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SAMPLING REPORT
for SANDIA CREEK
and SANTA MARGARITA RIVER
CONTRACT No. 514456,
TASK ORDER #7

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Prepared for:

Watershed Protection Program
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1.0 INTRODUCTION

Winzler & Kelly (W&K) is pleased to present this Sampling Report for two mass loading stations (MLS) installed at key locations on Sandia Creek and Santa Margarita River in San Diego County. The sampling stations were installed to perform two dry weather and two wet weather composite samplings at each site. This report presents the sampling protocol followed for both the dry and wet weather sampling events and the analytical laboratory results for each site.

2.0 DESCRIPTION OF SAMPLING SITES

The two mass loading stations were installed by W&K and Kinetics Laboratories Inc. (KLI) at the locations show on Figure A-1 in Appendix A, with the corresponding coordinates presented in Table 1. W&K performed site visits with County personnel to finalize the of the stations sites, which was based on flow characteristics of the river and accessibility.

TABLE 1 APPROXIMATE LOCATIONS OF MASS LOADING STATIONS

Site Designation	Location Description	Lat.	Long.
SMG07 (SC)	Sandia Creek @ Sandia Creek Drive (USGS gauging station)	33.42466	117.24913
SMR Gorge (RG)	Santa Margarita River above Stone Creek	33.43017	117.19619

Sample stations consisted of a flow meter and automated sampler installed by KLI. Equipment was secured in suitable enclosures to prevent vandalism and damage due to weather. W&K coordinated with San Diego County to secure access agreements from UC San Diego for the Santa Margarita site as well as Fallbrook PUD and the U.S. Geologic Survey (USGS) for the Sandia Creek site. Photos (Figures 1 and 2) as well as a list of the equipment used at each site are presented below:

FIGURE 1 - INTAKE FOR SANDIA CREEK SAMPLING LOCATION

FIGURE 2 - SANTA MARGARITA RIVER SAMPLING SITE

- **Sandia Creek**
  - Campbell Scientific CR-10X (data logger)
  - Sampler: ISCO 6712
  - Stage: DCC bubbler level monitor (December 07 – 1 April 08), Druck pressure transducer (1 April 08 to Present)

- **Santa Margarita**
  - Campbell Scientific CR-10X (data logger)
  - Sampler: Sigma 900

- Stage: DCC bubbler level monitor (December 07 – 29 January 08), Druck pressure transducer (31 January – May 08)

The sampling interval for each station was programmed on either a time-weighted or flow-weighted basis. The time-weighted scenario requires a specific fixed-time interval between samples whereas the flow-weighted scenario allows the capabilities for sample frequency to be increased or decreased based on the volume of flow that passes by the gage during a storm event. Each MLS was equipped with a pressure transducer that continually monitored instantaneous stage height in the channel. Using a stage to discharge relationship, the MLS can be programmed with a discharge equation to collect a sample based on the volume of flow that passes by the station. The stage-discharge information used for each site is further discussed below.

2.1 Sandia Creek Sampling Site

The intake for the Sandia Creek MLS was placed immediately adjacent to the USGS Gage #11044350 (Sandia Creek near Fallbrook). USGS maintains a shift-corrected rating curve (Figure 3) for Sandia Creek that was used as the basis for calculation of instantaneous flow. A USGS staff gage at the site provides the reference for stage (or water level) measurements in the creek. From April 2008 until the last sample event at this location, a pressure transducer was placed in a stilling well to monitor the stage in the creek. From December 2007 until April 2008, a bubbler (similar to what USGS uses at the site) was utilized for the stage height measurement. An offset was applied such that the stage recorded by the stormwater monitoring station matched the stage measured by the USGS gaging station. The offset applied was required due to the lag time associated with the upstream USGS gauge location. The stormwater monitoring station calculated the flow based upon the USGS rating curve. The instrumentation measures the stage every minute; it then calculates the flow and stores the information in temporary storage. During storm events, average flow was calculated and recorded every five minutes.

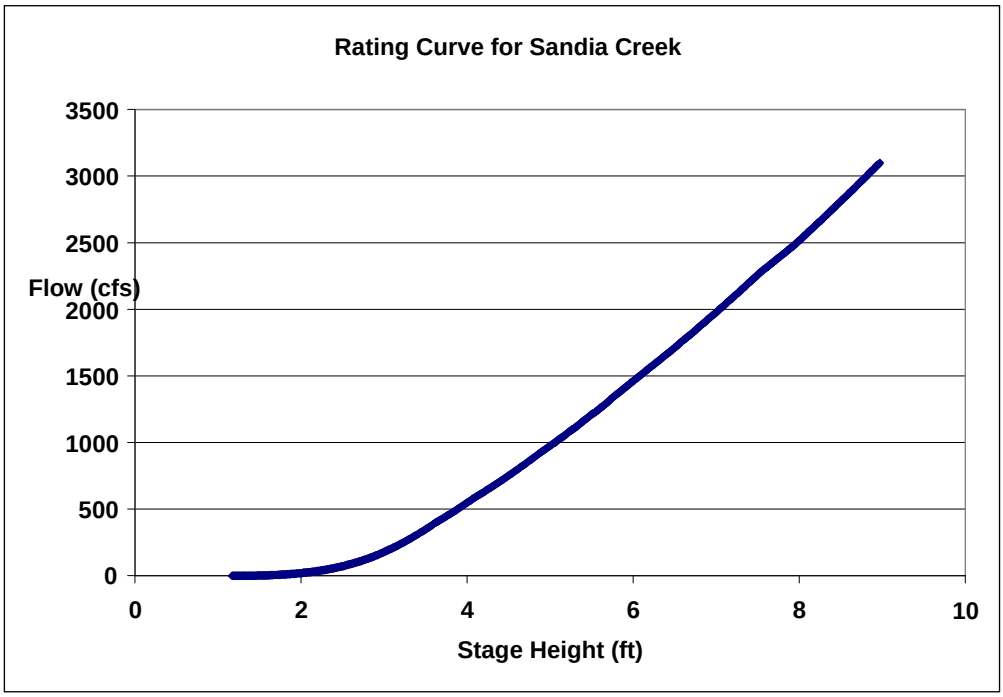

FIGURE 3 - SANDIA CREEK MLS RATING CURVE

2.2 Santa Margarita River Sampling Site

The Santa Margarita River sampling station was placed immediately upstream of the confluence of Stone Creek and located just north of the City of Fallbrook in the Santa Margarita Ecological Reserve. USGS maintains stream flow gage stations on Santa Margarita River both up- and downstream from where the sampling station was placed. These USGS stations are in Temecula (USGS Gage #11044000) and Fallbrook (USGS Gage #11044300). The Mass Loading sampling station was placed in a braided reach of Santa Margarita River, an undesirable location for establishing a stage-discharge rating curve because of the poorly defined channel and mobile bed at high flow regimes. Therefore, a synthetic rating curve was generated for the sampling station by utilizing the stage height measured at the MLS, and the flow measured at the upstream USGS Temecula gage. To account for flow travel time from the Temecula gage to the MLS, 103 minutes was added to the Temecula flows based on a comparison of time lapse between the peak flows measured at Temecula and the peak stages measured at the MLS. This comparison was conducted for the January 27th to 29th, 2008 storm event where the MLS stage data was plotted against the Temecula flow data and a second degree polynomial was fit to the curve, which provided an adequate fit for generating a synthetic rating curve (Figure 4).

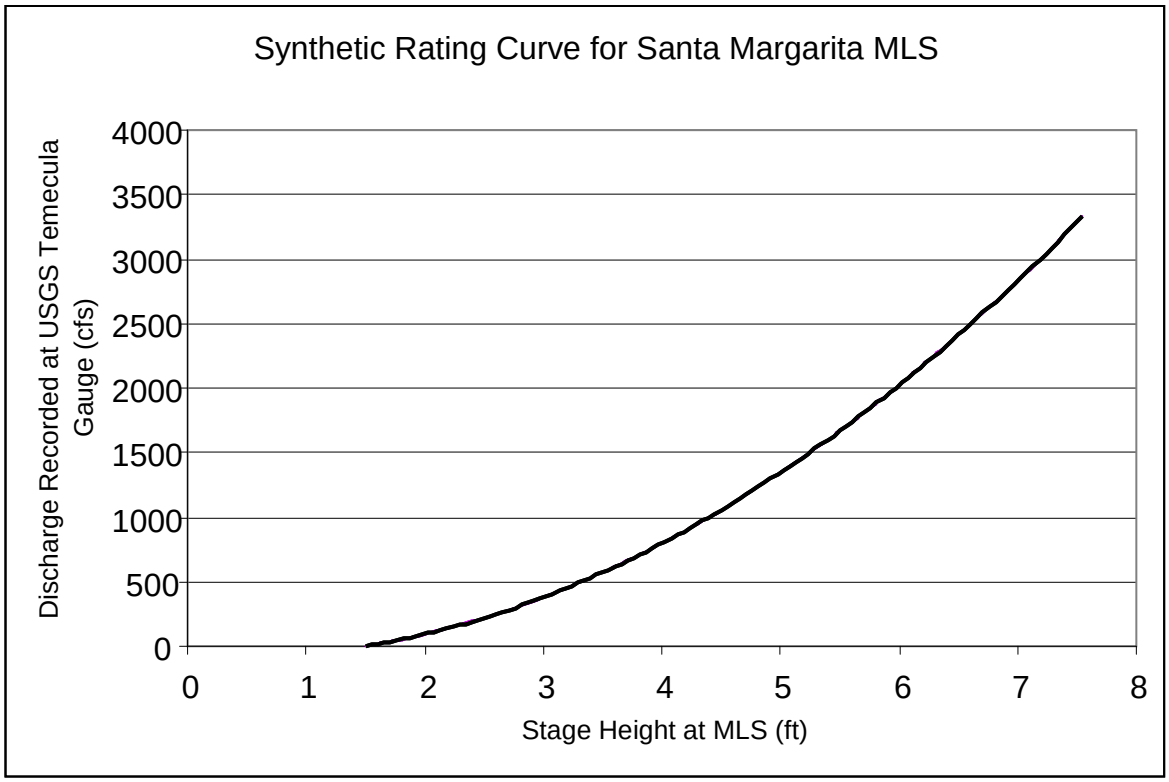

FIGURE 4 - SANTA MARGARITA RIVER MLS SYNTHETIC RATING CURVE

Peak flows measured at the USGS Temecula gage were compared to peak flows measured at the USGS Fallbrook gage on Santa Margarita River during common storm events, and the difference in peaks indicate a slight increase in flows at Fallbrook, as would be excepted with the increase in contributing watershed area. This slight increase was considered insignificant for the purpose of establishing flow-weighted sampling frequencies using Temecula flow data at the MLS. The use of the rating curves discussed above is further described in the wet weather sampling methods section below.

3.0 FIELD METHODS

Based on the scope of services for this project, two dry weather and two wet weather sampling events were conducted following protocol developed by San Diego County, which is discussed in further detail below.

3.1 Dry Weather Sampling

Based on the San Diego County sampling protocol, dry weather monitoring at Sandia Creek and the Santa Margarita River Gorge Mass Loading stations was not conducted during any rain events greater than 0.1 inches, or within 72 hours of the end of any rain event. Sample events were scheduled by KLI project managers after consultation with W&K and notification of County personnel.

Dry weather sampling events were based on a 24-hour time-weighted compositing scheme. During each dry weather event, samplers at each site were programmed to take a 250 mL sample aliquot at predetermined time intervals throughout a 24-hour period. Sample aliquots were pumped into the monitoring station's 20L glass bottle. At the end of each event, sample bottles were taken back to KLI and sub-sampled into smaller sample containers for chemical analysis. Sample times on all laboratory analyses reflect the time of last sample taken in the field.

Field personnel also used field water quality instrumentation to take *in situ* measurements of water quality once during each dry weather event. Field water quality parameters included temperature, pH, dissolved oxygen, turbidity, and specific conductance.

3.2 Wet Weather Sampling

Wet weather sampling events at Sandia Creek and Santa Margarita River Gorge monitoring stations were scheduled by project managers who monitored meteorological conditions for incoming storm events. Based on the San Diego County sampling protocol, a viable storm event was considered a minimum of 0.25 inch of rainfall and had to be within ± 50% of the average storm volume for the region. In addition, sampling events at the same site must be separated by at least 14 days.

Stormwater sampling events at Sandia Creek and Santa Margarita River Gorge monitoring stations were typically based on a flow-weighted compositing scheme (although wet weather event 2 at the Santa Margarita station was a hybrid of flow and time-weighted due to equipment complications). During each event, samplers at each site were programmed to take a sample every time a predetermined volume of flow passed by the station. This predetermined volume is referred hereinafter as "volume-to-sample". The volume passing by the gage was measured instantaneously using the stage-discharge curve previously discussed. Thus, with flow-weighted compositing, time intervals between samples are not necessarily evenly spaced and are dependent upon the varying rates of flow. Volume-to-sample triggers were site specific and event specific, determined on the basis of the predicted rainfall and volumes necessary for chemical analyses. The volume-to-sample used for each site is specified in the tables below recorded in million cubic feet (Mcf).

Each time that a sample was triggered, a single aliquot of 250mL was pumped into the monitoring station's 20L glass bottle; bottles were changed on an as-needed basis. At the end of each event, sample bottles were taken back to KLI, composited into a single sample in the case of multiple 20L bottles, and sub-sampled into smaller sample containers for chemical analysis. Sample times on all laboratory analyses reflect the time of last sample taken in the field.

Field personnel also used field water quality instrumentation to take *in situ* measurements of water quality once during each wet weather event. Field water quality parameters included temperature, pH, dissolved oxygen, turbidity, and specific conductance.

4.0 ANALYTICAL METHODS

Based on the scope of services, Table 2 lists the analytical methods used for each constituent sampled for at each MLS. Laboratory analysis of the composite samples was conducted by CRG Laboratory.

Table 2 - Analytical Requirements for Samples Collected from Mass Loading Stations

Analytical Parameter	Analytical Method	Sample Volume (mL)	Sample Container	Preservative	Maximum Holding Time	Laboratory Reporting Limit (units)
Ammonia-N	SM 4500	1000	Amber Glass	Acidify to pH<2 with H^2SO^4	28 days	0.05 (mg/L)
Iron, Total	EPA 200.7/ EPA 200.8	250	HDPE Plastic	Acidify to pH<2 with HNO^3	6 months	10.0 (µg/L)
Manganese, Total	EPA 200.7/ EPA 200.8	250	HDPE Plastic	HNO^3	6 months	0.5 (µg/L)
Nitrate-N	EPA 300.1	250	HDPE Plastic	4^o C	48 hours	0.05 (mg/L)
Nitrite-N	EPA 300.1	250	HDPE Plastic	4^o C	48 hours	0.05 (mg/L)
Ortho-Phosphate[1]	EPA 300.1	250	HDPE Plastic	4^o C	48 hours	0.01 (mg/L)
Total Dissolved Solids	SM 2450	1000	HDPE Plastic	4^o C	7 days	0.2 (mg/L)
Sulfates	EPA 300.0	250	HDPE Plastic	4^o C	28 days	0.05 (mg/L)
Total Kjeldahl Nitrogen	EPA 351.3	500	Amber Glass	H^2SO^4	28 days	0.50 (mg/L)
Total Phosphate-P	SM 4500	250	HDPE Plastic	H^2SO^4	28 days	0.05 (mg/L)

[1] Will be filtered at the end of the storm

4.1 Quality Control

W&K submitted Quality Assurance and Quality Control (QA/QC) samples for analysis for each of the dry weather and wet weather sample events. The County standard is for the collection of 10% duplicates, 5% field blank and two (2) blind samples. For the full sampling period, there were a total of eight dry and wet weather samples; W&K submitted one duplicate sample (DP), one field blank sample, and two blind samples to the laboratory for analysis, a total of four QA/QC samples were analyzed for the constituents listed in Table 2.

