RECLAMATION

Managing Water in the West

Final Technical Memorandum No. 3.0

Santa Margarita River Conjunctive Use Project

U.S. Department of the Interior
Bureau of Reclamation

April 2007

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Final Technical Memorandum No. 3.0

Santa Margarita River Conjunctive Use Project

Diversion Water Quality Monitoring

Prepared by:

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Prepared for:

Bureau of Reclamation
Southern California Area Office

U.S. Department of the Interior
Bureau of Reclamation

April 2007

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DIVERSION WATER QUALITY MONITORING

This memorandum summarizes the results of a surface water quality data acquisition program in the Santa Margarita River Basin at Marine Corps Base Camp Pendleton (CPEN). Monitoring was conducted at three locations in the vicinity of Lake O'Neill (LON). Eight months of continuous data have been collected for temperature, dissolved oxygen, turbidity, pH, conductivity, and chlorophyll, with a sampling interval of 60 minutes, using the Extended Deployment System (EDS) 6600 from YSI Environmental. Monitored sites and monitoring periods are listed in table 1.

Figure 1 shows the locations of the monitoring sites.

Principles of operation of the EDS 6600 are detailed in Appendix A. The installation procedure was similar for each monitoring site and was designed to satisfy the following requirements:

- Full submersion of the instrument's sensors into the water.
- Protection of the instrument from physical damage.
- Maintenance of un-impeded flow conditions at the instrument's sensors.

A perforated 6-inch-diameter polyvinylchloride (PVC) pipe was installed at each site to protect the instrument. The water quality instrument housing was lowered into the pipe below the water surface. Figures 2, 3, and 4 are photographs of the installation of the EDS 6600 at the diversion ditch, boat rental dock, and lake outlet, respectively.

Table 1. Water Quality Monitoring Schedule

Location	Date	Temperature	Dissolved Oxygen	pH	Turbidity	Specific Conductance	Chlorophyll
Diversion Ditch	3/1/06 – 5/31/06	✓	✓	✓	✓	✓	
Diversion Ditch	8/1/06 – 9/13/06	✓	✓	✓	✓	✓	✓
LON, Boat Rental Dock, 3 feet below surface	9/13/06 – 10/4/06	✓	✓	✓	✓	✓	✓
LON, Outlet, lake floor	10/5/06 – 11/1/06	✓	✓	✓	✓	✓	✓
Diversion Ditch	11/2/06 – 12/31/06	✓	✓	✓	✓	✓	✓

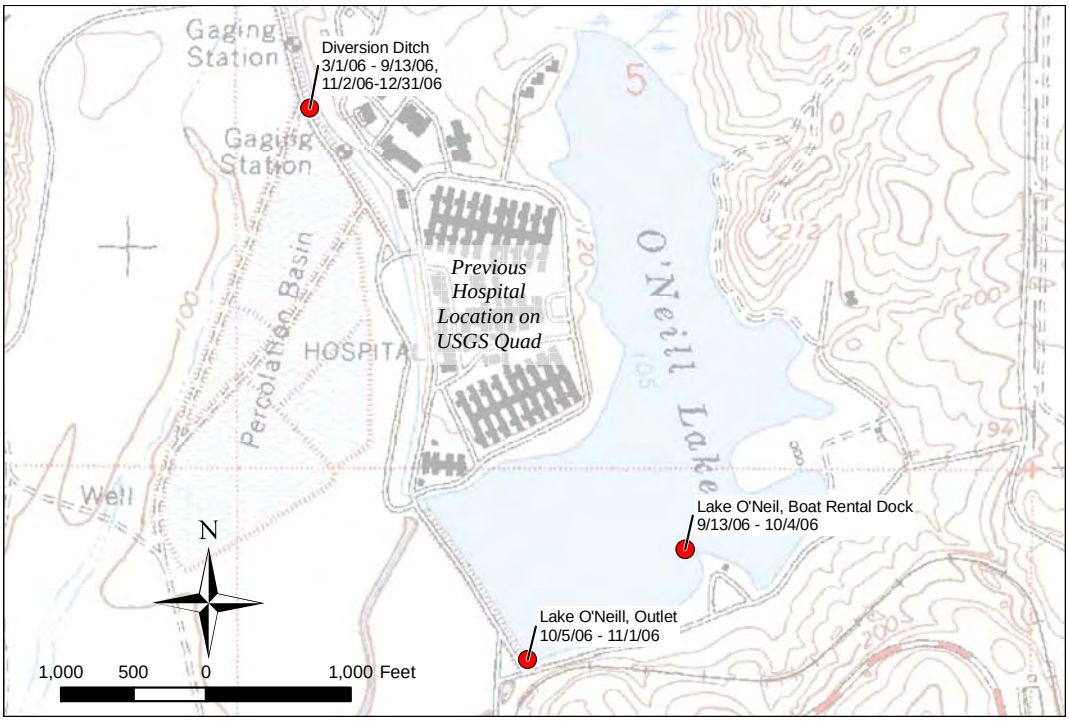


Figure 1. Monitoring Locations.

Figure 2. YSI Drawing of Suggested Installation (left). EDS 6600 Installation in Diversion Ditch by Stetson, March 1, 2006 (right).

Figure 3. EDS 6600 Installation at the Lake O'Neill Boat Rental Dock, September 13, 2006. Red arrow (left) shows monitoring location.

Figure 4. EDS 6600 Installation at the Lake O'Neill Outlet, October 5, 2006.

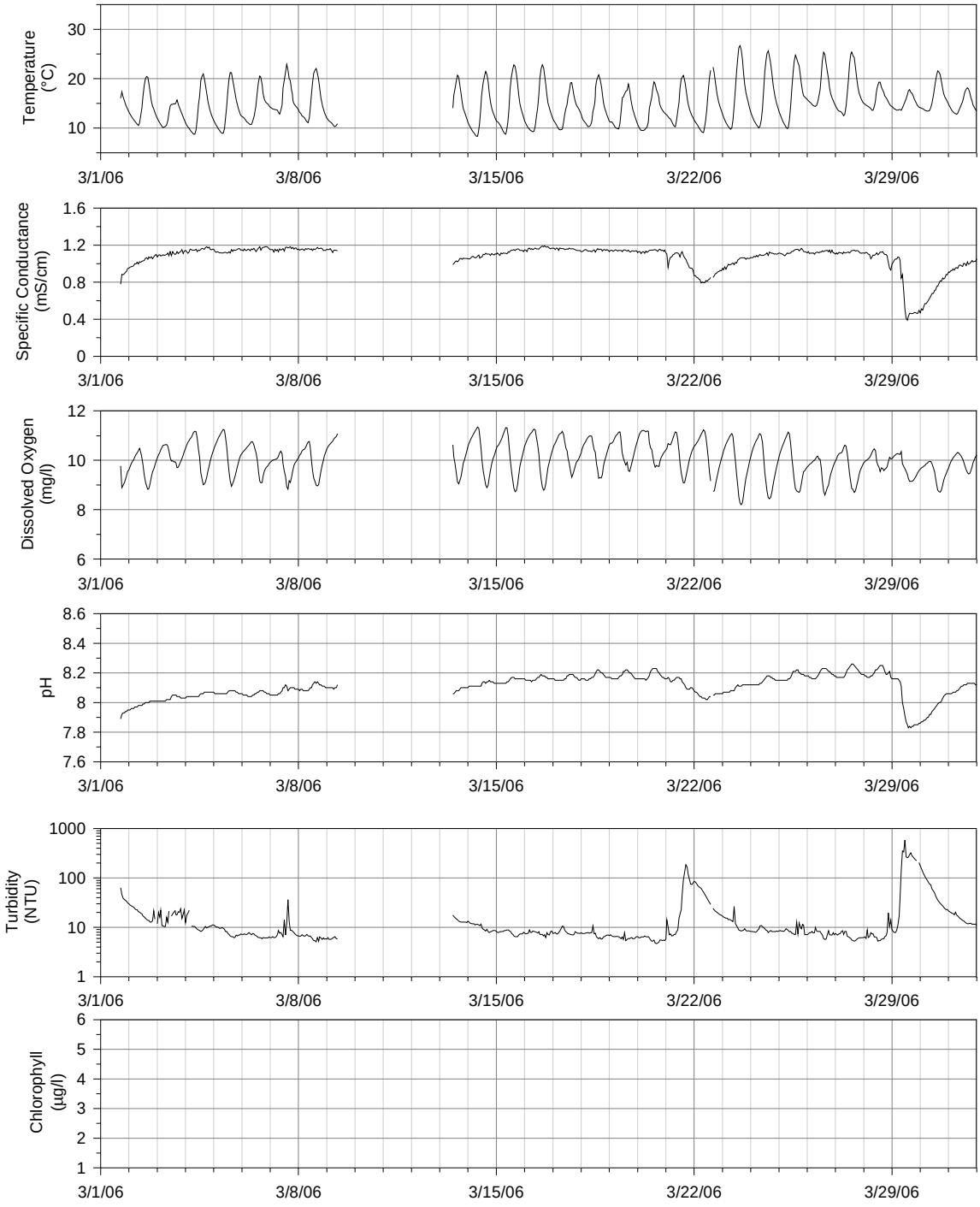
The EDS 6600 measures temperature, dissolved oxygen, pH, and turbidity directly. Total chlorophyll and total dissolved solids (TDS) are measured indirectly using fluorescence and specific conductance measurements, respectively. A linear relationship was assumed to convert between TDS and specific conductance and between total chlorophyll (A and B) and measured florescence. Grab samples were used to calibrate the relationship between the direct and indirect constituents. Water grab samples were collected by Stetson Engineers and sent to a California State certified analytical laboratory (Enviromatrix Analytical, Inc. in San Diego, California) for chlorophyll and TDS analysis. These laboratory results were correlated to the EDS 6600 field measurements: the laboratory measurement of chlorophyll was correlated to the simultaneous field measurement of fluorescence, and the laboratory measurement of TDS was correlated to the simultaneous field measurement of specific conductance. Once the relationship between the EDS 6600 and laboratory measurements was established, continuous records of chlorophyll and TDS were generated based on the continuous field measurements of fluorescence and specific conductance measurements, respectively.

Grab samples were taken at the beginning and end of every monitoring period for each site. Additional intermediate grab samples were collected and analyzed during extended monitoring periods to cross-check continuous data. Samples were also taken with the Dissolved Oxygen Sampler (#1962) from Hach Company. Laboratory analyses were performed for dissolved oxygen, turbidity, pH, conductivity, TDS, and chlorophyll. Laboratory reports for grab samples are presented in Appendix B.

Data processing included the removal of data “noise” (random spikes), as well as data collected when the EDS 6600 was not submerged in water. Spikes in turbidity and chlorophyll data can be caused by temporary soiling of the optical sensors. Single data points were identified as noise and removed when their values were unusually high and had no correlation to previous and successive readings for the same parameter. A linear “fouling” drift correction was applied to the turbidity and chlorophyll data recorded by the EDS 6600, by comparison with laboratory measurements. All data presented in graphs and tables of this technical memorandum, as well as the electronically submitted data, have undergone the processing steps that are listed above.

Hourly data are presented by month in figures 5 through 13 and are delivered in electronic format. In addition, daily minimum and maximum values for each parameter are presented in tables 2 through 22. Results of laboratory analyses for grab samples are summarized in tables 23 through 25.

Graphs, Hourly Data



Note: Instrument was removed from March 9, 2006 to March 13, 2006 for maintenance work on Ditch.

Figure 5. Diversion Ditch, March 2006, Hourly Surface Water Data.

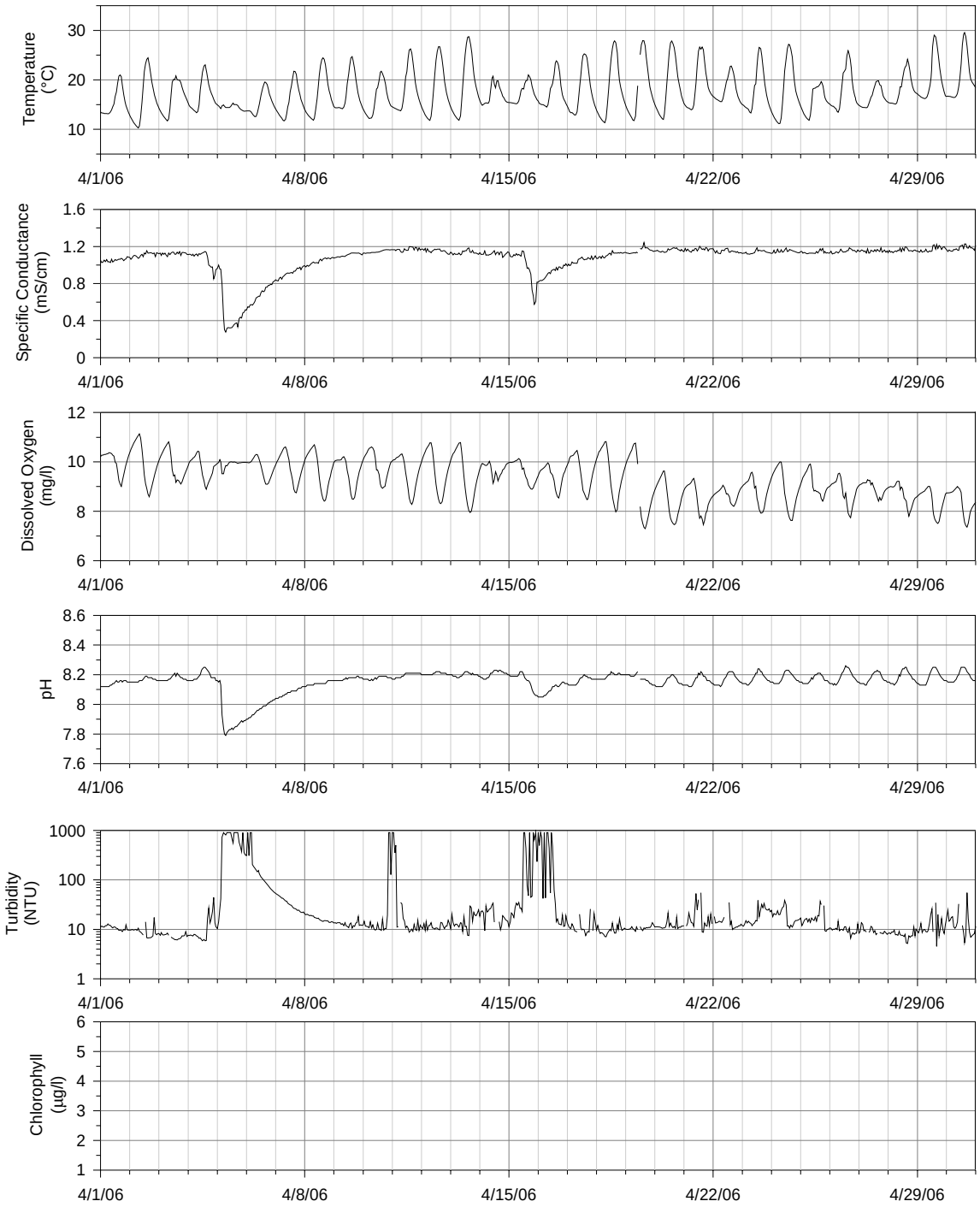


Figure 6. Diversion Ditch, April 2006, Hourly Surface Water Data.

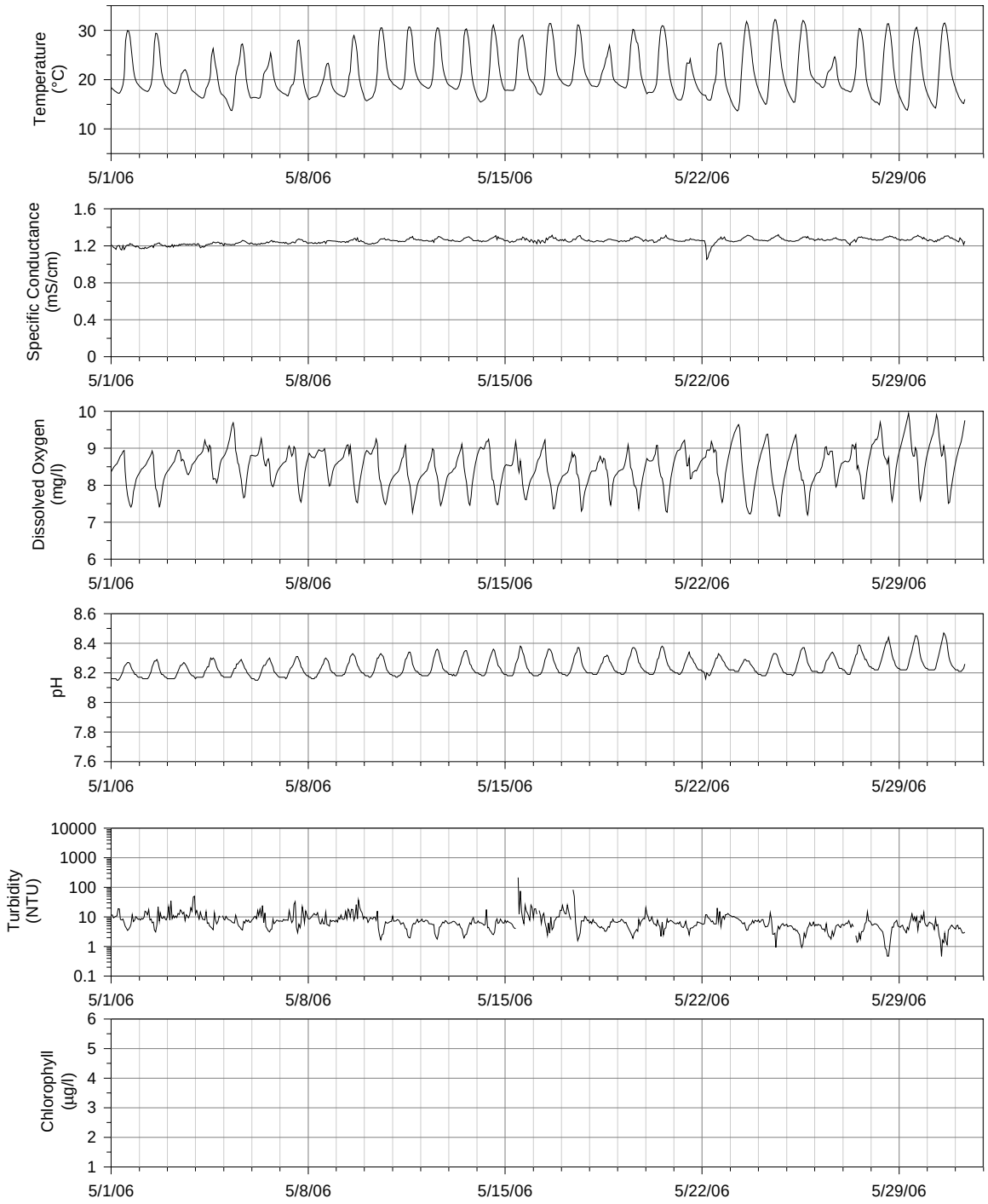


Figure 7. Diversion Ditch, May 2006, Hourly Surface Water Data.

