



December 20, 2007
Project No. 3596.001.02

PROJECT MEMORANDUM

To: Mr. Bruce Buel, General Manager
Copy: Paul Sorenson
From: David Gardner, C.Hg.
Subject: **Task 4 - Technical Memorandum Nipomo Creek Water Quality Sampling Program Phase 2 - Hydrogeologic Investigation of the Southland WWTF**

The purpose of the project memorandum is to describe the procedures followed, results obtained, and a preliminary interpretation of the fate and transport of wastewater constituents discharged to percolation ponds at the Nipomo Community Services District (CSD) Southland Wastewater Treatment Facility (WWTF). In this task, we identify water quality indicators of wastewater origin, with specific reference to the presence of such wastewater in Nipomo Creek. Prior work by Fugro (2007) and others (Cleath, 1997, 2000) suggested that wastewater discharged to the percolation ponds may be flowing, in part, laterally toward Nipomo Creek and re-emerging as surface water. Through discussions with staff at the Central Coast Regional Water Quality Control Board (RWQCB), ongoing and anticipated future operation of the WWTF needs to address potential water quality impacts to Nipomo Creek, if any.

To investigate the possible connection of wastewater discharges at the WWTF and surface water flow and quality in Nipomo Creek a series of composite samples of wastewater discharged to the percolation ponds were obtained. A sampling event was also conducted at five stations along Nipomo Creek. Water quality samples were also obtained from two shallow groundwater monitoring wells located adjacent the percolation pond. Procedures for sample collection are described in this project memorandum. Constituents chosen for analysis were based, in part, on the USGS Water Resources Investigations Report 03-4279, "Use of Water Quality Indicators and Environmental Tracers to Determine the Fate and Transport of Recyclable Water in Los Angeles County, California." The USGS report was used for guidance only.

A summary of the water quality data obtained is presented in tabular form, in Stiff diagrams, and in a Piper diagram for the purpose of comparative analysis. Mixing model calculations for chloride ions were applied to grossly estimate the percentage of wastewater in surface water in Nipomo Creek.



FIELD SAMPLING PROCEDURES

A traverse of Nipomo Creek was conducted on Monday, October 22nd, from upstream to downstream of a stretch adjacent the Southland WWTF. Sampling stations are shown on Plate 1 - Study Area Map. During this event, flow in the Nipomo Creek was noted and water quality samples were collected at five locations (Plate 1 and Table 1).

Surface water flow in Nipomo Creek was determined by measuring the width and depth along a cross section of the channel at the sample location point. A float was timed over a defined distance moving down the creek. Discharge was calculated using cross sectional creek area multiplied by flow rate. A summary of analytical results are shown on Table 1 - Summary of Water Quality Data.

Field analysis of surface water samples were obtained for pH (Oakton Con-10), temperature (Oakton Con-10), electrical conductivity (YSI Model 33 S-C-T Meter - with temperature correction) and dissolved oxygen (DO; Hach LDO-HQ10 Oxygen Sensor - with temperature correction). Each instrument was calibrated prior to use. Measurements were recorded from the center of the water column, and in the case of DO the probe was agitated during reading (to prevent underestimation of the reading).

Wastewater discharged to the Southland WWTF percolation ponds was sampled by CSD staff using a composite peristaltic type sampler pump over a 16 hour period. Such sampling was performed weekly (commencing every Tuesday afternoon) for a period of one month. The analytical results of two such composite samples are presented in the report.

Samples from monitoring wells MW-1 and MW-3 were obtained on October 18 and October 23, 2007 as part of an aquifer testing program. Nipomo CSD staff collected water quality samples. As with the wastewater and surface water samples, the monitoring well samples were collected in plastic sample containers, labeled with well identification, date and time, and transported under chain-of-custody documentation to FGL Environmental in Santa Paula, California. All laboratory analytical data are provided as Attachment 1 - Laboratory Analytical Data.

The constituents sampled for were generally as follows:

- **Anions:** Chloride, Sulfate, Ammonia, Nitrate, Nitrite, Total Nitrogen, Phosphate, Bromide, Alkalinity;
- **Cations:** Calcium, Sodium, Magnesium, Potassium, Boron, Zinc;
- **Other Chemical Constituents:** MBAS, Total Dissolved Solids (TDS); and
- **Physical Parameters:** Conductivity (Field and Laboratory), Dissolved Oxygen (DO), Temperature, pH, creek flow volume.



Table 1. Summary of Water Quality Data

| Constituent (mg/l or as noted) | Method | SW-1 | SW-2 | SW-3 | SW-4 | SW-5 | MW-1 | MW-3 | Effluent | Effluent | Eureka Well |
|------------------------------------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|
| | | 10/22/2007 | 10/22/2007 | 10/22/2007 | 10/22/2007 | 10/22/2007 | 10/18/2007 | 10/23/2007 | 10/24/2007 | 10/31/2007 | 8/8/2007 |
| Location: Northing | GPS | 3878462 | 3878316 | 3878049 | 3877918 | 3877064 | - | - | - | - | - |
| Location: Easting | GPS | 10731228 | 10731324 | 10731576 | 10731693 | 10731825 | - | - | - | - | - |
| Elevation | Map | 264 | 263 | 260 | 259.5 | 259 | - | - | - | - | - |
| Flow (gpm) | Field | 9 | 28 | N/D | N/D | N/D | - | - | - | - | - |
| Conductivity (uS/cm) | Field | 1110 | 1000 | 1290 | 1390 | 1300 | -- | -- | - | - | - |
| Conductivity (uS/cm) | SM2510B | 1400 | 1280 | 1580 | 1600 | 1620 | 1820 | 1680 | 1900 | - | 1030 |
| Temperature (°C) | Field | 15.7 | 14.5 | 15.7 | 16.3 | 15.6 | 17.3 | 16.7 | 15 | 11.5 | - |
| Dissolved Oxygen (DO) | Field | 4.3 | 4.3 | 16 | 8.8 | 1 | 0.4 | 4.7 | 4.8 | 7.3 | - |
| Total Dissolved Solids | SM2540C | 900 | 780 | 1040 | 1030 | 1110 | 1210 | 1090 | 1110 | 1020 | 750 |
| Chloride | EPA 300.0 | 155 | 120 | 176 | 185 | 203 | 236 | 218 | 224 | 219 | 44 |
| Boron | EPA 200.7 | <0.1 | <0.1 | 0.2 | 0.1 | <0.1 | 0.4 | 0.3 | 0.4 | 0.6 | <0.1 |
| Ammonia (as NH ₃ -N) | SM4500 | <0.2 | <0.2 | <0.2 | <0.2 | 0.3 | 0.9 | <0.2 | 44 | 34 | -- |
| MBAS | SM5540c | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | ND | <0.1 | <0.1 |
| Phosphate | EPA 300.0 | <0.5 | <0.5 | <0.5 | <0.5 | 1.9 | 1.6 | <0.5 | 14.5 | 15.1 | -- |
| Nitrate | EPA 300.0 | 18 | 26.9 | 46.5 | 41.2 | 29.5 | 114 | 76.7 | ND | 3.1 | 4.7 |
| pH (no units) | Field | 7.52 | 7.53 | 8.31 | 7.93 | 7.15 | 6.42 | 6.46 | 8.01 | 7.9 | 7.2 |
| Bromide | - | 0.59 | 0.44 | 0.33 | 0.33 | 0.35 | 0.28 | <0.03 | 0.23 | 0.32 | -- |
| Alkalinity (as CaCO ₃) | SM2320B | 380 | 330 | 320 | 330 | 250 | 200 | 200 | 350 | 340 | 150 |
| Calcium | EPA 200.7 | 93 | 80 | 93 | 89 | 101 | 98 | 87 | 85 | 77 | 109 |
| Sodium | EPA 200.7 | 148 | 107 | 159 | 162 | 182 | 223 | 215 | 205 | 193 | 55 |
| Magnesium | EPA 200.7 | 55 | 54 | 61 | 57 | 41 | 44 | 41 | 36 | 33 | 43 |
| Potassium | EPA 200.7 | 3 | 1 | 2 | 1 | 2 | 15 | 3 | 26 | 24 | 3 |
| Zinc | EPA 200.7 | 0.02 | <0.02 | <0.02 | <0.02 | <0.02 | 0.05 | 0.21 | 0.06 | 0.05 | <0.02 |
| Sulfate | EPA 300.0 | 136 | 144 | 201 | 205 | 250 | 270 | 260 | 250 | 250 | 333 |
| Nitrite | EPA 300.0 | <0.3 | <0.3 | 0.3 | <0.3 | <0.3 | <0.3 | <0.3 | ND | <0.3 | <0.1 |
| Total Nitrogen | EPA 300.0 | <0.5 | <0.5 | <0.5 | 0.6 | 1 | 1.6 | <0.5 | 38 | 36 | -- |
| Bicarbonate | SM2320B | 460 | 400 | 400 | 410 | 310 | 240 | 240 | 420 | 420 | 190 |
| Carbonate | SM2320B | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



DISCUSSION

Wastewater discharged to the Southland percolation ponds (based on composite samples of the effluent obtained on October 24 and October 31, 2007) is sodium-bicarbonate-chloride in chemical character with total dissolved solids concentrations of about 1100 milligrams per liter (mg/l). Nitrogen in the effluent is in the unoxidized ammonia form. Chloride ion concentrations, at some 225 mg/l, are distinctly elevated relative to groundwater. Typical average chloride ion concentrations in the CSD groundwater are in the 50 mg/l range (2006 Nipomo CSD Consumer Confidence Report). The elevated chloride ion concentrations in the effluent are directly related to water softener system regenerate brine. The observed increase in chloride ions in the wastewater is consistent with levels observed in other communities that rely on water softeners to reduce the hardness of water.

As indicated on Plate 1, the water quality of the shallow aquifer system (MW-1 and MW-3) immediately adjacent the Southland WWTF percolation ponds mimics the chemical character of the wastewater with respect to TDS concentrations, chloride ion concentrations, and other constituents. This is to be expected given the shallow perforated intervals in these monitoring wells, starting at depths of 35 and 50 feet, respectively, and close proximity of the monitoring wells to the percolation sites. The groundwater in the monitoring wells is essentially treated wastewater. Nitrogen species have been oxidized from ammonia to nitrate, with nitrate ion concentrations of 77 mg/l to 114 mg/l.

Surface water samples collected from the stations along Nipomo Creek (refer to Plate 1) are interpreted to represent various mixtures of native groundwater and effluent. The Stiff diagram at SW-1 is of a sodium calcium bicarbonate chemical. The chemical character of surface water in Nipomo Creek progressively transforms along the direction of surface water flow (and adjacent and downstream of the percolation ponds) to a sodium-chloride-bicarbonate character. TDS, nitrate, and chloride ion concentrations also all increase down the flow path, suggesting an increasing percentage of effluent from the percolation ponds in the surface water samples.

The percentage of wastewater relative to native groundwater in the Nipomo Creek samples could not be determined using statistical or other analytical methods due to a general lack of information on the quality of native ground water (shallow aquifer) in the area of interest. We assume, based on earlier regional studies of the Nipomo Mesa (California State Department of Water Resources Bulletin No. 63-3) that native groundwater unaffected by wastewater discharged at the WWTF had TDS concentrations of about 500 mg/l, that the native groundwater was of sodium bicarbonate character, and that the chloride ion concentration was in the range of 50 mg/l. Qualitatively, the percentage of wastewater in the surface water samples collected as part of this study relative to native groundwater may fall within the range of 50 to 75 percent, variable by location and seasonal hydrologic conditions.

USGS WRI 03-4279 provides useful approaches to use water quality indicator parameters as environmental tracers relative to the transport of recycled water in aquifers in the Los Angeles area (Montebello forebay). Chloride ions, being a conservative chemical



constituent in ground water, is often used in mixing models to estimate percentages of wastewater relative to native groundwater. Chloride is a useful indicator parameter in that it reflects the addition of this salt to wastewater during the treatment process, as cited above. When used with bromide concentration values to remove the natural chloride, “excess” chloride can be calculated and an estimate of wastewater as a percentage of ground water made. Table 2 - Summary of Excess Chloride Values and Predicted Wastewater Percentages indicates a range of wastewater in the Nipomo Creek samples from about 0 to 65 percent. The results are consistent with, the more qualitative conclusions based on the water quality data and graphical depictions (i.e., Stiff diagrams).

From the above we conclude that wastewater represents a significant component of the water sampled at SW-3, SW-4, and SW-5 in Nipomo Creek as part of this study. Obviously, as a percentage of ground water, the amount will vary seasonally and by location. We surmise that prior to discharge of wastewater in the percolation ponds there was relatively little ground water in the uppermost aquifer. What groundwater existed was likely thin lenses of perched ground water occurring above the confining layers. As the wastewater mound enlarged and spread in a radial manner from the point of discharge, mixing occurred with native ground water and with time the volume of wastewater in the shallow aquifer became a significant percentage of the total mass. We assume that some form of steady state discharge of wastewater to Nipomo Creek occurred a number of years ago, and will continue in direct proportion to the percolation of wastewater in the ponds.

Table 2. Summary of Excess Chloride Values and Calculated Wastewater Percentages

| Sample | Bromide (mg/l) | Chloride (mg/l) | Excess Chloride in Sample (mg/l) | Excess Chloride in Wastewater (mg/l) | Percentage (%) of Wastewater |
|-------------|----------------|-----------------|----------------------------------|--------------------------------------|------------------------------|
| SW-1 | .59 | 155 | 0 | 158 | 0 |
| SW-2 | .44 | 120 | 0 | 158 | 0 |
| SW-3 | .33 | 176 | 81 | 158 | 51 |
| SW-4 | .33 | 185 | 90 | 158 | 57 |
| SW-5 | .35 | 203 | 103 | 158 | 65 |
| MW-1 | .28 | 236 | 156 | 158 | 99 |
| MW-3 | <0.03 | 218 | - | 158 | - |
| Effluent | .23 | 224 | 158 | 158 | 100 |
| Eureka Well | .17 | 50 | 1 | 158 | 1* |

Notes: - Bromide Value inexplicably low (<0.03 mg/l), therefore calculation was not appropriate.
 * Well not influenced by wastewater, non-zero value due to accuracy of analytical method.
 All values accurate to ±10%



REFERENCES

Cleath and Associates (1997), *Groundwater Flow from Percolation Ponds*, letter, prepared for Nipomo Community Services District, May 22.

_____ (1997), *Test Hole Results and Recommended Monitoring Well Locations for the Nipomo CSD Wastewater Disposal Site*, prepared for Garing, Taylor and Associates, January 13.

Fugro West, Inc. (2007), "Assessment of the Potential for Extracting Discharge Water from Beneath the Southland Wastewater Treatment Facility, Nipomo, California," prepared for Nipomo Community Services District, November.

_____ (2007), "Hydrogeologic Characterization Southland Wastewater Treatment Facility, Nipomo, California," prepared for Nipomo Community Services District, July,

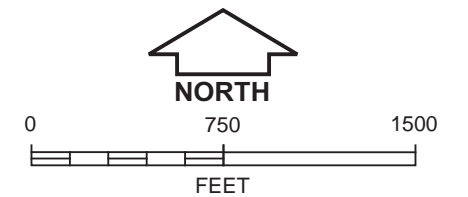
State of California, The Resources Agency, Department of Water Resources (1970), *Bulletin No. 63-3, Sea Water Intrusion: Pismo-Guadalupe Area*, February.

PLATES

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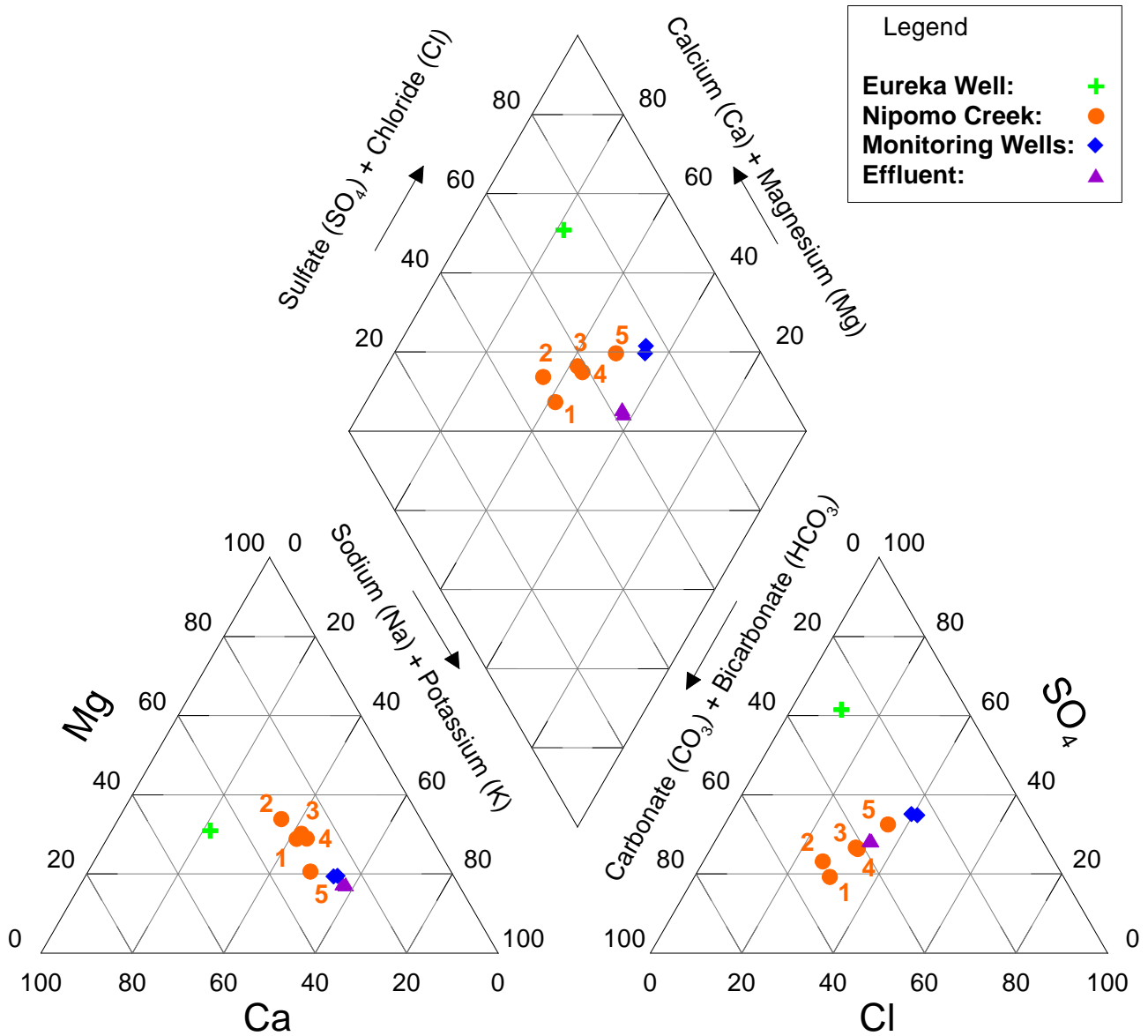


- LEGEND**
- Approximate location of Surface Water Sampling point
 - Approximate location of Monitoring Well
 - Percolation Ponds
 - Creek Channel
 - Direction of surface water flow



STUDY AREA MAP
 Southland WWTP Discharge Study
 Nipomo, California

Base map source: Google Earth, Image date: October 11, 2007.



PIPER DIAGRAM
 Southland WWTP Discharge Study
 Nipomo, California

ATTACHMENT 1
LABORATORY ANALYTICAL DATA



ANALYTICAL CHEMISTS

November 8, 2007

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Lab ID : SP 0712008
Customer : 2-14320

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

- Case Narrative (2 Pages) : An overview of the work performed at FGL.
Sample Results (2 pages) : Results for each sample submitted.
Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Table with 5 columns: Sample Description, Date Sampled, Date Received, FGL Lab ID #, Matrix. Rows include Effluent Composite and Effluent Grab.

Sampling and Receipt Information: All samples were received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

Table with 2 columns: Sample ID, Description. Rows include 200.7 and 3010.

Inorganic - Wet Chemistry QC


Table with 2 columns: Sample ID, Description. Rows include 2130B and 2320B.

Inorganic - Wet Chemistry QC

| | |
|----------|--|
| | 10/25/2007:210986 All analysis quality controls are within established criteria. |
| 2510B | 10/26/2007:210458 All preparation quality controls are within established criteria. |
| | 10/26/2007:211018 All analysis quality controls are within established criteria. |
| 2540 C,E | 10/26/2007:210459 All preparation quality controls are within established criteria. |
| 300.0 | 10/25/2007:210556 All preparation quality controls are within established criteria. |
| | 10/25/2007:211143 All analysis quality controls are within established criteria. |
| 351.1 | 10/28/2007:210507 All preparation quality controls are within established criteria, except: The following note applies to Nitrogen, Total Kjeldahl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. |
| 4500NH3G | 11/06/2007:211404 All analysis quality controls are within established criteria. |
| | 11/05/2007:211398 All analysis quality controls are within established criteria. |
| 4500NH3H | 10/31/2007:210614 All preparation quality controls are within established criteria. |
| 5540C | 10/24/2007:210409 All preparation quality controls are within established criteria. |
| | 10/24/2007:210962 All analysis quality controls are within established criteria. |

Certification: I certify that this data package is in compliance with NELAC standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

Approved By **Kelly A. Dunnahoo, B.S.**

 Digitally signed by Kelly A. Dunnahoo, B.S.
 Title: Laboratory Director
 Date: 2007-11-08



ANALYTICAL CHEMISTS

November 8, 2007

Lab ID : SP 0712008-001

Customer ID : 2-14320

Nipomo CSD

Attn: Dan Migliazzo

P. O. Box 326

Nipomo, CA 93444

Sampled On : October 24, 2007-07:45

Sampled By : Rick Motley

Received On : October 24, 2007-16:30

Matrix : Waste Water

Description : Effluent Composite

Project : Southland WWTP - Special Eff

Sample Results - Inorganic

| Constituent | Result | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|-----------------------------------|--------|------|----------|------|--------------------|-----------------|-----------------|-----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Metals, Total P:15 | | | | | | | | |
| Boron | 0.4 | 0.1 | mg/L | | 3010 | 10/29/07:210531 | 200.7 | 10/30/07:211183 |
| Calcium | 85 | 1 | mg/L | | 3010 | 10/29/07:210531 | 200.7 | 10/30/07:211183 |
| Magnesium | 36 | 1 | mg/L | | 3010 | 10/29/07:210531 | 200.7 | 10/30/07:211183 |
| Potassium | 26 | 1 | mg/L | | 3010 | 10/29/07:210531 | 200.7 | 10/30/07:211183 |
| Sodium | 205 | 1 | mg/L | | 3010 | 10/29/07:210531 | 200.7 | 10/30/07:211183 |
| Zinc | 0.06 | 0.02 | mg/L | | 3010 | 10/29/07:210531 | 200.7 | 10/30/07:211183 |
| Wet Chemistry P:1 | | | | | | | | |
| Ammonia-N | 44 | 2 | mg/L | | 4500NH3H | 10/31/07:210614 | 4500NH3G | 11/06/07:211404 |
| Alkalinity (as CaCO3)- Soluble | 350 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bicarbonate | 420 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Carbonate | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Hydroxide | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bromide | 0.23 | 0.03 | mg/L | | 300.0 | 10/25/07:210556 | 300.0 | 10/25/07:211143 |
| Chloride | 224 | 5 | mg/L | | 300.0 | 10/25/07:210556 | 300.0 | 10/25/07:211143 |
| Conductivity | 1900 | 1 | umhos/cm | | 2510B | 10/26/07:210458 | 2510B | 10/26/07:211018 |
| MBAS | ND | 0.1 | mg/L | | 5540C | 10/24/07:210409 | 5540C | 10/24/07:210962 |
| Nitrate | ND | 0.4 | mg/L | | 300.0 | 10/25/07:210556 | 300.0 | 10/25/07:211143 |
| Nitrate + Nitrite as N | ND | 0.1 | mg/L | | 300.0 | 10/25/07:210556 | 300.0 | 10/25/07:211143 |
| Nitrite | ND | 0.3 | mg/L | | 300.0 | 10/25/07:210556 | 300.0 | 10/25/07:211143 |
| Nitrogen, Total as Nitrogen | 38 | 5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Nitrate + Nitrite | ND | 0.1 | mg/L | | 300.0 | 10/25/07:210556 | 300.0 | 10/25/07:211143 |
| Kjeldahl Nitrogen | 38 | 5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Nitrogen, Total Kjeldahl | 38 | 5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Phosphate | 14.5 | 0.5 | mg/L | | 300.0 | 10/25/07:210556 | 300.0 | 10/25/07:211143 |
| Solids, Total Dissolved (TDS) | 1110 | 20 | mg/L | | 2540 C,E | 10/26/07:210459 | 2540C | 10/27/07:211063 |
| Sulfate | 250 | 10 | mg/L | | 300.0 | 10/25/07:210556 | 300.0 | 10/25/07:211143 |
| Turbidity | 16.0 | 0.2 | NTU | | 2130B | 10/24/07:210413 | 2130B | 10/24/07:210967 |