4.2 Sampling Events

Tables 3 through 7 include the periods for which the dry and wet weather sampling events were conducted at the Sandia Creek (SC) and the Santa Margarita River Gorge (RG) stations as well as the sampling intervals used. Storm event one resulted in 2.27-inches of rainfall over the course of the storm. Storm event two resulted in 1.53-inches of rainfall, while storm event three had 2.24-inches of rainfall. Rainfall data for storms was collected at the Ammo Dump (Station Id. AMD) weather station managed by the Department of Water Resources. The AMD weather station is located within the Santa Margarita watershed within close proximity to the Mass Loading Stations.

TABLE 3 - DRY WEATHER EVENT 1: DEC. 5- DEC. 6, 2007

	Composite Sampling		*In Situ* Water Quality Measurements		
Station ID	**Sample Date**	**Sample Time (PST)**	**Sample Date**	**Sample Time (PST)**	**Sample Intervals**
RG	12/6/07	5:05 pm	12/7/2007	6:15 pm	Sampled at 30 minute time intervals.
SC	12/6/07	2:25 pm	12/7/2007	8:09 pm	Sampled at 30 minute time intervals.
DP	12/6/07	2:30 pm	NA	NA	Duplicate taken from SC.

TABLE 4 - DRY WEATHER EVENT 2: MAY 13 -MAY 14, 2008

	Composite Sampling		*In Situ* Water Quality Measurements		
Station ID	**Sample Date**	**Sample Time (PST)**	**Sample Date**	**Sample Time (PST)**	**Sample Intervals**
RG	5/14/08	9:30 am	5/14/08	8:45 am	Sampled at 30 minute time intervals.
SC	5/14/08	11:15 am	5/14/08	11:45 am	Sampled at 30 minute time intervals.
DP	5/14/08	10:00 am	NA	NA	Duplicate taken from SC.

TABLE 5 - WET WEATHER EVENT 1: JAN 28- JAN 29, 2008

	Composite Sampling		*In Situ* Water Quality Measurements			
Station ID	**Sample Date**	**Sample Time (PST)**	**Sample Date**	**Sample Time (PST)**	**Sample Intervals**	**Total Storm Rainfall (in.)**
RG	1/29/08	9:24 am	1/27/08; 1/28/08	1:00 pm; 1:30 pm	Volume-to-sample set at 1.44 Mcf. Two sets of field measurements taken.	2.27
SC	NA	NA	NA	NA	SC not sampled; equipment malfunction.	
DP	1/29/08	9:24 am	NA	NA	Duplicate taken from RG.	

TABLE 6 - WET WEATHER EVENT 2: FEB 22-FEB 24, 2008

	Composite Sampling		*In Situ* Water Quality Measurements			
Station ID	**Sample Date**	**Sample Time (PST)**	**Sample Date**	**Sample Time (PST)**	**Sample Intervals**	**Total Storm Rainfall (in.)**
RG	2/23/08	6:00 pm	2/23/08	9:00 pm	Sampled at 30 minute intervals.	1.53
SC	2/24/08	8:34 pm	2/23/08	5:45 pm	Volume-to-Sample set at 0.27 Mcf.	
DP	2/24/08	8:24 pm	NA	NA	Duplicate taken from SC.	

TABLE 7 - WET WEATHER EVENT 3: NOV 27-NOV 28, 2008

	Composite Sampling		*In Situ* Water Quality Measurements			
Station ID	**Sample Date**	**Sample Time (PST)**	**Sample Date**	**Sample Time (PST)**	**Sample Intervals**	**Total Storm Rainfall (in.)**
RG	Already Sampled during Previous Two Wet Weather Events					2.24
SC	11/28/08	6:17 am	Already Measured during Wet Weather Event 2			
DP	11/28/08	6:17 am	NA	NA	Duplicate taken from SC.	

5.0 FLOW MEASUREMENTS

As previously stated, each MLS was equipped with a pressure transducer that measured the stage of the flow passing by each station. The stage-discharge ratings curves presented above were utilized to determine the corresponding instantaneous flow rate and ultimately the storm hydrographs. The hydrographs below represent flow data for the Sandia Creek and Santa Margarita River Gorge stations during wet weather Events 1, 2, and 3. The blue lines depict instantaneous flow (non-cumulative) and the red lines represent discrete times at which a sample was taken by the station's automated sampler.

5.1 Sandia Creek Sampling Event Hydrographs and Sampling Frequencies

Figures 5 and 6 depict the hydrographs and sampling frequencies associated with the wet weather sampling at Sandia Creek during storm events 2 and 3, respectively. The sampling frequencies were based on the flow-weighted scenario as indicated by the increased in sampling frequencies corresponding with the hydrograph peaks.

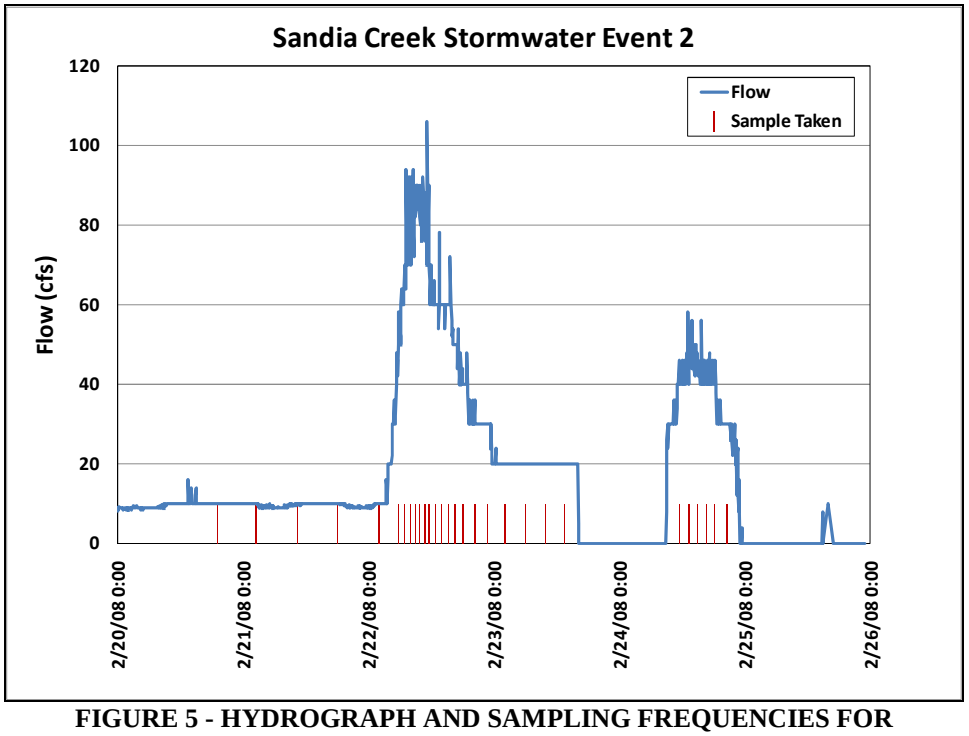

FIGURE 5 - HYDROGRAPH AND SAMPLING FREQUENCIES FOR SANDIA CREEK DURING STORM EVENT 2

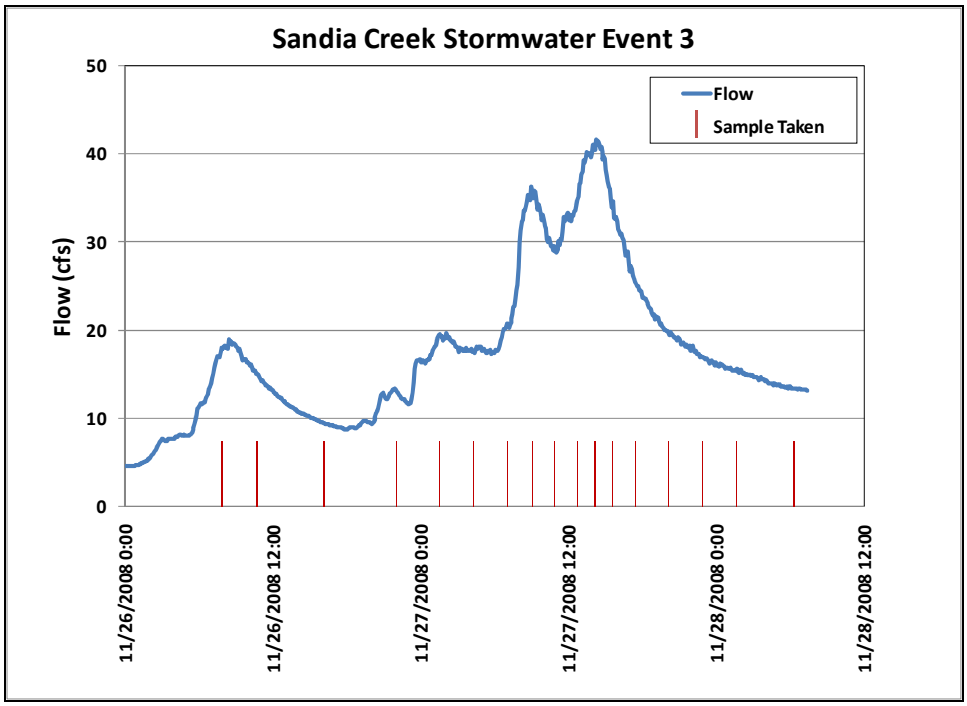

FIGURE 6 - HYDROGRAPH AND SAMPLING FREQUENCIES FOR SANDIA CREEK DURING STORM EVENT 3

5.2 Santa Margarita River Sampling Event Hydrographs and Sampling Frequencies

Figures 7 and 8 depict the hydrographs and sampling frequencies associated with the wet weather sampling at the Santa Margarita River station during storm events 1 and 2, respectively. The sampling frequencies for storm event 1 (Figure 7) were based on the flow-weighted scenario. The gap in sampling occurrences indicates that the station stopped collecting samples as a result of full sample bottles. The grey vertical line depicts when the station was temporarily shutdown to restock sample bottles and sampling was then resumed once restocked. Based on an analysis of the total area under the hydrograph and the samples collected, it was determined that the sample frequency represented a valid of representation of the flow from the storm. The sampling frequencies for storm event 2 (Figure 8) were based on a time-weighted scenario and not flow-weight as a result of equipment malfunctions; however, again, based on an analysis of the total area under the hydrograph and the samples collected, it was determined that the sample frequency represented a valid representation of the flow from the storm.

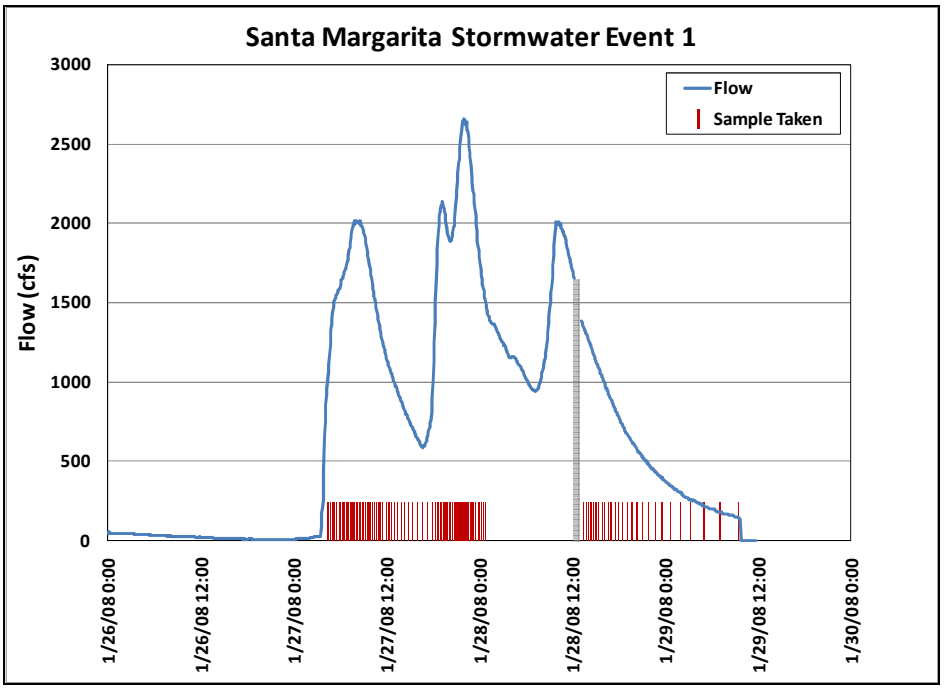

FIGURE 7 - HYDROGRAPH AND SAMPLING FREQUENCIES FOR SANTA MARGARITA RIVER GORGE DURING STORM EVENT 1

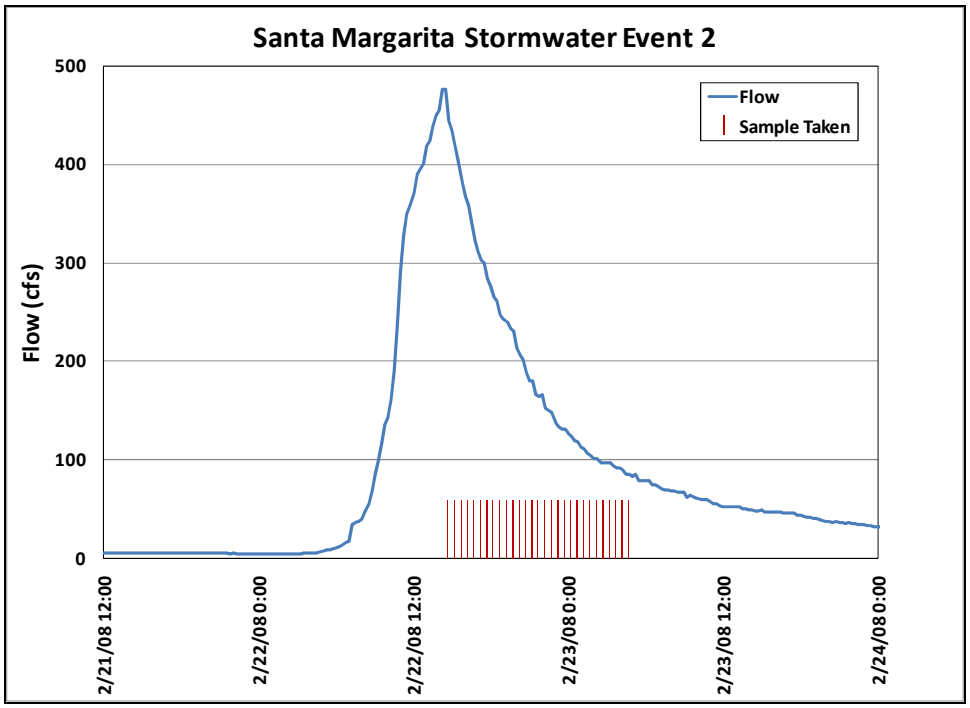

FIGURE 8 - HYDROGRAPH AND SAMPLING FREQUENCIES FOR SANTA MARGARITA RIVER GORGE DURING STORM EVENT 2

6.0 SUMMARY OF ANALYTICAL RESULTS

The analytical results from the Sandia Creek and Santa Margarita River stations are located in Appendix B on Tables B1 and B2, respectively. The results tables include the event mean concentrations as well as the minimum detection limit (MDL) for each constituent. Table B3 contains the in situ water quality results for each event at each site.

6.1 Sandia Creek Results

Sandia Creek was sampled for two dry weather events and two wet weather events (Table B1). Duplicate samples were taken each of the three events for quality assurance. Wet weather event 3 (November 28, 2008) experienced the highest levels of the following constituents: Iron (2,317 µg/L), Manganese (391.5 µg/L), Ammonia-N (0.08 mg/L), and Total Phosphorus (0.418 mg/L). Dry weather event 1 (December 6, 2007) had the highest levels of Dissolved Orthophosphate (0.1848 mg/L), Sulfate (366.17 mg/L), and Total Dissolved Solids (1,186 (mg/L).The duplicate samples for all three weather events are within reasonable agreement with the analytical results for each sample.

The laboratory included additional analytical analysis for total Dissolved Phosphorus and Total Orthophosphate for this sample event, which were beyond what was originally requested. These analytes were not requested and were not included in future sample events.