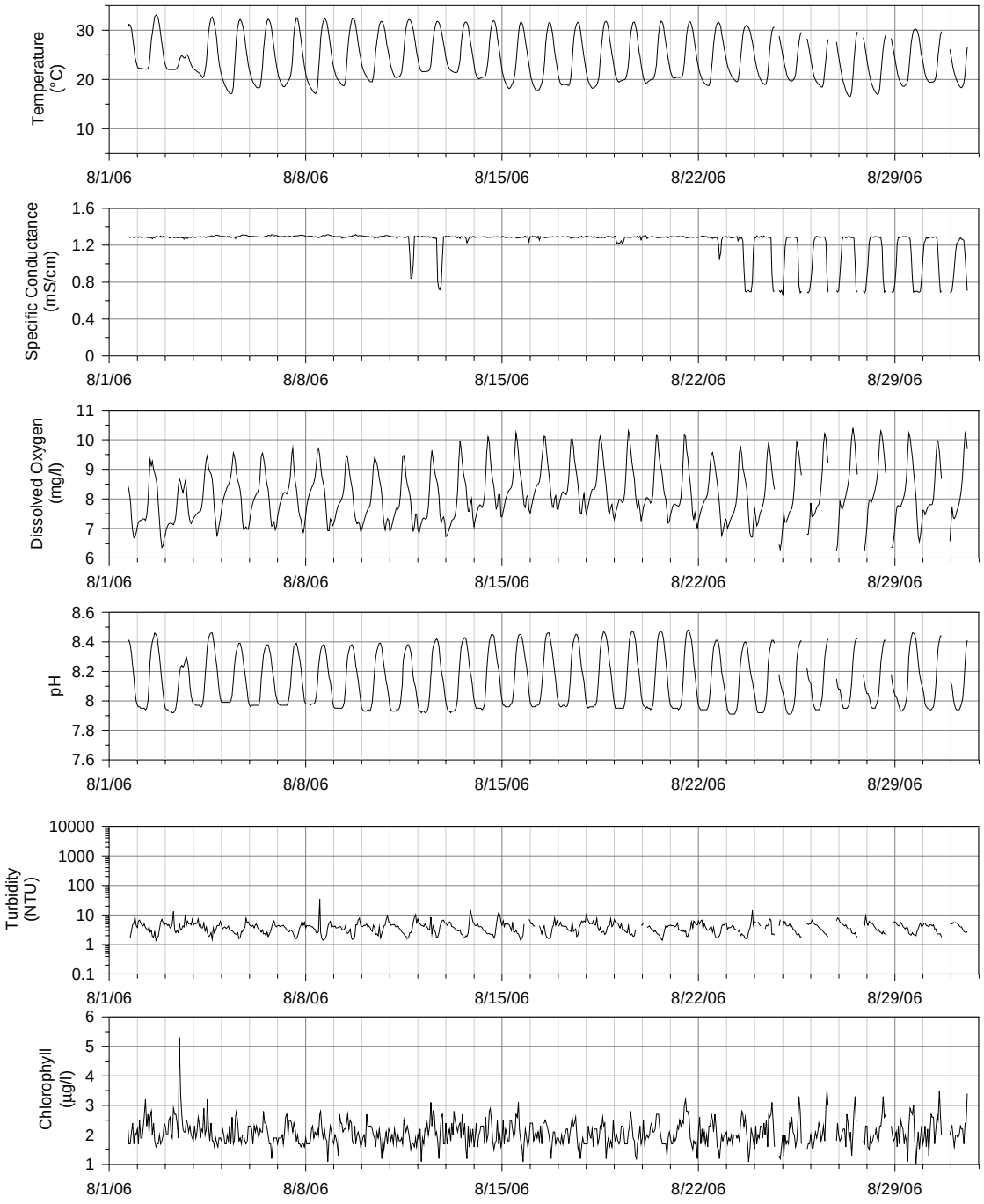
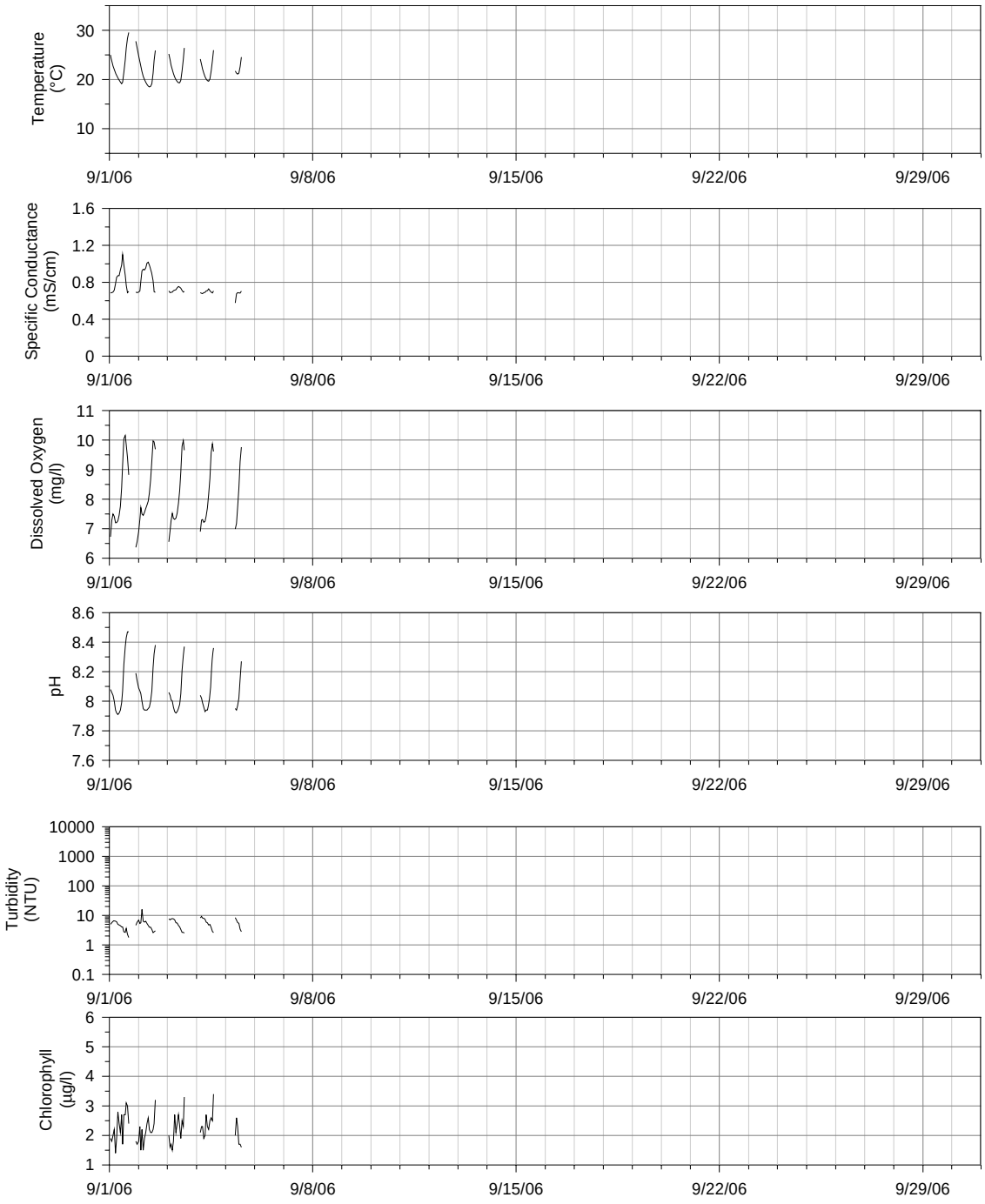


Figure 8. Diversion Ditch, August 2006, Hourly Surface Water Data.



Note: No flow in Diversion Ditch after September 5, 2006. Instrument was moved to Lake O'Neill boat dock on September 13, 2006.

Figure 9. Diversion Ditch, September 2006, Hourly Surface Water Data.

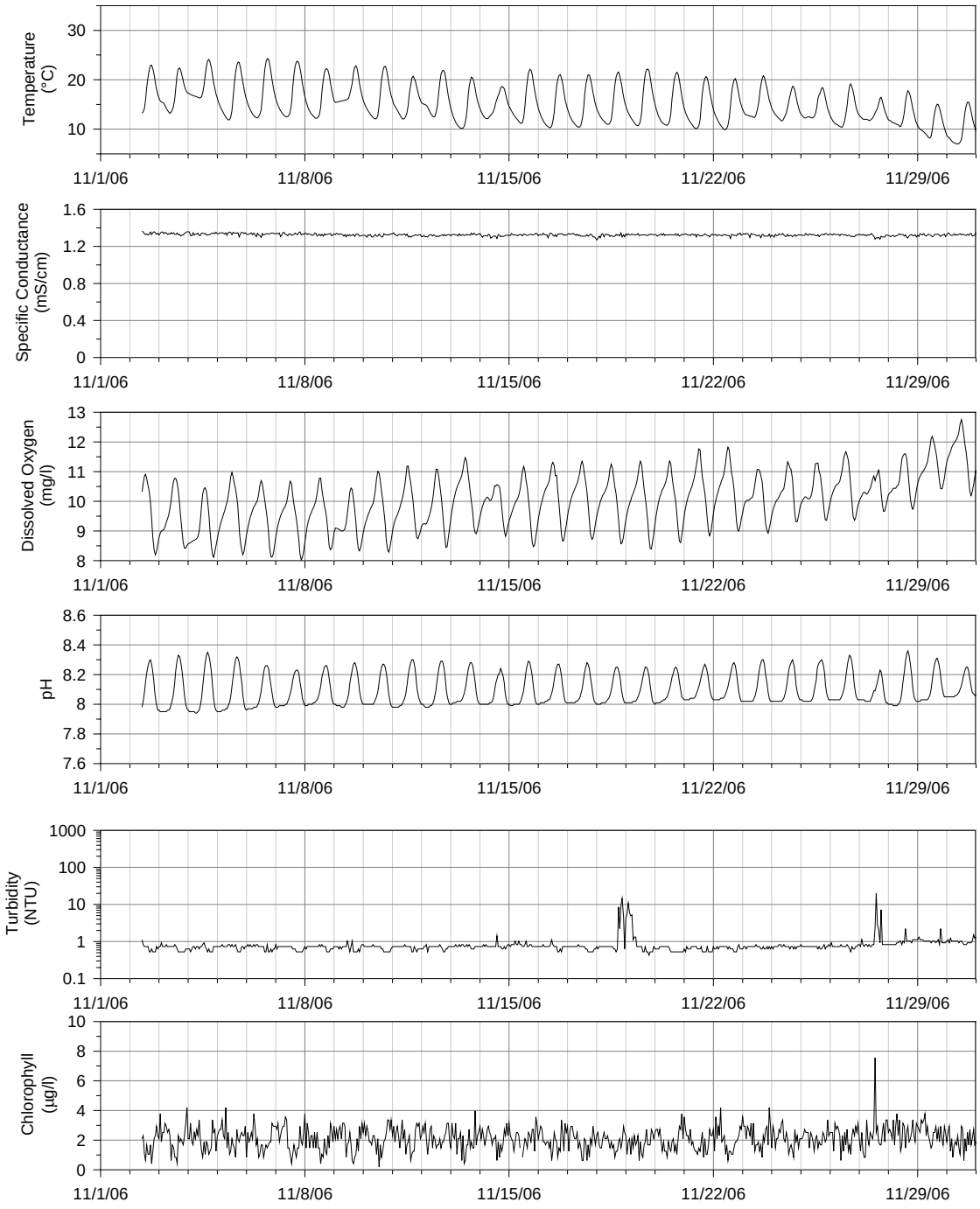


Figure 10. Diversion Ditch, November 2006, Hourly Surface Water Data.

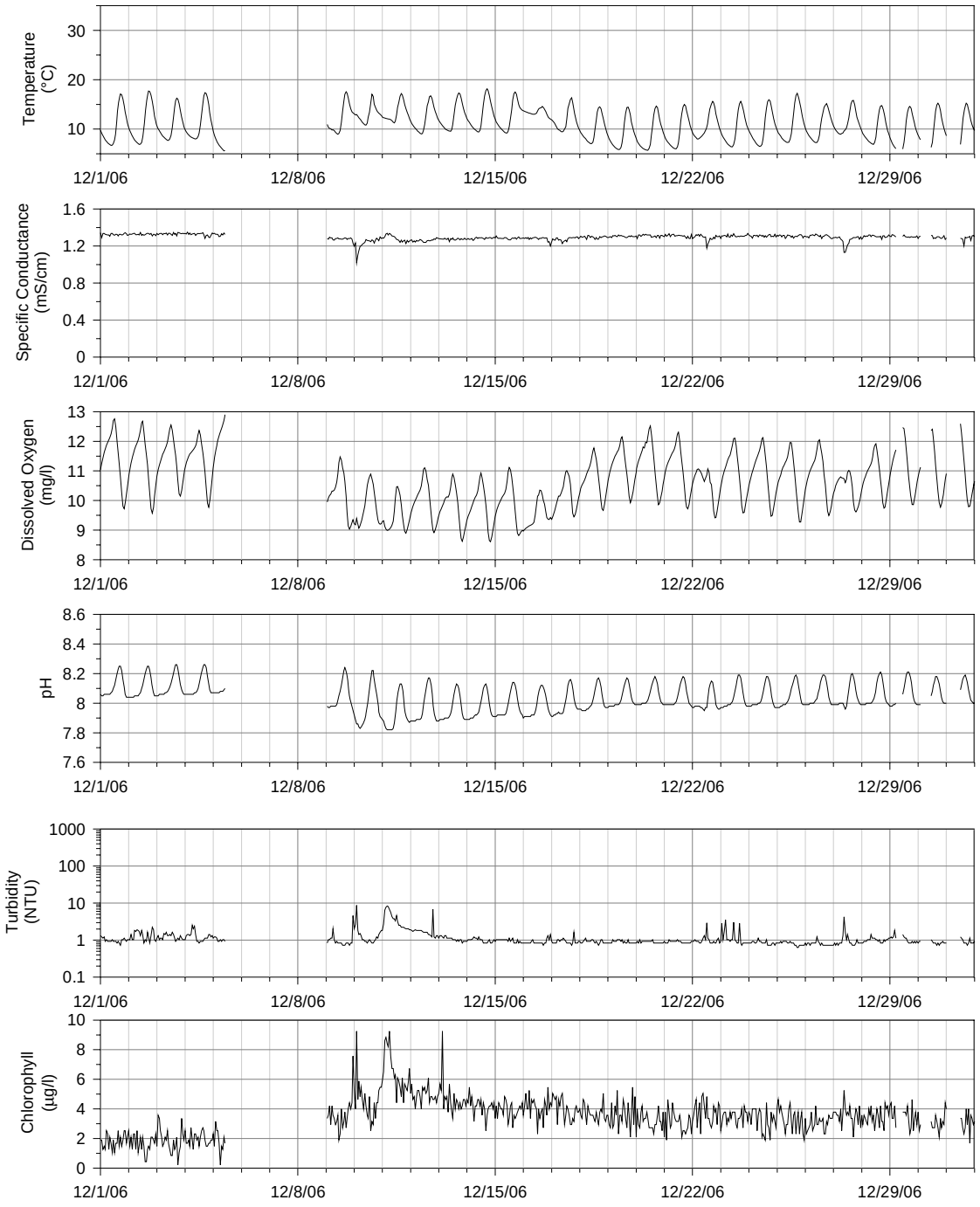
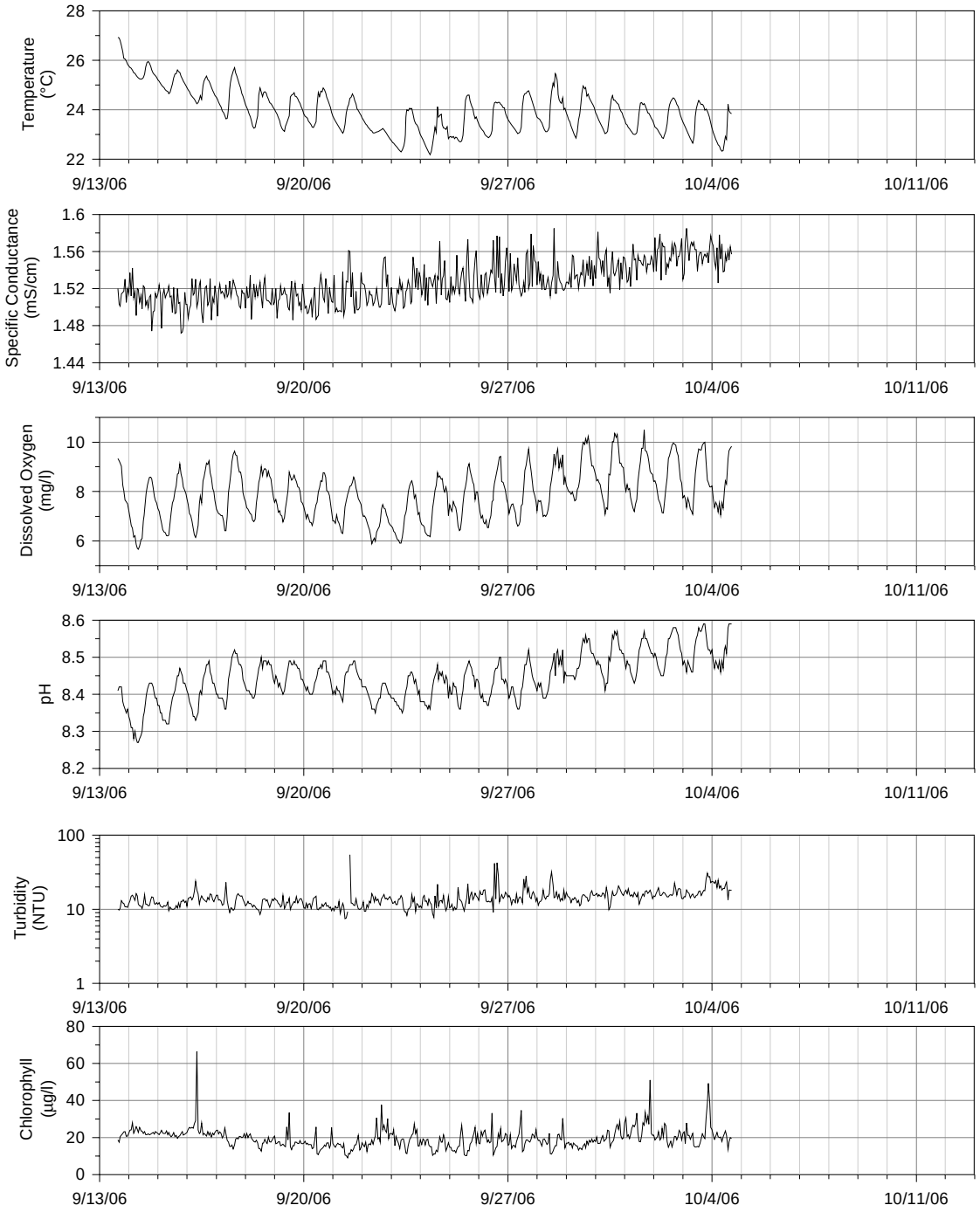
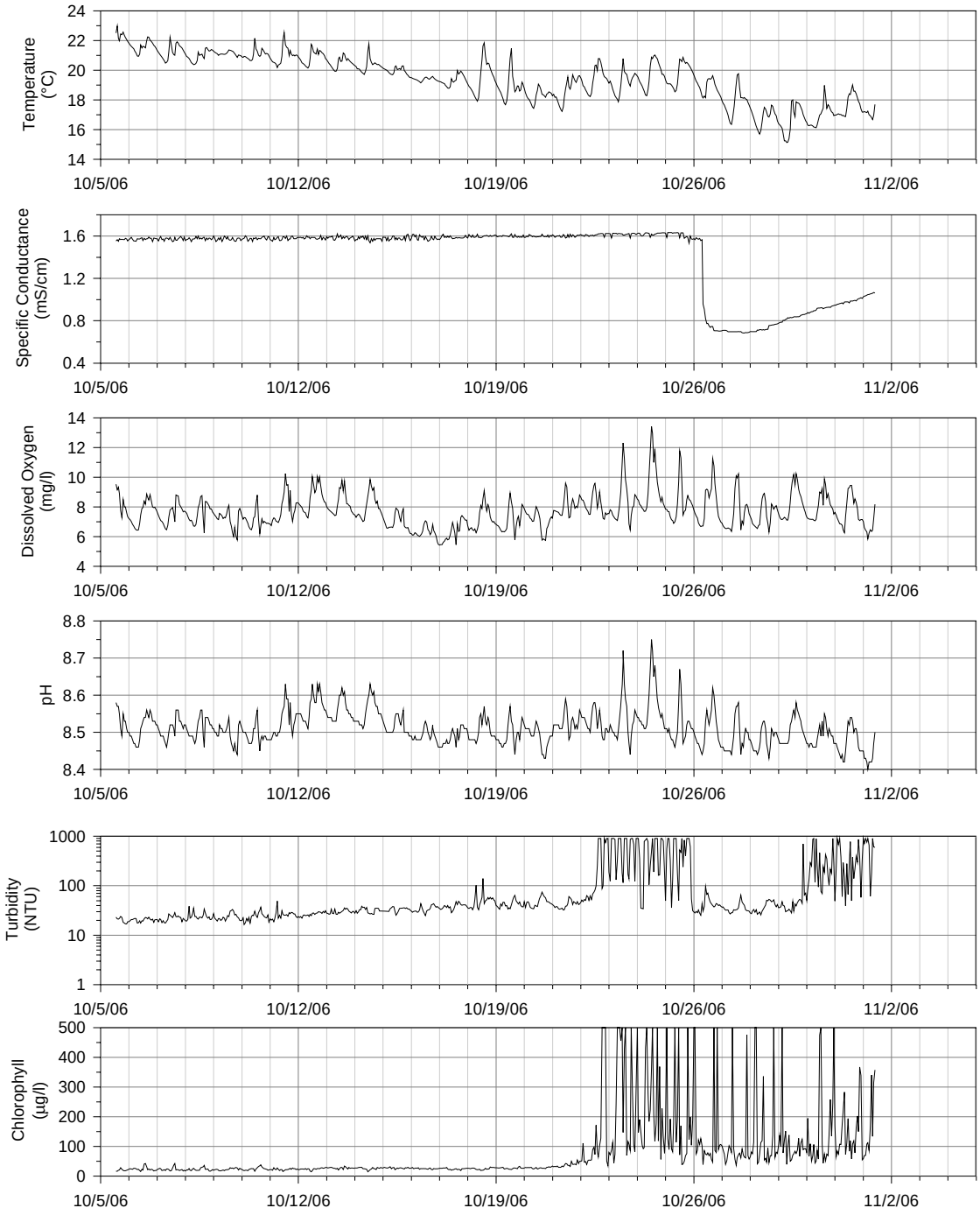


Figure 11. Diversion Ditch, December 2006, Hourly Surface Water Data.



Note: Instrument was moved to Lake O'Neill outlet on October 4, 2006.

Figure 12. Lake O'Neill Boat Rental Dock, September 13 – October 5, 2006, Hourly Surface Water Data.



Note: Instrument was moved to Diversion Ditch on November 1, 2006.

Figure 13. Lake O'Neill Outlet, October 5 – November 1, 2006, Hourly Surface Water Data.

