	3.6
7/27/09	30	5	110	800	4400	1400	0.7	10.	8.83	21.6	3.1
8/3/09	30	0	45	340	120	510	8.6	7.0	8.33	21.8	2.7
8/10/09	29	0	45	1200	440	1700	5.9	7.3	8.79	21.8	3.2
8/17/09	29	0	38	780	290	1100	6.5	20.	8.62	21.7	2.9
8/24/09	29	0	13	650	110	770	6.4	18.	8.55	21.4	
9/1/09	29	0	38	350	140	530	6..2	10.	8.47	21.7	1.9
9/8/09	28	8	43	78	58	190	2.7	10.	8.66	21.3	2.7
9/14/09	28	0	48	290	130	470	6.7	10.	8.46	21.4	1.8
9/21/09	27	0	8	470	140	620	6.1	20.	8.57	21.4	2.4
9/28/09	27	0	5	380	98	480	6.3	9.0	8.51	21.1	2.8
10/7/09	26	160	3	160	28	190	6.3	8.0	8.31	19.2	2.2
10/19/09	27	0	13	50	25	90	6.0	13.	8.22	18.5	2.4
11/2/09	26	0	0	0	0	0	7.0	10.	8.34	17.5	3.1

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 4 (462.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
12/8/09	25	0	25	29	30	84	5.3	15.	7.98	12.9	3.6
1/11/10	26	0	0	0	3	3	8.1	9.0	8.11	11.4	3.6
2/1/10	31	0	0	5	10	15	8.4	10.	8.31	11.1	2.7
3/8/10	35	0	10	0	21	31	6.9	7.0	8.17	11.9	2.9
4/8/10	36	0	18	3	18	39	8.7	5.0	8.35	14.8	1.9
4/13/10	34	0	0	3	18	21	7.6	7.0	8.44	14.5	2.0
4/19/10	37	10	10	3	50	73	6.6	6.0	8.46	14.5	2.1
4/26/10	37	5	0	0	15	20	9.7	5.0	8.21	16.4	1.9
5/3/10	37	5	0	0	13	18	5.9	5.0	8.25	14.5	1.4
5/19/10	37	5	10	8	76	99	8.3	8.0	8.33	17.6	1.4
5/24/10	39	86	53	100	220	460	4.2	6.0	8.61	16.6	1.8
6/1/10	37	120	0	0	25	140	3.7	4.0	8.10	16.9	1.2
6/7/10	39	15	0	3	13	31	4.1	10.	8.36	17.3	1.5
6/14/10	39	0	0	83	33	120	2.3	7.0	8.30	17.4	2.3
6/21/10	39	0	3	170	38	210	0.8	10.	8.73	17.7	2.5
6/28/10	35	0	0	800	96	900	2.0	7.0	8.41	19.1	2.8
7/7/10	35	71	110	100	470	750	5.4	14.	8.61	20.4	2.5
7/12/10	35	38	0	0	100	140	2.8	4.0	8.58	20.0	2.0
7/19/10	35	14	100	0	57	170	3.6	4.0	8.57	20.4	2.4
7/26/10	35	250	160	0	340	750	6.6	4.0	8.83	21.4	4.2
8/2/10	35	1800	690	0	120	2600	1.9	7.5	8.77	20.3	3.7
8/10/10	35	1200	150	18	18	1400	6.1	4.0	8.82	21.1	4.1
8/18/10	35	880	3600	130	1000	5600	5.3	3.5	8.82	21.1	3.6
8/31/10	35	21	370	980	350	1700	5.7	4.5	8.86	21.2	2.9
9/9/10	35	0	260	25	450	740	4.9	8.0	8.66	20.8	2.2
9/21/10	32	0	75	1100	250	1400	5.1	10.	8.55	20.2	2.1
9/28/10	32	0	11	780	290	1100	4.7	-----	8.50	20.3	1.6
10/5/10	32	71	46	590	340	1000	5.6	8.0	8.68	20.4	1.5
11/3/10	31	0	21	18	390	430	5.3	5.8	8.36	17.9	1.6
12/7/10	30	0	93	0	160	250	4.2	2.8	8.12	13.1	1.4

Lopez Lake Intake 5 (447.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
1/3/06	58	0	0	18	210	230	4.8	3.0	8.17	12.3	1.8

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 5 (447.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
2/6/06	59	0	21	0	21	42	6.6	4.0	7.65	11.5	1.6
3/7/06	60	0	570	0	170	740	9.5	4.0	8.50	11.8	3.4
4/11/06	68	0	54	0	160	210	6.6	3.0	8.29	12.1	2.8
4/17/06	68	0	0	0	7	7	6.1	2.5	8.22	12.2	2.9
4/24/06	68	0	0	0	36	36	5.3	2.5	8.25	12.1	3.1
5/1/06	70	0	11	0	100	110	2.9	2.0	7.52	12.0	3.3
5/9/06	70	0	0	0	50	50	2.6	2.0	7.85	12.1	2.2
5/15/06	70	25	0	0	43	68	4.5	3.0	6.74	12.2	1.9
5/22/06	70	0	0	0	25	25	3.6	3.0	7.81	12.3	2.3
5/30/06	70	100	32	0	25	160	2.8	3.0	7.88	12.3	1.8
6/5/06	70	29	11	0	21	61	2.3	3.0	-----	12.4	1.3
6/12/06	70	0	14	7	46	67	1.8	2.5	7.71	11.0	1.5
6/19/06	70	46	0	0	36	82	1.7	2.5	7.83	12.5	1.6
6/26/06	70	4	11	0	7	22	1.3	2.5	7.80	12.2	1.1
7/3/06	70	4	46	0	21	71	0.8	4.0	7.79	12.0	0.7
7/10/06	69	0	14	0	11	25	0.6	4.0	7.76	12.5	0.7
7/17/06	69	0	11	0	0	11	0.3	3.0	7.83	13.0	0.6
7/24/06	68.5	25	32	7	82	150	0.2	2.5	7.36	12.6	0.5
7/31/06	69	0	25	46	54	130	0.1	4.0	7.65	12.5	0.9
8/7/06	69	0	14	0	7	21	0.1	5.0	7.69	12.6	1.3
8/14/06	68	0	18	0	14	32	0.2	6.0	7.69	12.7	1.2
8/21/06	67	0	18	0	14	32	0.2	5.0	7.70	12.7	1.4
8/28/06	67	0	0	0	29	29	0.2	4.0	7.67	12.7	0.9
9/5/06	67	0	0	7	21	28	0.2	2.5	7.53	12.6	1.3
9/11/06	66	0	0	0	18	18	0.2	12.	7.64	12.8	1.5
9/18/06	66	0	4	7	25	36	0.4	15.	7.63	12.9	0.7
9/25/06	70	0	0	0	39	39	0.4	12.	7.53	12.7	2.4
10/2/06	72	1200	36	0	7	1200	0.4	8.0	7.59	12.6	4.6
11/6/06	71	0	0	0	36	36	0.6	8.0	7.60	12.7	-----
12/4/06	65	0	68	0	450	520	6.4	5.0	8.12	13.4	-----
1/2/07	65	0	4	4	57	65	6.6	4.0	7.84	11.2	-----
2/5/07	65	0	21	0	7	28	10.9	3.0	8.32	9.4	1.1
3/6/07	65	3	33	15	43	94	6.4	3.0	8.01	10.8	-----
4/2/07	65	20	40	0	63	120	4.7	2.0	7.94	11.0	-----
4/10/07	65	15	15	20	18	68	4.8	5.0	7.57	11.2	-----
4/16/07	65	5	33	0	10	58	3.6	3.0	7.66	11.8	-----
4/23/07	65	48	110	8	100	270	4.1	6.0	7.70	12.5	-----
4/30/07	65	0	13	0	50	63	3.5	5.0	7.88	13.0	-----
5/9/07	65	0	40	33	66	140	3.2	3.0	7.83	13.0	-----
5/15/07	64	0	0	0	13	13	1.8	5.0	7.84	13.0	-----
5/22/07	63	0	0	5	3	8	1.2	2.0	7.84	13.0	-----
5/29/07	63	0	8	5	63	76	0.2	2.0	7.53	13.2	-----

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 5 (447.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
6/5/07	63	5	71	23	76	180	0.7	5.0	8.09	14.0	-----
6/19/07	62	53	78	18	38	190	0.5	6.0	8.10	14.5	-----
6/26/07	62	13	205	0	5	38	0.4	15.	8.07	14.0	-----
7/3/07	61	10	0	15	30	55	0.8	8.0	8.10	14.0	-----
7/17/07	61	0	28	43	240	310	0.7	15.	8.13	14.8	-----
7/24/07	60	78	48	920	130	1200	0.5	40.	8.12	14.8	-----
7/31/07	60	0	0	38	5	43	0.9	15.	8.05	14.9	-----
8/7/07	60	5	10	540	180	740	1.0	40.	8.21		-----
8/13/07	60	0	58	8	43	110	1.1	100	8.08	15.5	-----
8/20/07	60	0	5	0	3	8	1.8	50.	8.13	15.3	-----
8/27/07	60	0	3	5	23	31	1.6	100	7.94	15.2	-----
9/4/07	60	3	3	0	43	49	0.7	20.	8.10	15.0	-----
9/11/07	58	3	0	0	20	23	0.5	40.	8.06	15.0	-----
9/18/07	58	0	0	25	23	48	0.6	30.	8.37	15.0	-----
9/25/07	58	0	5	43	91	140	2.4	100	8.04	14.5	-----
10/2/07	67	0	20	150	220	390	3.3	10.	8.66	16.2	-----
11/6/07	56	0	8	13	200	220	6.2	7.0	8.79	17.0	-----
12/4/07	55	0	5	5	270	280	6.5	8.0	8.48	14.0	-----
1/8/08	55	0	15	10	240	270	5.4	4.0	8.30	11.5	-----
3/4/08	60	0	23	0	88	110	8.5	3.0	8.42	10.8	-----
4/15/08	60	23	81	20	60	180	4.4	2.0	8.20	13.1	-----
4/22/08	60	18	55	8	130	210	8.4	3.0	8.38	13.3	-----
4/29/08	60	0	10	0	10	20	3.0	8.0	8.21	13.3	-----
5/6/08	60	0	23	0	81	100	3.2	5.0	8.39	14.0	-----
5/13/08	59	13	15	5	53	86	2.4	5.0	8.35	14.6	-----
5/20/08	59	13	3	0	28	44	1.8	15.	8.27	14.7	-----
5/28/08	69	60	10	15	13	98	1.3	10.	8.21	14.6	-----
6/3/08	59	60	10	8	30	110	0.6	10.	8.36	14.8	-----
6/10/08	58	200	3	3	23	230	0.4	10.	8.23	15.8	-----
6/17/08	58	38	23	0	35	96	0.1	5.0	8.39	15.7	-----
6/24/08	58	68	28	25	18	140	0.0	4.0	8.29	15.8	-----
7/1/08	57	3	0	10	10	23	0.1	10.	8.12	16.1	-----
7/8/08	58	0	5	8	25	36	0.1	10.	8.31	15.7	-----
7/14/08	57	10	13	10	98	130	-----	7.0	8.30	18.1	-----
7/23/08	56	5	5	13	23	46	-----	100	8.24	17.0	-----
7/28/08	56	0	15	10	110	140	0.1	40.	8.17	16.2	-----
8/5/08	56	0	28	38	73	140	0.1	80.	8.20	17.2	-----
8/13/08	56	0	5	5	10	20	0.1	40.	8.17	17.0	-----
8/19/08	55	0	0	0	13	13	0.1	>100	8.12	18.8	-----
8/25/08	55	5	5	5	28	43	0.1	>100	8.22	18.0	-----
9/2/08	55	0	5	15	30	50	8.2	>100	8.24	17.5	-----
4/14/09	49	0	58	0	400	460	4.4	2.0	4.40	13.2	1.8

Appendix B5: Water Quality Data
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January 2006 through December 2010

Lopez Lake Intake 5 (447.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
4/21/09	49	3	81	3	44	530	5.7	5.0	8.24	13.9	2.3
4/30/09	49	30	81	38	200	350	3.6	4.0	8.13	14.4	2.1
5/6/09	49	20	13	13	360	410	3.7	8.0	8.18	14.7	2.1
5/12/09	49	18	30	20	140	210	2.9	5.0	8.38	14.8	2.6
5/19/09	48	20	8	10	71	110	2.5	8.0	8.49	15.0	2.5
5/26/09	49	20	10	0	110	140	1.6	5.0	8.10	15.1	2.3
6/1/09	48	0	18	8	50	76	5.1	5.0	8.09	15.8	3.8
6/22/09	47	3	0	81	88	170	0.1	8.0	8.35	16.8	2.1
6/30/09	46	5	5	10	18	38	3.0	-----	8.56	19.6	2.2
7/6/09	59	25	0	63	28	120	2.2	5.0	8.57	20.0	2.2
7/14/09	44	0	13	210	350	570	2.3	6.0	8.67	20.4	2.8
7/27/09	45	0	66	460	240	770	0.4	4.0	8.54	20.8	2.5
8/3/09	45	5	48	35	23	110	0.2	40.	7.61	21.0	1.3
8/10/09	44	0	71	2100	460	2600	0.3	48.	8.79	21.2	4.0
8/17/09	44	0	30	520	170	720	5.2	20.	8.60	21.6	2.8
8/24/09	44	0	8	790	150	950	6.1	60.	8.54	21.4	-----
9/1/09	44	0	5	280	50	330	2.5	10.	8.25	21.1	2.0
9/8/09	43	0	30	200	73	300	0.1	15.	8.49	20.2	2.4
9/14/09	43	0	48	270	110	430	6.3	15.	8.46	21.4	1.9
9/21/09	42	0	15	260	73	350	5.8	6.0	8.52	21.4	3.0
9/28/09	42	0	3	340	63	410	6.4	9.0	8.51	21.1	2.9
10/7/09	37	250	3	250	28	280	6.5	13.	8.32	19.2	3.0
10/19/09	42	0	10	8	8	26	5.2	7.0	8.23	18.3	2.4
11/2/09	41	0	10	20	48	78	6.5	13.	8.36	17.4	2.2
12/8/09	40	0	18	0	15	33	5.0	10.	8.05	12.9	2.2
1/11/10	41	0	3	0	3	6	8.0	10.	8.15	11.3	2.2
2/1/10	46	0	3	5	18	26	7.9	6.0	8.28	11.0	2.9
3/8/10	50	0	5	0	10	15	4.5	6.0	8.03	11.3	2.4
4/8/10	51	3	13	5	38	59	6.1	5.0	8.24	13.7	2.0
4/13/10	14.2	0	8	0	8	16	6.8	9.0	8.39	14.2	1.9
4/19/10	52	3	0	0	5	10	4.9	6.0	8.28	13.9	1.7
4/26/10	52	5	5	0	38	48	8.6	5.0	8.23	15.9	1.5
5/3/10	52	3	0	3	3	9	5.8	6.0	8.13	14.1	1.3
5/19/10	52	0	0	3	20	23	3.3	5.0	8.07	14.8	1.1
5/24/10	54	5	0	20	20	45	2.4	6.0	8.14	14.8	1.2
6/1/10	52	57	25	0	14	96	1.9	3.0	8.01	15.3	1.3
6/7/10	54	3	0	0	3	6	1.8	5.0	8.18	15.5	1.3
6/14/10	54	0	0	13	23	36	0.8	9.0	8.02	15.5	2.3
6/21/10	54	0	0	25	18	43	0.4	5.0	8.13	15.4	1.6
6/28/10	50	0	0	33	45	78	0.2	6.0	8.03	16.3	3.2
7/7/10	50	25	240	64	220	550	0.0	9.5	8.22	16.9	2.3
7/12/10	50	20	5	0	71	96	0.1	4.0	8.14	17.3	2.0