Water quality parameter values taken during the in situ sampling for each event were within the expected range (Table B3). For Sandia Creek, the highest Temperature (17.9° C), pH (8.45), D.O. (10.06 mg/L) occurred during dry weather event 2 (May 14, 2008). The highest Specific Conductance (1,736 µS) occurred during dry weather event 1 (December 7, 2007) and the highest Turbidity (350 NTU) occurred during wet weather event 1 (January 27, 2008).

6.2 Santa Margarita River Results

Santa Margarita River was sampled for two dry weather events and two wet weather events (Table B2). Duplicate samples were taken for wet weather event 1. Wet weather event 1 (January 29, 2008) displayed the highest levels of the following constituents: Iron (3,128 µg/L), Manganese (615.8 µg/L), Ammonia-N (0.08 mg/L), Dissolved Orthophosphate as P (0.5627 mg/L), and total Phosphorous (1.556 mg/L). Dry weather event 1 (December 6, 2007) displayed the highest levels of Sulfate (335.49 mg/L) and Total Dissolved Solids (1,092 mg/L). Duplicate samples for wet weather event 1 are within reasonable agreement with the analytical results from the standard samples.

Water quality parameter values taken during the in situ sampling for each event were within the expected range (Table B3). For Santa Margarita River, the highest Temperature (17.9 °C) occurred during dry weather event 2 (May 14, 2008). The highest pH (8.38) occurred during wet weather event 2 (February 23, 2008). The highest Specific Conductance (1,704 µS) occurred during dry weather event 1 (December 7, 2007) and the highest Turbidity (820 NTU) occurred during wet weather event 1 (January 27, 2008).

Appendix A
Figures

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Figure A-1
Mass Loading Stations for Sandia Creek and Santa Maragarita River

Appendix B
Result Tables

Table B1
Summary of Sampling Rseults
For Sandia Creek
Sampling Site

			Iron (Fe)		Manganese (Mn)		Ammonia-N		Nitrate-N by IC		Nitrite-N by IC		Dissolved Orthophosphate as P by IC		Sulfate by IC		Total Dissolved Phosphorus-Low Range		Total Dissolved Solids		Total Kjedhal Nitrogen		Total Orthophosphate as P by IC		Total Phosphorus-Low Range	
Event	**Date Sampled**	**Time Collected**	**Result (ug/L)**	**MDL (ug/L)**	**Result (ug/L)**	**MDL (ug/L)**	**Result (mg/L)**	**MDL (mg/L)**	**Result (mg/L)**	**MDL (mg/L)**	**Result (mg/L)**	**MDL (mg/L)**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**
Dry Weather	06-Dec-07	2:25 PM	**109**	5	**48.9**	0.2	**0.04**	0.01	**4.7**	0.01	<0.01	0.01	**0.1848**	0.0075	**366.17**	0.01	**0.05**	0.016	**1,186**	0.1	**0.84**	0.50	**0.06**	0.01	**0.058**	0.016
Dry Weather (Duplicate)	06-Dec-07	2:30 PM	**108**	5	**48.6**	0.2	**0.012**	0.01	**4.64**	0.01	<0.01	0.01	**0.2501**	0.0075	**390.41**	0.01	**0.05**	0.016	**1,168**	0.1	**0.91**	0.50	**0.06**	0.01	**0.041**	0.016
Wet Weather	24-Feb-08	6:00 PM	**1,438**	5	**179.9**	0.2	**0.08**	0.03	**6.47**	0.01	<0.01	0.01	**0.0201**	0.0075	**140.33**	0.01	NA		**926**	0.1	**1.4**	0.50	NA		**0.175**	0.016
Wet Weather (Duplicate)	24-Feb-08	6:00 PM	**1,576**	5	**183.6**	0.2	**0.16**	0.03	**5.43**	0.01	<0.01	0.01	ND	0.0075	**266.71**	0.01	NA		**982**	0.1	**1.3**	0.50	NA		**0.337**	0.016
Dry Weather	14-May-08	12:15 PM	**33**	5	**5**	0.2	**0.04**	0.03	**4.71**	0.01	<0.01	0.01	**0.0419**	0.0075	**317.93**	0.01	NA		**1,080**	0.1	**2.8**	0.50	NA		**0.019**	0.016
Dry Weather (Duplicate)	14-May-08	12:20 PM	**32**	5	**5**	0.2	**0.06**	0.03	**4.74**	0.01	<0.01	0.01	**0.0505**	0.0075	**315.17**	0.01	NA		**1,054**	0.1	**NA**	0.50	NA		**0.024**	0.016
Wet Weather	28-Nov-08	6:17 AM	**2,317**	5	**387.1**	0.2	**0.08**	0.03	**2.68**	0.01	**0.04**	0.01	**0.1581**	0.0075	**321.27**	0.01	NA		**952**	0.1	**2.8**	0.50	NA		**0.418**	0.016

MDL = Minimum Detection Limits

< x = Analyte was not detected above the minimum detection limit

NA = Not Analyzed

Table B2
Summary of Sampling Rseults
For Santa Margarita
Sampling Site

			Iron (Fe)		Manganese (Mn)		Ammonia-N		Nitrate-N by IC		Nitrite-N by IC		Dissolved Orthophosphate as P by IC		Sulfate by IC		Total Dissolved Phosphorus-Low Range		Total Dissolved Solids		Total Kjedhal Nitrogen		Total Orthophosphate as P by IC		Total Phosphorus-Low Range	
Event	**Date Sampled**	**Time Collected**	**Result (ug/L)**	**MDL (ug/L)**	**Result (ug/L)**	**MDL (ug/L)**	**Result (mg/L)**	**MDL (mg/L)**	**Result (mg/L)**	**MDL (mg/L)**	**Result (mg/L)**	**MDL (mg/L)**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**	**Result (mg/L)**	**MDL**
Dry Weather	6-Dec-2007	5:05 PM	**265**	5	**142.2**	0.2	**0.04**	0.01	**3.3**	0.01	**0.1**	0.01	**0.3597**	0.0075	**335.49**	0.01	**0.32**	0.016	**1,092**	0.1	**1.5**	0.50	**0.32**	0.01	**0.337**	0.016
Wet Weather	29-Jan-2008	9:24 AM	**3,128**	5	**615.8**	0.2	**0.08**	0.03	**0.81**	0.01	**0.1**	0.01	**0.5627**	0.0075	**37.12**	0.01	NA		**230**	0.1	**0.7**	0.50	NA		**1.556**	0.016
Wet Weather (Duplicate)	29-Jan-2008	9:24 AM	**2,765**	5	**614.8**	0.2	**0.1**	0.03	**0.71**	0.01	**0.11**	0.01	**0.5297**	0.0075	**37.86**	0.01	NA		**194**	0.1	**0.7**	0.50	NA		**1.66**	0.016
Wet Weather	24-Feb-2008	6:00 PM	**951**	5	**65.2**	0.2	**0.08**	0.03	**0.81**	0.01	<0.01	0.01	**0.0426**	0.0075	**79.49**	0.01	NA		**448**	0.1	**0.98**	0.50	NA		**0.035**	0.016
Dry Weather	14-May-2008	10:30 AM	**60**	5	**9.9**	0.2	**0.05**	0.03	**0.65**	0.01	<0.01	0.01	<0.0075	0.0075	**200.65**	0.01	NA		**632**	0.1	NA	NA	NA		**0.016**	0.016

MDL = Minimum Detection Limits
< x = Analyte was not detected above the minimum detection limit
NA = Not Analyzed

Table B3
Water Quality Parameters
for Sandia Creek and Santa Margarita River

	Sandia Creek				Santa Margarita River				
Parameter	**12/7/2007**	**1/27/2008**	**2/23/2008**	**5/14/2008**	**12/7/2007**	**1/27/2008**	**1/28/2008**	**2/23/2008**	**5/14/2008**
Time	20:09	10:53	16:02	10:50	18:00	11:58	12:05	18:12	8:45
Temperature (℃)	14.41	13.8	14.0	17.9	13.37	13.8	11.3	10.3	17.9
pH	7.73	8.25	8.28	8.45	7.54	6.68	8.07	8.38	8.08
Specific Conductance (uS)	1736	1091	1203	1132	1704	307.2	306	692	971
D.O. (mg/L)	NA	9.80	9.11	10.06	NA	10.85	11.24	6.63	8.85
Turbidity (NTU)	9.6	350	13.3	0.7	11.4	820	813	31	1.5

NA= Not Analyzed

Appendix C
Lab Reports

CRG Marine Laboratories, Inc.
"A Center for Excellence in Analytical Chemistry and Environmental Microbiology"

January 09, 2008

Kinnetic Laboratories, Inc.
307 Washington St.
Santa Cruz, CA 95060

Re: CRG Marine Laboratories — Project ID: P27263
Kinnetic Laboratories, Inc. — Project ID: Santa Margarita #5300.03

ATTN: Amy Howk

CRG Laboratories is pleased to provide you with the enclosed analytical data report for your Santa Margarita #5300.03 project. According to the chain-of-custody, 3 samples were received intact at CRG on 12/7/2007 . Per your instructions, the samples were analyzed for:

- Ammonia-N Using Method SM 4500-NH3 F
- Dissolved Orthophosphate as P by IC Using Method EPA 300.0
- Nitrate-N by IC Using Method EPA 300.0
- Nitrite-N by IC Using Method EPA 300.0
- Sulfate by IC Using Method EPA 300.0
- Total Dissolved Phosphorus-Low Range Using Method SM 4500-P E
- Total Dissolved Solids Using Method SM 2540 C
- Total Orthophosphate as P Using Method SM 4500-P E
- Total Phosphorus-Low Range Using Method SM 4500-P E
- Trace Metals By ICPMS Using Method EPA 200.8m

The following analysis were subcontracted to other laboratories, results are included:

- TKN

Please don't hesitate to call if you have any questions and thank you very much for using our laboratory for your analytical needs.

Regards,
Claire Waggoner

Reviewed and Approved Claire Waggoner

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

Project Sample List

Kinnetic Laboratories, Inc.

CRG Project ID: 27263

Project Officer: Amy Howk

Project Description: Santa Margarita #5300.03

CRG Sample ID#	*Client Sample ID*	*Sample Description*	*Date Sampled*	*Matrix*
60800	SM-SC-DW-01		06-Dec-07	Water
60801	SM-RG-DW-01		06-Dec-07	Water
60802	SM-DP-DW-01		06-Dec-07	Water

CRG's QUALITY ASSURANCE PROGRAM SUMMARY

BATCH: CRG's Quality Assurance Program Document defines a batch as a group of 20 or fewer samples of similar matrix, processed together under the same conditions and with the same reagents. Quality control samples are associated with each batch and are used to assess the validity of the sample analyses. CRG typically uses batch sizes of 10-15 samples.

PROCEDURAL BLANKS: Laboratory contamination was controlled through the analysis of procedural blanks on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that all procedural blanks be below 10 times the MDL and all detectable constituents in the blanks be flagged in the sample results. The Procedural Blanks are presented in the Procedural Blank section of this report.

ACCURACY: Accuracy of the project data was indicated by analysis of matrix spikes, surrogate spikes, certified reference materials, positive controls, and/or laboratory control materials on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits. The Acceptance Ranges are presented in the Accuracy Data section of this report.

PRECISION: Precision of the project data was determined by analysis of duplicate matrix spikes, blank spikes, and/or duplicate test sample analysis on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that for 95% of the compounds >10 times the MDL, the % Relative Percent Difference (%RPD) should be within the specified acceptance range. The %RPD for the duplicate test sample analysis can be significantly affected by the homogeneity of the sample matrix within the sample container itself causing additional variability in the analytical results. In these cases, the QA/QC Acceptance Limits may be exceeded. The %RPD and Acceptance Ranges are presented in the Precision Data section of this report.

GLOSSARY OF TERMS

Qualifier	Definition
B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeds the calibration range
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
M1	Recovery of the Matrix Spike or Matrix Spike Duplicate compound was out of control due to matrix interference.
M2	The MS/MSD RPD was out of control due to matrix interference.
M3	Detection of the analyte was difficult due to matrix interference.
M4	Spike or surrogate compound recovery was out of control due to matrix interference. The associated method blank spike or surrogate compound was in control and therefore the sample data was reported without further clarification.
ND or U	Parameter not detected at the indicated reporting limit.
NES	Not enough sample.
Q1	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration.
Q2	The sample RPD was out of control. Sample is heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices.
Q3	RPD values are not accurate and not applicable because the results for R1 and/or R2 are lower than 10 times the MDL.
R	Analyte was removed by the sample preparation/extraction procedure as seen by the MS/MSD recoveries. RPD acceptance ranges do not apply.

Qualifier Summary for P27263

General Chemistry

Sample ID	*Client Sample ID*	*Qualifier*	*Parameter*
60800-R1	SM-SC-DW-01	J	Ammonia-N
60800-R2	SM-SC-DW-01	J	Ammonia-N
60801-R1	SM-RG-DW-01	J	Ammonia-N
60800-MS1	SM-SC-DW-01	M4	Sulfate by IC
60800-MS2	SM-SC-DW-01	M4	Sulfate by IC
60802-R1	SM-DP-DW-01	J	Total Phosphorus-Low Range

DATA REPORT

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
60800-R1 SM-SC-DW-01					**Water**		**Sampled: 06-Dec-07**		**Received: 07-Dec-07**	
Ammonia-N	NA	0.04	0.01	0.05	mg/L	27263-5002012	12/22/2007	12/22/2007	SM 4500-NH3 F	J
Dissolved Orthophosphate as	NA	0.1848	0.0075	0.01	mg/L	27263-5015006	12/8/2007	12/8/2007	EPA 300.0	
Nitrate-N by IC	NA	4.7	0.01	0.05	mg/L	27263-5012006	12/8/2007	12/8/2007	EPA 300.0	
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L	27263-5013007	12/8/2007	12/8/2007	EPA 300.0	
Sulfate by IC	NA	366.17	0.01	0.05	mg/L	27263-5019002	1/2/2008	1/2/2008	EPA 300.0	
Total Dissolved Phosphorus-L	NA	0.05	0.016	0.05	mg/L	27263-5017005	12/29/2007	12/29/2007	SM 4500-P E	
Total Dissolved Solids	NA	1186	0.1	5	mg/L	27263-5022004	12/13/2007	12/13/2007	SM 2540 C	
Total Orthophosphate as P	NA	0.06	0.01	0.01	mg/L	27263-5015005	12/8/2007	12/8/2007	SM 4500-P E	
Total Phosphorus-Low Range	NA	0.058	0.016	0.05	mg/L	27263-5017006	12/29/2007	12/29/2007	SM 4500-P E	
60801-R1 SM-RG-DW-01					**Water**		**Sampled: 06-Dec-07**		**Received: 07-Dec-07**	
Ammonia-N	NA	0.04	0.01	0.05	mg/L	27263-5002012	12/22/2007	12/22/2007	SM 4500-NH3 F	J
Dissolved Orthophosphate as	NA	0.3597	0.0075	0.01	mg/L	27263-5015006	12/8/2007	12/8/2007	EPA 300.0	
Nitrate-N by IC	NA	3.3	0.01	0.05	mg/L	27263-5012006	12/8/2007	12/8/2007	EPA 300.0	
Nitrite-N by IC	NA	0.1	0.01	0.05	mg/L	27263-5013007	12/8/2007	12/8/2007	EPA 300.0	
Sulfate by IC	NA	335.49	0.01	0.05	mg/L	27263-5019002	1/2/2008	1/2/2008	EPA 300.0	
Total Dissolved Phosphorus-L	NA	0.32	0.016	0.05	mg/L	27263-5017005	12/29/2007	12/29/2007	SM 4500-P E	
Total Dissolved Solids	NA	1092	0.1	5	mg/L	27263-5022004	12/13/2007	12/13/2007	SM 2540 C	
Total Orthophosphate as P	NA	0.32	0.01	0.01	mg/L	27263-5015005	12/8/2007	12/8/2007	SM 4500-P E	
Total Phosphorus-Low Range	NA	0.337	0.016	0.05	mg/L	27263-5017006	12/29/2007	12/29/2007	SM 4500-P E	
60802-R1 SM-DP-DW-01					**Water**		**Sampled: 06-Dec-07**		**Received: 07-Dec-07**	
Ammonia-N	NA	0.12	0.01	0.05	mg/L	27263-5002012	12/22/2007	12/22/2007	SM 4500-NH3 F	
Dissolved Orthophosphate as	NA	0.2501	0.0075	0.01	mg/L	27263-5015006	12/8/2007	12/8/2007	EPA 300.0	
Nitrate-N by IC	NA	4.64	0.01	0.05	mg/L	27263-5012006	12/8/2007	12/8/2007	EPA 300.0	
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L	27263-5013007	12/8/2007	12/8/2007	EPA 300.0	
Sulfate by IC	NA	390.41	0.01	0.05	mg/L	27263-5019002	1/2/2008	1/2/2008	EPA 300.0	

CRG Marine Laboratories, Inc.