Tables, Daily Minimum and Maximum Values

Table 2. Diversion Ditch, Daily Data
Calendar Year 2006
Temperature, Degrees Celsius (°C)

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	January		February		March		April		May		June	
1	---	---	---	---	17.3	13.7	21.0	13.1	29.9	17.2	---	---
2	---	---	---	---	20.5	10.5	24.5	10.3	29.4	17.6	---	---
3	---	---	---	---	15.7	10.1	20.8	11.7	22.0	17.2	---	---
4	---	---	---	---	21.0	8.8	23.1	13.4	26.3	16.2	---	---
5	---	---	---	---	21.2	9.0	15.3	13.6	27.3	13.7	---	---
6	---	---	---	---	20.5	10.7	19.6	12.5	25.4	16.2	---	---
7	---	---	---	---	22.9	12.8	21.7	11.7	28.0	16.7	---	---
8	---	---	---	---	22.0	11.1	24.5	11.9	23.3	15.9	---	---
9	---	---	---	---	12.0	10.3	24.7	14.2	28.9	16.5	---	---
10	---	---	---	---	---	---	21.7	12.2	30.5	15.7	---	---
11	---	---	---	---	---	---	26.2	13.7	30.7	18.1	---	---
12	---	---	---	---	---	---	26.7	11.8	30.5	18.2	---	---
13	---	---	---	---	20.7	11.8	28.7	11.9	30.3	17.3	---	---
14	---	---	---	---	21.5	8.4	20.8	14.9	31.1	15.5	---	---
15	---	---	---	---	22.8	8.8	21.0	15.2	29.1	17.8	---	---
16	---	---	---	---	22.8	9.3	23.8	14.5	31.4	16.9	---	---
17	---	---	---	---	19.2	9.7	25.2	12.9	31.1	18.7	---	---
18	---	---	---	---	20.7	10.3	27.9	11.3	27.0	18.6	---	---
19	---	---	---	---	18.9	9.9	28.0	11.7	30.2	18.3	---	---
20	---	---	---	---	19.4	9.5	27.9	12.0	31.0	17.2	---	---
21	---	---	---	---	20.7	10.3	26.6	14.0	24.2	15.9	---	---
22	---	---	---	---	22.4	9.1	22.8	15.3	27.5	15.9	---	---
23	---	---	---	---	26.7	9.8	26.6	13.3	31.8	13.7	---	---
24	---	---	---	---	25.6	10.1	27.2	11.1	32.2	15.0	---	---
25	---	---	---	---	24.8	9.9	19.6	11.9	32.0	15.4	---	---
26	---	---	---	---	25.4	14.4	25.9	13.4	24.7	18.3	---	---
27	---	---	---	---	25.4	12.5	19.8	14.4	30.4	17.2	---	---
28	---	---	---	---	19.3	13.6	24.2	15.1	31.4	14.9	---	---
29	---	---	---	---	17.8	13.6	29.0	16.2	30.6	13.8	---	---
30	---	---	---	---	21.6	13.4	29.6	16.4	31.5	14.3	---	---
31	---	---	---	---	18.2	12.8	---	---	18.3	15.2	---	---
Month	---	---	---	---	26.7	8.4	29.6	10.3	32.2	13.7	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 2. Diversion Ditch, Daily Data (continued)
Calendar Year 2006
Temperature, °C

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	31.2	23.5	29.5	19.2	---	---	---	---	17.1	6.7
2	---	---	33.1	22.1	25.9	18.5	---	---	23.0	13.2	17.7	6.9
3	---	---	25.0	22.0	26.5	19.3	---	---	22.4	13.2	16.3	7.7
4	---	---	32.7	20.4	26.0	19.7	---	---	24.1	16.3	17.3	8.0
5	---	---	32.2	17.0	24.6	21.1	---	---	23.6	11.9	9.6	5.6
6	---	---	32.2	18.2	---	---	---	---	24.3	12.3	---	---
7	---	---	32.5	18.5	---	---	---	---	23.8	12.5	---	---
8	---	---	32.3	17.2	---	---	---	---	22.3	12.2	---	---
9	---	---	32.4	18.8	---	---	---	---	22.8	15.4	17.6	8.9
10	---	---	31.8	19.5	---	---	---	---	22.7	12.1	17.1	10.8
11	---	---	32.2	20.4	---	---	---	---	20.7	12.0	17.2	11.3
12	---	---	31.8	21.6	---	---	---	---	21.9	12.5	16.8	9.0
13	---	---	31.7	21.4	---	---	---	---	20.5	10.2	17.3	9.6
14	---	---	31.9	20.1	---	---	---	---	18.7	12.1	18.2	9.4
15	---	---	31.7	18.2	---	---	---	---	22.1	11.1	17.5	9.2
16	---	---	31.6	17.7	---	---	---	---	21.0	10.4	14.6	12.0
17	---	---	31.7	18.8	---	---	---	---	21.0	10.4	16.3	9.5
18	---	---	31.8	18.2	---	---	---	---	21.6	11.0	14.5	7.1
19	---	---	31.6	19.4	---	---	---	---	22.2	10.7	14.5	5.9
20	---	---	31.8	19.3	---	---	---	---	21.5	10.8	14.7	5.7
21	---	---	31.7	20.2	---	---	---	---	20.6	10.1	15.0	6.0
22	---	---	31.6	18.8	---	---	---	---	20.2	9.9	15.6	8.0
23	---	---	31.0	19.5	---	---	---	---	20.8	12.4	15.6	6.4
24	---	---	30.6	18.9	---	---	---	---	18.7	11.7	16.0	6.5
25	---	---	29.6	19.7	---	---	---	---	18.4	12.3	17.2	7.3
26	---	---	28.2	18.5	---	---	---	---	19.2	10.4	15.1	7.3
27	---	---	29.7	16.6	---	---	---	---	16.5	11.8	15.8	8.9
28	---	---	29.1	17.0	---	---	---	---	17.8	10.5	14.8	6.9
29	---	---	30.2	18.6	---	---	---	---	15.0	8.2	14.6	6.0
30	---	---	29.8	19.4	---	---	---	---	15.5	7.0	15.2	6.3
31	---	---	26.5	18.3	---	---	---	---	---	---	15.3	6.9
Month	---	---	33.1	16.6	29.5	18.5	---	---	24.3	7.0	18.2	5.6

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 3. Diversion Ditch, Daily Data
Calendar Year 2006
Dissolved Oxygen, milligrams per liter (mg/L)

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	January		February		March		April		May		June	
1	---	---	---	---	9.8	8.9	10.4	9.0	8.9	7.4	---	---
2	---	---	---	---	10.5	8.8	11.1	8.6	8.9	7.4	---	---
3	---	---	---	---	10.6	9.7	10.8	9.1	9.0	8.3	---	---
4	---	---	---	---	11.2	9.0	10.4	8.9	9.2	8.1	---	---
5	---	---	---	---	11.3	9.0	10.1	9.5	9.7	7.7	---	---
6	---	---	---	---	10.8	9.1	10.3	9.1	9.3	8.0	---	---
7	---	---	---	---	10.4	8.8	10.6	8.8	9.1	7.6	---	---
8	---	---	---	---	10.8	9.0	10.7	8.4	9.0	8.0	---	---
9	---	---	---	---	11.1	10.5	10.2	8.5	9.1	7.5	---	---
10	---	---	---	---	---	---	10.6	8.9	9.3	7.5	---	---
11	---	---	---	---	---	---	10.3	8.3	9.1	7.3	---	---
12	---	---	---	---	---	---	10.8	8.3	9.0	7.5	---	---
13	---	---	---	---	10.6	9.1	10.8	8.0	9.1	7.5	---	---
14	---	---	---	---	11.4	8.9	10.0	9.1	9.2	7.5	---	---
15	---	---	---	---	11.3	8.7	10.1	8.9	9.2	7.6	---	---
16	---	---	---	---	11.3	8.8	10.0	8.5	9.2	7.4	---	---
17	---	---	---	---	11.2	9.3	10.5	8.5	8.9	7.3	---	---
18	---	---	---	---	11.0	9.3	10.8	8.0	8.8	7.5	---	---
19	---	---	---	---	11.2	9.6	10.8	7.3	9.1	7.4	---	---
20	---	---	---	---	11.2	9.7	9.6	7.5	9.1	7.3	---	---
21	---	---	---	---	11.2	9.1	9.3	7.5	9.2	8.2	---	---
22	---	---	---	---	11.2	8.7	9.1	8.2	9.2	7.5	---	---
23	---	---	---	---	11.1	8.2	9.6	7.9	9.6	7.2	---	---
24	---	---	---	---	11.1	8.4	10.0	7.6	9.4	7.2	---	---
25	---	---	---	---	11.1	8.7	9.9	8.4	9.4	7.2	---	---
26	---	---	---	---	10.2	8.6	9.5	7.7	9.0	8.0	---	---
27	---	---	---	---	10.6	8.7	9.3	8.4	9.1	7.6	---	---
28	---	---	---	---	10.5	9.5	9.2	7.8	9.7	7.6	---	---
29	---	---	---	---	10.4	9.2	9.0	7.5	9.9	7.6	---	---
30	---	---	---	---	10.0	8.7	9.0	7.4	9.9	7.5	---	---
31	---	---	---	---	10.3	9.5	---	---	9.8	8.6	---	---
Month	---	---	---	---	11.4	8.2	11.1	7.3	9.9	7.2	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 3. Diversion Ditch, Daily Data (continued)
Calendar Year 2006
Dissolved Oxygen, mg/L

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---			9.8	8.9	---	---	---	---	12.8	9.7
2	---	---			10.5	8.8	---	---	10.9	8.2	12.7	9.6
3	---	---			10.6	9.7	---	---	10.8	8.4	12.6	10.2
4	---	---			11.2	9.0	---	---	10.5	8.1	12.4	9.8
5	---	---			11.3	9.0	---	---	11.0	8.2	12.9	11.1
6	---	---			---	---	---	---	10.7	8.1	---	---
7	---	---			---	---	---	---	10.7	8.0	---	---
8	---	---			---	---	---	---	10.8	8.4	---	---
9	---	---			---	---	---	---	10.5	8.3	11.5	9.0
10	---	---			---	---	---	---	11.0	8.3	10.9	9.1
11	---	---			---	---	---	---	11.2	8.7	10.5	8.9
12	---	---			---	---	---	---	11.1	8.5	11.1	8.9
13	---	---			---	---	---	---	11.5	8.9	10.9	8.6
14	---	---			---	---	---	---	10.6	8.8	10.9	8.6
15	---	---			---	---	---	---	11.2	8.5	11.1	8.8
16	---	---			---	---	---	---	11.3	8.7	10.4	9.0
17	---	---			---	---	---	---	11.4	8.7	11.0	9.4
18	---	---			---	---	---	---	11.3	8.6	11.8	9.7
19	---	---			---	---	---	---	11.4	8.4	12.2	9.9
20	---	---			---	---	---	---	11.4	8.6	12.5	9.9
21	---	---			---	---	---	---	11.8	8.8	12.3	9.7
22	---	---			---	---	---	---	11.8	9.0	11.1	9.4
23	---	---			---	---	---	---	11.1	8.9	12.1	9.6
24	---	---			---	---	---	---	11.3	9.3	12.1	9.5
25	---	---			---	---	---	---	11.3	9.4	12.0	9.3
26	---	---			---	---	---	---	11.7	9.4	12.1	9.5
27	---	---			---	---	---	---	11.1	9.7	11.0	9.6
28	---	---			---	---	---	---	11.6	9.7	11.9	9.7
29	---	---			---	---	---	---	12.2	10.4	12.5	9.9
30	---	---			---	---	---	---	12.8	10.2	12.4	9.8
31	---	---			---	---	---	---	---	---	12.6	9.8
Month	---	---			---	---	---	---	12.8	8.0	12.9	8.6

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 4. Diversion Ditch, Daily Data
Calendar Year 2006
pH, Standard Units

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	January		February		March		April		May		June	
1	---	---	---	---	8.0	7.9	8.2	8.1	8.3	8.2	---	---
2	---	---	---	---	8.0	8.0	8.2	8.2	8.3	8.2	---	---
3	---	---	---	---	8.1	8.0	8.2	8.2	8.3	8.2	---	---
4	---	---	---	---	8.1	8.0	8.3	8.2	8.3	8.2	---	---
5	---	---	---	---	8.1	8.1	8.2	7.8	8.3	8.2	---	---
6	---	---	---	---	8.1	8.0	8.0	7.9	8.3	8.2	---	---
7	---	---	---	---	8.1	8.1	8.1	8.0	8.3	8.2	---	---
8	---	---	---	---	8.1	8.1	8.2	8.1	8.3	8.2	---	---
9	---	---	---	---	8.1	8.1	8.2	8.2	8.3	8.2	---	---
10	---	---	---	---	---	---	8.2	8.2	8.3	8.2	---	---
11	---	---	---	---	---	---	8.2	8.2	8.3	8.2	---	---
12	---	---	---	---	---	---	8.2	8.2	8.4	8.2	---	---
13	---	---	---	---	8.1	8.1	8.2	8.2	8.4	8.2	---	---
14	---	---	---	---	8.2	8.1	8.2	8.2	8.4	8.2	---	---
15	---	---	---	---	8.2	8.1	8.2	8.1	8.4	8.2	---	---
16	---	---	---	---	8.2	8.1	8.2	8.1	8.4	8.2	---	---
17	---	---	---	---	8.2	8.2	8.2	8.1	8.4	8.2	---	---
18	---	---	---	---	8.2	8.2	8.2	8.2	8.3	8.2	---	---
19	---	---	---	---	8.2	8.2	8.2	8.1	8.4	8.2	---	---
20	---	---	---	---	8.2	8.2	8.2	8.1	8.4	8.2	---	---
21	---	---	---	---	8.2	8.1	8.2	8.1	8.3	8.2	---	---
22	---	---	---	---	8.1	8.0	8.2	8.1	8.3	8.2	---	---
23	---	---	---	---	8.1	8.1	8.2	8.1	8.3	8.2	---	---
24	---	---	---	---	8.2	8.1	8.2	8.1	8.3	8.2	---	---
25	---	---	---	---	8.2	8.2	8.2	8.1	8.4	8.2	---	---
26	---	---	---	---	8.2	8.2	8.3	8.1	8.3	8.2	---	---
27	---	---	---	---	8.3	8.2	8.2	8.1	8.4	8.2	---	---
28	---	---	---	---	8.3	8.2	8.3	8.1	8.4	8.2	---	---
29	---	---	---	---	8.2	7.8	8.3	8.1	8.5	8.2	---	---
30	---	---	---	---	8.1	7.9	8.3	8.2	8.5	8.2	---	---
31	---	---	---	---	8.1	8.1	---	---	8.3	8.2	---	---
Month	---	---	---	---	8.3	7.8	8.3	7.8	8.5	8.2	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 4. Diversion Ditch, Daily Data (continued)
Calendar Year 2006
pH, Standard Units

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	8.4	8.0	8.5	7.9	---	---	---	---	8.3	8.0
2	---	---	8.5	7.9	8.4	7.9	---	---	8.3	8.0	8.3	8.0
3	---	---	8.3	7.9	8.4	7.9	---	---	8.3	8.0	8.3	8.1
4	---	---	8.5	8.0	8.4	7.9	---	---	8.4	7.9	8.3	8.1
5	---	---	8.4	8.0	8.3	7.9	---	---	8.3	8.0	8.1	8.1
6	---	---	8.4	8.0	---	---	---	---	8.3	8.0	---	---
7	---	---	8.4	8.0	---	---	---	---	8.2	8.0	---	---
8	---	---	8.4	8.0	---	---	---	---	8.3	8.0	---	---
9	---	---	8.4	8.0	---	---	---	---	8.3	8.0	8.2	8.0
10	---	---	8.4	7.9	---	---	---	---	8.3	8.0	8.2	7.8
11	---	---	8.4	7.9	---	---	---	---	8.3	8.0	8.1	7.8
12	---	---	8.4	7.9	---	---	---	---	8.3	8.0	8.2	7.9
13	---	---	8.4	7.9	---	---	---	---	8.3	8.0	8.1	7.9
14	---	---	8.5	7.9	---	---	---	---	8.2	8.0	8.1	7.9
15	---	---	8.5	8.0	---	---	---	---	8.3	8.0	8.1	7.9
16	---	---	8.5	8.0	---	---	---	---	8.3	8.0	8.1	7.9
17	---	---	8.5	8.0	---	---	---	---	8.3	8.0	8.2	7.9
18	---	---	8.5	8.0	---	---	---	---	8.3	8.0	8.2	8.0
19	---	---	8.5	8.0	---	---	---	---	8.3	8.0	8.2	8.0
20	---	---	8.5	7.9	---	---	---	---	8.3	8.0	8.2	8.0
21	---	---	8.5	7.9	---	---	---	---	8.3	8.0	8.2	8.0
22	---	---	8.4	7.9	---	---	---	---	8.3	8.0	8.2	8.0
23	---	---	8.4	7.9	---	---	---	---	8.3	8.0	8.2	8.0
24	---	---	8.4	7.9	---	---	---	---	8.3	8.0	8.2	8.0
25	---	---	8.4	7.9	---	---	---	---	8.3	8.0	8.2	8.0
26	---	---	8.4	7.9	---	---	---	---	8.3	8.0	8.2	8.0
27	---	---	8.4	8.0	---	---	---	---	8.2	8.0	8.2	8.0
28	---	---	8.4	8.0	---	---	---	---	8.4	8.0	8.2	8.0
29	---	---	8.5	7.9	---	---	---	---	8.3	8.0	8.2	8.0
30	---	---	8.4	7.9	---	---	---	---	8.3	8.1	8.2	8.0
31	---	---	8.4	7.9	---	---	---	---	---	---	8.2	8.0
Month	---	---	8.5	7.9	8.5	7.9	---	---	8.4	7.9	8.3	7.8

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 5. Diversion Ditch, Daily Data
Calendar Year 2006
Turbidity, Nephelometric Turbidity Units (NTU)

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	January		February		March		April		May		June	
1	---	---	---	---	63	31	13	9	19	4	---	---
2	---	---	---	---	30	13	18	7	22	3	---	---
3	---	---	---	---	24	10	9	6	50	7	---	---
4	---	---	---	---	22	8	44	6	17	4	---	---
5	---	---	---	---	11	6	>900	10	11	4	---	---
6	---	---	---	---	8	6	>900	57	24	3	---	---
7	---	---	---	---	37	6	54	22	33	3	---	---
8	---	---	---	---	7	5	21	14	14	5	---	---
9	---	---	---	---	7	6	18	11	37	7	---	---
10	---	---	---	---	---	---	>900	10	16	2	---	---
11	---	---	---	---	---	---	>900	9	11	2	---	---
12	---	---	---	---	---	---	15	10	8	2	---	---
13	---	---	---	---	18	13	30	8	10	2	---	---
14	---	---	---	---	13	8	34	9	18	3	---	---
15	---	---	---	---	9	7	>900	11	217	4	---	---
16	---	---	---	---	9	6	>900	12	19	2	---	---
17	---	---	---	---	11	7	26	8	83	2	---	---
18	---	---	---	---	11	6	16	7	8	3	---	---
19	---	---	---	---	8	5	14	9	9	2	---	---
20	---	---	---	---	7	5	22	10	20	2	---	---
21	---	---	---	---	185	6	56	9	7	2	---	---
22	---	---	---	---	86	18	35	10	20	5	---	---
23	---	---	---	---	26	8	39	12	11	4	---	---
24	---	---	---	---	11	8	39	11	14	1	---	---
25	---	---	---	---	13	7	37	9	7	1	---	---
26	---	---	---	---	10	6	15	7	6	2	---	---
27	---	---	---	---	9	5	14	8	15	1	---	---
28	---	---	---	---	20	5	11	5	8	1	---	---
29	---	---	---	---	584	8	35	5	14	3	---	---
30	---	---	---	---	179	23	55	5	9	0.5	---	---
31	---	---	---	---	22	12	---	---	5	3	---	---
Month	---	---	---	---	584	5	>900	5	217	0.5	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 5. Diversion Ditch, Daily Data (continued)
Calendar Year 2006
Turbidity, NTU

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	9	2	7	2	---	---	---	---	1	1
2	---	---	7	1	16	3	---	---	1	1	2	1
3	---	---	13	3	8	3	---	---	1	1	2	1
4	---	---	7	2	9	3	---	---	1	1	3	1
5	---	---	8	2	9	3	---	---	1	1	1	1
6	---	---	6	2	---	---	---	---	1	1	---	---
7	---	---	6	2	---	---	---	---	1	1	---	---
8	---	---	35	1	---	---	---	---	1	1	---	---
9	---	---	8	2	---	---	---	---	1	1	5	1
10	---	---	10	2	---	---	---	---	1	1	9	1
11	---	---	10	2	---	---	---	---	1	1	8	2
12	---	---	8	2	---	---	---	---	1	1	7	1
13	---	---	14	2	---	---	---	---	1	1	1	1
14	---	---	12	2	---	---	---	---	1	1	1	1
15	---	---	8	1	---	---	---	---	1	1	1	1
16	---	---	8	2	---	---	---	---	1	1	1	1
17	---	---	6	2	---	---	---	---	1	1	2	1
18	---	---	10	2	---	---	---	---	15	1	1	1
19	---	---	7	2	---	---	---	---	11	0	1	1
20	---	---	5	1	---	---	---	---	1	1	1	1
21	---	---	6	2	---	---	---	---	1	1	1	1
22	---	---	7	2	---	---	---	---	1	1	3	1
23	---	---	14	2	---	---	---	---	1	1	4	1
24	---	---	7	2	---	---	---	---	1	1	1	1
25	---	---	6	2	---	---	---	---	1	1	1	1
26	---	---	8	2	---	---	---	---	1	1	1	1
27	---	---	9	2	---	---	---	---	20	1	4	1
28	---	---	6	2	---	---	---	---	2	1	1	1
29	---	---	6	2	---	---	---	---	2	1	2	1
30	---	---	6	2	---	---	---	---	2	1	1	1
31	---	---	6	3	---	---	---	---	---	---	1	1
Month	---	---	35	1	16	2	---	---	20	0.4	9	1

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 6. Diversion Ditch, Daily Data
Calendar Year 2006
Specific Conductance, Microsiemens per Centimeter (µS/cm) at 25 °C

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	January		February		March		April		May		June	
1	---	---	---	---	945	779	1,090	1,025	1,225	1,154	---	---
2	---	---	---	---	1,097	951	1,153	1,061	1,231	1,166	---	---
3	---	---	---	---	1,152	1,072	1,143	1,090	1,223	1,185	---	---
4	---	---	---	---	1,182	1,110	1,146	851	1,241	1,180	---	---
5	---	---	---	---	1,163	1,113	999	277	1,259	1,202	---	---
6	---	---	---	---	1,184	1,130	827	515	1,258	1,211	---	---
7	---	---	---	---	1,182	1,124	988	829	1,274	1,219	---	---
8	---	---	---	---	1,174	1,140	1,082	979	1,257	1,224	---	---
9	---	---	---	---	1,161	1,120	1,131	1,075	1,284	1,235	---	---
10	---	---	---	---	---	---	1,165	1,125	1,278	1,217	---	---
11	---	---	---	---	---	---	1,198	1,134	1,300	1,243	---	---
12	---	---	---	---	---	---	1,178	1,118	1,301	1,237	---	---
13	---	---	---	---	1,059	988	1,182	1,108	1,298	1,245	---	---
14	---	---	---	---	1,110	1,051	1,153	1,082	1,308	1,243	---	---
15	---	---	---	---	1,159	1,088	1,151	574	1,294	1,235	---	---
16	---	---	---	---	1,192	1,131	1,013	814	1,315	1,221	---	---
17	---	---	---	---	1,169	1,140	1,099	989	1,310	1,238	---	---
18	---	---	---	---	1,162	1,125	1,155	1,069	1,271	1,242	---	---
19	---	---	---	---	1,148	1,124	1,241	1,123	1,303	1,241	---	---
20	---	---	---	---	1,154	1,108	1,188	1,135	1,314	1,236	---	---
21	---	---	---	---	1,130	926	1,201	1,139	1,277	1,246	---	---
22	---	---	---	---	926	790	1,181	1,124	1,296	1,053	---	---
23	---	---	---	---	1,064	934	1,185	1,117	1,315	1,243	---	---
24	---	---	---	---	1,125	1,062	1,184	1,125	1,320	1,251	---	---
25	---	---	---	---	1,165	1,084	1,177	1,123	1,302	1,246	---	---
26	---	---	---	---	1,147	1,100	1,201	1,119	1,286	1,256	---	---
27	---	---	---	---	1,145	1,103	1,181	1,127	1,298	1,209	---	---
28	---	---	---	---	1,129	930	1,185	1,132	1,307	1,259	---	---
29	---	---	---	---	1,071	388	1,184	1,138	1,314	1,257	---	---
30	---	---	---	---	883	469	1,177	1,146	1,305	1,243	---	---
31	---	---	---	---	1,033	907	---	---	1,285	1,212	---	---
Month	---	---	---	---	1,192	388	1,241	277	1,320	1,053	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 6. Diversion Ditch, Daily Data (continued)
Calendar Year 2006
Specific Conductance, (µS/cm) at 25 °C