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: () , (P) Plastic, (VFS) VOA w/Filters+Syringes Preservatives: H2SO4 pH < 2, HNO3 pH < 2



ANALYTICAL CHEMISTS

November 8, 2007

Lab ID : SP 0712008-002
Customer ID : 2-14320

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Sampled On : October 24, 2007-07:45
Sampled By : Rick Motley
Received On :
Matrix : Waste Water

Description : Effluent Grab
Project : Southland WWTP - Special Eff

Sample Results - Inorganic

| Constituent | Result | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|-------------------|--------|-----|-------|------|--------------------|----------------|-----------------|----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Field Test | | | | | | | | |
| Temperature | 15 | | °C | | | 10/24/07 07:45 | 2550B | 10/24/07 07:45 |
| pH | 8.01 | | units | | | 10/24/07 07:45 | 4500-H B | 10/24/07 07:45 |
| Oxygen, Dissolved | 4.8 | | mg/L | | | 10/24/07 07:45 | 4500-O G | 10/24/07 07:45 |

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (), (P) Plastic, (VFS) VOA w/Filters+Syringes Preservatives: H2SO4 pH < 2, HNO3 pH < 2



ANALYTICAL CHEMISTS

November 8, 2007
 Nipomo Community Services District

Lab ID : SP 0712008
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note | |
|-----------------|--------|-------------------|-------|-------|-------|---------|--------|--------|--|
| Metals Boron | 200.7 | 10/30/2007:211183 | CCV | ppm | 5.000 | 102 % | 90-110 | | |
| | | | CCB | ppm | | 0.045 | 0.10 | | |
| | | | CCV | ppm | | 102 % | 90-110 | | |
| | | | CCB | ppm | | 0.042 | 0.10 | | |
| | 3010 | 10/29/2007:210531 | Blank | mg/L | 4.000 | ND | <0.1 | | |
| | | | LCS | mg/L | | 97.0 % | 85-115 | | |
| | | | MS | mg/L | | 4.000 | 92.1 % | 75-125 | |
| | | | MSD | mg/L | | 4.000 | 91.6 % | 75-125 | |
| | | | MSRPD | mg/L | | 0.8000 | 0.4% | ≤20.0 | |
| | | | PDS | mg/L | | 4.000 | 104 % | 75-125 | |
| Calcium | 200.7 | 10/30/2007:211183 | CCV | ppm | 25.00 | 101 % | 90-110 | | |
| | | | CCB | ppm | | 0.005 | 1.0 | | |
| | | | CCV | ppm | | 25.00 | 101 % | 90-110 | |
| | | | CCB | ppm | | 0.002 | 1.0 | | |
| | 3010 | 10/29/2007:210531 | Blank | mg/L | 12.50 | ND | <1 | | |
| | | | LCS | mg/L | | 98.1 % | 85-115 | | |
| | | | MS | mg/L | | 12.50 | 57.3 % | <¼ | |
| | | | MSD | mg/L | | 12.50 | 62.7 % | <¼ | |
| | | | MSRPD | mg/L | | 0.8000 | 0.8% | ≤20.0 | |
| | | | PDS | mg/L | | 12.50 | 92.0 % | 75-125 | |
| Magnesium | 200.7 | 10/30/2007:211183 | CCV | ppm | 25.00 | 96.8 % | 90-110 | | |
| | | | CCB | ppm | | 0.005 | 1.0 | | |
| | | | CCV | ppm | | 25.00 | 96.3 % | 90-110 | |
| | | | CCB | ppm | | 0.002 | 1.0 | | |
| | 3010 | 10/29/2007:210531 | Blank | mg/L | 12.50 | ND | <1 | | |
| | | | LCS | mg/L | | 95.8 % | 85-115 | | |
| | | | MS | mg/L | | 12.50 | 76.3 % | 75-125 | |
| | | | MSD | mg/L | | 12.50 | 77.2 % | 75-125 | |
| | | | MSRPD | mg/L | | 0.8000 | 0.2% | ≤20.0 | |
| | | | PDS | mg/L | | 12.50 | 98.8 % | 75-125 | |
| Potassium | 200.7 | 10/30/2007:211183 | CCV | ppm | 25.00 | 98.6 % | 90-110 | | |
| | | | CCB | ppm | | 0.1 | 1.0 | | |
| | | | CCV | ppm | | 25.00 | 98.8 % | 90-110 | |
| | | | CCB | ppm | | -0.03 | 1.0 | | |
| | 3010 | 10/29/2007:210531 | Blank | mg/L | 12.50 | ND | <1 | | |
| | | | LCS | mg/L | | 98.9 % | 85-115 | | |
| | | | MS | mg/L | | 12.50 | 87.4 % | 75-125 | |
| | | | MSD | mg/L | | 12.50 | 89.2 % | 75-125 | |
| | | | MSRPD | mg/L | | 0.8000 | 0.5% | ≤20 | |
| | | | PDS | mg/L | | 12.50 | 102 % | 75-125 | |
| Sodium | 200.7 | 10/30/2007:211183 | CCV | ppm | 25.00 | 97.2 % | 90-110 | | |
| | | | CCB | ppm | | 0.20 | 1.0 | | |
| | | | CCV | ppm | | 25.00 | 95.3 % | 90-110 | |
| | | | CCB | ppm | | 0.06 | 1.0 | | |
| | 3010 | 10/29/2007:210531 | Blank | mg/L | 12.50 | ND | <1 | | |
| | | | LCS | mg/L | | 80.5 % | 85-115 | 310 | |
| | | | MS | mg/L | | 12.50 | 42.7 % | <¼ | |
| | | | MSD | mg/L | | 12.50 | 49.3 % | <¼ | |
| | | | MSRPD | mg/L | | 0.8000 | 0.9% | ≤20.0 | |
| | | | PDS | mg/L | | 12.50 | 80.3 % | 75-125 | |
| Zinc | 200.7 | 10/30/2007:211183 | CCV | ppm | 1.000 | 98.6 % | 90-110 | | |
| | | | CCB | ppm | | -0.0099 | 0.02 | | |
| | | | CCV | ppm | | 1.000 | 98.6 % | 90-110 | |
| | | | CCB | ppm | | -0.0089 | 0.02 | | |
| | 3010 | 10/29/2007:210531 | Blank | mg/L | | ND | <0.02 | | |

November 8, 2007
 Nipomo Community Services District

Lab ID : SP 0712008
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-----------------------------------|----------|-------------------|-------|----------|--------|---------|--------|------|
| Metals Zinc | 3010 | 10/29/2007:210531 | LCS | mg/L | 2.000 | 100 % | 85-115 | |
| | | | MS | mg/L | 2.000 | 94.7 % | 75-125 | |
| | | | MSD | mg/L | 2.000 | 95.0 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 0.2% | ≤20.0 | |
| | | | PDS | mg/L | 2.000 | 99.1 % | 75-125 | |
| Wet Chem Alkalinity (as CaCO3) | 2320B | 10/25/2007:210429 | Dup | mg/L | | 0.6% | 3.42 | |
| | 2320B | 10/25/2007:210986 | CCV | mg/l | 234.9 | 102 % | 90-110 | |
| Ammonia Nitrogen | 4500NH3G | 11/05/2007:211398 | CCB | mg/l | | 0.039 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 102 % | 90-110 | |
| | | | CCB | mg/l | | 0.044 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 99.8 % | 90-110 | |
| | 4500NH3G | 11/06/2007:211404 | ICB | mg/l | | -0.021 | 0.2 | |
| | | | ICV | mg/l | 2.000 | 110 % | 90-110 | |
| | | | CCB | mg/l | | 0.026 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 106 % | 90-110 | |
| | 4500NH3H | 10/31/2007:210614 | Blank | mg/L | | ND | <0.2 | |
| | | | LCS | mg/L | 2.000 | 74.6 % | 63-116 | |
| | | | MS | mg/L | 2.000 | 91.7 % | 17-127 | |
| | | | MSD | mg/L | 2.000 | 85.9 % | 17-127 | |
| MSRPD | mg/L | 2.000 | 6.0% | ≤80.2 | | | | |
| Bicarbonate | 2320B | 10/25/2007:210429 | Dup | mg/l | | 0.6% | 4.78 | |
| Bromide | 300.0 | 10/25/2007:210556 | LCS | mg/L | 5.000 | 101 % | 90-110 | |
| | | | MS | mg/L | 100.0 | 95.1 % | 90-121 | |
| | | | MSD | mg/L | 100.0 | 94.9 % | 90-121 | |
| | | | MSRPD | mg/L | 100.0 | 0.2% | ≤1.61 | |
| | 300.0 | 10/25/2007:211143 | ICV | ppb | 10000 | 102 % | 90-110 | |
| | | | ICB | ppb | | 0.0 | 30 | |
| CCB | ppb | | 0.0 | 30 | | | | |
| CCV | ppb | 5000 | 102 % | 90-110 | | | | |
| Carbonate | 2320B | 10/25/2007:210429 | Dup | mg/l | | 0.0 | 10 | |
| Chloride | 300.0 | 10/25/2007:210556 | LCS | mg/L | 25.00 | 99.9 % | 90-110 | |
| | | | MSRPD | mg/L | 100.0 | 0.3% | ≤23.0 | |
| | 300.0 | 10/25/2007:211143 | ICV | ppm | 50.00 | 104 % | 90-110 | |
| | | | ICB | ppm | | 0.04 | 1 | |
| CCB | ppm | | 0.04 | 1 | | | | |
| CCV | ppm | 25.00 | 100 % | 90-110 | | | | |
| Conductivity | 2510B | 10/26/2007:211018 | ICB | umhos/cm | | 0.1 | 1 | |
| | | | ICV | umhos/cm | 998.0 | 99.5 % | 95-105 | |
| | | | CCV | umhos/cm | 998.0 | 99.5 % | 95-105 | |
| E. C. | 2510B | 10/26/2007:210458 | Blank | umhos/cm | | ND | <1 | |
| | | | Dup | umhos/cm | | 0.1% | 0.372 | |
| Hydroxide | 2320B | 10/25/2007:210429 | Dup | mg/l | | 0.0 | 10 | |
| MBAS | 5540C | 10/24/2007:210409 | MS | mg/L | 1.000 | 100 % | 90-110 | |
| | | | MSD | mg/L | 1.000 | 100 % | 90-110 | |
| | | | MSRPD | mg/L | 1.000 | 0.0 | ≤0.1 | |
| | 5540C | 10/24/2007:210962 | CCB | mg/L | | 0.000 | 0.1 | |
| CCV | | | mg/L | 1.000 | 100 % | 99-101 | | |
| Nitrate | 300.0 | 10/25/2007:210556 | LCS | mg/L | 20.00 | 101 % | 90-110 | |
| | | | MS | mg/L | 400.0 | 99.5 % | 88-124 | |
| | | | MSD | mg/L | 400.0 | 99.6 % | 88-124 | |
| | | | MSRPD | mg/L | 100.0 | 0.07% | ≤29.1 | |
| | 300.0 | 10/25/2007:211143 | ICV | ppm | 40.00 | 103 % | 90-110 | |
| | | | ICB | ppm | | 0.000 | 0.4 | |
| | | | CCB | ppm | | 0.011 | 0.4 | |
| | | | CCV | ppm | 20.00 | 102 % | 90-110 | |

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|--------------------------|----------|-------------------|-------|-------|-------|---------|--------|------|
| Wet Chem Nitrite | 300.0 | 10/25/2007:210556 | LCS | mg/L | 15.00 | 97.1 % | 90-110 | |
| | | | MS | mg/L | 300.0 | 96.9 % | 91-121 | |
| | | | MSD | mg/L | 300.0 | 97.0 % | 91-121 | |
| | | | MSRPD | mg/L | 100.0 | 0.08% | ≤23.8 | |
| | 300.0 | 10/25/2007:211143 | ICV | ppm | 30.00 | 103 % | 90-110 | |
| | | | ICB | ppm | | 0.000 | 0.3 | |
| | | | CCB | ppm | | 0.000 | 0.3 | |
| | | | CCV | ppm | 15.00 | 97.9 % | 90-110 | |
| Nitrogen, Total Kjeldahl | 351.1 | 10/28/2007:210507 | Blank | mg/L | | ND | <0.5 | |
| | | | LCS | mg/L | 2.000 | 98.2 % | 69-125 | |
| | | | MS | mg/L | 2.000 | 5.6 % | 25-149 | 435 |
| | | | MSD | mg/L | 2.000 | 11.6 % | 25-149 | 435 |
| | | | MSRPD | mg/L | 2.000 | 0.12 | ≤0.5 | |
| Phosphate | 300.0 | 10/25/2007:210556 | LCS | mg/L | 15.00 | 103 % | 90-110 | |
| | | | MS | mg/L | 300.0 | 99.7 % | 85-126 | |
| | | | MSD | mg/L | 300.0 | 101 % | 85-126 | |
| | | | MSRPD | mg/L | 100.0 | 1.2% | ≤41.1 | |
| | 300.0 | 10/25/2007:211143 | ICV | ppm | 30.00 | 102 % | 90-110 | |
| | | | ICB | ppm | | 0.000 | 0.5 | |
| | | | CCB | ppm | | 0.038 | 0.5 | |
| | | | CCV | ppm | 15.00 | 103 % | 90-110 | |
| Solids, Total Dissolved | 2540 C,E | 10/26/2007:210459 | Blank | mg/L | | ND | <20 | |
| | | | LCS | mg/L | 1000 | 99.7 % | 90-110 | |
| | | | LCS | mg/L | 1000 | 101 % | 90-110 | |
| | | | Dup | mg/L | | 3.9% | 10.0 | |
| | | | | | | | | |
| Sulfate | 300.0 | 10/25/2007:210556 | LCS | mg/L | 50.00 | 99.8 % | 90-110 | |
| | | | MS | mg/L | 1000 | 99.4 % | 78-137 | |
| | | | MSD | mg/L | 1000 | 99.4 % | 78-137 | |
| | | | MSRPD | mg/L | 100.0 | 0.01% | ≤12.3 | |
| | 300.0 | 10/25/2007:211143 | ICV | ppm | 100.0 | 104 % | 90-110 | |
| | | | ICB | ppm | | 0.91 | 2 | |
| | | | CCB | ppm | | 0.91 | 2 | |
| | | | CCV | ppm | 50.00 | 100 % | 90-110 | |
| Turbidity | 2130B | 10/24/2007:210413 | Dup | NTU | | 0.0 | 0.2 | |
| | 2130B | 10/24/2007:210967 | CCB | NTU | | 0.063 | 0.2 | |
| | | | CCV | NTU | 2.000 | 91.5 % | 90-110 | |
| | | | CCB | NTU | | 0.065 | 0.2 | |
| | | | CCV | NTU | 2.000 | 91.0 % | 90-110 | |

Definition

- ICV : Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
- ICB : Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
- CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
- CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
- Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
- LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
- MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
- MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
- ND : Non-detect - Result was below the DQO listed for the analyte.
- <¼ : High Sample Background - Spike concentration was less than one fourth of the sample concentration.
- DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

Explanation

- 310 : LCS above Acceptance Range (AR). Samples which were non detect for this analyte were accepted.
- 435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

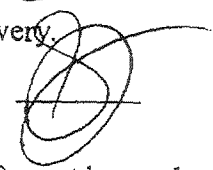
1. Number of ice chests/packages received: 1
Note as OTC if received over the counter unpackaged.
2. Were samples received in a chilled condition? Temps: 25 / / / /
Acceptable is 2° to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
3. Do the number of bottles received agree with the COC? Yes No N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc.) Yes No
5. Were sample custody seals intact? N/A Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
4. VOAs checked for Headspace? Yes No N/A
5. Were all analyses within holding times at time of receipt? Yes No
6. Have rush or project due dates been checked and accepted? N/A Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials): 

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2-14320)
Nipomo Community Services District
SP 0712008

IV-10/24/2007-16:37:01

Gardner, David [FWI]

From: Gardner, David [FWI]
Sent: Tuesday, September 25, 2007 10:48 AM
To: Sorensen, Paul [FWI]; Roberts, Shawn [FWI]
Cc: Nicely, Tim [FWI]
Subject: Nipomo CSD, water quality indicator parameters and environmental tracers associated with wastewater

Relative to your question (Paul) on what to sample for in the Nipomo Creek survey and the pump tests on site I referred to the USGS publication on recycled water in the Montebello forebay (2003, Anders and Schroeder).

This publication attempts to look at and define flow paths from the recharge basins in a number of variable depth production wells located about 500 feet from the spreading basins. They used about 40 water quality indicators in an attempt to determine the flow paths, the mixing, as well as age of the ground water. They used various statistical analyses with all the data. Indicators included both general chemical, organic, and isotopic analysis. The study was likely a \$1M effort. Obviously we don't have that budget or time. The study is useful in that I think it can narrow our effort to a few key constituents found in wastewater. From that we can do some simple statistical analysis (nonparametric tests) to try to see if the Nipomo CSD wastewater is emerging in the creek. I think we need to be careful about how we go about this and not try to over state what we know and conclude from the somewhat limited testing and analysis we will be doing.

Key to the study will be to try to identify areas where we think we have "native" groundwater, unaffected by the wastewater. Using the DWR well log data and well locations, we will need to find shallow wells in the area to sample, not just the creek and the wells at the site. Our problem, in part, is that we really don't know what up gradient of the site is.

We need to focus on conservative constituents in the wastewater such as chloride, bromide, and boron (as well as all the other general mineral constituents). Boron, in particular, can be present in large amounts in wastewater due to its presence as a softener in detergents. The USGS study found that there was little, if any, significant correlation of water quality in the wells and the recycled wastewater related to microbial constituents. Thus, to sample water in the creek for bacterial counts etc. would appear to be a waste of time.

The most significant correlation appears to be the salts added to the wastewater...sodium and chloride. The USGS study used an interesting approach by calculating the "excess" chloride and boron in the water samples. This was done using some simple equations to determine the percentage of wastewater in the samples collected from the wells. They did a linear regression analysis (a graph) as a method to test how good the correlation was. I think we can do the same thing. We will need a number of samples of the wastewater, say over a several week period. Perhaps a half dozen or so.

Most of the USGS study focused on all sorts of isotope data, ratios, dissolved gases, and age dating of the ground water. Metals such as Fe, Mn, and Zn showed no significant correlation due to the way they are reduced or mobilized over the groundwater flow path.

We should do the standard nitrogen species....nitrate, nitrite, ammonia, total nitrogen.

So...constituents to test for (really pretty straightforward) include....

Field...T, pH, EC, dissolved oxygen, turbidity (surface water).

Lab...TDS, Ca, Mg, Na, K, alkalinity, SO₄, Cl, Br, NO₃, NO₂, NH₃, phosphate, zinc, B, MBAS.

Calculated...excess Cl, excess B,

Well Information as to depth, perforated interval, obviously need to be known as well as their location relative to the inferred flow paths. Before we go out in the field I would like to see the target wells we intend to sample for background (assuming we can find some).

I will scan the USGS report and send it to you.

David Gardner, CHg
Principal Hydrogeologist
Fugro West, Inc.
4820 McGrath Street, Suite 100
Ventura, CA 93003
www.fugrowest.com
phone : (805) 650 7000
fax: (805) 650 7010



ANALYTICAL CHEMISTS

November 9, 2007

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Lab ID : SP 0711789
Customer : 2-14320

Laboratory Report

Introduction: This report package contains total of 6 pages divided into 3 sections:

- Case Narrative (2 Pages) : An overview of the work performed at FGL.
Sample Results (1 page) : Results for each sample submitted.
Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Table with 5 columns: Sample Description, Date Sampled, Date Received, FGL Lab ID #, Matrix. Row 1: MW1, 10/18/2007, 10/18/2007, SP 0711789-001, MW

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

Table with 2 columns: Sample ID, QC Details. Rows include 200.7 and 3010 with their respective analysis dates and criteria.

Inorganic - Wet Chemistry QC


Table with 2 columns: Sample ID, QC Details. Rows include 2130B with analysis dates and criteria.

Inorganic - Wet Chemistry QC

| | | |
|----------|-------------------|---|
| 2320B | 10/20/2007:210267 | All preparation quality controls are within established criteria. |
| 2320B | 10/20/2007:210835 | All analysis quality controls are within established criteria. |
| 2510B | 10/19/2007:210219 | All preparation quality controls are within established criteria. |
| | 10/19/2007:210783 | All analysis quality controls are within established criteria. |
| 2540 C,E | 10/19/2007:210220 | All preparation quality controls are within established criteria. |
| 300.0 | 10/18/2007:210253 | All preparation quality controls are within established criteria. |
| | 10/19/2007:210255 | All preparation quality controls are within established criteria. |
| | 10/19/2007:210949 | All analysis quality controls are within established criteria. |
| | 10/19/2007:210820 | All analysis quality controls are within established criteria. |
| 351.1 | 10/23/2007:210340 | All preparation quality controls are within established criteria. |
| 4500NH3G | 10/29/2007:211132 | All analysis quality controls are within established criteria. |
| | 10/24/2007:211087 | All analysis quality controls are within established criteria. |
| 4500NH3H | 10/22/2007:210295 | All preparation quality controls are within established criteria. |
| 5540C | 10/18/2007:210211 | All preparation quality controls are within established criteria. |
| | 10/18/2007:210775 | All analysis quality controls are within established criteria. |

Certification: I certify that this data package is in compliance with NELAC standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

Approved By **Kelly A. Dunnahoo, B.S.**

 Digitally signed by Kelly A. Dunnahoo, B.S.
 Title: Laboratory Director
 Date: 2007-11-09



ANALYTICAL CHEMISTS

November 9, 2007

Lab ID : SP 0711789-001

Customer ID : 2-14320

Nipomo CSD

Attn: Dan Migliazzo

P. O. Box 326

Nipomo, CA 93444

Sampled On : October 18, 2007-09:00

Sampled By : Not Available

Received On : October 18, 2007-15:40

Matrix : Monitoring Well

Description : MW1

Project : Southland WWTP - GW - 1

Sample Results - Inorganic

| Constituent | Result | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|--|--------|------|----------|------|--------------------|-----------------|-----------------|-----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Field Test | | | | | | | | |
| pH | 6.42 | | units | | | 10/18/07 09:00 | 4500-H B | 10/18/07 09:00 |
| Temperature | 17.3 | | °C | | | 10/18/07 09:00 | 2550B | 10/18/07 09:00 |
| Oxygen, Dissolved | .40 | | mg/L | | | 10/18/07 09:00 | 4500-O G | 10/18/07 09:00 |
| Metals, Total ^{P:15} | | | | | | | | |
| Boron | 0.4 | 0.1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Calcium | 98 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Magnesium | 44 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Potassium | 15 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Sodium | 223 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Zinc | 0.05 | 0.02 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Wet Chemistry ^{VFS:1} | | | | | | | | |
| Ammonia-N | 0.9 | 0.2 | mg/L | | 4500NH3H | 10/22/07:210295 | 4500NH3G | 10/24/07:211087 |
| Alkalinity (as CaCO ₃)-Soluble | 200 | 10 | mg/L | | 2320B | 10/20/07:210267 | 2320B | 10/20/07:210835 |
| Bicarbonate | 240 | 10 | mg/L | | 2320B | 10/20/07:210267 | 2320B | 10/20/07:210835 |
| Carbonate | ND | 10 | mg/L | | 2320B | 10/20/07:210267 | 2320B | 10/20/07:210835 |
| Hydroxide | ND | 10 | mg/L | | 2320B | 10/20/07:210267 | 2320B | 10/20/07:210835 |
| Bromide | 0.28 | 0.03 | mg/L | | 300.0 | 10/18/07:210253 | 300.0 | 10/19/07:210820 |
| Chloride | 236 | 5 | mg/L | | 300.0 | 10/19/07:210255 | 300.0 | 10/19/07:210949 |
| Conductivity | 1820 | 1 | umhos/cm | | 2510B | 10/19/07:210219 | 2510B | 10/19/07:210783 |
| MBAS | ND | 0.1 | mg/L | | 5540C | 10/18/07:210211 | 5540C | 10/18/07:210775 |
| Nitrate | 114 | 2 | mg/L | | 300.0 | 10/19/07:210255 | 300.0 | 10/19/07:210949 |
| Nitrate + Nitrite as N | 25.7 | 0.5 | mg/L | | 300.0 | 10/19/07:210255 | 300.0 | 10/19/07:210949 |
| Nitrite | ND | 0.3 | mg/L | | 300.0 | 10/18/07:210253 | 300.0 | 10/19/07:210820 |
| Nitrogen, Total as Nitrogen | 27.3 | 0.5 | mg/L | | 351.1 | 10/23/07:210340 | 4500NH3G | 10/29/07:211132 |
| Nitrate + Nitrite | 25.7 | 0.5 | mg/L | | 300.0 | 10/19/07:210255 | 300.0 | 10/19/07:210949 |
| Kjeldahl Nitrogen | 1.6 | 0.5 | mg/L | | 351.1 | 10/23/07:210340 | 4500NH3G | 10/29/07:211132 |
| Nitrogen, Total Kjeldahl | 1.6 | 0.5 | mg/L | | 351.1 | 10/23/07:210340 | 4500NH3G | 10/29/07:211132 |
| Phosphate | 1.6 | 0.5 | mg/L | | 300.0 | 10/18/07:210253 | 300.0 | 10/19/07:210820 |
| Solids, Total Dissolved (TDS) | 1210 | 20 | mg/L | | 2540 C,E | 10/19/07:210220 | 2540C | 10/20/07:210827 |
| Sulfate | 270 | 10 | mg/L | | 300.0 | 10/19/07:210255 | 300.0 | 10/19/07:210949 |
| Turbidity | 0.8 | 0.2 | NTU | | 2130B | 10/18/07:210246 | 2130B | 10/18/07:210805 |

