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# **CITY OF SANTEE**

## **2009 ADDITIONAL STUDY**

### **RIVERS AND CREEKS**

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**Submitted to:**

**City of Santee**  
Development Services  
10601 Magnolia Avenue  
Santee, CA 92071-1266

**Prepared by:**

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January 20, 2010  
Project No. 200919W-3

Ms. Helen Perry  
Storm Water Program Manager  
City of Santee  
10601 Magnolia Avenue  
Santee, CA 92107-1266

**Re: City of Santee 2009 Additional Study, Rivers and Creeks**

Dear Ms. Perry:

Enclosed please find our final report for the City of Santee 2009 Additional Study. This report presents the results of the monitoring conducted at five river and creek locations in the City of Santee during both rounds of the 2009 dry weather season. The contents include field screening data and analytical laboratory test results, historical data, and photographs of sampling locations.

Review comments from the draft report submitted to the City have been incorporated into this final report. It has been our pleasure working with the City of Santee on this project. If you have any questions regarding this report, please call me at (858) 586-6600 ext. 22.

Sincerely,  
D-Max Engineering, Inc.

Arsalan Dadkhah, Ph.D., P.E.  
Project Manager

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# 1 ADDITIONAL STUDY

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## 1.1 Introduction

Concurrent with the 2009 Dry Weather Monitoring Program, two rounds of monitoring were conducted as part of an additional study for the City of Santee (City). The objective of the Additional Study is to evaluate water quality in the San Diego River, Forester Creek, and Sycamore Creek, and to assess any change in water quality as they flow through urbanized areas of the City. The City has conducted an additional study of its receiving water bodies twice each year since 2002. Historical monitoring data is included as Appendix A. Round One and Round Two of the 2009 Additional Study were conducted in May and September of 2009, respectively.

The five monitoring sites selected for the Additional Study are described below.

- Forester Creek, Upstream: located beneath the Prospect Avenue bridge, west of Cuyamaca Street.
- Forester Creek, Downstream: located approximately 200 feet north of the Mission Gorge Road and Fanita Drive intersection, east of Fanita Creek.
- San Diego River, Downstream: located beneath the West Hills Parkway bridge.
- San Diego River, Upstream: located approximately 200 feet downstream of the rock dam at the east end of the RCP service road.
- Sycamore Creek, Downstream: located beneath the Carlton Oaks Drive bridge, west of the Santee Recreation Lakes.

Table 1-1 provides the site number, location, conveyance configuration, land uses, hydrologic subarea, and GPS coordinates of the sampling locations. A map of sampling locations is included as Figure A. Photographs of sampling locations are included in Appendix B.

During both rounds of monitoring, flow rates and visual observations were recorded, field testing was performed, and samples were collected for laboratory analysis, at all five sites. Laboratory reports for both rounds are included in Appendix C. Field data sheets for both rounds of monitoring are included in Appendix D.

**TABLE 1-1  
2009 RIVER AND CREEK MONITORING STATIONS**

<b>Site Name</b>	<b>Location</b>	<b>Conveyance</b>	<b>Primary Land Use</b>	<b>Secondary Land Use</b>	<b>Hydrologic Subarea</b>	<b>Latitude</b>	<b>Longitude</b>
Forester Creek Downstream	Approximately 200 feet north of the Mission Gorge Road and Fanita Drive intersection, east of Fanita Creek	Natural Creek	Open	Commercial	907.12	32.83953	-117.00241
Forester Creek Upstream	Beneath the Prospect Avenue bridge, west of Cuyamaca Street	Concrete Channel	Industrial	Commercial	907.13	32.83093	-116.98543
San Diego River, Downstream	Beneath the West Hills Parkway bridge	Natural Creek	Open	Residential	907.12	32.83936	-117.02450
San Diego River Upstream	Approximately 200 feet downstream of the rock dam at the east end of the RCP service road.	Natural Creek	Open	Industrial	907.12	32.85282	-116.95281
Sycamore Creek Downstream	Beneath the Carlton Oaks Drive bridge, west of the Santee Recreation Lakes	Natural Creek	Open	Residential	907.12	32.84441	-117.00652

## **2 FIELD AND LABORATORY ANALYTICAL METHODS**

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### **2.1 Field Screening Procedures**

Field screening techniques consist of qualitative field observations, flow measurement, and quantitative field analyses of selected water quality parameters. Weather conditions, time since last rainfall, and the type of stormwater conveyance are recorded as well. Specific observations and results of the field water quality analyses are documented on field data sheets, which serve as a record of the field visit and are included in Appendix D.

Field screening and analyses were conducted according to the following procedures and methods.

#### Qualitative Observations

Qualitative field observations are made during each site visit. These observations include a general site assessment and description of water odor, clarity, the presence of floatable materials, visible deposits or stains, and organisms. Evidence of present or past illicit connections and illegal discharges to the storm drain system can also be discovered through careful field observations. Each field screening location is photographed to document site conditions. Photographs are included in Appendix B.

#### Flow Measurement

Flow measurements can be used to estimate pollutant mass loading and to identify any significant changes in discharge that may indicate an illegal discharge upstream. Various field methods are used in formulas to estimate the flow rate, but the most common used in this study consisted of measuring the velocity, depth, and width of the flowing water. Low levels of flow may also be assessed visually.

#### Field Water Quality Analyses

At each site, water samples were collected and analyzed in the field for the following constituents:

- Temperature
- pH
- Specific Conductance
- Turbidity
- Dissolved Oxygen

The methods used to perform the above field analyses, along with the reporting limit, range, and accuracy of each method, are listed in Table 2-1.

**TABLE 2-1  
FIELD ANALYTICAL METHODS**

Parameter	Method	Reporting Limit	Range	Accuracy
Specific Conductance	Hanna Instruments HI 991301 Portable pH/EC/TDS/Temperature Meter*	0.01 mS/cm	0 – 20 mS/cm	± 2% of functional sensitivity <sup>1</sup>
Temperature	Hanna Instruments HI 991301 Portable pH/EC/TDS/Temperature Meter*	0.1 °C	0.0 °C – 60.0 °C	± 0.5 °C
pH	Hanna Instruments HI 991301 Portable pH/EC/TDS/Temperature Meter*	0.01	0.00 – 14.00	± 0.01 pH
Turbidity	Hanna Instruments HI 93703 Portable Turbidity Meter*	0.01 NTU	0.01 – 50.00 NTU and 50 – 1000 NTU	± 0.5 NTU or 5% of reading (whichever is greater)
Dissolved Oxygen	Hanna Instruments HI 9145 Portable Dissolved Oxygen Meter	0.00 mg/L	0.00 to 45.00 mg/L	± 1.5% of range

**Notes:**

EC = electrical conductivity  
TDS = total dissolved solids  
NTU = nephelometric turbidity unit  
mS/cm = millisiemens per centimeter  
°C = Degrees Celsius

<sup>1</sup> Functional sensitivity (FS) represents the lowest limit at which quantitative information is reliable. FS is estimated as the mean concentration for a spiked sample whose coefficient of variance (CV) is 20%. CV is the standard deviation divided by the mean.

\*Test method information taken from Hanna Instruments and CHEMetrics manuals, available online at [www.hannainst.com](http://www.hannainst.com) and [www.chemetrics.com](http://www.chemetrics.com).

## 2.2 Laboratory Analytical Methods

At each site, samples were collected in sterile bottles for transport to the laboratory for analysis. Samples were submitted to EnviroMatrix Analytical, Inc, a laboratory certified by the California Department of Health Services, for analysis of the following constituents:

- Total Kjeldahl Nitrogen
- Total Nitrogen
- Nitrate/Nitrite as N
- Orthophosphate as P
- Total Phosphorus
- Total Dissolved Solids
- Total Coliforms
- Fecal Coliforms
- Enterococci

The methods used to perform each of the above analyses along with method reporting limits and holding times are listed in Table 2-2. Water samples were collected, placed on ice in a cooler, and then submitted to the analytical laboratory within four hours of sampling to ensure that water samples for total coliform, fecal coliform, and *Enterococcus* tests met standard holding time requirements for bacteria samples.

**TABLE 2-2  
LABORATORY ANALYTICAL METHODS**

Analyte	Analytical Method	Method Reporting Limit	Maximum Holding Time
Nitrate/Nitrite as N	SM4500 NO3 E	0.05 mg/L	48 hours
Total Kjeldahl Nitrogen	SM4500 N C	0.5 mg/L	28 days
Total Nitrogen	Calculation*	0.5 mg/L	na
Orthophosphate as P	SM4500 P E	0.05 mg/L	48 hours
Total Phosphorus	SM4500 P B, E	0.05 mg/L	28 days
Total Dissolved Solids	SM2540 C	20 mg/L	7 days
Total Coliforms	SM 9221 B, E	** 20 – 1,600,000 MPN/100 mL	6 hours
Fecal Coliforms	SM 9221 B, E	** 20 – 160,000 MPN/100 mL	6 hours
<i>Enterococcus</i>	SM 9230 A, B	** 20 – 160,000 MPN/100 mL	6 hours

**Notes:**

MPN/100 mL = most probable number (of colony-forming units) per 100 milliliters

na = not applicable

\* Total Nitrogen is calculated as the sum of Nitrate/Nitrite as N and Total Kjeldahl Nitrogen.

\*\* For D-Max's Dry Weather Monitoring Program, EnviroMatrix Analytical, Inc. (EMA) performs standard dilutions for total coliforms to quantify from 20-1,600,000 most probable number per 100 milliliters (MPN/100 mL). For fecal coliforms and Enterococci, EMA performs standard dilutions to quantify from 20-160,000 MPN/100 mL. During the analysis and interpretation of the results, the number of tubes used to quantify the sample must fit the MPN index table from Standard Method 9221. The dilution set used will determine the detection limit. A standard dilution analysis is set up with 15 tubes at different concentrations. The reporting limit will always be adjusted depending on the dilution factor used for quantifying the actual results based on the MPN table. If the result for the analysis was less than 16,000 MPN/100 mL, the reporting limit will always be 20, and the dilution factor will be 10. As the dilution factor goes up, the reporting limit listed in the results from EMA will also go up based on the calculation made with EMA's data system. However, the lowest quantifiable number or reporting limit would still be 20 based on how the standard tubes for the sample is set up.

## **3 FIELD SCREENING RESULTS**

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### **3.1 Qualitative Observations**

#### **3.1.1 Round One**

During Round One, all site visits were performed under partly cloudy conditions. Water collected at the Forester Creek upstream location had a musty odor, and no vegetation or deposits were observed, while all other sites had odorless water samples, normal vegetation and some type of deposits. Water samples from the San Diego River upstream and Sycamore Creek downstream locations were yellow in color, while all other samples were colorless. The Forester Creek downstream location had slightly cloudy water, with trash and leaf debris on the surface and no biological organisms present, while all other water samples were clear, had no floatable materials, and algae or other aquatic biota were observed. Organisms observed during Round One included algae, insects and snails.

Qualitative observations made during Round One are presented in Table 3-1.

#### **3.1.2 Round Two**

Light conditions were sunny during all site visits in Round Two. All sites had clear, odorless and colorless water samples, with one exception of yellow water at the Sycamore Creek downstream location. All sites contained sediment, gravel, and/or fine particulate deposits. Aquatic organisms were present at all sites and included various combinations of insects, algae, snails, fish, crayfish, frogs, and birds.

Qualitative observations made during Round Two are presented in Table 3-2.

**TABLE 3-1  
FIELD OBSERVATIONS – ROUND ONE**

<b>Site</b>	<b>Date</b>	<b>Time</b>	<b>Light Conditions</b>	<b>Odor</b>	<b>Color</b>	<b>Clarity</b>	<b>Floatables</b>	<b>Deposits</b>	<b>Vegetation</b>	<b>Biology</b>
Forester Creek Downstream	5/19/09	11:45	Partly Cloudy	None	None	Slightly Cloudy	Trash, Leaves	Sediment/Gravel, Fine Particulates	Normal	Insect/Algae
Forester Creek Upstream	5/19/09	10:40	Partly Cloudy	Musty	None	Clear	None	None	None	Algae, Snails
San Diego River, Downstream	5/19/09	12:30	Partly Cloudy	None	None	Clear	None	Sediment/Gravel	Normal	Insect/Algae
San Diego River Upstream	5/19/09	9:30	Partly Cloudy	None	Yellow	Clear	None	Sediment	Normal	Insect/Algae
Sycamore Creek Downstream	5/20/09	10:50	Partly Cloudy	None	Yellow	Clear	None	Fine Particulates	Normal	Insect/Algae

**TABLE 3-2  
FIELD OBSERVATIONS – ROUND TWO**

<b>Site</b>	<b>Date</b>	<b>Time</b>	<b>Light Conditions</b>	<b>Odor</b>	<b>Color</b>	<b>Clarity</b>	<b>Floatables</b>	<b>Deposits</b>	<b>Vegetation</b>	<b>Biology</b>
Forester Creek Downstream	9/2/09	12:20	Sunny	None	None	Clear	Trash	Sediment/Gravel, Fine Particulates	Normal	Insect/Algae, Snails
Forester Creek Upstream	9/2/09	11:30	Sunny	None	None	Clear	Trash	Fine Particulates	None	Insect/Algae, Snails
San Diego River, Downstream	9/2/09	13:10	Sunny	None	None	Clear	Trash	Sediment/Gravel, Fine Particulates	Normal	Insect/Algae, Fish, Crayfish
San Diego River Upstream	9/2/09	10:30	Sunny	None	None	Clear	None	Sediment, Fine Particulates	Normal	Insect/Algae, Snails, Fish, Frogs, Birds
Sycamore Creek Downstream	9/3/09	10:35	Sunny	None	Yellow	Clear	Trash	Sediment/Gravel, Fine Particulates	Normal	Insect/Algae

## 3.2 Field Analytical Results

Descriptions of the field constituents measured during field monitoring are provided below.

**Flow** measurements can help estimate pollutant mass loading. Field methods include measuring the velocity, depth, and width of the flowing water to calculate the flow rate.

**Water temperature** is needed to assess the significance of other parameters, such as pH and conductivity. Also, the aquatic habitat must remain within a certain temperature range in order to sustain sensitive aquatic life.

The **pH** is an expression of acidity or alkalinity of a water sample. The pH of an aquatic system will affect a variety of chemical reactions, including the availability of nutrients and the solubility of chemical substances, particularly heavy metals.

**Specific Conductance (Conductivity)** measurements indicate the total concentration of ions in an aquatic system and the ability of the water to conduct electricity. This parameter can be used to assess the mineral content of water and potentially indicate the presence of dissolved pollutants.

**Turbidity** describes the clarity or cloudiness of a water sample, or the degree to which light is blocked by suspended material in the water. Turbid waters not only limit the amount of light that reaches submerged vegetation, thus reducing photosynthetic capacity, but excessive suspended particles can also absorb heat and increase water temperatures.

**Dissolved Oxygen** measurements indicate the amount of gaseous oxygen (O<sub>2</sub>) dissolved in the water. Photosynthesis by aquatic biota and diffusion from the surrounding air are the processes responsible for oxygen input. Oxygen depletion can be detrimental to aquatic life and is often caused by the decomposition of organic material. Excessive algal growth due to nutrient enrichment is frequently the source of decomposing material. Higher values of dissolved oxygen often correspond with lower temperatures.

Statistical summaries of field analytical data are presented in Table 3-3 for Round One data and 3-4 for Round Two data. Complete field analytical results are presented in Table 3-5 for Round One data and Table 3-6 for Round Two data.

**TABLE 3-3  
STATISTICAL SUMMARY OF FIELD ANALYTICAL RESULTS – ROUND ONE**

<b>Parameter</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Average</b>	<b>Median</b>
Flow (gpm)*	1392	355	274	355
Temperature (°C)	27.9	20.5	23.8	23.8
pH	8.1	7.5	7.8	7.8
Conductivity (mS/cm)	2.84	1.34	2.22	2.60
Turbidity (NTU)	31.55	4.41	11.75	6.14
Dissolved Oxygen (mg/L)	8.86	5.25	6.82	6.28

**Note:** \* The flow rate of the San Diego River upstream location is reported as unmeasurable, and therefore is not included in the flow statistics

**TABLE 3-4  
STATISTICAL SUMMARY OF FIELD ANALYTICAL RESULTS – ROUND TWO**

<b>Parameter</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Average</b>	<b>Median</b>
Flow (gpm)*	135	78	93	94
Temperature (° Celsius)	31.5	26.6	28.0	27.5
pH	8.2	7.5	7.8	7.8
Conductivity (mS/cm)	2.98	1.88	2.53	2.81
Turbidity (NTU)	10.30	2.80	6.09	5.83
Dissolved Oxygen (mg/L)	8.73	5.21	6.66	5.89

**Note:** \* The flow rate of the San Diego River upstream location is reported as unmeasurable, and therefore is not included in the flow statistics

**TABLE 3-5  
FIELD ANALYTICAL RESULTS – ROUND ONE**

Site	Date	Time	Flow (gpm)	Temp. (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
Forester Creek Downstream	5/19/09	11:45	468	23.8	7.9	2.60	31.55	5.76
Forester Creek Upstream	5/19/09	10:40	355	27.9	8.1	2.84	6.14	8.86
San Diego River Downstream	5/19/09	12:30	1,392*	22.0	7.6	2.60	5.89	6.28
San Diego River Upstream	5/19/09	9:30	Unmeasurable*	24.6	7.8	1.73	10.76	7.95
Sycamore Creek Downstream	5/20/09	10:50	Ponded	20.5	7.5	1.34	4.41	5.25
<b>Water Quality Objective (WQO)</b>			**	**	> 6.5, < 9.0	<b>20</b>	***	<b>5.0</b>

**Notes:**

\* The accuracy of manual flow estimation techniques decreases as flow volume increases. Because of high flow rates in the San Diego River, the United States Geological Service (USGS) flow gauge data has been used in this report. The USGS flow gauge is located in proximity to the San Diego River downstream sampling location; however no gauge exists near the San Diego River upstream sampling location. Thus the upstream flow has been reported as unmeasurable.

\*\* No established limit

\*\*\* There is no clear WQO in the Basin Plan, but a comparison is not necessary since TDS has been measured directly. See the laboratory data tables for TDS results.

Source: Basin Plan

**TABLE 3-6  
FIELD ANALYTICAL RESULTS – ROUND TWO**

Site	Date	Time	Flow (gpm)	Temp. (°C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)
Forester Creek Downstream	9/2/09	12:20	94	26.6	7.6	2.97	7.61	5.56
Forester Creek Upstream	9/2/09	11:30	107	31.5	7.9	2.81	3.90	8.73
San Diego River Downstream	9/2/09	13:10	135*	26.8	7.5	2.98	2.80	5.89
San Diego River Upstream	9/2/09	10:30	Unmeasurable*	27.5	7.8	1.88	10.30	7.91
Sycamore Creek Downstream	9/3/09	10:35	78	27.7	8.2	1.99	5.83	5.21
<b>Water Quality Objective (WQO)</b>			**	**	> 6.5, < 9.0	20	***	5.0

**Notes:**

\* The accuracy of manual flow estimation techniques decreases as flow volume increases. Because of high flow rates in the San Diego River, the United States Geological Service (USGS) flow gauge data has been used in this report. The USGS flow gauge is located in proximity to the San Diego River downstream sampling location; however no gauge exists near the San Diego River upstream sampling location. Thus the upstream flow has been reported as unmeasurable.

\*\* No established limit

\*\*\* There is no clear WQO in the Basin Plan, but a comparison is not necessary since TDS has been measured directly. See the laboratory data tables for TDS results.

Source: Basin Plan

## 4 LABORATORY ANALYTICAL RESULTS

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### 4.1 Summary

Descriptions of the laboratory constituents for analytical monitoring conducted during both rounds are shown below.

**Total Nitrogen** is the sum of nitrate/nitrite as N and total Kjeldahl nitrogen, described below. High levels of nitrogen may be indicative of nutrient pollution from agricultural or household fertilizer runoff. High nitrate levels can contribute to excessive algal growth, resulting in oxygen depletion as algae decomposes, and may eventually suffocate other aquatic life.

**Nitrate/Nitrite as N** is the form of nitrogen most available for uptake in chemical reactions. Nitrate/nitrite as N is a component of the total nitrogen.

**Total Kjeldahl Nitrogen (TKN)** is composed of organic nitrogen, ammonia, and ammonium and encompasses all components of the total nitrogen not available as nitrate or nitrite.