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 5 (447.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
7/19/10	50	11	46	0	120	180	0.1	6.0	8.17	17.5	2.1
7/26/10	50	0	25	0	64	89	0.0	3.0	8.21	18.2	1.3
8/2/10	50	110	32	0	54	200	0.0	3.8	8.14	18.2	2.2
8/10/10	50	140	54	54	0	190	0.1	4.3	8.06	17.9	2.2
8/18/10	50	71	520	0	140	730	0.1	5.0	8.43	18.7	1.8
8/31/10	50	25	240	430	200	900	0.1	6.0	8.88	19.5	2.3
9/9/10	50	0	82	0	260	340	0.1	7.5	8.67	19.8	2.2
9/21/10	47	36	43	170	32	250	3.1	9.0	8.45	19.8	2.2
9/28/10	47	0	39	270	110	420	3.4	-----	8.47	20.0	1.8
10/5/10	47	0	0	330	110	440	1.5	7.0	8.40	20.0	1.8
11/3/10	46	0	7	0	250	260	5.2	5.8	8.39	17.8	2.0
12/7/10	45	0	110	0	140	250	4.4	2.8	8.11	13.1	1.7

Lopez Lake Intake 6 (432.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
1/3/06	73	0	7	0	220	230	4.7	3.0	8.19	12.3	1.8
2/6/06	74	0	0	0	0	0	6.4	3.0	7.65	11.4	2.0
3/7/06	75	0	710	0	75	780	5.6	5.0	8.47	11.7	3.2
4/11/06	85	0	43	0	130	170	6.4	3.0	8.24	12.0	2.7
4/17/06	83	0	0	0	0	0	5.0	3.0	8.17	11.9	3.0
4/24/06	83	0	0	11	43	54	4.0	2.5	8.18	11.9	3.5
5/1/06	85	0	18	0	110	130	2.4	2.5	7.48	12.2	3.2
5/9/06	85	11	46	0	43	100	0.8	2.5	7.79	12.3	2.4
5/15/06	85	39	32	21	32	120	2.8	2.5	6.55	12.1	1.9
5/22/06	85	14	32	0	29	75	2.2	3.0	7.72	12.0	2.7
5/30/06	85	14	25	0	11	50	0.7	2.0	7.66	11.9	1.8
6/5/06	85	0	0	0	11	11	0.8	2.5	N/A	12.0	1.7
6/12/06	80	0	11	0	25	36	1.7	3.0	7.68	12.1	1.3
6/19/06	85	14	4	0	7	25	0.7	3.0	7.81	12.3	1.4
6/26/06	85	7	4	0	4	15	0.6	3.0	7.77	12.3	0.8
7/3/06	85	0	0	0	36	36	0.2	4.0	7.79	12.1	0.8
7/10/06	84	0	18	4	14	36	0.2	5.0	7.71	12.3	1.1
7/17/06	84	0	0	0	0	0	0.1	4.0	7.75	12.8	1.9
7/24/06	83.5	46	7	7	18	78	0.1	4.0	7.34	12.0	2.4

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 6 (432.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
7/31/06	84	0	25	29	61	120	0.1	4.0	7.64	12.3	0.8
8/7/06	84	18	29	0	7	54	0.1	7.0	7.68	12.4	1.2
8/14/06	83	0	54	0	4	58	0.1	12.	7.68	12.3	1.7
8/21/06	82	0	61	0	39	100	0.1	8.0	7.91	12.4	1.3
8/28/06	82	0	7	0	18	25	0.1	15.	7.65	12.4	1.4
9/5/06	82	0	14	0	7	21	0.2	5.0	7.56	12.3	2.0
9/11/06	81	0	7	0	7	14	0.2	12.	7.62	12.4	2.2
9/18/06	81	0	0	7	4	11	0.3	10.	7.61	12.4	1.1
9/25/06	85	0	0	0	0	0	0.4	10.	7.40	12.4	3.4
10/2/06	87	750	11	0	0	760	0.4	9.0	7.57	12.4	10.0
11/6/06	86	0	0	0	43	43	0.3	8.0	7.60	12.4	-----
12/4/06	80	0	61	0	400	460	6.3	3.0	8.09	13.4	-----
1/2/07	80	0	0	0	43	43	6.6	5.0	7.84	11.1	-----
2/5/07	80	0	4	0	4	8	9.1	4.0	8.27	9.4	1.1
3/6/07	80	0	38	15	35	88	6.3	2.0	7.98	10.8	-----
4/2/07	80	28	33	0	18	79	4.3	2.0	7.91	11.0	-----
4/10/07	80	5	3	0	0	8	4.3	5.0	7.61	11.0	-----
4/16/07	80	3	25	0	45	63	3.5	2.0	7.61	11.2	-----
4/23/07	80	0	25	0	18	43	3.3	7.0	7.62	11.2	-----
4/30/07	80	0	15	0	13	28	2.1	5.0	7.76	11.5	-----
5/9/07	80	20	28	3	25	76	2.4	2.0	7.73	11.8	-----
5/15/07	79	0	3	0	10	13	0.9	3.0	7.77	11.8	-----
5/22/07	78	0	0	0	8	8	0.6	3.0	7.72	11.5	-----
5/29/07	78	3	0	0	15	18		4.0	7.49	11.9	-----
6/5/07	78	3	55	35	48	140	0.4	6.0	7.96	11.8	-----
6/19/07	72	50	28	8	10	96	0.3	6.0	7.94	12.2	-----
6/26/07	77	15	N/A	0	0	20	0.2	15.	7.96	12.0	-----
7/3/07	76	3	13	23	23	24	0.5	10.	7.96	12.0	-----
7/17/07	76	5	5	33	35	78	0.4	20.	7.87	12.5	-----
7/24/07	75	33	10	610	120	770	0.3	40.	7.90	13.0	-----
7/31/07	75	0	3	55	8	66	0.6	20.	7.91	12.9	-----
8/7/07	75	23	5	510	240	780	0.5	30.	7.94	0.5	-----
8/13/07	75	5	13	8	0	26	0.7	100	7.93	13.1	-----
8/20/07	75	0	8	0	0	8	1.3	100	7.97	13.0	-----
9/4/07	75	0	0	0	0	0	0.5	30.	7.98	12.8	-----
9/11/07	73	0	3	8	10	21	0.3	40.	7.67	13.0	-----
9/18/07	73	0	10	0	3	13	0.4	40.	7.85	13.0	-----
9/25/07	73	0	0	0	10	10	1.1	100	7.66	13.0	-----
10/2/07	72	0	5	0	0	5	1.0	100	7.70	13.2	-----
11/6/07	71	0	0	0	33	33	2.4	100	7.91	15.0	-----
12/4/07	70	0	3	0	56	60	6.2	8.0	8.46	14.0	-----
1/8/08	70	0	8	0	93	100	5.3	4.0	8.30	11.5	-----

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 6 (432.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
3/4/08	75	0	8	0	58	64	6.8	3.0	8.30	10.5	-----
4/15/08	75	0	120	5	71	200	3.4	5.0	8.10	12.5	-----
4/22/08	75	0	18	3	23	44	8.3	3.0	8.26	12.5	-----
4/29/08	75	0	8	0	0	8	0.6	15.	8.10	12.3	-----
5/6/08	75	15	8	0	18	41	2.4	8.0	8.35	13.0	-----
5/13/08	74	5	13	0	5	23	1.1	2.0	8.20	13.7	-----
5/20/08	74	13	10	5	33	61	0.3	20.	8.11	8.1	-----
5/28/08	74	3	3	3	3	12	0.3	10.	8.07	13.6	-----
6/3/08	74	5	0	0	13	18	0.0	15.	8.14	13.8	-----
6/10/08	73	910	0	13	10	63	0.0	15.	8.02	14.0	-----
6/17/08	73	83	100	33	32	300	0.1	5.0	8.15	13.9	-----
6/24/08	73	45	0	5	25	75	0.0	6.0	7.99	13.9	-----
7/1/08	73	8	0	8	0	16	0.0	10.	7.87	13.7	-----
7/8/08	73	0	3	13	25	4		100	8.05	13.7	-----
7/14/08	72	0	0	10	50	60	-----	10.	8.00	15.1	-----
7/23/08	71	13	15	10	8	46	-----	>100	7.98	14.2	-----
7/28/08	71	3	3	38	13	57		>100	7.92	14.2	-----
8/5/08	71	0	5	28	25	58	0.1	100	7.99	14.8	-----
8/13/08	71	0	3	18	5	26	0.1	100	7.91	14.2	-----
8/19/08	70	0	8	5	23	36	0.1	>100	7.88	14.0	-----
8/25/08	70	0	5	5	5	15		>100	7.90	14.8	-----
9/2/08	70	0	0	0	0	0	7.9	>100	7.90	14.0	-----
4/14/09	64	0	18	0	190	210	2.7	5.0	2.70	12.4	1.4
4/21/09	64	3	48	0	390	440	4.1	3.0	8.07	13.2	2.4
4/30/09	64	20	55	23	170	260	2.7	3.0	8.00	13.7	2.0
5/6/09	64	5	5	10	170	190	2.6	8.0	8.15	13.8	1.7
5/12/09	64	0	0	0	15	20	1.9	5.0	8.30	14.0	2.7
5/19/09	63	38	3	0	48	140	0.7	10.	8.32	14.0	2.6
5/26/09	64	0	5	0	23	28	0.4	8.0	7.96	14.1	2.7
6/1/09	63	0	5	0	23	28	4.1	5.0	8.00	15.1	2.3
6/22/09	62	3	0	110	53	170	0.1	5.0	8.24	13.8	2.4
7/6/09	74	10	0	25	100	135	0.1	20.	8.21	15.1	2.8
7/14/09	59	0	5	23	140	66	0.1	10.	8.37	15.0	2.9
7/20/09	61	0	13	28	120	160	0.1	10.	8.53	16.5	2.7
7/27/09	60	0	10	28	81	120	0.1	8.0	8.32	16.5	2.5
8/3/09	60	3	33	23	13	70	0.2	>100	7.70	16.3	1.2
8/10/09	59	0	35	35	73	140	0.1	20.	8.46	19.7	2.0
8/17/09	59	0	8	860	180	71	0.3	20.	8.25	16.9	2.0
8/24/09	59	0	10	110	53	170	0.2	33	8.27	17.2	-----
9/1/09	59	0	0	35	5	40	0.1	20.	8.22	17.8	4.0
9/8/09	58	0	8	18	18	44	0.1	50.	8.25	14.0	3.1
9/14/09	58	0	13	5	23	41	0.1	75.	8.16	17.9	3.8

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Intake 6 (432.6')											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	NTU
9/21/09	57	0	10	28	18	56	0.1	>100	8.17	20.0	4.7
9/28/09	57	0	18	230	48	300	0.1	40.	8.50	18.2	6.4
10/7/09	52	180	5	180	30	230	6.5	15.	8.31	19.2	2.3
10/19/09	57	0	0	5	8	13	3.7	10.	8.16	18.0	5.5
11/2/09	56	0	8	15	35	48	6.5	15.	8.38	17.4	2.2
12/8/09	55	0	15	0	10	25	5.2	5.0	8.13	12.9	2.2
1/11/10	56	0	3	0	5	8	1.7	10.	8.16	11.2	2.4
2/1/10	61	0	5	5	5	15	7.2	5.0	8.16	11.0	3.6
3/8/10	65	0	0	0	10	10	3.8	7.0	7.88	11.3	3.1
4/8/10	66	0	8	0	8	33	5.4	5.0	8.05	13.4	2.0
4/13/10		0	3	0	0	11	4.9	7.0	8.33	13.7	1.9
4/19/10	67	0	0	0	0	0	3.9	5.0	8.18	13.5	1.6
4/26/10	67	0	0	0	13	13	7.9	5.0	8.01	15.6	1.2
5/3/10	67	3	0	0	3	6	4.1	5.0	8.05	13.2	1.2
5/19/10	67	0	0	3	8	11	2.2	6.0	8.00	14.3	1.4
5/24/10	69	3	0	8	30	41	1.1	6.0	8.05	14.0	1.4
6/1/10	67	32	0	0	32	64	0.4	3.0	7.93	14.0	2.6
6/7/10	69	0	0	0	0	0	0.4	5.0	8.06	14.2	1.3
6/14/10	69	0	0	13	15	28	0.1	5.0	7.93	14.1	1.3
6/21/10	69	0	0	13	20	33	0.1	7.0	7.99	13.9	1.3
6/28/10	65	0	0	13	3	16	0.1	5.0	7.94	14.4	1.0
7/7/10	65	0	71	25	96	190	0.0	7.0	7.95	14.6	1.3
7/12/10	65	28	5	0	20	53	0.1	7.0	8.00	14.8	1.0
7/19/10	65	32	25	0	61	120	0.0	6.0	7.99	14.4	1.6
7/26/10	65	18	32	0	71	120	0.0	4.0	7.99	14.8	1.0
8/2/10	65	250	0	0	21	270	0.0	4.8	7.93	16.0	1.9
8/10/10	65	120	14	14	0	130	0.0	11.	7.89	14.9	1.2
8/18/10	65	93	250	11	39	390	0.1	38.	8.04	14.9	1.3
8/31/10	65	0	160	14	68	240	0.0	50.	8.13	14.9	1.2
9/9/10	65	0	110	0	32	140	0.0	60.	7.90	15.4	0.8
9/21/10	62	0	0	0	11	11	0.0	>100	7.72	15.3	1.1
9/28/10	62	0	50	400	82	530	0.1	-----	8.58	17.5	2.2
10/5/10	62	0	110	32	32	170	0.0	12.	8.18	18.2	2.6
11/3/10	61	0	0	0	120	120	3.6	5.0	8.31	17.6	2.1
12/7/10	60	0	43	0	150	190	4.2	3.0	8.12	13.1	1.4