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (), (P) Plastic, (VFS) VOA w/Filters+Syringes Preservatives: H2SO4 pH < 2, HNO3 pH < 2



ANALYTICAL CHEMISTS

November 9, 2007
Nipomo Community Services District

Lab ID : SP 0711789
Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-----------------|--------|-------------------|-------|-------|--------|---------|--------|------|
| Metals Boron | 200.7 | 10/26/2007:211090 | CCV | ppm | 5.000 | 101 % | 90-110 | |
| | | | CCB | ppm | | -0.006 | 0.10 | |
| | | | CCV | ppm | 5.000 | 106 % | 90-110 | |
| | | | CCB | ppm | | -0.016 | 0.10 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <0.1 | |
| | | | LCS | mg/L | 4.000 | 92.2 % | 85-115 | |
| | | | MS | mg/L | 4.000 | 95.1 % | 75-125 | |
| | | | MSD | mg/L | 4.000 | 93.1 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 1.9% | ≤20.0 | |
| | | | PDS | mg/L | 4.000 | 120 % | 75-125 | |
| Calcium | 200.7 | 10/26/2007:211090 | CCV | ppm | 25.00 | 100 % | 90-110 | |
| | | | CCB | ppm | | 0.008 | 1.0 | |
| | | | CCV | ppm | 25.00 | 102 % | 90-110 | |
| | | | CCB | ppm | | 0.01 | 1.0 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <1 | |
| | | | LCS | mg/L | 12.50 | 92.3 % | 85-115 | |
| | | | MS | mg/L | 12.50 | 104 % | 75-125 | |
| | | | MSD | mg/L | 12.50 | 88.4 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 3.3% | ≤20.0 | |
| | | | PDS | mg/L | 12.50 | -183 % | 75-125 | P |
| Magnesium | 200.7 | 10/26/2007:211090 | CCV | ppm | 25.00 | 96.7 % | 90-110 | |
| | | | CCB | ppm | | 0.009 | 1.0 | |
| | | | CCV | ppm | 25.00 | 99.3 % | 90-110 | |
| | | | CCB | ppm | | 0.009 | 1.0 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <1 | |
| | | | LCS | mg/L | 12.50 | 92.4 % | 85-115 | |
| | | | MS | mg/L | 12.50 | 104 % | 75-125 | |
| | | | MSD | mg/L | 12.50 | 89.7 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 3.6% | ≤20.0 | |
| | | | PDS | mg/L | 12.50 | -156 % | 75-125 | P |
| Potassium | 200.7 | 11/08/2007:210919 | MS | mg/L | 12.50 | 127 % | <¼ | |
| | | | MSD | mg/L | 12.50 | 123 % | 75-125 | |
| | | | MSRPD | mg/L | 800.0 | 0.5% | ≤20.0 | |
| | 200.7 | 11/08/2007:211554 | CCV | ppm | 25.00 | 102 % | 90-110 | |
| | | | CCB | ppm | | -0.03 | 1.0 | |
| | | | CCV | ppm | 25.00 | 103 % | 90-110 | |
| CCB | ppm | | -0.01 | 1.0 | | | | |
| Sodium | 200.7 | 11/08/2007:210919 | MS | mg/L | 12.50 | -1360 % | <¼ | |
| | | | MSD | mg/L | 12.50 | -1390 % | <¼ | |
| | | | MSRPD | mg/L | 800.0 | 0.07% | ≤20.0 | |
| | 200.7 | 11/08/2007:211554 | CCV | ppm | 25.00 | 98.7 % | 90-110 | |
| | | | CCB | ppm | | 0.06 | 1.0 | |
| | | | CCV | ppm | 25.00 | 98.0 % | 90-110 | |
| CCB | ppm | | 0.19 | 1.0 | | | | |
| Zinc | 200.7 | 10/26/2007:211090 | CCV | ppm | 1.000 | 96.9 % | 90-110 | |
| | | | CCB | ppm | | 0.0004 | 0.02 | |
| | | | CCV | ppm | 1.000 | 97.2 % | 90-110 | |
| | | | CCB | ppm | | -0.0007 | 0.02 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <0.02 | |
| | | | LCS | mg/L | 2.000 | 92.6 % | 85-115 | |
| | | | MS | mg/L | 2.000 | 96.0 % | 75-125 | |
| | | | MSD | mg/L | 2.000 | 92.1 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 4.1% | ≤20.0 | |
| | | | PDS | mg/L | 2.000 | 114 % | 75-125 | |
| Wet Chem | | | | | | | | |

November 9, 2007
 Nipomo Community Services District

Lab ID : SP 0711789
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-----------------------|----------|-------------------|-------|----------|--------|---------|--------|------|
| Alkalinity (as CaCO3) | 2320B | 10/20/2007:210267 | Dup | mg/L | | 1.1% | 3.42 | |
| | 2320B | 10/20/2007:210835 | CCV | mg/l | 234.9 | 103 % | 90-110 | |
| Ammonia Nitrogen | 4500NH3G | 10/24/2007:211087 | ICB | mg/l | | -0.011 | 0.2 | |
| | | | ICV | mg/l | 2.000 | 102 % | 90-110 | |
| | | | CCB | mg/l | | -0.004 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 101 % | 90-110 | |
| | 4500NH3G | 10/29/2007:211132 | CCB | mg/l | | 0.000 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 102 % | 90-110 | |
| | | | CCB | mg/l | | -0.031 | 0.2 | |
| | 4500NH3H | 10/22/2007:210295 | Blank | mg/L | | ND | <0.2 | |
| | | | LCS | mg/L | 2.000 | 80.0 % | 63-116 | |
| MS | | | mg/L | 2.000 | 91.5 % | 17-127 | | |
| MSD | | | mg/L | 2.000 | 83.4 % | 17-127 | | |
| MSRPD | mg/L | 2.000 | 5.9% | ≤80.2 | | | | |
| Bicarbonate | 2320B | 10/20/2007:210267 | Dup | mg/l | | 1.1% | 4.78 | |
| Bromide | 300.0 | 10/18/2007:210253 | LCS | mg/L | 5.000 | 105 % | 90-110 | |
| | | | MS | mg/L | 100.0 | 103 % | 90-121 | |
| | | | MSD | mg/L | 100.0 | 103 % | 90-121 | |
| | | | MSRPD | mg/L | 100.0 | 0.06% | ≤1.61 | |
| | 300.0 | 10/19/2007:210820 | CCB | ppb | | 0.0 | 30 | |
| | | | CCV | ppb | 5000 | 105 % | 90-110 | |
| CCB | ppb | | 0.0 | 30 | | | | |
| CCV | ppb | 5000 | 104 % | 90-110 | | | | |
| Carbonate | 2320B | 10/20/2007:210267 | Dup | mg/l | | 0.0 | 10 | |
| Chloride | 300.0 | 10/19/2007:210255 | LCS | mg/L | 25.00 | 105 % | 90-110 | |
| | | | MS | mg/L | 500.0 | 114 % | 86-128 | |
| | | | MSD | mg/L | 500.0 | 114 % | 86-128 | |
| | | | MSRPD | mg/L | 100.0 | 0.1% | ≤23.0 | |
| | 300.0 | 10/19/2007:210949 | CCB | ppm | | 0.006 | 1 | |
| | | | CCV | ppm | 25.00 | 100 % | 90-110 | |
| CCB | ppm | | 0.007 | 1 | | | | |
| CCV | ppm | 25.00 | 102 % | 90-110 | | | | |
| Conductivity | 2510B | 10/19/2007:210783 | ICB | umhos/cm | | 0.1 | 1 | |
| | | | ICV | umhos/cm | 998.0 | 101 % | 95-105 | |
| | | | CCV | umhos/cm | 998.0 | 101 % | 95-105 | |
| E. C. | 2510B | 10/19/2007:210219 | Blank | umhos/cm | | ND | <1 | |
| | | | Dup | umhos/cm | | 0.2% | 0.372 | |
| Hydroxide | 2320B | 10/20/2007:210267 | Dup | mg/l | | 0.0 | 10 | |
| MBAS | 5540C | 10/18/2007:210211 | MS | mg/L | 1.000 | 100 % | 90-110 | |
| | | | MSD | mg/L | 1.000 | 100 % | 90-110 | |
| | | | MSRPD | mg/L | 1.000 | 0.0 | ≤0.1 | |
| | 5540C | 10/18/2007:210775 | CCB | mg/L | | 0.000 | 0.1 | |
| CCV | mg/L | 1.000 | 100 % | 99-101 | | | | |
| Nitrate | 300.0 | 10/19/2007:210255 | LCS | mg/L | 20.00 | 106 % | 90-110 | |
| | | | MS | mg/L | 400.0 | 112 % | 88-124 | |
| | | | MSD | mg/L | 400.0 | 113 % | 88-124 | |
| | | | MSRPD | mg/L | 100.0 | 0.3% | ≤29.1 | |
| | 300.0 | 10/19/2007:210949 | CCB | ppm | | 0.008 | 0.4 | |
| | | | CCV | ppm | 20.00 | 101 % | 90-110 | |
| CCB | ppm | | 0.013 | 0.4 | | | | |
| CCV | ppm | 20.00 | 103 % | 90-110 | | | | |
| Nitrite | 300.0 | 10/18/2007:210253 | LCS | mg/L | 15.00 | 102 % | 90-110 | |
| | | | MS | mg/L | 300.0 | 106 % | 91-121 | |
| | | | MSD | mg/L | 300.0 | 105 % | 91-121 | |
| | | | MSRPD | mg/L | 100.0 | 0.1% | ≤23.8 | |
| | 300.0 | 10/19/2007:210820 | CCB | ppm | | 0.013 | 0.3 | |
| CCV | ppm | 15.00 | 102 % | 90-110 | | | | |

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|--|----------|-------------------|--------|--------|-------|---------|--------|------|
| Wet Chem Nitrite | 300.0 | 10/19/2007:210820 | CCB | ppm | | 0.011 | 0.3 | |
| | | | CCV | ppm | 15.00 | 103 % | 90-110 | |
| Nitrogen, Total Kjeldahl | 351.1 | 10/23/2007:210340 | Blank | mg/L | | ND | <0.5 | |
| | | | LCS | mg/L | 2.000 | 94.0 % | 69-125 | |
| | | | MS | mg/L | 2.000 | 150 % | <¼ | |
| | | | MSD | mg/L | 2.000 | -37.5 % | <¼ | |
| | | | MSRPD | mg/L | 2.000 | 15.1 % | ≤25.7 | |
| Phosphate | 300.0 | 10/18/2007:210253 | LCS | mg/L | 15.00 | 106 % | 90-110 | |
| | | | MS | mg/L | 300.0 | 109 % | 85-126 | |
| | | | MSD | mg/L | 300.0 | 108 % | 85-126 | |
| | | | MSRPD | mg/L | 100.0 | 0.3 % | ≤41.1 | |
| | 300.0 | 10/19/2007:210820 | CCB | ppm | | 0.000 | 0.5 | |
| | | | CCV | ppm | 15.00 | 108 % | 90-110 | |
| | | | CCB | ppm | | 0.000 | 0.5 | |
| | | | CCV | ppm | 15.00 | 109 % | 90-110 | |
| Solids, Total Dissolved | 2540 C,E | 10/19/2007:210220 | Blank | mg/L | | ND | <20 | |
| | | | LCS | mg/L | 1000 | 98.7 % | 90-110 | |
| | | | LCS | mg/L | 1000 | 98.5 % | 90-110 | |
| | | | Dup | mg/L | | 2.4 % | 10.0 | |
| Sulfate | 300.0 | 10/19/2007:210255 | LCS | mg/L | 50.00 | 105 % | 90-110 | |
| | | | MS | mg/L | 1000 | 113 % | 78-137 | |
| | | | MSD | mg/L | 1000 | 114 % | 78-137 | |
| | | | MSRPD | mg/L | 100.0 | 0.3 % | ≤12.3 | |
| | 300.0 | 10/19/2007:210949 | CCB | ppm | | 0.88 | 2 | |
| | | | CCV | ppm | 50.00 | 99.7 % | 90-110 | |
| | | | CCB | ppm | | 0.87 | 2 | |
| | | | CCV | ppm | 50.00 | 102 % | 90-110 | |
| Turbidity | 2130B | 10/18/2007:210246 | Dup | NTU | | 0.0030 | 0.2 | |
| | | | CCB | NTU | | 0.055 | 0.2 | |
| | 2130B | 10/18/2007:210805 | CCV | NTU | 2.000 | 93.0 % | 90-110 | |
| | | | CCB | NTU | | 0.050 | 0.2 | |
| CCV | NTU | 2.000 | 93.0 % | 90-110 | | | | |
| Definition | | | | | | | | |
| ICV : Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria. | | | | | | | | |
| ICB : Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria. | | | | | | | | |
| CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria. | | | | | | | | |
| CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria. | | | | | | | | |
| Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples. | | | | | | | | |
| LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery. | | | | | | | | |
| MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery. | | | | | | | | |
| MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery. | | | | | | | | |
| Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis. | | | | | | | | |
| MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis. | | | | | | | | |
| ND : Non-detect - Result was below the DQO listed for the analyte. | | | | | | | | |
| <¼ : High Sample Background - Spike concentration was less than one fourth of the sample concentration. | | | | | | | | |
| DQO : Data Quality Objective - This is the criteria against which the quality control data is compared. | | | | | | | | |

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

1. Number of ice chests/packages received: 1
Note as OTC if received over the counter unpackaged.
2. Were samples received in a chilled condition? Temps: kel / / / /
Acceptable is above freezing to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
3. Do the number of bottles received agree with the COC? Yes No N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc.) Yes No
5. Were sample custody seals intact? N/A Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
4. Were all analyses within holding times at time of receipt? Yes No
5. Have rush or project due dates been checked and accepted? N/A Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials):

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2-14320)
Nipomo Community Services District

SP 0711789

IV-10/18/2007-15:41:53



ANALYTICAL CHEMISTS

November 9, 2007

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Lab ID : SP 0711942
Customer : 2-14320

Laboratory Report

Introduction: This report package contains total of 6 pages divided into 3 sections:

- Case Narrative (2 Pages) : An overview of the work performed at FGL.
Sample Results (1 page) : Results for each sample submitted.
Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Table with 5 columns: Sample Description, Date Sampled, Date Received, FGL Lab ID #, Matrix. Row 1: MW3, 10/23/2007, 10/22/2007, SP 0711942-001, MW

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

Table with 2 columns: Sample ID, QC Details. Rows include 200.7 and 3010 with their respective QC dates and descriptions.

Inorganic - Wet Chemistry QC


Table with 2 columns: Sample ID, QC Details. Rows include 2130B with its QC dates and descriptions.

Inorganic - Wet Chemistry QC

| | |
|----------|--|
| 2320B | 10/25/2007:210986 All analysis quality controls are within established criteria. |
| 2320B | 10/25/2007:210429 All preparation quality controls are within established criteria. |
| 2510B | 10/25/2007:210416 All preparation quality controls are within established criteria. |
| | 10/25/2007:210972 All analysis quality controls are within established criteria. |
| 2540 C,E | 10/25/2007:210417 All preparation quality controls are within established criteria. |
| 300.0 | 10/24/2007:210555 All preparation quality controls are within established criteria, except: The following note applies to Bromide: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. |
| | 10/24/2007:211123 All analysis quality controls are within established criteria. |
| 351.1 | 10/28/2007:210507 All preparation quality controls are within established criteria, except: The following note applies to Nitrogen, Total Kjeldahl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. |
| | |
| 4500NH3G | 11/05/2007:211449 All analysis quality controls are within established criteria. |
| | 11/05/2007:211398 All analysis quality controls are within established criteria. |
| 4500NH3H | 10/29/2007:210532 All preparation quality controls are within established criteria. |
| 5540C | 10/23/2007:210351 All preparation quality controls are within established criteria. |
| | 10/23/2007:210924 All analysis quality controls are within established criteria. |

Certification: I certify that this data package is in compliance with NELAC standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

Approved By **Kelly A. Dunnahoo, B.S.**

 Digitally signed by Kelly A. Dunnahoo, B.S.
 Title: Laboratory Director
 Date: 2007-11-09



ANALYTICAL CHEMISTS

November 9, 2007

Lab ID : SP 0711942-001

Customer ID : 2-14320

Nipomo CSD

Attn: Dan Migliazzo

P. O. Box 326

Nipomo, CA 93444

Sampled On : October 23, 2007-09:50

Sampled By : Not Available

Received On : October 22, 2007-15:30

Matrix : Monitoring Well

Description : MW3

Project : Southland WWTP - GW - 2

Sample Results - Inorganic

| Constituent | Result | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|--|--------|------|----------|------|--------------------|-----------------|-----------------|-----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Field Test | | | | | | | | |
| pH | 6.46 | | units | | | 10/23/07 09:50 | 4500-H B | 10/23/07 09:50 |
| Temperature | 16.7 | | °C | | | 10/23/07 09:50 | 2550B | 10/23/07 09:50 |
| Oxygen, Dissolved | 4.7 | | mg/L | | | 10/23/07 09:50 | 4500-O G | 10/23/07 09:50 |
| Metals, Total ^{P:15} | | | | | | | | |
| Boron | 0.3 | 0.1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Calcium | 87 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Magnesium | 41 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Potassium | 3 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Sodium | 215 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Zinc | 0.21 | 0.02 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Wet Chemistry ^{P:1} | | | | | | | | |
| Ammonia-N | ND | 0.2 | mg/L | | 4500NH3H | 10/29/07:210532 | 4500NH3G | 11/05/07:211449 |
| Alkalinity (as CaCO ₃)-Soluble | 200 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bicarbonate | 240 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Carbonate | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Hydroxide | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bromide | ND | 0.03 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Chloride | 218 | 5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Conductivity | 1680 | 1 | umhos/cm | | 2510B | 10/25/07:210416 | 2510B | 10/25/07:210972 |
| MBAS | ND | 0.1 | mg/L | | 5540C | 10/23/07:210351 | 5540C | 10/23/07:210924 |
| Nitrate | 76.7 | 0.4 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrate + Nitrite as N | 17.3 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrite | ND | 0.3 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrogen, Total as Nitrogen | 17.3 | 0.5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Nitrate + Nitrite | 17.3 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Kjeldahl Nitrogen | ND | 0.5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Nitrogen, Total Kjeldahl | ND | 0.5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Phosphate | ND | 0.5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Solids, Total Dissolved (TDS) | 1090 | 20 | mg/L | | 2540 C,E | 10/25/07:210417 | 2540C | 10/26/07:211019 |
| Sulfate | 260 | 10 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Turbidity | 1.0 | 0.2 | NTU | | 2130B | 10/23/07:210355 | 2130B | 10/23/07:210923 |

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (), (P) Plastic, (VFS) VOA w/Filters+Syringes Preservatives: H2SO4 pH < 2, HNO3 pH < 2



ANALYTICAL CHEMISTS

November 9, 2007
Nipomo Community Services District

Lab ID : SP 0711942
Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-----------------|--------|-------------------|-------|-------|--------|---------|--------|------|
| Metals Boron | 200.7 | 10/26/2007:211090 | CCV | ppm | 5.000 | 101 % | 90-110 | |
| | | | CCB | ppm | | -0.006 | 0.10 | |
| | | | CCV | ppm | 5.000 | 106 % | 90-110 | |
| | | | CCB | ppm | | -0.016 | 0.10 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <0.1 | |
| | | | LCS | mg/L | 4.000 | 92.2 % | 85-115 | |
| | | | MS | mg/L | 4.000 | 95.1 % | 75-125 | |
| | | | MSD | mg/L | 4.000 | 93.1 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 1.9% | ≤20.0 | |
| | | | PDS | mg/L | 4.000 | 120 % | 75-125 | |
| Calcium | 200.7 | 10/26/2007:211090 | CCV | ppm | 25.00 | 100 % | 90-110 | |
| | | | CCB | ppm | | 0.008 | 1.0 | |
| | | | CCV | ppm | 25.00 | 102 % | 90-110 | |
| | | | CCB | ppm | | 0.01 | 1.0 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <1 | |
| | | | LCS | mg/L | 12.50 | 92.3 % | 85-115 | |
| | | | MS | mg/L | 12.50 | 104 % | 75-125 | |
| | | | MSD | mg/L | 12.50 | 88.4 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 3.3% | ≤20.0 | |
| | | | PDS | mg/L | 12.50 | -183 % | 75-125 | P |
| Magnesium | 200.7 | 10/26/2007:211090 | CCV | ppm | 25.00 | 96.7 % | 90-110 | |
| | | | CCB | ppm | | 0.009 | 1.0 | |
| | | | CCV | ppm | 25.00 | 99.3 % | 90-110 | |
| | | | CCB | ppm | | 0.009 | 1.0 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <1 | |
| | | | LCS | mg/L | 12.50 | 92.4 % | 85-115 | |
| | | | MS | mg/L | 12.50 | 104 % | 75-125 | |
| | | | MSD | mg/L | 12.50 | 89.7 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 3.6% | ≤20.0 | |
| | | | PDS | mg/L | 12.50 | -156 % | 75-125 | P |
| Potassium | 200.7 | 11/08/2007:210919 | MS | mg/L | 12.50 | 127 % | <¼ | |
| | | | MSD | mg/L | 12.50 | 123 % | 75-125 | |
| | | | MSRPD | mg/L | 800.0 | 0.5% | ≤20.0 | |
| | 200.7 | 11/08/2007:211554 | CCV | ppm | 25.00 | 103 % | 90-110 | |
| | | | CCB | ppm | | -0.01 | 1.0 | |
| | | | CCV | ppm | 25.00 | 103 % | 90-110 | |
| CCB | ppm | | -0.03 | 1.0 | | | | |
| Sodium | 200.7 | 11/08/2007:210919 | MS | mg/L | 12.50 | -1360 % | <¼ | |
| | | | MSD | mg/L | 12.50 | -1390 % | <¼ | |
| | | | MSRPD | mg/L | 800.0 | 0.07% | ≤20.0 | |
| | 200.7 | 11/08/2007:211554 | CCV | ppm | 25.00 | 98.0 % | 90-110 | |
| | | | CCB | ppm | | 0.19 | 1.0 | |
| | | | CCV | ppm | 25.00 | 100 % | 90-110 | |
| CCB | ppm | | 0.11 | 1.0 | | | | |
| Zinc | 200.7 | 10/26/2007:211090 | CCV | ppm | 1.000 | 96.9 % | 90-110 | |
| | | | CCB | ppm | | 0.0004 | 0.02 | |
| | | | CCV | ppm | 1.000 | 97.2 % | 90-110 | |
| | | | CCB | ppm | | -0.0007 | 0.02 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <0.02 | |
| | | | LCS | mg/L | 2.000 | 92.6 % | 85-115 | |
| | | | MS | mg/L | 2.000 | 96.0 % | 75-125 | |
| | | | MSD | mg/L | 2.000 | 92.1 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 4.1% | ≤20.0 | |
| | | | PDS | mg/L | 2.000 | 114 % | 75-125 | |
| Wet Chem | | | | | | | | |