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General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
Total Dissolved Phosphorus-L	NA	0.05	0.016	0.05	mg/L	27263-5017005	12/29/2007	12/29/2007	SM 4500-P E	
Total Dissolved Solids	NA	1168	0.1	5	mg/L	27263-5022004	12/13/2007	12/13/2007	SM 2540 C	
Total Orthophosphate as P	NA	0.06	0.01	0.01	mg/L	27263-5015005	12/8/2007	12/8/2007	SM 4500-P E	
Total Phosphorus-Low Range	NA	0.041	0.016	0.05	mg/L	27263-5017006	12/29/2007	12/29/2007	SM 4500-P E	J

CRG Marine Laboratories, Inc.

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Trace Metals

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
60800-R1 **SM-SC-DW-01**					**Water**		**Sampled: 06-Dec-07**		**Received: 07-Dec-07**	
Iron (Fe)	Total	109	5	10	µg/L	27263-17138	12/19/2007	12/21/2007	EPA 200.8m	
Manganese (Mn)	Total	48.9	0.2	0.5	µg/L	27263-17138	12/19/2007	12/21/2007	EPA 200.8m	
60801-R1 **SM-RG-DW-01**					**Water**		**Sampled: 06-Dec-07**		**Received: 07-Dec-07**	
Iron (Fe)	Total	265	5	10	µg/L	27263-17138	12/19/2007	12/21/2007	EPA 200.8m	
Manganese (Mn)	Total	142.2	0.2	0.5	µg/L	27263-17138	12/19/2007	12/21/2007	EPA 200.8m	
60802-R1 **SM-DP-DW-01**					**Water**		**Sampled: 06-Dec-07**		**Received: 07-Dec-07**	
Iron (Fe)	Total	108	5	10	µg/L	27263-17138	12/19/2007	12/21/2007	EPA 200.8m	
Manganese (Mn)	Total	48.6	0.2	0.5	µg/L	27263-17138	12/19/2007	12/21/2007	EPA 200.8m	

QUALITY CONTROL REPORT

CRG Marine Laboratories, Inc.

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Batch ID: 27263-5002012		**QAQC Procedural Blank**						**Prepared 12/22/2007**				**Analyzed 22-Dec-07**		
Lab Blank 60799-B1		**DI Water**												
Ammonia-N	NA	ND	0.01	0.05	mg/L									
Dissolved Orthophosphate as P	NA	ND	0.0075	0.01	mg/L									
Nitrate-N by IC	NA	ND	0.01	0.05	mg/L									
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L									
Sulfate by IC	NA	ND	0.01	0.05	mg/L									
Total Dissolved Phosphorus-Low	NA	ND	0.016	0.05	mg/L									
Total Dissolved Solids	NA	ND	0.1	5	mg/L									
Total Orthophosphate as P	NA	ND	0.01	0.01	mg/L									
Total Phosphorus-Low Range	NA	ND	0.016	0.05	mg/L									
Batch ID: 27263-5002012		**QAQC Procedural Blank**						**Prepared 12/22/2007**				**Analyzed 22-Dec-07**		
Blank Spike 60799-BS1		**DI Water**												
Ammonia-N	NA	0.26	0.01	0.05	mg/L	0.25	0	104	70 - 130%	PASS				
Dissolved Orthophosphate as P	NA	0.1964	0.0075	0.01	mg/L	0.165	0	119	70 - 130%	PASS				
Nitrate-N by IC	NA	0.47	0.01	0.05	mg/L	0.5	0	94	70 - 130%	PASS				
Nitrite-N by IC	NA	0.46	0.01	0.05	mg/L	0.5	0	92	70 - 130%	PASS				
Sulfate by IC	NA	24.12	0.01	0.05	mg/L	25	0	96	70 - 130%	PASS				
Total Dissolved Phosphorus-Low	NA	0.17	0.016	0.05	mg/L	0.165	0	103	70 - 130%	PASS				
Total Dissolved Solids	NA	24100	0.1	5	mg/L	25000	0	96	70 - 130%	PASS				
Total Orthophosphate as P	NA	0.08	0.01	0.01	mg/L	0.08	0	100	70 - 130%	PASS				
Total Phosphorus-Low Range	NA	0.156	0.016	0.05	mg/L	0.165	0	95	70 - 130%	PASS				
Batch ID: 27263-5002012		**QAQC Procedural Blank**						**Prepared 12/22/2007**				**Analyzed 22-Dec-07**		
Blank Spike Dup 60799-BS2		**DI Water**												
Ammonia-N	NA	0.25	0.01	0.05	mg/L	0.25	0	100	70 - 130%	PASS	4	30	PASS	
Dissolved Orthophosphate as P	NA	0.198	0.0075	0.01	mg/L	0.165	0	120	70 - 130%	PASS	1	30	PASS	
Nitrate-N by IC	NA	0.47	0.01	0.05	mg/L	0.5	0	94	70 - 130%	PASS	0	30	PASS	

CRG Marine Laboratories, Inc.

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Nitrite-N by IC	NA	0.46	0.01	0.05	mg/L	0.5	0	92	70 - 130%	PASS	0	30	PASS	
Sulfate by IC	NA	24.73	0.01	0.05	mg/L	25	0	99	70 - 130%	PASS	3	30	PASS	
Total Dissolved Phosphorus-Low	NA	0.16	0.016	0.05	mg/L	0.165	0	97	70 - 130%	PASS	6	30	PASS	
Total Dissolved Solids	NA	69000	0.1	5	mg/L	70000	0	99	70 - 130%	PASS	3	30	PASS	
Total Orthophosphate as P	NA	0.08	0.01	0.01	mg/L	0.08	0	100	70 - 130%	PASS	0	30	PASS	
Total Phosphorus-Low Range	NA	0.158	0.016	0.05	mg/L	0.165	0	96	70 - 130%	PASS	1	30	PASS	
Batch ID: 27263-5002012	**SM-SC-DW-01**							**Prepared 12/22/2007**				**Analyzed 22-Dec-07**		
Matrix Spike 60800-MS1	**Water**													
Ammonia-N	NA	0.48	0.01	0.05	mg/L	0.5	0.04	88	70 - 130%	PASS				
Dissolved Orthophosphate as P	NA	0.4376	0.0075	0.01	mg/L	0.33	0.16865	81	70 - 130%	PASS				
Nitrate-N by IC	NA	5.69	0.01	0.05	mg/L	1	4.69	100	70 - 130%	PASS				
Nitrite-N by IC	NA	0.9	0.01	0.05	mg/L	1	0	90	70 - 130%	PASS				
Sulfate by IC	NA	390.59	0.01	0.05	mg/L	50	366.41	48	70 - 130%	FAIL				M4
Total Dissolved Phosphorus-Low	NA	0.23	0.016	0.05	mg/L	0.165	0.05	109	70 - 130%	PASS				
Total Orthophosphate as P	NA	0.14	0.01	0.01	mg/L	0.08	0.06	100	70 - 130%	PASS				
Total Phosphorus-Low Range	NA	0.218	0.016	0.05	mg/L	0.165	0.055	99	70 - 130%	PASS				
Batch ID: 27263-5002012	**SM-SC-DW-01**							**Prepared 12/22/2007**				**Analyzed 22-Dec-07**		
Matrix Spike Dup 60800-MS2	**Water**													
Ammonia-N	NA	0.48	0.01	0.05	mg/L	0.5	0.04	88	70 - 130%	PASS	0	30	PASS	
Dissolved Orthophosphate as P	NA	0.4379	0.0075	0.01	mg/L	0.33	0.16865	82	70 - 130%	PASS	1	30	PASS	
Nitrate-N by IC	NA	5.76	0.01	0.05	mg/L	1	4.69	107	70 - 130%	PASS	7	30	PASS	
Nitrite-N by IC	NA	0.9	0.01	0.05	mg/L	1	0	90	70 - 130%	PASS	0	30	PASS	
Sulfate by IC	NA	396.89	0.01	0.05	mg/L	50	366.41	61	70 - 130%	FAIL	24	30	PASS	M4
Total Dissolved Phosphorus-Low	NA	0.23	0.016	0.05	mg/L	0.165	0.05	109	70 - 130%	PASS	0	30	PASS	
Total Orthophosphate as P	NA	0.14	0.01	0.01	mg/L	0.08	0.06	100	70 - 130%	PASS	0	30	PASS	
Total Phosphorus-Low Range	NA	0.219	0.016	0.05	mg/L	0.165	0.055	99	70 - 130%	PASS	0	30	PASS	

CRG Marine Laboratories, Inc.

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Batch ID: 27263-5002012	**SM-SC-DW-01**							**Prepared 12/22/2007**			**Analyzed 22-Dec-07**			
Lab Dup 60800-R2		**Water**												
Ammonia-N	NA	0.04	0.01	0.05	mg/L						0	30	PASS	J
Dissolved Orthophosphate as P	NA	0.1525	0.0075	0.01	mg/L						19	30	PASS	
Nitrate-N by IC	NA	4.68	0.01	0.05	mg/L						0	30	PASS	
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L						0	30	PASS	
Sulfate by IC	NA	366.65	0.01	0.05	mg/L						0	30	PASS	
Total Dissolved Phosphorus-Low	NA	0.05	0.016	0.05	mg/L						0	30	PASS	
Total Dissolved Solids	NA	1172	0.1	5	mg/L						1	30	PASS	
Total Orthophosphate as P	NA	0.06	0.01	0.01	mg/L						0	30	PASS	
Total Phosphorus-Low Range	NA	0.052	0.016	0.05	mg/L						11	30	PASS	

CRG Marine Laboratories, Inc.

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Trace Metals

QUALITY CONTROL REPORT

Analyte		Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Batch ID:	**27263-17138**		**QAQC Procedural Blank**						**Prepared 12/19/2007**				**Analyzed 21-Dec-07**		
Lab Blank	**60799-B1**		**DI Water**												
Iron (Fe)		Total	ND	5	10	µg/L									
Manganese (Mn)		Total	ND	0.2	0.5	µg/L									
Batch ID:	**27263-17138**		**SM-SC-DW-01**						**Prepared 12/19/2007**				**Analyzed 21-Dec-07**		
Matrix Spike	**60800-MS1**		**Water**												
Iron (Fe)		Total	219.7	5	10	µg/L	100	108.5	111	55 - 140%	PASS				
Manganese (Mn)		Total	159.6	0.2	0.5	µg/L	100	48.75	111	70 - 130%	PASS				
Batch ID:	**27263-17138**		**SM-SC-DW-01**						**Prepared 12/19/2007**				**Analyzed 21-Dec-07**		
Matrix Spike Dup	**60800-MS2**		**Water**												
Iron (Fe)		Total	219.1	5	10	µg/L	100	108.5	111	55 - 140%	PASS	0	30	PASS	
Manganese (Mn)		Total	159.6	0.2	0.5	µg/L	100	48.75	111	70 - 130%	PASS	0	30	PASS	
Batch ID:	**27263-17138**		**SM-SC-DW-01**						**Prepared 12/19/2007**				**Analyzed 21-Dec-07**		
Lab Dup	**60800-R2**		**Water**												
Iron (Fe)		Total	108	5	10	µg/L						1	30	PASS	
Manganese (Mn)		Total	48.6	0.2	0.5	µg/L						1	30	PASS	

SUB-CONTRACT LAB REPORT

Calscience Environmental Laboratories, Inc.

December 27, 2007

Marlene Merchain
CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Subject: **Calscience Work Order No.:** **07-12-1443**
Client Reference: **P27263**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 12/17/2007 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Ranjit K. L. Clarke

Calscience Environmental
Laboratories, Inc.
Ranjit Clarke
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Date Received: 12/17/07
Work Order No: 07-12-1443
Preparation: N/A
Method: SM 4500 N Org B

Project: P27263

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SM-DP-DW-01	07-12-1443-1-A	12/06/07	Aqueous	N/A	12/22/07	12/23/07	71223TKNB1

Parameter	Result	RL	DF	Qual	Units
Total Kjeldahl Nitrogen	0.91	0.50	1		mg/L

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SM-RG-DW-01	07-12-1443-2-A	12/06/07	Aqueous	N/A	12/22/07	12/23/07	71223TKNB1

Parameter	Result	RL	DF	Qual	Units
Total Kjeldahl Nitrogen	1.5	0.50	1		mg/L

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SM-SC-DW-01	07-12-1443-3-A	12/06/07	Aqueous	N/A	12/22/07	12/23/07	71223TKNB1

Parameter	Result	RL	DF	Qual	Units
Total Kjeldahl Nitrogen	0.84	0.50	1		mg/L

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	099-05-076-2,057	N/A	Aqueous	N/A	12/22/07	12/23/07	71223TKNB1

Parameter	Result	RL	DF	Qual	Units
Total Kjeldahl Nitrogen	ND	0.50	1		mg/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Date Received:	12/17/07
Work Order No:	07-12-1443
Preparation:	N/A
Method:	SM 4500 N Org B

Project: P27263

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
07-12-1497-1	Aqueous	N/A	12/22/07	12/23/07	71223TKND1

Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Total Kjeldahl Nitrogen	0.70	0.70	0	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 07-12-1443

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

CRG Marine Laboratories

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206
Phone: (310)533-5190 Fax: (310)533-5003

1443

CHAIN-OF-CUSTODY RECORD

To: Calscience

Client Name:	CRG Marine Laboratories, Inc.
Address:	2020 Del Amo Blvd. Suite 200 Torrance, CA 90501
Sampled By:	K.L. **Project ID:** P27263
Subcontract Manager:	Marlene M. Merchain
Phone:	(310)533-5190 x 202
Fax:	(310)533-5003
Email:	mmerchain@crglabs.com

Sampling Comments:

Total # of Samples:	3
Correct Containers:	Yes
Sample Temperature:	Cold
Sample Preservation:	No

Reporting Comments:

Report Format:	pdf + Excel EDD
Turn-Around Time:	Standard

Please email Report+EDD or questions to subcontract@crglabs.com

Client SID:	Sample Description:	Sample Date:	Sample Time:	Matrix:	Containers:	Analyses:
SM-DP-DW-01		12/6/2007	17:00	Water	1L Amber Glass	TKN
SM-RG-DW-01		12/6/2007	1705	Water	1L Amber Glass	TKN
SM-SC-DW-01		12/6/2007	14:25	Water	1L Amber Glass	TKN

Relinquished By: CRG Marine Laboratories, Inc.
Signature: Adam C. Dell Date: 12/17/07
Print: Adam Dell Time: 11:50
Wdath

Received By: Calscience
Signature: Wdath CEL Date: 12-17-07
Print: WILLIAM BATH Time: 1150
Shen Lama (CEL) 1335
Shen Lama 12.1707

Please Return All Coolers Upon Receival Of Samples. Thank you.

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 07-12-1443

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: CRG DATE: 12-17-07

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

_____ Chilled, cooler with temperature blank provided.
_____ Chilled, cooler without temperature blank.
✓ Chilled and placed in cooler with wet ice.
_____ Ambient and placed in cooler with wet ice.
_____ Ambient temperature.

3.0 °C Temperature blank.