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
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Lopez Water Treatment Plant Raw												
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	True Color	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	C.U.	NTU
1/4/06	-----	0	100	21	54	180	7.1	4.0	7.72	13.7	7	2.4
1/9/06	-----	0	120	50	240	410	6.8	6.0	8.06	15.2	8	1.6
1/17/06	-----	0	46	0	96	140	8.8	6.0	8.07	10.4	8	1.8
1/23/06	-----	0	0	18	18	36	8.9	6.0	8.21	11.3	9	1.8
1/30/06	-----	0	270	61	320	650	9.9	6.0	8.26	13.1	9	1.8
2/6/06	-----	0	260	0	210	470	7.3	6.0	8.32	13.8	9	1.6
2/13/06	-----	0	460	0	46	510	7.5	5.0	7.86	16.3	10	1.4
2/21/06	-----	0	680	0	7	690	7.0	2.0	7.97	13.2	8	1.3
2/27/06	-----	0	2200	0	7	2200	5.6	3.0	7.62	13.6	8	1.5
3/6/06	-----	0	1500	61	21	1600	7.6	3.0	7.98	13.6	8	1.1
3/13/06	-----	0	460	50	32	540	6.5	3.0	7.96	14.0	8	1.3
3/20/06	-----	0	2500	25	50	2600	6.5	6.0	8.14	13.9	8	1.5
3/27/06	-----	0	1200	0	260	1500	7.3	4.0	7.95	15.4	8	1.8
4/3/06	-----	0	230	0	660	890	6.4	4.0	8.12	15.4	8	1.4
4/10/06	-----	0	270	8	310	590	7.2	3.0	8.12	16.7	9	1.8
4/17/06	-----	0	220	0	430	430	8.9	4.0	-----	17.0	9	1.2
4/24/06	-----	0	740	0	320	1100	7.2	4.0	8.12	18.8	9	1.6
5/3/06	-----	0	1700	71	930	2700	6.9	3.0	8.20	18.2	9	1.4
5/8/06	-----	18	820	25	370	1200	-----	2.5	-----	-----	6	1.6
5/15/06	-----	21	960	36	1400	2400	-----	6.0	8.05	22.7	9	1.5
5/22/06	-----	180	490	0	160	830	4.4	8.0	8.10	22.7	9	1.2
5/30/06	-----	440	1200	25	110	1800	5.5	4.0	8.12	22.5	-----	1.6
6/5/06	-----	1300	440	25	110	1900	7.2	7.0	7.99	24.0	9	2.1
6/12/06	-----	970	940	0	150	2100	8.4	8.0	8.22	20.9	9	1.8
6/19/06	-----	500	1100	0	82	1700	9.3	4.0	8.35	21.6	9	2.3
6/26/06	-----	270	1300	43	25	1600	9.9	5.0	8.34	22.0	9	2.3
7/3/06	-----	390	270	0	220	880	11.4	5.0	8.39	22.4	-----	2.3
7/10/06	-----	0	25	0	66	91	6.1	6.0	8.27	22.4	8	0.6
7/17/06	-----	0	190	0	490	680	7.5	5.0	8.18	23.4	9	0.9
7/24/06	-----	0	1200	150	290	1600	6.8	6.0	8.16	24.6	9	1.3
7/31/06	-----	0	1100	120	530	1800	6.0	3.0	8.11	24.4	9	1.2
8/7/06	-----	0	15	100	230	250	6.1	7.0	8.45	24.0	9	1.3
8/14/06	-----	0	550	120	740	1400	7.8	8.0	8.32	22.0	9	1.1
8/21/06	-----	8	73	150	200	430	7.1	4.0	8.22	22.5	9	1.1
8/28/06	-----	160	78	220	140	600	8.4	6.0	7.40	22.9	9	1.2
9/5/06	-----	940	33	110	160	1200	7.7	8.0	8.16	22.0	9	1.9
9/11/06	-----	2200	3	68	160	2400	8.1	8.0	8.43	21.9	9	3.8
9/18/06	-----	1000	0	50	25	1100	8.6	7.0	8.60	21.1	10	5.7
9/25/06	-----	1300	23	0	76	1400	8.5	8.0	8.49	20.7	10	5.1
10/2/06	-----	1900	10	0	180	2100	6.7	6.0	8.37	19.4	10	3.8
10/10/06	-----	63	45	0	420	530	7.0	4.0	8.30	19.0	10	2.9

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Water Treatment Plant Raw												
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	True Color	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	C.U.	NTU
10/16/06	-----	5	28	8	239	280	5.4	3.0	8.20	18.7	10	1.7
10/23/06	-----	0	29	54	200	280	9.3	7.0	8.35	18.2	9	2.3
10/30/06	-----	0	33	66	1500	1600	6.9	4.0	8.26	17.0	9	2.1
11/6/06	-----	0	120	35	480	640	5.8	4.0	8.27	17.7	9	2.1
11/13/06	-----	0	73	23	300	400	3.5	6.0	8.24	16.5	9	2.2
11/20/06	-----	0	210	45	380	640	5.8	4.0	8.13	16.6	9	2.2
11/27/06	-----	0	230	68	770	1100	5.6	7.0	8.06	15.0	10	2.6
12/4/06	-----	0	130	38	910	1100	7.0	5.0	8.02	-----	-----	2.0
12/11/06	-----	0	91	15	650	760	8.0	6.0	8.20	-----	-----	1.9
12/18/06	-----	3	63	0	590	660	7.2	8.0	8.18	-----	-----	1.3
12/26/06	-----	0	120	0	430	550	7.2	4.0	8.12	-----	-----	1.1
1/2/07	-----	0	33	13	81	130	-----	3.0	7.99	11.4	-----	0.9
1/8/07	-----	0	83	0	123	210	7.1	5.0	7.92	-----	-----	0.9
1/16/07	-----	0	200	0	390	590	7.7	6.0	7.98	-----	-----	1.3
1/22/07	-----	0	28	5	250	290	8.4	6.0	7.87	-----	-----	1.0
1/29/07	-----	0	20	13	630	660	8.8	4.0	8.14	-----	-----	1.4
2/5/07	-----	0	35	13	210	260	-----	4.0	8.03	10.6	-----	1.6
2/13/07	-----	0	240	15	210	460	-----	8.0	8.35	13.3	-----	1.5
2/20/07	-----	0	260	15	96	370	11.0	4.0	8.35	13.2	-----	1.9
2/26/07	-----	0	550	290	660	1500	10.1	4.0	8.12	-----	-----	2.1
3/6/07	-----	0	86	35	150	270	9.7	-----	8.37	-----	-----	1.9
3/12/07	-----	0	48	25	140	210	9.5	4.0	8.25	-----	-----	1.4
3/19/07	-----	0	25	13	240	300	7.5	20.0	7.92	-----	-----	1.8
3/26/07	-----	3	3	8	30	44	7.1	10.0	8.14	-----	-----	1.0
4/2/07	-----	11	21	18	79	130	-----	6.0	8.08	17.4	-----	0.8
4/2/07	-----	0	5	0	30	35	7.6	10.0	8.08	-----	-----	0.5
4/11/07	-----	0	0	0	88	88	7.6	3.0	8.08	-----	-----	0.6
4/16/07	-----	0	20	76	210	310	8.1	8.0	8.21	-----	-----	0.7
4/23/07	-----	0	200	150	310	660	8.5	3.0	8.17	-----	-----	0.7
4/30/07	-----	3	550	510	400	1500	9.2	8.0	8.21	-----	-----	1.1
5/7/07	-----	0	140	1100	55	1300	7.7	8.0	8.28	18.5	7	0.8
5/14/07	-----	0	0	220	200	420	8.3	20.0	7.91	-----	-----	0.5
5/21/07	-----	0	45	460	320	830	8.8	10.0	8.36	-----	-----	0.9
5/30/07	-----	0	290	8	210	510	-----	6.0	8.31	-----	-----	0.9
6/4/07	-----	3	780	0	160	940	-----		8.48	-----	-----	
6/4/07	-----	0	1100	0	320	1400	-----	5.0	7.82	-----	-----	0.9
6/11/07	-----	0	530	8	280	820	-----	7.0	8.31	-----	-----	1.0
6/18/07	-----	0	25	8	38	71	-----	8.0	8.20	-----	-----	0.6
6/25/07	-----	0	0	3	38	41	6.9	5.0	8.41	-----	-----	0.7
7/1/07	-----	0	200	32	130	360	-----	10.0	7.98	20.0	-----	0.7
7/2/07	-----	0	18	8	130	160	-----	10.0	8.22	-----	-----	0.8
7/9/07	-----	0	920	210	520	1600	8.6	15.0	8.57	-----	-----	1.2

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Water Treatment Plant Raw												
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	True Color	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	C.U.	NTU
7/16/07	-----	5	250	550	120	920	8.2	15.0	8.39	-----	-----	0.7
7/23/07	-----	0	200	370	400	970	8.4	10.0	8.41	-----	-----	1.2
7/30/07	-----	0	540	3900	430	4900	9.3	20.0	8.56	-----	-----	2.0
8/6/07	-----	0	560	3100	290	4000	-----	8.0	-----	-----	-----	1.2
8/14/07	-----	16	4100	1500	280	5900	7.7	40.0	8.45	-----	-----	2.1
8/21/07	-----	250	1300	5	320	1900	5.4	30.0	8.48	-----	-----	1.4
8/28/07	-----	3100	22000	0	130	25000	9.8	15.0	8.63	-----	-----	3.3
9/4/07	-----	2200	140	0	180	2500	-----	7.0	8.71	22.8	-----	3.2
9/11/07	-----	1100	110	0	110	1300	8.6	30.0	7.72	-----	8	2.0
9/17/07	-----	130	1500	18	890	2500	8.4	50.0	8.62	-----	-----	2.0
9/25/07	-----	5	50	0	210	270	6.3	30.0	8.45	-----	-----	2.3
10/2/07	-----	50	230	43	260	580	-----	6.0	8.36	20.2	-----	2.4
10/9/07	-----	0	43	83	320	450	8.6	6.0	8.35	-----	7	1.8
10/16/07	-----	0	18	380	310	710	8.4	8.0	8.41	-----	-----	1.3
10/23/07	-----	8	86	150	230	470	6.9	6.0	8.48	-----	-----	2.6
11/14/07	-----	0	230	61	150	440	-----	-----	-----	-----	-----	-----
11/14/07	-----	0	15	120	81	220	4.6	2.0	8.00	-----	-----	0.9
11/19/07	-----	0	10	48	83	140	8.9	2.5	7.99		-----	0.9
11/27/07	-----	0	0	13	20	33	4.0	8.0	-----	-----	-----	0.7
12/4/07	-----	0	36	57	210	300	-----	-----	7.88	17.0	-----	0.8
12/5/07	-----	0	3	10	20	33	5.4	5.0	7.78	-----	-----	0.6
12/10/07	-----	0	5	33	93	130	5.6	2.0	8.00	-----	-----	1.1
12/18/07	-----	0	58	10	120	350	5.8	2.5	8.12	-----	-----	0.7
12/26/07	-----	0	120	0	250	370	7.7	2.0	8.32	-----	-----	0.7
1/2/08	-----	0	600	10	160	770	8.6	2.5	8.42	-----	-----	1.7
1/8/08	-----	0	920	82	760	1800	-----	6.0	8.17	11.8	-----	1.7
1/15/08	-----	0	63	50	81	710	8.6	4.0	8.11	-----	-----	0.8
1/23/08	-----	0	1200	20	750	2000	7.8	2.0	8.10	-----	-----	1.5
1/23/08	-----	0	1100	0	600	1700	-----	-----	-----	-----	-----	-----
1/28/08	-----	0	1000	32	910	1900	-----	-----	-----	-----	-----	-----
1/28/08	-----	0	810	0	880	1700	10.2	4.0	8.17	-----	-----	2.3
2/5/08	-----	0	4100	310	4400	8800	-----	10.0	8.43	11.4	-----	2.7
2/13/08	-----	0	2900	0	1800	4700	-----	2.0	-----	-----	-----	1.1
2/20/08	-----	0	230	10	350	590	10.5	2.0	8.63	-----	-----	1.1
2/25/08	-----	0	1300	46	1200	2500	-----	-----	-----	-----	-----	-----
2/25/08	-----	0	500	5	290	800	9.9	6.0	8.30	-----	-----	1.6
3/3/08	-----	0	750	21	510	1300	-----	-----	-----	-----	-----	-----
3/4/08	-----	0	510	0	670	1200	-----	4.0	8.26	16.7	-----	1.5
3/10/08	-----	14	220	25	660	920	-----	-----	-----	-----	-----	-----
3/11/08	-----	0	260	63	630	950	9.1	5.0	8.50	-----	-----	1.1
3/18/08	-----	0	590	10	710	1300	10.3	5.0	8.50	-----	-----	1.3
3/20/08	-----	0	240	0	670	910	-----	-----	-----	-----	-----	-----

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Water Treatment Plant Raw												
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	True Color	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	C.U.	NTU
3/25/08	-----	0	98	8	330	430	9.4	4.0	8.46	-----	-----	1.1
4/1/08	-----	0	240	0	250	490	-----	-----	-----	-----	-----	-----
4/1/08	-----	3	170	5	33	210	7.6	2.0	8.25	-----	-----	0.8
4/7/08	-----	200	4500	0	670	5400	-----	-----	-----	-----	-----	-----
4/8/08	-----	170	4400	0	620	5200	-----	5.0	8.44	16.5	-----	1.4
4/15/08	-----	470	1200	54	200	1900	-----	-----	-----	-----	-----	-----
4/15/08	-----	0	410	8	25	440	8.1	4.0	8.19	-----	-----	1.1
4/21/08	-----	690	1800	0	170	2700	-----	-----	-----	-----	-----	-----
4/23/08	-----	23	2600	63	110	2800	8.0	40.0	8.29	-----	-----	1.4
4/29/08	-----	0	200	3	15	220	7.8	8.0	8.33	-----	-----	1.0
5/2/08	-----	0	260	0	93	350	-----	-----	-----	-----	-----	-----
5/6/08	-----	0	220	0	110	330	-----	12.0	8.35	20.1	-----	0.8
5/12/08	-----	81	28	50	300	460	7.8	20.0	8.27	-----	-----	0.7
5/20/08	-----	0	0	0	38	38	8.1	20.0	8.25	-----	-----	0.5
5/21/08	-----	11	64	43	200	320	-----	-----	-----	-----	-----	-----
5/28/08	-----	0	43	43	110	200	-----	-----	-----	-----	-----	-----
5/29/08	-----	8	0	0	13	21	7.0	10.0	8.37	-----	-----	0.6
6/3/08	-----	0	540	29	720	1300	-----	-----	-----	-----	-----	-----
6/11/08	-----	120	340	620	160	1200	-----	-----	-----	-----	-----	-----
6/11/08	-----	5	200	380	40	630	11.8	100.0	8.50	-----	-----	1.8
6/18/08	-----	0	36	21	1800	75	9.5	8.0	8.66	-----	-----	1.0
6/24/08	-----	32	36	0	68	25	2.3	>100	8.08	-----	-----	0.9
6/30/08	-----	0	73	50	2000	2100	10.2	20.0	8.71	-----	-----	1.2
7/1/08	-----	57	130	0	340	530	-----	-----	-----	-----	-----	
7/8/08	-----	11	96	18	370	500	-----	30.0	8.39	22.6	-----	1.4
7/15/08	-----	0	0	0	530	530	-----	-----	-----	-----	-----	
7/15/08	-----	28	20	35	240	320	3.9	40.0	8.32	-----	-----	0.6
7/22/08	-----	440	160	25	320	950	-----	-----	-----	-----	-----	
7/22/08	-----	58	20	200	150	430	-----	50.0	8.31	-----	-----	0.7
7/28/08	-----	2300	290	48	580	3200	6.9	10.0	8.43	-----	-----	1.6
8/4/08	-----	860	53	0	1300	2200	-----	20.0	8.64	-----	-----	1.7
8/5/08	-----	330	530	0	450	1300	-----	7.0	8.55	23.4	-----	1.8
8/11/08	-----	10	30	60	390	490	-----	15.0	8.53	-----	-----	1.0
8/12/08	-----	410	230	75	500	1200	-----	-----	-----	-----	-----	
8/19/08	-----	270	35	0	88	340	8.9	5.0	8.70	-----	-----	1.4
8/25/08	-----	200	50	63	200	510	8.1	10.0	8.46	-----	-----	1.3
8/30/10	-----	78	320	11	840	1200	7.0	8.5	8.25	-----	-----	1.0
9/7/10	-----	520	110	61	590	1300	5.5	10.0	8.44	22.7	-----	1.8
9/13/10	-----	130	46	0	240	420	3.1	21.0	8.26	-----	-----	1.0
9/20/10	-----	15000	250	7	270	16000	6.5	12.7	-----	-----	-----	1.5
9/27/10	-----	150	79	-----	100	330	6.2	3.5	8.27	-----	-----	-----
10/4/10	-----	46	150	0	190	390	7.4	8.0	8.23	-----	-----	0.7