November 9, 2007
 Nipomo Community Services District

Lab ID : SP 0711942
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note | | | | | | | | |
|-----------------------|-------------|-------------------|-------------------|----------|-------------------|----------|----------|-------------------|---------|-------------------|-------------------|-------|--------|-------|--------|--------|
| Alkalinity (as CaCO3) | 2320B | 10/25/2007:210429 | Dup | mg/L | | 0.6% | 3.42 | | | | | | | | | |
| | 2320B | 10/25/2007:210986 | CCV | mg/l | 234.9 | 102 % | 90-110 | | | | | | | | | |
| Ammonia Nitrogen | 4500NH3G | 11/05/2007:211398 | CCB | mg/l | | 0.039 | 0.2 | | | | | | | | | |
| | | | CCV | mg/l | 2.000 | 102 % | 90-110 | | | | | | | | | |
| | | | CCB | mg/l | | 0.044 | 0.2 | | | | | | | | | |
| | | | CCV | mg/l | 2.000 | 99.8 % | 90-110 | | | | | | | | | |
| | 4500NH3G | 11/05/2007:211449 | CCB | mg/l | | 0.035 | 0.2 | | | | | | | | | |
| | | | CCV | mg/l | 2.000 | 106 % | 90-110 | | | | | | | | | |
| | | | CCB | mg/l | | 0.016 | 0.2 | | | | | | | | | |
| | 4500NH3H | 10/29/2007:210532 | CCV | mg/l | 2.000 | 106 % | 90-110 | | | | | | | | | |
| | | | Blank | mg/L | | ND | <0.2 | | | | | | | | | |
| | | | LCS | mg/L | 2.000 | 80.6 % | 63-116 | | | | | | | | | |
| | Bicarbonate | 300.0 | 10/24/2007:210555 | MS | mg/L | 100.0 | 109 % | 90-121 | | | | | | | | |
| | | | | MSD | mg/L | 100.0 | 101 % | 90-121 | | | | | | | | |
| MSRPD | | | | mg/L | 100.0 | 7.9% | ≤1.61 | 435 | | | | | | | | |
| CCB | | | | ppb | | 0.0 | 30 | | | | | | | | | |
| CCV | | | | ppb | 5000 | 110 % | 90-110 | | | | | | | | | |
| CCB | | | | ppb | | 0.0 | 30 | | | | | | | | | |
| CCV | | | | ppb | 5000 | 107 % | 90-110 | | | | | | | | | |
| Bromide | | | | 300.0 | 10/24/2007:211123 | LCS | mg/L | 25.00 | 96.9 % | 90-110 | | | | | | |
| | | | | | | MS | mg/L | 500.0 | 111 % | 86-128 | | | | | | |
| | | | | | | MSD | mg/L | 500.0 | 104 % | 86-128 | | | | | | |
| | | | | | | MSRPD | mg/L | 100.0 | 4.9% | ≤23.0 | | | | | | |
| | | | | | | CCB | ppm | | 0.05 | 1 | | | | | | |
| | CCV | ppm | 25.00 | | | 107 % | 90-110 | | | | | | | | | |
| | CCB | ppm | | | | 0.05 | 1 | | | | | | | | | |
| | CCV | ppm | 25.00 | | | 107 % | 90-110 | | | | | | | | | |
| | Carbonate | 300.0 | 10/24/2007:210555 | | | ICB | umhos/cm | | 0.1 | 1 | | | | | | |
| | | | | | | ICV | umhos/cm | 998.0 | 99.1 % | 95-105 | | | | | | |
| | | | | | | CCV | umhos/cm | 998.0 | 99.2 % | 95-105 | | | | | | |
| | | | | | | Chloride | 300.0 | 10/24/2007:210416 | Blank | umhos/cm | | ND | <1 | | | |
| Dup | | | | umhos/cm | | | | | 0.1% | 0.372 | | | | | | |
| Conductivity | | | | 2510B | 10/25/2007:210972 | | | | Dup | mg/l | | 0.0 | 10 | | | |
| | | | | | | | | | MS | mg/L | 1.000 | 100 % | 90-110 | | | |
| | | | | | | | | | MSD | mg/L | 1.000 | 100 % | 90-110 | | | |
| | | | | | | | | | MSRPD | mg/L | 1.000 | 0.0 | ≤0.1 | | | |
| | | | | | | | | | 5540C | 10/23/2007:210924 | CCB | mg/L | | 0.000 | 0.1 | |
| | | | | | | | | | | | CCV | mg/L | 1.000 | 100 % | 99-101 | |
| | | | | | | | | | Nitrate | 300.0 | 10/24/2007:210555 | LCS | mg/L | 20.00 | 98.5 % | 90-110 |
| | MS | mg/L | 400.0 | | | | | | | | | 112 % | 88-124 | | | |
| | MSD | mg/L | 400.0 | | | | | | | | | 104 % | 88-124 | | | |
| | MSRPD | mg/L | 100.0 | | | | | | | | | 6.6% | ≤29.1 | | | |
| | 300.0 | 10/24/2007:211123 | CCB | | | ppm | | 0.029 | | 0.4 | | | | | | |
| | | | CCV | | | ppm | 20.00 | 108 % | | 90-110 | | | | | | |
| CCB | | | ppm | | 0.010 | 0.4 | | | | | | | | | | |
| CCV | | | ppm | 20.00 | 108 % | 90-110 | | | | | | | | | | |
| Nitrite | 300.0 | 10/24/2007:210555 | LCS | mg/L | 15.00 | 96.0 % | 90-110 | | | | | | | | | |
| | | | MS | mg/L | 300.0 | 111 % | 91-121 | | | | | | | | | |
| | | | MSD | mg/L | 300.0 | 102 % | 91-121 | | | | | | | | | |
| | | | MSRPD | mg/L | 100.0 | 8.0% | ≤23.8 | | | | | | | | | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.014 | 0.3 | | | | | | | | | |
| | | | CCV | ppm | 15.00 | 107 % | 90-110 | | | | | | | | | |

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|--------------------------|----------|-------------------|-------|-------|-------|---------|--------|------|
| Wet Chem Nitrite | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.014 | 0.3 | |
| | | | CCV | ppm | 15.00 | 105 % | 90-110 | |
| Nitrogen, Total Kjeldahl | 351.1 | 10/28/2007:210507 | Blank | mg/L | | ND | <0.5 | |
| | | | LCS | mg/L | 2.000 | 98.2 % | 69-125 | |
| | | | MS | mg/L | 2.000 | 5.6 % | 25-149 | 435 |
| | | | MSD | mg/L | 2.000 | 11.6 % | 25-149 | 435 |
| | | | MSRPD | mg/L | 2.000 | 0.12 | ≤0.5 | |
| Phosphate | 300.0 | 10/24/2007:210555 | LCS | mg/L | 15.00 | 99.2 % | 90-110 | |
| | | | MS | mg/L | 300.0 | 110 % | 85-126 | |
| | | | MSD | mg/L | 300.0 | 101 % | 85-126 | |
| | | | MSRPD | mg/L | 100.0 | 8.8% | ≤41.1 | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.000 | 0.5 | |
| | | | CCV | ppm | 15.00 | 108 % | 90-110 | |
| | | | CCB | ppm | | 0.000 | 0.5 | |
| | | | CCV | ppm | 15.00 | 108 % | 90-110 | |
| Solids, Total Dissolved | 2540 C,E | 10/25/2007:210417 | Blank | mg/L | | ND | <20 | |
| | | | LCS | mg/L | 1000 | 99.1 % | 90-110 | |
| | | | LCS | mg/L | 1000 | 101 % | 90-110 | |
| | | | Dup | mg/L | | 0.3% | 10.0 | |
| | | | | | | | | |
| Sulfate | 300.0 | 10/24/2007:210555 | LCS | mg/L | 50.00 | 96.7 % | 90-110 | |
| | | | MS | mg/L | 1000 | 114 % | 78-137 | |
| | | | MSD | mg/L | 1000 | 105 % | 78-137 | |
| | | | MSRPD | mg/L | 100.0 | 6.8% | ≤12.3 | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.87 | 2 | |
| | | | CCV | ppm | 50.00 | 106 % | 90-110 | |
| | | | CCB | ppm | | 0.86 | 2 | |
| | | | CCV | ppm | 50.00 | 106 % | 90-110 | |
| Turbidity | 2130B | 10/23/2007:210355 | Dup | NTU | | 0.0010 | 0.2 | |
| | 2130B | 10/23/2007:210923 | CCB | NTU | | 0.059 | 0.2 | |
| | | | CCV | NTU | 2.000 | 91.5 % | 90-110 | |
| | | | CCB | NTU | | 0.060 | 0.2 | |
| | | | CCV | NTU | 2.000 | 91.5 % | 90-110 | |

Definition

- ICV : Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
- ICB : Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
- CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
- CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
- Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
- LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
- MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
- Dup : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis.
- MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
- ND : Non-detect - Result was below the DQO listed for the analyte.
- <¼ : High Sample Background - Spike concentration was less than one fourth of the sample concentration.
- DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.
- Explanation**
- 435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

- Number of ice chests/packages received: OTC
Note as OTC if received over the counter unpackaged.
- Were samples received in a chilled condition? Temps: 20 / / / /
Acceptable is 2° to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
- Do the number of bottles received agree with the COC? Yes No N/A
- Were samples received intact? (i.e. no broken bottles, leaks etc.) Yes No
- Were sample custody seals intact? N/A Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

- Were all requested analyses understood and acceptable? Yes No
- Did bottle labels correspond with the client's ID's? Yes No
- Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
- VOAs checked for Headspace? Yes No N/A
- Were all analyses within holding times at time of receipt? Yes No
- Have rush or project due dates been checked and accepted? N/A Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials):

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

- Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

- Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2-14320)
Nipomo Community Services District
SP 0711942



ANALYTICAL CHEMISTS

November 13, 2007

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Lab ID : SP 0711941
Customer : 2-14320

Laboratory Report

Introduction: This report package contains total of 11 pages divided into 3 sections:

- Case Narrative (2 Pages) : An overview of the work performed at FGL.
Sample Results (5 pages) : Results for each sample submitted.
Quality Control (4 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Table with 5 columns: Sample Description, Date Sampled, Date Received, FGL Lab ID #, Matrix. Rows include SW1 through SW5 with corresponding dates and lab IDs.

Sampling and Receipt Information: All samples were received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

Table with 2 columns: Sample ID, Description. Rows include 200.7 (multiple entries) and 3010, detailing preparation quality controls and analysis notes.

Inorganic - Wet Chemistry QC

| | | |
|----------|-------------------|--|
| 2130B | 10/23/2007:210355 | All preparation quality controls are within established criteria. |
| | 10/23/2007:210923 | All analysis quality controls are within established criteria. |
| 2320B | 10/25/2007:210429 | All preparation quality controls are within established criteria. |
| | 10/25/2007:210986 | All analysis quality controls are within established criteria. |
| 2510B | 10/25/2007:210416 | All preparation quality controls are within established criteria. |
| | 10/25/2007:210972 | All analysis quality controls are within established criteria. |
| 2540 C,E | 10/25/2007:210417 | All preparation quality controls are within established criteria. |
| 300.0 | 10/24/2007:210555 | All preparation quality controls are within established criteria, except: The following note applies to Bromide: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. |
| | 10/24/2007:211123 | All analysis quality controls are within established criteria. |
| 351.1 | 11/05/2007:210770 | All preparation quality controls are within established criteria, except: The following note applies to Nitrogen, Total Kjeldahl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. |
| | 10/30/2007:210560 | All preparation quality controls are within established criteria, except: The following note applies to Nitrogen, Total Kjeldahl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. |
| | 10/28/2007:210507 | All preparation quality controls are within established criteria, except: The following note applies to Nitrogen, Total Kjeldahl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. |
| | 10/28/2007:210507 | All preparation quality controls are within established criteria, except: The following note applies to Nitrogen, Total Kjeldahl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. |
| 4500NH3G | 11/09/2007:211573 | All analysis quality controls are within established criteria. |
| | 11/05/2007:211449 | All analysis quality controls are within established criteria. |
| | 11/05/2007:211398 | All analysis quality controls are within established criteria. |
| 4500NH3H | 10/31/2007:210614 | All preparation quality controls are within established criteria. |
| | 10/29/2007:210532 | All preparation quality controls are within established criteria. |
| 5540C | 10/23/2007:210351 | All preparation quality controls are within established criteria. |
| | 10/23/2007:210924 | All analysis quality controls are within established criteria. |

Certification: I certify that this data package is in compliance with NELAC standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
 Title: Laboratory Director
 Date: 2007-11-13



ANALYTICAL CHEMISTS

November 13, 2007

Lab ID : SP 0711941-001

Customer ID : 2-14320

Nipomo CSD

Attn: Dan Migliazzo

P. O. Box 326

Nipomo, CA 93444

Sampled On : October 22, 2007-16:30

Sampled By : Not Available

Received On : October 22, 2007-15:30

Matrix : Surface Water

Description : SW1

Project : Southland WWTP - SW

Sample Results - Inorganic

| Constituent | Result | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|--------------------------------------|--------|------|----------|------|--------------------|-----------------|-----------------|-----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Field Test | | | | | | | | |
| pH | 7.52 | | units | | | 10/22/07 16:30 | 4500-H B | 10/22/07 16:30 |
| Temperature | 15.7 | | °C | | | 10/22/07 16:30 | 2550B | 10/22/07 16:30 |
| Oxygen, Dissolved | 4.3 | | mg/L | | | 10/22/07 16:30 | 4500-O G | 10/22/07 16:30 |
| Metals, Total ^{P:15} | | | | | | | | |
| Boron | ND | 0.1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Calcium | 93 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Magnesium | 55 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Potassium | 3 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Sodium | 148 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Zinc | 0.02 | 0.02 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Wet Chemistry ^{P:1} | | | | | | | | |
| Ammonia-N | ND | 0.2 | mg/L | | 4500NH3H | 10/29/07:210532 | 4500NH3G | 11/05/07:211449 |
| Alkalinity (as CaCO3)- Soluble | 380 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bicarbonate | 460 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Carbonate | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Hydroxide | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bromide | 0.59 | 0.03 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Chloride | 155 | 5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Conductivity | 1400 | 1 | umhos/cm | | 2510B | 10/25/07:210416 | 2510B | 10/25/07:210972 |
| MBAS | ND | 0.1 | mg/L | | 5540C | 10/23/07:210351 | 5540C | 10/23/07:210924 |
| Nitrate | 18.0 | 0.4 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrate + Nitrite as N | 4.1 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrite | ND | 0.3 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrogen, Total as Nitrogen | 4.1 | 0.5 | mg/L | | 351.1 | 10/30/07:210560 | 4500NH3G | 11/05/07:211398 |
| Nitrate + Nitrite | 4.1 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Kjeldahl Nitrogen | ND | 0.5 | mg/L | | 351.1 | 10/30/07:210560 | 4500NH3G | 11/05/07:211398 |
| Nitrogen, Total Kjeldahl | ND | 0.5 | mg/L | | 351.1 | 10/30/07:210560 | 4500NH3G | 11/05/07:211398 |
| Phosphate | ND | 0.5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Solids, Total Dissolved (TDS) | 900 | 20 | mg/L | | 2540 C,E | 10/25/07:210417 | 2540C | 10/26/07:211019 |
| Sulfate | 136 | 2 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Turbidity | 5.5 | 0.2 | NTU | | 2130B | 10/23/07:210355 | 2130B | 10/23/07:210923 |

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: () , (P) Plastic, (VFS) VOA w/Filters+Syringes Preservatives: H2SO4 pH < 2, HNO3 pH < 2



ANALYTICAL CHEMISTS

November 13, 2007

Lab ID : SP 0711941-002

Customer ID : 2-14320

Nipomo CSD

Attn: Dan Migliazzo

P. O. Box 326

Nipomo, CA 93444

Sampled On : October 22, 2007-11:55

Sampled By : Not Available

Received On : October 22, 2007-15:30

Matrix : Surface Water

Description : SW2

Project : Southland WWTP - SW

Sample Results - Inorganic

| Constituent | Result | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|--------------------------------------|--------|------|----------|------|--------------------|-----------------|-----------------|-----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Field Test | | | | | | | | |
| pH | 7.53 | | units | | | 10/22/07 11:55 | 4500-H B | 10/22/07 11:55 |
| Temperature | 14.5 | | °C | | | 10/22/07 11:55 | 2550B | 10/22/07 11:55 |
| Oxygen, Dissolved | 4.3 | | mg/L | | | 10/22/07 11:55 | 4500-O G | 10/22/07 11:55 |
| Metals, Total ^{P:15} | | | | | | | | |
| Boron | ND | 0.1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Calcium | 80 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Magnesium | 54 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Potassium | 1 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Sodium | 107 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Zinc | ND | 0.02 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Wet Chemistry ^{P:15} | | | | | | | | |
| Ammonia-N | ND | 0.2 | mg/L | | 4500NH3H | 10/29/07:210532 | 4500NH3G | 11/05/07:211449 |
| Alkalinity (as CaCO3)-Soluble | 330 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bicarbonate | 400 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Carbonate | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Hydroxide | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bromide | 0.44 | 0.03 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Chloride | 120 | 5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Conductivity | 1280 | 1 | umhos/cm | | 2510B | 10/25/07:210416 | 2510B | 10/25/07:210972 |
| MBAS | ND | 0.1 | mg/L | | 5540C | 10/23/07:210351 | 5540C | 10/23/07:210924 |
| Nitrate | 26.9 | 0.4 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrate + Nitrite as N | 6.1 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrite | ND | 0.3 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrogen, Total as Nitrogen | 6.1 | 0.5 | mg/L | | 351.1 | 10/30/07:210560 | 4500NH3G | 11/05/07:211398 |
| Nitrate + Nitrite | 6.1 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Kjeldahl Nitrogen | ND | 0.5 | mg/L | | 351.1 | 10/30/07:210560 | 4500NH3G | 11/05/07:211398 |
| Nitrogen, Total Kjeldahl | ND | 0.5 | mg/L | | 351.1 | 10/30/07:210560 | 4500NH3G | 11/05/07:211398 |
| Phosphate | ND | 0.5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Solids, Total Dissolved (TDS) | 780 | 20 | mg/L | | 2540 C.E | 10/25/07:210417 | 2540C | 10/26/07:211019 |
| Sulfate | 144 | 2 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Turbidity | 1.9 | 0.2 | NTU | | 2130B | 10/23/07:210355 | 2130B | 10/23/07:210923 |

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (), (P) Plastic, (VFS) VOA w/Filters+Syringes Preservatives: H2SO4 pH < 2, HNO3 pH < 2



ANALYTICAL CHEMISTS

November 13, 2007

Lab ID : SP 0711941-003

Customer ID : 2-14320

Nipomo CSD

Attn: Dan Migliazzo

P. O. Box 326

Nipomo, CA 93444

Sampled On : October 22, 2007-12:55

Sampled By : Not Available

Received On : October 22, 2007-15:30

Matrix : Surface Water

Description : SW3

Project : Southland WWTP - SW

Sample Results - Inorganic

| Constituent | Result | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|--|--------|------|----------|------|--------------------|-----------------|-----------------|-----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Field Test | | | | | | | | |
| pH | 8.31 | | units | | | 10/22/07 12:55 | 4500-H B | 10/22/07 12:55 |
| Temperature | 15.7 | | °C | | | 10/22/07 12:55 | 2550B | 10/22/07 12:55 |
| Oxygen, Dissolved | 16.0 | | mg/L | | | 10/22/07 12:55 | 4500-O G | 10/22/07 12:55 |
| Metals, Total ^{P:15} | | | | | | | | |
| Boron | 0.2 | 0.1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Calcium | 93 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Magnesium | 61 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Potassium | 2 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Sodium | 159 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Zinc | ND | 0.02 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Wet Chemistry ^{P:15} | | | | | | | | |
| Ammonia-N | ND | 0.2 | mg/L | | 4500NH3H | 10/29/07:210532 | 4500NH3G | 11/05/07:211449 |
| Alkalinity (as CaCO ₃)-Soluble | 320 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bicarbonate | 400 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Carbonate | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Hydroxide | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bromide | 0.33 | 0.03 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Chloride | 176 | 5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Conductivity | 1580 | 1 | umhos/cm | | 2510B | 10/25/07:210416 | 2510B | 10/25/07:210972 |
| MBAS | ND | 0.1 | mg/L | | 5540C | 10/23/07:210351 | 5540C | 10/23/07:210924 |
| Nitrate | 46.5 | 0.4 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrate + Nitrite as N | 10.5 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrite | 0.3 | 0.3 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrogen, Total as Nitrogen | 10.5 | 0.5 | mg/L | | 351.1 | 10/30/07:210560 | 4500NH3G | 11/05/07:211398 |
| Nitrate + Nitrite | 10.5 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Kjeldahl Nitrogen | ND | 0.5 | mg/L | | 351.1 | 10/30/07:210560 | 4500NH3G | 11/05/07:211398 |
| Nitrogen, Total Kjeldahl | ND | 0.5 | mg/L | | 351.1 | 10/30/07:210560 | 4500NH3G | 11/05/07:211398 |
| Phosphate | ND | 0.5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Solids, Total Dissolved (TDS) | 1040 | 20 | mg/L | | 2540 C,E | 10/25/07:210417 | 2540C | 10/26/07:211019 |
| Sulfate | 201 | 2 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Turbidity | 5.0 | 0.2 | NTU | | 2130B | 10/23/07:210355 | 2130B | 10/23/07:210923 |

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (), (P) Plastic, (VFS) VOA w/Filters+Syringes Preservatives: H₂SO₄ pH < 2, HNO₃ pH < 2



ANALYTICAL CHEMISTS

November 13, 2007

Lab ID : SP 0711941-004

Customer ID : 2-14320

Nipomo CSD

Attn: Dan Migliazzo

P. O. Box 326

Nipomo, CA 93444

Sampled On : October 22, 2007-14:10

Sampled By : Not Available

Received On : October 22, 2007-15:30

Matrix : Surface Water

Description : SW4

Project : Southland WWTP - SW

Sample Results - Inorganic

| Constituent | Result | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|--|--------|------|----------|------|--------------------|-----------------|-----------------|-----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Field Test | | | | | | | | |
| pH | 7.93 | | units | | | 10/22/07 14:10 | 4500-H B | 10/22/07 14:10 |
| Temperature | 16.3 | | °C | | | 10/22/07 14:10 | 2550B | 10/22/07 14:10 |
| Oxygen, Dissolved | 8.8 | | mg/L | | | 10/22/07 14:10 | 4500-O G | 10/22/07 14:10 |
| Metals, Total ^{P:15} | | | | | | | | |
| Boron | 0.1 | 0.1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Calcium | 89 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Magnesium | 57 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Potassium | 1 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Sodium | 162 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Zinc | ND | 0.02 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Wet Chemistry ^{P:1} | | | | | | | | |
| Ammonia-N | ND | 0.2 | mg/L | | 4500NH3H | 10/29/07:210532 | 4500NH3G | 11/05/07:211449 |
| Alkalinity (as CaCO ₃)-Soluble | 330 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bicarbonate | 410 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Carbonate | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Hydroxide | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bromide | 0.33 | 0.03 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Chloride | 185 | 5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Conductivity | 1600 | 1 | umhos/cm | | 2510B | 10/25/07:210416 | 2510B | 10/25/07:210972 |
| MBAS | ND | 0.1 | mg/L | | 5540C | 10/23/07:210351 | 5540C | 10/23/07:210924 |
| Nitrate | 41.2 | 0.4 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrate + Nitrite as N | 9.3 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrite | ND | 0.3 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrogen, Total as Nitrogen | 9.9 | 0.5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Nitrate + Nitrite | 9.3 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Kjeldahl Nitrogen | 0.6 | 0.5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Nitrogen, Total Kjeldahl | 0.6 | 0.5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Phosphate | ND | 0.5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Solids, Total Dissolved (TDS) | 1030 | 20 | mg/L | | 2540 C.E | 10/25/07:210417 | 2540C | 10/26/07:211019 |
| Sulfate | 205 | 2 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Turbidity | 8.2 | 0.2 | NTU | | 2130B | 10/23/07:210355 | 2130B | 10/23/07:210923 |

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (), (P) Plastic, (VFS) VOA w/Filters+Syringes Preservatives: H₂SO₄ pH < 2, HNO₃ pH < 2