LABORATORY (Other than Calscience Courier):

_____ °C Temperature blank.
_____ °C IR thermometer.
_____ Ambient temperature.

Initial: WB

CUSTODY SEAL INTACT:

Sample(s): _____ Cooler: _____ No (Not Intact) : _____ Not Present: ✓

Initial: WB

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)	✓		
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: WB

COMMENTS:

CHAIN-OF-CUSTODY

Chain of Custody Record

To:
CRG Marine Laboratories
2020 Del Amo Blvd.
Torrance, CA 90501
(310) 533-5191
(310) 533-5003 Fax
Contact: Misty Mercier

Date Received:

Lab #:

From:
Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(831) 457-3950
(831) 426-0405 Fax
Contact: Amy Howk

Project: Santa Margarita

Complete by: 3 weeks

Matrix: Water

Project #: 5299.05

SampleID	StationID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Bottles	LabID	Condition Upon Receipt
SM-SC-DW-01	SM-SC	06DEC07	1425	Comp	Ammonia-N	1L ~~250 mL~~ AG	H2SO4	1		
SM-SC-DW-01	SM-SC		1425	Comp	Total Fe, Mn	1L HDPE	4°c	1		
SM-SC-DW-01	SM-SC		1425	Comp	Nitrate-N, Nitrite-N, Ortho-Phosphate, Sulfates, Total	500 mL HDPE	4°c	1		
SM-SC-DW-01	SM-SC		1425	Comp	Total Dissolved Solids	1L HDPE	4°c	1		
SM-SC-DW-01	SM-SC		1425	Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		
SM-RG-DW-01	SM-RG		1705	Comp	Ammonia-N	1L ~~250 mL~~ AG	H2SO4	1		
SM-RG-DW-01	SM-RG		1705	Comp	Total Fe, Mn	1L HDPE	4°c	1		
SM-RG-DW-01	SM-RG		1705	Comp	Nitrate-N, Nitrite-N, Ortho-Phosphate, Sulfates, Total	500 mL HDPE	4°c	1		
SM-RG-DW-01	SM-RG		1705	Comp	Total Dissolved Solids	1L HDPE	4°c	1		
SM-RG-DW-01	SM-RG	"	1705	Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinneticlabs.com. All times on this sheet are military time.

Special Instructions/Comments:

Sampled and Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:
Dale Parent	07 DEC 07 / 14:15		Richard Hanken	12/7/07 16:45
Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:

v20020904

P27263

ORIGINAL

Chain of Custody Record

To:	Date Received:	From:
CRG Marine Laboratories 2020 Del Amo Blvd. Torrance, CA 90501 (310) 533-5191 (310) 533-5003 Fax Contact: Misty Mercier	Lab #:	Kinnetic Laboratories, Inc 307 Washington St. Santa Cruz, CA 95060 (831) 457-3950 (831) 426-0405 Fax Contact: Amy Howk

Project: Santa Margarita

Complete by: 3 weeks

Matrix: Water

Project #: 5899.05

SampleID	StationID	Sample Date	Sample Time	Sample Type	Analysis	Container	Preservative	No. of Bottles	LabID	Condition Upon Receipt
SM-DP-DW-01	SM-DP	06DEC07	1700	Comp	Ammonia-N	1L ~~350 mL~~ AG	H2SO4	1		
SM-DP-DW-01	SM-DP		1700	Comp	Total Fe, Mn	1L HDPE	4°C	1		
SM-DP-DW-01	SM-DP		1700	Comp	Nitrate-N, Nitrite-N, Ortho-Phosphate, Sulfates, Total	500 mL HDPE	4°C	1		
SM-DP-DW-01	SM-DP		1700	Comp	Total Dissolved Solids	1L HDPE	4°C	1		
SM-DP-DW-01	SM-DP	″	1700	Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinneticlabs.com. All times on this sheet are military time.

Special Instructions/Comments:

Sampled and Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:
Mike Parent	07DEC07 / 1415		Richard Hanken	12-7-07 16:45
Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:

v20020904

P27263

ORIGINAL

FACSIMILE TRANSMITTAL FORM

KINNETIC LABORATORIES INCORPORATED

DATE 07Dec07 TIME 1500 BILLING CODE

NUMBER OF PAGES (INCLUDING COVER SHEET) 3

TO: Misty Mercier

COMPANY:

FAX NUMBER:

FROM: Dave Duffy

KINNETIC LABORATORIES, INC. CARLSBAD, CA

FAX NUMBER: (760) 438-2959

NOTES:

P27263

Hello Lina

I put the wrong project code on the COC's for Santa Margarita Sampling Project See attached COC's please change the Project code on the COC's when the couriers arrive Thanks Dave

IF YOU EXPERIENCE ANY DIFFICULTY WITH THIS TRANSMISSION, PLEASE CALL (760) 438-8968.
KINNETIC LABORATORIES, INC. 5225H AVENIDA ENCINAS CARLSBAD, CA 92008

My cell phone # 760-458-3474

CRG
Marine Laboratories, Inc.

SAMPLE RECEIVING

CRG Project ID
P27263

CLIENT NAME Kinnetic

DATE RECEIVED 12/7/07

COURIER INFORMATION

Legal Courier & Attorney

☐ CRG	☐ FEDEX	TRACKING NUMBER
☒ OTHER*	☐ UPS	

TEMPERATURE

2 °C

☐ BLUE ICE
☒ WET ICE
☐ NO ICE

Chain-of-Custody

☒ INCLUDED
☒ SIGNED
☐ NOT INCLUDED

SAMPLE MATRIX

☒ LIQUID
☐ SOLID
☐ OTHER*

CONDITION OF SAMPLES UPON ARRIVAL

	YES	NO*	NA
All sample containers intact and good condition	☒	☐	☐
All samples listed on COC are present	☒	☐	☐
Sample ID on containers consistent with COC	☒	☐	☐
Correct containers used for analyses requested	☒	☐	☐
All samples received within method holding time	☒	☐	☐

*NOTES

COC had an error on Project #, the correction was noted by ~~e~~ fax. -Dale Parent

Less then 50% volume on Metals SM-PP-DW-01 and SM-SC-DW-01

COMPLETED BY: RGH

2020 Del Amo Boulevard Suite 200, Torrance, CA 90501 · (310) 533-5190 · FAX (310) 533-5003

CRG Marine Laboratories, Inc.
"A Center for Excellence in Analytical Chemistry and Environmental Microbiology"

February 25, 2008

Kinnetic Laboratories, Inc.
307 Washington St.
Santa Cruz, CA 95060

Re:	CRG Marine Laboratories	Project ID:	KIN005
	Kinnetic Laboratories, Inc.	Project ID:	Santa Margarita

ATTN: Amy Howk

CRG Laboratories is pleased to provide you with the enclosed analytical data report for your Santa Margarita project. According to the chain-of-custody, 2 samples were received intact at CRG on 1/30/2008 . Per your instructions, the samples were analyzed for:

- Ammonia-N Using Method SM 4500-NH3 F
- Dissolved Orthophosphate as P by IC Using Method EPA 300.0
- Nitrate-N by IC Using Method EPA 300.0
- Nitrite-N by IC Using Method EPA 300.0
- Sulfate by IC Using Method EPA 300.0
- Total Dissolved Solids Using Method SM 2540 C
- Total Phosphorus-Low Range Using Method SM 4500-P E
- Trace Metals By ICPMS Using Method EPA 200.8m

The following analysis were subcontracted to other laboratories, results are included:

- TKN

Please don't hesitate to call if you have any questions and thank you very much for using our laboratory for your analytical needs.

Regards,

Reviewed and Approved Claire Hogrover

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

Project Sample List

Kinnetic Laboratories, Inc.

CRG Project ID: **KIN005**

Project Officer: Amy Howk

Project Description: Santa Margarita

CRG Sample ID#	*Client Sample ID*	*Sample Description*	*Date Sampled*	*Matrix*
63553	SM-RG-WW-01		29-Jan-08	Water
63554	SM-DP-WW-01		29-Jan-08	Water

CRG's QUALITY ASSURANCE PROGRAM SUMMARY

BATCH: CRG's Quality Assurance Program Document defines a batch as a group of 20 or fewer samples of similar matrix, processed together under the same conditions and with the same reagents. Quality control samples are associated with each batch and are used to assess the validity of the sample analyses. CRG typically uses batch sizes of 10-15 samples.

PROCEDURAL BLANKS: Laboratory contamination was controlled through the analysis of procedural blanks on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that all procedural blanks be below 10 times the MDL and all detectable constituents in the blanks be flagged in the sample results. The Procedural Blanks are presented in the Procedural Blank section of this report.

ACCURACY: Accuracy of the project data was indicated by analysis of matrix spikes, surrogate spikes, certified reference materials, positive controls, and/or laboratory control materials on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits. The Acceptance Ranges are presented in the Accuracy Data section of this report.

PRECISION: Precision of the project data was determined by analysis of duplicate matrix spikes, blank spikes, and/or duplicate test sample analysis on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that for 95% of the compounds >10 times the MDL, the % Relative Percent Difference (%RPD) should be within the specified acceptance range. The %RPD for the duplicate test sample analysis can be significantly affected by the homogeneity of the sample matrix within the sample container itself causing additional variability in the analytical results. In these cases, the QA/QC Acceptance Limits may be exceeded. The %RPD and Acceptance Ranges are presented in the Precision Data section of this report.

GLOSSARY OF TERMS

Qualifier	Definition
B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeds the calibration range
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
M1	Recovery of the Matrix Spike or Matrix Spike Duplicate compound was out of control due to matrix interference.
M2	The MS/MSD RPD was out of control due to matrix interference.
M3	Detection of the analyte was difficult due to matrix interference.
M4	Spike or surrogate compound recovery was out of control due to matrix interference. The associated method blank spike or surrogate compound was in control and therefore the sample data was reported without further clarification.
ND or U	Parameter not detected at the indicated reporting limit.
NES	Not enough sample.
Q1	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration.
Q2	The sample RPD was out of control. Sample is heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices.
Q3	RPD values are not accurate and not applicable because the results for R1 and/or R2 are lower than 10 times the MDL.
R	Analyte was removed by the sample preparation/extraction procedure as seen by the MS/MSD recoveries. RPD acceptance ranges do not apply.

DATA REPORT

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
63553-R1 SM-RG-WW-01					**Water**		**Sampled: 29-Jan-08**		**Received: 30-Jan-08**	
Ammonia-N	NA	0.08	0.03	0.03	mg/L	5202009	2/4/2008	2/4/2008	SM 4500-NH3 F	
Dissolved Orthophosphate as P by IC	NA	0.5627	0.0075	0.01	mg/L	5215014	1/31/2008	1/31/2008	EPA 300.0	
Nitrate-N by IC	NA	0.81	0.01	0.05	mg/L	5212011	1/31/2008	1/31/2008	EPA 300.0	
Nitrite-N by IC	NA	0.1	0.01	0.05	mg/L	5213005	1/31/2008	1/31/2008	EPA 300.0	
Sulfate by IC	NA	37.12	0.01	0.05	mg/L	5219003	2/15/2008	2/15/2008	EPA 300.0	
Total Dissolved Solids	NA	230	0.1	5	mg/L	5222007	2/5/2008	2/5/2008	SM 2540 C	
Total Phosphorus-Low Range	NA	1.556	0.016	0.05	mg/L	5317002	2/22/2008	2/22/2008	SM 4500-P E	
63554-R1 SM-DP-WW-01					**Water**		**Sampled: 29-Jan-08**		**Received: 30-Jan-08**	
Ammonia-N	NA	0.1	0.03	0.03	mg/L	5202009	2/4/2008	2/4/2008	SM 4500-NH3 F	
Dissolved Orthophosphate as P by IC	NA	0.5297	0.0075	0.01	mg/L	5215014	1/31/2008	1/31/2008	EPA 300.0	
Nitrate-N by IC	NA	0.71	0.01	0.05	mg/L	5212011	1/31/2008	1/31/2008	EPA 300.0	
Nitrite-N by IC	NA	0.11	0.01	0.05	mg/L	5213005	1/31/2008	1/31/2008	EPA 300.0	
Sulfate by IC	NA	37.86	0.01	0.05	mg/L	5219003	2/15/2008	2/15/2008	EPA 300.0	
Total Dissolved Solids	NA	194	0.1	5	mg/L	5222007	2/5/2008	2/5/2008	SM 2540 C	
Total Phosphorus-Low Range	NA	1.66	0.016	0.05	mg/L	5317002	2/22/2008	2/22/2008	SM 4500-P E	

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

Trace Metals

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
63553-R1 SM-RG-WW-01					**Water**		**Sampled: 29-Jan-08**		**Received: 30-Jan-08**	
Iron (Fe)	Total	3128	5	10	µg/L	18051	2/12/2008	2/13/2008	EPA 200.8m	
Manganese (Mn)	Total	615.8	0.2	0.5	µg/L	18051	2/12/2008	2/13/2008	EPA 200.8m	
63554-R1 SM-DP-WW-01					**Water**		**Sampled: 29-Jan-08**		**Received: 30-Jan-08**	
Iron (Fe)	Total	2765	5	10	µg/L	18051	2/12/2008	2/13/2008	EPA 200.8m	
Manganese (Mn)	Total	614.8	0.2	0.5	µg/L	18051	2/12/2008	2/13/2008	EPA 200.8m	

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

Trace Metals

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
63553-R1 SM-RG-WW-01					**Water**		**Sampled: 29-Jan-08**		**Received: 30-Jan-08**	
Iron (Fe)	Total	3128	5	10	µg/L	18051	2/12/2008	2/13/2008	EPA 200.8m	
Manganese (Mn)	Total	615.8	0.2	0.5	µg/L	18051	2/12/2008	2/13/2008	EPA 200.8m	
63554-R1 SM-DP-WW-01					**Water**		**Sampled: 29-Jan-08**		**Received: 30-Jan-08**	
Iron (Fe)	Total	2765	5	10	µg/L	18051	2/12/2008	2/13/2008	EPA 200.8m	
Manganese (Mn)	Total	614.8	0.2	0.5	µg/L	18051	2/12/2008	2/13/2008	EPA 200.8m	

QUALITY CONTROL REPORT

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

General Chemistry

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Batch ID: 5202009	**QAQC Procedural Blank**							**Prepared 2/4/2008**				**Analyzed 04-Feb-08**		
Lab Blank 63538-B1	**DI Water**													
Ammonia-N	NA	ND	0.03	0.03	mg/L									
Dissolved Orthophosphate as P by IC	NA	ND	0.0075	0.01	mg/L									
Nitrate-N by IC	NA	ND	0.01	0.05	mg/L									
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L									
Sulfate by IC	NA	ND	0.01	0.05	mg/L									
Total Dissolved Solids	NA	ND	0.1	5	mg/L									
Total Phosphorus-Low Range	NA	ND	0.016	0.05	mg/L									
Batch ID: 5202009	**QAQC Procedural Blank**							**Prepared 2/4/2008**				**Analyzed 04-Feb-08**		
Blank Spike 63538-BS1	**DI Water**													
Ammonia-N	NA	0.2	0.03	0.03	mg/L	0.25	0	80	70 - 130%	PASS				
Dissolved Orthophosphate as P by IC	NA	0.1904	0.0075	0.01	mg/L	0.165	0	115	70 - 130%	PASS				
Nitrate-N by IC	NA	0.58	0.01	0.05	mg/L	0.5	0	116	70 - 130%	PASS				
Nitrite-N by IC	NA	0.51	0.01	0.05	mg/L	0.5	0	102	70 - 130%	PASS				
Sulfate by IC	NA	24.44	0.01	0.05	mg/L	25	0	98	70 - 130%	PASS				
Total Dissolved Solids	NA	20000	0.1	5	mg/L	25000	0	80	70 - 130%	PASS				
Total Phosphorus-Low Range	NA	0.171	0.016	0.05	mg/L	0.165	0	104	70 - 130%	PASS				
Batch ID: 5202009	**QAQC Procedural Blank**							**Prepared 2/4/2008**				**Analyzed 04-Feb-08**		
Blank Spike Dup 63538-BS2	**DI Water**													
Ammonia-N	NA	0.21	0.03	0.03	mg/L	0.25	0	84	70 - 130%	PASS	5	30	PASS	
Dissolved Orthophosphate as P by IC	NA	0.2033	0.0075	0.01	mg/L	0.165	0	123	70 - 130%	PASS	7	30	PASS	
Nitrate-N by IC	NA	0.56	0.01	0.05	mg/L	0.5	0	112	70 - 130%	PASS	4	30	PASS	
Nitrite-N by IC	NA	0.46	0.01	0.05	mg/L	0.5	0	92	70 - 130%	PASS	10	30	PASS	
Sulfate by IC	NA	24.92	0.01	0.05	mg/L	25	0	100	70 - 130%	PASS	2	30	PASS	
Total Dissolved Solids	NA	70300	0.1	5	mg/L	70000	0	100	70 - 130%	PASS	22	30	PASS	
Total Phosphorus-Low Range	NA	0.173	0.016	0.05	mg/L	0.165	0	105	70 - 130%	PASS	1	30	PASS	