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Water Treatment Plant Raw												
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	Odor	pH-Field	Temperature	True Color	Turbidity
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L	TON		ºC	C.U.	NTU
10/18/10	-----	39	0	11	79	130	5.0	2.5	8.11	-----	-----	0.5
10/25/10	-----	0	0	0	130	130	4.8	8.0	7.98	-----	-----	1.0
11/1/10	-----	0	0	0	21	21	4.3	7.0	7.82	-----	-----	0.6
11/8/10	-----	0	100	25	54	180	4.8	3.5	7.92	-----	-----	0.6
11/15/10	-----	0	270	11	260	540	3.9	6.5	7.85	-----	-----	0.5
11/22/10	-----	0	620	210	120	950	5.2	5.5	7.81	-----	-----	0.6
11/29/10	-----	0	1600	260	440	2300	6.9	12.0	7.99	-----	-----	0.8
12/6/10	-----	0	590	110	180	880	7.9	17.0	8.10	-----	-----	0.8
12/13/10	-----	0	350	170	360	880	9.0	14.0	7.94	-----	-----	0.7
12/20/10	-----	0	89	21	68	180	7.5	7.0	7.97	-----	-----	1.2
12/27/10	-----	0	100	64	250	410	6.5	3.5	7.90	-----	-----	0.5

Lopez Lake Section E											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
1/3/06	-----	0	39	54	210	300	-----	7.61	-----	17.0	1.5
2/6/06	-----	0	79	18	390	490	-----	7.86	-----	1.4	6.0
3/7/06	-----	0	860	0	360	1200	-----	8.50	-----	4.0	4.0
4/11/06	-----	0	350	0	580	930	-----	8.43	-----	6.9	3.0
4/17/06	-----	0	61	61	220	340	-----	8.44	-----	3.8	4.5
4/24/06	-----	4	4	11	160	180	-----	8.56	-----	2.6	5.0
5/1/06	-----	0	110	0	350	460	-----	8.41	-----	2.5	5.0
5/9/06	-----	18	86	21	110	240	-----	8.25	-----	2.0	5.5
5/15/06	-----	100	350	25	140	620	-----	8.08	-----	2.3	5.0
5/22/06	-----	750	86	200	86	1100	-----	8.39	-----	3.2	5.0
5/30/06	-----	770	390	36	57	1300	-----	8.43	-----	3.4	4.5
6/5/06	-----	940	590	0	82	1600	-----	8.42	-----	3.8	4.5
6/12/06	-----	580	71	46	120	820	-----	8.46	-----	5.3	4.0
6/19/06	-----	1300	270	39	340	1900	-----	8.65	-----	5.1	4.0
6/26/06	-----	860	210	60	310	1400	-----	8.73	-----	3.8	4.0
7/3/06	-----	110	140	18	210	480	-----	8.63	-----	2.8	5.0
7/10/06	-----	170	170	7	220	570	-----	8.21	-----	2.9	4.0
7/17/06	-----	430	500	86	86	1100	-----	8.76	-----	3.0	4.5
7/24/06	-----	740	400	240	450	1800	-----	8.84	-----	7.5	3.0

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Section E											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
7/31/06	-----	230	1100	1400	1400	4100	-----	8.69	-----	2.5	4.5
8/7/06	-----	25	710	0	190	920	-----	8.70	-----	2.4	5.0
8/14/06	-----	6	300	0	150	470	-----	8.60	-----	2.5	5.0
8/21/06	-----	18	140	0	180	340	-----	8.58	-----	2.0	5.5
8/28/06	-----	21	100	0	180	300	-----	8.52	-----	1.6	6.0
9/5/06	-----	7	50	270	220	550	-----	8.05	-----	1.9	6.5
9/11/06	-----	21	110	18	86	240	-----	8.32	-----	1.7	6.5
9/18/06	-----	21	36	130	240	430	-----	8.31	-----	2.2	7.0
9/25/06	-----	11	36	46	280	370	-----	8.31	-----	1.7	7.0
10/2/06	-----	210	21	0	86	320	-----	8.27	-----	1.8	6.5
11/6/06	-----	0	0	0	290	290	-----	8.18	-----	-----	6.0
12/4/06	-----	0	57	0	490	550	-----	7.88	-----	1.6	7.0
1/2/07	-----	0	7	0	61	68	-----	7.87	-----	-----	8.0
2/5/07	-----	0	400	18	100	520	-----	8.10	-----	2.0	5.0
3/6/07	-----	3	260	83	310	660	-----	8.38	-----	-----	4.0
4/2/07	-----	110	230	0	240	580	-----	8.49	-----	-----	5.0
4/10/07	-----	260	250	33	370	910	-----	8.16	-----	-----	4.0
4/16/07	-----	140	260	30	320	750	-----	8.04	-----	-----	4.0
4/23/07	-----	88	170	0	410	670	-----	8.20	-----	-----	4.0
4/30/07	-----	100	230	98	680	1100	-----	8.42	-----	-----	4.0
5/9/07	-----	35	200	96	530	860	-----	8.28	-----	-----	5.0
5/15/07	-----	0	43	33	45	120	-----	8.22	-----	-----	6.0
5/22/07	-----	40	43	30	210	320	-----	8.27	-----	-----	6.0
6/5/07	-----	230	430	100	570	1300	-----	8.38	-----	-----	3.5
6/19/07	-----	120	710	110	230	1200	-----	8.80	-----	-----	2.0
6/26/07	-----	860	180	150	160	1400	-----	8.73	-----	-----	4.0
7/3/07	-----	86	40	73	200	400	-----	9.07	-----	-----	4.0
7/17/07	-----	56	30	1400	770	2300	-----	8.88	-----	-----	4.0
7/24/07	-----	0	15	38	66	120	-----	8.95	-----	-----	4.0
7/31/07	-----	8	0	540	28	580	-----	8.84	-----	-----	5.0
8/7/07	-----	0	8	33	38	79	-----	8.93	-----	-----	5.5
8/13/07	-----	3	170	100	160	430	-----	8.84	-----	-----	6.0
8/20/07	-----	130	13	510	78	730	-----	8.52	-----	-----	4.5
9/11/07	-----	23	20	680	100	820	-----	8.58	-----	-----	6.0
9/18/07	-----	0	120	150	270	540	-----	8.93	-----	-----	6.0
9/25/07	-----	0	18	58	150	230	-----	8.75	-----	-----	7.0
10/2/07	-----	0	45	200	360	610	-----	8.69	-----	-----	6.5
11/6/07	-----	0	18	35	300	320	-----	8.62	-----	-----	5.5
12/4/07	-----	0	15	0	250	270	-----	8.56	-----	-----	7.0
1/8/08	-----	0	8	33	200	240	-----	8.39	-----	-----	5.5
3/4/08	-----	0	30	71	310	410	-----	8.69	-----	-----	6.0
4/8/08	-----	15	420	5	300	740	-----	8.75	-----	-----	6.5

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Section E											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
4/15/08	-----	15	86	25	190	320	-----	8.54	-----	-----	5.0
4/22/08	-----	0	93	8	170	270	-----	8.68	-----	-----	6.0
4/29/08	-----	220	76	50	340	690	-----	8.62	-----	-----	4.0
5/6/08	-----	570	63	53	300	990	-----	8.93	-----	-----	4.0
5/13/08	-----	680	55	50	690	1500	-----	8.84	-----	-----	3.0
5/20/08	-----	1600	48	160	210	2000	-----	8.91	-----	-----	3.5
5/28/08	-----	510	33	66	60	670	-----	8.79	-----	-----	4.5
6/3/08	-----	1400	130	320	410	2300	-----	9.14	-----	-----	3.0
6/10/08	-----	910	150	220	270	1600	-----	8.96	-----	-----	2.0
6/17/08	-----	N/A	N/A	N/A	N/A	N/A	-----	8.69	-----	-----	3.0
6/24/08	-----	1100	23	930	160	2200	-----	8.93	-----	-----	3.5
7/1/08	-----	450	43	360	390	1200	-----	8.86	-----	-----	4.0
7/7/08	-----	180	71	140	610	1000	-----	9.05	-----	-----	3.5
7/14/08	-----	53	35	670	280	1000	-----	9.00	-----	-----	4.0
7/23/08	-----	5	50	660	290	1000	-----	8.94	-----	-----	4.5
7/28/08	-----	5	33	1600	71	1700	-----	8.86	-----	-----	5.0
8/5/08	-----	30	180	810	390	1400	-----	8.85	-----	-----	5.0
8/13/08	-----	50	45	560	120	780	-----	8.59	-----	-----	6.0
8/19/08	-----	0	0	5	10	15	-----	8.71	-----	-----	6.0
8/25/08	-----	170	23	360	93	650	-----	8.78	-----	-----	5.5
9/2/08	-----	8	13	180	120	320	-----	8.76	-----	-----	6.0
4/7/09	-----	0	58	18	510	590	-----	8.38	-----	3.0	5.5
4/14/09	-----	5	83	0	540	620	-----	8.30	-----	3.2	6.0
4/21/09	-----	43	110	720	550	720	-----	8.50	-----	3.0	5.0
4/30/09	-----	55	96	40	250	440	-----	8.34	-----	3.7	6.5
5/6/09	-----	380	130	76	440	1000	-----	8.42	-----	3.1	6.5
5/12/09	-----	480	110	55	410	1100	-----	8.35	-----	3.5	5.5
5/19/09	-----	130	58	120	330	640	-----	8.56	-----	5.6	4.5
6/1/09	-----	490	53	150	350	1000	-----	8.50	-----	6.6	4.0
6/22/09	-----	680	5	770	160	1600	-----	8.46	-----	2.7	6.0
7/6/09	-----	340	0	780	140	1300	-----	8.94	-----	6.1	5.0
7/14/09	-----	5	28	1200	240	1500	-----	8.70	-----	5.1	4.0
7/20/09	-----	3	86	1600	360	2000	-----	8.97	-----	5.2	6.0
7/27/09	-----	5	140	1400	330	1900	-----	8.76	-----	3.9	5.0
8/3/09	-----	63	63	1700	350	2100	-----	8.44	-----	5.0	5.0
8/10/09	-----	0	98	1300	410	1800	-----	8.64	-----	3.2	5.5
8/17/09	-----	0	58	860	180	1100	-----	8.38	-----	3.3	7.0
8/24/09	-----	8	28	770	38	840	-----	8.56	-----	-----	9.0
9/1/09	-----	13	15	530	66	620	-----	8.59	-----	2.9	5.0
9/8/09	-----	25	66	400	110	600	-----	8.60	-----	3.3	6.0
9/14/09	-----	18	73	380	28	500	-----	8.52	-----	3.0	9.0
9/21/09	-----	0	13	170	48	220	-----	8.51	-----	2.3	7.0

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Section E											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
9/28/09	-----	0	10	260	98	370	-----	8.33	-----	8.3	6.0
10/7/09	-----	0	28	410	220	660	-----	8.36	-----	2.7	5.0
11/2/09	-----	0	35	71	360	470	-----	8.41	-----	2.5	7.0
12/8/09	-----	0	30	0	35	65	-----	8.19	-----	2.0	7.0
1/4/10	-----	0	8	0	18	21	-----	8.19	-----	2.7	7.0
1/11/10	-----	0	3	10	3	16	-----	8.06	-----	3.0	6.0
2/1/10	-----	0	3	25	5	33	-----	7.96	-----	3.5	6.0
3/8/10	-----	0	15	33	63	110	-----	8.29	-----	2.1	6.0
4/8/10	-----	15	8	5	5	33	-----	8.36	-----	2.0	7.5
4/13/10	-----	0	5	8	10	23	-----	8.24	-----	2.6	5.0
4/19/10	-----	3	0	0	18	21	-----	8.39	-----	2.6	5.0
4/26/10	-----	25	8	3	23	59	-----	8.31	-----	2.3	6.0
5/3/10	-----	140	3	3	71	220	-----	8.50	-----	2.9	8.0
5/19/10	-----	18	3	15	100	140	-----	8.46	-----	1.7	9.0
5/24/10	-----	0	18	63	250	330	-----	8.61	-----	2.0	8.5
6/1/10	-----	1700	14	39	390	2100	-----	8.60	-----	5.0	6.0
6/7/10	-----	40	13	150	63	270	-----	8.74	-----	2.9	7.5
6/14/10	-----	15	10	270	33	330	-----	8.60	-----	3.7	6.0
6/21/10	-----	30	0	1100	58	1200	-----	8.77	-----	3.3	7.0
6/28/10	-----	0	0	1000	73	1100	-----	8.73	-----	3.6	6.0
7/7/10	-----	820	140	43	910	1900	-----	8.63	-----	4.2	6.0
7/12/10	-----	98	50	35	537	720	-----	8.62	-----	7.3	4.5
7/19/10	-----	1600	140	0	610	2400	-----	8.77	-----	35.3	3.0
7/19/10	-----	1600	140	0	610	2400	-----	-----	-----		
7/22/10	-----	500	36	43	57	640	11.4	8.91	22.2		
7/26/10	-----	930	180	21	590	1700		8.78	-----	9.5	4.5
8/2/10	-----	8700	710	14	310	9700	-----	8.85	-----	9.4	5.0
8/10/10	-----	2000	470	54	39	2600	-----	8.83	-----	15.5	4.0
8/18/10	-----	910	2200	440	1200	4800	-----	8.74	-----	4.6	7.0
8/31/10	-----	18	200	420	290	930	-----	8.77	-----	2.8	6.0
9/9/10	-----	0	43	57	340	440	-----	8.70	-----	1.8	9.5
9/21/10	-----	0	11	96	96	200	-----	8.41	-----	2.3	6.5
9/28/10	-----	0	14	890	340	1200	-----	8.44	-----	3.1	6.0
10/5/10	-----	130	36	850	330	1300	-----	8.66	-----	1.9	7.0
11/3/10	-----	0	21	21	430	470	-----	8.40	-----	1.6	7.0