**Total Phosphorus** is the total amount of phosphorus, including both orthophosphate and less reactive forms.

**Orthophosphate-phosphorus** (orthophosphate-P) can also be an indicator of nutrient pollution from agricultural or household fertilizer runoff. Similar to nitrate/nitrite as N, orthophosphate-P pollution can cause nutrient enrichment, stimulate algal growth, and thus deplete oxygen in the water to levels that are dangerous for aquatic life. Even low levels of orthophosphate-P can cause significant algal growth, as it is commonly the limiting nutrient in plant growth.

**Total Dissolved Solids (TDS)** measurements quantify the amount of dissolved minerals, cations, anions, and salts in the water. TDS is often related to conductivity and hardness. It can originate from natural sources, sewage runoff, urban runoff, and/or industrial wastewater. In southern California, imported water may also be a source of TDS. In drinking water, it can affect the taste and aesthetic quality. In storm water, it can to some extent affect the lives of aquatic species, although only in high amounts.

**Coliform bacteria** are relatively harmless to humans and are present in mammalian digestive tracts, most surface waters, and soils. Testing water samples for total coliform bacteria is a standard practice in public health. Total coliform is measured as an indicator of other more harmful pathogens, since these pathogens are generally present in much smaller quantities and are difficult to detect.

**Fecal coliform**, a subset of coliform bacteria, and **Enterococcus** are found primarily in the gastro-intestinal tracts of humans and animals and are commonly used as indicators of water contamination by fecal matter. Without the use of significantly more expensive methods, such as ribotyping, it is not possible to determine whether the source of fecal material is human or animal. Human fecal material is known to contain pathogens dangerous to humans, but the relationship between animal waste and threat to human health is less certain.

Complete laboratory analytical results are presented in Table 3-7 for Round One data and Table 3-8 for Round Two data. Laboratory reports are included in Appendix C.

**TABLE 4-1  
LABORATORY ANALYTICAL RESULTS – ROUND ONE**

Site	Date	Time	Nitrate/Nitrite as N (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Nitrogen (mg/L)	Orthophosphate as P (mg/L)	Total Phosphorus (mg/L)	Total Dissolved Solid (mg/L)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	Enterococcus (MPN/100ml)
Forester Creek Downstream	5/19/09	11:45	0.7	0.8	1.4	0.66	0.67	1,560	2,800	170	500
Forester Creek Upstream	5/19/09	10:40	4.93	1.1	6	0.33	0.34	1,830	3,500	1,700	800
San Diego River, Downstream	5/19/09	12:30	1.93	0.8	2.7	0.09	0.1	1,680	30,000	300	130
San Diego River Upstream	5/19/09	9:30	nd	2.5	2.5	0.13	0.32	1,230	1,300	nd	20
Sycamore Creek Downstream	5/20/09	10:50	0.23	3.9	4.1	0.19	0.28	767	11,000	500	1,400
<b>Reporting Limit</b>			<b>0.05</b>	<b>0.5</b>	<b>0.5</b>	<b>0.05</b>	<b>0.05</b>	<b>20.0</b>	<b>20</b>	<b>20</b>	<b>20</b>
<b>WQO</b>			<b>10*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>1,500 / 1,000**</b>	<b>***</b>	<b>400****</b>	<b>151</b>

**Notes:**

nd = not detected

\* Regional guidance suggests using the EPA's nutrient endpoint tool to determine the WQO. This tool requires more data than what has been collected within the scope of this study.

\*\* WQO varies by watershed. WQO for Forester Creek and San Diego River Upstream is 1,500 mg/L. WQO for San Diego River Downstream and Sycamore Creek Downstream is 1,000 mg/L.

\*\*\* No established limit.

\*\*\*\* All sites have a REC-1 beneficial use.

Source: Basin Plan

**TABLE 4-2  
LABORATORY ANALYTICAL RESULTS – ROUND TWO**

Site	Date	Time	Nitrate/Nitrite as N (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Nitrogen (mg/L)	Orthophosphate as P (mg/L)	Total Phosphorus (mg/L)	Total Dissolved Solid (mg/L)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	Enterococcus (MPN/100ml)
Forester Creek Downstream	9/2/09	12:20	1.32	nd	1.6	0.12	0.25	1900	11,000	1,300	500
Forester Creek Upstream	9/2/09	11:30	3.36	0.6	4.0	0.05	0.28	1850	2,300	300	40
San Diego River, Downstream	9/2/09	13:10	0.44	0.6	1.0	0.12	0.14	1920	2,300	40	80
San Diego River Upstream	9/2/09	10:30	0.43	0.8	1.2	nd	0.20	1240	600	40	20
Sycamore Creek Downstream	9/3/09	10:35	nd	3.3	3.3	0.10	0.27	1230	8,000	20	220
<b>Reporting Limit</b>			<b>0.05</b>	<b>0.5</b>	<b>0.5</b>	<b>0.05</b>	<b>0.05</b>	<b>20.0</b>	<b>20</b>	<b>20</b>	<b>20</b>
<b>WQO</b>			*	*	*	*	*	<b>1,500 / 1,000**</b>	<b>***</b>	<b>400****</b>	<b>151</b>

**Notes:**

nd = not detected

\* Regional guidance suggests using the EPA's nutrient endpoint tool to determine the WQO. This tool requires more data than what has been collected within the scope of this study.

\*\* WQO varies by watershed. WQO for Forester Creek and San Diego River Upstream is 1,500 mg/L. WQO for San Diego River Downstream and Sycamore Creek Downstream is 1,000 mg/L.

\*\*\* No established limit.

\*\*\*\* All sites have a REC-1 beneficial use.

Source: Basin Plan

## **5 DATA ANALYSIS**

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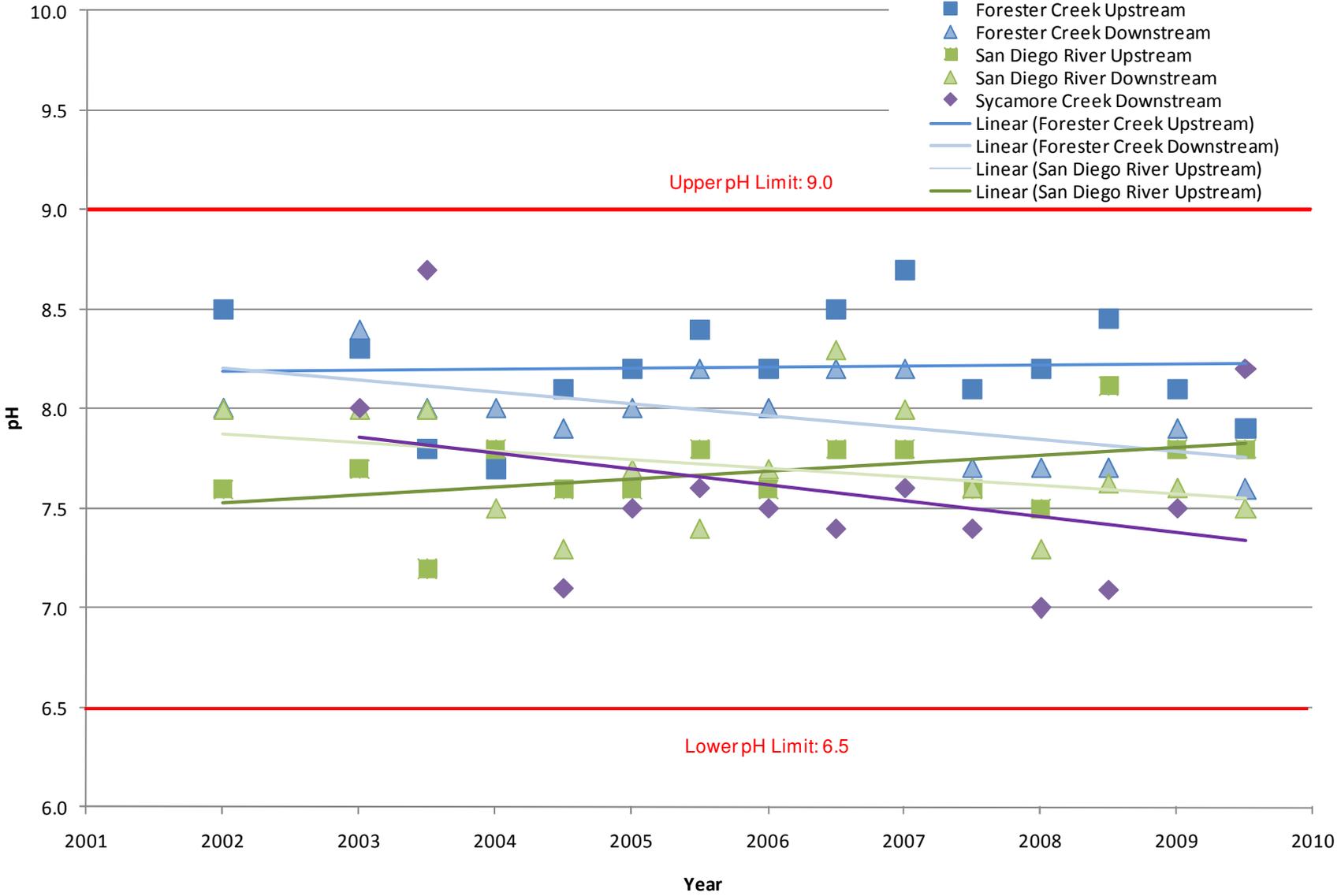
This section provides an overall evaluation of historical trends for the City of Santee Receiving Waters Additional Study.

A portion of Forester Creek outside the City of Santee has been listed as impaired for pH; however none of the samples in any water body in Santee's additional study have exceeded the Basin Plan WQO for pH (Figure 5-1).

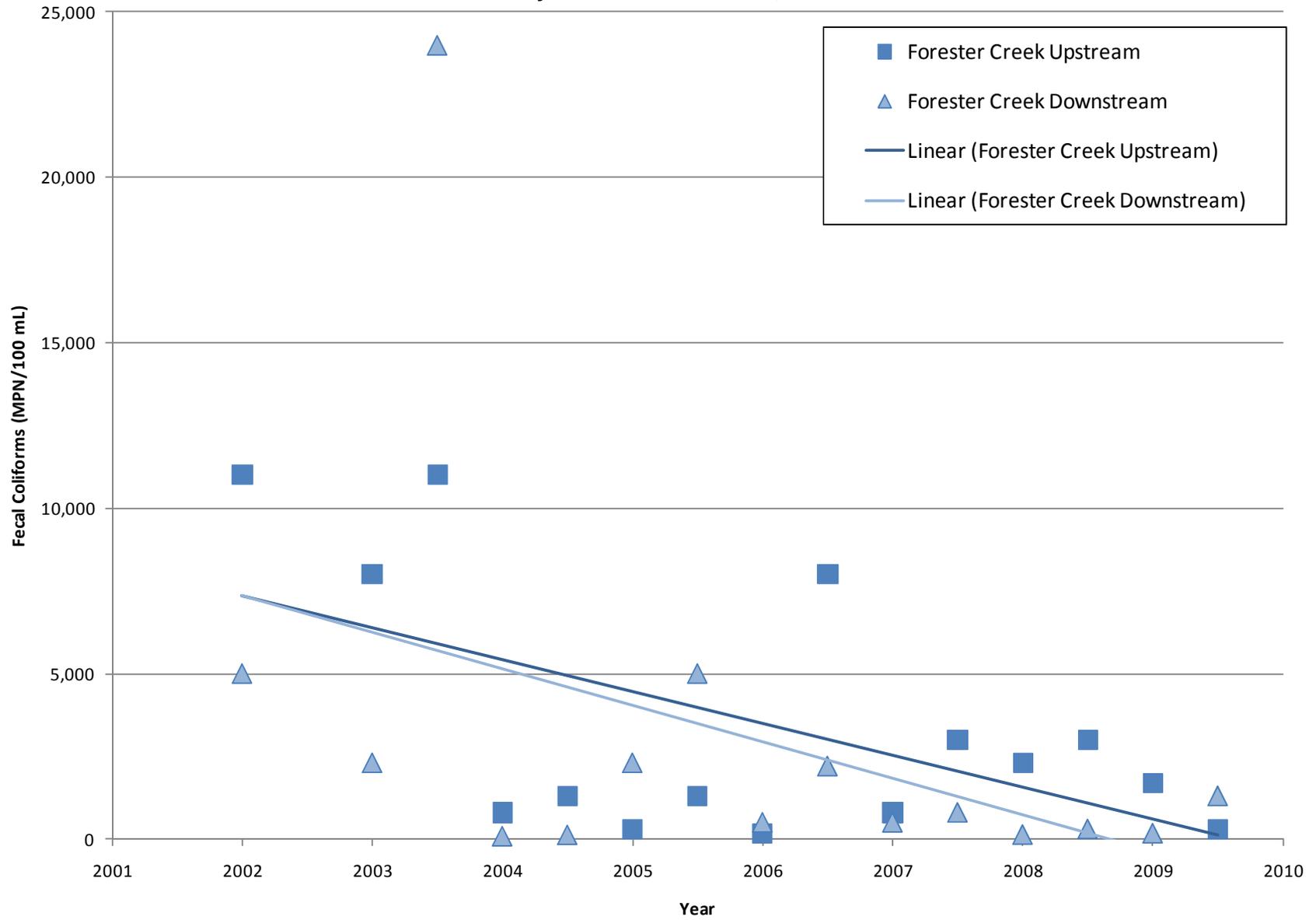
Figures 5-2, 5-3, and 5-4 depict fecal coliform levels measured in upstream and downstream receiving water locations, and measurements are generally lower in downstream locations. In general, fecal coliform levels demonstrate a decreasing trend in all receiving water locations.

The data indicates that the water quality of Forester Creek and San Diego River is improved after traveling through the City of Santee, since pollutant levels are consistently lower in the downstream reach compared to upstream.

**Figure 5-1  
Additional Study Data: pH**



**Figure 5-2**  
**Additional Study Data: Fecal Coliform, Forester Creek**



**Figure 5-3**  
**Additional Study Data: Fecal Coliform, San Diego River**

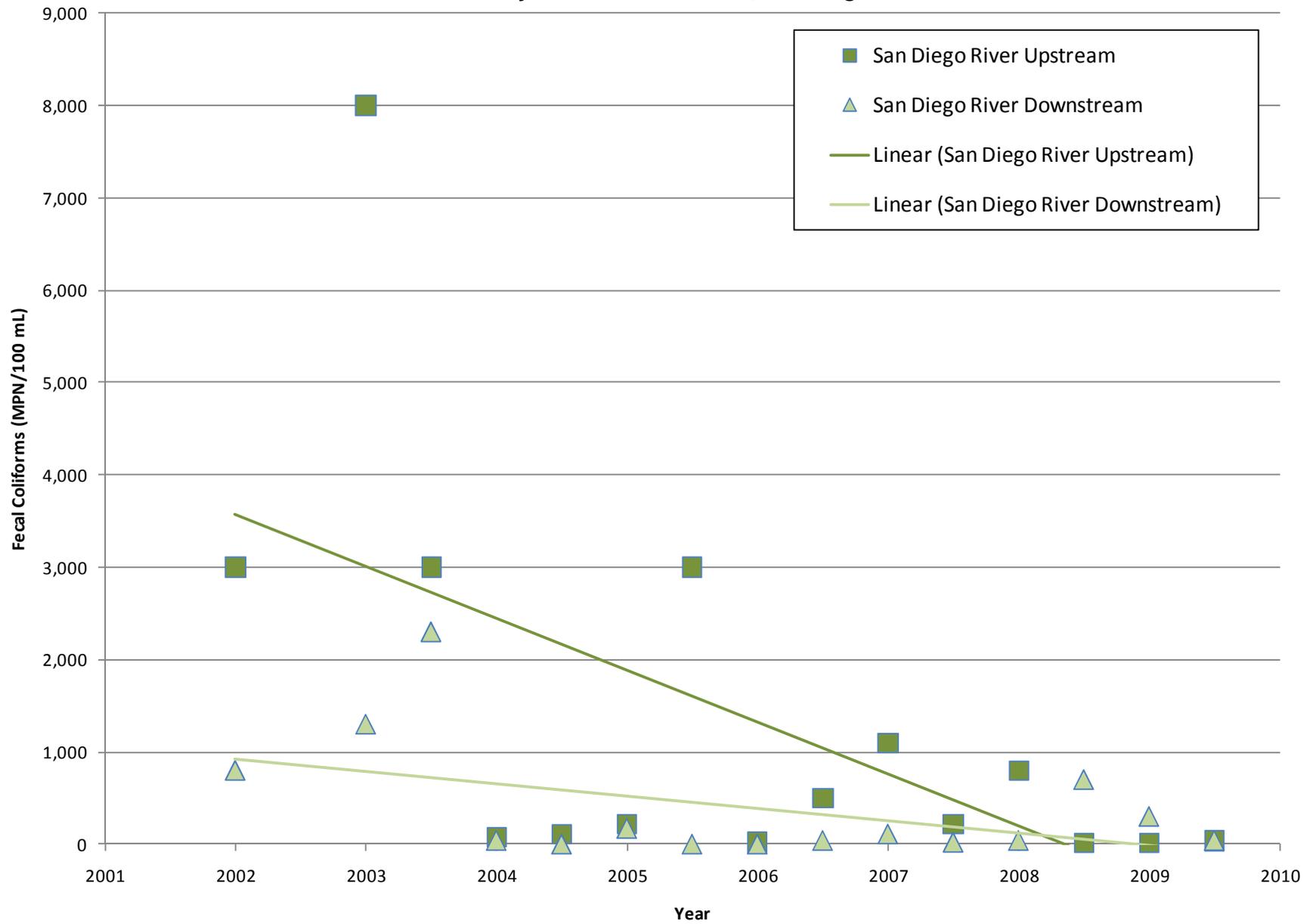
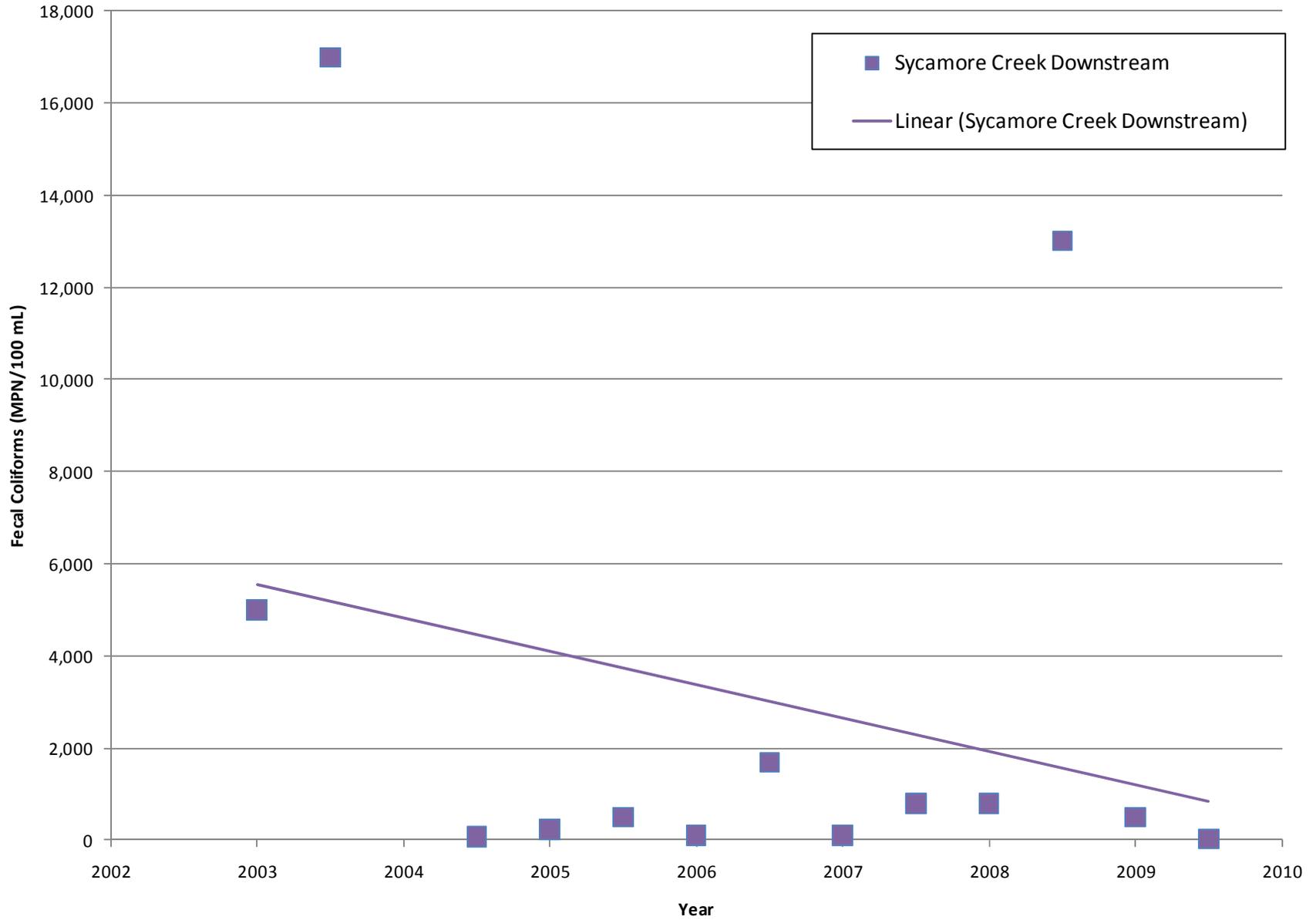