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

General Chemistry

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Batch ID: 5202009	**SM-RG-WW-01**						**Prepared 2/4/2008**			**Analyzed 04-Feb-08**				
Matrix Spike 63553-MS1	**Water**													
Ammonia-N	NA	0.28	0.03	0.03	mg/L	0.25	0.085	78	70 - 130%	PASS				
Dissolved Orthophosphate as P by IC	NA	2.081	0.0075	0.01	mg/L	1.65	0.55985	92	70 - 130%	PASS				
Nitrate-N by IC	NA	6.16	0.01	0.05	mg/L	5	0.77	108	70 - 130%	PASS				
Nitrite-N by IC	NA	5.04	0.01	0.05	mg/L	5	0.105	99	70 - 130%	PASS				
Sulfate by IC	NA	61.68	0.01	0.05	mg/L	25	37.675	96	70 - 130%	PASS				
Batch ID: 5202009	**SM-RG-WW-01**						**Prepared 2/4/2008**			**Analyzed 04-Feb-08**				
Matrix Spike Dup 63553-MS2	**Water**													
Ammonia-N	NA	0.29	0.03	0.03	mg/L	0.25	0.085	82	70 - 130%	PASS	5	30	PASS	
Dissolved Orthophosphate as P by IC	NA	2.084	0.0075	0.01	mg/L	1.65	0.55985	92	70 - 130%	PASS	0	30	PASS	
Nitrate-N by IC	NA	6.13	0.01	0.05	mg/L	5	0.77	107	70 - 130%	PASS	1	30	PASS	
Nitrite-N by IC	NA	5.1	0.01	0.05	mg/L	5	0.105	100	70 - 130%	PASS	1	30	PASS	
Sulfate by IC	NA	61.47	0.01	0.05	mg/L	25	37.675	95	70 - 130%	PASS	1	30	PASS	
Batch ID: 5202009	**SM-RG-WW-01**						**Prepared 2/4/2008**			**Analyzed 04-Feb-08**				
Lab Dup 63553-R2	**Water**													
Ammonia-N	NA	0.09	0.03	0.03	mg/L						12	30	PASS	
Dissolved Orthophosphate as P by IC	NA	0.557	0.0075	0.01	mg/L						1	30	PASS	
Nitrate-N by IC	NA	0.73	0.01	0.05	mg/L						10	30	PASS	
Nitrite-N by IC	NA	0.11	0.01	0.05	mg/L						10	30	PASS	
Sulfate by IC	NA	38.23	0.01	0.05	mg/L						3	30	PASS	
Batch ID: 5317002	**SM-DP-WW-01**						**Prepared 2/22/2008**			**Analyzed 22-Feb-08**				
Matrix Spike 63554-MS1	**Water**													
Total Phosphorus-Low Range	NA	2.574	0.016	0.05	mg/L	0.825	1.595	119	70 - 130%	PASS				
Batch ID: 5317002	**SM-DP-WW-01**						**Prepared 2/22/2008**			**Analyzed 22-Feb-08**				
Matrix Spike Dup 63554-MS2	**Water**													

CRG Marine Laboratories, Inc.

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Total Phosphorus-Low Range	NA	2.381	0.016	0.05	mg/L	0.825	1.595	95	70 - 130%	PASS	22	30	PASS	
Batch ID: 5222007	**SM-DP-WW-01**							**Prepared 2/5/2008**				**Analyzed 05-Feb-08**		
Lab Dup 63554-R2	**Water**													
Total Dissolved Solids	NA	180	0.1	5	mg/L						7	30	PASS	
Total Phosphorus-Low Range	NA	1.53	0.016	0.05	mg/L						8	30	PASS	

CRG Marine Laboratories, Inc.

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Trace Metals

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Batch ID: 18051	**QAQC Procedural Blank**							**Prepared 2/12/2008**				**Analyzed 13-Feb-08**		
Lab Blank 63538-B1	**DI Water**													
Iron (Fe)	Total	ND	5	10	µg/L									
Manganese (Mn)	Total	ND	0.2	0.5	µg/L									
Batch ID: 18051	**SM-RG-WW-01**							**Prepared 2/12/2008**				**Analyzed 13-Feb-08**		
Matrix Spike 63553-MS1	**Water**													
Iron (Fe)	Total	3270	5	10	µg/L	100	3159	111	55 - 140%	PASS				
Manganese (Mn)	Total	730.4	0.2	0.5	µg/L	100	624.9	105	70 - 130%	PASS				
Batch ID: 18051	**SM-RG-WW-01**							**Prepared 2/12/2008**				**Analyzed 13-Feb-08**		
Matrix Spike Dup 63553-MS2	**Water**													
Iron (Fe)	Total	3254	5	10	µg/L	100	3159	95	55 - 140%	PASS	16	30	PASS	
Manganese (Mn)	Total	726.1	0.2	0.5	µg/L	100	624.9	101	70 - 130%	PASS	4	30	PASS	
Batch ID: 18051	**SM-RG-WW-01**							**Prepared 2/12/2008**				**Analyzed 13-Feb-08**		
Lab Dup 63553-R2	**Water**													
Iron (Fe)	Total	3190	5	10	µg/L						2	30	PASS	
Manganese (Mn)	Total	634	0.2	0.5	µg/L						3	30	PASS	

CHAIN-OF-CUSTODY

Chain of Custody Record

To:		From:
CKG Marine Laboratories 2020 Del Amo Blvd. Torrance, CA 90501 (310) 533-5191 (310) 533-5003 Fax Contact: Misty Mercier	Date Received: Lab #:	Kinnetic Laboratories, Inc 307 Washington St. Santa Cruz, CA 95060 (831) 457-3950 (831) 426-0405 Fax Contact: Amy Howk

Project: Santa Margarita — Matrix: Water — Project #:

Complete by: 3 weeks

SampleID	ScaleID	Sample Date	Sample Time	Sample Type	Method	Container	Pres	No. of Bottles	Labels	Condition Upon Receipt
~~SM-SC-WW-01~~	~~SM-SC~~			Comp	Ammonia-N	250 mL AG	H2SO4	1		
~~SM-SC-WW-01~~	~~SM-SC~~			Comp	Total Fe, Mn	1L HDPE	4°c	1		
~~SM-SC-WW-01~~	~~SM-SC~~			Comp	Nitrate-N, Nitrite-N, Ortho-Phosphate, Sulfates, Total	500 mL HDPE	4°c	1		
~~SM-SC-WW-01~~	~~SM-SC~~			Comp	Total Dissolved Solids	1L HDPE	4°c	1		
~~SM-SC-WW-01~~	~~SM-SC~~			Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		
SM-RG-WW-01	SM-RG	11/29/08	0924	Comp	Ammonia-N	250 mL AG	H2SO4	1		
SM-RG-WW-01	SM-RG	↓	↓	Comp	Total Fe, Mn	1L HDPE	4°c	1		
SM-RG-WW-01	SM-RG			Comp	Nitrate-N, Nitrite-N, Ortho-Phosphate, Sulfates, Total	500 mL HDPE	4°c	1		
SM-RG-WW-01	SM-RG			Comp	Total Dissolved Solids	1L HDPE	4°c	1		
SM-RG-WW-01	SM-RG			Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinneticlabs.com. All times on this sheet are military time.

Special Instructions/Comments: Please send invoice to: Winzler and Kelly, Patrick Kaspari, 633 Third Street, Eureka, CA 95501. Ph: 707-443-8326 Fax: 707-444-8330

Sampled and Relinquished By:	Date/Time:	Received By:	Date/Time:
Tanya Nordby	11/30/08 14:30	KLI	11/30/08 14:30
Relinquished By:	Date/Time:	Received By:	Date/Time:

FIN 605

Chain of Custody Record

To:		From:
CRG Marine Laboratories 2020 Del Amo Blvd. Torrance, CA 90501 (310) 533-5191 (310) 533-5003 Fax Contact: Misty Mercier	Date Received: Lab #:	Kinnetic Laboratories, Inc 307 Washington St. Santa Cruz, CA 95060 (831) 457-3950 (831) 426-0405 Fax Contact: Amy Howk

Project: Santa Margarita **Matrix:** Water **Project #:**

Complete by: 3 weeks

SampleID	StationID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Bottles	LabID	Condition Upon Receipt
SM-DP-WW-01	SM-DP	1/29/08	0924	Comp	Ammonia-N	250 mL AG	H2SO4	1		
SM-DP-WW-01	SM-DP			Comp	Total Fe, Mn	1L HDPE	4° c	1		
SM-DP-WW-01	SM-DP			Comp	Nitrate-N, Nitrite-N, Ortho-Phosphate, Sulfates, Total	500 mL HDPE	4° c	1		
SM-DP-WW-01	SM-DP			Comp	Total Dissolved Solids	1L HDPE	4° c	1		
SM-DP-WW-01	SM-DP			Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinnetiklabs.com. All times on this sheet are military time.

Special Instructions/Comments: Please send invoice to: Winzler and Kelly, Patrick Kaspari, 633 Third Street, Eureka, CA 95501. Ph: 707-443-8326 Fax: 707-444-8330

Relinquished by:	Date/Time:	Transporter:	Received by:	Date/Time:
Tanya Nord	1/30/08 14:30	KLI	[illegible]	1/30/08 1430

v20020904

FIN005

CRG
Marine Laboratories, Inc.

SAMPLE RECEIVING

CRG Project ID
KIN 015

CLIENT NAME: Kinnetic Labs

DATE RECEIVED: 1/30/08

COURIER INFORMATION

☐ CRG	☐ FEDEX	TRACKING NUMBER
☑ OTHER*	☐ UPS	

TEMPERATURE

5 °C

☐ BLUE ICE
☑ WET ICE
☐ NO ICE

Chain-of-Custod

☐ NOT INCLUDED

SAMPLE MATRIX

☐ LIQUID
☑ SOLID
☐ OTHER*

CONDITION OF SAMPLES UPON ARRIVAL

	YES	NO*	NA
All sample containers intact and good condition	☑	☐	☐
All samples listed on COC are present	☑	☐	☐
Sample ID on containers consistent with COC	☑	☐	☐
Correct containers used for analyses requested	☑	☐	☐
All samples received within method holding time	☑	☐	☐

*NOTES

Per Kathy, run total & Dissolved orthophosphate, Lab has been notified. ~~KP~~. Kathy called back, her mistake, run only Dissolved orthophosphat. ~~KP~~

COMPLETED BY:

2020 Del Amo Boulevard Suite 200, Torrance, CA 90501 · (310) 533-5190 · FAX (310) 533-5003

Calscience Environmental Laboratories, Inc.

February 12, 2008

Sheri Fama
CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Subject: **Calscience Work Order No.:** **08-02-0256**
Client Reference: **KIN005**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 2/5/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Ranjit K. K. Clarke

Calscience Environmental
Laboratories, Inc.
Ranjit Clarke
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Date Received: 02/05/08
Work Order No: 08-02-0256

Project: KIN005

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SM-DP-WW-01	08-02-0256-1	01/29/08	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Total Kjeldahl Nitrogen	0.70	0.50	1		mg/L	02/08/08	02/08/08	SM 4500 N Org B

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SM-RG-WW-01	08-02-0256-2	01/29/08	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Total Kjeldahl Nitrogen	0.70	0.50	1		mg/L	02/08/08	02/08/08	SM 4500 N Org B

Client Sample Number	Lab Sample Number	Date Collected	Matrix
Method Blank	N/A		Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Total Kjeldahl Nitrogen	ND	0.50	1		mg/L	02/08/08	02/08/08	SM 4500 N Org B

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

ACCREDITED IN ACCORDANCE WITH NELAC

CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Date Received: N/A
Work Order No: 08-02-0256

Project: KIN005

Matrix: Aqueous

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Total Kjeldahl Nitrogen	SM 4500 N Org B	SM-DP-WW-01	02/08/08	0.70	0.70	0	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-02-0256

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

0256

CRG Marine Laboratories

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206
Phone: (310)533-5190 Fax: (310)533-5003

CHAIN-OF-CUSTODY RECORD

To: Calscience

Client Name:	CRG Marine Laboratories, Inc.
Address:	2020 Del Amo Blvd. Suite 200 Torrance, CA 90501
Sampled By:	KIN ~~005~~ ***Project ID:*** KIN005
Subcontract Manager:	Sheri Fama
Phone:	(310)533-5190 x 116
Fax:	(310)533-5003
Email:	subcontract@crglabs.co

Sampling Comments:

Total # of Samples: 2
Correct Containers: Yes
Sample Temperature: Cold
Sample Preservation:

Reporting Comments:

Report Format: pdf + Excel EDD
Turn-Around Time: Standard

******Please email Report+EDD or questions to subcontract@crglabs.com******

Client SID:	*Sample Description:*	*Sample Date:*	*Sample Time:*	*Matrix:*	*Containers:*	*Analyses:*
SM-DP-WW-01		1/29/2008	09:24	Water	1L Amber Glass	TKN
SM-RG-WW-01		1/29/2008	09:24	Water	1L Amber Glass	TKN

Relinquished By: CRG Marine Laboratories, Inc.
Signature: Sheri Fama *Date:* 02-05-08
Print: Sheri Fama *Time:* 16:15

Received By: Calscience
Signature: W Oyate *Date:* 02-05-08
Print: William Batin *Time:* 1615

W Oyate 2-5-08 1733

Please Return All Coolers Upon Receival Of Samples. Thank you.

Kristen Murda CRL 2/5/8 1753

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08 - 02 - 0256

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: CRG DATE: 2-5-08

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

_____ Chilled, cooler with temperature blank provided.
_____ Chilled, cooler without temperature blank.
✓ Chilled and placed in cooler with wet ice.
_____ Ambient and placed in cooler with wet ice.
_____ Ambient temperature.

2.6 °C Temperature blank.

LABORATORY (Other than Calscience Courier):

_____ °C Temperature blank.
_____ °C IR thermometer.
_____ Ambient temperature.

Initial: WB

CUSTODY SEAL INTACT:

Sample(s): _____ Cooler: _____ No (Not Intact) : _____ Not Present: ✓

Initial: WB

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)			✓
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: WB

COMMENTS:

CRG Marine Laboratories, Inc.
"A Center for Excellence in Analytical Chemistry and Environmental Microbiology"

March 21, 2008

Kinnetic Laboratories, Inc.
307 Washington St.
Santa Cruz, CA 95060

Re: CRG Marine Laboratories — Project ID: KIN005b
Kinnetic Laboratories, Inc. — Project ID: Santa Margarita

ATTN: Amy Howk

CRG Laboratories is pleased to provide you with the enclosed analytical data report for your Santa Margarita project. According to the chain-of-custody, 3 samples were received intact at CRG on 2/26/2008 . Per your instructions, the samples were analyzed for:

- Ammonia-N Using Method SM 4500-NH3 F
- Dissolved Orthophosphate as P by IC Using Method EPA 300.0
- Nitrate-N by IC Using Method EPA 300.0
- Nitrite-N by IC Using Method EPA 300.0
- Sulfate by IC Using Method EPA 300.0
- Total Dissolved Solids Using Method SM 2540 C
- Total Phosphorus-Low Range Using Method SM 4500-P E
- Trace Metals By ICPMS Using Method EPA 200.8m

The following analysis were subcontracted to other laboratories, results are included:

- TKN

Please don't hesitate to call if you have any questions and thank you very much for using our laboratory for your analytical needs.