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Section F											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
1/3/06	-----	0	7	32	360	400	-----	7.67	-----	1.7	6.0
2/6/06	-----	0	110	36	430	580	-----	7.93	-----	2.1	4.0
3/7/06	-----	0	390	0	390	780	-----	8.01	-----	3.2	4.0
4/11/06	-----	0	170	0	520	690	-----	8.42	-----	6.9	3.0
4/17/06	-----	0	46	54	150	250	-----	8.46	-----	4.2	4.0
4/24/06	-----	0	4	8	110	120	-----	8.61	-----	3.1	5.0
5/1/06	-----	0	57	0	260	320	-----	8.61	-----	2.8	5.0
5/9/06	-----	68	140	0	96	300	-----	8.37	-----	2.1	5.5
5/15/06	-----	0	450	50	120	620	-----	8.01	-----	2.7	5.0
5/22/06	-----	1000	200	71	110	1400	-----	8.28	-----	3.6	5.0
5/30/06	-----	1000	240	18	43	1300	-----	8.42	-----	3.0	5.0
6/5/06	-----	1200	630	54	75	2000	-----	8.43	-----	4.1	5.0
6/12/06	-----	420	75	21	230	750	-----	8.48	-----	4.8	4.0
6/19/06	-----	1100	200	11	270	1600	-----	8.65	-----	4.6	4.0
6/26/06	-----	760	130	18	220	1100	-----	8.69	-----	3.6	4.0
7/3/06	-----	130	180	18	130	460	-----	8.63	-----	2.5	5.0
7/10/06	-----	220	190	0	250	660	-----	8.28	-----	2.6	3.0
7/17/06	-----	460	320	110	260	1200	-----	8.74	-----	2.8	4.0
7/24/06	-----	1200	400	400	600	2600	-----	8.38	-----	11.0	3.0
7/31/06	-----	240	700	1200	2000	4100	-----	8.65	-----	2.8	4.5
8/7/06	-----	0	500	0	210	710	-----	8.65	-----	2.5	5.0
8/14/06	-----	32	350	0	150	530	-----	8.55	-----	1.9	5.0
8/21/06	-----	11	200	0	120	330	-----	8.56	-----	1.7	5.0
8/28/06	-----	21	68	0	210	300	-----	8.50	-----	1.9	6.0
9/5/06	-----	18	93	240	240	590	-----	8.00	-----	2.0	5.0
9/11/06	-----	86	96	0	110	290	-----	8.35	-----	1.5	5.5
9/18/06	-----	29	79	120	450	680	-----	8.33	-----	1.8	6.0
9/25/06	-----	0	61	79	350	480	-----	8.22	-----	1.8	5.0
10/2/06	-----	200	29	0	79	310	-----	8.27	-----	1.7	7.5
11/6/06	-----	0	21	0	390	410	-----	8.26	-----	-----	4.5
12/4/06	-----	0	96	0	450	560	-----	8.06	-----	1.7	6.5
1/2/07	-----	0	11	0	36	47	-----	7.84	-----	1.3	8.0
2/5/07	-----	0	140	0	100	240	-----	8.13	-----	1.6	5.0
3/6/07	-----	3	210	50	180	440	-----	8.32	-----	-----	----
4/2/07	-----	40	160	10	250	460	-----	8.54	-----	-----	5.5
4/10/07	-----	430	290	0	290	1000	-----	8.24	-----	-----	3.5
4/16/07	-----	160	250	40	260	710	-----	8.17	-----	-----	5.0
4/23/07	-----	110	230	48	450	840	-----	8.13	-----	-----	4.0
4/30/07	-----	320	280	200	1100	1900	-----	8.38	-----	-----	4.0
5/9/07	-----	13	210	88	400	710	-----	8.24	-----	-----	6.0
5/15/07	-----	5	8	33	40	86	-----	8.24	-----	-----	6.5

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Section F											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
5/22/07	-----	-----	-----	-----	-----	-----	-----	8.27	-----	-----	6.0
6/5/07	-----	190	420	45	400	1100	-----	8.66	-----	-----	3.0
6/26/07	-----	1200	100	210	190	1700	-----	8.85	-----	-----	3.0
7/3/07	-----	370	100	260	700	1400	-----	9.00	-----	-----	3.0
8/20/07	-----	23	15	260	86	380	-----	8.82	-----	-----	5.0
8/27/07	-----	100	38	1200	73	1400	-----	8.74	-----	-----	5.0
9/11/07	-----	5	25	670	220	920	-----	8.67	-----	-----	5.5
9/18/07	-----	0	130	280	260	670	-----	8.95	-----	-----	6.0
9/25/07	-----	0	40	270	150	460	-----	8.72	-----	-----	7.0
10/2/07	-----	5	48	490	270	810	-----	8.69	-----	-----	6.5
10/6/07	-----	0	28	20	200	250	-----	8.85	-----	-----	7.0
12/4/07	-----	0	5	3	250	260	-----	8.46	-----	-----	6.0
1/8/08	-----	0	10	15	140	170	-----	8.28	-----	-----	8.5
3/4/08	-----	-----	-----	-----	-----	-----	-----	8.55	-----	-----	6.0
4/8/08	-----	18	210	10	100	340	-----	8.80	-----	-----	6.0
4/15/08	-----	140	100	20	150	410	-----	8.57	-----	-----	6.0
4/22/08	-----	55	78	20	160	310	-----	8.75	-----	-----	6.0
4/29/08	-----	450	140	93	400	1100	-----	8.69	-----	-----	4.0
5/6/08	-----	970	96	66	530	1700	-----	8.92	-----	-----	4.0
5/13/08	-----	480	76	38	750	1300	-----	8.84	-----	-----	3.0
5/20/08	-----	3400	25	96	180	3700	-----	8.93	-----	-----	3.0
5/28/08	-----	190	30	120	78	420	-----	8.92	-----	-----	3.5
6/3/08	-----	1300	68	81	230	1700	-----	9.15	-----	-----	3.0
6/10/08	-----	1800	140	330	340	2600	-----	8.93	-----	-----	2.5
6/17/08	-----	N/A	N/A	N/A	N/A	N/A	-----	8.39	-----	-----	3.0
6/24/08	-----	1400	150	280	270	2100	-----	8.87	-----	-----	3.0
7/1/08	-----	750	68	670	350	1800	-----	8.83	-----	-----	3.5
7/8/08	-----	380	110	1700	680	3000	-----	8.78	-----	-----	3.5
7/14/08	-----	65	73	1100	390	1600	-----	9.04	-----	-----	4.0
7/23/08	-----	16	110	760	370	1300	-----	8.91	-----	-----	5.0
7/28/08	-----	10	38	2400	73	2500	-----	8.93	-----	-----	4.5
8/5/08	-----	35	120	580	420	1200	-----	8.85	-----	-----	5.0
8/13/08	-----	23	50	410	220	700	-----	8.72	-----	-----	6.5
8/19/08	-----	28	53	480	240	800	-----	8.76	-----	-----	6.0
8/25/08	-----	13	23	340	96	470	-----	8.75	-----	-----	6.0
9/2/08	-----	0	13	130	81	220	-----	8.85	-----	-----	6.5
4/7/09	-----	8	53	15	540	620	-----	8.42	-----	3.1	5.0
4/14/09	-----	0	71	0	530	600	-----	8.53	-----	2.4	9.0
4/21/09	-----	0	120	18	590	730	-----	8.44	-----	3.4	5.0
4/30/09	-----	140	100	43	270	550	-----	8.46	-----	2.6	6.0
5/6/09	-----	420	170	40	370	1000	-----	8.47	-----	2.6	6.5
5/12/09	-----	690	43	230	420	1400	-----	8.59	-----	4.3	5.5

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Section F											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
5/19/09	-----	1600	120	160	760	2600	-----	8.89	-----	7.2	4.0
6/1/09	-----	140	55	200	350	750	-----	8.38	-----	14.0	3.5
7/6/09	-----	55	15	1400	250	1700	-----	8.95	-----	7.2	4.5
7/14/09	-----	0	15	1300	400	1700	-----	8.95	-----	5.0	4.5
7/27/09	-----	0	200	1000	750	2000	-----	8.88	-----	3.3	5.5
8/3/09	-----	15	110	1400	370	1900	-----	8.53	-----	4.0	5.0
8/10/09	-----	3	33	1200	310	1500	-----	8.72	-----	3.3	5.0
8/17/09	-----	0	53	1000	190	1200	-----	8.49	-----	2.7	6.0
8/24/09	-----	0	10	690	30	680	-----	8.37	-----	-----	7.0
9/1/09	-----	5	30	1200	88	1300	-----	8.35	-----	3.2	6.0
9/8/09	-----	13	68	430	100	610	-----	8.53	-----	3.1	6.5
9/14/09	-----	25	55	630	98	810	-----	8.47	-----	2.3	7.0
9/21/09	-----	0	15	550	71	640	-----	8.50	-----	3.9	6.5
9/28/09	-----	0	5	490	110	610	-----	8.47	-----	8.5	6.0
10/7/09	-----	0	8	300	120	430	-----	8.78	-----	2.6	5.0
11/2/09	-----	0	20	71	390	480	-----	8.30	-----	3.4	7.5
12/8/09	-----	0	25	0	25	50	-----	8.04	-----	1.8	7.0
1/4/10	-----	0	5	0	13	18	-----	8.15	-----	3.1	7.0
1/11/10	-----	0	3	3	18	24	-----	8.00	-----	2.5	8.0
2/1/10	-----	0	3	18	15	36	-----	8.23	-----	2.8	7.0
3/8/10	-----	0	8	0	40	48	-----	8.28	-----	2.0	8.0
4/8/10	-----	0	20	8	23	51	-----	8.32	-----	2.4	7.5
4/13/10	-----	0	13	0	18	31	-----	8.33	-----	1.7	6.0
4/19/10	-----	0	0	0	35	35	-----	8.40	-----	2.0	5.0
4/26/10	-----	45	13	3	33	94	-----	8.37	-----	1.9	6.0
5/3/10	-----	170	0	3	63	240	-----	8.46	-----	3.8	8.0
5/19/10	-----	15	33	76	160	280	-----	8.51	-----	2.0	8.5
5/24/10	-----	200	25	78	190	490	-----	8.64	-----	1.9	8.5
6/1/10	-----	1700	32	57	430	2200	-----	8.63	-----	5.0	6.0
6/7/10	-----	40	20	48	35	140	-----	8.74	-----	2.9	7.0
6/14/10	-----	66	20	620	48	750	-----	8.66	-----	2.8	6.0
6/21/10	-----	13	0	1100	150	1300	-----	8.82	-----	3.6	7.0
6/28/10	-----	5	0	440	120	570	-----	8.76	-----	3.9	7.0
7/7/10	-----	580	50	120	640	1400	-----	8.66	-----	3.0	6.0
7/12/10	-----	1330	0	48	325	1700	-----	8.81	-----	7.9	5.0
7/19/10	-----	810	68	11	370	1300	-----	9.80	-----	9.3	5.0
7/19/10	-----	810	68	11	370	1300	-----	-----	-----	-----	----
7/22/10	-----	300	71	21	86	480	10.0	8.87	21.9	-----	----
7/26/10	-----	490	93	0	610	1200	-----	8.85	-----	4.2	5.0
8/2/10	-----	5900	120	43	120	7300	-----	8.90	-----	7.9	3.5
8/10/10	-----	5100	130	89	21	5300	-----	8.89	-----	9.7	4.0
8/18/10	-----	1200	2800	690	1100	5800	-----	8.82	-----	5.2	5.5

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Section F											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
8/31/10	-----	29	320	1900	570	2500	-----	8.86	-----	3.5	7.0
9/9/10	-----	0	170	39	400	610	-----	8.70	-----	2.5	7.0
9/21/10	-----	0	7	1100	170	1300	-----	9.60	-----	3.3	5.0
9/28/10	-----	0	50	600	680	1300	-----	8.68	-----	2.2	5.5
10/5/10	-----	210	36	840	230	1300	-----	8.76	-----	2.5	6.0
11/3/10	-----	0	0	21	290	310	-----	8.44	-----	1.9	7.0

Lopez Lake Section G											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
1/3/06	-----	0	14	32	250	300	-----	7.60	-----	24.0	1.5
2/6/06	-----	0	79	18	210	310	-----	7.94	-----	2.2	5.0
3/7/06	-----	0	790	11	320	1100	-----	8.46	-----	3.5	4.0
4/11/06	-----	0	370	0	610	980	-----	8.45	-----	7.1	3.0
4/17/06	-----	0	25	120	140	280	-----	8.45	-----	4.3	4.5
4/24/06	-----	0	10	10	180	200	-----	8.61	-----	3.3	5.0
5/1/06	-----	0	32	0	210	240	-----	8.64	-----	2.8	5.0
5/9/06	-----	10	160	0	120	320	-----	8.22	-----	2.4	5.5
5/15/06	-----	250	300	71	110	730	-----	8.14	-----	2.6	4.5
5/22/06	-----	1300	170	110	79	1700	-----	8.45	-----	3.6	4.0
5/30/06	-----	720	150	36	46	950	-----	8.40	-----	3.7	5.0
6/5/06	-----	890	350	18	43	1300	-----	8.43	-----	4.5	5.0
6/12/06	-----	540	120	0	450	1100	-----	8.54	-----	5.2	4.0
6/19/06	-----	1000	190	18	250	1500	-----	8.62	-----	4.4	4.0
6/26/06	-----	770	190	39	370	1400	-----	8.76	-----	3.7	4.0
7/3/06	-----	160	220	36	180	600	-----	8.63	-----	2.3	5.0
7/10/06	-----	390	170	7	280	850	-----	8.62	-----	2.9	4.0
7/17/06	-----	470	550	150	410	1600	-----	8.62	-----	3.0	5.0
7/24/06	-----	450	400	200	560	1600	-----	8.56	-----	11.0	3.0
7/31/06	-----	64	680	600	2200	3500	-----	8.70	-----	2.2	4.5
8/7/06	-----	0	610	0	170	780	-----	8.70	-----	2.8	5.0
8/14/06	-----	0	190	18	130	340	-----	8.61	-----	2.0	5.0
8/21/06	-----	21	270	0	130	420	-----	8.59	-----	2.2	6.0
8/28/06	-----	82	140	14	160	400	-----	8.48	-----	1.9	6.0
9/5/06	-----	0	110	260	400	770	-----	8.09	-----	2.2	6.0

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Section G											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
9/11/06	-----	110	150	25	86	370	-----	8.35	-----	1.7	6.5
9/18/06	-----	21	50	57	320	450	-----	8.39	-----	1.8	8.0
9/25/06	-----	18	36	100	250	400	-----	8.36	-----	1.6	7.0
10/2/06	-----	200	50	0	71	290	-----	8.31	-----	1.7	7.0
11/6/06	-----	21	0	0	280	300	-----	8.16	-----	-----	6.5
12/4/06	-----	0	50	0	220	270	-----	7.84	-----	1.8	7.5
1/2/07	-----	0	11	11	93	110	-----	7.84	-----	N/A	7.5
2/5/07	-----	0	200	75	43	320	-----	8.05	-----	1.8	5.0
3/6/07	-----	0	110	93	66	270	-----	8.43	-----	-----	5.0
4/2/07	-----	100	200	23	110	430	-----	8.53	-----	-----	6.0
4/10/07	-----	510	350	30	270	1200	-----	8.14	-----	-----	4.0
4/16/07	-----	490	300	30	360	1200	-----	8.11	-----	-----	4.0
4/23/07	-----	120	230	15	500	860	-----	8.21	-----	-----	4.0
4/30/07	-----	250	340	140	1400	2100	-----	8.36	-----	-----	4.0
5/9/07	-----	45	170	100	500	820	-----	8.28	-----	-----	5.0
5/15/07	-----	8	3	30	110	140	-----	8.25	-----	-----	6.5
5/22/07	-----	15	28	25	88	160	-----	8.28	-----	-----	6.0
6/5/07	-----	130	570	13	520	1200	-----	8.39	-----	-----	3.5
6/19/07	-----	870	620	140	350	2000	-----	8.81	-----	-----	2.5
6/26/07	-----	830	170	140	250	1400	-----	8.74	-----	-----	4.0
7/3/07	-----	140	150	71	220	580	-----	8.90	-----	-----	4.0
7/17/07	-----	40	16	1400	640	2100	-----	8.91	-----	-----	4.0
7/24/07	-----	0	3	35	55	93	-----	8.89	-----	-----	5.0
7/31/07	-----	8	13	640	5	710	-----	8.88	-----	-----	6.0
8/7/07	-----	0	3	13	35	51	-----	8.94	-----	-----	5.5
8/13/07	-----	3	23	590	180	800	-----	8.70	-----	-----	6.0
8/20/07	-----	0	28	230	68	330	-----	8.36	-----	-----	4.5
9/11/07	-----	20	33	730	140	920	-----	8.61	-----	-----	6.0
9/18/07	-----	-----	-----	-----	-----	-----	-----	8.96	-----	-----	6.0
9/25/07	-----	0	25	420	150	600	-----	8.79	-----	-----	7.5
10/2/07	-----	0	48	290	140	690	-----	8.69	-----	-----	7.0
11/6/07	-----	0	15	30	170	220	-----	8.68	-----	-----	6.5
12/4/07	-----	0	3	0	250	260	-----	8.46	-----	-----	6.5
1/8/08	-----	0	8	3	230	240	-----	8.27	-----	-----	3.5
3/4/08	-----	0	55	26	180	260	-----	8.32	-----	-----	6.5
4/8/08	-----	10	380	13	120	520	-----	8.72	-----	-----	6.5
4/15/08	-----	68	100	18	180	310	-----	8.61	-----	-----	5.0
4/22/08	-----	35	110	13	270	430	-----	8.69	-----	-----	6.0
4/29/08	-----	490	130	25	360	1000	-----	8.64	-----	-----	4.0
5/6/08	-----	830	93	33	460	1400	-----	9.00	-----	-----	4.0
5/13/08	-----	1000	110	45	860	2000	-----	8.92	-----	-----	3.5
5/20/08	-----	1800	58	0	150	2000	-----	8.93	-----	-----	3.3