ANALYTICAL CHEMISTS

November 13, 2007

Lab ID : SP 0711941-005

Customer ID : 2-14320

Nipomo CSD

Attn: Dan Migliazzo

P. O. Box 326

Nipomo, CA 93444

Sampled On : October 22, 2007-15:10

Sampled By : Not Available

Received On : October 22, 2007-15:30

Matrix : Surface Water

Description : SW5

Project : Southland WWTP - SW

Sample Results - Inorganic

| Constituent | Result | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|--|--------|------|----------|------|--------------------|-----------------|-----------------|-----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Field Test | | | | | | | | |
| pH | 7.15 | | units | | | 10/22/07 15:10 | 4500-H B | 10/22/07 15:10 |
| Temperature | 15.6 | | °C | | | 10/22/07 15:10 | 2550B | 10/22/07 15:10 |
| Oxygen, Dissolved | 1.0 | | mg/L | | | 10/22/07 15:10 | 4500-O G | 10/22/07 15:10 |
| Metals, Total ^{P-15} | | | | | | | | |
| Boron | ND | 0.1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Calcium | 101 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Magnesium | 41 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Potassium | 2 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Sodium | 182 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Zinc | ND | 0.02 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Wet Chemistry ^{P-1} | | | | | | | | |
| Ammonia-N | 0.3 | 0.2 | mg/L | | 4500NH3H | 10/31/07:210614 | 4500NH3G | 11/05/07:211449 |
| Alkalinity (as CaCO ₃)-Soluble | 250 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bicarbonate | 310 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Carbonate | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Hydroxide | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bromide | 0.35 | 0.03 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Chloride | 203 | 5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Conductivity | 1620 | 1 | umhos/cm | | 2510B | 10/25/07:210416 | 2510B | 10/25/07:210972 |
| MBAS | ND | 0.1 | mg/L | | 5540C | 10/23/07:210351 | 5540C | 10/23/07:210924 |
| Nitrate | 29.5 | 0.4 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrate + Nitrite as N | 6.7 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrite | ND | 0.3 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrogen, Total as Nitrogen | 7.7 | 0.5 | mg/L | | 351.1 | 11/05/07:210770 | 4500NH3G | 11/09/07:211573 |
| Nitrate + Nitrite | 6.7 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Kjeldahl Nitrogen | 1.0 | 0.5 | mg/L | | 351.1 | 11/05/07:210770 | 4500NH3G | 11/09/07:211573 |
| Nitrogen, Total Kjeldahl | 1.0 | 0.5 | mg/L | | 351.1 | 11/05/07:210770 | 4500NH3G | 11/09/07:211573 |
| Phosphate | 1.9 | 0.5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Solids, Total Dissolved (TDS) | 1110 | 20 | mg/L | | 2540 C.E | 10/25/07:210417 | 2540C | 10/26/07:211019 |
| Sulfate | 250 | 10 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Turbidity | 47.7 | 0.2 | NTU | | 2130B | 10/23/07:210355 | 2130B | 10/23/07:210923 |

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (), (P) Plastic, (VFS) VOA w/Filters+Syringes Preservatives: H2SO4 pH < 2, HNO3 pH < 2



ANALYTICAL CHEMISTS

November 13, 2007
Nipomo Community Services District

Lab ID : SP 0711941
Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-----------------|--------|-------------------|-------|-------|--------|---------|--------|------|
| Metals Boron | 200.7 | 10/26/2007:211090 | CCV | ppm | 5.000 | 101 % | 90-110 | |
| | | | CCB | ppm | | -0.006 | 0.10 | |
| | | | CCV | ppm | 5.000 | 106 % | 90-110 | |
| | | | CCB | ppm | | -0.016 | 0.10 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <0.1 | |
| | | | LCS | mg/L | 4.000 | 92.2 % | 85-115 | |
| | | | MS | mg/L | 4.000 | 95.1 % | 75-125 | |
| | | | MSD | mg/L | 4.000 | 93.1 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 1.9% | ≤20.0 | |
| | | | PDS | mg/L | 4.000 | 120 % | 75-125 | |
| Calcium | 200.7 | 10/26/2007:211090 | CCV | ppm | 25.00 | 100 % | 90-110 | |
| | | | CCB | ppm | | 0.008 | 1.0 | |
| | | | CCV | ppm | 25.00 | 102 % | 90-110 | |
| | | | CCB | ppm | | 0.01 | 1.0 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <1 | |
| | | | LCS | mg/L | 12.50 | 92.3 % | 85-115 | |
| | | | MS | mg/L | 12.50 | 104 % | 75-125 | |
| | | | MSD | mg/L | 12.50 | 88.4 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 3.3% | ≤20.0 | |
| | | | PDS | mg/L | 12.50 | -183 % | 75-125 | P |
| Magnesium | 200.7 | 10/26/2007:211090 | CCV | ppm | 25.00 | 96.7 % | 90-110 | |
| | | | CCB | ppm | | 0.009 | 1.0 | |
| | | | CCV | ppm | 25.00 | 99.3 % | 90-110 | |
| | | | CCB | ppm | | 0.009 | 1.0 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <1 | |
| | | | LCS | mg/L | 12.50 | 92.4 % | 85-115 | |
| | | | MS | mg/L | 12.50 | 104 % | 75-125 | |
| | | | MSD | mg/L | 12.50 | 89.7 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 3.6% | ≤20.0 | |
| | | | PDS | mg/L | 12.50 | -156 % | 75-125 | P |
| Potassium | 200.7 | 11/08/2007:210919 | MS | mg/L | 12.50 | -1.7 % | 75-125 | 435 |
| | | | MSD | mg/L | 12.50 | 110 % | 75-125 | 435 |
| | | | MSRPD | mg/L | 800.0 | 148% | ≤20.0 | |
| | 200.7 | 11/08/2007:211554 | CCV | ppm | 25.00 | 103 % | 90-110 | |
| | | | CCB | ppm | | -0.03 | 1.0 | |
| | | | CCV | ppm | 25.00 | 106 % | 90-110 | |
| | | | CCB | ppm | | 0.11 | 1.0 | |
| | | | CCV | ppm | 25.00 | 102 % | 90-110 | |
| CCB | ppm | | -0.05 | 1.0 | | | | |
| Sodium | 200.7 | 11/08/2007:210919 | MS | mg/L | 12.50 | -197 % | <¼ | |
| | | | MSD | mg/L | 12.50 | -84.3 % | <¼ | |
| | | | MSRPD | mg/L | 800.0 | 10.8% | ≤20.0 | |
| | 200.7 | 11/08/2007:211554 | CCV | ppm | 25.00 | 100 % | 90-110 | |
| | | | CCB | ppm | | 0.11 | 1.0 | |
| | | | CCV | ppm | 25.00 | 103 % | 90-110 | |
| | | | CCV | ppm | 25.00 | 103 % | 90-110 | |
| | | | CCB | ppm | | 0.18 | 1.0 | |
| | | | CCB | ppm | | 0.18 | 1.0 | |
| | | | CCV | ppm | 25.00 | 97.6 % | 90-110 | |
| CCB | ppm | | 0.009 | 1.0 | | | | |
| Zinc | 200.7 | 10/26/2007:211090 | CCV | ppm | 1.000 | 96.9 % | 90-110 | |
| | | | CCB | ppm | | 0.0004 | 0.02 | |
| | | | CCV | ppm | 1.000 | 97.2 % | 90-110 | |

November 13, 2007
 Nipomo Community Services District

Lab ID : SP 0711941
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-----------------------------------|----------|-------------------|-------|-------|--------|---------|--------|------|
| Metals Zinc | 200.7 | 10/26/2007:211090 | CCB | ppm | | -0.0007 | 0.02 | |
| | | | Blank | mg/L | | ND | <0.02 | |
| | | | LCS | mg/L | 2.000 | 92.6 % | 85-115 | |
| | | | MS | mg/L | 2.000 | 96.0 % | 75-125 | |
| | | | MSD | mg/L | 2.000 | 92.1 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 4.1 % | ≤20.0 | |
| | | | PDS | mg/L | 2.000 | 114 % | 75-125 | |
| Wet Chem Alkalinity (as CaCO3) | 2320B | 10/25/2007:210429 | Dup | mg/L | | 0.2% | 3.42 | |
| | 2320B | 10/25/2007:210986 | ICV | mg/l | 234.9 | 103 % | 90-110 | |
| Ammonia Nitrogen | 4500NH3G | 11/05/2007:211398 | CCB | mg/l | | 0.039 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 102 % | 90-110 | |
| | | | CCB | mg/l | | 0.044 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 99.8 % | 90-110 | |
| | | | CCB | mg/l | | 0.046 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 102 % | 90-110 | |
| | | | CCB | mg/l | | 0.047 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 102 % | 90-110 | |
| | 4500NH3G | 11/05/2007:211449 | ICB | mg/l | | -0.012 | 0.2 | |
| | | | ICV | mg/l | 2.000 | 93.6 % | 90-110 | |
| | | | CCB | mg/l | | 0.046 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 91.2 % | 90-110 | |
| | | | CCB | mg/l | | 0.035 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 106 % | 90-110 | |
| | | | CCV | mg/l | 2.000 | 106 % | 90-110 | |
| | 4500NH3G | 11/09/2007:211573 | ICB | mg/l | | -0.056 | 0.2 | |
| | | | ICV | mg/l | 2.000 | 92.8 % | 90-110 | |
| | | | CCB | mg/l | | -0.036 | 0.2 | |
| | 4500NH3H | 10/29/2007:210532 | Blank | mg/L | | ND | <0.2 | |
| | | | LCS | mg/L | 2.000 | 80.6 % | 63-116 | |
| | | | MS | mg/L | 2.000 | 90.2 % | 17-127 | |
| | 4500NH3H | 10/31/2007:210614 | MSD | mg/L | 2.000 | 81.2 % | 17-127 | |
| | | | MSRPD | mg/L | 2.000 | 9.4 % | ≤80.2 | |
| | | | Blank | mg/L | | ND | <0.2 | |
| Bicarbonate | 2320B | 10/25/2007:210429 | LCS | mg/L | 2.000 | 74.6 % | 63-116 | |
| | | | MS | mg/L | 2.000 | 91.7 % | 17-127 | |
| | | | MSD | mg/L | 2.000 | 85.9 % | 17-127 | |
| Bromide | 300.0 | 10/24/2007:210555 | MSRPD | mg/L | 2.000 | 6.0 % | ≤80.2 | |
| | | | LCS | mg/L | 5.000 | 100 % | 90-110 | |
| | | | MS | mg/L | 100.0 | 109 % | 90-121 | |
| | | | MSD | mg/L | 100.0 | 101 % | 90-121 | |
| | 300.0 | 10/24/2007:211123 | MSRPD | mg/L | 100.0 | 7.9 % | ≤1.61 | 435 |
| | | | CCB | ppb | | 0.0 | 30 | |
| | | | CCV | ppb | 5000 | 106 % | 90-110 | |
| Carbonate | 2320B | 10/25/2007:210429 | CCB | ppb | | 0.0 | 30 | |
| | | | CCV | ppb | 5000 | 110 % | 90-110 | |
| | | | Dup | mg/l | | 0.0 | 10 | |
| | | | CCV | ppm | 25.00 | 104 % | 90-110 | |
| Chloride | 300.0 | 10/24/2007:210555 | LCS | mg/L | 25.00 | 96.9 % | 90-110 | |
| | | | MS | mg/L | 500.0 | 111 % | 86-128 | |
| | | | MSD | mg/L | 500.0 | 104 % | 86-128 | |
| | | | MSRPD | mg/L | 100.0 | 4.9 % | ≤23.0 | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.05 | 1 | |
| | | | CCV | ppm | 25.00 | 104 % | 90-110 | |

November 13, 2007
 Nipomo Community Services District

Lab ID : SP 0711941
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|--------------------------|-------------------|-------------------|--------------|----------------------|----------------|----------------|---------------|------|
| Wet Chem Chloride | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.05 | 1 | |
| | | | CCB | ppm | | 0.05 | 1 | |
| | | | CCV | ppm | 25.00 | 107 % | 90-110 | |
| | | | CCV | ppm | 25.00 | 107 % | 90-110 | |
| | | | CCB | ppm | | 0.05 | 1 | |
| | | | CCV | ppm | 25.00 | 107 % | 90-110 | |
| Conductivity | 2510B | 10/25/2007:210972 | ICB | umhos/cm | | 0.1 | 1 | |
| | | | ICV | umhos/cm | 998.0 | 99.1 % | 95-105 | |
| | | | CCV | umhos/cm | 998.0 | 99.2 % | 95-105 | |
| E. C. | 2510B | 10/25/2007:210416 | Blank Dup | umhos/cm umhos/cm | | ND 0.1% | <1 0.372 | |
| Hydroxide | 2320B | 10/25/2007:210429 | Dup | mg/l | | 0.0 | 10 | |
| MBAS | 5540C | 10/23/2007:210351 | MS | mg/L | 1.000 | 100 % | 90-110 | |
| | | | MSD | mg/L | 1.000 | 100 % | 90-110 | |
| | | | MSRPD | mg/L | 1.000 | 0.0 | ≤0.1 | |
| | 5540C | 10/23/2007:210924 | CCB CCV | mg/L mg/L | 1.000 1.000 | 0.000 100 % | 0.1 99-101 | |
| Nitrate | 300.0 | 10/24/2007:210555 | LCS | mg/L | 20.00 | 98.5 % | 90-110 | |
| | | | MS | mg/L | 400.0 | 112 % | 88-124 | |
| | | | MSD | mg/L | 400.0 | 104 % | 88-124 | |
| | | | MSRPD | mg/L | 100.0 | 6.6% | ≤29.1 | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.000 | 0.4 | |
| | | | CCV | ppm | 20.00 | 105 % | 90-110 | |
| Nitrite | 300.0 | 10/24/2007:210555 | LCS | mg/L | 15.00 | 96.0 % | 90-110 | |
| | | | MS | mg/L | 300.0 | 111 % | 91-121 | |
| | | | MSD | mg/L | 300.0 | 102 % | 91-121 | |
| | | | MSRPD | mg/L | 100.0 | 8.0% | ≤23.8 | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.011 | 0.3 | |
| | | | CCV | ppm | 15.00 | 103 % | 90-110 | |
| Nitrogen, Total Kjeldahl | 351.1 | 10/28/2007:210507 | Blank | mg/L | | ND | <0.5 | |
| | | | LCS | mg/L | 2.000 | 98.2 % | 69-125 | |
| | | | MS | mg/L | 2.000 | 5.6 % | 25-149 | 435 |
| | | | MSD | mg/L | 2.000 | 11.6 % | 25-149 | 435 |
| | | | MSRPD | mg/L | 2.000 | 0.12 | ≤0.5 | |
| | 351.1 | 10/30/2007:210560 | Blank | mg/L | | ND | <0.5 | |
| | | | LCS | mg/L | 2.004 | 99.3 % | 69-125 | |
| | | | MS | mg/L | 2.004 | -7.3 % | 25-149 | 435 |
| | | | MSD | mg/L | 2.004 | -31.5 % | 25-149 | 435 |
| MSRPD | mg/L | 2.004 | 0.48 | ≤0.5 | | | | |
| 351.1 | 11/05/2007:210770 | Blank | mg/L | | ND | <0.5 | | |
| | | LCS | mg/L | 2.004 | 110 % | 69-125 | | |
| | | MS | mg/L | 2.004 | 1.3 % | 25-149 | 435 | |
| | | MSD | mg/L | 2.004 | 7.9 % | 25-149 | 435 | |
| | | MSRPD | mg/L | 2.004 | 0.13 | ≤0.5 | | |
| Phosphate | 300.0 | 10/24/2007:210555 | LCS | mg/L | 15.00 | 99.2 % | 90-110 | |
| | | | MS | mg/L | 300.0 | 110 % | 85-126 | |
| | | | MSD | mg/L | 300.0 | 101 % | 85-126 | |
| | | | MSRPD | mg/L | 100.0 | 8.8% | ≤41.1 | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.000 | 0.5 | |
| | | | CCV | ppm | 15.00 | 105 % | 90-110 | |
| 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.000 | 0.5 | | |
| | | CCV | ppm | 15.00 | 108 % | 90-110 | | |
| Solids, Total Dissolved | 2540 C,E | 10/25/2007:210417 | Blank | mg/L | | ND | <20 | |
| | | | LCS | mg/L | 1000 | 99.1 % | 90-110 | |

November 13, 2007
 Nipomo Community Services District

Lab ID : SP 0711941
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-------------------------|--|-------------------|------------|--------------|-------|---------------|----------------|------|
| Wet Chem | | | | | | | | |
| Solids, Total Dissolved | 2540 C,E | 10/25/2007:210417 | LCS Dup | mg/L mg/L | 1000 | 101 % 0.3% | 90-110 10.0 | |
| Sulfate | 300.0 | 10/24/2007:210555 | LCS | mg/L | 50.00 | 96.7 % | 90-110 | |
| | | | MS | mg/L | 1000 | 114 % | 78-137 | |
| | | | MSD | mg/L | 1000 | 105 % | 78-137 | |
| | | | MSRPD | mg/L | 100.0 | 6.8% | ≤12.3 | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.88 | 2 | |
| | | | CCV | ppm | 50.00 | 104 % | 90-110 | |
| | | | CCB | ppm | | 0.87 | 2 | |
| | | | CCV | ppm | 50.00 | 106 % | 90-110 | |
| Turbidity | 2130B | 10/23/2007:210355 | Dup | NTU | | 0.0010 | 0.2 | |
| | 2130B | 10/23/2007:210923 | CCB | NTU | | 0.059 | 0.2 | |
| | | | CCV | NTU | 2.000 | 91.5 % | 90-110 | |
| | | | CCB | NTU | | 0.060 | 0.2 | |
| | | | CCV | NTU | 2.000 | 91.5 % | 90-110 | |
| Definition | | | | | | | | |
| ICV | : Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria. | | | | | | | |
| ICB | : Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria. | | | | | | | |
| CCV | : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria. | | | | | | | |
| CCB | : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria. | | | | | | | |
| Blank | : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples. | | | | | | | |
| LCS | : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery. | | | | | | | |
| MS | : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery. | | | | | | | |
| MSD | : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery. | | | | | | | |
| Dup | : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis. | | | | | | | |
| MSRPD | : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis. | | | | | | | |
| ND | : Non-detect - Result was below the DQO listed for the analyte. | | | | | | | |
| <¼ | : High Sample Background - Spike concentration was less than one fourth of the sample concentration. | | | | | | | |
| DQO | : Data Quality Objective - This is the criteria against which the quality control data is compared. | | | | | | | |
| Explanation | | | | | | | | |
| 435 | : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. | | | | | | | |



ENVIRONMENTAL

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CHAIN OF CUSTODY

Laboratory Copy (1 of 3)

Client: Nipomo Community Services District
Address: Nipomo CSD
Ann: Dan Miglizzo
P. O. Box 326
Nipomo, CA 93444
Phone: (805)929-1341 Fax: (805)929-5090
Contact Person: Dan Miglizzo
Project Name: Southland WWTP - SW
Purchase Order Number:
Quote Number:
Sampler(s)
Sampling Fee: Pickup Fee:
Compositor Setup Date: 1/1/11 Time: 1/1/11
Lab Number: SP 711924 2-14320
Method of Sampling: Composite(C) Grab(G)
Type of Sample **SEE REVERSE SIDE**
Potable(P) Non-Potable(NP) Ag Water(AgW)
Bacti Type: Other(O) System(SYS) Source(SR) Waste(W)
Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL)
Field Test-Field Temp.
Metals, Total-B,Ca,Mg,K,Na,Zn 250ml(P)-HNO3
Wet Chemistry-SO4,TDS,PO4>Total N,NO2,NO3,MBAS,Conductivity,Cl,Br,Alk. (CaCO3),NH3-N,Turbidity
Field Filter PO4 32oz(P), 40ml(VFS), 16oz(P)-H2SO4
Field Test-Field pH !!pH = 15 MINUTE HOLD TIME!!
Field - pH Date
Field - pH Time
Field Test-Field O2 Diss. mg/L

| Sampl Num | Location Description | Date Sampled | Time Sampled | Method of Sampling | Type of Sample | Potable(P) Non-Potable(NP) Ag Water(AgW) | Bacti Type: Other(O) System(SYS) Source(SR) Waste(W) | Bacti Reason: Routine(ROUT) Repeat(RPT) Replace(RPL) Other(O) Special(SPL) | Field Test-Field Temp. | Metals, Total-B,Ca,Mg,K,Na,Zn 250ml(P)-HNO3 | Wet Chemistry-SO4,TDS,PO4>Total N,NO2,NO3,MBAS,Conductivity,Cl,Br,Alk. (CaCO3),NH3-N,Turbidity | Field Filter PO4 32oz(P), 40ml(VFS), 16oz(P)-H2SO4 | Field Test-Field pH !!pH = 15 MINUTE HOLD TIME!! | Field - pH Date | Field - pH Time | Field Test-Field O2 Diss. mg/L |
|-----------|----------------------|--------------|--------------|--------------------|----------------|--|--|--|------------------------|---|--|--|--|-----------------|-----------------|--------------------------------|
| 1 | SW1 | 10/22/07 | 16:30 | G | SW | | | | 15.7 | 1 | 1.1,1 | 7.52 | 10/22 | 16:35 | 4.3 | |
| 2 | SW2 | 10/22/07 | 11:55 | G | SW | | | | 14.5 | 1 | 1.1,1 | 7.53 | // | 12:00 | 4.3 | |
| 3 | SW3 | 10/22/07 | 12:55 | G | SW | | | | 15.7 | 1 | 1.1,1 | 8.31 | 4 | 12:00 | 16.0 | |
| 4 | SW4 | 10/22/07 | 14:10 | G | SW | | | | 16.3 | 1 | 1.1,1 | 7.98 | 4 | 14:15 | 8.8 | |
| 5 | SW5 | 10/22/07 | 15:10 | G | SW | | | | 15.6 | 1 | 1.1,1 | 7.15 | // | 15:15 | 1.0 | |

Remarks:

Relinquished Date: 10/22/07 Time: 17:30 Received By: Shawn Ross

Relinquished Date: 10/22/07 Time: 17:30 Received By: [Signature]

Relinquished Date: 10/22/07 Time: 17:30 Received By: [Signature]

Relinquished Date: 10/22/07 Time: 17:30 Received By: [Signature]

Corporate Offices & Laboratory
P. O. Box 2727, 853 Corporation Street
Santa Paula, CA 93061-0272
TEL: (805) 380-2000
FAX: (805) 380-4172

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: (209) 942-0182
FAX: (209) 942-0123

Office & Laboratory
563 East Lindo Avenue
Chico, CA 95926
TEL: (530) 343-5818
FAX: (530) 343-8807

Field Office
Visalia, California
TEL: (559) 734-9473
Mobile: (559) 797-2399
FAX: (559) 734-8435

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

1. Number of ice chests/packages received: 07
Note as OTC if received over the counter unpackaged.
2. Were samples received in a chilled condition? Temps: 14 / / /
Acceptable is 2° to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
3. Do the number of bottles received agree with the COC? Yes No N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc.) Yes No
5. Were sample custody seals intact? N/A Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
4. VOAs checked for Headspace? Yes No N/A
5. Were all analyses within holding times at time of receipt? Yes No
6. Have rush or project due dates been checked and accepted? N/A Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials):

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2-14320)
Nipomo Community Services District
SP 0711941



ANALYTICAL CHEMISTS

November 9, 2007

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Lab ID : SP 0711942
Customer : 2-14320

Laboratory Report

Introduction: This report package contains total of 6 pages divided into 3 sections:

- Case Narrative (2 Pages) : An overview of the work performed at FGL.
Sample Results (1 page) : Results for each sample submitted.
Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Table with 5 columns: Sample Description, Date Sampled, Date Received, FGL Lab ID #, Matrix. Row 1: MW3, 10/23/2007, 10/22/2007, SP 0711942-001, MW

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding times. All samples arrived on ice. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Metals QC

Table with 2 columns: Sample ID, QC Details. Rows include 200.7 and 3010 with their respective QC dates and descriptions.

Inorganic - Wet Chemistry QC

Table with 2 columns: Sample ID, QC Details. Rows include 2130B with its QC dates and descriptions.