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	1,294	1,281	1,101	685	---	---	---	---	1,343	1,290
2	---	---	1,301	1,269	1,017	689	---	---	1,361	1,321	1,347	1,309
3	---	---	1,293	1,267	755	687	---	---	1,358	1,310	1,346	1,308
4	---	---	1,309	1,281	727	676	---	---	1,358	1,314	1,348	1,281
5	---	---	1,312	1,272	703	576	---	---	1,353	1,303	1,341	1,303
6	---	---	1,294	1,286	---	---	---	---	1,345	1,296	---	---
7	---	---	1,301	1,287	---	---	---	---	1,357	1,306	---	---
8	---	---	1,293	1,283	---	---	---	---	1,342	1,308	---	---
9	---	---	1,309	1,276	---	---	---	---	1,339	1,302	1,294	1,230
10	---	---	1,312	1,275	---	---	---	---	1,336	1,299	1,298	1,017
11	---	---	1,300	837	---	---	---	---	1,346	1,297	1,339	1,226
12	---	---	1,303	716	---	---	---	---	1,327	1,300	1,291	1,238
13	---	---	1,297	1,225	---	---	---	---	1,343	1,312	1,287	1,248
14	---	---	1,296	1,283	---	---	---	---	1,337	1,285	1,296	1,261
15	---	---	1,299	1,236	---	---	---	---	1,341	1,313	1,309	1,265
16	---	---	1,299	1,254	---	---	---	---	1,343	1,293	1,294	1,200
17	---	---	1,298	1,275	---	---	---	---	1,338	1,292	1,299	1,225
18	---	---	1,299	1,279	---	---	---	---	1,346	1,269	1,313	1,270
19	---	---	1,299	1,214	---	---	---	---	1,337	1,316	1,318	1,289
20	---	---	1,304	1,271	---	---	---	---	1,337	1,309	1,327	1,278
21	---	---	1,299	1,280	---	---	---	---	1,334	1,302	1,332	1,278
22	---	---	1,302	1,055	---	---	---	---	1,343	1,285	1,327	1,177
23	---	---	1,293	695	---	---	---	---	1,338	1,293	1,336	1,283
24	---	---	1,300	700	---	---	---	---	1,337	1,299	1,326	1,284
25	---	---	1,289	670	---	---	---	---	1,339	1,306	1,323	1,282
26	---	---	1,298	691	---	---	---	---	1,335	1,306	1,330	1,278
27	---	---	1,299	684	---	---	---	---	1,337	1,278	1,303	1,131
28	---	---	1,295	690	---	---	---	---	1,335	1,291	1,320	1,270
29	---	---	1,294	690	---	---	---	---	1,337	1,304	1,321	1,293
30	---	---	1,290	689	---	---	---	---	1,344	1,311	1,314	1,272
31	---	---	1,281	686	---	---	---	---	---	---	1,314	1,201
Month	---	---	1,312	670	1,101	576	---	---	1,361	1,269	1,348	1,017

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 7. Diversion Ditch, Daily Data
Calendar Year 2006
Chlorophyll, Total (A+B), micrograms per liter (µg/L)

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	2.4	1.7	3.1	1.4	---	---	---	---	2.5	1.1
2	---	---	3.2	1.6	3.2	1.5	---	---	2.9	0.4	2.5	0.4
3	---	---	5.3	1.9	3.3	1.5	---	---	4.2	0.4	3.6	0.2
4	---	---	3.2	1.6	3.4	1.9	---	---	3.4	0.8	2.7	1.3
5	---	---	2.8	1.7	2.6	1.6	---	---	4.2	0.8	3.2	0.2
6	---	---	2.8	1.2	---	---	---	---	3.8	0.8	---	---
7	---	---	2.7	1.6	---	---	---	---	3.6	0.4	---	---
8	---	---	2.8	1.1	---	---	---	---	3.8	0.4	---	---
9	---	---	2.7	1.3	---	---	---	---	3.2	0.4	7.6	1.9
10	---	---	2.7	1.2	---	---	---	---	3.4	0.2	9.2	2.5
11	---	---	2.5	1.5	---	---	---	---	3.4	0.6	9.2	4.4
12	---	---	3.1	1.1	---	---	---	---	3.2	1.1	6.1	4.0
13	---	---	2.8	1.2	---	---	---	---	4.0	0.4	9.2	3.4
14	---	---	2.9	1.5	---	---	---	---	3.2	0.6	5.5	2.5
15	---	---	3.1	1.1	---	---	---	---	3.6	0.8	4.8	2.7
16	---	---	2.5	1.2	---	---	---	---	3.4	0.6	5.5	2.3
17	---	---	2.6	1.2	---	---	---	---	2.9	0.6	5.0	2.9
18	---	---	2.6	1.2	---	---	---	---	2.9	0.8	5.0	2.9
19	---	---	2.8	1.2	---	---	---	---	2.7	0.6	5.5	2.1
20	---	---	2.7	1.3	---	---	---	---	3.8	0.8	4.2	2.1
21	---	---	3.2	1.2	---	---	---	---	3.6	0.8	4.6	1.9
22	---	---	2.7	1.2	---	---	---	---	4.2	0.6	5.0	2.3
23	---	---	2.8	1.1	---	---	---	---	4.2	0.8	4.2	2.5
24	---	---	3.1	1.2	---	---	---	---	3.4	0.8	4.4	1.9
25	---	---	3.3	1.3	---	---	---	---	3.4	1.3	4.6	1.9
26	---	---	3.5	1.5	---	---	---	---	3.2	0.6	4.2	2.3
27	---	---	3.3	1.3	---	---	---	---	7.6	0.8	5.3	2.1
28	---	---	3.3	1.5	---	---	---	---	3.8	1.3	4.4	2.5
29	---	---	3.0	1.0	---	---	---	---	3.8	1.5	4.6	2.3
30	---	---	3.5	1.3	---	---	---	---	2.9	0.6	4.4	2.1
31	---	---	3.4	1.6	---	---	---	---	---	---	4.0	1.7
Month	---	---	5.3	1.0	3.4	1.4	---	---	7.6	0.2	9.2	0.2

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 8. Diversion Ditch, Daily Data
Calendar Year 2006
Total Dissolved Solids, mg/L

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	January		February		March		April		May		June	
1	---	---	---	---	601	496	693	652	779	734	---	---
2	---	---	---	---	698	605	734	675	783	742	---	---
3	---	---	---	---	733	682	727	693	778	754	---	---
4	---	---	---	---	752	706	729	541	789	751	---	---
5	---	---	---	---	740	708	636	176	801	765	---	---
6	---	---	---	---	753	719	526	328	800	770	---	---
7	---	---	---	---	752	715	629	527	811	776	---	---
8	---	---	---	---	747	725	688	623	800	779	---	---
9	---	---	---	---	739	713	720	684	817	786	---	---
10	---	---	---	---	---	---	741	716	813	774	---	---
11	---	---	---	---	---	---	762	721	827	791	---	---
12	---	---	---	---	---	---	749	711	828	787	---	---
13	---	---	---	---	674	629	752	705	826	792	---	---
14	---	---	---	---	706	669	734	688	832	791	---	---
15	---	---	---	---	737	692	732	365	823	786	---	---
16	---	---	---	---	758	720	644	518	837	777	---	---
17	---	---	---	---	744	725	699	629	833	788	---	---
18	---	---	---	---	739	716	735	680	809	790	---	---
19	---	---	---	---	730	715	790	714	829	790	---	---
20	---	---	---	---	734	705	755	722	836	786	---	---
21	---	---	---	---	719	589	764	725	813	793	---	---
22	---	---	---	---	589	503	751	715	824	670	---	---
23	---	---	---	---	677	594	754	711	837	791	---	---
24	---	---	---	---	716	676	753	716	840	796	---	---
25	---	---	---	---	741	690	749	714	829	792	---	---
26	---	---	---	---	730	700	754	712	818	799	---	---
27	---	---	---	---	728	702	754	717	826	769	---	---
28	---	---	---	---	718	592	760	720	832	801	---	---
29	---	---	---	---	681	247	777	724	836	800	---	---
30	---	---	---	---	562	298	781	729	830	791	---	---
31	---	---	---	---	657	577	---	---	818	771	---	---
Month	---	---	---	---	758	247	790	176	840	670	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 8. Diversion Ditch, Daily Data (continued)
Calendar Year 2006
Total Dissolved Solids, mg/L

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	823	815	700	436	---	---	---	---	854	821
2	---	---	828	807	647	438	---	---	866	840	857	833
3	---	---	823	806	480	437	---	---	864	833	856	832
4	---	---	833	815	463	430	---	---	864	836	858	815
5	---	---	835	809	447	366	---	---	861	829	853	829
6	---	---	837	818	---	---	---	---	856	825	---	---
7	---	---	833	819	---	---	---	---	863	831	---	---
8	---	---	836	816	---	---	---	---	854	832	---	---
9	---	---	837	812	---	---	---	---	852	828	823	783
10	---	---	831	811	---	---	---	---	850	826	826	647
11	---	---	827	533	---	---	---	---	856	825	852	780
12	---	---	829	456	---	---	---	---	844	827	821	788
13	---	---	825	779	---	---	---	---	854	835	819	794
14	---	---	825	816	---	---	---	---	851	818	825	802
15	---	---	826	786	---	---	---	---	853	835	833	805
16	---	---	826	798	---	---	---	---	854	823	823	763
17	---	---	826	811	---	---	---	---	851	822	826	779
18	---	---	826	814	---	---	---	---	856	807	835	808
19	---	---	826	772	---	---	---	---	851	837	838	820
20	---	---	830	809	---	---	---	---	851	833	844	813
21	---	---	826	814	---	---	---	---	849	828	847	813
22	---	---	828	671	---	---	---	---	854	818	844	749
23	---	---	823	442	---	---	---	---	851	823	850	816
24	---	---	827	445	---	---	---	---	851	826	844	817
25	---	---	820	426	---	---	---	---	852	831	842	816
26	---	---	826	440	---	---	---	---	849	831	846	813
27	---	---	826	435	---	---	---	---	851	813	829	720
28	---	---	824	439	---	---	---	---	849	821	840	808
29	---	---	823	439	---	---	---	---	851	830	840	823
30	---	---	821	438	---	---	---	---	855	834	836	809
31	---	---	815	436	---	---	---	---	---	---	836	764
Month	---	---	837	426	700	366	---	---	866	807	858	647

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 9. Lake O'Neill, Boat Rental Dock, Daily Data
Calendar Year 2006
Temperature, °C

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	24.3	23.0	---	---	---	---
2	---	---	---	---	---	---	24.5	22.8	---	---	---	---
3	---	---	---	---	---	---	24.4	22.7	---	---	---	---
4	---	---	---	---	---	---	24.2	22.3	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	26.9	25.8	---	---	---	---	---	---
14	---	---	---	---	26.0	25.2	---	---	---	---	---	---
15	---	---	---	---	25.6	24.7	---	---	---	---	---	---
16	---	---	---	---	25.4	24.2	---	---	---	---	---	---
17	---	---	---	---	25.7	23.6	---	---	---	---	---	---
18	---	---	---	---	24.9	23.3	---	---	---	---	---	---
19	---	---	---	---	24.7	23.1	---	---	---	---	---	---
20	---	---	---	---	24.9	23.3	---	---	---	---	---	---
21	---	---	---	---	24.6	23.1	---	---	---	---	---	---
22	---	---	---	---	23.7	22.8	---	---	---	---	---	---
23	---	---	---	---	24.1	22.3	---	---	---	---	---	---
24	---	---	---	---	24.1	22.2	---	---	---	---	---	---
25	---	---	---	---	24.6	22.7	---	---	---	---	---	---
26	---	---	---	---	24.3	22.9	---	---	---	---	---	---
27	---	---	---	---	24.8	23.0	---	---	---	---	---	---
28	---	---	---	---	25.5	23.1	---	---	---	---	---	---
29	---	---	---	---	25.0	22.9	---	---	---	---	---	---
30	---	---	---	---	24.6	23.0	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Month	---	---	---	---	26.9	22.2	24.5	22.3	---	---	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 10. Lake O'Neill, Boat Rental Dock, Daily Data
Calendar Year 2006
Dissolved Oxygen, mg/L

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	10.5	7.2	---	---	---	---
2	---	---	---	---	---	---	10.0	7.1	---	---	---	---
3	---	---	---	---	---	---	10.0	7.1	---	---	---	---
4	---	---	---	---	---	---	9.8	7.1	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	9.3	7.5	---	---	---	---	---	---
14	---	---	---	---	8.6	5.7	---	---	---	---	---	---
15	---	---	---	---	9.1	6.2	---	---	---	---	---	---
16	---	---	---	---	9.3	6.1	---	---	---	---	---	---
17	---	---	---	---	9.6	6.4	---	---	---	---	---	---
18	---	---	---	---	9.0	6.8	---	---	---	---	---	---
19	---	---	---	---	8.8	6.8	---	---	---	---	---	---
20	---	---	---	---	8.8	6.6	---	---	---	---	---	---
21	---	---	---	---	8.6	6.3	---	---	---	---	---	---
22	---	---	---	---	7.5	5.9	---	---	---	---	---	---
23	---	---	---	---	8.4	5.9	---	---	---	---	---	---
24	---	---	---	---	8.8	6.2	---	---	---	---	---	---
25	---	---	---	---	9.1	6.4	---	---	---	---	---	---
26	---	---	---	---	9.4	6.5	---	---	---	---	---	---
27	---	---	---	---	9.7	6.6	---	---	---	---	---	---
28	---	---	---	---	9.7	7.0	---	---	---	---	---	---
29	---	---	---	---	10.2	7.6	---	---	---	---	---	---
30	---	---	---	---	10.4	7.1	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Month	---	---	---	---	10.4	5.7	10.5	7.1	---	---	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 11. Lake O'Neill, Boat Rental Dock, Daily Data
Calendar Year 2006
pH, Standard Units

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	8.6	8.4	---	---	---	---
2	---	---	---	---	---	---	8.6	8.5	---	---	---	---
3	---	---	---	---	---	---	8.6	8.5	---	---	---	---
4	---	---	---	---	---	---	8.6	8.5	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	8.4	8.4	---	---	---	---	---	---
14	---	---	---	---	8.4	8.3	---	---	---	---	---	---
15	---	---	---	---	8.5	8.3	---	---	---	---	---	---
16	---	---	---	---	8.5	8.3	---	---	---	---	---	---
17	---	---	---	---	8.5	8.4	---	---	---	---	---	---
18	---	---	---	---	8.5	8.4	---	---	---	---	---	---
19	---	---	---	---	8.5	8.4	---	---	---	---	---	---
20	---	---	---	---	8.5	8.4	---	---	---	---	---	---
21	---	---	---	---	8.5	8.4	---	---	---	---	---	---
22	---	---	---	---	8.4	8.4	---	---	---	---	---	---
23	---	---	---	---	8.5	8.4	---	---	---	---	---	---
24	---	---	---	---	8.5	8.4	---	---	---	---	---	---
25	---	---	---	---	8.5	8.4	---	---	---	---	---	---
26	---	---	---	---	8.5	8.4	---	---	---	---	---	---
27	---	---	---	---	8.5	8.4	---	---	---	---	---	---
28	---	---	---	---	8.5	8.4	---	---	---	---	---	---
29	---	---	---	---	8.6	8.4	---	---	---	---	---	---
30	---	---	---	---	8.6	8.4	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Month	---	---	---	---	8.6	8.3	8.6	8.4	---	---	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 12. Lake O'Neill, Boat Rental Dock, Daily Data
Calendar Year 2006
Turbidity, NTU

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	19	12	---	---	---	---
2	---	---	---	---	---	---	23	14	---	---	---	---
3	---	---	---	---	---	---	31	14	---	---	---	---
4	---	---	---	---	---	---	25	13	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	13	10	---	---	---	---	---	---
14	---	---	---	---	16	10	---	---	---	---	---	---
15	---	---	---	---	13	10	---	---	---	---	---	---
16	---	---	---	---	24	11	---	---	---	---	---	---
17	---	---	---	---	23	9	---	---	---	---	---	---
18	---	---	---	---	14	9	---	---	---	---	---	---
19	---	---	---	---	15	10	---	---	---	---	---	---
20	---	---	---	---	15	10	---	---	---	---	---	---
21	---	---	---	---	54	8	---	---	---	---	---	---
22	---	---	---	---	16	9	---	---	---	---	---	---
23	---	---	---	---	16	8	---	---	---	---	---	---
24	---	---	---	---	22	8	---	---	---	---	---	---
25	---	---	---	---	22	9	---	---	---	---	---	---
26	---	---	---	---	42	9	---	---	---	---	---	---
27	---	---	---	---	28	12	---	---	---	---	---	---
28	---	---	---	---	32	11	---	---	---	---	---	---
29	---	---	---	---	18	11	---	---	---	---	---	---
30	---	---	---	---	21	10	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Month	---	---	---	---	54	8	31	12	---	---	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 13. Lake O'Neill, Boat Rental Dock, Daily Data
Calendar Year 2006
Specific Conductance, (µS/cm) at 25 °C

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	1,568	1,522	---	---	---	---
2	---	---	---	---	---	---	1,579	1,529	---	---	---	---
3	---	---	---	---	---	---	1,585	1,530	---	---	---	---
4	---	---	---	---	---	---	1,578	1,526	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	1,530	1,501	---	---	---	---	---	---
14	---	---	---	---	1,542	1,474	---	---	---	---	---	---
15	---	---	---	---	1,524	1,472	---	---	---	---	---	---
16	---	---	---	---	1,531	1,483	---	---	---	---	---	---
17	---	---	---	---	1,529	1,490	---	---	---	---	---	---
18	---	---	---	---	1,534	1,487	---	---	---	---	---	---
19	---	---	---	---	1,528	1,486	---	---	---	---	---	---
20	---	---	---	---	1,535	1,487	---	---	---	---	---	---
21	---	---	---	---	1,561	1,491	---	---	---	---	---	---
22	---	---	---	---	1,554	1,500	---	---	---	---	---	---
23	---	---	---	---	1,554	1,496	---	---	---	---	---	---
24	---	---	---	---	1,571	1,502	---	---	---	---	---	---
25	---	---	---	---	1,573	1,505	---	---	---	---	---	---
26	---	---	---	---	1,577	1,509	---	---	---	---	---	---
27	---	---	---	---	1,579	1,512	---	---	---	---	---	---
28	---	---	---	---	1,585	1,512	---	---	---	---	---	---
29	---	---	---	---	1,556	1,520	---	---	---	---	---	---
30	---	---	---	---	1,581	1,515	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Month	---	---	---	---	1,585	1,472	1,585	1,522	---	---	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 14. Lake O'Neill, Boat Rental Dock, Daily Data
Calendar Year 2006
Chlorophyll, Total (A+B), µg/L

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	50.9	17.7	---	---	---	---
2	---	---	---	---	---	---	27.5	14.7	---	---	---	---
3	---	---	---	---	---	---	49.1	14.9	---	---	---	---
4	---	---	---	---	---	---	24.2	13.6	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	23.1	17.4	---	---	---	---	---	---
14	---	---	---	---	28.0	21.5	---	---	---	---	---	---
15	---	---	---	---	23.8	19.5	---	---	---	---	---	---
16	---	---	---	---	66.3	20.2	---	---	---	---	---	---
17	---	---	---	---	25.2	13.8	---	---	---	---	---	---
18	---	---	---	---	22.3	12.6	---	---	---	---	---	---
19	---	---	---	---	33.4	13.4	---	---	---	---	---	---
20	---	---	---	---	25.7	10.8	---	---	---	---	---	---
21	---	---	---	---	21.1	9.0	---	---	---	---	---	---
22	---	---	---	---	37.7	12.5	---	---	---	---	---	---
23	---	---	---	---	27.4	11.3	---	---	---	---	---	---
24	---	---	---	---	21.5	10.3	---	---	---	---	---	---
25	---	---	---	---	26.5	10.2	---	---	---	---	---	---
26	---	---	---	---	33.1	10.7	---	---	---	---	---	---
27	---	---	---	---	34.6	12.3	---	---	---	---	---	---
28	---	---	---	---	30.3	11.0	---	---	---	---	---	---
29	---	---	---	---	19.2	13.1	---	---	---	---	---	---
30	---	---	---	---	28.8	14.6	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Month	---	---	---	---	66.3	9.0	50.9	13.6	---	---	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 15. Lake O'Neill, Boat Rental Dock, Daily Data
Calendar Year 2006
Total Dissolved Solids, mg/L

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	1,016	986	---	---	---	---
2	---	---	---	---	---	---	1,023	991	---	---	---	---
3	---	---	---	---	---	---	1,027	992	---	---	---	---
4	---	---	---	---	---	---	1,023	989	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	992	973	---	---	---	---	---	---
14	---	---	---	---	999	955	---	---	---	---	---	---
15	---	---	---	---	988	954	---	---	---	---	---	---
16	---	---	---	---	992	961	---	---	---	---	---	---
17	---	---	---	---	991	966	---	---	---	---	---	---
18	---	---	---	---	994	964	---	---	---	---	---	---
19	---	---	---	---	990	963	---	---	---	---	---	---
20	---	---	---	---	995	964	---	---	---	---	---	---
21	---	---	---	---	1,012	966	---	---	---	---	---	---
22	---	---	---	---	1,007	972	---	---	---	---	---	---
23	---	---	---	---	1,007	970	---	---	---	---	---	---
24	---	---	---	---	1,018	973	---	---	---	---	---	---
25	---	---	---	---	1,019	975	---	---	---	---	---	---
26	---	---	---	---	1,022	978	---	---	---	---	---	---
27	---	---	---	---	1,023	980	---	---	---	---	---	---
28	---	---	---	---	1,027	980	---	---	---	---	---	---
29	---	---	---	---	1,008	985	---	---	---	---	---	---
30	---	---	---	---	1,025	982	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Month	---	---	---	---	1,027	954	1,027	986	---	---	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 16. Lake O'Neill, Outlet, Daily Data
Calendar Year 2006
Temperature, °C

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	---	---	17.7	16.7	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	23.0	22.0	---	---	---	---
6	---	---	---	---	---	---	22.3	20.9	---	---	---	---
7	---	---	---	---	---	---	22.2	20.5	---	---	---	---
8	---	---	---	---	---	---	21.5	20.4	---	---	---	---
9	---	---	---	---	---	---	21.4	20.9	---	---	---	---
10	---	---	---	---	---	---	22.2	20.7	---	---	---	---
11	---	---	---	---	---	---	22.6	20.2	---	---	---	---
12	---	---	---	---	---	---	21.8	20.2	---	---	---	---
13	---	---	---	---	---	---	21.2	19.9	---	---	---	---
14	---	---	---	---	---	---	21.8	19.7	---	---	---	---
15	---	---	---	---	---	---	20.3	19.5	---	---	---	---
16	---	---	---	---	---	---	19.6	19.2	---	---	---	---
17	---	---	---	---	---	---	20.0	18.8	---	---	---	---
18	---	---	---	---	---	---	21.9	17.9	---	---	---	---
19	---	---	---	---	---	---	21.5	17.7	---	---	---	---
20	---	---	---	---	---	---	19.1	17.4	---	---	---	---
21	---	---	---	---	---	---	19.7	17.2	---	---	---	---
22	---	---	---	---	---	---	20.8	18.2	---	---	---	---
23	---	---	---	---	---	---	20.8	17.9	---	---	---	---
24	---	---	---	---	---	---	21.0	18.3	---	---	---	---
25	---	---	---	---	---	---	20.9	18.6	---	---	---	---
26	---	---	---	---	---	---	19.7	18.1	---	---	---	---
27	---	---	---	---	---	---	19.8	16.4	---	---	---	---
28	---	---	---	---	---	---	17.7	15.7	---	---	---	---
29	---	---	---	---	---	---	18.0	15.1	---	---	---	---
30	---	---	---	---	---	---	19.0	16.1	---	---	---	---
31	---	---	---	---	---	---	19.0	16.9	---	---	---	---
Month	---	---	---	---	---	---	23.0	15.1	17.7	16.7	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 17. Lake O'Neil, Outlet, Daily Data
Calendar Year 2006
Dissolved Oxygen, mg/L