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Section G											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	Feet	#/mL	#/mL	#/mL	#/mL	#/mL	mg/L		ºC	NTU	Feet
5/28/08	-----	220	38	96	130	480	-----	8.89	-----	-----	3.5
6/3/08	-----	1800	71	190	400	2500	-----	9.13	-----	-----	3.5
6/10/08	-----	1800	98	100	380	2400	-----	9.00	-----	-----	2.5
6/17/08	-----	-----	-----	-----	-----	-----	-----	8.15	-----	-----	3.0
6/24/08	-----	590	110	450	300	1500	-----	8.91	-----	-----	3.0
7/1/08	-----	1000	40	760	380	2200	-----	8.87	-----	-----	3.5
7/8/08	-----	320	68	1100	540	2000	-----	9.07	-----	-----	3.5
7/14/08	-----	130	71	660	370	1200	-----	9.02	-----	-----	4.0
7/23/08	-----	10	88	580	320	1000	-----	8.97	-----	-----	3.0
7/28/08	-----	5	8	820	33	870	-----	8.86	-----	-----	4.5
8/5/08	-----	55	120	540	600	1300	-----	8.84	-----	-----	5.0
8/13/08	-----	15	60	430	260	770	-----	8.63	-----	-----	6.0
8/19/08	-----	130	380	260	150	920	-----	8.81	-----	-----	6.0
8/25/08	-----	28	10	400	98	540	-----	8.78	-----	-----	5.5
9/2/08	-----	3	13	240	160	420	-----	8.93	-----	-----	6.0
4/7/09	-----	0	58	0	570	630	-----	8.56	-----	3.6	5.0
4/14/09	-----	3	93	3	570	670	-----	8.37	-----	3.0	6.0
4/21/09	-----	100	130	30	570	830	-----	8.56	-----	3.4	6.0
4/30/09	-----	150	98	48	280	580	-----	8.48	-----	2.4	5.5
5/6/09	-----	500	180	55	370	1100	-----	8.50	-----	4.4	4.5
5/12/09	-----	710	20	63	250	1000	-----	8.65	-----	4.4	5.5
5/19/09	-----	1700	160	140	830	2800	-----	8.87	-----	8.3	4.0
6/1/09	-----	300	81	150	420	950	-----	8.69	-----	12.0	3.0
6/22/09	-----	770	0	840	180	1800	-----	8.60	-----	3.9	4.5
7/6/09	-----	300	180	700	250	1400	-----	8.98	-----	6.7	5.5
7/14/09	-----	45	30	1100	1500	1500	-----	8.81	-----	4.6	5.0
7/20/09	-----	20	110	1100	460	1700	-----	8.94	-----	4.5	5.0
7/27/09	-----	0	200	1100	620	1900	-----	8.73	-----	3.6	5.0
8/3/09	-----	86	86	1900	520	2500	-----	8.56	-----	4.2	4.5
8/10/09	-----	0	58	1100	420	1600	-----	8.76	-----	3.3	5.0
8/17/09	-----	0	38	850	170	1100	-----	8.46	-----	3.5	5.5
8/24/09	-----	8	8	890	66	970	-----	8.57	-----	-----	8.5
9/1/09	-----	0	13	690	48	750	-----	8.70	-----	2.7	7.0
9/8/09	-----	76	110	330	96	610	-----	8.77	-----	2.8	6.0
9/14/09	-----	28	73	470	93	660	-----	8.53	-----	2.6	7.0
9/21/09	-----	10	18	450	76	550	-----	8.64	-----	3.9	7.0
9/28/09	-----	0	58	450	130	610	-----	8.38	-----	8.4	6.0
10/7/09	-----	0	15	170	130	320	-----	8.21	-----	3.1	5.0
11/2/09	-----	0	55	91	200	300	-----	8.46	-----	2.1	5.5
12/8/09	-----	0	25	0	18	53	-----	8.01	-----	1.9	7.0
1/4/10	-----	0	5	0	15	20	-----	8.10	-----	3.0	6.0
1/11/10	-----	0	5	22	18	45	-----	8.05	-----	2.8	8.0

Appendix B5: Water Quality Data
Limnological and Physical Analysis Results
January 2006 through December 2010

Lopez Lake Section G											
	Depth	Blue-greens	Diatoms	Flagellates	Greens	Total Algae Counts	Dissolved Oxygen	pH-Field	Temperature	Turbidity	Visability
Date	**Feet**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**#/mL**	**mg/L**		**ºC**	**NTU**	**Feet**
2/1/10	-----	0	0	140	25	170	-----	8.04	-----	3.1	6.0
3/8/10	-----	0	10	38	63	110	-----	8.44	-----	2.8	6.5
4/8/10	-----	0	13	25	38	76	-----	8.36	-----	2.3	7.5
4/13/10	-----	0	0	3	30	33	-----	8.41	-----	4.1	7.0
4/19/10	-----	0	18	5	58	81	-----	8.49	-----	2.5	4.0
4/26/10	-----	35	0	0	25	60	-----	8.49	-----	3.1	7.0
5/3/10	-----	45	13	0	50	110	-----	8.57	-----	3.9	8.0
5/19/10	-----	35	45	66	160	310	-----	8.46	-----	1.8	9.0
5/24/10	-----	23	20	35	130	210	-----	8.61	-----	2.6	8.0
6/1/10	-----	1900	32	64	320	2300	-----	8.68	-----	5.0	5.0
6/7/10	-----	40	33	20	40	130	-----	8.70	-----	3.4	7.0
6/10/10	-----	30	0	450	58	540	-----	8.64	-----	3.7	6.0
6/21/10	-----	20	18	950	130	1100	-----	8.84	-----	3.4	7.0
6/28/10	-----	0	5	540	190	740	-----	8.73	-----	4.2	8.0
7/7/10	-----	1400	86	29	790	2300	-----	8.72	-----	5.8	6.0
7/12/10	-----	554	10	71	494	1100	-----	8.76	-----	7.8	3.0
7/19/10	-----	910	200	43	370	1500	-----	8.74	-----	10.0	4.5
7/19/10	-----	910	200	43	370	1500	-----	-----	-----	-----	----
7/22/10	-----	660	0	79	46	790	11.4	8.93	22.7	-----	----
7/26/10	-----	1800	110	0	850	2800	-----	8.85	-----	22.7	4.0
8/2/10	-----	7400	1300	29	220	8900	-----	8.82	-----	7.3	4.0
8/10/10	-----	2800	89	120	32	3000	-----	8.88	-----	7.9	4.0
8/18/10	-----	71	1900	620	840	3400	-----	8.86	-----	4.5	6.0
8/31/10	-----	86	64	980	400	1500	-----	8.85	-----	3.9	6.0
9/9/10	-----	14	86	11	450	560	-----	8.73	-----	1.8	8.0
9/21/10	-----	0	6	540	170	730	-----	8.59	-----	2.5	6.0
9/28/10	-----	0	11	1000	230	1200	-----	8.96	-----	5.6	5.5
10/5/10	-----	75	0	790	320	1200	-----	8.72	-----	2.3	7.0
11/3/10	-----	0	54	25	700	780	-----	8.46	-----	2.2	5.0

Lopez Dam Operational Report
2006

Date	Lake Elevation (Ft)	Capacity (AF)	Percent Full (%)	Cap. Change (AF)	Downstream Release (AF)	Pipeline Diversion (AF)	Spillway Discharge (AF)	Total Discharge (AF)	Pan Reading (In)	Pan Coeff	Lake Surface (Acres)	Lake Evap. (AF)	Precip. Reading (In)	Lake Precip (AF)	Daily Outflow (AF)	Stream Inflow (AF)	Stream Inflow minus Downstream Release (AF)
Jan-2006	505.96	35537.2	72	2211.5	390.82	209.28	0.00	600.10	1.55	0.64	746.1	61.49	6.59	403.56	661.59	2,469.53	2,078.71
Feb-2006	506.18	35701.5	72	164.3	349.54	156.09	0.00	505.63	1.55	0.64	748.4	61.72	2.16	134.56	567.36	597.10	247.56
Mar-2006	508.24	37264.4	75	1562.9	383.88	246.42	0.00	630.30	1.13	0.67	769.5	47.89	7.02	442.92	678.19	1,798.18	1,414.30
Apr-2006	516.70	44146.9	89	6882.5	378.17	270.48	0.00	648.65	2.67	0.71	855.7	132.89	7.11	477.40	781.54	7,186.60	6,808.42
May-2006	517.13	44516.6	90	369.7	371.45	320.63	0.00	692.08	5.50	0.74	860.1	291.37	1.45	103.99	983.45	1,249.21	877.75
Jun-2006	516.64	44095.4	89	-421.2	373.88	342.33	0.00	716.20	7.87	0.77	855.1	433.23	0.00	0.00	1,149.43	728.25	354.37
Jul-2006	515.84	43413.2	88	-682.3	383.21	376.20	0.00	759.41	8.34	0.80	847.0	473.25	0.00	0.00	1,232.65	550.39	167.18
Aug-2006	514.90	42620.0	86	-793.1	380.54	431.73	0.00	812.27	6.21	0.80	837.4	348.58	0.00	0.00	1,160.85	367.71	-12.82
Sep-2006	514.04	41902.4	85	-717.6	370.99	393.77	0.00	764.76	3.89	0.80	828.6	216.12	0.00	0.00	980.88	263.31	-107.68
Oct-2006	513.33	41315.8	84	-586.6	391.74	388.36	0.00	780.10	2.59	0.79	821.4	140.68	0.32	22.07	920.78	312.10	-79.63
Nov-2006	512.70	40799.7	83	-516.1	370.44	337.63	0.00	708.07	2.41	0.76	815.0	124.88	0.31	21.10	832.95	295.74	-74.70
Dec-2006	512.56	40681.5	82	-118.2	385.48	256.55	0.00	642.02	1.85	0.67	813.5	84.11	2.60	176.42	726.14	431.52	46.04
2006 Totals				**7,355.8**	**4,530.1**	**3,729.5**		**8,259.6**	**45.6**			**2,416.2**	**27.6**		**10,675.8**	**16,249.6**	**11,719.5**

Lopez Dam Operational Report
2007

Date	Lake Elevation (Ft)	Capacity (AF)	Percent Full (%)	Cap. Change (AF)	Downstream Release (AF)	Pipeline Diversion (AF)	Spillway Discharge (AF)	Total Discharge (AF)	Pan Reading (In)	Pan Coeff	Lake Surface (Acres)	Lake Evap. (AF)	Precip. Reading (In)	Lake Precip (AF)	Daily Outflow (AF)	Stream Inflow (AF)	Stream Inflow minus Downstream Release (AF)
Jan-2007	512.30	40474.2	82	-207.3	372.01	273.86	0.00	645.86	1.33	0.64	810.9	57.59	1.26	85.16	703.46	410.96	38.95
Feb-2007	512.43	40579.8	82	105.6	343.46	239.21	0.00	582.67	1.21	0.64	812.2	52.37	3.17	214.44	635.04	526.21	182.74
Mar-2007	512.08	40295.9	82	-284.0	384.47	303.20	0.00	687.66	2.19	0.67	808.7	99.10	0.31	20.93	786.76	481.88	97.42
Apr-2007	511.47	39801.1	81	-494.8	367.25	297.40	0.00	664.65	4.48	0.71	802.4	213.39	1.08	72.40	878.04	310.82	-56.42
May-2007	510.76	39236.5	79	-564.6	397.02	148.97	0.00	545.99	6.36	0.74	795.2	313.23	0.00	0.00	859.23	294.64	-102.38
Jun-2007	509.44	38195.2	77	-1041.2	381.70	493.63	0.00	875.34	9.24	0.77	781.7	467.09	0.00	0.00	1,342.43	301.18	-80.52
Jul-2007	508.15	37195.2	75	-1000.0	352.73	374.45	0.00	727.18	6.87	0.80	768.6	354.95	0.00	0.00	1,082.12	82.10	-270.63
Aug-2007	506.70	36091.8	73	-1103.4	451.83	455.92	0.00	907.76	5.77	0.80	753.7	292.80	0.00	0.00	1,200.56	97.21	-354.63
Sep-2007	505.38	35106.5	71	-985.4	515.18	339.77	0.00	854.95	3.95	0.80	740.2	197.12	0.04	2.48	1,052.06	64.21	-450.96
Oct-2007	504.40	34386.7	70	-719.8	513.50	525.52	0.00	1,039.03	2.66	0.79	730.2	128.38	1.05	64.07	1,167.40	383.52	-129.98
Nov-2007	502.87	33282.9	67	-1103.8	412.50	522.45	0.00	934.95	1.73	0.76	714.5	78.86	0.05	3.01	1,013.81	-92.97	-505.47
Dec-2007	502.41	32955.8	67	-327.1	421.43	511.26	0.00	932.69	1.21	0.67	709.8	48.08	4.57	271.26	980.77	382.43	-39.00
2007 Totals				**-7,725.8**	**4,913.1**	**4,485.6**		**9,398.7**	**47.0**			**2,303.0**	**11.5**		**11,701.7**	**3,242.2**	**-1,670.9**