Inorganic - Wet Chemistry QC

| | |
|----------|--|
| 2320B | 10/25/2007:210986 All analysis quality controls are within established criteria. |
| 2320B | 10/25/2007:210429 All preparation quality controls are within established criteria. |
| 2510B | 10/25/2007:210416 All preparation quality controls are within established criteria. |
| | 10/25/2007:210972 All analysis quality controls are within established criteria. |
| 2540 C,E | 10/25/2007:210417 All preparation quality controls are within established criteria. |
| 300.0 | 10/24/2007:210555 All preparation quality controls are within established criteria, except: The following note applies to Bromide: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. |
| | 10/24/2007:211123 All analysis quality controls are within established criteria. |
| 351.1 | 10/28/2007:210507 All preparation quality controls are within established criteria, except: The following note applies to Nitrogen, Total Kjeldahl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. |
| | |
| 4500NH3G | 11/05/2007:211449 All analysis quality controls are within established criteria. |
| | 11/05/2007:211398 All analysis quality controls are within established criteria. |
| 4500NH3H | 10/29/2007:210532 All preparation quality controls are within established criteria. |
| 5540C | 10/23/2007:210351 All preparation quality controls are within established criteria. |
| | 10/23/2007:210924 All analysis quality controls are within established criteria. |

Certification: I certify that this data package is in compliance with NELAC standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
 Title: Laboratory Director
 Date: 2007-11-09



ANALYTICAL CHEMISTS

November 9, 2007

Lab ID : SP 0711942-001

Customer ID : 2-14320

Nipomo CSD

Attn: Dan Migliazzo

P. O. Box 326

Nipomo, CA 93444

Sampled On : October 23, 2007-09:50

Sampled By : Not Available

Received On : October 22, 2007-15:30

Matrix : Monitoring Well

Description : MW3

Project : Southland WWTP - GW - 2

Sample Results - Inorganic

| Constituent | Result | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|--------------------------------------|--------|------|----------|------|--------------------|-----------------|-----------------|-----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Field Test | | | | | | | | |
| pH | 6.46 | | units | | | 10/23/07 09:50 | 4500-H B | 10/23/07 09:50 |
| Temperature | 16.7 | | °C | | | 10/23/07 09:50 | 2550B | 10/23/07 09:50 |
| Oxygen, Dissolved | 4.7 | | mg/L | | | 10/23/07 09:50 | 4500-O G | 10/23/07 09:50 |
| Metals, Total ^{P:15} | | | | | | | | |
| Boron | 0.3 | 0.1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Calcium | 87 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Magnesium | 41 | 1 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Potassium | 3 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Sodium | 215 | 1 | mg/L | | 200.7 | 11/08/07:210919 | 200.7 | 11/08/07:211554 |
| Zinc | 0.21 | 0.02 | mg/L | | 3010 | 10/24/07:210389 | 200.7 | 10/26/07:211090 |
| Wet Chemistry ^{P:1} | | | | | | | | |
| Ammonia-N | ND | 0.2 | mg/L | | 4500NH3H | 10/29/07:210532 | 4500NH3G | 11/05/07:211449 |
| Alkalinity (as CaCO3)-Soluble | 200 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bicarbonate | 240 | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Carbonate | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Hydroxide | ND | 10 | mg/L | | 2320B | 10/25/07:210429 | 2320B | 10/25/07:210986 |
| Bromide | ND | 0.03 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Chloride | 218 | 5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Conductivity | 1680 | 1 | umhos/cm | | 2510B | 10/25/07:210416 | 2510B | 10/25/07:210972 |
| MBAS | ND | 0.1 | mg/L | | 5540C | 10/23/07:210351 | 5540C | 10/23/07:210924 |
| Nitrate | 76.7 | 0.4 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrate + Nitrite as N | 17.3 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrite | ND | 0.3 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Nitrogen, Total as Nitrogen | 17.3 | 0.5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Nitrate + Nitrite | 17.3 | 0.1 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Kjeldahl Nitrogen | ND | 0.5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Nitrogen, Total Kjeldahl | ND | 0.5 | mg/L | | 351.1 | 10/28/07:210507 | 4500NH3G | 11/05/07:211398 |
| Phosphate | ND | 0.5 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Solids, Total Dissolved (TDS) | 1090 | 20 | mg/L | | 2540 C,E | 10/25/07:210417 | 2540C | 10/26/07:211019 |
| Sulfate | 260 | 10 | mg/L | | 300.0 | 10/24/07:210555 | 300.0 | 10/24/07:211123 |
| Turbidity | 1.0 | 0.2 | NTU | | 2130B | 10/23/07:210355 | 2130B | 10/23/07:210923 |

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (), (P) Plastic, (VFS) VOA w/Filters+Syringes Preservatives: H2SO4 pH < 2, HNO3 pH < 2



ANALYTICAL CHEMISTS

November 9, 2007
 Nipomo Community Services District

Lab ID : SP 0711942
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-----------------|-------------------|-------------------|-------|-------|--------|---------|--------|------|
| Metals Boron | 200.7 | 10/26/2007:211090 | CCV | ppm | 5.000 | 101 % | 90-110 | |
| | | | CCB | ppm | | -0.006 | 0.10 | |
| | | | CCV | ppm | 5.000 | 106 % | 90-110 | |
| | | | CCB | ppm | | -0.016 | 0.10 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <0.1 | |
| | | | LCS | mg/L | 4.000 | 92.2 % | 85-115 | |
| | | | MS | mg/L | 4.000 | 95.1 % | 75-125 | |
| | | | MSD | mg/L | 4.000 | 93.1 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 1.9% | ≤20.0 | |
| | | | PDS | mg/L | 4.000 | 120 % | 75-125 | |
| Calcium | 200.7 | 10/26/2007:211090 | CCV | ppm | 25.00 | 100 % | 90-110 | |
| | | | CCB | ppm | | 0.008 | 1.0 | |
| | | | CCV | ppm | 25.00 | 102 % | 90-110 | |
| | | | CCB | ppm | | 0.01 | 1.0 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <1 | |
| | | | LCS | mg/L | 12.50 | 92.3 % | 85-115 | |
| | | | MS | mg/L | 12.50 | 104 % | 75-125 | |
| | | | MSD | mg/L | 12.50 | 88.4 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 3.3% | ≤20.0 | |
| | | | PDS | mg/L | 12.50 | -183 % | 75-125 | P |
| Magnesium | 200.7 | 10/26/2007:211090 | CCV | ppm | 25.00 | 96.7 % | 90-110 | |
| | | | CCB | ppm | | 0.009 | 1.0 | |
| | | | CCV | ppm | 25.00 | 99.3 % | 90-110 | |
| | | | CCB | ppm | | 0.009 | 1.0 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <1 | |
| | | | LCS | mg/L | 12.50 | 92.4 % | 85-115 | |
| | | | MS | mg/L | 12.50 | 104 % | 75-125 | |
| | | | MSD | mg/L | 12.50 | 89.7 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 3.6% | ≤20.0 | |
| | | | PDS | mg/L | 12.50 | -156 % | 75-125 | P |
| Potassium | 200.7 | 11/08/2007:210919 | MS | mg/L | 12.50 | 127 % | <¼ | |
| | | | MSD | mg/L | 12.50 | 123 % | 75-125 | |
| | | | MSRPD | mg/L | 800.0 | 0.5% | ≤20.0 | |
| | 200.7 | 11/08/2007:211554 | CCV | ppm | 25.00 | 103 % | 90-110 | |
| | | | CCB | ppm | | -0.01 | 1.0 | |
| | | | CCV | ppm | 25.00 | 103 % | 90-110 | |
| 200.7 | 11/08/2007:211554 | CCB | ppm | | -0.03 | 1.0 | | |
| | | CCV | ppm | 25.00 | 98.0 % | 90-110 | | |
| | | CCB | ppm | | 0.19 | 1.0 | | |
| Sodium | 200.7 | 11/08/2007:210919 | MS | mg/L | 12.50 | -1360 % | <¼ | |
| | | | MSD | mg/L | 12.50 | -1390 % | <¼ | |
| | | | MSRPD | mg/L | 800.0 | 0.07% | ≤20.0 | |
| | 200.7 | 11/08/2007:211554 | CCV | ppm | 25.00 | 100 % | 90-110 | |
| | | | CCB | ppm | | 0.11 | 1.0 | |
| | | | CCV | ppm | 25.00 | 100 % | 90-110 | |
| 200.7 | 11/08/2007:211554 | CCB | ppm | | 0.11 | 1.0 | | |
| | | CCV | ppm | 25.00 | 96.9 % | 90-110 | | |
| | | CCB | ppm | | 0.0004 | 0.02 | | |
| Zinc | 200.7 | 10/26/2007:211090 | CCV | ppm | 1.000 | 96.9 % | 90-110 | |
| | | | CCB | ppm | | 0.0004 | 0.02 | |
| | | | CCV | ppm | 1.000 | 97.2 % | 90-110 | |
| | | | CCB | ppm | | -0.0007 | 0.02 | |
| | 3010 | 10/24/2007:210389 | Blank | mg/L | | ND | <0.02 | |
| | | | LCS | mg/L | 2.000 | 92.6 % | 85-115 | |
| | | | MS | mg/L | 2.000 | 96.0 % | 75-125 | |
| | | | MSD | mg/L | 2.000 | 92.1 % | 75-125 | |
| | | | MSRPD | mg/L | 0.8000 | 4.1% | ≤20.0 | |
| | | | PDS | mg/L | 2.000 | 114 % | 75-125 | |
| Wet Chem | | | | | | | | |

November 9, 2007
 Nipomo Community Services District

Lab ID : SP 0711942
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-----------------------|----------|-------------------|------------|--------------|----------------|----------------|------------------|------|
| Alkalinity (as CaCO3) | 2320B | 10/25/2007:210429 | Dup | mg/L | | 0.6% | 3.42 | |
| | 2320B | 10/25/2007:210986 | CCV CCV | mg/l mg/l | 234.9 234.9 | 102 % 101 % | 90-110 90-110 | |
| Ammonia Nitrogen | 4500NH3G | 11/05/2007:211398 | CCB | mg/l | | 0.039 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 102 % | 90-110 | |
| | | | CCB | mg/l | | 0.044 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 99.8 % | 90-110 | |
| | 4500NH3G | 11/05/2007:211449 | CCB | mg/l | | 0.035 | 0.2 | |
| | | | CCV | mg/l | 2.000 | 106 % | 90-110 | |
| | | | CCB | mg/l | | 0.016 | 0.2 | |
| | CCV | mg/l | 2.000 | 106 % | 90-110 | | | |
| | 4500NH3H | 10/29/2007:210532 | Blank | mg/L | | ND | <0.2 | |
| LCS | | | mg/L | 2.000 | 80.6 % | 63-116 | | |
| MS | | | mg/L | 2.000 | 90.2 % | 17-127 | | |
| MSD | | | mg/L | 2.000 | 81.2 % | 17-127 | | |
| MSRPD | mg/L | 2.000 | 9.4 % | ≤80.2 | | | | |
| Bicarbonate | 2320B | 10/25/2007:210429 | Dup | mg/l | | 0.6% | 4.78 | |
| Bromide | 300.0 | 10/24/2007:210555 | LCS | mg/L | 5.000 | 100 % | 90-110 | |
| | | | MS | mg/L | 100.0 | 109 % | 90-121 | |
| | | | MSD | mg/L | 100.0 | 101 % | 90-121 | |
| | | | MSRPD | mg/L | 100.0 | 7.9% | ≤1.61 | 435 |
| | 300.0 | 10/24/2007:211123 | CCB | ppb | | 0.0 | 30 | |
| | | | CCV | ppb | 5000 | 110 % | 90-110 | |
| CCB | ppb | | 0.0 | 30 | | | | |
| CCV | ppb | 5000 | 107 % | 90-110 | | | | |
| Carbonate | 2320B | 10/25/2007:210429 | Dup | mg/l | | 0.0 | 10 | |
| Chloride | 300.0 | 10/24/2007:210555 | LCS | mg/L | 25.00 | 96.9 % | 90-110 | |
| | | | MS | mg/L | 500.0 | 111 % | 86-128 | |
| | | | MSD | mg/L | 500.0 | 104 % | 86-128 | |
| | | | MSRPD | mg/L | 100.0 | 4.9% | ≤23.0 | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.05 | 1 | |
| | | | CCV | ppm | 25.00 | 107 % | 90-110 | |
| CCB | ppm | | 0.05 | 1 | | | | |
| CCV | ppm | 25.00 | 107 % | 90-110 | | | | |
| Conductivity | 2510B | 10/25/2007:210972 | ICB | umhos/cm | | 0.1 | 1 | |
| | | | ICV | umhos/cm | 998.0 | 99.1 % | 95-105 | |
| | | | CCV | umhos/cm | 998.0 | 99.2 % | 95-105 | |
| E. C. | 2510B | 10/25/2007:210416 | Blank | umhos/cm | | ND | <1 | |
| | | | Dup | umhos/cm | | 0.1% | 0.372 | |
| Hydroxide | 2320B | 10/25/2007:210429 | Dup | mg/l | | 0.0 | 10 | |
| MBAS | 5540C | 10/23/2007:210351 | MS | mg/L | 1.000 | 100 % | 90-110 | |
| | | | MSD | mg/L | 1.000 | 100 % | 90-110 | |
| | | | MSRPD | mg/L | 1.000 | 0.0 | ≤0.1 | |
| | 5540C | 10/23/2007:210924 | CCB | mg/L | | 0.000 | 0.1 | |
| CCV | mg/L | 1.000 | 100 % | 99-101 | | | | |
| Nitrate | 300.0 | 10/24/2007:210555 | LCS | mg/L | 20.00 | 98.5 % | 90-110 | |
| | | | MS | mg/L | 400.0 | 112 % | 88-124 | |
| | | | MSD | mg/L | 400.0 | 104 % | 88-124 | |
| | | | MSRPD | mg/L | 100.0 | 6.6% | ≤29.1 | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.029 | 0.4 | |
| | | | CCV | ppm | 20.00 | 108 % | 90-110 | |
| CCB | ppm | | 0.010 | 0.4 | | | | |
| CCV | ppm | 20.00 | 108 % | 90-110 | | | | |
| Nitrite | 300.0 | 10/24/2007:210555 | LCS | mg/L | 15.00 | 96.0 % | 90-110 | |
| | | | MS | mg/L | 300.0 | 111 % | 91-121 | |
| | | | MSD | mg/L | 300.0 | 102 % | 91-121 | |
| | | | MSRPD | mg/L | 100.0 | 8.0% | ≤23.8 | |
| | 300.0 | 10/24/2007:211123 | CCB | ppm | | 0.014 | 0.3 | |
| | | | CCV | ppm | 15.00 | 107 % | 90-110 | |

November 9, 2007
 Nipomo Community Services District

Lab ID : SP 0711942
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|--------------------------|--|-------------------|------------------------------------|--------------------------------------|----------------------------------|---|--|------------|
| Wet Chem | | | | | | | | |
| Nitrite | 300.0 | 10/24/2007:211123 | CCB CCV | ppm ppm | 15.00 | 0.014 105 % | 0.3 90-110 | |
| Nitrogen, Total Kjeldahl | 351.1 | 10/28/2007:210507 | Blank LCS MS MSD MSRPD | mg/L mg/L mg/L mg/L mg/L | 2.000 2.000 2.000 2.000 | ND 98.2 % 5.6 % 11.6 % 0.12 | <0.5 69-125 25-149 25-149 ≤0.5 | 435 435 |
| Phosphate | 300.0 | 10/24/2007:210555 | LCS MS MSD MSRPD | mg/L mg/L mg/L mg/L | 15.00 300.0 300.0 100.0 | 99.2 % 110 % 101 % 8.8 % | 90-110 85-126 85-126 ≤41.1 | |
| | 300.0 | 10/24/2007:211123 | CCB CCV CCB CCV | ppm ppm ppm ppm | 15.00 15.00 15.00 | 0.000 108 % 0.000 108 % | 0.5 90-110 0.5 90-110 | |
| Solids, Total Dissolved | 2540 C,E | 10/25/2007:210417 | Blank LCS LCS Dup | mg/L mg/L mg/L mg/L | 1000 1000 | ND 99.1 % 101 % 0.3 % | <20 90-110 90-110 10.0 | |
| Sulfate | 300.0 | 10/24/2007:210555 | LCS MS MSD MSRPD | mg/L mg/L mg/L mg/L | 50.00 1000 1000 100.0 | 96.7 % 114 % 105 % 6.8 % | 90-110 78-137 78-137 ≤12.3 | |
| | 300.0 | 10/24/2007:211123 | CCB CCV CCB CCV | ppm ppm ppm ppm | 50.00 50.00 50.00 | 0.87 106 % 0.86 106 % | 2 90-110 2 90-110 | |
| Turbidity | 2130B | 10/23/2007:210355 | Dup | NTU | | 0.0010 | 0.2 | |
| | 2130B | 10/23/2007:210923 | CCB CCV CCB CCV | NTU NTU NTU NTU | 2.000 2.000 | 0.059 91.5 % 0.060 91.5 % | 0.2 90-110 0.2 90-110 | |
| Definition | | | | | | | | |
| ICV | : Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria. | | | | | | | |
| ICB | : Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria. | | | | | | | |
| CCV | : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria. | | | | | | | |
| CCB | : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria. | | | | | | | |
| Blank | : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples. | | | | | | | |
| LCS | : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery. | | | | | | | |
| MS | : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery. | | | | | | | |
| MSD | : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery. | | | | | | | |
| Dup | : Duplicate Sample - A random sample with each batch is prepared and analyzed in duplicate. The relative percent difference is an indication of precision for the preparation and analysis. | | | | | | | |
| MSRPD | : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis. | | | | | | | |
| ND | : Non-detect - Result was below the DQO listed for the analyte. | | | | | | | |
| <¼ | : High Sample Background - Spike concentration was less than one fourth of the sample concentration. | | | | | | | |
| DQO | : Data Quality Objective - This is the criteria against which the quality control data is compared. | | | | | | | |
| Explanation | | | | | | | | |
| 435 | : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. | | | | | | | |

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

1. Number of ice chests/packages received: OTC
Note as OTC if received over the counter unpackaged.
2. Were samples received in a chilled condition? Temps: 10 / / / /
Acceptable is 2° to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
3. Do the number of bottles received agree with the COC? Yes No N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc.) Yes No
5. Were sample custody seals intact? N/A Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
4. VOAs checked for Headspace? Yes No N/A
5. Were all analyses within holding times at time of receipt? Yes No
6. Have rush or project due dates been checked and accepted? N/A Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials):

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2-14320)
Nipomo Community Services District
SP 0711942



ANALYTICAL CHEMISTS

November 12, 2007

Lab ID : SP 711739

Customer : 2014320

Nipomo CSD

Attn: Dan Migliazzo

P. O. Box 326

Nipomo, CA 93444

Laboratory Report

Introduction: This report package contains total of 5 pages divided into three sections:

Case Narrative (2 Pages): An overview of the work performed at FGL.

Chemical Results (1 Page): Results for each sample submitted.

Quality Control (2 Pages): Supporting Quality Control (QC) results.

This report package pertains to the following sample:

| Sample Description | Date Sampled | Date Received | FGL Lab Sample ID # | Matrix |
|--------------------|--------------|---------------|---------------------|--------|
| Effluent | 10/17/2007 | 10/17/2007 | SP 711739-01 | WW |

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding times. All samples were received on ice. All samples were checked for pH if acid or base preservation required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Forms.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Wet Chemistry QC

| | |
|----------|--|
| 300.0 | 10/17/2007:B215 All preparation quality controls are within established criteria. |
| | 10/17/2007:A - IC204 All analysis quality controls are within established criteria. |
| 351.1 | 10/23/2007:A242 All preparation quality controls are within established criteria, except: The following note applies to Kjeldahl Nitrogen: 408 Matrix Spike(MS) or Post Digestion Spike(PDS) has no Acceptance Range (DQO) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery. |
| | 10/30/2007:A - FI203 All analysis quality controls are within established criteria. |
| 4500NH3H | 10/22/2007:A203 All preparation quality controls are within established criteria. |
| | 10/24/2007:B - FI203 All analysis quality controls are within established criteria. |

Case narrative continued on next page...

November 12, 2007

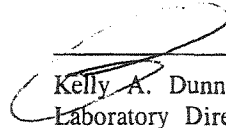
Lab ID : SP 711739
Customer : 2014320

Nipomo CSD

Certification: I certify that this data package is in compliance with NELAC Standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following signature.

FGL ENVIRONMENTAL

KAD:cea



Kelly A. Dunnahoo, B.S.
Laboratory Director



ANALYTICAL CHEMISTS

November 12, 2007

Lab ID : SP 711739-01
Customer ID: 2-14320

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Sampled On : October 17, 2007-08:50
Sampled By : Rick Motley
Received On: October 17, 2007-16:00
Matrix : Waste Water

Description : Effluent
Project : Southland WWTP 97-75

Sample Results - Inorganic

Table with 7 columns: Constituent, Results, PQL, Units, Note, Sample Preparation Method/Date/ID, Sample Analysis Method/Date/ID. Rows include Field Test (pH, Temperature), Special Inorg. (Un-ionized Ammonia-N), and Wet Chemistry (Ammonia-N, Nitrate, Nitrite, Nitrogen Total, Kjeldahl Nitrogen).

ND=Non-Detect. PQL=Practical Quantitation Limit. ♦ PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.
Containers: (P) Plastic Preservatives: (1) Cool 4°C, (4) H2SO4 pH < 2



ANALYTICAL CHEMISTS
 November 12, 2007
 Nipomo CSD

Lab ID : SP 711739
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-------------------------------|----------|---------------------------------------|--------|-------|-------|---------|--------|------|
| Un-ionized Ammonia-N | 4500NH3G | 10/24/2007:B | 00-ICB | mg/l | | ND | <0.2 | |
| | | | 00-CCB | mg/l | | ND | <0.2 | |
| | | | 00-ICV | mg/l | 2.000 | 98.4% | 90-110 | |
| | | | 00-CCV | mg/l | 2.000 | 99.1% | 90-110 | |
| Wet Chem Kjeldahl Nitrogen | 351.1 | 10/23/2007:A242 (CH 776099-01) | Blank | mg/L | | ND | <0.5 | |
| | | | LCS | mg/L | 2.000 | 94.0% | 69-125 | |
| | | | MS | mg/L | 2.000 | 150% | < ¼ | 408 |
| | | | MSD | mg/L | 2.000 | -37.5% | < ¼ | 408 |
| | | | MSRPD | mg/L | | 15.1% | ≤25.7 | |
| Ammonia Nitrogen | 4500NH3G | 10/30/2007:A | 00-ICB | mg/l | | ND | <0.2 | |
| | | | 00-CCB | mg/l | | ND | <0.2 | |
| | | | 00-ICV | mg/l | 2.000 | 94.7% | 90-110 | |
| | | | 00-CCV | mg/l | 2.000 | 98.4% | 90-110 | |
| Nitrate | 300.0 | 10/17/2007:B215 (SP 711720-01) | LCS | mg/L | 20.00 | 102% | 90-110 | |
| | | | MS | mg/L | 400.0 | 105% | 88-124 | |
| | | | MSD | mg/L | 400.0 | 105% | 88-124 | |
| | | | MSRPD | mg/L | | 0.1% | ≤29.1 | |
| Ammonia-N | 4500NH3H | 10/22/2007:A203 (SP 711542-03) | Blank | mg/L | | ND | <0.05 | |
| | | | LCS | mg/L | 2.000 | 80.0% | 63-116 | |
| | | | MS | mg/L | 2.000 | 91.5% | 17-127 | |
| | | | MSD | mg/L | 2.000 | 83.4% | 17-127 | |
| | | | MSRPD | mg/L | | 5.9% | ≤80.2 | |
| Nitrate | 300.0 | 10/17/2007:B215 (SP 711720-01) | LCS | mg/L | 20.00 | 102% | 90-110 | |
| | | | MS | mg/L | 400.0 | 105% | 88-124 | |
| | | | MSD | mg/L | 400.0 | 105% | 88-124 | |
| | | | MSRPD | mg/L | | 0.1% | ≤29.1 | |
| | 300.0 | 10/17/2007:A | 00-ICB | ppm | | ND | <0.4 | |
| | | | 00-CCB | ppm | | ND | <0.4 | |
| | | | 00-ICV | ppm | 40.00 | 103% | 90-110 | |
| | | | 00-CCV | ppm | 20.00 | 100% | 90-110 | |
| Nitrite | 300.0 | 10/17/2007:B215 (SP 711720-01) | LCS | mg/L | 15.00 | 101% | 90-110 | |
| | | | MS | mg/L | 300.0 | 105% | 91-121 | |
| | | | MSD | mg/L | 300.0 | 105% | 91-121 | |
| | | | MSRPD | mg/L | | 0.07% | ≤23.8 | |
| | 300.0 | 10/17/2007:A | 00-ICB | ppm | | ND | <0.3 | |
| | | | 00-CCB | ppm | | ND | <0.3 | |
| | | | 00-ICV | ppm | 30.00 | 103% | 90-110 | |
| | | | 00-CCV | ppm | 15.00 | 99.4% | 90-110 | |

Explanations and definitions are continued on next page...