Regards,
Claire Waggoner

Reviewed and Approved Claire Waggoner

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

Project Sample List

Kinnetic Laboratories, Inc.

CRG Project ID: **KIN005b**

Project Officer: Amy Howk

Project Description: Santa Margarita

CRG Sample ID#	*Client Sample ID*	*Sample Description*	*Date Sampled*	*Matrix*
65687	SM-RG-WW-02		23-Feb-08	Water
65688	SM-DP-WW-02		24-Feb-08	Water
65689	SM-SC-WW-01		24-Feb-08	Water

CRG's QUALITY ASSURANCE PROGRAM SUMMARY

BATCH: CRG's Quality Assurance Program Document defines a batch as a group of 20 or fewer samples of similar matrix, processed together under the same conditions and with the same reagents. Quality control samples are associated with each batch and are used to assess the validity of the sample analyses. CRG typically uses batch sizes of 10-15 samples.

PROCEDURAL BLANKS: Laboratory contamination was controlled through the analysis of procedural blanks on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that all procedural blanks be below 10 times the MDL and all detectable constituents in the blanks be flagged in the sample results. The Procedural Blanks are presented in the Procedural Blank section of this report.

ACCURACY: Accuracy of the project data was indicated by analysis of matrix spikes, surrogate spikes, certified reference materials, positive controls, and/or laboratory control materials on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits. The Acceptance Ranges are presented in the Accuracy Data section of this report.

PRECISION: Precision of the project data was determined by analysis of duplicate matrix spikes, blank spikes, and/or duplicate test sample analysis on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that for 95% of the compounds >10 times the MDL, the % Relative Percent Difference (%RPD) should be within the specified acceptance range. The %RPD for the duplicate test sample analysis can be significantly affected by the homogeneity of the sample matrix within the sample container itself causing additional variability in the analytical results. In these cases, the QA/QC Acceptance Limits may be exceeded. The %RPD and Acceptance Ranges are presented in the Precision Data section of this report.

TOTAL/DISSOLVED: In some instances, the results for the "Dissolved" fraction can be higher than the "Total" fraction for a particular parameter. This is typically caused by the analytical variation for each result and indicates that the target parameter is primarily in the dissolved phase.

GLOSSARY OF TERMS

Qualifier	Definition
B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeds the calibration range
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
M1	Recovery of the Matrix Spike or Matrix Spike Duplicate compound was out of control due to matrix interference.
M2	The MS/MSD RPD was out of control due to matrix interference.
M3	Detection of the analyte was difficult due to matrix interference.
M4	Spike or surrogate compound recovery was out of control due to matrix interference. The associated method blank spike or surrogate compound was in control and therefore the sample data was reported without further clarification.
ND or U	Parameter not detected at the indicated reporting limit.
NES	Not enough sample.
Q1	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration.
Q2	The sample RPD was out of control. Sample is heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices.
Q3	RPD values are not accurate and not applicable because the results for R1 and/or R2 are lower than 10 times the MDL.
Q4	Due to the sample rate of the instrument, the peak area was underestimated because the apex of the peak was missed. This random error has caused this compound to fail for the spike and/or precision. This failure does not indicate any significant problems with the analysis of this sample and the data passes CRG's QAPP requirements.
R	Analyte was removed by the sample preparation/extraction procedure as seen by the MS/MSD recoveries. RPD acceptance ranges do not apply.

Qualifier Summary for KIN005b

General Chemistry

Sample ID	*Client Sample ID*	*Qualifier*	*Parameter*
65687-R1	SM-RG-WW-02	H	Dissolved Orthophosphate as P by IC
65688-MS1	SM-DP-WW-02	M4	Dissolved Orthophosphate as P by IC
65688-MS2	SM-DP-WW-02	M4	Dissolved Orthophosphate as P by IC
65687-R1	SM-RG-WW-02	H	Nitrate-N by IC
65688-MS1	SM-DP-WW-02	M4	Nitrate-N by IC
65688-MS2	SM-DP-WW-02	M4	Nitrate-N by IC
65687-R1	SM-RG-WW-02	H	Nitrite-N by IC
65687-R1	SM-RG-WW-02	J	Total Phosphorus-Low Range

DATA REPORT

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
65687-R1 SM-RG-WW-02					**Water**		**Sampled: 23-Feb-08**		**Received: 26-Feb-08**	
Ammonia-N	NA	0.08	0.03	0.03	mg/L	5302007	2/26/2008	2/26/2008	SM 4500-NH3 F	
Dissolved Orthophosphate as P by IC	NA	0.0426	0.0075	0.01	mg/L	5315005	2/26/2008	2/26/2008	EPA 300.0	H
Nitrate-N by IC	NA	0.81	0.01	0.05	mg/L	5312004	2/26/2008	2/26/2008	EPA 300.0	H
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L	5313004	2/26/2008	2/26/2008	EPA 300.0	H
Sulfate by IC	NA	79.49	0.01	0.05	mg/L	5319003	3/3/2008	3/3/2008	EPA 300.0	
Total Dissolved Solids	NA	448	0.1	5	mg/L	5322006	2/27/2008	2/27/2008	SM 2540 C	
Total Phosphorus-Low Range	NA	0.035	0.016	0.05	mg/L	5317004	2/28/2008	2/28/2008	SM 4500-P E	J
65688-R1 SM-DP-WW-02					**Water**		**Sampled: 24-Feb-08**		**Received: 26-Feb-08**	
Ammonia-N	NA	0.16	0.03	0.03	mg/L	5302007	2/26/2008	2/26/2008	SM 4500-NH3 F	
Dissolved Orthophosphate as P by IC	NA	ND	0.0075	0.01	mg/L	5315005	2/26/2008	2/26/2008	EPA 300.0	
Nitrate-N by IC	NA	5.43	0.01	0.05	mg/L	5312004	2/26/2008	2/26/2008	EPA 300.0	
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L	5313004	2/26/2008	2/26/2008	EPA 300.0	
Sulfate by IC	NA	266.71	0.01	0.05	mg/L	5319003	3/3/2008	3/3/2008	EPA 300.0	
Total Dissolved Solids	NA	982	0.1	5	mg/L	5322006	2/27/2008	2/27/2008	SM 2540 C	
Total Phosphorus-Low Range	NA	0.337	0.016	0.05	mg/L	5317004	2/28/2008	2/28/2008	SM 4500-P E	
65689-R1 SM-SC-WW-01					**Water**		**Sampled: 24-Feb-08**		**Received: 26-Feb-08**	
Ammonia-N	NA	0.08	0.03	0.03	mg/L	5302007	2/26/2008	2/26/2008	SM 4500-NH3 F	
Dissolved Orthophosphate as P by IC	NA	0.0201	0.0075	0.01	mg/L	5315005	2/26/2008	2/26/2008	EPA 300.0	
Nitrate-N by IC	NA	6.47	0.01	0.05	mg/L	5312004	2/26/2008	2/26/2008	EPA 300.0	
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L	5313004	2/26/2008	2/26/2008	EPA 300.0	
Sulfate by IC	NA	140.33	0.01	0.05	mg/L	5319003	3/3/2008	3/3/2008	EPA 300.0	
Total Dissolved Solids	NA	926	0.1	5	mg/L	5322006	2/27/2008	2/27/2008	SM 2540 C	
Total Phosphorus-Low Range	NA	0.175	0.016	0.05	mg/L	5317004	2/28/2008	2/28/2008	SM 4500-P E	

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

Trace Metals

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
65687-R1 SM-RG-WW-02					**Water**		**Sampled: 23-Feb-08**		**Received: 26-Feb-08**	
Iron (Fe)	Total	951	5	10	µg/L	18078	3/7/2008	3/9/2008	EPA 200.8m	
Manganese (Mn)	Total	65.2	0.2	0.5	µg/L	18078	3/7/2008	3/9/2008	EPA 200.8m	
65688-R1 SM-DP-WW-02					**Water**		**Sampled: 24-Feb-08**		**Received: 26-Feb-08**	
Iron (Fe)	Total	1576	5	10	µg/L	18078	3/7/2008	3/9/2008	EPA 200.8m	
Manganese (Mn)	Total	183.6	0.2	0.5	µg/L	18078	3/7/2008	3/9/2008	EPA 200.8m	
65689-R1 SM-SC-WW-01					**Water**		**Sampled: 24-Feb-08**		**Received: 26-Feb-08**	
Iron (Fe)	Total	1438	5	10	µg/L	18078	3/7/2008	3/9/2008	EPA 200.8m	
Manganese (Mn)	Total	179.9	0.2	0.5	µg/L	18078	3/7/2008	3/9/2008	EPA 200.8m	

QUALITY CONTROL REPORT

CRG Marine Laboratories, Inc.

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Batch ID: 5302007	**QAQC Procedural Blank**							**Prepared 2/26/2008**				**Analyzed 26-Feb-08**		
Lab Blank 65686-B1	**DI Water**													
Ammonia-N	NA	ND	0.03	0.03	mg/L									
Dissolved Orthophosphate as P by IC	NA	ND	0.0075	0.01	mg/L									
Nitrate-N by IC	NA	ND	0.01	0.05	mg/L									
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L									
Sulfate by IC	NA	ND	0.01	0.05	mg/L									
Total Dissolved Solids	NA	ND	0.1	5	mg/L									
Total Phosphorus-Low Range	NA	ND	0.016	0.05	mg/L									
Batch ID: 5302007	**QAQC Procedural Blank**							**Prepared 2/26/2008**				**Analyzed 26-Feb-08**		
Blank Spike 65686-BS1	**DI Water**													
Ammonia-N	NA	0.28	0.03	0.03	mg/L	0.25	0	112	70 - 130%	PASS				
Dissolved Orthophosphate as P by IC	NA	0.1657	0.0075	0.01	mg/L	0.165	0	100	70 - 130%	PASS				
Nitrate-N by IC	NA	0.58	0.01	0.05	mg/L	0.5	0	116	70 - 130%	PASS				
Nitrite-N by IC	NA	0.49	0.01	0.05	mg/L	0.5	0	98	70 - 130%	PASS				
Sulfate by IC	NA	28.09	0.01	0.05	mg/L	25	0	112	70 - 130%	PASS				
Total Dissolved Solids	NA	27500	0.1	5	mg/L	25000	0	110	70 - 130%	PASS				
Total Phosphorus-Low Range	NA	0.151	0.016	0.05	mg/L	0.165	0	92	70 - 130%	PASS				
Batch ID: 5302007	**QAQC Procedural Blank**							**Prepared 2/26/2008**				**Analyzed 26-Feb-08**		
Blank Spike Dup 65686-BS2	**DI Water**													
Ammonia-N	NA	0.27	0.03	0.03	mg/L	0.25	0	108	70 - 130%	PASS	4	30	PASS	
Dissolved Orthophosphate as P by IC	NA	0.1703	0.0075	0.01	mg/L	0.165	0	103	70 - 130%	PASS	3	30	PASS	
Nitrate-N by IC	NA	0.56	0.01	0.05	mg/L	0.5	0	112	70 - 130%	PASS	4	30	PASS	
Nitrite-N by IC	NA	0.47	0.01	0.05	mg/L	0.5	0	94	70 - 130%	PASS	4	30	PASS	
Sulfate by IC	NA	26.34	0.01	0.05	mg/L	25	0	105	70 - 130%	PASS	6	30	PASS	
Total Dissolved Solids	NA	73800	0.1	5	mg/L	70000	0	105	70 - 130%	PASS	5	30	PASS	
Total Phosphorus-Low Range	NA	0.152	0.016	0.05	mg/L	0.165	0	92	70 - 130%	PASS	0	30	PASS	

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Batch ID: 5322006	**SM-RG-WW-02**							**Prepared 2/27/2008**			**Analyzed 27-Feb-08**			
Lab Dup 65687-R2	**Water**													
Total Dissolved Solids	NA	442	0.1	5	mg/L						1	30	PASS	
Batch ID: 5315005	**SM-DP-WW-02**							**Prepared 2/26/2008**			**Analyzed 26-Feb-08**			
Matrix Spike 65688-MS1	**Water**													
Dissolved Orthophosphate as P by IC	NA	0.1363	0.0075	0.01	mg/L	0.33	0	41	70 - 130%	FAIL				M4
Nitrate-N by IC	NA	12.99	0.01	0.05	mg/L	5	5.395	152	70 - 130%	FAIL				M4
Nitrite-N by IC	NA	0.64	0.01	0.05	mg/L	0.5	0	128	70 - 130%	PASS				
Sulfate by IC	NA	514.85	0.01	0.05	mg/L	250	269.32	98	70 - 130%	PASS				
Total Phosphorus-Low Range	NA	1.927	0.016	0.05	mg/L	1.65	0.3185	97	70 - 130%	PASS				
Batch ID: 5315005	**SM-DP-WW-02**							**Prepared 2/26/2008**			**Analyzed 26-Feb-08**			
Matrix Spike Dup 65688-MS2	**Water**													
Dissolved Orthophosphate as P by IC	NA	0.1412	0.0075	0.01	mg/L	0.33	0	43	70 - 130%	FAIL	5	30	PASS	M4
Nitrate-N by IC	NA	12.95	0.01	0.05	mg/L	5	5.395	151	70 - 130%	FAIL	1	30	PASS	M4
Nitrite-N by IC	NA	0.65	0.01	0.05	mg/L	0.5	0	130	70 - 130%	PASS	2	30	PASS	
Sulfate by IC	NA	511.93	0.01	0.05	mg/L	250	269.32	97	70 - 130%	PASS	1	30	PASS	
Total Phosphorus-Low Range	NA	1.94	0.016	0.05	mg/L	1.65	0.3185	98	70 - 130%	PASS	1	30	PASS	
Batch ID: 5315005	**SM-DP-WW-02**							**Prepared 2/26/2008**			**Analyzed 26-Feb-08**			
Lab Dup 65688-R2	**Water**													
Dissolved Orthophosphate as P by IC	NA	ND	0.0075	0.01	mg/L						0	30	PASS	
Nitrate-N by IC	NA	5.36	0.01	0.05	mg/L						1	30	PASS	
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L						0	30	PASS	
Sulfate by IC	NA	271.93	0.01	0.05	mg/L						2	30	PASS	
Total Phosphorus-Low Range	NA	0.3	0.016	0.05	mg/L						12	30	PASS	
Batch ID: 5302007	**SM-SC-WW-01**							**Prepared 2/26/2008**			**Analyzed 26-Feb-08**			
Matrix Spike 65689-MS1	**Water**													

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Ammonia-N	NA	0.38	0.03	0.03	mg/L	0.25	0.08	120	70 - 130%	PASS				
Batch ID: 5302007	**SM-SC-WW-01**							**Prepared 2/26/2008**				**Analyzed 26-Feb-08**		
Matrix Spike Dup 65689-MS2	**Water**													
Ammonia-N	NA	0.35	0.03	0.03	mg/L	0.25	0.08	108	70 - 130%	PASS	11	30	PASS	
Batch ID: 5302007	**SM-SC-WW-01**							**Prepared 2/26/2008**				**Analyzed 26-Feb-08**		
Lab Dup 65689-R2	**Water**													
Ammonia-N	NA	0.08	0.03	0.03	mg/L						0	30	PASS	

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Trace Metals

QUALITY CONTROL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Batch ID: 18078	**QAQC Procedural Blank**								**Prepared 3/7/2008**			**Analyzed 09-Mar-08**		
Lab Blank 65686-B1	**DI Water**													
Iron (Fe)	Total	ND	5	10	µg/L									
Manganese (Mn)	Total	ND	0.2	0.5	µg/L									
Batch ID: 18078	**SM-RG-WW-02**								**Prepared 3/7/2008**			**Analyzed 09-Mar-08**		
Matrix Spike 65687-MS1	**Water**													
Iron (Fe)	Total	1049	5	10	µg/L	100	951.5	98	55 - 140%	PASS				
Manganese (Mn)	Total	166.3	0.2	0.5	µg/L	100	64.95	101	70 - 130%	PASS				
Batch ID: 18078	**SM-RG-WW-02**								**Prepared 3/7/2008**			**Analyzed 09-Mar-08**		
Matrix Spike Dup 65687-MS2	**Water**													
Iron (Fe)	Total	1069	5	10	µg/L	100	951.5	117	55 - 140%	PASS	18	30	PASS	
Manganese (Mn)	Total	164.2	0.2	0.5	µg/L	100	64.95	99	70 - 130%	PASS	2	30	PASS	
Batch ID: 18078	**SM-RG-WW-02**								**Prepared 3/7/2008**			**Analyzed 09-Mar-08**		
Lab Dup 65687-R2	**Water**													
Iron (Fe)	Total	952	5	10	µg/L						0	30	PASS	
Manganese (Mn)	Total	64.7	0.2	0.5	µg/L						1	30	PASS	

CHAIN-OF-CUSTODY

Chain of Custody Record

RID: 08-100

To:		From:
CRG Marine Laboratories 2020 Del Amo Blvd. Torrance, CA 90501 (310) 533-5191 (310) 533-5003 Fax Contact: Misty Mercier	Date Received: Lab #: KIN0056	Kinnetic Laboratories, Inc 307 Washington St. Santa Cruz, CA 95060 (831) 457-3950 (831) 426-0405 Fax Contact: Amy Howk

Project: Santa Margarita **Matrix:** Water **Project #:**

Complete by: 3 weeks

SampleID	StationID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Bottles	LabID	Condition Upon Receip
SM-DP-WW-02	SM-DP	2/24/08	20:24	Comp	Ammonia-N	250 mL AG	H2SO4	1	CRGSID: 65687	
SM-DP-WW-02	SM-DP	↓	↓	Comp	Total Fe, Mn	1L HDPE	4°c	1		
SM-DP-WW-02	SM-DP			Comp	Nitrate-N, Nitrite-N, Dissolved Ortho-Phosphate, Sulfates, Total P, RTS	500 mL HDPE	4°c	1		
SM-DP-WW-02	SM-DP			Comp	Total Dissolved Solids	1L HDPE	4°c	1		
SM-DP-WW-02	SM-DP	↓	↓	Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinneticlabs.com. All times on this sheet are military time.