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	---	---	8.2	5.9	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	9.5	7.3	---	---	---	---
6	---	---	---	---	---	---	8.9	6.4	---	---	---	---
7	---	---	---	---	---	---	8.8	6.5	---	---	---	---
8	---	---	---	---	---	---	8.8	6.3	---	---	---	---
9	---	---	---	---	---	---	8.1	5.8	---	---	---	---
10	---	---	---	---	---	---	8.8	6.2	---	---	---	---
11	---	---	---	---	---	---	10.3	6.8	---	---	---	---
12	---	---	---	---	---	---	10.1	7.3	---	---	---	---
13	---	---	---	---	---	---	9.8	7.4	---	---	---	---
14	---	---	---	---	---	---	9.9	7.0	---	---	---	---
15	---	---	---	---	---	---	7.9	6.2	---	---	---	---
16	---	---	---	---	---	---	7.1	5.5	---	---	---	---
17	---	---	---	---	---	---	7.4	5.4	---	---	---	---
18	---	---	---	---	---	---	9.1	6.3	---	---	---	---
19	---	---	---	---	---	---	8.9	5.8	---	---	---	---
20	---	---	---	---	---	---	8.0	5.8	---	---	---	---
21	---	---	---	---	---	---	9.6	7.3	---	---	---	---
22	---	---	---	---	---	---	9.6	7.2	---	---	---	---
23	---	---	---	---	---	---	12.3	6.5	---	---	---	---
24	---	---	---	---	---	---	13.4	7.7	---	---	---	---
25	---	---	---	---	---	---	11.8	6.9	---	---	---	---
26	---	---	---	---	---	---	11.3	6.7	---	---	---	---
27	---	---	---	---	---	---	10.2	6.4	---	---	---	---
28	---	---	---	---	---	---	8.9	6.3	---	---	---	---
29	---	---	---	---	---	---	10.2	7.1	---	---	---	---
30	---	---	---	---	---	---	9.9	7.1	---	---	---	---
31	---	---	---	---	---	---	9.5	6.3	---	---	---	---
Month	---	---	---	---	---	---	13.4	5.4	8.2	5.9	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 18. Lake O'Neil, Outlet, Daily Data
Calendar Year 2006
pH, Standard Units

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	---	---	8.5	8.4	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	8.6	8.5	---	---	---	---
6	---	---	---	---	---	---	8.6	8.5	---	---	---	---
7	---	---	---	---	---	---	8.6	8.5	---	---	---	---
8	---	---	---	---	---	---	8.6	8.5	---	---	---	---
9	---	---	---	---	---	---	8.5	8.4	---	---	---	---
10	---	---	---	---	---	---	8.6	8.5	---	---	---	---
11	---	---	---	---	---	---	8.6	8.5	---	---	---	---
12	---	---	---	---	---	---	8.6	8.5	---	---	---	---
13	---	---	---	---	---	---	8.6	8.5	---	---	---	---
14	---	---	---	---	---	---	8.6	8.5	---	---	---	---
15	---	---	---	---	---	---	8.6	8.5	---	---	---	---
16	---	---	---	---	---	---	8.5	8.5	---	---	---	---
17	---	---	---	---	---	---	8.5	8.5	---	---	---	---
18	---	---	---	---	---	---	8.6	8.5	---	---	---	---
19	---	---	---	---	---	---	8.6	8.4	---	---	---	---
20	---	---	---	---	---	---	8.5	8.4	---	---	---	---
21	---	---	---	---	---	---	8.6	8.5	---	---	---	---
22	---	---	---	---	---	---	8.6	8.5	---	---	---	---
23	---	---	---	---	---	---	8.7	8.4	---	---	---	---
24	---	---	---	---	---	---	8.8	8.5	---	---	---	---
25	---	---	---	---	---	---	8.7	8.5	---	---	---	---
26	---	---	---	---	---	---	8.6	8.4	---	---	---	---
27	---	---	---	---	---	---	8.6	8.4	---	---	---	---
28	---	---	---	---	---	---	8.5	8.4	---	---	---	---
29	---	---	---	---	---	---	8.6	8.5	---	---	---	---
30	---	---	---	---	---	---	8.6	8.5	---	---	---	---
31	---	---	---	---	---	---	8.5	8.4	---	---	---	---
Month	---	---	---	---	---	---	8.8	8.4	8.5	8.4	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 19. Lake O'Neil, Outlet, Daily Data
Calendar Year 2006
Turbidity, NTU

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	---	---	>900	61	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	24	17	---	---	---	---
6	---	---	---	---	---	---	23	18	---	---	---	---
7	---	---	---	---	---	---	29	18	---	---	---	---
8	---	---	---	---	---	---	38	19	---	---	---	---
9	---	---	---	---	---	---	33	19	---	---	---	---
10	---	---	---	---	---	---	37	16	---	---	---	---
11	---	---	---	---	---	---	49	19	---	---	---	---
12	---	---	---	---	---	---	31	22	---	---	---	---
13	---	---	---	---	---	---	36	26	---	---	---	---
14	---	---	---	---	---	---	39	26	---	---	---	---
15	---	---	---	---	---	---	38	25	---	---	---	---
16	---	---	---	---	---	---	43	25	---	---	---	---
17	---	---	---	---	---	---	48	29	---	---	---	---
18	---	---	---	---	---	---	141	33	---	---	---	---
19	---	---	---	---	---	---	64	34	---	---	---	---
20	---	---	---	---	---	---	74	34	---	---	---	---
21	---	---	---	---	---	---	60	32	---	---	---	---
22	---	---	---	---	---	---	>900	46	---	---	---	---
23	---	---	---	---	---	---	>900	115	---	---	---	---
24	---	---	---	---	---	---	>900	34	---	---	---	---
25	---	---	---	---	---	---	>900	31	---	---	---	---
26	---	---	---	---	---	---	97	25	---	---	---	---
27	---	---	---	---	---	---	65	27	---	---	---	---
28	---	---	---	---	---	---	53	26	---	---	---	---
29	---	---	---	---	---	---	702	28	---	---	---	---
30	---	---	---	---	---	---	>900	51	---	---	---	---
31	---	---	---	---	---	---	>900	39	---	---	---	---
Month	---	---	---	---	---	---	>900	16	>900	61	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 20. Lake O'Neil, Outlet, Daily Data
Calendar Year 2006
Specific Conductance, (µS/cm) at 25 °C

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	---	---	1,066	1,025	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	1,577	1,551	---	---	---	---
6	---	---	---	---	---	---	1,590	1,547	---	---	---	---
7	---	---	---	---	---	---	1,595	1,547	---	---	---	---
8	---	---	---	---	---	---	1,598	1,545	---	---	---	---
9	---	---	---	---	---	---	1,599	1,548	---	---	---	---
10	---	---	---	---	---	---	1,602	1,548	---	---	---	---
11	---	---	---	---	---	---	1,600	1,551	---	---	---	---
12	---	---	---	---	---	---	1,606	1,562	---	---	---	---
13	---	---	---	---	---	---	1,619	1,560	---	---	---	---
14	---	---	---	---	---	---	1,602	1,537	---	---	---	---
15	---	---	---	---	---	---	1,616	1,553	---	---	---	---
16	---	---	---	---	---	---	1,615	1,550	---	---	---	---
17	---	---	---	---	---	---	1,615	1,568	---	---	---	---
18	---	---	---	---	---	---	1,616	1,582	---	---	---	---
19	---	---	---	---	---	---	1,619	1,586	---	---	---	---
20	---	---	---	---	---	---	1,615	1,584	---	---	---	---
21	---	---	---	---	---	---	1,615	1,581	---	---	---	---
22	---	---	---	---	---	---	1,624	1,588	---	---	---	---
23	---	---	---	---	---	---	1,625	1,580	---	---	---	---
24	---	---	---	---	---	---	1,631	1,588	---	---	---	---
25	---	---	---	---	---	---	1,632	1,533	---	---	---	---
26	---	---	---	---	---	---	1,583	702	---	---	---	---
27	---	---	---	---	---	---	710	684	---	---	---	---
28	---	---	---	---	---	---	771	695	---	---	---	---
29	---	---	---	---	---	---	864	778	---	---	---	---
30	---	---	---	---	---	---	945	867	---	---	---	---
31	---	---	---	---	---	---	1,017	947	---	---	---	---
Month	---	---	---	---	---	---	1,632	684	1,066	1,025	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 21. Lake O'Neil, Outlet, Daily Data
Calendar Year 2006
Chlorophyll, Total (A+B),µg/L

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	---	---	357.0	59.2	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	28.3	16.5	---	---	---	---
6	---	---	---	---	---	---	42.7	15.5	---	---	---	---
7	---	---	---	---	---	---	42.1	17.2	---	---	---	---
8	---	---	---	---	---	---	35.8	16.7	---	---	---	---
9	---	---	---	---	---	---	29.2	17.1	---	---	---	---
10	---	---	---	---	---	---	38.2	16.6	---	---	---	---
11	---	---	---	---	---	---	28.0	15.4	---	---	---	---
12	---	---	---	---	---	---	28.6	14.3	---	---	---	---
13	---	---	---	---	---	---	34.1	20.7	---	---	---	---
14	---	---	---	---	---	---	30.2	15.0	---	---	---	---
15	---	---	---	---	---	---	31.2	20.9	---	---	---	---
16	---	---	---	---	---	---	28.6	21.5	---	---	---	---
17	---	---	---	---	---	---	28.3	18.9	---	---	---	---
18	---	---	---	---	---	---	30.4	19.2	---	---	---	---
19	---	---	---	---	---	---	33.1	21.8	---	---	---	---
20	---	---	---	---	---	---	31.5	23.6	---	---	---	---
21	---	---	---	---	---	---	53.5	29.6	---	---	---	---
22	---	---	---	---	---	---	>500	34.3	---	---	---	---
23	---	---	---	---	---	---	>500	43.5	---	---	---	---
24	---	---	---	---	---	---	>500	55.8	---	---	---	---
25	---	---	---	---	---	---	>500	38.5	---	---	---	---
26	---	---	---	---	---	---	>500	38.7	---	---	---	---
27	---	---	---	---	---	---	>500	36.4	---	---	---	---
28	---	---	---	---	---	---	>500	40.8	---	---	---	---
29	---	---	---	---	---	---	>500	40.1	---	---	---	---
30	---	---	---	---	---	---	>500	42.8	---	---	---	---
31	---	---	---	---	---	---	367.5	55.0	---	---	---	---
Month	---	---	---	---	---	---	>500	14.3	357.0	59.2	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Table 22. Lake O'Neil, Outlet, Daily Data
Calendar Year 2006
Total Dissolved Solids, mg/L

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	July		August		September		October		November		December	
1	---	---	---	---	---	---	---	---	691	664	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	1,022	1,005	---	---	---	---
6	---	---	---	---	---	---	1,030	1,003	---	---	---	---
7	---	---	---	---	---	---	1,034	1,003	---	---	---	---
8	---	---	---	---	---	---	1,036	1,001	---	---	---	---
9	---	---	---	---	---	---	1,036	1,003	---	---	---	---
10	---	---	---	---	---	---	1,038	1,003	---	---	---	---
11	---	---	---	---	---	---	1,037	1,005	---	---	---	---
12	---	---	---	---	---	---	1,041	1,012	---	---	---	---
13	---	---	---	---	---	---	1,049	1,011	---	---	---	---
14	---	---	---	---	---	---	1,038	996	---	---	---	---
15	---	---	---	---	---	---	1,047	1,007	---	---	---	---
16	---	---	---	---	---	---	1,047	1,005	---	---	---	---
17	---	---	---	---	---	---	1,047	1,016	---	---	---	---
18	---	---	---	---	---	---	1,047	1,025	---	---	---	---
19	---	---	---	---	---	---	1,049	1,028	---	---	---	---
20	---	---	---	---	---	---	1,047	1,027	---	---	---	---
21	---	---	---	---	---	---	1,047	1,025	---	---	---	---
22	---	---	---	---	---	---	1,053	1,029	---	---	---	---
23	---	---	---	---	---	---	1,053	1,024	---	---	---	---
24	---	---	---	---	---	---	1,057	1,029	---	---	---	---
25	---	---	---	---	---	---	1,058	994	---	---	---	---
26	---	---	---	---	---	---	1,026	455	---	---	---	---
27	---	---	---	---	---	---	460	443	---	---	---	---
28	---	---	---	---	---	---	500	450	---	---	---	---
29	---	---	---	---	---	---	560	504	---	---	---	---
30	---	---	---	---	---	---	612	562	---	---	---	---
31	---	---	---	---	---	---	659	614	---	---	---	---
Month	---	---	---	---	---	---	1,058	443	691	664	---	---

Note: Daily and monthly maximum and minimum values are based on available data. Complete daily and monthly records were not always available.

Laboratory Analyses

Table 23. Laboratory Results for Surface Water Grab Samples Collected at the Diversion Ditch

Date and Time of Sample	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (pH units)	Total Dissolved Solids (mg/L)	Turbidity (NTU)	Chlorophyll (A+B) (µg/L)
3/22/06 15:25	893	7.1	7.7	564	29.6	---
4/19/06 14:00	1,190	10.4	7.95	783	9.45	---
5/31/06 13:00	1,250	6.65	8.14	809	3.07	---
8/1/06 15:15	1,200	5.55	8.17	785	1.74	2.2
11/16/06 14:30	1,320	7.82	7.95	748	0.53	2.3
12/05/06 9:30	1,300	7.10	7.63	868	0.73	---
1/04/07 10:00	1,330	6.72	7.73	844	1.06	---

Table 24. Laboratory Results for Surface Water Grab Samples Collected at the Lake O'Neill, Boat Rental Dock

Date and Time of Sample	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (pH units)	Total Dissolved Solids mg/L	Turbidity (NTU)	Chlorophyll (A+B) µg/L)
9/13/06 15:00	1,510	8.52	8.19	924	12.2	18.67

Table 25. Laboratory Results for Surface Water Grab Samples Collected at the Lake O'Neill, Outlet

Date and Time of Sample	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH (pH units)	Total Dissolved Solids mg/L	Turbidity (NTU)	Chlorophyll (A+B) µg/L)
11/01/06 15:00	1,570	11.7	8.07	1,070	67.3	80.0

References

YSI Incorporated. 2006. YSI Environmental Operations Manual. YSI 6-Series Manual Supplement. Configuration and Deployment Instructions for YSI Model 6600EDS Sondes.

YSI Incorporated. How to Take Chlorophyll Measurements. http://www.ysi.com/extranet/EPGKL.nsf/9f95184cfc7511b485256b58006a905b/eb6dc2dcff822712852569e7005bfe1d!OpenDocument.

Attachment A. Extended Deployment System

Frequent data collection over a long period of time requires an instrument that is capable of working unattended and with minimal maintenance. The instrument used for this study is the EDS Extended Deployment System (EDS) 6600 from YSI Environmental. The EDS 6600 has an internal memory for unattended logging and hosts up to five probes for measurements of dissolved oxygen, turbidity, pH, conductivity, and chlorophyll. The conductivity probe also measures temperature so that a total of six different parameters are logged. Figure A-1 shows the five probes mounted on the EDS 6600 and the Clean Sweep® mechanism that keeps the sensors free of fouling.

Figure A-1. EDS 6600 from YSI Environmental.

Profile of the 6600EDS depicting probes for (clockwise from bottom) temperature/conductivity, turbidity, Rapid Pulse™ dissolved oxygen, chlorophyll and pH—all of which (except conductivity) are kept free of fouling by the Clean Sweep® universal wiper. Picture taken from YSI data sheet.

Principles of Operation

The following paragraphs are based on the *YSI Environmental Operations Manual*, and have been condensed to give a brief introduction.

YSI 6560 Conductivity/Temperature Probe

The conductivity probe utilizes a cell with four pure nickel electrodes for measuring solution conductance. Two of the electrodes are current driven, and two are used to measure the voltage drop. The measured conductance value in milli-Siemens (millimhos) is converted with the known cell-constant of approximately 5.0 per centimeter (/cm) into a conductivity value in milli-Siemens per cm (mS/cm). Because of the temperature dependency of solution conductance the temperature is measured along with the conductance. This allows the conductivity data to be reported in temperature compensation form.

To measure temperature, the probe utilizes a thermistor of sintered metallic oxide that changes predictably in resistance with temperature variation. The algorithm for conversion of resistance to temperature is built into the sonde software.

YSI 6561 pH Probe

The EDS 6600 employs a field-replaceable pH electrode for the determination of hydrogen ion concentration. The probe is a combination electrode consisting of a proton selective glass reservoir filled with buffer at approximately pH 7 and a silver/silver chloride (Ag/AgCl) reference electrode that utilizes electrolyte that is gelled. A silver wire, coated with AgCl, is immersed in the buffer reservoir. Protons (H+ ions) on both sides of the glass (media and buffer reservoir) selectively interact with the glass, setting up a potential gradient across the glass membrane. Since the hydrogen ion concentration in the internal buffer solution is invariant, this potential difference, determined relative to the Ag/AgCl reference electrode, is proportional to the pH of the media. The EDS 6600 compensates the linear temperature dependency of the measured potential difference according to the Nernst equation.

YSI 6562 Dissolved Oxygen Probe

The dissolved oxygen (DO) probe YSI 6562 utilizes a Clarke-type sensor for its Rapid Pulse System. Clark cell sensors measure DO indirectly through an electrochemical reaction. The tip of the sensor contains a positive electrode (cathode) and a negative electrode (anode) connected electrically by a saturated electrolyte solution, all covered by a permeable Teflon membrane. Oxygen molecules dissolved in the water pass through the membrane and are chemically reduced within the sensor, generating an electrical current that is proportional to the oxygen concentration in the water. The current is converted to a DO concentration which is logged by the EDS 6600. The principle change from the standard Clark sensors to the Rapid Pulse System, employed by the YSI 6562 probe, is that a pulsed voltage is used rather than a continuous polarization which drops the necessity of stirring the evaluated medium.

YSI 6136 Turbidity Probe

The YSI 6136 turbidity probe measures the content of suspended solids (cloudiness) in water by shining a light beam into the sample solution and then measuring the light that is scattered off the particles which are present. For turbidity systems capable of field deployment, the usual light source is a light emitting diode (LED) which produces radiation in the near infrared region of the spectrum. The detector is usually a photodiode of high sensitivity. The International Standards Organization (ISO) recommends the use of a light source with a wavelength between 830 and 890 nanometers (nm) and an angle of 90 degrees between the emitted and detected radiation (ISO 7027). The YSI 6163 turbidity probe conforms to the above ISO recommendations. The output of the turbidity sensor is processed via the sonde software to provide readings in nephelometric turbidity units (NTUs).

YSI 6025 Chlorophyll Probe

The YSI 6025 probe induces chlorophyll to fluoresce by shining a beam of light of the proper wavelength into the sample, and then measuring the higher wavelength light which is emitted as a result of the fluorescence process. To quantify the fluorescence, the system detector is screened by an optical filter that restricts the detected light. The filter prevents the exciting light from being detected when it is backscattered off of particles in the water.

Attachment B. Laboratory Reports

March 24, 2006 Enviromatrix Analytical Report for Samples Collected on 3/22/06

May 2, 2006 Enviromatrix Analytical Report for Samples Collected on 4/19/06

June 12, 2006 Enviromatrix Analytical Report for Samples Collected on 5/31/06

August 14, 2006 Enviromatrix Analytical Report for Samples Collected on 8/1/06

October 9, 2006 EcoAnalyst Report for Samples Collected on 8/1/06

September 25, 2006 Enviromatrix Analytical Report for Samples Collected on 9/13/06

October 9, 2006 EcoAnalyst Report for Samples Collected on 9/13/06

November 13, 2006 Enviromatrix Analytical Report for Samples Collected on 11/1/06

October 20, 2006 EcoAnalyst Report for Samples Collected on 11/1/06

November 30, 2006 Enviromatrix Analytical Report for Samples Collected on 11/16/06

December 1, 2006 EcoAnalyst Report for Samples Collected on 11/16/06

December 15, 2006 Enviromatrix Analytical Report for Samples Collected on 12/5/06

January 15, 2007 Enviromatrix Analytical Report for Samples Collected on 1/4/07

EnviroMatrix Analytical, Inc.

24 March 2006

Stetson Engineers
Attn: Jean Moran
2171 East Fransisco Suite K
San Rafeal, CA 94901

EMA Log #: 0603369

Project Name: 2148-002

Enclosed are the results of analyses for samples received by the laboratory on 03/22/06 17:00. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

For **Dan Verdon**
Laboratory Director

CA ELAP Certification #: 2564

Client Name: Stetson Engineers
oject Name: 2148-002

EMA Log #: 0603369

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
YS1-3-22-06	0603369-01	Water	03/22/06 15:25	03/22/06 17:00

The results in this report apply to the samples analyzed in accordance with the chain of c· ·dy document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
oject Name: 2148-002

EMA Log #: 0603369

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
YS1-3-22-06 (0603369-01) Water	**Sampled: 03/22/06 15:25**		**Received: 03/22/06 17:00**						
Specific Conductance (EC)	**893**	1	umhos/cm	1	6032321	03/23/06	03/23/06	SM2510 B	
Dissolved Oxygen	**7.10**	0.10	mg/l	"	6032406	03/22/06	03/22/06	SM4500 O G	
pH	**7.70**	0.10	pH Units	"	6032318	03/22/06	03/22/06	EPA 150.1	
Total Dissolved Solids	**564**	20	mg/l	"	6032222	03/22/06	03/23/06	SM2540 C	
Turbidity	**29.6**	0.05	NTU	"	6032226	03/23/06	03/23/06	SM2130 B	

The results in this report apply to the samples analyzed in accordance with the chain of
c ·ly document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
oject Name: 2148-002

EMA Log #: 0603369

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6032222										
Duplicate (6032222-DUP1)		**Source: 0603256-05**		Prepared: 03/22/06 Analyzed: 03/23/06						
Total Dissolved Solids	1660	20	mg/l		1650			0.6	20	
Reference (6032222-SRM1)				Prepared: 03/22/06 Analyzed: 03/23/06						
Total Dissolved Solids	228	20	mg/l	240		95	86.2-114			
Batch 6032226										
Duplicate (6032226-DUP1)		**Source: 0603359-04**		Prepared & Analyzed: 03/22/06						
Turbidity	0.37	0.05	NTU		0.36			3	20	
Reference (6032226-SRM1)				Prepared & Analyzed: 03/22/06						
Turbidity	5.78	0.05	NTU	5.41		107	87.6-109.8			
Batch 6032318										
Duplicate (6032318-DUP1)		**Source: 0603353-03**		Prepared & Analyzed: 03/22/06						
pH	9.99	0.10	pH Units		9.98			0.1	20	
erence (6032318-SRM1)				Prepared & Analyzed: 03/22/06						
pH	8.83	0.10	pH Units	9.10		97	97-103			
Batch 6032321										
Duplicate (6032321-DUP1)		**Source: 0603260-02**		Prepared & Analyzed: 03/23/06						
Specific Conductance (EC)	ND	1	umhos/cm		ND				20	

The results in this report apply to the samples analyzed in accordance with the chain of
c dy document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
oject Name: 2148-002

EMA Log #: 0603369

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6032321										
Reference (6032321-SRM1)				Prepared & Analyzed: 03/23/06						
Specific Conductance (EC)	376	1	umhos/cm	374		101	95-105			
Batch 6032406										
Duplicate (6032406-DUP1)		**Source: 0603369-01**		Prepared & Analyzed: 03/22/06						
Dissolved Oxygen	6.90	0.10	mg/l		7.10			3	20	

The results in this report apply to the samples analyzed in accordance with the chain of
c dy document. This analytical report must be reproduced in its entirety.