Figure 5-4  
Additional Study Data: Fecal Coliform, Sycamore Creek

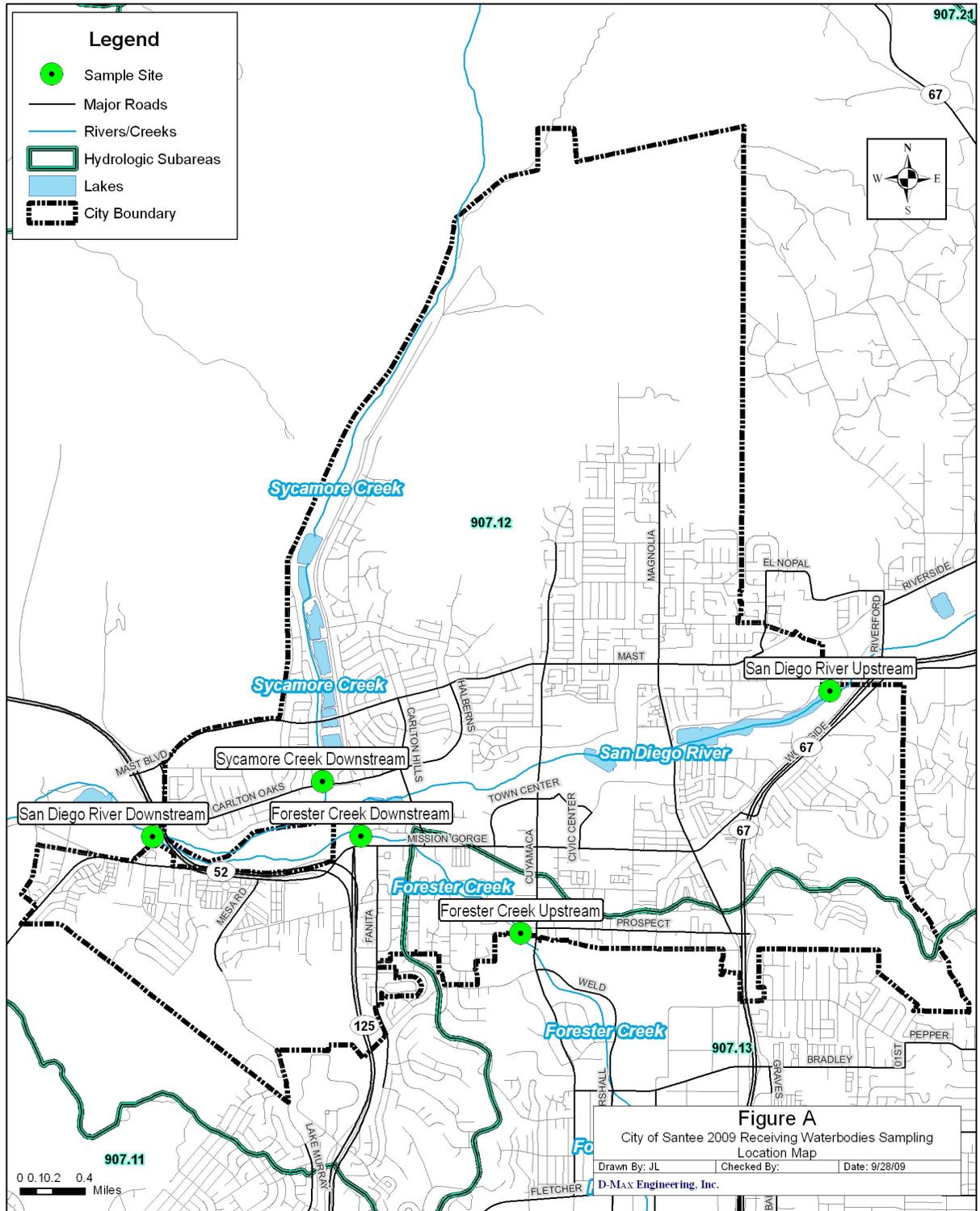


## 6 REFERENCE

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San Diego Regional Water Quality Control Board. 1994. *Water Quality Control Plan for the San Diego Basin*.

**FIGURE A**  
**CITY OF SANTEE 2009 RECEIVING WATERBODIES SAMPLING LOCATION MAP**



Data Sources: SanGIS, SANDAG, City of Santee

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**Appendix A**

**Historical Monitoring Data**

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Site	Date	Flow* gpm	Temp. °C	pH	Conductivity mS/cm	Turbidity NTU	Ammonia mg/L NH <sub>3</sub> -N	Nitrate mg/L NO <sub>3</sub> -N	Orthophosphate mg/L PO <sub>4</sub>	Orthophosphate- Phosphorus mg/L PO <sub>4</sub> -P	Surfactants (Field test) mg/L MBAS	Dissolved Oxygen mg/L	Surfactants (Lab test) mg/L MBAS	Oil and Grease mg/L	Total Hardness mg/L CaCO <sub>3</sub>
<b>2002</b>															
Forester Creek Downstream	9/3/2002	na	27.0	8.0	2.84	na	na	na	na	na	na		nd	21.0	668
Forester Creek Upstream	9/3/2002	233	32.0	8.5	2.67	na	na	na	na	na	na		nd	14.0	587
San Diego River Downstream	9/3/2002	144	25.0	8.0	2.79	na	na	na	na	na	na		nd	22.0	709
San Diego River Upstream	9/3/2002	unmeasurable	25.5	7.6	2.11	na	na	na	na	na	na		nd	4.00	557
Sycamore Creek Downstream	9/4/2002	dry	ns	ns	ns	ns	ns	ns	ns	ns	ns		ns	ns	ns
<b>2003 Round 1</b>															
Forester Creek Downstream	5/22/2003	unmeasurable	23	8.4	3.34	3.2	0.3	2	0.1	0.03	0.5		nd	nd	585
Forester Creek Upstream	5/22/2003	548	21	8.3	3.60	0.92	0.2	4	0.1	0.03	0.25		nd	nd	690
San Diego River Downstream	5/22/2003	3008	21	8	2.65	3.48	0.2	0.3	0.3	0.10	0.25		nd	nd	549
San Diego River Upstream	5/22/2003	unmeasurable	21	7.7	2.25	2.05	nd	0.2	0.2	0.07	0.25		nd	nd	436
Sycamore Creek Downstream	5/21/2003	100	25	8	1.77	0.11	0.1	0.2	0.2	0.07	0.25		nd	15	299
<b>2003 Round 2</b>															
Forester Creek Downstream	9/17/2003	457	24	8.0	2.98	9.65	0.6	2.4	0.2	0.07	0.13		nd	1	612
Forester Creek Upstream	9/17/2003	254	21	7.8	2.96	3.98	0.3	8	0.1	0.03	0.25		nd	nd	723
San Diego River Downstream	9/17/2003	673	22.5	8.0	2.94	3.89	0.3	0.6	0.4	0.13	0.13		nd	4	662
San Diego River Upstream	9/17/2003	unmeasurable	23.5	7.2	2.24	16.66	0.3	0.2	2.0	0.65	0.13		nd	2	609
Sycamore Creek Downstream	9/18/2003	187	20	8.7	2.21	4.82	0.3	0.2	0.1	0.03	0.25		nd	2	430
<b>2004 Round 1</b>															
Forester Creek Downstream	7/15/2004	172	28	8.0	2.66	3.42	0.6	2.5	0.10	0.03	0.25		nd	nd	709.0
Forester Creek Upstream	7/15/2004	269	32	7.7	2.47	8.06	0.2	2.5	0.10	0.03	0.25		nd	nd	660
San Diego River Downstream	7/15/2004	400	29	7.5	1.75	2.47	0.1	1.25	1.50	0.49	0.25		nd	nd	596
San Diego River Upstream	7/15/2004	unmeasurable	26	7.8	2.45	9.88	0.80	1.25	0.30	0.10	0.25		nd	nd	694.00
Sycamore Creek Downstream	7/16/2004	Dry	ns	ns	ns	ns	ns	ns	ns	ns	ns		ns	ns	ns
<b>2004 Round 2</b>															
Forester Creek Downstream	9/24/2004	203	21	7.9	2.87	17.79	0.3	2.5	0.2	0.07	0.25		nd	nd	662
Forester Creek Upstream	9/24/2004	226	23	8.1	2.63	2.04	0.1	5	0.1	0.03	0.38		nd	nd	645
San Diego River Downstream	9/24/2004	269	20	7.3	2.00	6.3	0.1	nd	3	0.98	0.25		nd	2	610
San Diego River Upstream	9/24/2004	unmeasurable	20	7.6	2.64	5.03	0.3	1.25	0.6	0.2	0.25		nd	1	650
Sycamore Creek Downstream	9/27/2004	20	20	7.1	2.09	4.46	0.3	nd	0.1	0.03	0.5		nd	1	404
<b>2005 Round 1</b>															
Forester Creek Downstream	5/18/2005	na	21.3	8.0	2.56	7.85	0.2	7.50	0.10	0.03	0.25		nd	nd	805
Forester Creek Upstream	5/18/2005	na	20.6	8.2	2.86	1.48	0.2	6.25	0.10	0.03	0.25		nd	nd	881
San Diego River Downstream	5/18/2005	3861	24.0	7.7	1.44	5.70	0.1	1.25	0.10	0.03	0.25		nd	nd	613
San Diego River Upstream	5/18/2005	unmeasurable	21.7	7.6	2.22	4.59	0.10	2.50	0.60	0.20	0.25		nd	nd	567
Sycamore Creek Downstream	5/17/2005	na	22.9	7.5	1.61	8.76	0.2	1.25	0.1	0.03	0.25		nd	nd	282
<b>2005 Round 2</b>															
Forester Creek Downstream	9/22/2005	468	23.4	8.2	2.66	6.68	0.3	5.00	0.10	0.03	0.38		nd	nd	727
Forester Creek Upstream	9/22/2005	316	24.2	8.4	2.65	5.24	0.3	7.5	nd	nd	0.5		nd	nd	772
San Diego River Downstream	9/22/2005	763	20.7	7.4	2.11	8.58	0.1	1.25	2.00	0.65	0.25		nd	nd	653
San Diego River Upstream	9/22/2005	unmeasurable	22.4	7.8	2.60	2.27	0.20	1.25	0.40	0.13	0.50		nd	nd	733
Sycamore Creek Downstream	9/26/2005	50	21.4	7.6	1.83	4.59	0.3	1.25	nd	nd	0.25		nd	nd	373

**Notes:**

nd = not detected  
ns = not sampled

\* The accuracy of manual flow estimation techniques decreases as flow volume increases. Because of high flow rates in the San Diego River, the United States Geological Service (USGS) flow gauge data has been used in this report. The USGS flow gauge is located in proximity to the San Diego River downstream sampling location; however no gauge exists near the San Diego River upstream sampling location. Thus the upstream flow has been reported as unmeasurable.

Site	Date	Dissolved Cadmium mg/L	Dissolved Copper mg/L	Dissolved Lead mg/L	Dissolved Zinc mg/L	Diazinon µg/L	Chlorpyrifos µg/L	Total Coliform MPN/100mL	Fecal Coliform MPN/100mL	<i>Enterococcus</i> MPN/100mL	Nitrate/ Nitrite as N mg/L	Total Kjeldahl Nitrogen mg/L	Total Nitrogen mg/L	Orthophosphate as P mg/L	Total Phosphorus mg/L	Total Dissolved Solids mg/L
2002																
Forester Creek Downstream	9/3/2002	nd	nd	nd	nd	nd	nd	8,000	5,000	130						
Forester Creek Upstream	9/3/2002	nd	nd	nd	nd	nd	nd	22,000	11,000	170						
San Diego River Downstream	9/3/2002	nd	nd	nd	0.27	nd	nd	1,700	800	1,700						
San Diego River Upstream	9/3/2002	nd	nd	nd	nd	nd	nd	5,000	3,000	80						
Sycamore Creek Downstream	9/4/2002	ns	ns	ns	ns	ns	ns	ns	ns	ns						
2003 Round 1																
Forester Creek Downstream	5/22/2003	nd	nd	nd	0.03	nd	nd	5,000	2,300	130						
Forester Creek Upstream	5/22/2003	nd	nd	nd	0.021	nd	nd	17,000	8,000	130						
San Diego River Downstream	5/22/2003	nd	nd	nd	nd	nd	nd	2,200	1,300	210						
San Diego River Upstream	5/22/2003	nd	nd	nd	nd	nd	nd	13,000	8,000	20						
Sycamore Creek Downstream	5/21/2003	nd	nd	nd	nd	nd	nd	8,000	5,000	70						
2003 Round 2																
Forester Creek Downstream	9/17/2003	nd	nd	nd	nd	nd	nd	50,000	24,000	1,300						
Forester Creek Upstream	9/17/2003	nd	nd	nd	nd	nd	nd	30,000	11,000	8,000						
San Diego River Downstream	9/17/2003	nd	nd	nd	nd	nd	nd	3,000	2,300	800						
San Diego River Upstream	9/17/2003	0.006	nd	nd	nd	nd	nd	8,000	3,000	800						
Sycamore Creek Downstream	9/18/2003	nd	nd	nd	nd	nd	nd	30,000	17,000	1,700						
2004 Round 1																
Forester Creek Downstream	7/15/2004	nd	nd	nd	0.030	nd	nd	9000.0	80.0	40.0						
Forester Creek Upstream	7/15/2004	nd	nd	nd	nd	nd	nd	8000	800	110						
San Diego River Downstream	7/15/2004	nd	nd	nd	nd	nd	nd	2600	40	nd						
San Diego River Upstream	7/15/2004	nd	nd	nd	nd	nd	nd	1700.00	80.00	40.00						
Sycamore Creek Downstream	7/16/2004	ns	ns	ns	ns	ns	ns	ns	ns	ns						
2004 Round 2																
Forester Creek Downstream	9/24/2004	nd	nd	nd	0.026	nd	nd	11,000	120	300						
Forester Creek Upstream	9/24/2004	nd	nd	nd	nd	nd	nd	14,000	1,300	270						
San Diego River Downstream	9/24/2004	nd	nd	nd	0.031	nd	nd	700	nd	nd						
San Diego River Upstream	9/24/2004	nd	nd	nd	nd	nd	nd	16,000	110	80						
Sycamore Creek Downstream	9/27/2004	nd	nd	nd	nd	nd	nd	30,000	80	3,000						
2005 Round 1																
Forester Creek Downstream	5/18/2005	nd	nd	nd	nd	nd	nd	9,000	2,300	1,100						
Forester Creek Upstream	5/18/2005	nd	nd	nd	nd	nd	nd	5,000	300	300						
San Diego River Downstream	5/18/2005	nd	nd	nd	nd	nd	nd	1,700	170	20						
San Diego River Upstream	5/18/2005	nd	nd	nd	nd	nd	nd	9,000	220	1,300						
Sycamore Creek Downstream	5/17/2005	nd	nd	nd	nd	nd	nd	11,000	230	500						
2005 Round 2																
Forester Creek Downstream	9/22/2005	nd	nd	nd	nd	nd	nd	1,600,000	5,000	500						
Forester Creek Upstream	9/22/2005	nd	nd	nd	nd	nd	nd	240,000	1,300	230						
San Diego River Downstream	9/22/2005	0.005	nd	nd	nd	nd	nd	240,000	nd	500						
San Diego River Upstream	9/22/2005	nd	nd	nd	nd	nd	nd	80,000	3,000	40						
Sycamore Creek Downstream	9/26/2005	nd	nd	nd	nd	nd	nd	130,000	500	500						

**Notes:**

nd = not detected

ns = not sampled

Site	Date	Flow (D-Max) gpm	Temp. °C	pH	Conductivity mS/cm	Turbidity NTU	Ammonia mg/L NH <sub>3</sub> -N	Nitrate mg/L NO <sub>3</sub> -N	Orthophosphate mg/L PO <sub>4</sub>	Orthophosphate- Phosphorus mg/L PO <sub>4</sub> -P	Surfactants (Field test) mg/L MBAS	Dissolved Oxygen mg/L	Surfactants (Lab test) mg/L MBAS	Oil and Grease mg/L	Total Hardness mg/L CaCO <sub>3</sub>
<b>2006 Round 1</b>															
Forester Creek Downstream	5/18/2006	608	21.3	8.0	2.56	7.85	0.2	7.50	0.10	0.03	0.25		nd	nd	740
Forester Creek Upstream	5/18/2006	561	20.6	8.2	2.86	1.48	0.2	6.25	0.10	0.03	0.25		nd	nd	692
San Diego River Downstream	5/19/2006	2514	24.0	7.7	1.44	5.70	0.1	1.25	0.10	0.03	0.25		nd	nd	448
San Diego River Upstream	5/19/2006	unmeasurable	21.7	7.6	2.22	4.59	0.10	2.50	0.60	0.20	0.25		nd	nd	608
Sycamore Creek Downstream	5/19/2006	133	22.9	7.5	1.61	8.76	0.2	1.25	0.1	0.03	0.25		nd	nd	370
<b>2006 Round 2</b>															
Forester Creek Downstream	9/25/2006	624	22.6	8.2	2.58	30.23	0.2	5.00	nd	nd	0.25		nd	nd	683
Forester Creek Upstream	9/25/2006	467	24.4	8.5	2.49	4.37	0.2	5	nd	nd	0.25		nd	nd	641
San Diego River Downstream	9/22/2006	1392	22.3	8.3	1.86	9.28	0.2	1.25	0.30	0.10	0.13		nd	nd	528
San Diego River Upstream	9/22/2006	unmeasurable	20.2	7.8	2.47	4.30	0.20	2.50	0.40	0.14	0.25		nd	nd	614
Sycamore Creek Downstream	9/22/2006	20	20.4	7.4	1.85	9.14	0.2	2.5	nd	nd	0.25		nd	nd	345
<b>2007 Round 1</b>															
Forester Creek Downstream	5/22/2007	655	18.1	8.2	2.45	25.94	0.5	4.57	0.30	0.10	0.25		nd	nd	827
Forester Creek Upstream	5/22/2007	585	19.3	8.7	2.49	2.55	0.1	4.93	nd	nd	0.25		nd	nd	715
San Diego River Downstream	5/22/2007	1392	20.8	8.0	1.69	3.94	nd	0.2	0.30	0.10	0.25		nd	nd	601
San Diego River Upstream	5/22/2007	unmeasurable	18.2	7.8	2.31	8.29	0.20	1.88	0.30	0.10	0.25		nd	nd	673
Sycamore Creek Downstream	5/23/2007	156	19.7	7.6	1.48	9.57	0.1	0.16	0.2	0.07	0.25		nd	nd	332
<b>2007 Round 2</b>															
Forester Creek Downstream	10/31/2007	234	17.7	7.7	2.66	10.21	0.3	2.31	0.50	0.16	0.38		nd	nd	664
Forester Creek Upstream	10/31/2007	148	16.5	8.1	2.65	1.58	0.1	4.72	0.10	0.03	0.5		nd	nd	758
San Diego River Downstream	10/30/2007	584	20.6	7.6	1.94	0.79	0.1	0.38	1.00	0.33	0.13		nd	nd	567
San Diego River Upstream	10/30/2007	unmeasurable	18.8	7.6	2.59	2.06	0.2	1.20	0.80	0.26	0.38		nd	nd	626
Sycamore Creek Downstream	10/31/2007	156	17.2	7.4	2.17	4.07	0.1	0.59	0.2	0.07	0.25		nd	nd	448
<b>2008 Round 1</b>															
Forester Creek Downstream	5/28/2008	281	19.9	7.7	2.77	1.25						6.76			
Forester Creek Upstream	5/28/2008	213	23.0	8.2	2.53	16.20						9.30			
San Diego River Downstream	5/28/2008	1212	20.5	7.5	2.46	0.01						6.60			
San Diego River Upstream	5/28/2008	unmeasurable	18.2	7.3	1.84	2.40						7.44			
Sycamore Creek Downstream	5/29/2008	56	15.1	7.0	1.40	0.69						7.42			
<b>2008 Round 2</b>															
Forester Creek Downstream	9/9/2008	359	22.9	7.7	2.78	7.98						6.46			
Forester Creek Upstream	9/4/2008	397	31.5	8.5	2.73	4.71						7.00			
San Diego River Downstream	9/4/2008	449	25.9	7.6	2.79	2.03						5.94			
San Diego River Upstream	9/4/2008	unmeasurable	30.8	8.1	1.87	7.62						8.56			
Sycamore Creek Downstream	9/9/2008	Ponded	28.4	7.1	2.70	31.71						5.51			

**Notes:**

nd = not detected

ns = not sampled

\* The accuracy of manual flow estimation techniques decreases as flow volume increases. Because of high flow rates in the San Diego River, the United States Geological Service (USGS) flow gauge data has been used in this report. The USGS flow gauge is located in proximity to the San Diego River downstream sampling location; however no gauge exists near the San Diego River upstream sampling location. Thus the upstream flow has been reported as unmeasurable.