November 12, 2007
Nipomo CSD

Lab ID : SP 711739
Customer : 2-14320

Quality Control - Inorganic

Explanations

408 Matrix Spike(MS) or Post Digestion Spike(PDS) has no Acceptance Range (DQO) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery.

Definitions

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS/MSD : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
ICB : Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
ICV : Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
ND : Non-detect - Result was below the DQO listed for the analyte.
< ¼ : High Sample Background - Spike concentration was less than one fourth of the sample concentration.
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

1. Number of ice chests/packages received: 1
Note as OTC if received over the counter unpackaged.
2. Were samples received in a chilled condition? Temps: 80 / _____ / _____ / _____ / _____
Acceptable is above freezing to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
3. Do the number of bottles received agree with the COC? Yes No N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc.) Yes No
5. Were sample custody seals intact? N/A Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
4. Were all analyses within holding times at time of receipt? Yes No
5. Have rush or project due dates been checked and accepted? N/A Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials):

ll

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem:

Resolution:

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem:

Resolution:

(2-14320)
Nipomo Community Services District
SP 0711739

IV-10/17/2007-16:16:09



ANALYTICAL CHEMISTS

November 12, 2007

Lab ID : SP 711362

Customer : 2014320

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Laboratory Report

Introduction: This report package contains total of 5 pages divided into three sections:

- Case Narrative (2 Pages): An overview of the work performed at FGL.
Chemical Results (1 Page): Results for each sample submitted.
Quality Control (2 Pages): Supporting Quality Control (QC) results.

This report package pertains to the following sample:

Table with 5 columns: Sample Description, Date Sampled, Date Received, FGL Lab Sample ID #, Matrix. Row 1: Effluent, 10/10/2007, 10/10/2007, SP 711362-01, WW

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding times. All samples were received on ice. All samples were checked for pH if acid or base preservation required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Forms.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Wet Chemistry QC

Table with 2 columns: Sample ID, Description. Rows include quality control details for samples 300.0, 351.1, and 4500NH3H.

Case narrative continued on next page...

November 12, 2007

Lab ID : SP 711362
Customer : 2014320

Nipomo CSD

Certification: I certify that this data package is in compliance with NELAC Standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following signature.

FGL ENVIRONMENTAL



Kelly A. Dunnahoo, B.S.
Laboratory Director

KAD:cea



ANALYTICAL CHEMISTS

November 12, 2007

Lab ID : SP 711362-01
Customer ID: 2-14320

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Sampled On : October 10, 2007-08:40
Sampled By : Rick Motley
Received On: October 10, 2007-16:20
Matrix : Waste Water

Description : Effluent
Project : Southland WWTP 97-75

Sample Results - Inorganic

Table with 7 columns: Constituent, Results, PQL, Units, Note, Sample Preparation Method, Date/ID, Sample Analysis Method, Date/ID. Rows include Field Test (pH, Temperature), Special Inorg. (Un-ionized Ammonia-N), and Wet Chemistry (Ammonia-N, Nitrate, Nitrite, Nitrogen Total, Kjeldahl Nitrogen).

ND=Non-Detect. PQL=Practical Quantitation Limit. ♦ PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.
Containers: (P) Plastic Preservatives: (1) Cool 4°C, (4) H2SO4 pH < 2



ANALYTICAL CHEMISTS
 November 12, 2007
 Nipomo CSD

Lab ID : SP 711362
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|-------------------------------|----------|-----------------------------------|--------|-------|-------|---------|--------|------|
| Un-ionized Ammonia-N | 4500NH3H | 10/19/2007:A203 (CH 776212-01) | Blank | mg/L | | ND | <0.2 | |
| | | | LCS | mg/L | 2.000 | 74.9% | 63-116 | |
| | | | MS | mg/L | 2.000 | 93.1% | 17-127 | |
| | | | MSD | mg/L | 2.000 | 79.6% | 17-127 | |
| | | | MSRPD | mg/L | | 14.8% | ≤80.2 | |
| | 4500NH3G | 10/23/2007:A | 00-ICB | mg/l | | ND | <0.2 | |
| | | | 00-CCB | mg/l | | ND | <0.2 | |
| | | | 00-ICV | mg/l | 2.000 | 99.4% | 90-110 | |
| | | | 00-CCV | mg/l | 2.000 | 96.2% | 90-110 | |
| Wet Chem Kjeldahl Nitrogen | 351.1 | 10/23/2007:A242 (CH 776099-01) | Blank | mg/L | | ND | <0.5 | |
| | | | LCS | mg/L | 2.000 | 94.0% | 69-125 | 408 |
| | | | MS | mg/L | 2.000 | 150% | < ¼ | 408 |
| | | | MSD | mg/L | 2.000 | -37.5% | < ¼ | |
| | | | MSRPD | mg/L | | 15.1% | ≤25.7 | |
| Ammonia Nitrogen | 4500NH3G | 10/30/2007:A | 00-ICB | mg/l | | ND | <0.2 | |
| | | | 00-CCB | mg/l | | ND | <0.2 | |
| | | | 00-ICV | mg/l | 2.000 | 94.7% | 90-110 | |
| | | | 00-CCV | mg/l | 2.000 | 98.4% | 90-110 | |
| Nitrate | 300.0 | 10/11/2007:A215 (STK739565-01) | LCS | mg/L | 20.00 | 99.7% | 90-110 | |
| | | | MS | mg/L | 400.0 | 107% | 88-124 | |
| | | | MSD | mg/L | 400.0 | 108% | 88-124 | |
| | | | MSRPD | mg/L | | 0.8% | ≤29.1 | |
| Ammonia-N | 4500NH3H | 10/19/2007:A203 (CH 776212-01) | Blank | mg/L | | ND | <0.2 | |
| | | | LCS | mg/L | 2.000 | 74.9% | 63-116 | |
| | | | MS | mg/L | 2.000 | 93.1% | 17-127 | |
| | | | MSD | mg/L | 2.000 | 79.6% | 17-127 | |
| | | | MSRPD | mg/L | | 14.8% | ≤80.2 | |
| Nitrate | 300.0 | 10/11/2007:A215 (STK739565-01) | LCS | mg/L | 20.00 | 99.7% | 90-110 | |
| | | | MS | mg/L | 400.0 | 107% | 88-124 | |
| | 300.0 | 10/11/2007:A | 00-ICB | ppm | | ND | <0.4 | |
| | | | 00-CCB | ppm | | ND | <0.4 | |
| | | | 00-ICV | ppm | 40.00 | 102% | 90-110 | |
| | | | 00-CCV | ppm | 20.00 | 99.1% | 90-110 | |
| Nitrite | 300.0 | 10/11/2007:A215 (STK739565-01) | LCS | mg/L | 15.00 | 99.9% | 90-110 | |
| | | | MS | mg/L | 300.0 | 106% | 91-121 | |
| | 300.0 | 10/11/2007:A | MSD | mg/L | 300.0 | 107% | 91-121 | |
| | | | MSRPD | mg/L | | 0.9% | ≤23.8 | |
| | | | 00-ICB | ppm | | ND | <0.3 | |
| | | | 00-CCB | ppm | | ND | <0.3 | |
| | | | 00-ICV | ppm | 30.00 | 102% | 90-110 | |
| | | | 00-CCV | ppm | 15.00 | 99.2% | 90-110 | |

Explanations and definitions are continued on next page...

November 12, 2007
Nipomo CSD

Lab ID : SP 711362
Customer : 2-14320

Quality Control - Inorganic

| | |
|---------------------|--|
| Explanations | |
| 408 | Matrix Spike(MS) or Post Digestion Spike(PDS) has no Acceptance Range (DQO) because of high analyte concentration in the sample. Data was accepted based on the LCS or CCV recovery. |
| Definitions | |
| Blank | : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples. |
| LCS | : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery. |
| MS/MSD | : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery. |
| ICB | : Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria. |
| ICV | : Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria. |
| CCB | : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria. |
| CCV | : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria. |
| ND | : Non-detect - Result was below the DQO listed for the analyte. |
| < ¼ | : High Sample Background - Spike concentration was less than one fourth of the sample concentration. |
| DQO | : Data Quality Objective - This is the criteria against which the quality control data is compared. |

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

1. Number of ice chests/packages received: 1
Note as OTC if received over the counter unpackaged.
2. Were samples received in a chilled condition? Temps: RUF / / / /
Acceptable is above freezing to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
3. Do the number of bottles received agree with the COC? ~~Yes~~ No N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc.) ~~Yes~~ No
5. Were sample custody seals intact? ~~N/A~~ Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? ~~Yes~~ No
2. Did bottle labels correspond with the client's ID's? ~~Yes~~ No
3. Were all bottles requiring sample preservation properly preserved? ~~Yes~~ No N/A FGL
4. Were all analyses within holding times at time of receipt? ~~Yes~~ No
5. Have rush or project due dates been checked and accepted? ~~N/A~~ Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt. Login and Verification completed by (initials):

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2-14320)
Nipomo Community Services District
SP 0711362
SJJ-10/10/2007-14:45:02



ANALYTICAL CHEMISTS

November 12, 2007

Lab ID : SP 709968
Customer : 2014320

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Laboratory Report

Introduction: This report package contains total of 5 pages divided into three sections:

- Case Narrative (2 Pages): An overview of the work performed at FGL.
Chemical Results (1 Page): Results for each sample submitted.
Quality Control (2 Pages): Supporting Quality Control (QC) results.

This report package pertains to the following sample:

Table with 5 columns: Sample Description, Date Sampled, Date Received, FGL Lab Sample ID #, Matrix. Row 1: Effluent, 09/07/2007, 09/07/2007, SP 709968-01, WW

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding times. All samples were received on ice. All samples were checked for pH if acid or base preservation required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Forms.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Wet Chemistry QC

Table with 2 columns: Sample ID, Description. Rows include 300.0, 351.1, and 4500NH3H with their respective QC details.

Case narrative continued on next page...


November 12, 2007

Lab ID : SP 709968
Customer : 2014320

Nipomo CSD

Certification: I certify that this data package is in compliance with NELAC Standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following signature.

FGL ENVIRONMENTAL



Kelly A. Dunnahoo, B.S.
Laboratory Director

KAD:cea



ANALYTICAL CHEMISTS

November 12, 2007

Lab ID : SP 709968-01
Customer ID: 2-14320

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Sampled On : September 7, 2007-10:00
Sampled By : Rick Motley
Received On: September 7, 2007-15:30
Matrix : Waste Water

Description : Effluent
Project : Southland WWTP 97-75

Sample Results - Inorganic

Table with 7 columns: Constituent, Results, PQL, Units, Note, Sample Preparation Method/Date/ID, Sample Analysis Method/Date/ID. Rows include Field Test (pH, Temperature), Special Inorg. (Un-ionized Ammonia-N), and Wet Chemistry (Ammonia-N, Nitrate, Nitrite, Nitrogen Total, Nitrate + Nitrite as N, Kjeldahl Nitrogen).

ND=Non-Detect. PQL=Practical Quantitation Limit. ♦ PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.
Containers: (P) Plastic Preservatives: (1) Cool 4°C, (4) H2SO4 pH < 2



ANALYTICAL CHEMISTS
 November 12, 2007
 Nipomo CSD

Lab ID : SP 709968
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note | | |
|-------------------------------|--------------|---------------------------------------|--------|---------------------------------------|-------|---------|--------|-------|--------|--|
| Un-ionized Ammonia-N | 4500NH3H | 09/18/2007:B | 00-ICB | mg/l | | ND | < 0.2 | | | |
| | | | 00-CCB | mg/l | | ND | < 0.2 | | | |
| | | | 00-ICV | mg/l | 2.000 | 97.8% | 90-110 | | | |
| | | | 00-CCV | mg/l | 2.000 | 98.6% | 90-110 | | | |
| Wet Chem Kjeldahl Nitrogen | 351.1 | 09/21/2007:A242 (SP 709846-01) | Blank | mg/L | | ND | < 0.5 | | | |
| | | | LCS | mg/L | 2.000 | 101% | 69-125 | | | |
| | | | MS | mg/L | 2.000 | 42.6% | 25-149 | | | |
| | | | MSD | mg/L | 2.000 | 130% | 25-149 | | | |
| | | | MSRPD | mg/L | | 1.7 | ≤ 0.5 | | | |
| Ammonia Nitrogen | 4500NH3G | 09/25/2007:A | 00-ICB | mg/l | | ND | < 0.2 | | | |
| | | | 00-CCB | mg/l | | ND | < 0.2 | | | |
| | | | 00-ICV | mg/l | 2.000 | 93.7% | 90-110 | | | |
| | | | 00-CCV | mg/l | 2.000 | 101% | 90-110 | | | |
| Nitrate | 300.0 | 09/07/2007:C215 (STK738299-01) | LCS | mg/L | 20.00 | 98.8% | 90-110 | | | |
| | | | MS | mg/L | 400.0 | 105% | 88-124 | | | |
| | | | MSD | mg/L | 400.0 | 104% | 88-124 | | | |
| | | | MSRPD | mg/L | | 0.4% | ≤ 29.1 | | | |
| Ammonia-N | 4500NH3H | 09/12/2007:A203 (SP 709788-01) | Blank | mg/L | | ND | < 0.2 | | | |
| | | | LCS | mg/L | 2.000 | 98.0% | 63-116 | | | |
| | | | MS | mg/L | 2.000 | 87.0% | 17-127 | | | |
| | | | MSD | mg/L | 2.000 | 76.2% | 17-127 | | | |
| | | | MSRPD | mg/L | | 12.9% | ≤ 80.2 | | | |
| Nitrate | 300.0 | 09/07/2007:C215 (STK738299-01) | LCS | mg/L | 20.00 | 98.8% | 90-110 | | | |
| | | | MS | mg/L | 400.0 | 105% | 88-124 | | | |
| | | | MSD | mg/L | 400.0 | 104% | 88-124 | | | |
| | | | MSRPD | mg/L | | 0.4% | ≤ 29.1 | | | |
| | 300.0 | 09/07/2007:A | 00-ICB | ppm | | ND | < 0.4 | | | |
| | | | 00-CCB | ppm | | ND | < 0.4 | | | |
| | | | 00-ICV | ppm | 40.00 | 99.7% | 90-110 | | | |
| | | | 00-CCV | ppm | 20.00 | 97.2% | 90-110 | | | |
| | | | 300.0 | 09/07/2007:C215 (STK738299-01) | LCS | mg/L | 15.00 | 98.9% | 90-110 | |
| | | | | | MS | mg/L | 300.0 | 106% | 91-121 | |
| 300.0 | 09/07/2007:A | MSD | mg/L | 300.0 | 105% | 91-121 | | | | |
| | | MSRPD | mg/L | | 0.4% | ≤ 23.8 | | | | |
| | | 00-ICB | ppm | | ND | < 0.3 | | | | |
| | | 00-CCB | ppm | | ND | < 0.3 | | | | |
| 300.0 | 09/07/2007:A | 00-ICV | ppm | 30.00 | 99.9% | 90-110 | | | | |
| | | 00-CCV | ppm | 15.00 | 97.3% | 90-110 | | | | |

Definitions

Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
 LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
 MS/MSD : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
 ICB : Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.

Definitions are continued on next page...

November 12, 2007
Nipomo CSD

Lab ID : SP 709968
Customer : 2-14320

Quality Control - Inorganic

Definitions

ICV : Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
ND : Non-detect - Result was below the DQO listed for the analyte.
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

- Number of ice chests/packages received: 1
Note as OTC if received over the counter unpackaged.
- Were samples received in a chilled condition? Temps ROI / / / /
Acceptable is above freezing to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
- Do the number of bottles received agree with the COC? Yes No N/A
- Were samples received intact? (i.e. no broken bottles, leaks etc.) Yes No
- Were sample custody seals intact? N/A Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

- Were all requested analyses understood and acceptable? Yes No
- Did bottle labels correspond with the client's ID's? Yes No
- Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
- Were all analyses within holding times at time of receipt? Yes No
- Have rush or project due dates been checked and accepted? N/A Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials):



Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

- Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

- Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2-14320)
Nipomo Community Services District
SP 0709968

IV-09/07/2007-15:32:17



ANALYTICAL CHEMISTS

November 12, 2007

Lab ID : SP 710760
Customer : 2014320

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Laboratory Report

Introduction: This report package contains total of 5 pages divided into three sections:

- Case Narrative (2 Pages): An overview of the work performed at FGL.
Chemical Results (1 Page): Results for each sample submitted.
Quality Control (2 Pages): Supporting Quality Control (QC) results.

This report package pertains to the following sample:

Table with 5 columns: Sample Description, Date Sampled, Date Received, FGL Lab Sample ID #, Matrix. Row 1: Effluent, 09/26/2007, 09/26/2007, SP 710760-01, WW

Sampling and Receipt Information: The sample was received, prepared and analyzed within the method specified holding times. All samples were received on ice. All samples were checked for pH if acid or base preservation required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Forms.

Quality Control: All samples were prepared and analyzed according to the following tables:

Inorganic - Wet Chemistry QC

Table with 2 columns: Sample ID, Description. Rows include 351.1, 4500NH3H, 4500NO2B, 4500NO3F with detailed QC notes for each.

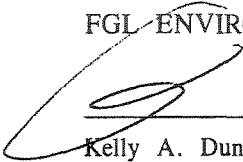
November 12, 2007

Lab ID : SP 710760
Customer : 2014320

Nipomo CSD

Certification: I certify that this data package is in compliance with NELAC Standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following signature.

FGL ENVIRONMENTAL



Kelly A. Dunnahoo, B.S.
Laboratory Director

KAD:cea



ANALYTICAL CHEMISTS

November 12, 2007

Lab ID : SP 710760-01
Customer ID: 2-14320

Nipomo CSD
Attn: Dan Migliazzo
P. O. Box 326
Nipomo, CA 93444

Sampled On : September 26, 2007-09:20
Sampled By : Rick Motley
Received On : September 26, 2007-00:00
Matrix : Waste Water

Description : Effluent
Project : Southland WWTP 97-75

Sample Results - Inorganic

| Constituent | Results | PQL | Units | Note | Sample Preparation | | Sample Analysis | |
|-----------------------------|---------|-------|-------|------|--------------------|---------------|-----------------|----------------|
| | | | | | Method | Date/ID | Method | Date/ID |
| Field Test | | | | | | | | |
| pH | 9.40 | - | units | | | 09/26/07:FS00 | | 09/26/2007: |
| Temperature | 10.05 | | oC | | | 09/26/07:FS00 | | 09/26/2007: |
| Special Inorg. P:1,4 | | | | | | | | |
| Un-ionized Ammonia-N | 0.38 | 0.04* | mg/L | | 4500NH3H | 09/28/07:A203 | 4500NH3G | 10/04/2007:C00 |
| Wet Chemistry P:1 | | | | | | | | |
| Ammonia-N | 21 | 2* | mg/L | | 4500NH3H | 09/28/07:A203 | 4500NH3G | 10/04/2007:C00 |
| Nitrate | 1.0 | 0.4 | mg/L | | 4500NO3F | 10/01/07:A220 | 4500NO3F | 10/01/2007:C00 |
| | | | | | | 14:02 | | 15:45 |
| Nitrite | 0.4 | 0.3 | mg/L | | 4500NO2B | 09/26/07:C251 | 4500NO2B | 09/26/2007:C00 |
| | | | | | | 17:00 | | 17:40 |
| Nitrogen, Total | 28 | 5* | mg/L | | Calculation | | Calculation | |
| Nitrate + Nitrite as N | 0.2 | 0.1 | mg/L | | 4500NO3F | 10/01/07:A220 | 4500NO3F | 10/01/2007:C00 |
| | | | | | | 14:02 | | 15:45 |
| Kjeldahl Nitrogen | 28 | 5* | mg/L | | 351.1 | 10/16/07:A242 | 4500NH3G | 10/18/2007:A00 |

ND=Non-Detect. PQL=Practical Quantitation Limit. ♦ PQL adjusted for dilutions, concentrations, dry weight reporting, or limited sample.
Containers: (P) Plastic Preservatives: (1) Cool 4°C, (4) H2SO4 pH < 2



ANALYTICAL CHEMISTS
 November 12, 2007
 Nipomo CSD

Lab ID : SP 710760
 Customer : 2-14320

Quality Control - Inorganic

| Constituent | Method | Date/ID | Type | Units | Conc. | QC Data | DQO | Note |
|--------------------------------------|----------|-----------------------------------|--------|-------|--------|---------|--------|------|
| Un-ionized Ammonia-N | 4500NH3H | 09/28/2007:A203 (CH 775627-01) | Blank | mg/L | | ND | <0.2 | |
| | | | LCS | mg/L | 2.000 | 75.0% | 63-116 | |
| | | | MS | mg/L | 2.000 | 74.6% | 17-127 | |
| | | | MSD | mg/L | 2.000 | 77.2% | 17-127 | |
| | | | MSRPD | mg/L | | 3.3% | ≤80.2 | |
| | 4500NH3G | 10/04/2007:C | 00-ICB | mg/l | | ND | <0.2 | |
| | | | 00-CCB | mg/l | | ND | <0.2 | |
| | | | 00-ICV | mg/l | 2.000 | 101% | 90-110 | |
| | | | 00-CCV | mg/l | 2.000 | 108% | 90-110 | |
| Wet Chem Kjeldahl Nitrogen | 351.1 | 10/16/2007:A242 | Blank | mg/L | | ND | <0.5 | |
| | | | LCS | mg/L | 2.000 | 83.0% | 69-125 | |
| Ammonia Nitrogen | 4500NH3G | 10/18/2007:A | 00-ICB | mg/l | | ND | <0.2 | |
| | | | 00-CCB | mg/l | | ND | <0.2 | |
| | | | 00-ICV | mg/l | 2.000 | 100% | 90-110 | |
| | | | 00-CCV | mg/l | 2.000 | 101% | 90-110 | |
| Nitrate + Nitrite as N | 4500NO3F | 10/01/2007:A220 (CH 775653-01) | MS | mg/L | 4.000 | 66.3% | 5-285 | |
| | | | MSD | mg/L | 4.000 | 114% | 5-285 | |
| | | | MSRPD | mg/L | | 15.5% | ≤30.4 | |
| Ammonia-N | 4500NH3H | 09/28/2007:A203 (CH 775627-01) | Blank | mg/L | | ND | <0.2 | |
| | | | LCS | mg/L | 2.000 | 75.0% | 63-116 | |
| | | | MS | mg/L | 2.000 | 74.6% | 17-127 | |
| | | | MSD | mg/L | 2.000 | 77.2% | 17-127 | |
| | | | MSRPD | mg/L | | 3.3% | ≤80.2 | |
| Nitrate + Nitrite as N | 4500NO3F | 10/01/2007:A220 (CH 775653-01) | MS | mg/L | 4.000 | 66.3% | 5-285 | |
| | | | MSD | mg/L | 4.000 | 114% | 5-285 | |
| | | | MSRPD | mg/L | | 15.5% | ≤30.4 | |
| | 4500NO3F | 10/01/2007:C | 00-ICB | mg/l | | ND | <0.1 | |
| | | | 00-CCB | mg/l | | ND | <0.1 | |
| | | | 00-ICV | mg/l | 4.000 | 103% | 90-110 | |
| | | | 00-CCV | mg/l | 4.000 | 103% | 90-110 | |
| Nitrite as Nitrogen | 4500NO2B | 09/26/2007:C251 (SP 710783-01) | MS | mg/L | 0.4568 | 26.5% | 1-173 | |
| | | | MSD | mg/L | 0.4568 | 26.2% | 1-173 | |
| | | | MSRPD | mg/L | | 0.0014 | ≤0.1 | |
| | 4500NO2B | 09/26/2007:C | 00-CCB | mg/L | | ND | <0.1 | |
| | | | 00-CCV | mg/L | 0.1522 | 96.6% | 90-110 | |

Explanations

220 The absolute value of the CCB was greater than the DQO. However, all results were either five times greater than the CCB concentration or ND relative to the PQL.

Definitions

- Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
- LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
- MS/MSD : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of

Definitions are continued on next page...

November 12, 2007
Nipomo CSD

Lab ID : SP 710760
Customer : 2-14320

Quality Control - Inorganic

Definitions

how that sample matrix affects analyte recovery.