Lopez Dam Operational Report
2008

Date	Lake Elevation (Ft)	Capacity (AF)	Percent Full (%)	Cap. Change (AF)	Downstream Release (AF)	Pipeline Diversion (AF)	Spillway Discharge (AF)	Total Discharge (AF)	Pan Reading (In)	Pan Coeff	Lake Surface (Acres)	Lake Evap. (AF)	Precip. Reading (In)	Lake Precip (AF)	Daily Outflow (AF)	Stream Inflow (AF)	Stream Inflow minus Downstream Release (AF)
Jan-2008	506.45	35903.8	73	2948.0	369.86	425.15	0.00	795.01	0.99	0.64	751.2	38.21	13.97	844.56	833.22	2,936.69	2,566.83
Feb-2008	508.40	37387.6	76	1483.8	357.56	340.03	0.00	697.59	0.95	0.64	771.1	38.85	4.50	283.37	736.44	1,936.89	1,579.33
Mar-2008	508.26	37279.8	75	-107.9	383.66	372.22	0.00	755.88	2.24	0.67	769.7	96.46	0.00	0.00	852.34	744.49	360.83
Apr-2008	507.67	36827.5	75	-452.3	420.57	343.37	0.00	763.94	4.73	0.71	763.6	214.54	0.08	5.13	978.48	521.07	100.50
May-2008	506.76	36137.1	73	-690.5	384.20	395.81	0.00	780.01	6.44	0.74	754.3	301.00	0.00	0.00	1,081.01	390.55	6.35
Jun-2008	505.51	35202.7	71	-934.4	393.83	407.99	0.00	801.82	6.68	0.77	741.5	320.26	0.00	0.00	1,122.08	187.72	-206.10
Jul-2008	503.93	34045.0	69	-1157.7	540.85	453.73	0.00	994.58	6.72	0.80	725.3	328.74	0.00	0.00	1,323.31	165.59	-375.26
Aug-2008	502.52	33033.8	67	-1011.2	475.97	402.78	0.00	878.74	5.12	0.80	710.9	245.00	0.00	0.00	1,123.74	112.57	-363.40
Sep-2008	501.11	32043.4	65	-990.5	397.75	478.25	0.00	876.00	3.42	0.80	696.4	160.53	0.00	0.00	1,036.54	46.08	-351.67
Oct-2008	499.83	31162.2	63	-881.2	381.93	495.15	0.00	877.08	3.14	0.79	683.2	142.64	0.50	28.65	1,019.72	109.88	-272.05
Nov-2008	499.07	30647.0	62	-515.1	366.08	436.52	0.00	802.61	1.66	0.76	675.4	71.41	1.86	105.29	874.02	253.60	-112.48
Dec-2008	498.61	30338.2	61	-308.9	368.49	371.08	0.00	739.57	1.06	0.67	670.7	39.81	3.24	181.72	779.38	288.80	-79.69
2008 Totals				**-2,617.6**	**4,840.8**	**4,922.1**		**9,762.8**	**43.1**			**1,997.4**	**24.2**		**11,760.3**	**7,693.9**	**2,853.2**

Lopez Dam Operational Report
2009

Date	Lake Elevation (Ft)	Capacity (AF)	Percent Full (%)	Cap. Change (AF)	Downstream Release (AF)	Pipeline Diversion (AF)	Spillway Discharge (AF)	Total Discharge (AF)	Pan Reading (In)	Pan Coeff	Lake Surface (Acres)	Lake Evap. (AF)	Precip. Reading (In)	Lake Precip (AF)	Daily Outflow (AF)	Stream Inflow (AF)	Stream Inflow minus Downstream Release (AF)
Jan-2009	497.94	29892.3	61	-445.9	371.75	345.93	0.00	717.69	1.45	0.64	663.8	51.58	0.27	14.97	769.26	308.38	-63.37
Feb-2009	498.23	30084.7	61	192.4	311.89	247.16	0.00	559.05	1.61	0.64	666.8	57.23	5.79	320.73	616.28	487.98	176.09
Mar-2009	497.64	29694.1	60	-390.6	332.61	400.48	0.00	733.08	6.07	0.67	660.7	225.43	0.89	49.36	958.52	518.58	185.97
Apr-2009	496.75	29111.8	59	-582.3	324.15	404.12	0.00	728.28	3.87	0.71	651.5	150.20	0.61	33.50	878.48	262.67	-61.48
May-2009	495.49	28301.5	57	-810.3	338.73	425.18	0.00	763.91	6.33	0.74	638.5	252.00	0.16	8.68	1,015.91	196.96	-141.77
Jun-2009	494.28	27539.0	56	-762.5	326.43	416.11	0.00	742.54	6.07	0.77	626.1	246.00	0.38	20.16	988.54	205.83	-120.60
Jul-2009	492.69	26560.2	54	-978.8	367.82	438.82	0.00	806.64	6.73	0.80	609.6	277.35	0.00	0.00	1,083.99	105.18	-262.64
Aug-2009	491.09	25601.8	52	-958.4	383.58	419.13	0.00	802.71	6.52	0.80	593.1	261.28	0.00	0.00	1,063.99	105.62	-277.95
Sep-2009	489.45	24647.2	50	-954.6	371.65	441.56	0.00	813.21	4.29	0.80	576.1	167.25	0.00	0.00	980.45	25.83	-345.82
Oct-2009	489.45	24647.2	50	0.0	317.75	380.58	0.00	698.33	2.54	0.79	576.1	96.42	4.37	210.53	794.75	584.21	266.46
Nov-2009	488.34	24017.0	49	-630.2	64.72	115.10	0.00	179.82	0.42	0.76	564.6	15.29	0.00	0.00	195.11	40.64	-24.08
Dec-2009	489.49	24670.1	50	653.2	209.01	340.92	0.00	549.93	1.43	0.67	576.5	51.50	0.00	0.00	601.43	125.70	-83.31
2009 Totals				**-5,668.0**	**3,720.1**	**4,375.1**		**8,095.2**	**47.3**			**1,851.5**	**12.5**		**9,946.7**	**2,967.6**	**-752.5**

Lopez Dam Operational Report
2010

Date	Lake Elevation (Ft)	Capacity (AF)	Percent Full (%)	Cap. Change (AF)	Downstream Release (MGD)	Downstream Release (AF)	Pipeline Diversion (MGD)	Pipeline Diversion (AF)	Spillway Discharge (MGD)	Spillway Discharge (AF)	Total Discharge (AF)	Pan Reading (In)	Pan Coeff	Lake Surface (Acres)	Lake Evap. (AF)	Precip. Reading (In)	Lake Precip (AF)	Daily Outflow (AF)	Stream Inflow (AF)	Stream Inflow minus Downstream Release (AF)
Jan-2010	490.77	25431.0	52	2712.7	77.89	239.04	84.58	259.57	0.00	0.00	498.61	0.93	0.64	589.4	27.40	6.88	340.07	526.01	2,898.67	2,659.63
Feb-2010	494.78	27858.0	56	1765.7	43.09	132.26	96.67	296.69	0.00	0.00	428.95	1.55	0.64	631.2	54.22	4.89	259.83	483.17	1,195.83	1,063.57
Mar-2010	498.57	30316.0	61	1353.3	45.67	140.17	114.53	351.50	0.00	0.00	491.66	N/A	0.67	670.3	N/A	N/A	N/A	N/A	N/A	N/A
Apr-2010	499.42	30884.0	63	447.1	46.61	143.53	105.10	322.57	0.00	0.00	465.62	3.23	0.71	679.0	129.82	2.58	145.95	595.43	170.33	26.80
May-2010	499.57	30982.7	63	-278.3	47.42	145.53	134.50	412.81	0.00	0.00	558.34	5.05	0.74	680.5	206.48	0.21	11.91	746.72	470.05	324.52
Jun-2010	498.88	30503.2	62	-711.4	98.02	300.83	151.12	463.80	0.00	0.00	764.63	6.38	0.77	673.2	275.66	0.00	0.00	983.01	325.43	24.60
Jul-2010	497.64	29694.4	60	-823.8	122.00	374.44	137.97	423.44	0.00	0.00	797.88	5.46	0.80	660.7	240.64	0.00	0.00	990.62	186.27	-188.17
Aug-2010	496.42	28924.7	59	-756.4	98.00	300.77	129.11	396.25	0.00	0.00	697.02	5.65	0.80	648.5	244.17	0.00	0.00	941.19	184.82	-115.95
Sep-2010	494.53	27695.3	56	-784.9	105.07	322.46	115.47	354.37	0.00	0.00	676.84	3.90	0.80	628.6	165.17	0.00	0.00	833.50	93.12	-229.35
Oct-2010	493.79	27234.5	55	-460.8	129.63	397.84	112.75	346.05	0.00	0.00	688.37	1.44	0.79	621.0	59.18	2.77	143.85	739.70	185.17	-212.66
Nov-2010	493.08	26797.8	54	-436.7	109.80	336.97	138.67	425.60	0.00	0.00	762.57	1.49	0.76	613.7	56.65	3.29	168.68	789.66	184.27	-152.70
Dec-2010	502.63	33111.9	67	6314.1	88.46	271.48	57.60	176.77	0.00	0.00	448.25	0.00	0.67	712.0	N/A	N/A	N/A	N/A	N/A	N/A
2010 Totals				**8,340.6**		**3,105.3**		**4,229.4**			**7,278.7**	**35.1**			**1,459.4**	**20.6**		**7,629.0**	**5,894.0**	**3,200.3**

Pesticide Use 2010 (as of Dec 20, 2010)

Pesticide Name	Quantity	Units
ABOUND FLOWABLE FUNGICIDE Total	1.76	GA
ACTIGARD 50WG PLANT ACTIVATOR Total	1.64	LB
ADAMENT 50 WG FUNGICIDE Total	5.63	LB
ADMIRE PRO SYSTEMIC PROTECTANT Total	4.14	GA
AMINE 4 2,4-D WEED KILLER Total	27.60	GA
BAYTHROID XL Total	0.70	GA
BLOCKADE 50WG PLANT ACTIVATOR Total	0.28	LB
BRAVO ULTREX Total	28.00	LB
BRAVO WEATHER STIK Total	9.20	GA
BUCTRIL 4 EC HERBICIDE Total	27.60	GA
CABRIO EG FUNGICIDE Total	79.78	LB
CLEAN CROP MALATHION 8 AQUAMUL Total	1.50	GA
DACTHAL FLOWABLE HERBICIDE Total	6.00	GA
DACTHAL W-75 Total	87.50	LB
DIMETHOATE 4E Total	1.25	GA
DU PONT ASANA XL INSECTICIDE Total	1.80	GA
DU PONT AVAUNT INSECTICIDE Total	15.99	LB
DU PONT LANNATE SP INSECTICIDE Total	23.25	LB
DUAL MAGNUM HERBICIDE Total	3.74	GA
DUPONT CORAGEN INSECT CONTROL Total	4.09	GA
DUPONT MANEX FUNGICIDE Total	44.69	GA
ELITE 45 WP FOLIAR FUNGICIDE IN WATER SO Total	0.94	GA
ENDURA FUNGICIDE Total	19.10	LB
FIRST CHOICE HI-WETT Total	2.93	GA
FIRST CHOICE SPREADER STICKER Total	6.95	GA
FLINT FUNGICIDE Total	31.92	LB
FULFILL Total	4.48	LB
GOAL 2XL Total	1.09	GA
GOALTENDER Total	0.78	GA
GRAMOXONE INTEON Total	9.24	GA
GRAMOXONE MAX Total	70.78	GA
INTREPID 2F Total	22.49	GA
JAVELIN WG BIOLOGICAL INSECTICIDE Total	12.00	LB
JMS STYLET-OIL Total	60.00	GA
KALIGREEN Total	315.70	LB
LEVERAGE 2.7 SUSPENSION EMULSION INSECTI Total	0.30	GA
LEVERAGE 360 INSECTICIDE Total	1.43	GA
LORSBAN 75WG Total	7.98	LB
LORSBAN-75WG Total	35.83	LB
MAD DOG PLUS Total	57.91	GA
MALATHION 8 AQUAMUL Total	0.50	GA
MALATHION 8EC Total	3.00	GA
MASTER LABEL - PREFAR 4E SELECTIVE HERBI Total	37.80	GA
METASYSTOX-R SPRAY CONCENTRATE Total	11.63	GA
MICROSULF Total	2160.00	LB
MONTEREY SUPER 7 Total	7.62	GA
MOVENTO Total	2.85	GA

MSR SPRAY CONCENTRATE Total	5.00	GA
MUSTANG INSECTICIDE Total	0.34	GA
MUSTANG MAX EW INSECTICIDE Total	8.34	GA
NUPRID 2F INSECTICIDE Total	40.99	GA
PHT AD-BUFF Total	2.90	GA
PHT ENTRY Total	19.42	GA
PHT QUARK Total	0.56	GA
POUNCE 25 WP Total	51.14	LB
PREVICUR FLEX FUNGICIDE Total	9.93	GA
PREY 1.6 INSECTICIDE Total	3.75	GA
PRISTINE FUNGICIDE Total	16.88	GA
QUADRIS FLOWABLE FUNGICIDE Total	4.70	GA
QUINTEC Total	0.06	GA
RADIANT SC Total	8.41	GA
RALLY 40 WSP Total	89.90	LB
REASON 500 SC FUNGICIDE Total	1.41	GA
RENOUNCE 20 WP INSECTICIDE Total	1.74	LB
REVUS Total	7.51	GA
RO-NEET 6-E Total	17.28	GA
SHARK EW Total	1.20	GA
SOVRAN FUNGICIDE Total	58.50	LB
SWITCH 62.5WG Total	15.00	LB
TRIFLURALIN HF Total	3.44	GA
TRIFLUREX HFP Total	4.76	GA
VENOM INSECTICIDE Total	7.35	LB
VETICA INSECTICIDE Total	6.54	GA
VINTRE Total	0.25	GA
WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY Total	1.58	GA
WETCIT Total	3.95	GA
WIDESPREAD MAX Total	8.41	GA

Pesticide Use 2009

Pesticide Name	Quantity	Units
ADMIRE PRO SYSTEMIC PROTECTANT Count	60	GA
ALIETTE WDG FUNGICIDE Count	2	GA
AMINE 4 2,4-D WEED KILLER Count	3	GA
BANVEL Count	6	GA
BAYTHROID XL Count	126	GA
BLOCKADE 50WG PLANT ACTIVATOR Count	36	LB
BOND Count	45	GA
BUCTRIL 4 EC HERBICIDE Count	2	GA
CABRIO EG FUNGICIDE Count	241	LB
CLEAN CROP MALATHION 8 AQUAMUL Count	72	GA
DACTHAL W-75 Count	54	LB
DIAZINON AG 500 Count	3	GA
DIBROM 8 EMULSIVE Count	144	GA
DIMETHOATE 4E Count	2	GA
DU PONT ASANA XL INSECTICIDE Count	86	GA
DU PONT AVAUNT INSECTICIDE Count	8	GA
DU PONT GLEAN FERTILIZER COMPATIBLE HERB Count	3	GA
DU PONT KROVAR I DF HERBICIDE Count	3	LB
DUAL MAGNUM HERBICIDE Count	126	GA
DUPONT CORAGEN INSECT CONTROL Count	161	GA
DUPONT KOCIDE 3000 FUNGICIDE/BACTERICIDE Count	44	LB
DUPONT MANEX FUNGICIDE Count	119	GA
ELEVATE 50 WDG FUNGICIDE Count	80	LB
ELITE 45 WP FOLIAR FUNGICIDE IN WATER SO Count	29	GA
ENDURA FUNGICIDE Count	1	LB
ENTRUST Count	2	LB
FIRST CHOICE BREAK-THRU Count	316	GA
FIRST CHOICE HERBICIDE ACTIVATOR Count	4	GA
FIRST CHOICE HI-WETT Count	9	GA
FIRST CHOICE SPREADER STICKER Count	2	GA
FLINT FUNGICIDE Count	73	LB
FORUM FUNGICIDE Count	90	GA
FULFILL Count	12	LB
GOAL 2XL Count	182	GA
GOALTENDER Count	36	GA
GOWAN MALATHION 8 FLOWABLE Count	10	GA
HERBICIDE ACTIVATOR Count	52	GA
JAVELIN WG BIOLOGICAL INSECTICIDE Count	26	LB
JMS STYLET-OIL Count	14	GA
KERB 50-W Count	72	LB
LORSBAN 4E-HF Count	2	GA
LORSBAN 75WG Count	120	LB
METASYSTOX-R SPRAY CONCENTRATE Count	144	GA
MICROTHIOL DISPERSS Count	21	LB
MILLER NU FILM P Count	28	GA
MONTANA 2F INSECTICIDE Count	108	GA
MOVENTO Count	166	GA
MSR SPRAY CONCENTRATE Count	2	GA