Site	Date	Cadmium (diss) mg/L	Copper (diss) mg/L	Lead (diss) mg/L	Zinc (diss) mg/L	Diazinon µg/L	Chlorpyrifos µg/L	Total Coliform MPN/100mL	Fecal Coliform MPN/100mL	Enterococcus MPN/100mL	Nitrate/ Nitrite as N mg/L	Total Kjeldahl Nitrogen mg/L	Total Nitrogen mg/L	Orthophosphate as P mg/L	Total Phosphorus mg/L	Total Dissolved Solids mg/L
2006 Round 1																
Forester Creek Downstream	5/18/2006	nd	nd	nd	nd	nd	nd	80,000	500	170						
Forester Creek Upstream	5/18/2006	nd	nd	nd	nd	nd	nd	6,000	170	20						
San Diego River Downstream	5/19/2006	nd	nd	nd	nd	nd	nd	13,000	nd	nd						
San Diego River Upstream	5/19/2006	nd	nd	nd	nd	nd	nd	50,000	20	40						
Sycamore Creek Downstream	5/19/2006	nd	nd	nd	nd	nd	nd	170,000	110	700						
2006 Round 2																
Forester Creek Downstream	9/25/2006	nd	nd	nd	nd	nd	nd	80,000	2,200	1,700						
Forester Creek Upstream	9/25/2006	nd	nd	nd	nd	nd	nd	30,000	8000	2300						
San Diego River Downstream	9/22/2006	nd	nd	nd	nd	nd	nd	800	40	20						
San Diego River Upstream	9/22/2006	nd	nd	nd	nd	nd	nd	13,000	500	230						
Sycamore Creek Downstream	9/22/2006	nd	nd	nd	0.024	nd	nd	50,000	1,700	500						
2007 Round 1																
Forester Creek Downstream	5/22/2007	nd	nd	nd	nd	nd	nd	8,000	500	500						
Forester Creek Upstream	5/22/2007	nd	nd	nd	nd	nd	nd	3,000	800	80						
San Diego River Downstream	5/22/2007	nd	nd	nd	nd	nd	nd	1,700	110	nd						
San Diego River Upstream	5/22/2007	nd	nd	nd	nd	nd	nd	5,000	1,100	800						
Sycamore Creek Downstream	5/23/2007	nd	nd	nd	nd	nd	nd	23,000	110	230						
2007 Round 2																
Forester Creek Downstream	10/31/2007	nd	nd	nd	nd	nd	nd	5,000	800	800						
Forester Creek Upstream	10/31/2007	nd	nd	nd	nd	nd	nd	11,000	3,000	3,000						
San Diego River Downstream	10/30/2007	nd	nd	nd	nd	nd	nd	1,300	20	40						
San Diego River Upstream	10/30/2007	nd	nd	nd	nd	nd	nd	1,300	220	700						
Sycamore Creek Downstream	10/31/2007	nd	nd	nd	nd	nd	nd	5,000	800	300						
2008 Round 1																
Forester Creek Downstream	5/28/2008							17,000	130	700	3.24	1.9	5.2	0.11	0.11	1760
Forester Creek Upstream	5/28/2008							30,000	2,300	500	5.16	2.7	7.8	0.05	0.06	1590
San Diego River Downstream	5/28/2008							5,000	800	700	0.84	1.9	2.8	0.16	0.16	1510
San Diego River Upstream	5/28/2008							500	40	nd	nd	1.5	1.5	0.18	0.19	1130
Sycamore Creek Downstream	5/29/2008							5,000	800	5,000	0.13	2.2	2.4	0.11	0.11	941
2008 Round 2																
Forester Creek Downstream	9/9/2008							13,000	300	2,300	0.99	2.1	3.1	0.32	0.33	1690
Forester Creek Upstream	9/4/2008							17,000	3,000	70	3.72	2.2	5.9	0.32	0.36	1650
San Diego River Downstream	9/4/2008							13,000	700	500	0.42	2.5	3.0	0.25	0.30	1790
San Diego River Upstream	9/4/2008							300	nd	20	nd	2.9	2.9	0.08	0.08	1180
Sycamore Creek Downstream	9/9/2008							130,000	80	130,000	nd	7.6	7.6	0.36	0.42	1700

**Notes:**

nd = not detected

ns = not sampled

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## **Appendix B**

### **Photographs of Sampling Locations**

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**Forester Creek  
Downstream**



**Forester Creek  
Upstream**



**San Diego River  
Downstream**



**San Diego River  
Upstream**



**Sycamore Creek  
Downstream**



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## **Appendix C**

# **Laboratory Analytical Reports**

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## **Round One**

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29 May 2009

D-Max Engineering  
Attn: Arsalan Dadkhah  
7220 Trade Street, Suite 119  
San Diego, California 92121

**EMA Log #: 0905522**

**Project Name: Santee Dry Weather**  
**Project Desc./#:200919 W-3 Round One**

Enclosed are the results of analyses for samples received by the laboratory on 05/19/09 13:15. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

A handwritten signature in black ink, appearing to read 'Dan Verdon', is written over a faint, circular embossed seal or watermark.

**Dan Verdon**  
**Laboratory Director**

CA ELAP Certification #: 2564

Client Name: D-Max Engineering  
Project Name: Santee Dry Weather

EMA Log #: 0905522

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
San Diego R. Upstream	0905522-01	Water	05/19/09 09:30	05/19/09 13:15
Forester Cr. Upstream	0905522-02	Water	05/19/09 10:40	05/19/09 13:15
Forester Cr. Downstream	0905522-03	Water	05/19/09 11:45	05/19/09 13:15
San Diego R. Downstream	0905522-04	Water	05/19/09 12:30	05/19/09 13:15

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

Client Name: D-Max Engineering  
 Project Name: Santee Dry Weather

EMA Log #: 0905522

**Conventional Chemistry Parameters by Standard/EPA Methods**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>San Diego R. Upstream (0905522-01) Water    Sampled: 05/19/09 09:30    Received: 05/19/09 13:15</b>									
Nitrate/Nitrite as N	ND	0.05	mg/l	1	9052222	05/22/09	05/22/09	SM4500 NO3 E	
<b>Total Kjeldahl Nitrogen</b>	<b>2.5</b>	0.5	"	"	9052019	05/21/09	05/21/09	SM4500 N C	
<b>Total Nitrogen</b>	<b>2.5</b>	0.5	"	"	9052920	05/22/09	05/22/09	Calculation	
<b>Orthophosphate as P</b>	<b>0.13</b>	0.05	"	"	9052111	05/21/09	05/21/09	SM4500 P E	
<b>Phosphorus, Total</b>	<b>0.32</b>	0.05	"	"	9052739	05/27/09	05/27/09	SM4500 P B, E	
<b>Total Dissolved Solids</b>	<b>1230</b>	20.0	"	"	9052218	05/22/09	05/23/09	SM2540 C	
<b>Forester Cr. Upstream (0905522-02) Water    Sampled: 05/19/09 10:40    Received: 05/19/09 13:15</b>									
Nitrate/Nitrite as N	4.93	0.50	mg/l	10	9052222	05/22/09	05/22/09	SM4500 NO3 E	
<b>Total Kjeldahl Nitrogen</b>	<b>1.1</b>	0.5	"	1	9052019	05/21/09	05/21/09	SM4500 N C	
<b>Total Nitrogen</b>	<b>6.0</b>	0.5	"	"	9052920	05/22/09	05/22/09	Calculation	
<b>Orthophosphate as P</b>	<b>0.33</b>	0.05	"	"	9052111	05/21/09	05/21/09	SM4500 P E	
<b>Phosphorus, Total</b>	<b>0.34</b>	0.05	"	"	9052739	05/27/09	05/27/09	SM4500 P B, E	
<b>Total Dissolved Solids</b>	<b>1830</b>	20.0	"	"	9052218	05/22/09	05/23/09	SM2540 C	
<b>Forester Cr. Downstream (0905522-03) Water    Sampled: 05/19/09 11:45    Received: 05/19/09 13:15</b>									
Nitrate/Nitrite as N	0.65	0.25	mg/l	5	9052222	05/22/09	05/22/09	SM4500 NO3 E	
<b>Total Kjeldahl Nitrogen</b>	<b>0.8</b>	0.5	"	1	9052019	05/21/09	05/21/09	SM4500 N C	
<b>Total Nitrogen</b>	<b>1.4</b>	0.5	"	"	9052920	05/22/09	05/22/09	Calculation	
<b>Orthophosphate as P</b>	<b>0.66</b>	0.05	"	"	9052111	05/21/09	05/21/09	SM4500 P E	
<b>Phosphorus, Total</b>	<b>0.67</b>	0.05	"	"	9052739	05/27/09	05/27/09	SM4500 P B, E	
<b>Total Dissolved Solids</b>	<b>1560</b>	20.0	"	"	9052630	05/26/09	05/27/09	SM2540 C	
<b>San Diego R. Downstream (0905522-04) Water    Sampled: 05/19/09 12:30    Received: 05/19/09 13:15</b>									
Nitrate/Nitrite as N	1.93	0.50	mg/l	10	9052222	05/22/09	05/22/09	SM4500 NO3 E	
<b>Total Kjeldahl Nitrogen</b>	<b>0.8</b>	0.5	"	1	9052019	05/21/09	05/21/09	SM4500 N C	
<b>Total Nitrogen</b>	<b>2.7</b>	0.5	"	"	9052920	05/22/09	05/22/09	Calculation	
<b>Orthophosphate as P</b>	<b>0.09</b>	0.05	"	"	9052111	05/21/09	05/21/09	SM4500 P E	
<b>Phosphorus, Total</b>	<b>0.10</b>	0.05	"	"	9052739	05/27/09	05/27/09	SM4500 P B, E	
<b>Total Dissolved Solids</b>	<b>1680</b>	20.0	"	"	9052630	05/26/09	05/27/09	SM2540 C	

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

Client Name: D-Max Engineering  
 Project Name: Santee Dry Weather

EMA Log #: 0905522

### Microbiological Parameters by Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>San Diego R. Upstream (0905522-01) Water</b> <b>Sampled: 05/19/09 09:30</b> <b>Received: 05/19/09 13:15</b>									
<b>Total Coliforms</b>	<b>1300</b>	20	MPN/100 ml	10	9052507	05/19/09	05/23/09	SM 9221 B, E	
Fecal Coliforms	ND	20	"	"	"	"	05/22/09	"	
Enterococcus	20	20	"	"	9052508	"	05/23/09	SM 9230 A, B	
<b>Forester Cr. Upstream (0905522-02) Water</b> <b>Sampled: 05/19/09 10:40</b> <b>Received: 05/19/09 13:15</b>									
<b>Total Coliforms</b>	<b>3500</b>	20	MPN/100 ml	10	9052507	05/19/09	05/23/09	SM 9221 B, E	
Fecal Coliforms	1700	20	"	"	"	"	05/22/09	"	
Enterococcus	800	20	"	"	9052508	"	05/23/09	SM 9230 A, B	
<b>Forester Cr. Downstream (0905522-03) Water</b> <b>Sampled: 05/19/09 11:45</b> <b>Received: 05/19/09 13:15</b>									
<b>Total Coliforms</b>	<b>2800</b>	20	MPN/100 ml	10	9052507	05/19/09	05/23/09	SM 9221 B, E	
Fecal Coliforms	170	20	"	"	"	"	05/22/09	"	
Enterococcus	500	20	"	"	9052508	"	05/23/09	SM 9230 A, B	
<b>San Diego R. Downstream (0905522-04) Water</b> <b>Sampled: 05/19/09 12:30</b> <b>Received: 05/19/09 13:15</b>									
<b>Total Coliforms</b>	<b>30000</b>	2000	MPN/100 ml	1000	9052507	05/19/09	05/23/09	SM 9221 B, E	
Fecal Coliforms	300	20	"	10	"	"	05/22/09	"	
Enterococcus	130	20	"	"	9052508	"	05/23/09	SM 9230 A, B	

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



Client Name: D-Max Engineering  
 Project Name: Santee Dry Weather

EMA Log #: 0905522

### Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9052019**

**Blank (9052019-BLK1)** Prepared & Analyzed: 05/20/09

Total Kjeldahl Nitrogen	ND	0.5	mg/l							
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**LCS (9052019-BS1)** Prepared & Analyzed: 05/20/09

Total Kjeldahl Nitrogen	4.6	0.5	mg/l	4.10		113	80-120			
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**LCS Dup (9052019-BSD1)** Prepared & Analyzed: 05/20/09

Total Kjeldahl Nitrogen	4.7	0.5	mg/l	4.10		115	80-120	2	20	
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**Duplicate (9052019-DUP1)** Source: 0905469-01 Prepared & Analyzed: 05/20/09

Total Kjeldahl Nitrogen	1.4	0.5	mg/l		1.7			15	20	
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**Matrix Spike (9052019-MS1)** Source: 0905469-01 Prepared & Analyzed: 05/20/09

Total Kjeldahl Nitrogen	6.6	0.5	mg/l	4.10	1.7	119	80-120			
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**Matrix Spike Dup (9052019-MSD1)** Source: 0905469-01 Prepared & Analyzed: 05/20/09

Total Kjeldahl Nitrogen	5.5	0.5	mg/l	4.10	1.7	93	80-120	17	20	
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**Batch 9052111**

**Blank (9052111-BLK1)** Prepared & Analyzed: 05/21/09

Orthophosphate as P	ND	0.05	mg/l							
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**LCS (9052111-BS1)** Prepared & Analyzed: 05/21/09

Orthophosphate as P	0.50	0.05	mg/l	0.500		101	80-120			
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**LCS Dup (9052111-BSD1)** Prepared & Analyzed: 05/21/09

Orthophosphate as P	0.56	0.05	mg/l	0.500		113	80-120	11	20	
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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: D-Max Engineering  
 Project Name: Santee Dry Weather

EMA Log #: 0905522

**Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9052111**

<b>Duplicate (9052111-DUP1)</b>		<b>Source: 0905522-01</b>		Prepared & Analyzed: 05/21/09						
Orthophosphate as P	0.14	0.05	mg/l		0.13			7	20	
<b>Duplicate (9052111-DUP2)</b>		<b>Source: 0905443-04</b>		Prepared & Analyzed: 05/21/09						
Orthophosphate as P	5.05	0.25	mg/l		5.18			3	20	
<b>Duplicate (9052111-DUP3)</b>		<b>Source: 0905443-04</b>		Prepared & Analyzed: 05/21/09						
Orthophosphate as P	5.18	0.25	mg/l		5.18			0.2	20	
<b>Matrix Spike (9052111-MS1)</b>		<b>Source: 0905522-01</b>		Prepared & Analyzed: 05/21/09						
Orthophosphate as P	0.55	0.05	mg/l	0.500	0.13	85	80-120			
<b>Matrix Spike Dup (9052111-MSD1)</b>		<b>Source: 0905522-01</b>		Prepared & Analyzed: 05/21/09						
Orthophosphate as P	0.55	0.05	mg/l	0.500	0.13	84	80-120	0.9	20	

**Batch 9052218**

<b>Blank (9052218-BLK1)</b>				Prepared: 05/22/09 Analyzed: 05/23/09						
Total Dissolved Solids	ND	20.0	mg/l							
<b>Duplicate (9052218-DUP1)</b>		<b>Source: 0905469-01</b>		Prepared: 05/22/09 Analyzed: 05/23/09						
Total Dissolved Solids	1100	20.0	mg/l		1100			0.5	20	
<b>Reference (9052218-SRM1)</b>				Prepared: 05/22/09 Analyzed: 05/23/09						
Total Dissolved Solids	172	20.0	mg/l	178		97	7.08-112.9			

**Batch 9052222**

<b>Blank (9052222-BLK1)</b>				Prepared & Analyzed: 05/22/09						
Nitrate/Nitrite as N	ND	0.05	mg/l							

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

Client Name: D-Max Engineering  
 Project Name: Santee Dry Weather

EMA Log #: 0905522

**Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 9052222</b>										
<b>LCS (9052222-BS1)</b>				Prepared & Analyzed: 05/22/09						
Nitrate/Nitrite as N	0.51	0.05	mg/l	0.500		101	80-120			
<b>LCS Dup (9052222-BSD1)</b>				Prepared & Analyzed: 05/22/09						
Nitrate/Nitrite as N	0.52	0.05	mg/l	0.500		105	80-120	3	20	
<b>Duplicate (9052222-DUP1)</b>		<b>Source: 0905543-01</b>		Prepared & Analyzed: 05/22/09						
Nitrate/Nitrite as N	ND	0.05	mg/l		ND				20	
<b>Matrix Spike (9052222-MS1)</b>		<b>Source: 0905543-01</b>		Prepared & Analyzed: 05/22/09						
Nitrate/Nitrite as N	0.45	0.05	mg/l	0.500	ND	89	80-120			
<b>Matrix Spike Dup (9052222-MSD1)</b>		<b>Source: 0905543-01</b>		Prepared & Analyzed: 05/22/09						
Nitrate/Nitrite as N	0.47	0.05	mg/l	0.500	ND	94	80-120	5	20	
<b>Reference (9052222-SRM1)</b>				Prepared & Analyzed: 05/22/09						
Nitrate/Nitrite as N	0.69	0.05	mg/l	0.688		100	8.81-109.0			
<b>Batch 9052630</b>										
<b>Blank (9052630-BLK1)</b>				Prepared: 05/26/09 Analyzed: 05/27/09						
Total Dissolved Solids	ND	20.0	mg/l							
<b>Duplicate (9052630-DUP1)</b>		<b>Source: 0905522-03</b>		Prepared: 05/26/09 Analyzed: 05/27/09						
Total Dissolved Solids	1540	20.0	mg/l		1560			1	20	
<b>Reference (9052630-SRM1)</b>				Prepared: 05/26/09 Analyzed: 05/27/09						
Total Dissolved Solids	164	20.0	mg/l	178		92	7.08-112.9			

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

Client Name: D-Max Engineering  
 Project Name: Santee Dry Weather

EMA Log #: 0905522

**Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 9052739</b>										
<b>Blank (9052739-BLK1)</b>				Prepared & Analyzed: 05/27/09						
Phosphorus, Total	ND	0.05	mg/l							
<b>LCS (9052739-BS1)</b>				Prepared & Analyzed: 05/27/09						
Phosphorus, Total	0.56	0.05	mg/l	0.500		111	80-120			
<b>LCS Dup (9052739-BSD1)</b>				Prepared & Analyzed: 05/27/09						
Phosphorus, Total	0.58	0.05	mg/l	0.500		117	80-120	5	20	
<b>Duplicate (9052739-DUP1)</b>				Source: 0905421-01			Prepared & Analyzed: 05/27/09			
Phosphorus, Total	0.16	0.05	mg/l		0.14			12	20	
<b>Matrix Spike (9052739-MS1)</b>				Source: 0905421-01			Prepared & Analyzed: 05/27/09			
Phosphorus, Total	0.59	0.05	mg/l	0.500	0.14	90	80-120			
<b>Matrix Spike Dup (9052739-MSD1)</b>				Source: 0905421-01			Prepared & Analyzed: 05/27/09			
Phosphorus, Total	0.59	0.05	mg/l	0.500	0.14	90	80-120	0.5	20	
<b>Batch 9052920</b>										
<b>Duplicate (9052920-DUP1)</b>				Source: 0905469-01			Prepared & Analyzed: 05/20/09			
Total Nitrogen	5.1	0.5	mg/l		5.5			8	20	

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

Client Name: D-Max Engineering  
Project Name: Santee Dry Weather

EMA Log #: 0905522

### Notes and Definitions

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

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

EnviroMatrix  Analytical, Inc.