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

MAR 22'06 17:32

CHAIN-OF-CUSTODY RECORD

EnviroMatrix EMA Analytical, Inc.
4340 Viewridge Ave., Ste. A • San Diego, CA 92123 • Phone (858) 560-7717 • Fax (858) 560-7763

EMA LOG #: 060333 69

EMA DATE/TIME STAMP

Client: USBR / STETSON ENGR
Address: 2171 E FRANCISCO BLVD
SUITE K SAN RAFAEL CA 94901
Attn: JEAN MORAN Phone: 415-457-0701
Sampled by: JEAN Fax: 415-457-1638
Billing Address: SAME
Project: 2148-002 PO #: 2148

REQUESTED ANALYSIS

EMA ID #	Client Sample ID	Sample Date	Sample Time	Sample Matrix	Container(s) #	Container(s) Type*
1	VSI-3-22-06	3/22/06	3:25	WI	3	P
2						
3						
4						
5						
6						
7						
8						
9						
10						

Requested analyses: 418.1 (TRPH); Oil & Grease 413.1___ 413.2___ 1664___; TPH (8015B) Gas___ Diesel___; TPH-Extended 8015B___ ASTM D2887___; 602 / 8021 BTXE___ MTBE___; 601 / 8021 (Purgeable Halocarbons); 608 / 8081 (Pesticides); 608 / 8082 (PCB's); 624 / 8260 (Volatile Organics); 625 / 8270 (Semi Volatile Organics); TTLC Metals (CAC Title 22); STLC Metals (CAC Title 22); TCLP (RCRA) Metals___ Organics___; Cd Cr Cu Pb Ni Ag Zn; pH EC TSS TDS; DO; Turbidity; Conductivity; TDS

*Container Types: B=Brass Tube; V=VOA; G=Glass: P=Plastic; O=Other (list)

Tamper-Proof Seals Intact: Yes No N/A
Correct Containers: Yes No
Sample(s): Cold Ambient Warm
VOAs w/ZHS: Yes No N/A
All Samples Properly Preserved: Yes No N/A
Disposal: N/C (aqueous) *EMA (@$5.00/sample) Return Hold
Turnaround Time: 24 hr 48 hr 3 day 4 day 5 day Normal
Comments:

	RELINQUISHED BY	DATE/TIME	RECEIVED BY
Signature	[signature]	3/22/06 4:55PM	[signature]
Print	JEAN MORAN		ROBERT THOMPSON
Company:	STETSON ENGR		EMA
Signature			
Print			
Company:			
Signature			
Print			
Company:			

13°C

*EMA reserves the right to return samples that do not match our waste profile.

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

EnviroMatrix Analytical, Inc.

02 May 2006

Stetson Engineers
Attn: Ben Brezing
2171 East Francisco Suite K
San Rafeal, CA 94901

EMA Log #: 0604330

Project Name: 2148-002

Enclosed are the results of analyses for samples received by the laboratory on 04/19/06 17:02. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

Dan Verdon
Laboratory Director

CA ELAP Certification #: 2564

Client Name: Stetson Engineers
oject Name: 2148-002

EMA Log #: 0604330

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
YS1-4-19-06	0604330-01	Water	04/19/06 14:00	04/19/06 17:02
YS1-4-19-06-DO-Surf	0604330-02	Water	04/19/06 14:00	04/19/06 17:02

The results in this report apply to the samples analyzed in accordance with the chain of c ·dy document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
oject Name: 2148-002

EMA Log #: 0604330

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
YS1-4-19-06 (0604330-01) Water	**Sampled: 04/19/06 14:00**		**Received: 04/19/06 17:02**						
Specific Conductance (EC)	**1190**	1	umhos/cm	1	6042507	04/25/06	04/25/06	SM2510 B	
Dissolved Oxygen	**10.4**	0.10	mg/l	"	6042018	04/19/06	04/19/06	SM4500 O G	
pH	**7.95**	0.10	pH Units	"	6042007	04/19/06	04/19/06	EPA 150.1	
Total Dissolved Solids	**783**	20	mg/l	"	6050119	04/26/06	05/01/06	SM2540 C	
Turbidity	**9.45**	0.05	NTU	"	6042032	04/20/06	04/20/06	SM2130 B	
YS1-4-19-06-DO-Surf (0604330-02) Water	**Sampled: 04/19/06 14:00**		**Received: 04/19/06 17:02**						
Dissolved Oxygen	**7.66**	0.10	mg/l	1	6042018	04/19/06	04/19/06	SM4500 O G	

The results in this report apply to the samples analyzed in accordance with the chain of
dy document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
Project Name: 2148-002

EMA Log #: 0604330

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6042007										
Duplicate (6042007-DUP1)		**Source: 0604311-06**		Prepared & Analyzed: 04/19/06						
pH	6.89	0.10	pH Units		6.94			0.7	20	
Reference (6042007-SRM1)				Prepared & Analyzed: 04/19/06						
pH	8.83	0.10	pH Units	9.10		97	97-103			
Batch 6042018										
Duplicate (6042018-DUP1)		**Source: 0604330-01**		Prepared & Analyzed: 04/19/06						
Dissolved Oxygen	11.0	0.10	mg/l		10.4			6	20	
Duplicate (6042018-DUP2)		**Source: 0604330-02**		Prepared & Analyzed: 04/19/06						
Dissolved Oxygen	9.18	0.10	mg/l		7.66			18	20	
Batch 6042032										
Duplicate (6042032-DUP1)		**Source: 0604330-01**		Prepared & Analyzed: 04/20/06						
Turbidity	9.50	0.05	NTU		9.45			0.5	20	
erence (6042032-SRM1)				Prepared & Analyzed: 04/20/06						
Turbidity	5.62	0.05	NTU	5.41		104	87.6-109.8			
Batch 6042507										
Duplicate (6042507-DUP1)		**Source: 0604364-02**		Prepared & Analyzed: 04/25/06						
Specific Conductance (EC)	697	1	umhos/cm		696			0.1	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
oject Name: 2148-002

EMA Log #: 0604330

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6042507										
Reference (6042507-SRM1)				Prepared & Analyzed: 04/25/06						
Specific Conductance (EC)	449	1	umhos/cm	465		97	.484-104.5			
Batch 6050119										
Duplicate (6050119-DUP1)		**Source: 0604311-03**		Prepared: 04/26/06 Analyzed: 05/01/06						
Total Dissolved Solids	782	20	mg/l		846			8	20	
Duplicate (6050119-DUP2)		**Source: 0604339-01**		Prepared: 04/26/06 Analyzed: 05/01/06						
Total Dissolved Solids	1560	20	mg/l		1560			0	20	
Reference (6050119-SRM1)				Prepared: 04/26/06 Analyzed: 05/01/06						
Total Dissolved Solids	350	20	mg/l	345		101	.696-111.3			
Reference (6050119-SRM2)				Prepared: 04/26/06 Analyzed: 05/01/06						
Total Dissolved Solids	354	20	mg/l	345		103	.696-111.3			

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of c[illegible]ody document. This analytical report must be reproduced in its entirety.

CHAIN-OF-CUSTODY RECORD

EnviroMatrix EMA Analytical, Inc.
4340 Viewridge Ave., Ste. A • San Diego, CA 92123 • Phone (858) 560-7717 • Fax (858) 560-7763

EMA LOG #: 0604330

EMA DATE/TIME STAMP APR 19 '06 17:02

Client: USBR/STETSON ENGINEERS
Address: 2171 E. FRANCISCO BLVD., SUITE K
SAN RAFAEL, CA 94901
Attn: BEN BREZING Phone: 415-457-0701
Sampled by: BEN BREZING Fax: 415-457-1638
Billing Address: SAME

Project: 2146-002 PO #: 2146

REQUESTED ANALYSIS

EMA ID #	Client Sample ID	Sample Date	Sample Time	Sample Matrix	Container(s) #	Container(s) Type*	418.1 (TRPH)	Oil & Grease 413.1___ 413.2___ 1664___	TPH (8015B) Gas___ Diesel___	TPH-Extended 8015B___ ASTM D2887___	602 / 8021 BTXE___ MTBE___	601 / 8021 (Purgeable Halocarbons)	608 / 8081 (Pesticides)	608 / 8082 (PCB's)	624 / 8260 (Volatile Organics)	625 / 8270 (Semi Volatile Organics)	TTLC Metals (CAC Title 22)	STLC Metals (CAC Title 22)	TCLP (RCRA) Metals___ Organics___	Cd Cr Cu Pb Ni Ag Zn	pH EC TSS TDS	DO	TURBIDITY	CONDUCTIVITY
1	YSI-4-19-06	4/19/06	2pm	Water	2	P															✓	✓	✓	✓
2	YSI-4-19-06-DO-Surf	4/19/06	2pm	Water	1	P																✓		
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

*Container Types: B=Brass Tube; V=VOA; G=Glass: P=Plastic; O=Other (list)

Tamper-Proof Seals Intact: Yes No N/A | Correct Containers: Yes No

Sample(s): Cold Ambient Warm | VOAs w/ZHS: Yes No N/A

All Samples Properly Preserved: Yes No N/A

Disposal: N/C (aqueous) *EMA (@$5.00/sample) Return Hold

Turnaround Time: 24 hr 48 hr 3 day 4 day 5 day (Normal)

Comments:

RELINQUISHED BY	DATE/TIME	RECEIVED BY
Signature [signature]	4/19/06 17:02	Signature [signature]
Print BEN BREZING		Print Jee Lum
Company: STETSON ENGR		Company: EMA
Signature		Signature
Print		Print
Company:		Company:
Signature		Signature
Print		Print
Company:		Company:

*EMA reserves the right to return samples that do not match our waste profile.

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

Temp: 3°C

EnviroMatrix Analytical, Inc.

12 June 2006

Stetson Engineers
Attn: Ben Brezing
2171 East Francisco Suite K
San Rafeal, CA 94901

EMA Log #: 0606004

Project Name: 2148-002

Enclosed are the results of analyses for samples received by the laboratory on 05/31/06 16:13. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

Dan Verdon
Laboratory Director

CA ELAP Certification #: 2564

Client Name: Stetson Engineers
Project Name: 2148-002

EMA Log #: 0606004

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
YS1-5-31-06A	0606004-01	Water	05/31/06 13:00	05/31/06 16:13

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
oject Name: 2148-002

EMA Log #: 0606004

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
YS1-5-31-06A (0606004-01) Water	**Sampled: 05/31/06 13:00**		**Received: 05/31/06 16:13**						
Specific Conductance (EC)	**1250**	1	umhos/cm	1	6060720	06/07/06	06/07/06	SM2510 B	
Dissolved Oxygen	**6.65**	0.10	mg/l	"	6060539	05/31/06	05/31/06	SM4500 O G	
pH	**8.14**	0.10	pH Units	"	6060101	05/31/06	05/31/06	EPA 150.1	
Total Dissolved Solids	**809**	20	mg/l	"	6060739	06/05/06	06/05/06	SM2540 C	
Turbidity	**3.07**	0.05	NTU	"	6060223	06/02/06	06/02/06	SM2130 B	

The results in this report apply to the samples analyzed in accordance with the chain of c· ·ody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
Project Name: 2148-002

EMA Log #: 0606004

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6060101										
Duplicate (6060101-DUP1)		**Source: 0605505-07**		Prepared & Analyzed: 05/31/06						
pH	9.28	0.10	pH Units		9.22			0.6	20	
Reference (6060101-SRM1)				Prepared & Analyzed: 05/31/06						
pH	8.84	0.10	pH Units	9.10		97	97-103			
Batch 6060223										
Duplicate (6060223-DUP1)		**Source: 0605498-04**		Prepared & Analyzed: 06/01/06						
Turbidity	0.31	0.05	NTU		0.31			0	20	
Reference (6060223-SRM1)				Prepared & Analyzed: 06/01/06						
Turbidity	5.00	0.05	NTU	5.41		92	87.6-109.8			
Batch 6060539										
Duplicate (6060539-DUP1)		**Source: 0606004-01**		Prepared & Analyzed: 05/31/06						
Dissolved Oxygen	6.58	0.10	mg/l		6.65			1	20	
Batch 6060720										
Duplicate (6060720-DUP1)		**Source: 0606088-02**		Prepared & Analyzed: 06/07/06						
Specific Conductance (EC)	22500	1	umhos/cm		22800			1	20	
Reference (6060720-SRM1)				Prepared & Analyzed: 06/07/06						
Specific Conductance (EC)	458	1	umhos/cm	465		98	.484-104.5			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
oject Name: 2148-002

EMA Log #: 0606004

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6060739										
Duplicate (6060739-DUP1)		**Source: 0605502-05**		Prepared & Analyzed: 06/05/06						
Total Dissolved Solids	2940	20	mg/l		2890			2	20	
Duplicate (6060739-DUP2)		**Source: 0605505-03**		Prepared & Analyzed: 06/05/06						
Total Dissolved Solids	751	20	mg/l		772			3	20	
Reference (6060739-SRM1)				Prepared & Analyzed: 06/05/06						
Total Dissolved Solids	340	20	mg/l	345		99	.696-111.3			
Reference (6060739-SRM2)				Prepared & Analyzed: 06/05/06						
Total Dissolved Solids	326	20	mg/l	345		94	.696-111.3			

The results in this report apply to the samples analyzed in accordance with the chain of c ·ody document. This analytical report must be reproduced in its entirety.

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

CHAIN-OF-CUSTODY RECORD

~~0606004~~ 0606004

EnviroMatrix EMA Analytical, Inc.

MAY 31 '06 15:36

4340 Viewridge Ave., Ste. A • San Diego, CA 92123 • Phone (858) 560-7717 • Fax (858) 560-7763

EMA LOG #: ~~060521~~

EMA DATE/TIME STAMP

Client: ISBR/STETSON ENGINEERS

Address: 2171 E. FRANCISCO BLVD., SUITE K,
SAN RAFAEL, CA 94901

Attn: BEN BREZING Phone: 415-457-0701

Sampled by: BEN BREZING Fax: 415-457-1638

Billing Address: SAME

Project: 2148-002 PO #: 2148

REQUESTED ANALYSIS

EMA ID #	Client Sample ID	Sample Date	Sample Time	Sample Matrix	Container(s) #	Container(s) Type*	418.1 (TRPH)	Oil & Grease 413.1___ 413.2___ 1664___	TPH (8015B) Gas___ Diesel___	TPH -Extended 8015B___ ASTM D2887___	602 / 8021 BTXE___ MTBE___	601 / 8021 (Purgeable Halocarbons)	608 / 8081 (Pesticides)	608 / 8082 (PCB's)	624 / 8260 (Volatile Organics)	625 / 8270 (Semi Volatile Organics)	TTLC Metals (CAC Title 22)	STLC Metals (CAC Title 22)	TCLP (RCRA) Metals___ Organics___	Cd Cr Cu Pb Ni Ag Zn	(pH) EC TSS (TDS)	DO	Turbidity	Conductivity
1	YSI-5-31-06A	5/31/06	1pm		2																✓	✓	✓	✓
2	~~TBR~~																							
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

*Container Types: B=Brass Tube; V=VOA; G=Glass; P=Plastic; O=Other (list)

Tamper-Proof Seals Intact: Yes No N/A | Correct Containers: Yes No

Sample(s): Cold Ambient Warm | VOAs w/ZHS: Yes No N/A

All Samples Properly Preserved: Yes No N/A

Disposal: N/C (aqueous) *EMA (@$5.00/sample) Return Hold

Turnaround Time: 24 hr 48 hr 3 day 4 day 5 day Normal

Comments:

T=6°C

RELINQUISHED BY	DATE/TIME	RECEIVED BY
Signature: [signature]	5/31/06 16:13	Signature: [signature]
Print: BEN BREZING		Print: Michaela Norrbom
Company: STETSON ENGR		Company: EMA
Signature		Signature
Print		Print
Company:		Company:
Signature		Signature
Print		Print
Company:		Company:

*EMA reserves the right to return samples that do not match our waste profile.

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

EnviroMatrix Analytical, Inc.

14 August 2006

Stetson Engineers
Attn: Ben Brezing
2171 East Francisco Suite K
San Rafeal, CA 94901

EMA Log #: 0608033

Project Name: YSI/Sondes
Project Desc./#: 2148-02

Enclosed are the results of analyses for samples received by the laboratory on 08/01/06 16:55. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

Dan Verdon
Laboratory Director

CA ELAP Certification #: 2564

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0608033

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
YS1-8-1-06	0608033-01	Water	08/01/06 15:15	08/01/06 16:55

NOTE: Chlorophyll analyses performed by a subcontract laboratory, results to follow in a separate report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0608033

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
YS1-8-1-06 (0608033-01) Water	**Sampled: 08/01/06 15:15**		**Received: 08/01/06 16:55**						
Specific Conductance (EC)	**1200**	1	umhos/cm	1	6081021	08/10/06	08/10/06	SM2510 B	
Dissolved Oxygen	**5.55**	0.10	mg/l	"	6081108	08/01/06	08/01/06	SM4500 O G	
pH	**8.17**	0.10	pH Units	"	6080126	08/01/06	08/01/06	EPA 150.1	
Total Dissolved Solids	**785**	20	mg/l	"	6081408	08/08/06	08/14/06	SM2540 C	
Turbidity	**1.74**	0.05	NTU	"	6080316	08/02/06	08/02/06	SM2130 B	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
oject Name: YSI/Sondes

EMA Log #: 0608033

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6080126										
Duplicate (6080126-DUP1)		**Source: 0608020-01**		Prepared & Analyzed: 08/01/06						
pH	7.88	0.10	pH Units		7.93			0.6	20	
Reference (6080126-SRM1)				Prepared & Analyzed: 08/01/06						
pH	8.84	0.10	pH Units	9.10		97	97-103			
Batch 6080316										
Duplicate (6080316-DUP1)		**Source: 0607427-01**		Prepared & Analyzed: 08/02/06						
Turbidity	0.19	0.05	NTU		0.19			0	20	
Reference (6080316-SRM1)				Prepared & Analyzed: 08/02/06						
Turbidity	4.93	0.05	NTU	5.41		91	87.6-109.8			
Batch 6081021										
Duplicate (6081021-DUP1)		**Source: 0608006-01**		Prepared & Analyzed: 08/10/06						
Specific Conductance (EC)	1150	1	umhos/cm		1150			0	20	
erence (6081021-SRM1)				Prepared & Analyzed: 08/10/06						
Specific Conductance (EC)	398	1	umhos/cm	408		98	96.3-107.1			
Batch 6081108										
Duplicate (6081108-DUP1)		**Source: 0608033-01**		Prepared & Analyzed: 08/01/06						
Dissolved Oxygen	5.56	0.10	mg/l		5.55			0.2	20	

The results in this report apply to the samples analyzed in accordance with the chain of c[illegible]ody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
oject Name: YSI/Sondes

EMA Log #: 0608033

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6081408										
Duplicate (6081408-DUP1)		**Source: 0608036-02**		Prepared: 08/09/06 Analyzed: 08/14/06						
Total Dissolved Solids	698	20	mg/l		680			3	20	
Reference (6081408-SRM1)				Prepared: 08/09/06 Analyzed: 08/14/06						
Total Dissolved Solids	224	20	mg/l	256		88	83.2-109			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CHAIN-OF-CUSTODY FORM

EnviroMatrix **EMA** *Analytical, Inc.*

4340 Viewridge Ave., Ste. A · San Diego, CA 92123 · Phone (858) 560-7717 · Fax (858) 560-7763

EMA LOG #: 0608033

Client: USBR/STETSON ENGINEERS

Attn: BEN BREZING

Sampler(s): BEN BREZING

Address: 2171 E. FRANCISCO BLVD, SUITE K SAN RAFAEL, CA 94901

Phone: 415-457-0701 Fax: 415-457-1638

Email: benb@stetsonengineers.com

Billing Address: 2171 E. FRANCISCO BLVD, SUITE K SAN RAFAEL, CA 94901

Project ID: CPEN

Project #: 2148-07 PO#: 2148

SAMPLE DETAILS

#	Client Sample ID	Sample Date/Time	Sample Matrix	Container(s) # of / Type
01	YS1-8-1-06	8/1 3:15pm		3
02				
03				
04				
05				
06				
07				
08				
09				
10				

REQUESTED ANALYSIS

#	Oil & Grease ☐1664 ☐413.1 ☐413.2	418.1 (Total Recoverable Petroleum Hydrocarbons)	8015B (TPH) ☐Gas ☐Diesel ☐Ext ☐ASTM D2887	624 / 8260 (VOC) ☐Full ☐BTXE ☐MTBE ☐Oxy ☐Nap	625 / 8270 (Semi Volatile Organics) ☐ PAH only	608 / 8081 (Organochlorine Pesticides)	608 / 8082 (Polychlorinated Biphenyls)	8141 (Organophosphorus Pesticides)	TBT (Organotin Compounds)	pH ☐Conductivity (EC) ☐TSS ☐TDS	☐Nitrate ☐Nitrite ☐TKN ☐NH3	TTLC Metals (CAC Title 22) / (CAM 17)	STLC Metals (CAC Title 22) / (CAM 17)	TCLP (RCRA) ☐Metals ☐Organics	Cd Cr Cu Pb Ni Ag Zn ☐Dissolved	Coliform, ☐Total (MTF) ☐Fecal (MTF) ☐Colilert,T+E.Coli	Enterococcus, ☐MTF ☐Idexx	Heterotrophic Plate Count (HPC)	DISSOLVED OXYGEN	TURBIDITY	CHLOROPHYLL				
01										X	X									X	X	X		
02																								
03																								
04																								
05																								
06																								
07																								
08																								
09																								
10																								

Microbiology Notes:

Sample Comments:

Sample Matrix Codes: GW=ground water WW=waste water DW=drinking water SW=storm water

A=air SED=sediment O=oil T=tissue S=solid other (specify) L=liquid other (specify)

Shipped By: ☐Courier ☐UPS ☐FedEx ☐USPS ☐Client drop off ☐Other_____

[1]**Turnaround Time:** ☐Same day ☐24 hr ☐48 hr ☐3 day ☐4 day ☐5 day ☒STD (7 day)

[1]**Reporting Requirements:** ☐Fax ☐PDF ☐Excel ☐Geotracker EDF ☐Other _____

[1]**Sample Disposal:** ☒By Laboratory ☐[2]Return to client: P/U or Delivery ☐Archive until ____/____/____

SAMPLE INTEGRITY

Correct Containers: Yes No N/A	Containers Properly Preserved: Yes No N/A
Custody Seals Intact: Yes No N/A	Temperature @ Receipt: 2.4°C
COC/Labels Agree: Yes No N/A	Sampled By: ☐Client ☐EMA ☐Autosampler

Project Comments:

CHAIN-OF-CUSTODY RECORD

	RELINQUISHED BY	RECEIVED BY	DATE/TIME STAMP
Signature	[signature]	Robert Thompson	8/1/06
Print	BEN BREZING	Robert Thompson	16:55
Company	STETSON ENGINEERS	EMA	
Signature		Signature	
Print		Print	
Company		Company	
Signature		Signature	
Print		Print	
Company		Company	

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

[1]Additional costs may apply, consult a project manager for details.