ICB : Initial Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
ICV : Initial Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
ND : Non-detect - Result was below the DQO listed for the analyte.
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

1. Number of ice chests/packages received: 1
Note as OTC if received over the counter unpackaged.
2. Were samples received in a chilled condition? Temps: 22 / / / /
Acceptable is above freezing to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H.T.'s/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received.
3. Do the number of bottles received agree with the COC? Yes No N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc.) Yes No
5. Were sample custody seals intact? N/A Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
4. Were all analyses within holding times at time of receipt? Yes No
5. Have rush or project due dates been checked and accepted? N/A Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials):

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2-14320)
Nipomo Community Services District
SP 0710760

SJJ-09/26/2007-15:22:25

ATTACHMENT 2
WATER RESOURCES INVESTIGATION REPORT 03-4279
(SELECTED EXCERPTS)

Use of Water-Quality Indicators and Environmental Tracers to Determine the Fate and Transport of Recycled Water in Los Angeles County, California

By Robert Anders and Roy A. Schroeder

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 03-4279

Prepared in cooperation with the
WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA

5005-12

Sacramento, California
2003

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Use of Water-Quality Indicators and Environmental Tracers to Determine the Fate and Transport of Recycled Water in Los Angeles County, California

By Robert Anders and Roy A. Schroeder

ABSTRACT

Tertiary-treated municipal wastewater (recycled water) has been used to replenish the Central Basin in Los Angeles County for over 40 years. Therefore, this area provides an excellent location to investigate (1) the fate and transport of wastewater constituents as they travel from the point of recharge to points of withdrawal, and (2) the long-term effects that artificial recharge using recycled water has on the quality of the ground-water basin. The U.S. Geological Survey has been conducting such investigations in this area for about 10 years, beginning in 1992. For this investigation, a variety of inorganic, organic, and isotopic constituents were analyzed in samples from 23 production wells within 500 feet of the San Gabriel and Rio Hondo Coastal Basin Spreading Grounds, and tritium/helium-3, chlorofluorocarbons, dissolved gases, and nitrogen isotopes were analyzed in five multiple-well monitoring sites along a 10-mile flow path extending from just upgradient of the spreading grounds southward through the Central Basin.

Spearman rank-order correlation coefficients and level of significance calculated for about 40 water-quality indicators and several physical features show significant correlations between numerous inorganic and organic constituents that indicate the presence of recycled water. On the basis of a simple two-member mixing model, chloride, boron, ultraviolet absorbance at 254 nanometers, and excitation-

emission fluorescence yielded the most reasonable estimates of wastewater percentages in the production wells. Tritium/helium-3 age determinations indicated that samples of ground water tested range in age from less than 2 to more than 50 years. Chloride and boron concentrations, along with tritium/helium-3 age determinations, indicate more rapid recharge and (or) displacement of pre-existing ground water at the San Gabriel Coastal Basin Spreading Grounds than at the Rio Hondo Coastal Basin Spreading Grounds. Nitrogen-15 enrichment of the ground-water nitrate and dissolved nitrogen indicates that denitrification, an important process for the removal of nitrate at the shallower depths beneath the spreading grounds, continues to occur at distances of several miles from the spreading grounds and over a period of many years. Analysis of dissolved gases shows that areas that contain recycled water have no detectable methane, whereas methane is present in the native ground water older than 50 years. The absence of methane in the younger ground water suggests that artificial recharge using recycled water has the desirable effect of increasing slightly the redox potential of the ground-water basin. Finally, measured chlorofluorocarbon concentrations and tritium/helium-3 age determinations indicate that chlorofluorocarbon concentrations are markedly elevated above atmosphere-water equilibrium in ground water older than about 20 years but still young enough to contain recycled water.

Results of the nonparametric test are summarized in [table 3](#). Correlation coefficients (multiplied by 100 to convert decimal values to whole numbers) are listed for each pair of constituents above the diagonal that divides the table. Level of significance (α) is designated below the diagonal by three stars ($\alpha < 0.001$; strongly significant), two stars ($\alpha = 0.001$ to 0.05 ; highly significant), and one star ($\alpha = 0.05$ to 0.10 ; moderately significant); and referred to as strong, moderate, and weak in subsequent discussions. The three levels of significance are related to the correlation coefficients by the following: $\alpha < 0.001$, $\rho > 0.65$; $\alpha = 0.001$ to 0.05 , $\rho = 0.65$ to 0.40 ; and $\alpha = 0.05$ to 0.10 , $\rho = 0.40$ to 0.35 . The 45 constituents are listed in order as groups that consist of inorganic species, trace elements, isotopes, "calculated" values, microbes, organic indicators, and physical features.

High numbers of significant correlations are readily apparent within certain groups; for example, several inorganic species and organic indicators. Correlations for more than half of the inorganic pairs and half of the organic pairs are strongly significant ($\alpha < 0.001$). The high number for inorganic species is at least partly an autocorrelation of all major ions with dissolved-solids concentration (TDS) and specific conductance (SC). As expected, correlations are weaker, but still significant, for inorganic species that are less conservative, such as calcium (Ca), magnesium (Mg), alkalinity (ALK), and sulfate (SO₄).

The high number of significant correlations for organic pairs is explained by the fact that the organic compounds and broad organic indicators have a common source in the recycled water. In fact, only trihalomethanes (THMs) are uncharacteristic in that they exhibit few significant correlations (2 out of 10 pairs) within the organic group. This could mean that there are THM sources other than chlorinated recycled water, or that THM biodegradation and (or) sorption differs greatly from that of the other constituents tested.

When the two groups are considered together, about half the inorganic-organic pairs exhibit statistically significant correlation; but the number is much higher for sodium and chloride. This reflects the addition of salt to wastewater during the treatment process (Nightingale and McCormick, 1985; Umari and others, 1995). In fact, the correlation coefficients between chloride and organic pairs are increased further when bromide is used to remove natural chloride and yield "excess" chloride (exCl), as discussed in the section "Two-Member Mixing Models for Selected Constituents." Note that the absence of any significant correlations between bromide (Br) and organic constituents supports the method used to calculate "excess" chloride. Two other inorganic constituents, "excess" boron (exB) and "back-calculated" nitrogen (calN) assumed to be nitrate, also exhibit high numbers of significant correlations with organic pairs and, therefore, are also discussed in detail in the same section.

Three trace elements—iron (Fe), manganese (Mn), and zinc (Zn)—were analyzed in the production wells. Concentrations of these trace elements in recycled water (effluent) are 43, 17, and 160 $\mu\text{g/L}$, respectively (see [table 2](#)). Although zinc is abundant in wastewater, experiments at the constructed research site indicate that it is reduced by about two-thirds over a distance of less than 25 ft during recharge (Schroeder and others, 2003). Hence, it is not surprising that zinc in the production wells shows no significant correlations with any other constituents that are indicators of recycled water. Elevated iron and manganese concentrations are present in some of the wells, but they are unlikely to have their origin in recycled water. Rather they likely are both mobilized or removed from aquifer soils in response to local environmental conditions. Fe and Mn are moderately correlated ([table 3](#)), reflecting their similar behavior under reducing (soluble) and oxidizing (insoluble) conditions.

“Excess” Chloride and Boron

Two constituents added to water during the treatment process, Cl and B, were evaluated as tracers or recycled water in the subsurface. If unfractionated sea salt in atmospheric precipitation is the sole source of chloride (Cl) and bromide (Br), and both halides exhibit completely conservative physical and chemical behavior during subsurface transport, the Cl/Br mass ratio in ground water would be equal to 287, the ratio found in seawater (Schroeder and others, 1993). Cl is indeed enriched relative to Br in the production wells, and in the recycled water itself (Schroeder and others, 1997). Deviation from a seawater-dilution line can be used to estimate recycled-water percentages, designated “excess” chloride, if it is assumed that the process of water reuse adds only Cl but no Br, using the following equation:

$$[Cl] = (120 - x)287[Br] \quad (1)$$

where

- [Cl] = chloride concentration measured in production well [mg/L];
- 120 = chloride concentration measured in recycled water [mg/L];
- 287[Br] = chloride concentration in production well without recycled water [mg/L]; and
- x = calculated percentage of recycled water [%].

Similarly, boron (B) is added to the recycled water in large amounts during water reuse, primarily owing to its presence as a softener in detergents. It is used in a two-member mixing model to calculate recycled water percentages, designated “excess” boron, with the effluent concentration of 399 µg/L being one end member. The two-member mixing model assumes that the lowest concentration measured in any of the 23 production wells (93 µg/L in well 23) represents conditions in which there is no contribution from recycled water. The percentage of recycled water can be estimated using the following equation:

$$[B] = x(399) + (1 - x)[B_{Native}] \quad (2)$$

where

- [B] = boron concentration measured in production well [µg/L];
- 399 = boron concentration measured in recycled water [µg/L];
- [B_{Native}] = boron concentration in production well without recycled water [µg/L]; and
- x = calculated percentage of recycled water [%].

Linear regression analysis was performed on the recycled-water percentages using the software program S-Plus (Mathsoft, Inc., Cambridge, Mass.) and the robust MM regression method. Regression models such as the robust MM regression method are useful for fitting linear relations when the random variation in the data is not Gaussian (normal) or when the data contain significant outliers. Furthermore, the results of the robust MM linear regression method returns a model that is almost identical in structure to a standard linear regression model allowing for the production of regression plots. On the basis of the results of the analysis, “excess” Cl and “excess” B are correlated with a coefficient of determination, r^2 , of 0.58 (fig. 7). The fact that “excess” chloride and “excess” boron are correlated supports the hypothesis that both constituents are at least semiquantitative indicators of the percentage of recycled water in the production wells, although the underlying assumptions are only approximately correct since the regression line neither passes through the origin nor has a slope of 1. Furthermore, the calculated percentages are higher than the average amount of about 30 percent that would be expected on the basis of quantity and sources of water delivered to the spreading grounds for recharge during the last 10 years. It is anticipated that these recycled-water percentages can be improved with more reliable information on background concentrations of ground water prior to recharge, spatial variations within the Montebello Forebay, and the contribution of ground water from the San Gabriel Valley.

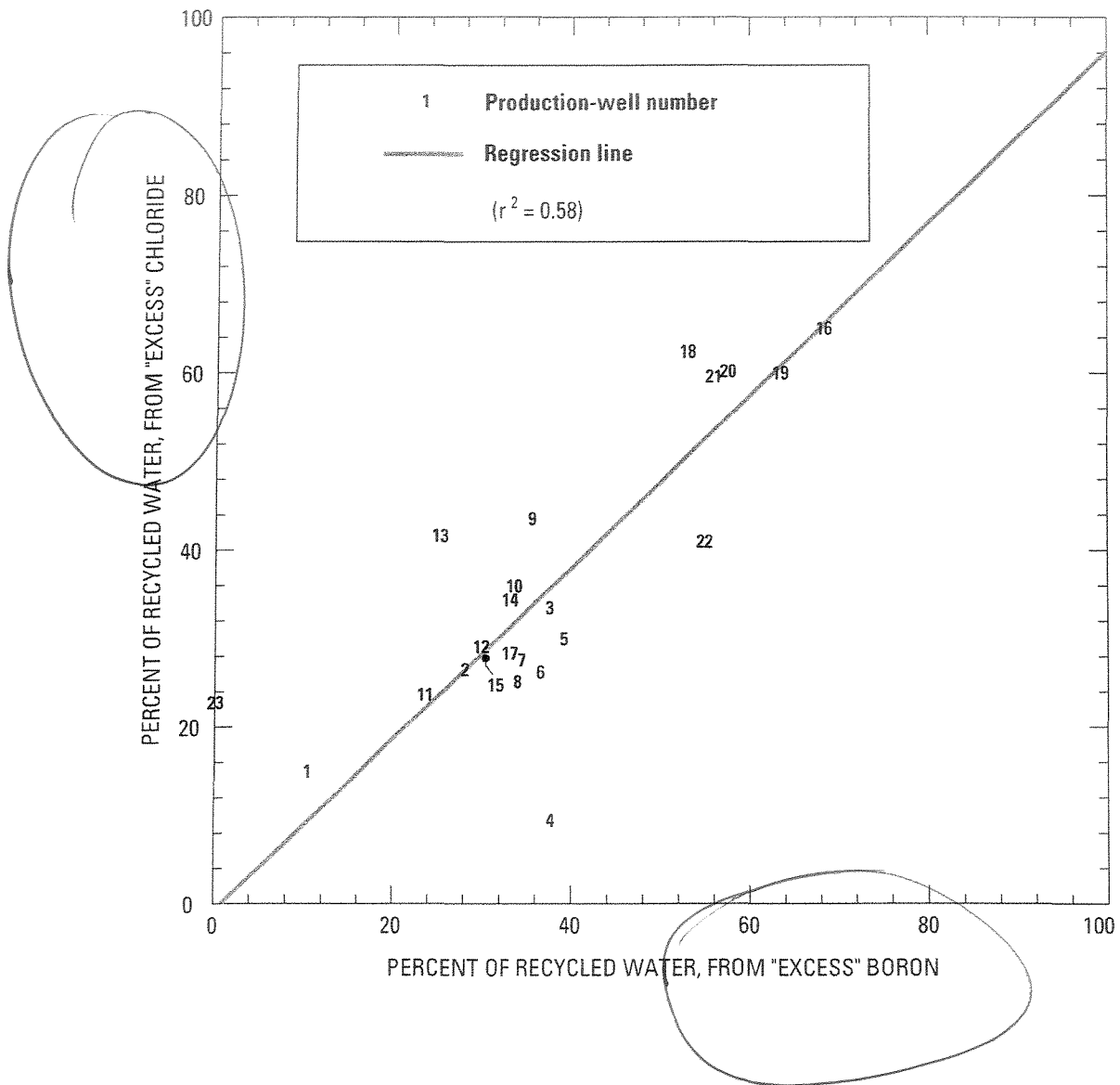


Figure 7. Estimates of recycled-water percentages in selected production wells based on "excess" chloride and "excess" boron values, Los Angeles County, California.

Boron Isotopes

Isotopic analyses of B may provide another method for quantifying recycled-water percentages (Vengosh and others, 1994). A delta boron-11 ($\delta^{11}\text{B}$) value of +6 per mil (‰) for an effluent sample and values of about +13 ‰ measured in a few of the production wells indicate that boron is isotopically depleted in recycled water (Schroeder and others, 1997). Furthermore, regression analysis indicates a negative correlation between "excess" Cl and $\delta^{11}\text{B}$ (fig. 8) and supports the use of boron as an indicator of recycled water, although the correlation between $\delta^{11}\text{B}$ and "excess" Cl ($r^2 = 0.14$) is considerably weaker than the correlation between "excess" Cl and "excess" B.

Nitrogen Isotopes

Nitrogen-isotopes measured during artificial recharge experiments at the San Gabriel Coastal Basin Spreading Grounds provided evidence that denitrification occurs beneath the reservoir site (Anders and Schroeder, 1997). The process of denitrification is accompanied by enrichment in nitrogen-15 in the remaining nitrate. Analyses of the effluent sample (table 2) yielded a delta nitrogen-15 ($\delta^{15}\text{N}$) value of +11.5 ‰ for nitrate and concentrations of 6.4 and 4.5 mg/L as N for oxidized ($\text{NO}_3 + \text{NO}_2$) and reduced ($\text{NH}_4 + \text{organic}$) species, respectively. A $\delta^{15}\text{N}$ value of +25.4 ‰ for ammonia was reported in Schroeder and others (1997). Combining the isotope and concentration data yields an initial nitrogen isotope ratio of +17.2 ‰ for total N. This value represents a maximum that would occur if all forms of N were completely converted to NO_3 and implies that any increment above this value for $\delta^{15}\text{N}\text{-NO}_3$ in the ground water would indicate denitrification. Because nearly all of the 23 production wells have $\delta^{15}\text{N}$ values that are higher than +17.2 ‰, and all have values that markedly exceed the $\delta^{15}\text{N}$ value for NO_3 in recycled water, most of the NO_3 in the production wells is concluded to be the result of partially denitrified recycled water (fig. 9).

On the basis of the assumption of complete oxidation of N in recycled water followed by partial denitrification and negligible dilution with native waters, this enrichment of $\delta^{15}\text{N}\text{-NO}_3$ can be expressed in terms of an isotope-separation (fractionation) factor, ϵ , by the Rayleigh fractionation equation:

$$\delta^{15}\text{N}_f = \delta^{15}\text{N}_i + \epsilon \ln \frac{[\text{NO}_3]_f}{[\text{NO}_3]_i} \quad (3)$$

where

$\delta^{15}\text{N}_f$ = final nitrogen isotope ratio measured in well at time of sampling [‰];

$\delta^{15}\text{N}_i$ = initial (at time of recharge) nitrogen isotope ratio [‰];

$[\text{NO}_3]_f$ = final nitrate concentration [mg/L]; and

$[\text{NO}_3]_i$ = initial (at time of recharge) nitrate concentration [mg/L].

Previous calculations using the Rayleigh fractionation equation and isotope-ratio and nitrate-concentration data from before and after recharge experiments at the research site yielded an isotope-separation factor of about -22 ‰ (Anders and Schroeder, 1997) (fig. 9). Therefore, the amount of NO_3 removal by denitrification during recharge and (or) subsequent ground-water transport to a production well can be estimated from measured isotope ratios by assuming that the isotope-separation factor of -22 ‰ exists throughout the aquifer. Using the above assumptions yields N removals as high as 50 percent, with the highest N-removal percentage found in well 19M4 (production well number 16) in which $\delta^{15}\text{N} = +31.36$ ‰. Actual removal rates are likely to be slightly greater than calculated owing to lower $\delta^{15}\text{N}$ values commonly found in stormwater used for recharge, which are composed of N of natural and fertilizer origins that typically have $\delta^{15}\text{N}$ values much lower than those found in wastewater (Heaton, 1986, and Hübner, 1986). Furthermore, attempts were made to relate isotope ratios to plausible individual variables such as ground-water travel times or distance from the spreading grounds, depth of well, redox state as evidenced by oxygen and manganese concentrations, and even NO_3 concentration itself. However, these attempts failed to yield any obvious relation owing to the complex interplay of all variables listed, in addition to timing and composition of recharge and mixing of water from different depths (Schroeder and others, 1997).

The youngest $^3\text{H}/^3\text{He}$ age of 0.6 year was found in the water sample collected from a depth of 120 ft below land surface adjacent to the San Gabriel Coastal Basin Spreading Grounds (2S/12W-25G8). Other water samples collected from monitoring wells adjacent to the San Gabriel Coastal Basin Spreading Grounds at depths between 255 and 1,200 ft below land surface had $^3\text{H}/^3\text{He}$ ages ranging from 3.2 to 22.0 years. $^3\text{H}/^3\text{He}$ ages for water samples collected from monitoring wells located adjacent to the Rio Hondo Coastal Basin Spreading Grounds at depths between 160 and 930 ft below land surface ranged from 2.7 to 30.8 years. The $^3\text{H}/^3\text{He}$ age for water samples collected from the monitoring wells located in the city of Downey at depths between 270 and 960 ft below land surface ranged from 25.9 to 34.1 years. These $^3\text{H}/^3\text{He}$ ages indicate that recycled water is present to a depth of more than 900 ft below land surface adjacent to both spreading grounds and to a distance of more than 4 mi downgradient from both spreading grounds.

Linear regression analysis with the robust MM regression method (Mathsoft, Inc., Cambridge, Mass.) was performed using the $^3\text{H}/^3\text{He}$ ages and the depth of the monitoring wells located adjacent to the San Gabriel Coastal Basin (2S/12W-25G4 through 25G8) and Rio Hondo Coastal Basin Spreading Grounds (2S/12W-26D10 through 26D14). The resulting correlation was higher adjacent to the Rio Hondo Coastal Basin Spreading Grounds ($r^2 = 0.89$) than adjacent to the San Gabriel Coastal Basin Spreading Grounds ($r^2 = 0.56$) (fig. 16).

Although these correlations were calculated using a small number of data points and do not take into consideration asymmetric vertical flow that probably exists beneath the spreading grounds, they do provide some information about the recharge characteristics of the recycled water applied at the spreading grounds. The lower correlation for the monitoring wells adjacent to the San Gabriel Coastal Basin Spreading Grounds, along with similar $^3\text{H}/^3\text{He}$ ages of 22.1 and 20.9 years for water samples collected from 580 (2S/12W-25G5) and 850 (2S/12W-25G4) ft below land surface, respectively (fig. 15), probably is due to mixing and (or) complete displacement of recharged water with pre-existing ground water at these depths. The higher correlation for the monitoring wells

at the Rio Hondo Coastal Basin Spreading Grounds owing to the linear increase in age with depth suggests less displacement of pre-existing ground water than at the San Gabriel Coastal Basin Spreading Grounds.

Tracers of Recycled Water

Chloride and Boron

Chemical results from the production wells suggested that Cl and B would be most useful in locating the extent of the recycled water along the flow path, and this expectation is confirmed by data from the multiple-well monitoring sites (fig. 17). Values of "excess" Cl and "excess" B were determined for the monitoring wells following the same procedure used for estimating recycled-water percentages in the production wells (table 6). One end-member used to calculate the "excess" boron value was the average boron concentration from the monitoring well in Lakewood previously identified as containing no contribution from recycled water (62.5 mg/L in well 4S/12W-5H7). The "excess" Cl and "excess" B values of the monitoring wells show an r^2 of 0.42 (fig. 18). Similarly, the "excess" Cl and "excess" B values of the production wells show an r^2 of 0.58 (fig. 7).

The percentage of recycled water in three of the five monitoring wells (2S/12W-25G6–8) adjacent to the San Gabriel River Coastal Basin Spreading Grounds is similar to the highest values found in the production wells along the east side of the San Gabriel Coastal Basin Spreading Grounds (figs. 7 and 18). The high percentage of recycled water at the San Gabriel Coastal Basin Spreading Grounds exceeds the 35-percent limit DOHS sets on the allowable amount of recycled water that can be applied during any 3-year period, suggesting either greater use of this side for replenishment purposes during the dry months or higher natural levels of B and Cl on this side. Furthermore, those "excess" Cl and "excess" B values not showing a strong correlation either have a high concentration of bromide (4S/12W-5H10) or boron (3S/12W-9J6, 2S/11W-18C4, and 2S/11W-18C7) probably owing to surface anthropogenic effects such as oil-field brines and (or) local aquifer properties such as clay content or soil type.

**ATTACHMENT 3
CORRESPONDENCE**

From: Gardner, David [FWI]
Sent: Thursday, December 13, 2007 12:29 PM
To: Salazar, Valerie [FWI]
Subject: FW: Nipomo Data

Attachments: Effluent 17th Oct 07 FGLDocSP_0711739.pdf; Effluent 24th Oct 07 FGLDocSP_0712008.pdf; Effluent 7th Sept 07 FGLDocSP_0709968.pdf; Effluent 26th Sept 07 FGLDocSP_0710760.pdf; Effluent 10th Oct 07 FGLDocSP_0711362.pdf

From: Roberts, Shawn [FWI]
Sent: Monday, November 26, 2007 1:51 PM
To: Gardner, David [FWI]
Cc: Sorensen, Paul [FWI]; Roberts, Shawn [FWI]
Subject: Nipomo Data

David,
Well details are as follows:

| Well/ Test Hole | Installation | Surface Elev. (feet) | Seal Depth (feet) | Screen Depth Interval (feet) | Depth to Top of First Clay Layer (feet) | Elevation of Top of First Clay Layer (feet) | Depth to Top of Main Aquitard (Blue Clay) (feet) | Elevation of Top of Main Aquitard (Blue Clay) (feet) | Date Measurement | Depth to Water (feet) | Elevation of Water (feet) |
|-----------------|--------------|----------------------|-------------------|------------------------------|---|---|--|--|------------------|-----------------------|---------------------------|
| PZ | Jan 2000 | 300 | 40 | 42-52 | 51 | 249 | - | - | July 2007 | 30.2 | 271 |
| MW-1 | Jan 2000 | 298 | - | 35-75 | 27 | 271 | 80 | 218 | July 2007 | 37.9 | 262 |
| MW-2 | Jan 2000 | 300 | - | 40-85 | - | - | 85 | 215 | July 2007 | 40.9 | 260 |
| MW-3 | Jan 2000 | 302 | - | 50-130 | - | - | 135 | 167 | July 2007 | 44.2 | 260 |

All effluent data I have is attached. I note that only the sample from the 24th mentions composite collection. I will follow up with the lab/NCSD for more data.

The Shallow well field chemistry was as follows:

- pH 7.71, EC 348 (does not appear correct), Temp 17.3 – I did not bother with DO due to having used a bailer for collection
- The well ran dry and was sampled after 1 hour of recovery (It had not fully recovered)
- Well depth 30.4 feet
- Static 21.7 feet
- Well elevation – probably about 273 feet asl

Thanks

Shawn Roberts PhD PG
Project Hydrogeologist
Fugro West, Inc.
660 Clarion Court
San Luis Obispo, CA 93401
www.fugrowest.com
phone : (805) 542-0797, ext. 21
fax: (805) 542-9311
cell: (805) 732-0706

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