01 June 2009

D-Max Engineering  
Attn: Arsalan Dadkhah  
7220 Trade Street, Suite 119  
San Diego, California 92121

**EMA Log #: 0905569**

**Project Name: Santee Dry Weather**  
**Project Desc./#:200919W-3**

Enclosed are the results of analyses for samples received by the laboratory on 05/20/09 14:52. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

A handwritten signature in black ink, appearing to read 'Dan Verdon', is written over a light gray rectangular background.

**Dan Verdon**  
**Laboratory Director**

CA ELAP Certification #: 2564

Client Name: D-Max Engineering  
Project Name: Santee Dry Weather

EMA Log #: 0905569

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Sycamore Cr. Downstream	0905569-01	Water	05/20/09 10:50	05/20/09 14:52

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

Client Name: D-Max Engineering  
Project Name: Santee Dry Weather

EMA Log #: 0905569

### Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Sycamore Cr. Downstream (0905569-01) Water    Sampled: 05/20/09 10:50    Received: 05/20/09 14:52</b>									
Nitrate/Nitrite as N	0.23	0.05	mg/l	1	9052222	05/22/09	05/22/09	SM4500 NO3 E	
Total Kjeldahl Nitrogen	3.9	0.5	"	"	9052649	05/26/09	05/26/09	SM4500 N C	
Total Nitrogen	4.1	0.5	"	"	9052920	05/26/09	05/26/09	Calculation	
Orthophosphate as P	0.19	0.05	"	"	9052111	05/21/09	05/21/09	SM4500 P E	
Phosphorus, Total	0.28	0.05	"	"	9052739	05/27/09	05/27/09	SM4500 P B, E	
Total Dissolved Solids	767	20.0	"	"	9052752	05/27/09	05/28/09	SM2540 C	

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



Client Name: D-Max Engineering  
Project Name: Santee Dry Weather

EMA Log #: 0905569

### Microbiological Parameters by Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Sycamore Cr. Downstream (0905569-01) Water    Sampled: 05/20/09 10:50    Received: 05/20/09 14:52</b>									
<b>Total Coliforms</b>	<b>11000</b>	200	MPN/100 ml	100	9052612	05/20/09	05/24/09	SM 9221 B, E	
<b>Fecal Coliforms</b>	<b>500</b>	20	"	10	"	"	05/23/09	"	
<b>Enterococcus</b>	<b>1400</b>	20	"	"	9052613	"	05/24/09	SM 9230 A, B	

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



Client Name: D-Max Engineering  
 Project Name: Santee Dry Weather

EMA Log #: 0905569

**Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 9052111</b>										
<b>Blank (9052111-BLK1)</b>				Prepared & Analyzed: 05/21/09						
Orthophosphate as P	ND	0.05	mg/l							
<b>LCS (9052111-BS1)</b>				Prepared & Analyzed: 05/21/09						
Orthophosphate as P	0.50	0.05	mg/l	0.500		101	80-120			
<b>LCS Dup (9052111-BSD1)</b>				Prepared & Analyzed: 05/21/09						
Orthophosphate as P	0.56	0.05	mg/l	0.500		113	80-120	11	20	
<b>Duplicate (9052111-DUP1)</b>				Source: 0905522-01		Prepared & Analyzed: 05/21/09				
Orthophosphate as P	0.14	0.05	mg/l		0.13			7	20	
<b>Duplicate (9052111-DUP2)</b>				Source: 0905443-04		Prepared & Analyzed: 05/21/09				
Orthophosphate as P	5.05	0.25	mg/l		5.18			3	20	
<b>Duplicate (9052111-DUP3)</b>				Source: 0905443-04		Prepared & Analyzed: 05/21/09				
Orthophosphate as P	5.18	0.25	mg/l		5.18			0.2	20	
<b>Matrix Spike (9052111-MS1)</b>				Source: 0905522-01		Prepared & Analyzed: 05/21/09				
Orthophosphate as P	0.55	0.05	mg/l	0.500	0.13	85	80-120			
<b>Matrix Spike Dup (9052111-MSD1)</b>				Source: 0905522-01		Prepared & Analyzed: 05/21/09				
Orthophosphate as P	0.55	0.05	mg/l	0.500	0.13	84	80-120	0.9	20	
<b>Batch 9052222</b>										
<b>Blank (9052222-BLK1)</b>				Prepared & Analyzed: 05/22/09						
Nitrate/Nitrite as N	ND	0.05	mg/l							

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

Client Name: D-Max Engineering  
 Project Name: Santee Dry Weather

EMA Log #: 0905569

### Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9052222**

**LCS (9052222-BS1)** Prepared & Analyzed: 05/22/09

Nitrate/Nitrite as N	0.51	0.05	mg/l	0.500		101	80-120			
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**LCS Dup (9052222-BSD1)** Prepared & Analyzed: 05/22/09

Nitrate/Nitrite as N	0.52	0.05	mg/l	0.500		105	80-120	3	20	
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**Duplicate (9052222-DUP1)** Source: 0905543-01 Prepared & Analyzed: 05/22/09

Nitrate/Nitrite as N	ND	0.05	mg/l		ND				20	
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**Matrix Spike (9052222-MS1)** Source: 0905543-01 Prepared & Analyzed: 05/22/09

Nitrate/Nitrite as N	0.45	0.05	mg/l	0.500	ND	89	80-120			
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**Matrix Spike Dup (9052222-MSD1)** Source: 0905543-01 Prepared & Analyzed: 05/22/09

Nitrate/Nitrite as N	0.47	0.05	mg/l	0.500	ND	94	80-120	5	20	
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**Reference (9052222-SRM1)** Prepared & Analyzed: 05/22/09

Nitrate/Nitrite as N	0.69	0.05	mg/l	0.688		100	8.81-109.0			
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**Batch 9052649**

**Blank (9052649-BLK1)** Prepared & Analyzed: 05/26/09

Total Kjeldahl Nitrogen	ND	0.5	mg/l							
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**LCS (9052649-BS1)** Prepared & Analyzed: 05/26/09

Total Kjeldahl Nitrogen	3.9	0.5	mg/l	4.10		96	80-120			
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**LCS Dup (9052649-BSD1)** Prepared & Analyzed: 05/26/09

Total Kjeldahl Nitrogen	4.2	0.5	mg/l	4.10		102	80-120	6	20	
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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: D-Max Engineering  
 Project Name: Santee Dry Weather

EMA Log #: 0905569

### Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9052649**

<b>Duplicate (9052649-DUP1)</b>		<b>Source: 0905568-01</b>		<b>Prepared &amp; Analyzed: 05/26/09</b>						
Total Kjeldahl Nitrogen	3.5	0.5	mg/l	4.0				13	20	
<b>Matrix Spike (9052649-MS1)</b>		<b>Source: 0905568-01</b>		<b>Prepared &amp; Analyzed: 05/26/09</b>						
Total Kjeldahl Nitrogen	11.6	1.0	mg/l	8.20	4.0	93	80-120			
<b>Matrix Spike Dup (9052649-MSD1)</b>		<b>Source: 0905568-01</b>		<b>Prepared &amp; Analyzed: 05/26/09</b>						
Total Kjeldahl Nitrogen	13.4	1.0	mg/l	8.20	4.0	115	80-120	15	20	

**Batch 9052739**

<b>Blank (9052739-BLK1)</b>				<b>Prepared &amp; Analyzed: 05/27/09</b>						
Phosphorus, Total	ND	0.05	mg/l							
<b>LCS (9052739-BS1)</b>				<b>Prepared &amp; Analyzed: 05/27/09</b>						
Phosphorus, Total	0.56	0.05	mg/l	0.500		111	80-120			
<b>LCS Dup (9052739-BSD1)</b>				<b>Prepared &amp; Analyzed: 05/27/09</b>						
Phosphorus, Total	0.58	0.05	mg/l	0.500		117	80-120	5	20	
<b>Duplicate (9052739-DUP1)</b>		<b>Source: 0905421-01</b>		<b>Prepared &amp; Analyzed: 05/27/09</b>						
Phosphorus, Total	0.16	0.05	mg/l	0.14				12	20	
<b>Matrix Spike (9052739-MS1)</b>		<b>Source: 0905421-01</b>		<b>Prepared &amp; Analyzed: 05/27/09</b>						
Phosphorus, Total	0.59	0.05	mg/l	0.500	0.14	90	80-120			
<b>Matrix Spike Dup (9052739-MSD1)</b>		<b>Source: 0905421-01</b>		<b>Prepared &amp; Analyzed: 05/27/09</b>						
Phosphorus, Total	0.59	0.05	mg/l	0.500	0.14	90	80-120	0.5	20	

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

Client Name: D-Max Engineering  
 Project Name: Santee Dry Weather

EMA Log #: 0905569

**Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9052752**

**Blank (9052752-BLK1)**

Prepared: 05/26/09 Analyzed: 05/27/09

Total Dissolved Solids ND 20.0 mg/l

**Duplicate (9052752-DUP1)**

Source: 0905568-01

Prepared: 05/26/09 Analyzed: 05/27/09

Total Dissolved Solids 957 20.0 mg/l 985 3 20

**Reference (9052752-SRM1)**

Prepared: 05/26/09 Analyzed: 05/27/09

Total Dissolved Solids 192 20.0 mg/l 178 108 7.08-112.9

**Batch 9052920**

**Duplicate (9052920-DUP1)**

Source: 0905469-01

Prepared & Analyzed: 05/20/09

Total Nitrogen 5.1 0.5 mg/l 5.5 8 20

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

Client Name: D-Max Engineering  
Project Name: Santee Dry Weather

EMA Log #: 0905569

### Notes and Definitions

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

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EnviroMatrix  Analytical, Inc.



**EnviroMatrix Analytical, Inc.**

**CHAIN-OF-CUSTODY RECORD**

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

**EMALOG #:** 0705569

**Client:** D-Max Engineering, Inc.

**Attn:** Arsalan Dadkhah

**Samplers(s):** Manouchehr Annika

**Address:** 7220 Trade Street, Suite 119  
San Diego, CA 92121

**Phone:** (858) 586-6600 **Fax:** (858) 586-6644

**Email:**

**Billing Address:** Same

**Project ID:** Santee Dry Weather Round One

**Project #:** 200919 W-3 **PO #:**

ID #	Client Sample ID	Sample Date	Sample Time	Sample Matrix	Container # / Type
1	Sy Camene Cr. Downstrm	5/29/09	10:50 AM	water	4/01/6
2					
3					
4					
5					
6					
7					
8					
9					
10					

**Matrix Codes:** A = Air, DW = Drinking Water, GW = Groundwater, SW = Storm Water  
 WW = Wastewater, S = Soil, SED = Sediment, SD = Solid, T = Tissue, O = Oil, L = Liquid

**Shipped By:**  Courier  UPS  FedEx  USPS  Client Drop Off  Other

**Turn-Around-Time:**  Same Day  24 hr  48 hr  3 day  4 day  5 day  7 day  10 day  14 day  21 day

**Reporting Requirements:**  Fax  PDF  Excel  Geotracker/EDF  Hard Copy  EDT

**Sample Disposal:**  By Laboratory  Return to Client: P/U or Delivery  Archive

**Sample Integrity**

Containers Properly Preserved: Yes No N/A  
 Temp @ Receipt: \_\_\_\_\_  
 Sampled By: Client EMA Autosampler

Requested Analysis		RELINQUISHED BY	DATE/TIME	RECEIVED BY
<input type="checkbox"/> Oil & Grease <input type="checkbox"/> 413.1 <input type="checkbox"/> 413.2 <input type="checkbox"/> 1664		Signature: <i>Manouchehr Dadkhah</i>	5/20/09	Signature: <i>Kelley Layden</i>
<input type="checkbox"/> 8015B (TPH) <input type="checkbox"/> Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Ext		Print: <i>Manouchehr Dadkhah</i>	13:33	Print: <i>Kelley Layden</i>
<input type="checkbox"/> 624/8260 (VOC) Full BTXE MTBE Oxy Nap		Company: <i>D-Max Eng.</i>		Company: <i>EMA</i>
<input type="checkbox"/> 625 / 8270 (SVOC) <input type="checkbox"/> PAH only		Signature: <i>Kelley Layden</i>	5/20/09	Signature: <i>Sam Flores</i>
<input type="checkbox"/> 608 / 8081 (Organochlorine Pesticides)		Print: <i>Kelley Layden</i>	14:52	Company: <i>FMA Inc.</i>
<input type="checkbox"/> 608 / 8082 (Polychlorinated Biphenyls)		Company: <i>EMA</i>		Signature: _____
<input type="checkbox"/> 8141 (Organophosphorus Pesticides)		Signature: _____		Print: _____
<input type="checkbox"/> TBT (Organotin Compounds)		Print: _____		Company: _____
<input type="checkbox"/> pH <input type="checkbox"/> EC <input type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS	<input checked="" type="checkbox"/>			
<input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> TKN <input type="checkbox"/> NH3				
<input type="checkbox"/> CAC Title 22/CAM17 Metals <input type="checkbox"/> TLC <input type="checkbox"/> STLC				
<input type="checkbox"/> TCLP (RCRA) <input type="checkbox"/> Metals <input type="checkbox"/> Organics				
<input type="checkbox"/> Cd <input type="checkbox"/> Cr <input type="checkbox"/> Cu <input type="checkbox"/> Pb <input type="checkbox"/> Ni <input type="checkbox"/> Ag <input type="checkbox"/> Zn <input type="checkbox"/> Dissolved				
<input type="checkbox"/> Coliform, <input checked="" type="checkbox"/> Total (MTF) <input checked="" type="checkbox"/> Fecal (MTF)	<input checked="" type="checkbox"/>			
<input type="checkbox"/> Coliher, T+E, Coli <input type="checkbox"/> P/A <input type="checkbox"/> Enumeration				
<input type="checkbox"/> Enterococcus, <input checked="" type="checkbox"/> MTF <input type="checkbox"/> Enterolert	<input checked="" type="checkbox"/>			
<input type="checkbox"/> Heterotrophic Plate Count (HPC)				
<input type="checkbox"/> Total Phosphorus	<input checked="" type="checkbox"/>			
<input type="checkbox"/> Total N, Nitrogen	<input checked="" type="checkbox"/>			
<input type="checkbox"/> Orthophosphate Phosphorus	<input checked="" type="checkbox"/>			

**Project/Sample Comments:**

White-EMA      Canary - Accounting      Pink - Client (w/report)      Gold - Client (Relinquish)

\*Additional costs may apply, consult a project manager for details.  
 \*\*EMA reserves the right to return any samples that do not match our waste profile.  
 NOTE: By relinquishing samples to EMA, Inc., client agrees to pay for the services requested on this COC form and any additional analyses performed on this project. Payment for services is due within 30 days from date of invoice. Samples will be disposed of after 30 days unless otherwise noted. All work is subject to EMA's terms and conditions.

T-6 on Tex

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## **Round Two**

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11 September 2009

D-Max Engineering  
Attn: Arsalan Dadkhah  
7220 Trade Street, Suite 119  
San Diego, California 92121

**EMA Log #: 0909056**

**Project Name: Santee Recieving Water Bodies Round 2 200919W-3**

Enclosed are the results of analyses for samples received by the laboratory on 09/02/09 13:52. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

A handwritten signature in black ink, appearing to read 'Dan Verdon', is written over a light gray grid background.

**Dan Verdon**  
**Laboratory Director**

CA ELAP Certification #: 2564

Client Name: D-Max Engineering  
Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909056

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
San Diego River Upstream	0909056-01	Stormwater	09/02/09 10:30	09/02/09 13:52
Forester Creek Upstream	0909056-02	Stormwater	09/02/09 11:30	09/02/09 13:52
Forester Creek Downstream	0909056-03	Stormwater	09/02/09 12:20	09/02/09 13:52
San Diego River Downstream	0909056-04	Stormwater	09/02/09 13:10	09/02/09 13:52

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



Client Name: D-Max Engineering  
 Project Name: Santee Receiving Water Bodies Round 2 200919W-3

EMA Log #: 0909056

**Conventional Chemistry Parameters by Standard/EPA Methods**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>San Diego River Upstream (0909056-01) Stormwater    Sampled: 09/02/09 10:30    Received: 09/02/09 13:52</b>									
Nitrate/Nitrite as N	0.43	0.05	mg/l	1	9090204	09/03/09	09/03/09	SM4500 NO3 E	
Total Kjeldahl Nitrogen	0.8	0.5	"	"	9091002	09/10/09	09/10/09	SM4500 N C	
Total Nitrogen	1.2	0.5	"	"	9091048	09/10/09	09/10/09	Calculation	
Orthophosphate as P	ND	0.05	"	"	9090341	09/03/09	09/03/09	SM4500 P E	
Phosphorus, Total	0.20	0.05	"	"	9090340	09/03/09	09/03/09	SM4500 P B, E	
Total Dissolved Solids	1240	20.0	"	"	9090329	09/03/09	09/04/09	SM2540 C	
<b>Forester Creek Upstream (0909056-02) Stormwater    Sampled: 09/02/09 11:30    Received: 09/02/09 13:52</b>									
Nitrate/Nitrite as N	3.36	0.25	mg/l	5	9090204	09/03/09	09/03/09	SM4500 NO3 E	
Total Kjeldahl Nitrogen	0.6	0.5	"	1	9091002	09/10/09	09/10/09	SM4500 N C	
Total Nitrogen	4.0	0.5	"	"	9091048	09/10/09	09/10/09	Calculation	
Orthophosphate as P	0.05	0.05	"	"	9090341	09/03/09	09/03/09	SM4500 P E	
Phosphorus, Total	0.28	0.05	"	"	9090340	09/03/09	09/03/09	SM4500 P B, E	
Total Dissolved Solids	1850	20.0	"	"	9090329	09/03/09	09/04/09	SM2540 C	
<b>Forester Creek Downstream (0909056-03) Stormwater    Sampled: 09/02/09 12:20    Received: 09/02/09 13:52</b>									
Nitrate/Nitrite as N	1.32	0.10	mg/l	2	9090204	09/03/09	09/03/09	SM4500 NO3 E	
Total Kjeldahl Nitrogen	ND	0.5	"	1	9091002	09/10/09	09/10/09	SM4500 N C	
Total Nitrogen	1.6	0.5	"	"	9091048	09/10/09	09/10/09	Calculation	
Orthophosphate as P	0.12	0.05	"	"	9090341	09/03/09	09/03/09	SM4500 P E	
Phosphorus, Total	0.25	0.05	"	"	9090340	09/03/09	09/03/09	SM4500 P B, E	
Total Dissolved Solids	1900	20.0	"	"	9090329	09/03/09	09/04/09	SM2540 C	
<b>San Diego River Downstream (0909056-04) Stormwater    Sampled: 09/02/09 13:10    Received: 09/02/09 13:52</b>									
Nitrate/Nitrite as N	0.44	0.05	mg/l	1	9090204	09/03/09	09/03/09	SM4500 NO3 E	
Total Kjeldahl Nitrogen	0.6	0.5	"	"	9091002	09/10/09	09/10/09	SM4500 N C	
Total Nitrogen	1.0	0.5	"	"	9091048	09/10/09	09/10/09	Calculation	
Orthophosphate as P	0.12	0.05	"	"	9090341	09/03/09	09/03/09	SM4500 P E	
Phosphorus, Total	0.14	0.05	"	"	9090340	09/03/09	09/03/09	SM4500 P B, E	
Total Dissolved Solids	1920	20.0	"	"	9090329	09/03/09	09/04/09	SM2540 C	

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

Client Name: D-Max Engineering  
 Project Name: Santee Receiving Water Bodies Round 2 200919W-3