[2]EMA reserves the right to return any samples that do not match our waste profile.

Note: By relinquishing samples to EnviroMatrix Analytical, Inc., client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of the invoice. Sample(s) will be disposed of after 30 days unless otherwise noted. All work is subject to EMA's terms and conditions.

An ytical Sciences Laboratc
University of Idaho
Holm Research Center
2222 West 6th Street, P.O. Box 442203
Moscow, Idaho 83844-2203
Phone: (208) 885-7081 FAX: (208) 885-8937
email: asl@uidaho.edu http://www.agls.uidaho.edu/asl/

Certificate of Analysis

Prepared For: Shanda McGraw
EcoAnalysts, Inc.
105 East 2nd Street, Suite 1

Moscow, ID 83843

Case ID: **EOCT06-002**
Report Date: 09-Oct-06
Date Received: 03-Oct-06
Client Ref.: 873-2
Project ID: 873

1st Level QC: Brian N Hurt Date: 10-9-06
2nd Level QC: Stan McFadden Date: 10-10-06

Case Comments:

Harry J. Tasker
EcoAnalysts, Inc.

ND = Not Detected NA = Not Applicable MDL = Method Detection Limit QNS = Quantity Not Sufficient

Analytical Sciences Laboratory
Certificate of Analysis

Client SampleID: YS1-8-1-06 Site/Location:
ASL Sample ID: E0603515 Matrix: Solid - Wet Weight

Chlorophyll Analysis	Method: EPA 446.0	Prep: Acetone Extraction	Analysis Date: 04-Oct-06
	Results	MDL	Pres.: Freeze Filter? N/A
Chlorophyll A	**1.3 µg**	0.1	
Chlorophyll B	**0.8 µg**	0.1	
Sample Volume: 964 mLs			

Samples will be discarded one month after date of final report unless otherwise requested

ND = Not Detected NA = Not Applicable MDL = Method Detection Limit QNS = Quantity Not Sufficient

EnviroMatrix Analytical, Inc.

25 September 2006

Stetson Engineers
Attn: Ben Brezing
2171 East Francisco Suite K
San Rafeal, CA 94901

EMA Log #: 0609219

Project Name: YSI/Sondes
Project Desc./#:2148-02-005

Enclosed are the results of analyses for samples received by the laboratory on 09/13/06 16:36. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

Dan Verdon
Laboratory Director

CA ELAP Certification #: 2564

4340 Viewridge Avenue, Suite A - San Diego, California 92123 - (858) 560-7717 - Fax (858) 560-7763
Analytical Chemistry Laboratory

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0609219

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LON-9-13-06	0609219-01	Water	09/13/06 15:00	09/13/06 16:36

NOTE: Chlorophyll analyses performed by a subcontract laboratory, results to follow in a separate report.

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0609219

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LON-9-13-06 (0609219-01) Water	**Sampled: 09/13/06 15:00**		**Received: 09/13/06 16:36**						
Specific Conductance (EC)	**1510**	1	umhos/cm	1	6091411	09/14/06	09/14/06	SM2510 B	
Dissolved Oxygen	**8.52**	0.10	mg/l	"	6092025	09/13/06	09/13/06	SM4500 O G	
pH	**8.19**	0.10	pH Units	"	6091403	09/13/06	09/13/06	EPA 150.1	
Total Dissolved Solids	**924**	20	mg/l	"	6092028	09/15/06	09/20/06	SM2540 C	
Turbidity	**12.2**	0.05	NTU	"	6091521	09/15/06	09/15/06	SM2130 B	

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0609219

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6091403										
Duplicate (6091403-DUP1)		**Source: 0609195-01**		Prepared & Analyzed: 09/13/06						
pH	6.75	0.10	pH Units		6.74			0.1	20	
Reference (6091403-SRM1)				Prepared & Analyzed: 09/13/06						
pH	8.88	0.10	pH Units	9.10		98	97-103			
Batch 6091411										
Duplicate (6091411-DUP1)		**Source: 0609186-01**		Prepared & Analyzed: 09/14/06						
Specific Conductance (EC)	14600	1	umhos/cm		14600			0	20	
Reference (6091411-SRM1)				Prepared & Analyzed: 09/14/06						
Specific Conductance (EC)	291	1	umhos/cm	297		98	93-107			
Batch 6091521										
Duplicate (6091521-DUP1)		**Source: 0609219-01**		Prepared & Analyzed: 09/15/06						
Turbidity	12.2	0.05	NTU		12.2			0	20	
Reference (6091521-SRM1)				Prepared & Analyzed: 09/15/06						
Turbidity	5.18	0.05	NTU	5.41		96	87.6-109.8			
Batch 6092025										
Duplicate (6092025-DUP1)		**Source: 0609219-01**		Prepared & Analyzed: 09/13/06						
Dissolved Oxygen	8.01	0.10	mg/l		8.52			6	20	

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0609219

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6092028										
Duplicate (6092028-DUP1)		**Source: 0609193-02**		Prepared: 09/15/06		Analyzed: 09/20/06				
Total Dissolved Solids	708	20	mg/l		696			2	20	
Duplicate (6092028-DUP2)		**Source: 0609184-03**		Prepared: 09/15/06		Analyzed: 09/20/06				
Total Dissolved Solids	11200	20	mg/l		11100			0.9	20	
Reference (6092028-SRM1)				Prepared: 09/15/06		Analyzed: 09/20/06				
Total Dissolved Solids	185	20	mg/l	185		100	86-114			
Reference (6092028-SRM2)				Prepared: 09/15/06		Analyzed: 09/20/06				
Total Dissolved Solids	189	20	mg/l	185		102	86-114			

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0609219

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CHAIN-OF-CUSTODY FORM

EnviroMatrix **Analytical, Inc.**

4340 Viewridge Ave., Ste. A · San Diego, CA 92123 · Phone (858) 560-7717 · Fax (858) 560-7763

EMA LOG #: 0609219

Client: USBR/STETSON ENGINEERS

Attn: BEN BREZING

Sampler(s): BEN R.

Address: 2171 E. FRANCISCO BLVD., SUITE K

SAN RAFAEL, CA 94901

Phone: 415-457-0701 +40 Fax: 415-457-1638

Email: benb@stetsonengineers.com

Billing Address: -SAME-

Project ID:

Project #: 2148-02-005 PO#: 2148

SAMPLE DETAILS

REQUESTED ANALYSIS

#	Client Sample ID	Sample Date/Time	Sample Matrix	Container(s) # of / Type
01	LON-9-13-06	9/13 3pm		2
02				
03				
04				
05				
06				
07				
08				
09				
10				

Oil & Grease ☐413.1 ☐413.2 ☐1664

418.1 (Total Recoverable Petroleum Hydrocarbons)

8015B (TPH) ☐Gas ☐Diesel ☐Ext ☐ASTM D2887

624 / 8260 (VOC) ☐Full ☐BTXE ☐MTBE ☐Oxy ☐Nap

625 / 8270 (Semi Volatile Organics) ☐ PAH only

608 / 8081 (Organochlorine Pesticides)

608 / 8082 (Polychlorinated Biphenyls)

8141 (Organophosphorus Pesticides)

TBT (Organotin Compounds)

☒pH ☒Conductivity (EC) ☐TSS ☒TDS

☐Nitrate ☐Nitrite ☐TKN ☐NH3

TTLC Metals (CAC Title 22) / (CAM 17)

STLC Metals (CAC Title 22) / (CAM 17)

TCLP (RCRA) ☐Metals ☐Organics

Cd Cr Cu Pb Ni Ag Zn ☐Dissolved

Coliform, ☐Total (MTF) ☐Fecal (MTF) ☐Colilert,T+E.Coli

Enterococcus, ☐MTF ☐Idexx

Heterotrophic Plate Count (HPC)

✓ DISSOLVED OXYGEN

✓ TURBIDITY

✓ CHLOROPHYLL

Microbiology Notes:

Sample Comments:

Sample Matrix Codes: GW=ground water WW=waste water DW=drinking water SW=storm water

A=air SED=sediment O=oil T=tissue S=solid other (specify) L=liquid other (specify)

Shipped By: ☐Courier ☐UPS ☐FedEx ☐USPS ☑Client drop off ☐Other ____

[1]**Turnaround Time:** ☐Same day ☐24 hr ☐48 hr ☐3 day ☐4 day ☐5 day ☒TD (7 day)

[1]**Reporting Requirements:** ☐Fax ☐PDF ☐Excel ☐Geotracker EDF ☐Other ____

[1]**Sample Disposal:** ☒Laboratory ☐[2]Return to client: P/U or Delivery ☐Archive until ____/____/____

SAMPLE INTEGRITY

Correct Containers: Yes No N/A

Containers Properly Preserved: Yes No N/A

Custody Seals Intact: Yes No N/A

Temperature @ Receipt: 12°

COC/Labels Agree: Yes No N/A

Sampled By: ☐Client ☐EMA ☐Autosampler

Project Comments:

CHAIN-OF-CUSTODY RECORD

RELINQUISHED BY	RECEIVED BY	DATE/TIME STAMP
Signature	Signature	9/13/06
Print BEN BREZING	Print W. Lucas	16:36
Company STETSON ENGINEERS	Company EMA	
Signature	Signature	
Print	Print	
Company	Company	
Signature	Signature	
Print	Print	
Company	Company	

[1]Additional costs may apply, consult a project manager for details.

[2]EMA reserves the right to return any samples that do not match our waste profile.

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

Note: By relinquishing samples to EnviroMatrix Analytical, Inc., client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of the invoice. Sample(s) will be disposed of after 30 days unless otherwise noted. All work is subject to EMA's terms and conditions.

Analytical Sciences Laboratory
University of Idaho
Holm Research Center
2222 West 6th Street, P.O. Box 442203
Moscow, Idaho 83844-2203
Phone: (208) 885-7081 FAX: (208) 885-8937
email: asl@uidaho.edu http://www.agls.uidaho.edu/asl/

Certificate of Analysis

Prepared For: Shanda McGraw
EcoAnalysts, Inc.
105 East 2nd Street, Suite 1

Moscow, ID 83843

Case ID: **ESEP06-008**
Report Date: 09-Oct-06
Date Received: 22-Sep-06
Client Ref.: 873-EnviroMatrix Chlor
Project ID: 873

1st Level QC:	Barry K Hart	Date:	10-9-06
2nd Level QC:		Date:	10-10-06

Case Comments:

Jar was received frozen and broken (transferred to a new jar). No contents were lost or damaged.

EcoAnalysts, Inc.

ND = Not Detected NA = Not Applicable MDL = Method Detection Limit QNS = Quantity Not Sufficient

Analytical Sciences Laboratory
Certificate of Analysis

Client SampleID: 873-1 Site/Location: LON-9-13-06
ASL Sample ID: E0603388 Matrix: Solid - Wet Weight

Chlorophyll Analysis	Method: EPA 446.0	Prep: Acetone Extraction	Analysis Date: 04-Oct-06
	Results	MDL	Pres.: Freeze Filter? N/A
Chlorophyll A	**16.1 µg**	0.1	
Chlorophyll B	**0.8 µg**	0.1	
Sample Volume: 905 mLs			

Samples will be discarded one month after date of final report unless otherwise requested

ND = Not Detected NA = Not Applicable MDL = Method Detection Limit QNS = Quantity Not Sufficient

EnviroMatrix Analytical, Inc.

13 November 2006

Stetson Engineers
Attn: Ben Brezing
2171 East Francisco Suite K
San Rafael, CA 94901

EMA Log #: 0611060

Project Name: YSI/Sondes
Project Desc./#:2148-02-005

Enclosed are the results of analyses for samples received by the laboratory on 11/02/06 16:08. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

Dan Verdon
Laboratory Director

CA ELAP Certification #: 2564

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0611060

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LON-OUT-110106	0611060-01	Water	11/01/06 10:00	11/02/06 16:08

NOTE: Chlorophyll analyses performed by a subcontract laboratory, results to follow in a separate report.

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0611060

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LON-OUT-110106 (0611060-01) Water	**Sampled: 11/01/06 10:00**		**Received: 11/02/06 16:08**						
Specific Conductance (EC)	**1570**	1	umhos/cm	1	6111028	11/10/06	11/10/06	SM2510 B	
Dissolved Oxygen	**11.7**	0.10	mg/l	"	6111029	11/02/06	11/02/06	SM4500 O G	HT-04
pH	**8.07**	0.10	pH Units	"	6110226	11/02/06	11/02/06	EPA 150.1	HT-04
Total Dissolved Solids	**1070**	20	mg/l	"	6110721	11/06/06	11/07/06	SM2540 C	
Turbidity	**67.3**	0.05	NTU	"	6110905	11/03/06	11/09/06	SM2130 B	

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0611060

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110226										
Duplicate (6110226-DUP1)		**Source: 0611060-01**		Prepared & Analyzed: 11/02/06						
pH	8.15	0.10	pH Units		8.07			1	20	
Reference (6110226-SRM1)				Prepared & Analyzed: 11/02/06						
pH	8.83	0.10	pH Units	9.10		97	97-103			
Batch 6110721										
Duplicate (6110721-DUP1)		**Source: 0611007-02**		Prepared & Analyzed: 11/07/06						
Total Dissolved Solids	824	20	mg/l		798			3	20	
Reference (6110721-SRM1)				Prepared & Analyzed: 11/07/06						
Total Dissolved Solids	190	20	mg/l	185		103	86-114			
Batch 6110905										
Duplicate (6110905-DUP1)		**Source: 0611060-01**		Prepared: 11/03/06 Analyzed: 11/09/06						
Turbidity	67.7	0.05	NTU		67.3			0.6	20	
Reference (6110905-SRM1)				Prepared: 11/03/06 Analyzed: 11/09/06						
Turbidity	5.13	0.05	NTU	5.41		95	87.6-109.8			
Batch 6111028										
Duplicate (6111028-DUP1)		**Source: 0611189-05**		Prepared & Analyzed: 11/10/06						
Specific Conductance (EC)	13500	1	umhos/cm		13400			0.7	20	

Client Name: Stetson Engineers
Project Name: YSI/Sondes

EMA Log #: 0611060

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6111028										
Reference (6111028-SRM1)				Prepared & Analyzed: 11/10/06						
Specific Conductance (EC)	313	1	umhos/cm	297		105	93-107			
Batch 6111029										
Duplicate (6111029-DUP1)		**Source: 0611060-01**		Prepared & Analyzed: 11/02/06						
Dissolved Oxygen	13.7	0.10	mg/l		11.7			16	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers **EMA Log #: 0611060**
Project Name: YSI/Sondes

Notes and Definitions

HT-04	This sample was received outside of the EPA recommended holding time for this analysis.
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

CHAIN-OF-CUSTODY FORM

EnviroMatrix EMA *Analytical, Inc.*

4340 Viewridge Ave., Ste. A · San Diego, CA 92123 · Phone (858) 560-7717 · Fax (858) 560-7763

EMA LOG #: 0611060

Client: USBR/STETSON ENGINEERS

Attn: BEN BREZING

Sampler(s): BEN BREZING

Address: 2171 E. FRANCISCO BLVD, SUITE K.
SAN RAFAEL, CA 94901

Phone: 415-457-0701 Fax: 415-457-1638

Email: benb@stetsonengineers.com

Billing Address:
- SAME -

Project ID:

Project #: 2148-02-005 PO#: 2148

SAMPLE DETAILS

#	Client Sample ID	Sample Date/Time		Sample Matrix	Container(s) # of / Type
01	LON-OUT-110106	11/1	1000		2
02					
03					
04					
05					
06					
07					
08					
09					
10					

REQUESTED ANALYSIS

#	Oil & Grease 1664 / 413.1 / 413.2	Total Recoverable Petroleum Hydrocarbons 418.1	8015B (TPH) Gas Diesel Ext ASTM D2887	624 / 8260 (VOC) Full BTXE MTBE Oxy Nap	625 / 8270 (Semi Volatile Organics) PAH only	608 / 8081 (Organochlorine Pesticides)	608 / 8082 (Polychlorinated Biphenyls)	8141 (Organophosphorus Pesticides)	TBT (Organotin Compounds)	pH Conductivity (EC) TSS TDS	Nitrate Nitrite TKN NH3	TTLC Metals (CAC Title 22) / (CAM 17)	STLC Metals (CAC Title 22) / (CAM 17)	TCLP (RCRA) Metals Organics	Cd Cr Cu Pb Ni Ag Zn Dissolved	Coliform, Total (MTF) Fecal (MTF) Colilert,T+E.Coli	Enterococcus, MTF Idexx	Heterotrophic Plate Count (HPC)	Dissolved Oxygen	Turbidity	Chlorophyll				
01										X									✓	✓	✓				
02										✓															
03																									
04																									
05																									
06																									
07																									
08																									
09																									
10																									

Microbiology Notes:

NOV 2'06 16:24

Sample Comments:

Sample Matrix Codes: GW=ground water WW=waste water DW=drinking water SW=storm water
A=air SED=sediment O=oil T=tissue S=solid other (specify) L=liquid other (specify)

Shipped By: Courier UPS FedEx USPS X Client drop off Other_____

[1]**Turnaround Time:** Same day 24 hr 48 hr 3 day 4 day 5 day X STD (7 day)

[1]**Reporting Requirements:** Fax PDF Excel Geotracker EDF Other _____

[1]**Sample Disposal:** X By Laboratory [2]Return to client: P/U or Delivery Archive until ____/____/____

SAMPLE INTEGRITY

Correct Containers: Yes No N/A

Containers Properly Preserved: Yes No N/A

Custody Seals Intact: Yes No N/A

Temperature @ Receipt: 6°C

COC/Labels Agree: Yes No N/A

Sampled By: Client EMA Autosampler

Project Comments:

CHAIN-OF-CUSTODY RECORD

	RELINQUISHED BY	RECEIVED BY	DATE/TIME STAMP
Signature			11/2/06
Print	BEN BREZING	W. Lucero	16:08
Company	STETSON ENGINEERS	EMA	
Signature			
Print			
Company			
Signature			
Print			
Company			

[1]Additional costs may apply, consult a project manager for details.

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

[2]EMA reserves the right to return any samples that do not match our waste profile.

Note: By relinquishing samples to EnviroMatrix Analytical, Inc., client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of the invoice. Sample(s) will be disposed of after 30 days unless otherwise noted. All work is subject to EMA's terms and conditions.

Analytical Sciences Laboratory
University of Idaho
Holm Research Center
2222 West 6th Street, P.O. Box 442203
Moscow, Idaho 83844-2203
Phone: (208) 885-7081 FAX: (208) 885-8937
email: asl@uidaho.edu http://www.agls.uidaho.edu/asl/

Certificate of Analysis

Prepared For: Shanda McGraw
EcoAnalysts, Inc.
105 East 2nd Street, Suite 1

Moscow, ID 83843

Case ID: ENOV06-009
Report Date: 20-Nov-06
Date Received: 16-Nov-06
Client Ref.: 873 EnviroMatrix Chlor
Project ID: 873

1st Level QC: [signature] Date: 11-20-06
2nd Level QC: [signature] Date: 11-20-06

Case Comments:

Requested Due Date 11/21/06

[signature]
EcoAnalysts, Inc.

ND = Not Detected NA = Not Applicable MDL = Method Detection Limit QNS = Quantity Not Sufficient

20-Nov-06

Analytical Sciences Laboratory
Certificate of Analysis

Case ID: ENOV06-009
Date Rec'd.: 16-Nov-06

Client ID: 873-3
ASL Sample ID: E0604000

Site:
Ref/Loc.: LON-OUT-110106
Matrix: Solid - Wet Weight

Collected by:
Collect Date: 01-Nov-06

Chlorophyll Analysis

Method: Winterman/DeMots Mod. - Filter
Prep: Acetone Extraction

Pres: Freeze
Filter: N/A

Prep Date: N/A
Analysis Date: 17-Nov-06

	Results	MDL
Chlorophyll A	25.5 µg	0.1
Chlorophyll B	< 0.1 µg	0.1
Chlorophyll A & B	25.5 µg	0.1

Reported results are for a 319 mL aliquot of the total sample of 893 mLs.

Samples will be discarded one month after date of final report unless otherwise requested

ND = Not Detected NA = Not Applicable MDL = Method Detection Limit QNS = Quantity Not Sufficient

EnviroMatrix Analytical, Inc.

30 November 2006

Stetson Engineers
Attn: Ben Brezing
2171 East Francisco Suite K
San Rafael, CA 94901

EMA Log #: 0611292

Project Name: 2148-02-005

Enclosed are the results of analyses for samples received by the laboratory on 11/16/06 16:08. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

Dan Verdon
Laboratory Director

CA ELAP Certification #: 2564

4340 Viewridge Avenue, Suite A - San Diego, California 92123 - (858) 560-7717 - Fax (858) 560-7763
Analytical Chemistry Laboratory

Client Name: Stetson Engineers
Project Name: 2148-02-005

EMA Log #: 0611292

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DIUDITCH111606	0611292-01	Water	11/16/06 14:30	11/16/06 16:08

NOTE: Chlorophyll analyses performed by a subcontract laboratory, results to follow in a separate report.