MUSTANG 1.5 EW INSECTICIDE Count	21	GA
MUSTANG INSECTICIDE Count	67	GA
MUSTANG MAX EW INSECTICIDE Count	33	GA
NUFARM WEEDAR 64 BROADLEAF HERBICIDE Count	8	GA
OMNI OIL 6-E Count	2	GA
ORGANIC JMS STYLET-OIL Count	38	GA
PHT AD-BUFF Count	144	GA
PREFAR 4-E Count	55	GA
PREVICUR FLEX FUNGICIDE Count	18	GA
PRISTINE FUNGICIDE Count	14	LB
PYGANIC CROP PROTECTION EC 5.0 II Count	12	GA
PYRELLIN E.C. Count	21	GA
QUARK Count	324	GA
QUINTEC Count	66	GA
RADIANT SC Count	21	GA
RALLY 40 WSP Count	320	LB
REASON 500 SC FUNGICIDE Count	22	GA
RELY 200 HERBICIDE Count	2	GA
RELY HERBICIDE Count	56	GA
RIDOMIL GOLD SL Count	20	GA
RO-NEET 6-E Count	2	GA
ROUNDUP ULTRA HERBICIDE Count	2	GA
ROVRAL BRAND 4 FLOWABLE FUNGICIDE Count	2	GA
SCALA BRAND SC FUNGICIDE Count	66	GA
SIMAZINE 90DF Count	1	LB
SWITCH 62.5WG Count	1	LB
TENKOZ TRIFLURALIN 4 EMULSIFIABLE CONCEN Count	55	GA
THIOLUX JET Count	7	LB
VANGARD WG Count	7	LB
VENOM INSECTICIDE Count	26	LB
WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY Count	32	GA
WETCIT Count	36	GA

Pesticide Use 2008

Pesticide Name	Quantity	Units
ADMIRE PRO SYSTEMIC PROTECTANT Total	7.55	GA
MOVENTO Total	11.22	GA
AMMO 2.5 EC Total	1.20	GA
MUSTANG 1.5 EW INSECTICIDE Total	54.43	GA
MUSTANG INSECTICIDE Total	9.40	GA
DU PONT LANNATE SP INSECTICIDE Total	30.00	LB
DU PONT KROVAR I DF HERBICIDE Total	244.80	LB
DU PONT AVAUNT INSECTICIDE Total	27.56	LB
DUPONT MANEX FUNGICIDE Total	135.37	GA
DUPONT KOCIDE 3000 FUNGICIDE/BACTERICIDE Total	18.00	LB
DUPONT CORAGEN INSECT CONTROL Total	10.28	GA
MON-65005 HERBICIDE Total	16.00	GA
ROUNDUP ORIGINAL MAX HERBICIDE Total	31.64	GA
ROUNDUP POWERMAX HERBICIDE Total	21.25	GA
ELITE 45 DF Total	1.13	GA
DIBROM 8 EMULSIVE Total	89.93	GA
DACTHAL FLOWABLE HERBICIDE Total	3.44	GA
CROP OIL CONCENTRATE Total	59.50	GA
PHT AD-BUFF Total	7.03	GA
PRINCEP CALIBER 90 HERBICIDE Total	20.00	GA
DUAL MAGNUM HERBICIDE Total	32.87	GA
VANGARD WG Total	2.81	LB
THIOLUX DRY FLOWABLE MICRONIZED SULFUR Total	630.00	LB
FULFILL Total	8.42	LB
FLINT Total	4.50	LB
SWITCH 62.5WG Total	9.00	LB
GRAMOXONE MAX Total	282.56	GA
WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY Total	3.15	GA
RIDOMIL GOLD SL Total	0.90	GA
GRAMOXONE INTEON Total	51.00	GA
WEEDAR 64 BROADLEAF HERBICIDE Total	27.60	GA
ROVRAL BRAND 4 FLOWABLE FUNGICIDE Total	1.50	GA
ALIETTE WDG FUNGICIDE Total	0.22	GA
BUCTRIL 4 EC HERBICIDE Total	13.80	GA
ADMIRE PRO SYSTEMIC PROTECTANT Total	0.73	GA
PHT AD-BUFF Total	32.24	GA
CABRIO EG FUNGICIDE Total	166.68	GA
ENDURA FUNGICIDE Total	0.75	GA
ASSAIL 70 WP INSECTICIDE Total	0.08	GA
GOWAN MALATHION 8 FLOWABLE Total	1.50	GA
PREFAR 4-E Total	79.44	GA
METASYSTOX-R SPRAY CONCENTRATE Total	157.42	GA
MSR SPRAY CONCENTRATE Total	3.00	GA
SPREADER-STICKER Total	6.00	GA
FIRST CHOICE SPREADER STICKER Total	10.45	GA
FIRST CHOICE BREAK-THRU Total	0.89	GA
FIRST CHOICE ULTRA PRO Total	56.04	GA
PYRELLIN E.C. Total	16.25	GA

LATRON B-1956 Total	2.25	GA
IMPULSE 1.6 FL Total	0.45	GA
BANVEL Total	1.50	GA
VENOM INSECTICIDE Total	23.75	LB
LORSBAN 4E-HF Total	17.50	LB
TENKOZ TRIFLURALIN 4 EMULSIFIABLE CONCEN Total	13.24	GA
SUCCESS Total	3.24	GA
LORSBAN 75WG Total	139.65	GA
RALLY 40 WSP Total	0.94	GA
GOAL 2XL Total	119.87	GA
INTREPID 2F Total	1.15	GA
GOALTENDER Total	15.98	GA
QUARK Total	36.21	GA
DIAZINON 50W Total	105.00	GA
ELEVATE 50 WDG FUNGICIDE Total	72.00	GA
DIMETHOATE 4E Total	2.25	GA
SLUGGO Total	40.00	GA
JAVELIN WG BIOLOGICAL INSECTICIDE Total	82.50	GA
NUFARM WEEDAR 64 BROADLEAF HERBICIDE Total	12.00	GA
TRIPLELINE FOAM-AWAY Total	0.02	GA

Pesticide Use 2007

Pesticide Name	Quantity	Units
MILLER NU-FILM-P Total	2.46	GA
MILLER NU FILM P Total	25.97	GA
RIDOMIL GOLD EC Total	0.76	GA
DUAL MAGNUM HERBICIDE Total	78.09	GA
VANGARD WG Total	4.92	GA
THIOLUX DRY FLOWABLE MICRONIZED SULFUR Total	1080.00	LB
FULFILL Total	39.79	LB
FLINT Total	16.88	LB
BLOCKADE 50WG PLANT ACTIVATOR Total	0.28	LB
WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY Total	4.75	GA
NUPRID 1.6F INSECTICIDE Total	35.88	GA
ACROBAT 50 WP FUNGICIDE Total	17.64	GA
FORUM FUNGICIDE Total	3.30	GA
WEEDAR 64 BROADLEAF HERBICIDE Total	63.50	GA
ALIETTE WDG FUNGICIDE Total	0.38	GA
BUCTRIL 4 EC HERBICIDE Total	0.38	GA
PREVICUR FLEX FUNGICIDE Total	19.04	GA
FLINT FUNGICIDE Total	20.50	LB
ADMIRE PRO SYSTEMIC PROTECTANT Total	34.09	GA
AMMO 2.5 EC Total	3.08	GA
MUSTANG 1.5 EW INSECTICIDE Total	8.19	GA
DU PONT KROVAR I DF HERBICIDE Total	172.00	LB
DU PONT ASANA XL INSECTICIDE Total	7.05	GA
DU PONT GLEAN FERTILIZER COMPATIBLE HERB Total	0.64	GA
DU PONT AVAUNT INSECTICIDE Total	1.12	GA
DUPONT MANEX FUNGICIDE Total	136.91	GA
MON-65005 HERBICIDE Total	10.00	GA
ROUNDUP ULTRA HERBICIDE Total	50.00	GA
KOCIDE 2000 Total	1120.00	LB
GLYFOS HERBICIDE Total	3.75	GA
DACTHAL FLOWABLE HERBICIDE Total	24.00	0
AMBUSH 25W INSECTICIDE WETTABLE POWDER Total	167.74	LB
SILWET L-77 SURFACTANT Total	0.59	GA
CLARITY HERBICIDE Total	1.07	GA
SOVRAN FUNGICIDE Total	51.94	GA
CABRIO EG FUNGICIDE Total	142.70	LB
ENDURA FUNGICIDE Total	42.43	LB
PRISTINE FUNGICIDE Total	984.00	LB
ASSAIL 70 WP INSECTICIDE Total	1.29	LB
PREFAR 4-E Total	330.85	GA
BRITZ B-85 Total	78.72	GA
BRITZ SILGLOW Total	24.60	GA
TRI-CON 57/43 Total	6300.00	LB
FIRST CHOICE GAVICIDE-C Total	1302.00	GA
FIRST CHOICE SPREADER STICKER Total	45.97	GA
FIRST CHOICE BREAK-THRU Total	41.66	GA
DREXEL SULFUR 90W Total	72.00	LB
SIMAZINE 90DF Total	20.00	LB

K-90 KNAPP NONIONIC ADJUVANT-SPREADER-AC Total	1.41	GA
PYRELLIN E.C. Total	11.79	GA
LATRON B-1956 Total	0.70	GA
BRAVO ULTREX Total	268.38	LB
BANVEL Total	0.75	GA
CHAMP FORMULA 2 FLOWABLE Total	415.50	GA
MICRO-SULF Total	17844.00	LB
CHATEAU HERBICIDE SW Total	12.30	GA
REMEDY HERBICIDE Total	2.00	GA
LORSBAN 4E-HF Total	422.00	GA
TENKOZ TRIFLURALIN 4 EMULSIFIABLE CONCEN Total	220.56	GA
SUCCESS Total	6.59	GA
LORSBAN-75WG Total	734.74	LB
RALLY 40 WSP Total	378.76	LB
GOAL 2XL Total	115.26	GA
INTREPID 2F Total	104.10	GA
GOALTENDER Total	1.80	GA
DIAZINON AG 500 Total	98.20	GA
DIAZINON 50W Total	156.20	LB
FIRST CHOICE SLUGGO SNAIL AND SLUG BAIT Total	40.00	LB
JAVELIN WG BIOLOGICAL INSECTICIDE Total	365.10	LB
DEVRINOL 50-DF SELECTIVE HERBICIDE Total	1326.00	LB
NUFARM WEEDAR 64 BROADLEAF HERBICIDE Total	6.38	GA

Pesticide Use 2006

Pesticide Name	Quantity	Units
ACROBAT 50 WP FUNGICIDE Total	114.32	LB
ADMIRE PRO SYSTEMIC PROTECTANT Total	27.16	GA
AGRI-MEK 0.15 EC MITICIDE/INSECTICIDE Total	4.06	GA
ALIETTE WDG FUNGICIDE Total	0.38	GA
AMBUSH 25W INSECTICIDE WETTABLE POWDER Total	137.20	LB
AMMO 2.5 EC Total	63.20	GA
ASSAIL 70 WP INSECTICIDE Total	3.88	LB
ASSAIL 70WP INSECTICIDE Total	1.56	LB
BANVEL Total	5.25	GA
BRAVO ULTREX Total	494.90	LB
BRITZ B-85 Total	4.80	GA
BRITZ SILGLOW Total	22.24	GA
BUCTRIL 4 EC HERBICIDE Total	0.47	GA
CABRIO EG FUNGICIDE Total	286.71	LB
CHAMP FORMULA 2 FLOWABLE Total	117.00	GA
CLARITY HERBICIDE Total	0.44	GA
DANITOL 2.4 EC SPRAY Total	54.84	GA
DEVRINOL 50-DF SELECTIVE HERBICIDE Total	341.30	LB
DIAZINON 50W Total	319.90	LB
DIBROM 8 EMULSIVE Total	24.45	GA
DREXEL DIMETHOATE 4EC Total	1.80	GA
DREXEL SULFUR 90W Total	96.00	LB
DU PONT ASANA XL INSECTICIDE Total	0.63	GA
DU PONT AVAUNT INSECTICIDE Total	13.51	GA
DU PONT GLEAN FERTILIZER COMPATIBLE HERB Total	0.16	GA
DU PONT KROVAR I DF HERBICIDE Total	40.00	LB
DUPONT MANEX FUNGICIDE Total	49.82	GA
ELITE 45 DF Total	1.41	GA
ENDURA FUNGICIDE Total	2.46	GA
FIRST CHOICE BREAK-THRU Total	25.15	GA
FIRST CHOICE GAVICIDE-C Total	140.00	GA
FIRST CHOICE NO FOAM B Total	49.81	GA
FIRST CHOICE SLUGGO SNAIL AND SLUG BAIT Total	100.00	LB
FIRST CHOICE SPREADER STICKER Total	25.06	GA
FLINT Total	5.63	LB
FLINT FUNGICIDE Total	79.00	LB
FULFILL Total	82.96	LB
GARLON 4 HERBICIDE Total	2.19	GA
GLYFOS HERBICIDE Total	6.75	GA
GOAL 2XL Total	26.00	GA
GOALTENDER Total	7.26	GA
INTREPID 2F Total	61.31	GA
KOCIDE DF Total	14.40	LB
KUMULUS DF Total	656.00	LB
LI 700 Total	13.03	GA
LORSBAN 4E-HF Total	19.38	GA
LORSBAN-75WG Total	80.00	LB
MANEB 75DF DRY FLOWABLE FUNGICIDE Total	39.20	LB

MANEX Total	336.57	GA
METASYSTOX-R 2 ORNAMENTAL INSECTICIDE Total	30.71	GA
MICROTHIOL DISPERSS MICRONIZED WETTABLE Total	6400.20	LB
MILLER NU-FILM-P Total	3.52	GA
MSR SPRAY CONCENTRATE Total	56.00	GA
MUSTANG 1.5 EW INSECTICIDE Total	15.54	GA
MUSTANG INSECTICIDE Total	120.65	GA
NO FOAM B Total	0.95	GA
NUFARM WEEDAR 64 BROADLEAF HERBICIDE Total	37.77	GA
OMNI OIL 6-E Total	103.84	GA
PREFAR 4-E Total	55.98	GA
PRINCEP CALIBER 90 HERBICIDE Total	20.00	LB
PRISTINE FUNGICIDE Total	35.88	GA
PROVADO 1.6 FLOWABLE INSECTICIDE Total	3.92	GA
PYRELLIN E.C. Total	16.20	GA
RALLY 40 WSP Total	100.00	LB
RALLY 40W AGRICULTURAL FUNGICIDE IN WATE Total	11.25	LB
RIDOMIL GOLD EC Total	3.37	GA
ROUNDUP ORIGINAL MAX HERBICIDE Total	117.00	GA
ROUNDUP ULTRA HERBICIDE Total	30.00	GA
SILWET L-77 Total	0.20	GA
SONATA Total	81.85	GA
SOVRAN FUNGICIDE Total	117.00	LB
SUCCESS Total	10.83	GA
TELONE C-35 CA Total	1152.50	GA
TENKOZ TRIFLURALIN 4 EMULSIFIABLE CONCEN Total	9.33	GA
THIOLUX DRY FLOWABLE MICRONIZED SULFUR Total	540.00	LB
TRIFLURALIN HF Total	227.50	LB
TRIPLELINE FOAM-AWAY Total	0.06	GA
WARRIOR INSECTICIDE WITH ZEON TECHNOLOGY Total	6.19	GA
WEEDAXE HERBICIDE Total	58.00	GA