EMA Log #: 0909056

### Microbiological Parameters by Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>San Diego River Upstream (0909056-01) Stormwater</b> <b>Sampled: 09/02/09 10:30</b> <b>Received: 09/02/09 13:52</b>									
Total Coliforms	600	20	MPN/100 ml	10	9090318	09/02/09	09/06/09	SM 9221 B, E	
Fecal Coliforms	40	20	"	"	"	"	09/05/09	"	
Enterococcus	20	20	"	"	9090319	"	09/06/09	SM 9230 A, B	
<b>Forester Creek Upstream (0909056-02) Stormwater</b> <b>Sampled: 09/02/09 11:30</b> <b>Received: 09/02/09 13:52</b>									
Total Coliforms	2300	200	MPN/100 ml	100	9090318	09/02/09	09/06/09	SM 9221 B, E	
Fecal Coliforms	300	20	"	10	"	"	09/05/09	"	
Enterococcus	40	20	"	"	9090319	"	09/06/09	SM 9230 A, B	
<b>Forester Creek Downstream (0909056-03) Stormwater</b> <b>Sampled: 09/02/09 12:20</b> <b>Received: 09/02/09 13:52</b>									
Total Coliforms	11000	200	MPN/100 ml	100	9090318	09/02/09	09/06/09	SM 9221 B, E	
Fecal Coliforms	1300	20	"	10	"	"	09/05/09	"	
Enterococcus	500	20	"	"	9090319	"	09/06/09	SM 9230 A, B	
<b>San Diego River Downstream (0909056-04) Stormwater</b> <b>Sampled: 09/02/09 13:10</b> <b>Received: 09/02/09 13:52</b>									
Total Coliforms	2300	200	MPN/100 ml	100	9090318	09/02/09	09/06/09	SM 9221 B, E	
Fecal Coliforms	40	20	"	10	"	"	09/05/09	"	
Enterococcus	80	20	"	"	9090319	"	09/06/09	SM 9230 A, B	

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



Client Name: D-Max Engineering  
 Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909056

### Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 9090204</b>										
<b>Blank (9090204-BLK1)</b>				Prepared & Analyzed: 09/02/09						
Nitrate/Nitrite as N	ND	0.05	mg/l							
<b>LCS (9090204-BS1)</b>				Prepared & Analyzed: 09/02/09						
Nitrate/Nitrite as N	0.51	0.05	mg/l	0.500		102	80-120			
<b>LCS Dup (9090204-BSD1)</b>				Prepared & Analyzed: 09/02/09						
Nitrate/Nitrite as N	0.53	0.05	mg/l	0.500		105	80-120	3	20	
<b>Duplicate (9090204-DUP1)</b>				Source: 0908793-01		Prepared & Analyzed: 09/02/09				
Nitrate/Nitrite as N	1.71	0.50	mg/l		1.56			9	20	
<b>Duplicate (9090204-DUP2)</b>				Source: 0908762-01		Prepared & Analyzed: 09/02/09				
Nitrate/Nitrite as N	1.48	0.50	mg/l		1.46			0.7	20	
<b>Matrix Spike (9090204-MS1)</b>				Source: 0908793-01		Prepared & Analyzed: 09/02/09				
Nitrate/Nitrite as N	6.62	0.50	mg/l	5.00	1.56	101	80-120			
<b>Matrix Spike Dup (9090204-MSD1)</b>				Source: 0908793-01		Prepared & Analyzed: 09/02/09				
Nitrate/Nitrite as N	7.05	0.50	mg/l	5.00	1.56	110	80-120	6	20	
<b>Reference (9090204-SRM1)</b>				Prepared & Analyzed: 09/02/09						
Nitrate/Nitrite as N	0.47	0.05	mg/l	0.442		106	4.16-115.1			
<b>Batch 9090329</b>										
<b>Blank (9090329-BLK1)</b>				Prepared: 09/03/09 Analyzed: 09/04/09						
Total Dissolved Solids	ND	20.0	mg/l							

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

Client Name: D-Max Engineering  
 Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909056

### Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9090329**

<b>Duplicate (9090329-DUP1)</b>		<b>Source: 0908793-01</b>		Prepared: 09/03/09 Analyzed: 09/04/09						
Total Dissolved Solids	1080	20.0	mg/l		1020			6	20	

<b>Reference (9090329-SRM1)</b>				Prepared: 09/03/09 Analyzed: 09/04/09						
Total Dissolved Solids	298	20.0	mg/l	283		105	6.93-113.0			

**Batch 9090340**

<b>Blank (9090340-BLK1)</b>				Prepared & Analyzed: 09/03/09						
Phosphorus, Total	ND	0.05	mg/l							

<b>LCS (9090340-BS1)</b>				Prepared & Analyzed: 09/03/09						
Phosphorus, Total	0.46	0.05	mg/l	0.500		92	80-120			

<b>LCS Dup (9090340-BSD1)</b>				Prepared & Analyzed: 09/03/09						
Phosphorus, Total	0.52	0.05	mg/l	0.500		103	80-120	11	20	

<b>Duplicate (9090340-DUP1)</b>		<b>Source: 0909056-01</b>		Prepared & Analyzed: 09/03/09						
Phosphorus, Total	0.22	0.05	mg/l		0.20			9	20	

<b>Matrix Spike (9090340-MS1)</b>		<b>Source: 0909056-01</b>		Prepared & Analyzed: 09/03/09						
Phosphorus, Total	0.72	0.05	mg/l	0.500	0.20	103	80-120			

<b>Matrix Spike Dup (9090340-MSD1)</b>		<b>Source: 0909056-01</b>		Prepared & Analyzed: 09/03/09						
Phosphorus, Total	0.69	0.05	mg/l	0.500	0.20	98	80-120	4	20	

**Batch 9090341**

<b>Blank (9090341-BLK1)</b>				Prepared & Analyzed: 09/03/09						
Orthophosphate as P	ND	0.05	mg/l							

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

Client Name: D-Max Engineering  
 Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909056

**Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9090341**

<b>LCS (9090341-BS1)</b>				Prepared & Analyzed: 09/03/09						
Orthophosphate as P	0.50	0.05	mg/l	0.500		100	80-120			
<b>LCS Dup (9090341-BSD1)</b>				Prepared & Analyzed: 09/03/09						
Orthophosphate as P	0.48	0.05	mg/l	0.500		97	80-120	4	20	
<b>Duplicate (9090341-DUP1)</b>		<b>Source: 0909056-01</b>		Prepared & Analyzed: 09/03/09						
Orthophosphate as P	0.03	0.05	mg/l		0.02			48	20	QR-04
<b>Matrix Spike (9090341-MS1)</b>		<b>Source: 0909056-01</b>		Prepared & Analyzed: 09/03/09						
Orthophosphate as P	0.55	0.05	mg/l	0.500	0.02	107	80-120			
<b>Matrix Spike Dup (9090341-MSD1)</b>		<b>Source: 0909056-01</b>		Prepared & Analyzed: 09/03/09						
Orthophosphate as P	0.52	0.05	mg/l	0.500	0.02	100	80-120	6	20	

**Batch 9091002**

<b>Blank (9091002-BLK1)</b>				Prepared & Analyzed: 09/10/09						
Total Kjeldahl Nitrogen	ND	0.5	mg/l							
<b>LCS (9091002-BS1)</b>				Prepared & Analyzed: 09/10/09						
Total Kjeldahl Nitrogen	4.0	0.5	mg/l	4.10		98	80-120			
<b>LCS Dup (9091002-BSD1)</b>				Prepared & Analyzed: 09/10/09						
Total Kjeldahl Nitrogen	3.5	0.5	mg/l	4.10		86	80-120	13	20	
<b>Duplicate (9091002-DUP1)</b>		<b>Source: 0909056-01</b>		Prepared & Analyzed: 09/10/09						
Total Kjeldahl Nitrogen	0.7	0.5	mg/l		0.8			14	20	

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

Client Name: D-Max Engineering  
 Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909056

**Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch 9091002**

<b>Matrix Spike (9091002-MS1)</b>	<b>Source: 0909056-01</b>			<b>Prepared &amp; Analyzed: 09/10/09</b>						
Total Kjeldahl Nitrogen	4.1	0.5	mg/l	4.10	0.8	80	80-120			

<b>Matrix Spike Dup (9091002-MSD1)</b>	<b>Source: 0909056-01</b>			<b>Prepared &amp; Analyzed: 09/10/09</b>						
Total Kjeldahl Nitrogen	4.3	0.5	mg/l	4.10	0.8	85	80-120	5	20	

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

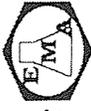
Client Name: D-Max Engineering  
Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909056

### Notes and Definitions

- QR-04 The RPD between the sample and sample duplicate is not valid since both results are below the reporting limit for this analyte.
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

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



# EnviroMatrix Analytical, Inc.

Page \_\_\_ of \_\_\_

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

## CHAIN-OF-CUSTODY RECORD

**EMALOG #:** 0909056

**Client:** D-Max Engineering

**Attn:** Arslan Dadkhal

**Samplers(s):** JL/MD

**Address:** 7220 Trade Street Suite 119

**Phone:** San Diego CA 92121

**Fax:** 858-586-6600

**Email:**

**Billing Address:** same

**Project ID:** Santee Receiving Water Bodies Round 2

**Project #:** 200919W-3 PO #:

ID #	Client Sample ID	Sample Date	Sample Time	Sample Matrix	Container # / Type
1	San Diego River Upstream	9/2/09	10:30	sw	4P
2	Forester Creek Upstream	11:30			
3	Forester Creek Downstream	12:20			
4	San Diego River Downstream	13:10			
5					
6					
7					
8					
9					
10					

**Matrix Codes:** A = Air, DW = Drinking Water, GW = Groundwater, SW = Storm Water  
 WW = Wastewater, S = Soil, SED = Sediment, SD = Solid, T = Tissue, O = Oil, L = Liquid

**Shipped By:**  Courier  UPS  FedEx  USPS  Client Drop Off  Other

**Turn-Around-Time:**  Same Day  24 hr  48 hr  3 day  4 day  7 day  STD (7 day)

**Reporting Requirements:**  Fax  PDF  Excel  Geotracker/EDF  Hard Copy  EDT

**Sample Disposal:**  By Laboratory  Return to Client: P/U or Delivery  Archive

**Sample Integrity**

Correct Containers: Yes No N/A  
 Containers Properly Preserved: Yes No N/A  
 Custody Seals Intact: Yes No N/A  
 Temp @ Receipt:  
 COC/Labels Agree: Yes No N/A

**Sampled By:** Client EMA Autosampler

**Project/Sample Comments:**

T-4 on in

### Requested Analysis

8015B (TPH) <input type="checkbox"/> Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Ext	624/8260 (VOC) Full BTXE MTBE Oxy Nap	625 / 8270 (SVOC) <input type="checkbox"/> PAH only	608 / 8081 (Organochlorine Pesticides)	608 / 8082 (Polychlorinated Biphenyls)	8141 (Organophosphorus Pesticides)	TBT (Organotin Compounds)	pH <input type="checkbox"/> EC <input type="checkbox"/> TSS <input type="checkbox"/> TDS	<input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> TKN <input type="checkbox"/> NH3	CAC Title 22/CAM17 Metals <input type="checkbox"/> TLCC <input type="checkbox"/> STLC	TCLP (RCRA) <input type="checkbox"/> Metals <input type="checkbox"/> Organics	Cd Cr Cu Pb Ni Ag Zn <input type="checkbox"/> Dissolved	Coliform, Total (MTF) <input checked="" type="checkbox"/> Fecal (MTF)	Coli, T+E, Coli <input type="checkbox"/> P/A <input type="checkbox"/> Enumeration	Enterococcus, <input checked="" type="checkbox"/> MTF <input type="checkbox"/> Enterolent	Heterotrophic Plate Count (HPC)	Total Phosphate	Total Nitrogen	Orthophosphate	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**RELINQUISHED BY:**

Signature: [Signature]  
 Print: Joe Leonard  
 Company: D-Max

**RECEIVED BY:**

Signature: [Signature]  
 Print: Sam Flors  
 Company: EMA Inc

**DATE/TIME:** 9/2/09 13:34

9/2/09 1352

White- EMA      Canary - Accounting      Pink - Client (w/report)      Gold - Client (Relinquish)

<sup>1</sup>Additional costs may apply, consult a project manager for details.  
<sup>2</sup>EMA reserves the right to return any samples that do not match our waste profile.  
 NOTE: By relinquishing samples to EMA, Inc., client agrees to pay for the services requested on this COC form and any additional analyses performed on this project. Payment for services is due within 30 days from date of invoice. Samples will be disposed of after 30 days unless otherwise noted. All work is subject to EMA's terms and conditions.



11 September 2009

D-Max Engineering  
Attn: Arsalan Dadkhah  
7220 Trade Street, Suite 119  
San Diego, California 92121

**EMA Log #: 0909099**

**Project Name: Santee Recieving Water Bodies Round 2 200919W-3**

Enclosed are the results of analyses for samples received by the laboratory on 09/03/09 13:32. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

A handwritten signature in black ink, appearing to read 'Dan Verdon', is written over a light gray rectangular background.

**Dan Verdon**  
**Laboratory Director**

CA ELAP Certification #: 2564

Client Name: D-Max Engineering  
Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909099

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Sycamore Creek Downstream	0909099-01	Stormwater	09/03/09 10:35	09/03/09 13:32

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

EnviroMatrix  Analytical, Inc.

Client Name: D-Max Engineering

EMA Log #: 0909099

Project Name: Santee Recieving Water Bodies Round 2 200919W-3

### Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Sycamore Creek Downstream (0909099-01) Stormwater    Sampled: 09/03/09 10:35    Received: 09/03/09 13:32</b>									
Nitrate/Nitrite as N	ND	0.05	mg/l	1	9090403	09/04/09	09/04/09	SM4500 NO3 E	
<b>Total Kjeldahl Nitrogen</b>	<b>3.3</b>	0.5	"	"	9091002	09/11/09	09/11/09	SM4500 N C	
<b>Total Nitrogen</b>	<b>3.3</b>	0.5	"	"	9091131	09/11/09	09/11/09	Calculation	
<b>Orthophosphate as P</b>	<b>0.10</b>	0.05	"	"	9090341	09/03/09	09/03/09	SM4500 P E	
<b>Phosphorus, Total</b>	<b>0.27</b>	0.05	"	"	9090340	09/03/09	09/03/09	SM4500 P B, E	
<b>Total Dissolved Solids</b>	<b>1230</b>	20.0	"	"	9091024	09/09/09	09/10/09	SM2540 C	

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

Client Name: D-Max Engineering  
Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909099

### Microbiological Parameters by Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Sycamore Creek Downstream (0909099-01) Stormwater    Sampled: 09/03/09 10:35    Received: 09/03/09 13:32</b>									
<b>Total Coliforms</b>	<b>8000</b>	200	MPN/100 ml	100	9090417	09/03/09	09/07/09	SM 9221 B, E	
<b>Fecal Coliforms</b>	<b>20</b>	20	"	10	"	"	09/06/09	"	
<b>Enterococcus</b>	<b>220</b>	20	"	"	9090418	"	09/07/09	SM 9230 A, B	

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

Client Name: D-Max Engineering  
 Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909099

### Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9090340**

**Blank (9090340-BLK1)** Prepared & Analyzed: 09/03/09

Phosphorus, Total	ND	0.05	mg/l							
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**LCS (9090340-BS1)** Prepared & Analyzed: 09/03/09

Phosphorus, Total	0.46	0.05	mg/l	0.500		92	80-120			
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**LCS Dup (9090340-BSD1)** Prepared & Analyzed: 09/03/09

Phosphorus, Total	0.52	0.05	mg/l	0.500		103	80-120	11	20	
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**Duplicate (9090340-DUP1)** Source: 0909056-01 Prepared & Analyzed: 09/03/09

Phosphorus, Total	0.22	0.05	mg/l		0.20			9	20	
-------------------	------	------	------	--	------	--	--	---	----	--

**Matrix Spike (9090340-MS1)** Source: 0909056-01 Prepared & Analyzed: 09/03/09

Phosphorus, Total	0.72	0.05	mg/l	0.500	0.20	103	80-120			
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**Matrix Spike Dup (9090340-MSD1)** Source: 0909056-01 Prepared & Analyzed: 09/03/09

Phosphorus, Total	0.69	0.05	mg/l	0.500	0.20	98	80-120	4	20	
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**Batch 9090341**

**Blank (9090341-BLK1)** Prepared & Analyzed: 09/03/09

Orthophosphate as P	ND	0.05	mg/l							
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**LCS (9090341-BS1)** Prepared & Analyzed: 09/03/09

Orthophosphate as P	0.50	0.05	mg/l	0.500		100	80-120			
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**LCS Dup (9090341-BSD1)** Prepared & Analyzed: 09/03/09

Orthophosphate as P	0.48	0.05	mg/l	0.500		97	80-120	4	20	
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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: D-Max Engineering  
 Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909099

### Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 9090341</b>										
<b>Duplicate (9090341-DUP1)</b>		<b>Source: 0909056-01</b>		<b>Prepared &amp; Analyzed: 09/03/09</b>						
Orthophosphate as P	0.03	0.05	mg/l		0.02			48	20	QR-04
<b>Matrix Spike (9090341-MS1)</b>		<b>Source: 0909056-01</b>		<b>Prepared &amp; Analyzed: 09/03/09</b>						
Orthophosphate as P	0.55	0.05	mg/l	0.500	0.02	107	80-120			
<b>Matrix Spike Dup (9090341-MSD1)</b>		<b>Source: 0909056-01</b>		<b>Prepared &amp; Analyzed: 09/03/09</b>						
Orthophosphate as P	0.52	0.05	mg/l	0.500	0.02	100	80-120	6	20	
<b>Batch 9090403</b>										
<b>Blank (9090403-BLK1)</b>		<b>Prepared &amp; Analyzed: 09/04/09</b>								
Nitrate/Nitrite as N	ND	0.05	mg/l							
<b>LCS (9090403-BS1)</b>		<b>Prepared &amp; Analyzed: 09/04/09</b>								
Nitrate/Nitrite as N	0.52	0.05	mg/l	0.500		105	80-120			
<b>LCS Dup (9090403-BSD1)</b>		<b>Prepared &amp; Analyzed: 09/04/09</b>								
Nitrate/Nitrite as N	0.53	0.05	mg/l	0.500		106	80-120	2	20	
<b>Duplicate (9090403-DUP1)</b>		<b>Source: 0909076-04</b>		<b>Prepared &amp; Analyzed: 09/04/09</b>						
Nitrate/Nitrite as N	0.61	0.05	mg/l		0.56			8	20	
<b>Matrix Spike (9090403-MS1)</b>		<b>Source: 0909076-04</b>		<b>Prepared &amp; Analyzed: 09/04/09</b>						
Nitrate/Nitrite as N	2.96	0.25	mg/l	2.50	0.56	96	80-120			
<b>Matrix Spike Dup (9090403-MSD1)</b>		<b>Source: 0909076-04</b>		<b>Prepared &amp; Analyzed: 09/04/09</b>						
Nitrate/Nitrite as N	3.05	0.25	mg/l	2.50	0.56	100	80-120	3	20	

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



Client Name: D-Max Engineering  
 Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909099

### Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 9090403</b>										
<b>Reference (9090403-SRM1)</b>				Prepared & Analyzed: 09/04/09						
Nitrate/Nitrite as N	0.46	0.05	mg/l	0.442		104	4.16-115.1			
<b>Batch 9091002</b>										
<b>Blank (9091002-BLK1)</b>				Prepared & Analyzed: 09/10/09						
Total Kjeldahl Nitrogen	ND	0.5	mg/l							
<b>LCS (9091002-BS1)</b>				Prepared & Analyzed: 09/10/09						
Total Kjeldahl Nitrogen	4.0	0.5	mg/l	4.10		98	80-120			
<b>LCS Dup (9091002-BSD1)</b>				Prepared & Analyzed: 09/10/09						
Total Kjeldahl Nitrogen	3.5	0.5	mg/l	4.10		86	80-120	13	20	
<b>Duplicate (9091002-DUP1)</b>		<b>Source: 0909056-01</b>			Prepared & Analyzed: 09/10/09					
Total Kjeldahl Nitrogen	0.7	0.5	mg/l		0.8			14	20	
<b>Matrix Spike (9091002-MS1)</b>		<b>Source: 0909056-01</b>			Prepared & Analyzed: 09/10/09					
Total Kjeldahl Nitrogen	4.1	0.5	mg/l	4.10	0.8	80	80-120			
<b>Matrix Spike Dup (9091002-MSD1)</b>		<b>Source: 0909056-01</b>			Prepared & Analyzed: 09/10/09					
Total Kjeldahl Nitrogen	4.3	0.5	mg/l	4.10	0.8	85	80-120	5	20	
<b>Batch 9091024</b>										
<b>Blank (9091024-BLK1)</b>				Prepared: 09/09/09 Analyzed: 09/10/09						
Total Dissolved Solids	ND	20.0	mg/l							