Client Name: Stetson Engineers
Project Name: 2148-02-005

EMA Log #: 0611292

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DIUDITCH111606 (0611292-01) Water	**Sampled: 11/16/06 14:30**		**Received: 11/16/06 16:08**						
Specific Conductance (EC)	**1320**	1	umhos/cm	1	6112010	11/20/06	11/20/06	SM2510 B	
Dissolved Oxygen	**7.82**	0.10	mg/l	"	6112725	11/16/06	11/16/06	SM4500 O G	
pH	**7.95**	0.10	pH Units	"	6111626	11/16/06	11/16/06	EPA 150.1	
Total Dissolved Solids	**748**	20	mg/l	"	6112820	11/22/06	11/28/06	SM2540 C	
Turbidity	**0.53**	0.05	NTU	"	6112712	11/17/06	11/27/06	SM2130 B	

Client Name: Stetson Engineers **EMA Log #: 0611292**
Project Name: 2148-02-005

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6111626										
Duplicate (6111626-DUP1)		**Source: 0611292-01**		Prepared & Analyzed: 11/16/06						
pH	7.80	0.10	pH Units		7.95			2	20	
Reference (6111626-SRM1)				Prepared & Analyzed: 11/16/06						
pH	8.83	0.10	pH Units	9.10		97	97-103			
Batch 6112010										
Duplicate (6112010-DUP1)		**Source: 0611292-01**		Prepared & Analyzed: 11/20/06						
Specific Conductance (EC)	1340	1	umhos/cm		1320			2	20	
Reference (6112010-SRM1)				Prepared & Analyzed: 11/20/06						
Specific Conductance (EC)	302	1	umhos/cm	297		102	93-107			
Batch 6112712										
Duplicate (6112712-DUP1)		**Source: 0611292-01**		Prepared: 11/17/06 Analyzed: 11/27/06						
Turbidity	0.52	0.05	NTU		0.53			2	20	
Reference (6112712-SRM1)				Prepared: 11/17/06 Analyzed: 11/27/06						
Turbidity	5.16	0.05	NTU	5.41		95	87.6-109.8			
Batch 6112725										
Duplicate (6112725-DUP1)		**Source: 0611292-01**		Prepared & Analyzed: 11/16/06						
Dissolved Oxygen	7.68	0.10	mg/l		7.82			2	20	

Client Name: Stetson Engineers
Project Name: 2148-02-005

EMA Log #: 0611292

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6112820										
Duplicate (6112820-DUP1)		**Source: 0611310-01**		Prepared: 11/22/06		Analyzed: 11/28/06				
Total Dissolved Solids	1680	20	mg/l		1720			2	20	
Reference (6112820-SRM1)				Prepared: 11/22/06		Analyzed: 11/28/06				
Total Dissolved Solids	190	20	mg/l	185		103	86-114			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
Project Name: 2148-02-005

EMA Log #: 0611292

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

CHAIN-OF-CUSTODY FORM

EnviroMatrix **EMA** *Analytical, Inc.*

page____of____

4340 Viewridge Ave., Ste. A · San Diego, CA 92123 · Phone (858) 560-7717 · Fax (858) 560-7763

EMA LOG #: 0611292

Client: USBR/STETSON ENGINEERS

Attn: BEN BREZING

Sampler(s): BEN BREZING

Address: 2171 E. FRANCISCO BLVD, SUITE K.

Phone: 415-457-0701 Fax: 415-457-1638

Email: benb@stetsonengineers.com

Billing Address: -SAME-

Project ID:

Project #: 2148-02-005 PO#: 2148

SAMPLE DETAILS

#	Client Sample ID	Sample Date/Time	Sample Matrix	Container(s) # of / Type
01	DIVDITCH111606	11/16 1430		2
02				
03				
04				
05				
06				
07				
08				
09				
10				

REQUESTED ANALYSIS

Oil & Grease: 413.1 413.2 1664
418.1 (Total Recoverable Petroleum Hydrocarbons)
8015B (TPH): Gas Diesel Ext ASTM D2887
624 / 8260 (VOC): Full BTXE MTBE Oxy Nap
625 / 8270 (Semi Volatile Organics): PAH only
608 / 8081 (Organochlorine Pesticides)
608 / 8082 (Polychlorinated Biphenyls)
8141 (Organophosphorus Pesticides)
TBT (Organotin Compounds)
Conductivity (EC) X pH X TSS X DS
Nitrate Nitrite TKN NH3
TTLC Metals (CAC Title 22) / (CAM 17)
STLC Metals (CAC Title 22) / (CAM 17)
TCLP (RCRA) Metals Organics
Cd Cr Cu Pb Ni Ag Zn Dissolved
Coliform, Total (MTF) Fecal (MTF) Colilert, T+F.Coli
Enterococcus, MTF Idexx
Heterotrophic Plate Count (HPC)
✓ DISSOLVED OXYGEN
✓ TURBIDITY
✓ CHLOROPHYLL

Microbiology Notes:

Sample Comments:

Sample Matrix Codes: GW=ground water WW=waste water DW=drinking water SW=storm water

A=air SED=sediment O=oil T=tissue S=solid other (specify) L=liquid other (specify)

Shipped By: Courier UPS FedEx USPS X Client drop off Other_____

[1]**Turnaround Time:** Same day 24 hr 48 hr 3 day 4 day 5 day X TD (7 day)

[1]**Reporting Requirements:** Fax PDF Excel Geotracker EDF Other _____

[1]**Sample Disposal:** X By Laboratory [2]Return to client: P/U or Delivery Archive until ____/____/____

SAMPLE INTEGRITY

Correct Containers: Yes No N/A

Custody Seals Intact: Yes No N/A

COC/Labels Agree: Yes No N/A

Containers Properly Preserved: Yes No N/A

Temperature @ Receipt: 8°C

Sampled By: ✓ Client EMA Autosampler

Project Comments:

CHAIN-OF-CUSTODY RECORD

	RELINQUISHED BY	RECEIVED BY	DATE/TIME STAMP
Signature			11/16/06 16:08
Print	BEN BREZING	W. LUCERO	
Company	STETSON ENGINEERS	EMA	
Signature			
Print			
Company			
Signature			
Print			
Company			

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

[1]Additional costs may apply, consult a project manager for details.

[2]EMA reserves the right to return any samples that do not match our waste profile.

Note: By relinquishing samples to EnviroMatrix Analytical, Inc., client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of the invoice. Sample(s) will be disposed of after 30 days unless otherwise noted. All work is subject to EMA's terms and conditions.

An. .ytical Sciences Laborato. /
University of Idaho
Holm Research Center
2222 West 6th Street, P.O. Box 442203
Moscow, Idaho 83844-2203
Phone: (208) 885-7081 FAX: (208) 885-8937
email: asl@uidaho.edu http://www.agls.uidaho.edu/asl/

Certificate of Analysis

Prepared For: Shanda McGraw
EcoAnalysts, Inc.
105 East 2nd Street, Suite 1

Moscow, ID 83843

Case ID: **ENOV06-011**
Report Date: 01-Dec-06
Date Received: 28-Nov-06
Client Ref.: DIU-DITCH-111606
Project ID: 873

1st Level QC: Brian K Hart Date: 12-1-06
2nd Level QC: Jon M Titus Date: 12-1-06

Case Comments:

EcoAnalysts, Inc.

ND = Not Detected NA = Not Applicable MDL = Method Detection Limit QNS = Quantity Not Sufficient

Analytical Sciences Laboratory
Certificate of Analysis

Case ID: ENOV06-011
Date Rec'd.: 28-Nov-06

Client ID: 873-4
ASL Sample ID: E0604004

Site:
Ref/Loc.:
Matrix: Solid - Wet Weight

Collected by:
Collect Date: 28-Nov-06

Chlorophyll Analysis

Method: Winterman/DeMots Mod. - Filter
Prep: Acetone Extraction

Pres: Freeze
Filter: N/A

Prep Date: N/A
Analysis Date: 29-Nov-06

	Results	MDL
Chlorophyll A	**1.3 µg**	0.1
Chlorophyll B	**0.8 µg**	0.1
Chlorophyll A & B	**2.1 µg**	0.1

Used the total sample volume of 933 mLs in the test.

Samples will be discarded one month after date of final report unless otherwise requested

ND = Not Detected NA = Not Applicable MDL = Method Detection Limit QNS = Quantity Not Sufficient

EnviroMatrix Analytical, Inc.

15 December 2006

Stetson Engineers
Attn: Ben Brezing
2171 East Francisco Suite K
San Rafael, CA 94901

EMA Log #: 0612095

Project Name: 2148-02-5

Enclosed are the results of analyses for samples received by the laboratory on 12/05/06 16:06. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

Dan Verdon
Laboratory Director

CA ELAP Certification #: 2564

Client Name: Stetson Engineers
Project Name: 2148-02-5

EMA Log #: 0612095

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DIVDITCH1205	0612095-01	Water	12/05/06 09:30	12/05/06 16:06

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
Project Name: 2148-02-5

EMA Log #: 0612095

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DIVDITCH1205 (0612095-01) Water	**Sampled: 12/05/06 09:30**		**Received: 12/05/06 16:06**						
Specific Conductance (EC)	**1300**	1	umhos/cm	1	6121317	12/13/06	12/13/06	SM2510 B	
Dissolved Oxygen	**7.10**	0.10	mg/l	"	6121319	12/05/06	12/05/06	SM4500 O G	
pH	**7.63**	0.10	pH Units	"	6120533	12/05/06	12/05/06	EPA 150.1	
Total Dissolved Solids	**868**	20	mg/l	"	6121421	12/11/06	12/14/06	SM2540 C	
Turbidity	**0.73**	0.05	NTU	"	6121124	12/06/06	12/06/06	SM2130 B	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
Project Name: 2148-02-5

EMA Log #: 0612095

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120533										
Duplicate (6120533-DUP1)		**Source: 0612087-03**		Prepared & Analyzed: 12/05/06						
pH	8.78	0.10	pH Units		8.77			0.1	20	
Reference (6120533-SRM1)				Prepared & Analyzed: 12/05/06						
pH	8.87	0.10	pH Units	9.10		97	97-103			
Batch 6121124										
Duplicate (6121124-DUP1)		**Source: 0612066-10**		Prepared & Analyzed: 12/06/06						
Turbidity	0.25	0.05	NTU		0.26			4	20	
Batch 6121317										
Duplicate (6121317-DUP1)		**Source: 0612086-01**		Prepared & Analyzed: 12/13/06						
Specific Conductance (EC)	9410	1	umhos/cm		9400			0.1	20	
Duplicate (6121317-DUP2)		**Source: 0612086-02**		Prepared & Analyzed: 12/13/06						
Specific Conductance (EC)	9700	1	umhos/cm		9700			0	20	
Reference (6121317-SRM1)				Prepared & Analyzed: 12/13/06						
Specific Conductance (EC)	302	1	umhos/cm	297		102	93-107			
Reference (6121317-SRM2)				Prepared & Analyzed: 12/13/06						
Specific Conductance (EC)	308	1	umhos/cm	297		104	93-107			
Batch 6121319										
Duplicate (6121319-DUP1)		**Source: 0612095-01**		Prepared & Analyzed: 12/05/06						
Dissolved Oxygen	6.18	0.10	mg/l		7.10			14	20	

Client Name: Stetson Engineers
Project Name: 2148-02-5

EMA Log #: 0612095

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6121421										
Duplicate (6121421-DUP1)		**Source: 0612101-02**		Prepared: 12/11/06		Analyzed: 12/14/06				
Total Dissolved Solids	630	20	mg/l		598			5	20	
Reference (6121421-SRM1)				Prepared: 12/11/06		Analyzed: 12/14/06				
Total Dissolved Solids	179	20	mg/l	185		97	86-114			

Client Name: Stetson Engineers
Project Name: 2148-02-5

EMA Log #: 0612095

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

CHAIN-OF-CUSTODY FORM

EnviroMatrix **E M A** *Analytical, Inc.*

4340 Viewridge Ave., Ste. A · San Diego, CA 92123 · Phone (858) 560-7717 · Fax (858) 560-7763

EMA LOG #: 0612095

Client: SBR/STETSON ENGINEERS

Attn: BEN BREZING

Sampler(s): BEN BREZING

Address: 2171 E. FRANCISCO BLVD, SUITE K

Phone: 415-457-0701 Fax: 415-457-1638

Email: benb@stetsonengineers.com

Billing Address: -SAME

Project ID:

Project #: 2148-02-5 PO#: 2148

SAMPLE DETAILS

#	Client Sample ID	Sample Date/Time	Sample Matrix	Container(s) # of / Type
01	DIVDITCH1205	12/5 930		2
02				
03				
04				
05				
06				
07				
08				
09				
10				

REQUESTED ANALYSIS

#	Oil & Grease □1664 □413.1 □413.2	418.1 (Total Recoverable Petroleum Hydrocarbons)	8015B (TPH) □Gas □Diesel □Ext □ASTM D2887	624 / 8260 (VOC) □Full □BTXE □MTBE □Oxy □Nap	625 / 8270 (Semi Volatile Organics) □PAH only	608 / 8081 (Organochlorine Pesticides)	608 / 8082 (Polychlorinated Biphenyls)	8141 (Organophosphorus Pesticides)	TBT (Organotin Compounds)	Conductivity (EC) □TSS TDS	pH	Nitrate □Nitrite □TKN □NH3	TTLC Metals (CAC Title 22) / (CAM 17)	STLC Metals (CAC Title 22) / (CAM 17)	TCLP (RCRA) Metals □Organics	Cd Cr Cu Pb Ni Ag Zn □Dissolved	Coliform, Total (MTF) □Fecal (MTF) □Colilert,T+E.Coli	Enterococcus, □MTF □Idexx	Heterotrophic Plate Count (HPC)	DISSOLVED OXYGEN	TURBIDITY
01										X	X								✓	✓	
02										✓	✓										
03																					
04																					
05																					
06																					
07																					
08																					
09																					
10																					

Microbiology Notes:

DEC 06 06 12:4

Sample Comments:

Sample Matrix Codes: GW=ground water WW=waste water DW=drinking water SW=storm water

A=air SED=sediment O=oil T=tissue S=solid other (specify) L=liquid other (specify)

Shipped By: □Courier □UPS □FedEx □USPS X Client drop off □Other_____

[1]**Turnaround Time:** □Same day □24 hr □48 hr □3 day □4 day □5 day X STD (7 day)

[1]**Reporting Requirements:** □Fax □PDF □Excel □Geotracker EDF □Other _____

[1]**Sample Disposal:** X By Laboratory [2]Return to client: P/U or Delivery Archive until ____/____/____

SAMPLE INTEGRITY

Correct Containers: Yes No N/A	Containers Properly Preserved: Yes No N/A
Custody Seals Intact: Yes No N/A	Temperature @ Receipt: 7°C
COC/Labels Agree: Yes No N/A	Sampled By: ✓ Client □EMA □Autosampler

Project Comments:

CHAIN-OF-CUSTODY RECORD

RELINQUISHED BY	RECEIVED BY	DATE/TIME STAMP
Signature	Signature	12/5/06 16:06
Print BEN BREZING	Print W. LUCERO	
Company STETSON ENGINEERS	Company EMA	
Signature	Signature	
Print	Print	
Company	Company	
Signature	Signature	
Print	Print	
Company	Company	

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

[1]Additional costs may apply, consult a project manager for details.

[2]EMA reserves the right to return any samples that do not match our waste profile.

Note: By relinquishing samples to EnviroMatrix Analytical, Inc., client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of the invoice. Sample(s) will be disposed of after 30 days unless otherwise noted. All work is subject to EMA's terms and conditions.

EnviroMatrix Analytical, Inc.

15 January 2007

Stetson Engineers
Attn: Ben Brezing
2171 East Francisco Suite K
San Rafael, CA 94901

EMA Log #: 0701099

Project Name: 2148-02-5

Enclosed are the results of analyses for samples received by the laboratory on 01/04/07 16:50. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

Dan Verdon
Laboratory Director

CA ELAP Certification #: 2564

4340 Viewridge Avenue, Suite A - San Diego, California 92123 - (858) 560-7717 - Fax (858) 560-7763
Analytical Chemistry Laboratory

Client Name: Stetson Engineers
Project Name: 2148-02-5

EMA Log #: 0701099

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DIVDITCH010207	0701099-01	Water	01/04/07 10:00	01/04/07 16:50

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
Project Name: 2148-02-5

EMA Log #: 0701099

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DIVDITCH010207 (0701099-01) Water	**Sampled: 01/04/07 10:00**		**Received: 01/04/07 16:50**						
Specific Conductance (EC)	**1330**	1	umhos/cm	1	7011127	01/11/07	01/11/07	SM2510 B	
Dissolved Oxygen	**6.72**	0.10	mg/l	"	7011206	01/04/07	01/04/07	SM4500 O G	
pH	**7.73**	0.10	pH Units	"	7010501	01/04/07	01/04/07	EPA 150.1	
Total Dissolved Solids	**844**	20	mg/l	"	7011118	01/10/07	01/11/07	SM2540 C	
Turbidity	**1.06**	0.05	NTU	"	7010512	01/05/07	01/05/07	SM2130 B	

Client Name: Stetson Engineers **EMA Log #: 0701099**
Project Name: 2148-02-5

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7010501										
Duplicate (7010501-DUP1)		**Source: 0701090-02**		Prepared & Analyzed: 01/04/07						
pH	9.13	0.10	pH Units		9.01			1	20	
Reference (7010501-SRM1)				Prepared & Analyzed: 01/04/07						
pH	8.83	0.10	pH Units	9.10		97	97-103			
Batch 7010512										
Duplicate (7010512-DUP1)		**Source: 0701064-01**		Prepared & Analyzed: 01/05/07						
Turbidity	0.26	0.05	NTU		0.26			0	20	
Reference (7010512-SRM1)				Prepared & Analyzed: 01/05/07						
Turbidity	1.70	0.05	NTU	1.59		107	32.39-117.6			
Batch 7011118										
Duplicate (7011118-DUP1)		**Source: 0701044-02**		Prepared: 01/10/07 Analyzed: 01/11/07						
Total Dissolved Solids	672	20	mg/l		676			0.6	20	
Reference (7011118-SRM1)				Prepared: 01/10/07 Analyzed: 01/11/07						
Total Dissolved Solids	187	20	mg/l	185		101	1.64-108.3			
Batch 7011127										
Duplicate (7011127-DUP1)		**Source: 0701099-01**		Prepared & Analyzed: 01/11/07						
Specific Conductance (EC)	1330	1	umhos/cm		1330			0	20	

Client Name: Stetson Engineers
Project Name: 2148-02-5

EMA Log #: 0701099

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7011127										
Reference (7011127-SRM1)				Prepared & Analyzed: 01/11/07						
Specific Conductance (EC)	293	1	umhos/cm	297		99	93-107			
Batch 7011206										
Duplicate (7011206-DUP1)		**Source: 0701099-01**		Prepared & Analyzed: 01/04/07						
Dissolved Oxygen	6.40	0.10	mg/l		6.72			5	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Stetson Engineers
Project Name: 2148-02-5

EMA Log #: 0701099

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

CHAIN-OF-CUSTODY FORM

EnviroMatrix **EMA** *Analytical, Inc.*

4340 Viewridge Ave., Ste. A · San Diego, CA 92123 · Phone (858) 560-7717 · Fax (858) 560-7763

EMA LOG #: 0701099

Client: USBR/STETSON ENGINEERS

Attn: BEN BREZING

Sampler(s): BEN BREZING

Address: 2171 E. FRANCISCO BLVD., SUITE K
SAN RAFAEL, CA 94901

Phone: 415-457-0701 Fax: 415-457-1638

Email: benb@stetsonengineers.com

Billing Address:
-SAME-

Project ID:

Project #: 2148-02-S PO#: 2148

SAMPLE DETAILS

#	Client Sample ID	Sample Date/Time	Sample Matrix	Container(s) # of / Type
01	DIV PITCH010207	01/04 1000		1
02				
03				
04				
05				
06				
07				
08				
09				
10				

REQUESTED ANALYSIS

Oil & Grease: 413.1 413.2 1664
418.1 (Total Recoverable Petroleum Hydrocarbons)
8015B (TPH): Gas Diesel Ext ASTM D2887
624 / 8260 (VOC): Full BTXE MTBE Oxy Nap
625 / 8270 (Semi Volatile Organics): PAH only
608 / 8081 (Organochlorine Pesticides)
608 / 8082 (Polychlorinated Biphenyls)
8141 (Organophosphorus Pesticides)
TBT (Organotin Compounds)
pH Conductivity (EC) TSS X TDS
Nitrate Nitrite TKN NH3
TTLC Metals (CAC Title 22) / (CAM 17)
STLC Metals (CAC Title 22) / (CAM 17)
TCLP (RCRA) Metals Organics
Cd Cr Cu Pb Ni Ag Zn Dissolved
Coliform, Total (MTF) Fecal (MTF) Colilert,T+E.Coli
Enterococcus, MTF Idexx
Heterotrophic Plate Count (HPC)
✓ DISSOLVED OXYGEN
✓ TURBIDITY

Microbiology Notes:

JAN 07 1330

Sample Comments:

Sample Matrix Codes: GW=ground water WW=waste water DW=drinking water SW=storm water
A=air SED=sediment O=oil T=tissue S=solid other (specify) L=liquid other (specify)

Shipped By: Courier UPS FedEx USPS X Client drop off Other_____

[1]**Turnaround Time:** Same day 24 hr 48 hr 3 day 4 day 5 day X STD (7 day)

[1]**Reporting Requirements:** Fax PDF Excel Geotracker EDF Other _____

[1]**Sample Disposal:** X By Laboratory [2]Return to client: P/U or Delivery Archive until ____/____/____

SAMPLE INTEGRITY

Correct Containers: Yes No N/A
Containers Properly Preserved: Yes No N/A
Custody Seals Intact: Yes No N/A
Temperature @ Receipt: 11°C
COC/Labels Agree: Yes No N/A
Sampled By: Client EMA Autosampler

Project Comments:

CHAIN-OF-CUSTODY RECORD

	RELINQUISHED BY	RECEIVED BY	DATE/TIME STAMP
Signature			1/4/07
Print	BEN BREZING	Joe Leonard	
Company	STETSON ENGINEERS	EMA	
Signature			
Print			
Company			
Signature			
Print			
Company			

[1]Additional costs may apply, consult a project manager for details.

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

[2]EMA reserves the right to return any samples that do not match our waste profile.

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