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



Client Name: D-Max Engineering  
 Project Name: Santee Receiving Water Bodies Round 2 200919W-3

EMA Log #: 0909099

**Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch 9091024**

<b>Duplicate (9091024-DUP1)</b>		<b>Source: 0909201-01</b>		Prepared: 09/09/09		Analyzed: 09/10/09	
Total Dissolved Solids	ND	20.0	mg/l		ND		20

<b>Reference (9091024-SRM1)</b>				Prepared: 09/09/09		Analyzed: 09/10/09	
Total Dissolved Solids	296	20.0	mg/l	283	105	6.93-113.0	

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

Client Name: D-Max Engineering  
Project Name: Santee Recieving Water Bodies Round 2 200919W-3

EMA Log #: 0909099

### Notes and Definitions

- QR-04 The RPD between the sample and sample duplicate is not valid since both results are below the reporting limit for this analyte.
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

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



# EnviroMatrix Analytical, Inc.

Page \_\_\_ of \_\_\_

## CHAIN-OF-CUSTODY RECORD

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

EMA LOG #: 0909099

Client: D-Mex Engineering

Attn: Arselan Dadkhah

Samplers(s): SL/MD

Address: 7220 Trade Street Suite 119

San Diego, CA 92121

Phone: 858-588-6600

Fax:

Email:

Billing Address: same

Project ID: Santee Receiving Water Bodies Round 2

Project #: 200919W-3 PO #: \_\_\_\_\_

ID #	Client Sample ID	Sample Date	Sample Time	Sample Matrix	Container # / Type
1	Sycamore Creek Downstream	9/3/09	10:35	SW	4P
2					
3					
4					
5					
6					
7					
8					
9					
10					

Matrix Codes: A = Air, DW = Drinking Water, GW = Groundwater, SW = Storm Water

WW = Wastewater, S = Soil, SED = Sediment, SD = Solid, T = Tissue, O = Oil, L = Liquid

Shipped By:  Courier  UPS  FedEx  USPS  Client Drop Off  Other

Turn-Around-Time:  Same Day  24 hr  48 hr  3 day  4 day  5 day  STD (7 day)

Reporting Requirements:  Fax  PDF  Excel  Geotracker/EDT  Hard Copy  EDT

Sample Disposal:  By Laboratory  Return to Client: P/U or Delivery  Archive

Sample Integrity

Correct Containers: Yes No N/A

Temp @ Receipt: \_\_\_\_\_

COC/Labels Agree: Yes No N/A

Sampled By: Client EMA Autosampler

Project/Sample Comments:

7-4: on file

### Requested Analysis

Requested Analysis	DATE/TIME	RELIQUISHED BY	RECEIVED BY
Oil & Grease <input type="checkbox"/> 413.1 <input type="checkbox"/> 413.2 <input type="checkbox"/> 1664			
8015B (TPH) <input type="checkbox"/> Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Ext			
624/8260 (VOC) Full BTXE MTBE Oxy Nap			
625 / 8270 (SVOC) <input type="checkbox"/> PAH only			
608 / 8081 (Organochlorine Pesticides)			
608 / 8082 (Polychlorinated Biphenyls)			
8141 (Organophosphorus Pesticides)			
TBT (Organotin Compounds)			
<input type="checkbox"/> pH <input type="checkbox"/> EC <input type="checkbox"/> TSS <input checked="" type="checkbox"/> FDS			
<input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> TKN <input type="checkbox"/> NH3			
CAC Title 22/CAM17 Metals <input type="checkbox"/> TLC <input type="checkbox"/> STLC			
TCLP (RCRA) <input type="checkbox"/> Metals <input type="checkbox"/> Organics			
Cd Cr Cu Pb Ni Ag Zn <input type="checkbox"/> Dissolved			
Coliform, <input checked="" type="checkbox"/> Total (MTF) <input checked="" type="checkbox"/> Fecal (MTF)			
Coli, T+E, Coli <input type="checkbox"/> P/A <input type="checkbox"/> Enumeration			
Enterococcus, <input checked="" type="checkbox"/> MTF <input type="checkbox"/> Enterolent			
Heterotrophic Plate Count (HPC)			
Total Nitrogen			
Total Phosphorus			
Orthophosphate-phosphorus			

Signature	DATE/TIME	RELIQUISHED BY	RECEIVED BY
Joe Leonard	9/3/09	Joe Leonard	Joe Leonard
DM	13:16	DM	DM
Sean Flannery	9/3/09	Sean Flannery	Sean Flannery
EMA	1332	EMA	EMA

White-EMA      Canary - Accounting      Pink - Client (w/report)      Gold - Client (Relinquish)

Additional costs may apply, consult a project manager for details. EMA reserves the right to return any samples that do not match our waste profile. NOTE: By relinquishing samples to EMA, Inc., client agrees to pay for the services requested on this COC form and any additional analyses performed on this project. Payment for services is due within 30 days from date of invoice. Samples will be disposed of after 30 days unless otherwise noted. All work is subject to EMA's terms and conditions.

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**Appendix D**

**Field Data Sheets**

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## **Round One**

---

W

# San Diego Stormwater Copermittees City of Santee Dry Weather Monitoring Field Datasheet

Field Screening       Confirmation For \_\_\_\_\_       IC/ID Follow-Up For \_\_\_\_\_

**GENERAL SITE DESCRIPTION**

(NAD 83 decimal degrees to 5th place)

MS4     Receiving Water

Site ID	San Diego River Upstream		Latitude	32.8521582	Watershed	Hydrologic Unit	907
Location	~200ft downstream of Riverford bridge		Longitude	-116.952358		Hydrologic Area	907.1
			TB Page	1231-64		Hydrologic Subarea (Optional)	907.12
Date	5/19/09	Time	9:30 am	Observer	MD/AR	Discharge Area (Optional)	

**Land Use (Primary)** (Check one only)       Residential     Commercial     Industrial     Agricultural     Parks     Open

**Land Use (Secondary)** (Optional, greater than 10%)       Residential     Commercial     Industrial     Agricultural     Parks     Open     None

**Conveyance** (Check one only)       Manhole     Catch Basin     Outlet     Concrete Channel     Natural Creek     Earthen Channel     Curb/Gutter

**ATMOSPHERIC CONDITIONS**

**Weather**     Sunny     Partly Cloudy     Overcast     Fog

**Tide**     N/A     Low     Incoming     High     Outgoing    **Tide Height:** \_\_\_\_\_ ft.

**Last Rain**     > 72 hours     < 72 hours

**Rainfall**     None     < 0.1"     > 0.1"

**RUNOFF CHARACTERISTICS**

**Odor**     None     Musty     Rotten Eggs     Chemical     Sewage     Other

**Color**     None     Yellow     Brown     White     Gray     Other

**Clarity**     Clear     Slightly Cloudy     Opaque     Other

**Floatables**     None     Trash     Bubbles/Foam     Sheen     Fecal Matter     Other

**Deposits**     None     Sediment/Gravel     Fine Particulates     Stains     Oily Deposits     Other

**Vegetation**     None     Limited     Normal     Excessive     Other

**Biology**     None     Insects     Algae     Fish     Snails     Mussels/Barnacles     Insect/Algae     Insect/Snail     Other

**Water Flow**     Flowing     Ponded     Dry     Tidal

**Does the storm drain flow reach the Receiving Water?**     Yes     No     N/A

**Evidence of Overland Flow?**     Yes     No     Irrigation Runoff     Other: \_\_\_\_\_

**Photo Taken**     Yes     No    **Photo #**    1, 2

**Field Screening Samples Collected?**     Yes     No

Water Temp (°C)	24.6	NH3-N (mg/L)	NA	NO3 (mg/L)	NA	Ortho-PO4 (mg/L)	NA
pH (pH units)	7.8	TURB (NTU)	10.76	NO3-N (mg/L)	NA	Ortho-PO4 -P (mg/L)	NA
COND (mS/cm)	1.73	MBAS (mg/L)	NA	DO (mg/L)	7.95 <del>7.8-10</del>		

**Analytical Lab Samples Collected?**     Yes     No

**FLOW ESTIMATION WORKSHEETS**

**Flowing Creek or Box Culvert**

Width	40	in
Depth	0.5	in
Velocity	10/10	ft/sec
Flow	62	gpm

**Filling a Bottle or Known Volume**

Volume	mL
Time to Fill	sec
Flow	gpm

**Flowing Pipe**

Diameter	ft
Depth	ft
Velocity	ft/sec
Flow	gpm

**COMMENTS:** \_\_\_\_\_

AL

**San Diego Stormwater Copermitees  
City of Santee  
Dry Weather Monitoring Field Datasheet**

Field Screening     Confirmation For \_\_\_\_\_     IC/ID Follow-Up For \_\_\_\_\_

**GENERAL SITE DESCRIPTION** (NAD 83 decimal degrees to 5th place)     MS4     Receiving Water

Site ID	Forester Creek Upstream			Latitude	32.83093	Watershed	Hydrologic Unit	907
Location	Prospect Avenue Bridge, West of Sycamaca Street			Longitude	-100.98543		Hydrologic Area	907.1
				TB Page	1231-07		Hydrologic Subarea (Optional)	907.13
Date	05/19/2009	Time	10:40	Observer	MD/AL	Discharge Area (Optional)		

**Land Use (Primary)** (Check one only)     Residential     Commercial     Industrial     Agricultural     Parks     Open

**Land Use (Secondary)** (Optional, greater than 10%)     Residential     Commercial     Industrial     Agricultural     Parks     Open     None

**Conveyance** (Check one only)     Manhole     Catch Basin     Outlet     Concrete Channel     Natural Creek     Earthen Channel     Curb/Gutter

**ATMOSPHERIC CONDITIONS**

**Weather**     Sunny     Partly Cloudy     Overcast     Fog

**Tide**     N/A     Low     Incoming     High     Outgoing    **Tide Height:** \_\_\_\_\_ ft.

**Last Rain**     > 72 hours     < 72 hours

**Rainfall**     None     < 0.1"     > 0.1"

**RUNOFF CHARACTERISTICS**

**Odor**     None     Musty     Rotten Eggs     Chemical     Sewage     Other

**Color**     None     Yellow     Brown     White     Gray     Other

**Clarity**     Clear     Slightly Cloudy     Opaque     Other

**Floatables**     None     Trash     Bubbles/Foam     Sheen     Fecal Matter     Other

**Deposits**     None     Sediment/Gravel     Fine Particulates     Stains     Oily Deposits     Other

**Vegetation**     None     Limited     Normal     Excessive     Other

**Biology**     None     Insects     Algae     Fish     Snails     Mussels/Barnacles     Insect/Algae     Insect/Snail     Other

**Water Flow**     Flowing     Ponded     Dry     Tidal

**Does the storm drain flow reach the Receiving Water?**     Yes     No     N/A

**Evidence of Overland Flow?**     Yes     No     Irrigation Runoff     Other:

**Photo Taken**     Yes     No    **Photo #** 3, 4, 5

**Field Screening Samples Collected?**     Yes     No

Water Temp (°C)	27.9	NH <sub>3</sub> -N (mg/L)	NA	NO <sub>3</sub> (mg/L)	NA	Ortho-PO <sub>4</sub> (mg/L)	NA
pH (pH units)	8.1	TURB (NTU)	6.14	NO <sub>3</sub> -N (mg/L)	NA	Ortho-PO <sub>4</sub> -P (mg/L)	NA
COND (mS/cm)	2.94	MBAS (mg/L)	NA	DO (mg/L)	8.86		

**Analytical Lab Samples Collected?**     Yes     No

**FLOW ESTIMATION WORKSHEETS**

<p style="text-align: center;"><b>Flowing Creek or Box Culvert</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Width</td><td>19</td><td>in</td></tr> <tr><td>Depth</td><td>4</td><td>in</td></tr> <tr><td>Velocity</td><td>15/10</td><td>ft/sec</td></tr> <tr><td>Flow</td><td>355</td><td>gpm</td></tr> </table>	Width	19	in	Depth	4	in	Velocity	15/10	ft/sec	Flow	355	gpm	<p style="text-align: center;"><b>Filling a Bottle or Known Volume</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Volume</td><td></td><td>mL</td></tr> <tr><td>Time to Fill</td><td></td><td>sec</td></tr> <tr><td>Flow</td><td></td><td>gpm</td></tr> </table>	Volume		mL	Time to Fill		sec	Flow		gpm	<p style="text-align: center;"><b>Flowing Pipe</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Diameter</td><td></td><td>ft</td></tr> <tr><td>Depth</td><td></td><td>ft</td></tr> <tr><td>Velocity</td><td></td><td>ft/sec</td></tr> <tr><td>Flow</td><td></td><td>gpm</td></tr> </table>	Diameter		ft	Depth		ft	Velocity		ft/sec	Flow		gpm
Width	19	in																																	
Depth	4	in																																	
Velocity	15/10	ft/sec																																	
Flow	355	gpm																																	
Volume		mL																																	
Time to Fill		sec																																	
Flow		gpm																																	
Diameter		ft																																	
Depth		ft																																	
Velocity		ft/sec																																	
Flow		gpm																																	

**COMMENTS:** \_\_\_\_\_

**San Diego Stormwater Copermitees  
City of Santee  
Dry Weather Monitoring Field Datasheet**

AK

Field Screening     Confirmation For \_\_\_\_\_     IC/ID Follow-Up For \_\_\_\_\_

**GENERAL SITE DESCRIPTION** (NAD 83 decimal degrees to 5th place)     MS4     Receiving Water

Site ID	Forester Creek Downstream		Latitude	32.83953	Watershed	Hydrologic Unit	907
Location	200 ft North of Mission Gorge rd, across from Fanita Dr, East of Fanita Creek		Longitude	-117.00241		Hydrologic Area	907.1
			TB Page	1231-4786		Hydrologic Subarea (Optional)	907.12
Date	05/19/2009	Time	11:45	Observer	MD/AK	Discharge Area (Optional)	

**Land Use (Primary)** (Check one only)     Residential     Commercial     Industrial     Agricultural     Parks     Open

**Land Use (Secondary)** (Optional, greater than 10%)     Residential     Commercial     Industrial     Agricultural     Parks     Open     None

**Conveyance** (Check one only)     Manhole     Catch Basin     Outlet     Concrete Channel     Natural Creek     Earthen Channel     Curb/Gutter

**ATMOSPHERIC CONDITIONS**

Weather     Sunny     Partly Cloudy     Overcast     Fog

Tide     N/A     Low     Incoming     High     Outgoing    Tide Height: \_\_\_\_\_ ft.

Last Rain     > 72 hours     < 72 hours

Rainfall     None     < 0.1"     > 0.1"

**RUNOFF CHARACTERISTICS**

Odor     None     Musty     Rotten Eggs     Chemical     Sewage     Other

Color     None     Yellow     Brown     White     Gray     Other

Clarity     Clear     Slightly Cloudy     Opaque     Other

Floatables     None     Trash     Bubbles/Foam     Sheen     Fecal Matter     Other *Leafy debris*

Deposits     None     Sediment/Gravel     Fine Particulates     Stains     Oily Deposits     Other

Vegetation     None     Limited     Normal     Excessive     Other

Biology     None     Insects     Algae     Fish     Snails     Mussels/Barnacles     Insect/Algae     Insect/Snail     Other

Water Flow     Flowing     Ponded     Dry     Tidal

Does the storm drain flow reach the Receiving Water?     Yes     No     N/A

Evidence of Overland Flow?     Yes     No     Irrigation Runoff     Other:

Photo Taken     Yes     No    Photo # 6-11

Field Screening Samples Collected?     Yes     No

Water Temp (°C)	23.8	NH3-N (mg/L)	NA	NO3 (mg/L)	NA	Ortho-PO4 (mg/L)	NA
pH (pH units)	7.9	TURB (NTU)	31.55	NO3-N (mg/L)	NA	Ortho-PO4 -P (mg/L)	NA
COND (mS/cm)	2.60	MBAS (mg/L)	NA	DO (mg/L)	5.76		

Analytical Lab Samples Collected?     Yes     No

**FLOW ESTIMATION WORKSHEETS**

Flowing Creek or Box Culvert			Filling a Bottle or Known Volume			Flowing Pipe		
Width	50	in	Volume		mL	Diameter		ft
Depth	3	in	Time to Fill		sec	Depth		ft
Velocity	10/10.	ft/sec	Flow		gpm	Velocity		ft/sec
Flow	468.	gpm				Flow		gpm

COMMENTS: \_\_\_\_\_

AK

## San Diego Stormwater Copermittees City of Santee Dry Weather Monitoring Field Datasheet

Field Screening       Confirmation For \_\_\_\_\_       IC/ID Follow-Up For \_\_\_\_\_

GENERAL SITE DESCRIPTION (NAD 83 decimal degrees to 5th place)       MS4       Receiving Water

Site ID	San Diego River Downstream		Latitude	32.83936	Watershed	Hydrologic Unit	907
Location	West Hills Parkway Bridge		Longitude	-117.02450		Hydrologic Area	907.1
			TB Page	1230-AL6		Hydrologic Subarea (Optional)	907.12
Date	05/19/2009	Time	12:30	Observer	MD/AK	Discharge Area (Optional)	

Land Use (Primary) (Check one only)       Residential       Commercial       Industrial       Agricultural       Parks       Open

Land Use (Secondary) (Optional, greater than 10%)       Residential       Commercial       Industrial       Agricultural       Parks       Open       None

Conveyance (Check one only)       Manhole       Catch Basin       Outlet       Concrete Channel       Natural Creek       Earthen Channel       Curb/Gutter

### ATMOSPHERIC CONDITIONS

Weather       Sunny       Partly Cloudy       Overcast       Fog  
 Tide       N/A       Low       Incoming       High       Outgoing      Tide Height: \_\_\_\_\_ ft.  
 Last Rain       > 72 hours       < 72 hours  
 Rainfall       None       < 0.1"       > 0.1"

### RUNOFF CHARACTERISTICS

Odor       None       Musty       Rotten Eggs       Chemical       Sewage       Other  
 Color       None       Yellow       Brown       White       Gray       Other  
 Clarity       Clear       Slightly Cloudy       Opaque       Other  
 Floatables       None       Trash       Bubbles/Foam       Sheen       Fecal Matter       Other  
 Deposits       None       Sediment/Gravel       Fine Particulates       Stains       Oily Deposits       Other  
 Vegetation       None       Limited       Normal       Excessive       Other  
 Biology       None       Insects       Algae       Fish       Snails       Mussels/Barnacles       Insect/Algae       Insect/Snail       Other

Water Flow       Flowing       Ponded       Dry       Tidal

Does the storm drain flow reach the Receiving Water?       Yes       No       N/A

Evidence of Overland Flow?       Yes       No       Irrigation Runoff       Other: \_\_\_\_\_

Photo Taken       Yes       No      Photo # 12-13

Field Screening Samples Collected?       Yes       No

Water Temp (°C)	22.0	NH <sub>3</sub> -N (mg/L)	NA	NO <sub>3</sub> (mg/L)	NA	Ortho-PO <sub>4</sub> (mg/L)	NA
pH (pH units)	7.6	TURB (NTU)	5.89	NO <sub>3</sub> -N (mg/L)	NA	Ortho-PO <sub>4</sub> -P (mg/L)	NA
COND (mS/cm)	2.60	MBAS (mg/L)	NA	DO (mg/L)	6.28		

Analytical Lab Samples Collected?       Yes       No

### FLOW ESTIMATION WORKSHEETS

#### Flowing Creek or Box Culvert

Width	90	in
Depth	2	in
Velocity	10/10	ft/sec
Flow	561	gpm

#### Filling a Bottle or Known Volume

Volume		mL
Time to Fill		sec
Flow		gpm

#### Flowing Pipe

Diameter		ft
Depth		ft
Velocity		ft/sec
Flow		gpm

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**San Diego Stormwater Copermittees  
City of Santee  
Dry Weather Monitoring Field Datasheet**

AK

Field Screening       Confirmation For \_\_\_\_\_       IC/ID Follow-Up For \_\_\_\_\_

**GENERAL SITE DESCRIPTION** (NAD 83 decimal degrees to 5th place)       MS4       Receiving Water

Site ID	Sycamore Creek Downstream		Latitude	32.84441	Watershed	Hydrologic Unit	907
Location	Downstream of Sycamore Creek, at Carlton Oaks Dr.		Longitude	-117.00652		Hydrologic Area	907.1
			TB Page	1231-ALe		Hydrologic Subarea (Optional)	907.12
Date	05/20/2009	Time	10:50	Observer	MDIAX	Discharge Area (Optional)	

**Land Use (Primary)** (Check one only)       Residential       Commercial       Industrial       Agricultural       Parks       Open

**Land Use (Secondary)** (Optional, greater than 10%)       Residential       Commercial       Industrial       Agricultural       Parks       Open       None

**Conveyance** (Check one only)       Manhole       Catch Basin       Outlet       Concrete Channel       Natural Creek       Earthen Channel       Curb/Gutter

**ATMOSPHERIC CONDITIONS**

**Weather**       Sunny       Partly Cloudy       Overcast       Fog  
**Tide**       N/A       Low       Incoming       High       Outgoing      **Tide Height:** \_\_\_\_\_ ft.  
**Last Rain**       > 72 hours       < 72 hours  
**Rainfall**       None       < 0.1"       > 0.1"

**RUNOFF CHARACTERISTICS**

**Odor**       None       Musty       Rotten Eggs       Chemical       Sewage       Other  
**Color**       None       Yellow       Brown       White       Gray       Other  
**Clarity**       Clear       Slightly Cloudy       Opaque       Other  
**Floatables**       None       Trash       Bubbles/Foam       Sheen       Fecal Matter       Other  
**Deposits**       None       Sediment/Gravel       Fine Particulates       Stains       Oily Deposits       Other  
**Vegetation**       None       Limited       Normal       Excessive       Other  
**Biology**       None       Insects       Algae       Fish       Snails       Mussels/Barnacles       Insect/Algae       Insect/Snail       Other

**Water Flow**       Flowing       Ponded       Dry       Tidal

**Does the storm drain flow reach the Receiving Water?**       Yes       No       N/A

**Evidence of Overland Flow?**       Yes       No       Irrigation Runoff       Other:

**Photo Taken**       Yes       No      **Photo #** 21, 22

**Field Screening Samples Collected?**       Yes       No

Water Temp (°C)	20.5	NH <sub>3</sub> -N (mg/L)	NA	NO <sub>3</sub> (mg/L)	NA	Ortho-PO <sub>4</sub> (mg/L)	NA
pH (pH units)	7.5	TURB (NTU)	4.41	NO <sub>3</sub> -N (mg/L)	NA	Ortho-PO <sub>4</sub> -P (mg/L)	NA
COND (mS/cm)	129.134	MBAS (mg/L)	NA	DO (mg/L)	5.25		

**Analytical Lab Samples Collected?**       Yes       No

**FLOW ESTIMATION WORKSHEETS**

Flowing Creek or Box Culvert			Filling a Bottle or Known Volume			Flowing Pipe		
Width		in	Volume		mL	Diameter		ft
Depth		in	Time to Fill		sec	Depth		ft
Velocity		ft/sec	Flow		gpm	Velocity		ft/sec
Flow	<i>5 ponded</i>	gpm				Flow		gpm

**COMMENTS:** \_\_\_\_\_

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## **Round Two**

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**San Diego Stormwater Copermittees  
City of Santee  
Dry Weather Monitoring Field Datasheet**

Field Screening       Confirmation For \_\_\_\_\_       IC/ID Follow-Up For \_\_\_\_\_

**GENERAL SITE DESCRIPTION**

(NAD 83 decimal degrees to 5th place)

MS4       Receiving Water

Site ID	San Diego River Upstream		Latitude	32.85282	Watershed	Hydrologic Unit	907
Location	200 feet downstream of Riverford bridge		Longitude	-116.95281		Hydrologic Area	907.1
			TB Page	1231-64		Hydrologic Subarea (Optional)	907.12
Date	9/2/09	Time	10:30	Observer	JL/MD	Discharge Area (Optional)	

**Land Use (Primary)** (Check one only)       Residential     Commercial     Industrial     Agricultural     Parks       Open

**Land Use (Secondary)** (Optional, greater than 10%)       Residential     Commercial     Industrial     Agricultural     Parks     Open     None

**Conveyance** (Check one only)       Manhole     Catch Basin     Outlet     Concrete Channel     Natural Creek     Earthen Channel     Curb/Gutter

**ATMOSPHERIC CONDITIONS**

**Weather**     Sunny     Partly Cloudy     Overcast     Fog  
**Tide**     N/A     Low     Incoming     High     Outgoing    **Tide Height:** \_\_\_\_\_ ft.  
**Last Rain**     > 72 hours     < 72 hours  
**Rainfall**     None     < 0.1"     > 0.1"

**RUNOFF CHARACTERISTICS**

**Odor**     None     Musty     Rotten Eggs     Chemical     Sewage     Other  
**Color**     None     Yellow     Brown     White     Gray     Other  
**Clarity**     Clear     Slightly Cloudy     Opaque     Other  
**Floatables**     None     Trash     Bubbles/Foam     Sheen     Fecal Matter     Other  
**Deposits**     None     Sediment/Gravel     Fine Particulates     Stains     Oily Deposits     Other  
**Vegetation**     None     Limited     Normal     Excessive     Other  
**Biology**     None     Insects     Algae     Fish     Snails     Mussels/Barnacles     Insect/Algae     Insect/Snail     Other Birds, Frogs

**Water Flow**     Flowing     Poned     Dry     Tidal

**Does the storm drain flow reach the Receiving Water?**     Yes     No     N/A

**Evidence of Overland Flow?**     Yes     No     Irrigation Runoff     Other:

**Photo Taken**     Yes     No    **Photo #**    1, 2

**Field Screening Samples Collected?**     Yes     No

Water Temp (°C)	27.5	NH3-N (mg/L)	na	NO3 (mg/L)	na	Ortho-PO4 (mg/L)	na
pH (pH units)	7.8	TURB (NTU)	10.30	NO3-N (mg/L)	na	Ortho-PO4-P (mg/L)	na
COND (mS/cm)	1.88	MBAS (mg/L)	na	DO (mg/L)	7.91		

**Analytical Lab Samples Collected?**     Yes     No

**FLOW ESTIMATION WORKSHEETS**

**Flowing Creek or Box Culvert**

**Filling a Bottle or Known Volume**

**Flowing Pipe**

Width		in
Depth		in
Velocity		ft/sec
Flow	20	gpm

Volume		mL
Time to Fill		sec
Flow		gpm

Diameter		ft
Depth		ft
Velocity		ft/sec
Flow		gpm

**COMMENTS:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**San Diego Stormwater Copermittees  
City of Santee  
Dry Weather Monitoring Field Datasheet**

Field Screening

Confirmation For \_\_\_\_\_

IC/ID Follow-Up For \_\_\_\_\_

**GENERAL SITE DESCRIPTION**

(NAD 83 decimal degrees to 5th place)

MS4  Receiving Water

Site ID	Forester Creek Upstream			Latitude	32.83093	Watershed	Hydrologic Unit	907
Location	Prospect Avenue bridge, west of Cuyamaca Street			Longitude	-116.985643		Hydrologic Area	907.1
				TB Page	1231-L7		Hydrologic Subarea (Optional)	907.13
Date	9/2/09	Time	11:30	Observer	JL/MD	Discharge Area (Optional)		

**Land Use (Primary)**  
(Check one only)

Residential  Commercial  Industrial  Agricultural  Parks  Open

**Land Use (Secondary)**  
(Optional, greater than 10%)

Residential  Commercial  Industrial  Agricultural  Parks  Open  None

**Conveyance**  
(Check one only)

Manhole  Catch Basin  Outlet  Concrete Channel  Natural Creek  Earthen Channel  Curb/Gutter

**ATMOSPHERIC CONDITIONS**

**Weather**  Sunny  Partly Cloudy  Overcast  Fog

**Tide**  N/A  Low  Incoming  High  Outgoing **Tide Height:** \_\_\_\_\_ ft.

**Last Rain**  > 72 hours  < 72 hours

**Rainfall**  None  < 0.1"  > 0.1"

**RUNOFF CHARACTERISTICS**

**Odor**  None  Musty  Rotten Eggs  Chemical  Sewage  Other

**Color**  None  Yellow  Brown  White  Gray  Other

**Clarity**  Clear  Slightly Cloudy  Opaque  Other

**Floatables**  None  Trash  Bubbles/Foam  Sheen  Fecal Matter  Other

**Deposits**  None  Sediment/Gravel  Fine Particulates  Stains  Oily Deposits  Other

**Vegetation**  None  Limited  Normal  Excessive  Other

**Biology**  None  Insects  Algae  Fish  Snails  Mussels/Barnacles  Insect/Algae  Insect/Snail  Other

**Water Flow**  Flowing  Poned  Dry  Tidal

**Does the storm drain flow reach the Receiving Water?**  Yes  No  N/A

**Evidence of Overland Flow?**  Yes  No  Irrigation Runoff  Other:

**Photo Taken**  Yes  No **Photo #** 3.4

**Field Screening Samples Collected?**  Yes  No

Water Temp (°C)	31.5	NH3-N (mg/L)	na	NO3 (mg/L)	na	Ortho-PO4 (mg/L)	na
pH (pH units)	7.9	TURB (NTU)	3.90	NO3-N (mg/L)	na	Ortho-PO4-P (mg/L)	na
COND (mS/cm)	2.81	MBAS (mg/L)	na	DO (mg/L)	8.73		

**Analytical Lab Samples Collected?**  Yes  No

**FLOW ESTIMATION WORKSHEETS**

**Flowing Creek or Box Culvert**

Width	19	in
Depth	1.5	in
Velocity	1.2	ft/sec
Flow	107	gpm

**Filling a Bottle or Known Volume**

Volume		mL
Time to Fill		sec
Flow		gpm

**Flowing Pipe**

Diameter		ft
Depth		ft
Velocity		ft/sec
Flow		gpm

**COMMENTS:** \_\_\_\_\_

**San Diego Stormwater Copermittees  
City of Santee  
Dry Weather Monitoring Field Datasheet**

Field Screening       Confirmation For \_\_\_\_\_       IC/ID Follow-Up For \_\_\_\_\_

GENERAL SITE DESCRIPTION (NAD 83 decimal degrees to 5th place)       MS4       Receiving Water

Site ID	Forester Creek Downstream		Latitude	32.83953	Watershed	Hydrologic Unit	907
Location	200 feet north of Mission Gorge Rd, across from Fanita Dr, east of Fanita Creek		Longitude	-117.00241		Hydrologic Area	907.1
			TB Page	1231- <del>86</del> 86		Hydrologic Subarea (Optional)	907.12
Date	9/2/09	Time	12:20	Observer	JL/MD	Discharge Area (Optional)	

**Land Use (Primary)** (Check one only)       Residential     Commercial     Industrial     Agricultural     Parks     Open

**Land Use (Secondary)** (Optional, greater than 10%)       Residential     Commercial     Industrial     Agricultural     Parks     Open     None

**Conveyance** (Check one only)       Manhole     Catch Basin     Outlet     Concrete Channel     Natural Creek     Earthen Channel     Curb/Gutter

**ATMOSPHERIC CONDITIONS**

**Weather**     Sunny     Partly Cloudy     Overcast     Fog

**Tide**     N/A     Low     Incoming     High     Outgoing    **Tide Height:** \_\_\_\_\_ ft.

**Last Rain**     > 72 hours     < 72 hours

**Rainfall**     None     < 0.1"     > 0.1"

**RUNOFF CHARACTERISTICS**

**Odor**     None     Musty     Rotten Eggs     Chemical     Sewage     Other

**Color**     None     Yellow     Brown     White     Gray     Other

**Clarity**     Clear     Slightly Cloudy     Opaque     Other

**Floatables**     None     Trash     Bubbles/Foam     Sheen     Fecal Matter     Other

**Deposits**     None     Sediment/Gravel     Fine Particulates     Stains     Oily Deposits     Other

**Vegetation**     None     Limited     Normal     Excessive     Other

**Biology**     None     Insects     Algae     Fish     Snails     Mussels/Barnacles     Insect/Algae     Insect/Snail     Other

**Water Flow**     Flowing     Ponded     Dry     Tidal

**Does the storm drain flow reach the Receiving Water?**     Yes     No     N/A

**Evidence of Overland Flow?**     Yes     No     Irrigation Runoff     Other:

**Photo Taken**     Yes     No    **Photo #**    5, 6

**Field Screening Samples Collected?**     Yes     No

Water Temp (°C)	26.6	NH3-N (mg/L)	na	NO3 (mg/L)	na	Ortho-PO4 (mg/L)	na
pH (pH units)	7.6	TURB (NTU)	7.61	NO3-N (mg/L)	na	Ortho-PO4-P (mg/L)	na
COND (mS/cm)	2.97	MBAS (mg/L)	na	DO (mg/L)	5.56		

**Analytical Lab Samples Collected?**     Yes     No

**FLOW ESTIMATION WORKSHEETS**

Flowing Creek or Box Culvert			Filling a Bottle or Known Volume			Flowing Pipe		
Width	30	in	Volume		mL	Diameter		ft
Depth	1	in	Time to Fill		sec	Depth		ft
Velocity	1	ft/sec	Flow		gpm	Velocity		ft/sec
Flow	94	gpm				Flow		gpm

**COMMENTS:** \_\_\_\_\_

**San Diego Stormwater Copermittees  
City of Santee  
Dry Weather Monitoring Field Datasheet**

Field Screening     Confirmation For \_\_\_\_\_     IC/ID Follow-Up For \_\_\_\_\_

**GENERAL SITE DESCRIPTION**

(NAD 83 decimal degrees to 5th place)

VMS4     Receiving Water

Site ID	San Diego River Downstream		Latitude	32.83936	Watershed	Hydrologic Unit	907
Location	West Hills Parkway Bridge		Longitude	-117.02450		Hydrologic Area	907.1
			TB Page	1230-116 <del>1231-116</del>		Hydrologic Subarea (Optional)	907.12
Date	9/2/09	Time	13:10	Observer	JL/MD	Discharge Area (Optional)	

**Land Use (Primary)**  
(Check one only)     Residential     Commercial     Industrial     Agricultural     Parks     Open

**Land Use (Secondary)**  
(Optional, greater than 10%)     Residential     Commercial     Industrial     Agricultural     Parks     Open     None

**Conveyance**  
(Check one only)     Manhole     Catch Basin     Outlet     Concrete Channel     Natural Creek     Earthen Channel     Curb/Gutter

**ATMOSPHERIC CONDITIONS**

**Weather**     Sunny     Partly Cloudy     Overcast     Fog

**Tide**     N/A     Low     Incoming     High     Outgoing    **Tide Height:** \_\_\_\_\_ ft.

**Last Rain**     > 72 hours     < 72 hours

**Rainfall**     None     < 0.1"     > 0.1"

**RUNOFF CHARACTERISTICS**

**Odor**     None     Musty     Rotten Eggs     Chemical     Sewage     Other

**Color**     None     Yellow     Brown     White     Gray     Other

**Clarity**     Clear     Slightly Cloudy     Opaque     Other

**Floatables**     None     Trash     Bubbles/Foam     Sheen     Fecal Matter     Other

**Deposits**     None     Sediment/Gravel     Fine Particulates     Stains     Oily Deposits     Other

**Vegetation**     None     Limited     Normal     Excessive     Other

**Biology**     None     Insects     Algae     Fish     Snails     Mussels/Barnacles     Insect/Algae     Insect/Snail     Other *Crawfish*

**Water Flow**     Flowing     Ponded     Dry     Tidal

**Does the storm drain flow reach the Receiving Water?**     Yes     No     N/A

**Evidence of Overland Flow?**     Yes     No     Irrigation Runoff     Other:

**Photo Taken**     Yes     No    **Photo #**    7, 8

**Field Screening Samples Collected?**     Yes     No

Water Temp (°C)	26.8	NH <sub>3</sub> -N (mg/L)	na	NO <sub>3</sub> (mg/L)	na	Ortho-PO <sub>4</sub> (mg/L)	na
pH (pH units)	7.5	TURB (NTU)	2.80	NO <sub>3</sub> -N (mg/L)	na	Ortho-PO <sub>4</sub> -P (mg/L)	na
COND (mS/cm)	2.98	MBAS (mg/L)	na	DO (mg/L)	5.89		

**Analytical Lab Samples Collected?**     Yes     No

**FLOW ESTIMATION WORKSHEETS**

Flowing Creek or Box Culvert			Filling a Bottle or Known Volume			Flowing Pipe		
Width	60	in	Volume		mL	Diameter		ft
Depth	1.5	in	Time to Fill		sec	Depth		ft
Velocity	1	ft/sec	Flow		gpm	Velocity		ft/sec
Flow	281	gpm				Flow		gpm

**COMMENTS:** \_\_\_\_\_

**San Diego Stormwater Copermittees  
City of Santee  
Dry Weather Monitoring Field Datasheet**

Field Screening       Confirmation For \_\_\_\_\_       IC/ID Follow-Up For \_\_\_\_\_

GENERAL SITE DESCRIPTION (NAD 83 decimal degrees to 5th place)       MS4       Receiving Water

Site ID	Sycamore Creek Downstream			Latitude	32.844441	Watershed	Hydrologic Unit	907
Location	Carlton Oaks Drive			Longitude	-117.00652		Hydrologic Area	907.1
				TB Page	1231-A6		Hydrologic Subarea (Optional)	907.12
Date	9/3/09	Time	10:35	Observer	JL/MD	Discharge Area (Optional)		

Land Use (Primary) (Check one only)       Residential       Commercial       Industrial       Agricultural       Parks       Open

Land Use (Secondary) (Optional, greater than 10%)       Residential       Commercial       Industrial       Agricultural       Parks       Open       None

Conveyance (Check one only)       Manhole       Catch Basin       Outlet       Concrete Channel       Natural Creek       Earthen Channel       Curb/Gutter

**ATMOSPHERIC CONDITIONS**

Weather       Sunny       Partly Cloudy       Overcast       Fog  
Tide       N/A       Low       Incoming       High       Outgoing      Tide Height: \_\_\_\_\_ ft.  
Last Rain       > 72 hours       < 72 hours  
Rainfall       None       < 0.1"       > 0.1"

**RUNOFF CHARACTERISTICS**

Odor       None       Musty       Rotten Eggs       Chemical       Sewage       Other  
Color       None       Yellow       Brown       White       Gray       Other  
Clarity       Clear       Slightly Cloudy       Opaque       Other  
Floatables       None       Trash       Bubbles/Foam       Sheen       Fecal Matter       Other  
Deposits       None       Sediment/Gravel       Fine Particulates       Stains       Oily Deposits       Other  
Vegetation       None       Limited       Normal       Excessive       Other  
Biology       None       Insects       Algae       Fish       Snails       Mussels/Barnacles       Insect/Algae       Insect/Snail       Other

Water Flow       Flowing       Ponded       Dry       Tidal

Does the storm drain flow reach the Receiving Water?       Yes       No       N/A

Evidence of Overland Flow?       Yes       No       Irrigation Runoff       Other:

Photo Taken       Yes       No      Photo # 13, 14

Field Screening Samples Collected?       Yes       No

Water Temp (°C)	27.7	NH3-N (mg/L)	na	NO3 (mg/L)	na	Ortho-PO4 (mg/L)	na
pH (pH units)	8.2	TURB (NTU)	5.83	NO3-N (mg/L)	na	Ortho-PO4-P (mg/L)	na
COND (mS/cm)	1.99	MBAS (mg/L)	na	DO (mg/L)	5.21		

Analytical Lab Samples Collected?       Yes       No

**FLOW ESTIMATION WORKSHEETS**

**Flowing Creek or Box Culvert**

Width	25	in
Depth	1	in
Velocity	1	ft/sec
Flow	78	gpm

**Filling a Bottle or Known Volume**

Volume		mL
Time to Fill		sec
Flow		gpm

**Flowing Pipe**

Diameter		ft
Depth		ft
Velocity		ft/sec
Flow		gpm

COMMENTS: \_\_\_\_\_