Special Instructions/Comments: Please send invoice to: Winzler and Kelly, Patrick Kaspari, 633 Third Street, Eureka, CA 95501. Ph: 707-443-8326 Fax: 707-444-8330

Sampled and Relinquished By:	Date/Time	Received By:	Date/Time
R Hilgenfeld	2/26/08 15:30	William C. Dodd	2/26/08 15:30
Relinquished By:	Date/Time	Received By:	Date/Time

v20020904

Chain of Custody Record

RID: 08-100

Page 1 of 1

To:	Date Received:	From:
CRG Marine Laboratories 2020 Del Amo Blvd. Torrance, CA 90501 (310) 533-5191 (310) 533-5003 Fax Contact: Misty Mercier	Lab #: FIN0056	Kinnetic Laboratories, Inc 307 Washington St. Santa Cruz, CA 95060 (831) 457-3950 (831) 426-0405 Fax Contact: Amy Howk

Project: Santa Margarita

Complete by: 3 weeks

Matrix: Water

Project #:

Sample ID	Method ID	Sample Date	Sample Time	Sample Type	Analysis	Container	Prsv.	No. of Bottles	Lab ID	Condition upon Receipt
SM-SC-WW-02	SM-SC			Comp	Ammonia-N	250 mL AG	H2SO4	1		
SM-SC-WW-02	SM-SC			Comp	Total Fe, Mn	1L HDPE	4°C	1		
SM-SC-WW-02	SM-SC			Comp	Nitrate-N, Nitrite-N, Dissolved Ortho-Phosphate, Sulfates, Total	500 mL HDPE	4°C	1		
SM-SC-WW-02	SM-SC			Comp	Total Dissolved Solids	1L HDPE	4°C	1		
SM-SC-WW-02	SM-SC			Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		
SM-RG-WW-02	SM-RG	2/23/08	1800	Comp	Ammonia-N	250 mL AG	H2SO4	1	CRG SID: 65437	
SM-RG-WW-02	SM-RG			Comp	Total Fe, Mn	1L HDPE	4°C	1		
SM-RG-WW-02	SM-RG			Comp	Nitrate-N, Nitrite-N, Dissolved Ortho-Phosphate, Sulfates, Total	500 mL HDPE	4°C	1		
SM-RG-WW-02	SM-RG			Comp	Total Dissolved Solids	1L HDPE	4°C	1		
SM-RG-WW-02	SM-RG	↓	↓	Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinneticlabs.com. All times on this sheet are military time.

Special Instructions/Comments: Please send invoice to: Winzler and Kelly, Patrick Kaspari, 633 Third Street, Eureka, CA 95501. Ph: 707-443-8326 Fax: 707-444-8330

Sampled and Relinquished By	Date / Time	Transporter	Received By	Date / Time
	2/24/08 1332	KAT		2/26/08 15:30
Relinquished By	Date / Time	Transporter	Received By	Date / Time

CURRENT RECEIVABLES THAT 30 DAYS SAMPLES ARE OUT OF HOLD.

ETS

v20020904

Chain of Custody Record

RID: 08-100

To:
CRG Marine Laboratories
2020 Del Amo Blvd.
Torrance, CA 90501
(310) 533-5191
(310) 533-5003 Fax
Contact: Misty Mercier

Date Received: KIN005b

Lab #:

From:
Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(831) 457-3950
(831) 426-0405 Fax
Contact: Amy Howk

Project: Santa Margarita | Matrix: Water | Project #:

Complete by: 3 weeks

SampleID	StationID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Bottles	LabID	Condition Upon Receipt
SM-SC-WW-01	SM-SC	2/24/08	20:34	Comp	Ammonia-N	250 mL AG	H2SO4	1	CRG SID: 65688	
SM-SC-WW-01	SM-SC	↓	↓	Comp	Total Fe, Mn	1L HDPE	4°c	1		
SM-SC-WW-01	SM-SC	↓	↓	Comp	Nitrate-N, Nitrite-N, Dissolved Ortho-Phosphate, Sulfates, Total P	500 mL HDPE	4°c	1		
SM-SC-WW-01	SM-SC	↓	↓	Comp	Total Dissolved Solids	1L HDPE	4°c	1		
SM-SC-WW-01	SM-SC	↓	↓	Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinneticlabs.com. All times on this sheet are military time.

Special Instructions/Comments: Please send invoice to: Winzler and Kelly, Patrick Kaspari, 633 Third Street, Eureka, CA 95501. Ph: 707-443-8326 Fax: 707-444-8330

Sampled and Relinquished By:	Date/Time:	Transporter:	Received By:	Date/Time:
[signature]	2/26/08 1530	FedEx	[signature]	2/26/08 15:30
Relinquished By:	Date/Time:	Transporter:	Received By:	Date/Time:

v20020904

CRG Marine Laboratories, Inc.
A Center for Excellence in Analytical Chemistry and Environmental Microbiology

CRG PID

CRG RID: 08-100

SAMPLE RECIEPT FORM

CLIENT: Kinetic Labs Date Received: 2/26/08 Total # of Samples: 15

COURIER INFORMATION

○ CRG ○ OTHER ○ FEDEX tracking #
✓ CLIENT ○ UPS

TEMPERATURE

9 °C ✓ WET ICE ○ BLUE ICE ○ NO ICE

SAMPLE MATRIX

✓ LIQUID ○ TISSUE
☐ Composite at CRG, equal ☐ Homogenized
☐ Composite at CRG, flow-weighted ☐ Unhomogenized
○ SOLID ○ OTHER

Received by: CM

CLIENT COC

✓ INCLUDED ✓ SIGNED
○ NOT INCLUDED ○ NOT SIGNED

CONDITION OF SAMPLES UPON VERIFICATION

	Yes	No	NA
All sample containers received intact and in good condition	✓		
All samples listed on COC(s) are present	✓		
All sample IDs on containers are consistent with sample IDs on COC(s)	✓		
Correct containers used for analyses requested	✓		
All samples received within method holding time		✓	

Samples verified by: [illegible]

NOTES

Client informed me dual samples from the 23rd some of the are out of Holding time. did Run samps anyway.

Print Form

Calscience Environmental Laboratories, Inc.

March 10, 2008

Sheri Fama
CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Subject: **Calscience Work Order No.:** **08-02-2339**
Client Reference: **KIN005b**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 2/29/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Ranjit K. K. Clarke

Calscience Environmental
Laboratories, Inc.
Ranjit Clarke
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Date Received: 02/29/08
Work Order No: 08-02-2339

Project: KIN005b

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SM-RG-WW-02	08-02-2339-1	02/23/08	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Total Kjeldahl Nitrogen	0.98	0.50	1		mg/L	03/06/08	03/06/08	SM 4500 N Org B

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SM-SC-WW-01	08-02-2339-2	02/24/08	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Total Kjeldahl Nitrogen	1.4	0.50	1		mg/L	03/06/08	03/06/08	SM 4500 N Org B

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SM-DP-WW-02	08-02-2339-3	02/24/08	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Total Kjeldahl Nitrogen	1.3	0.50	1		mg/L	03/06/08	03/06/08	SM 4500 N Org B

Client Sample Number	Lab Sample Number	Date Collected	Matrix
Method Blank		N/A	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Total Kjeldahl Nitrogen	ND	0.50	1		mg/L	03/06/08	03/06/08	SM 4500 N Org B

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Date Received: N/A
Work Order No: 08-02-2339

Project: KIN005b

Matrix: Aqueous

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Total Kjeldahl Nitrogen	SM 4500 N Org B	SM-DP-WW-02	03/06/08	1.3	1.2	6	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-02-2339

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

CRG Marine Laboratories, Inc.
"A Center for Excellence in Analytical Chemistry and Environmental Microbiology"
2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1208 (310) 533-6180 Fax (310) 533-6003 www.crglabs.com

CHAIN-OF-CUSTODY 2339

CRG RID: 08-100

Client Name	CRG Marine Laboratories, Inc.
Address	2020 Del Amo Blvd. Suite 200 Torrance, CA 90501
Subcontract Manager	Sheri Fama
Email	sfama@crglabs.com
Phone	310 533 5190 x116
FAX	310 533 5003
Project Name/Number	KTn
P.O. Number	
Sampled By	Kin

	Client Sample ID / Description	Sample Date	Sample Time	Sample Matrix*	Container Quantity	Container Type	REQUESTED ANALYSES: TKN
1	SM-RG-WW-02	2/23/2008	18:00	W	1	1L amber	X
2	SM-SC-WW-01	2/24/2008	20:34	W	1	1L amber	x
3	SM-DP-WW-02	2/24/2008	20:24	W	1	1L amber	x
4							
5							
6							
7							
8							
9							
10							

CRG Containers used:	Yes	No	
Type of Ice used:	Wet	Blue	None
Sample Preservative:	Yes	No	

TAT: STD (15-20 bd) **RUSH** specify in comments section

COMMENTS:

To: Calscience

CRG PID: _____

RELINQUISHED BY
Signature: Sheri Fama
Print: Sheri Fama
Company: CRG
DATE: 2/29/2008
TIME: 1530

RECEIVED BY
Signature: [illegible]
Print: RUDY MIGA
Company: CEL
DATE: 2/29/08
TIME: 1530

RELINQUISHED BY
Signature: [illegible]
Print: RUDY MIGA
Company: CEL
DATE: 2/29/08
TIME: 1652

RECEIVED BY
Signature: Kristina Medina
Print: Kristina Medina
Company: CEL
DATE: 2/29/08
TIME: 1652

*CRG MATRIX CODES: (SED = Sediment); (TISS = Tissue); (SW = Seawater, Saltwater); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater); (W = other Water)

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08 - 02-2339

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: CRG DATE: 2/29/08

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- ____ Chilled, cooler with temperature blank provided.
- ✓ Chilled, cooler without temperature blank.
- ____ Chilled and placed in cooler with wet ice.
- ____ Ambient and placed in cooler with wet ice.
- ____ Ambient temperature.

2.0 °C Temperature blank.

LABORATORY (Other than Calscience Courier):

- ____ °C Temperature blank.
- ____ °C IR thermometer.
- ____ Ambient temperature.

Initial: AN

CUSTODY SEAL INTACT:

Sample(s): ____ Cooler: ____ No (Not Intact) : ____ Not Present: ✓

Initial: AN

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC	✓		
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)	✓		
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: MH

COMMENTS:

CRG Marine Laboratories, Inc.
"A Center for Excellence in Analytical Chemistry and Environmental Microbiology"

June 03, 2008

Kinnetic Laboratories, Inc.
307 Washington St.
Santa Cruz, CA 95060

Re:	CRG Marine Laboratories	Project ID:	KIN005c
	Kinnetic Laboratories, Inc.	Project ID:	Santa Margarita

ATTN: Amy Howk

CRG Laboratories is pleased to provide you with the enclosed analytical data report for your Santa Margarita project. According to the chain-of-custody, 3 samples were received intact at CRG on 5/15/2008 . Per your instructions, the samples were analyzed for:

- Ammonia-N Using Method SM 4500-NH3 F
- Dissolved Orthophosphate as P by IC Using Method EPA 300.0
- Nitrate-N by IC Using Method EPA 300.0
- Nitrite-N by IC Using Method EPA 300.0
- Sulfate by IC Using Method EPA 300.0
- Total Dissolved Solids Using Method SM 2540 C
- Total Phosphorus-Low Range Using Method SM 4500-P E
- Trace Metals By ICPMS Using Method EPA 200.8m

The following analysis were subcontracted to other laboratories, results are included:

- TKN

Please don't hesitate to call if you have any questions and thank you very much for using our laboratory for your analytical needs.

Regards,
Rhonda Moeller

Reviewed and Approved Rhonda Moeller

Digitally signed by Rhonda Moeller
DN: cn=Rhonda Moeller, c=US, o=CRG Marine Laboratories, ou=Project Manager, email=rmoeller@crglabs.com
Date: 2008.06.03 11:33:07 -07'00'

Project Sample List

Kinnetic Laboratories, Inc.
CRG Project ID: **KIN005c**
Project Officer: Amy Howk
Project Description: Santa Margarita

CRG Sample ID#	*Client Sample ID*	*Sample Description*	*Date Sampled*	*Matrix*
68256	SM-DP-DW-02		14-May-08	Water
68262	SM-SC-DW-02		14-May-08	Water
68267	SM-RG-DW-02		14-May-08	Water

CRG's QUALITY ASSURANCE PROGRAM SUMMARY

BATCH: CRG's Quality Assurance Program Document defines a batch as a group of 20 or fewer samples of similar matrix, processed together under the same conditions and with the same reagents. Quality control samples are associated with each batch and are used to assess the validity of the sample analyses. CRG typically uses batch sizes of 10-15 samples.

PROCEDURAL BLANKS: Laboratory contamination was controlled through the analysis of procedural blanks on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that all procedural blanks be below 10 times the MDL and all detectable constituents in the blanks be flagged in the sample results. The Procedural Blanks are presented in the Procedural Blank section of this report.

ACCURACY: Accuracy of the project data was indicated by analysis of matrix spikes (MS/MSD), surrogate spikes, certified reference materials, positive controls, and/or laboratory control materials on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits. The Acceptance Ranges are presented in the Accuracy Data section of this report.

PRECISION: Precision of the project data was determined by analysis of duplicate matrix spikes, blank spikes, and/or duplicate test sample analysis on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that for 95% of the compounds >10 times the MDL, the % Relative Percent Difference (%RPD) should be within the specified acceptance range. The %RPD for the duplicate test sample analysis can be significantly affected by the homogeneity of the sample matrix within the sample container itself causing additional variability in the analytical results. In these cases, the QA/QC Acceptance Limits may be exceeded. The %RPD and Acceptance Ranges are presented in the Precision Data section of this report.

TOTAL/DISSOLVED: In some instances, the results for the "Dissolved" fraction can be higher than the "Total" fraction for a particular parameter. This is typically caused by the analytical variation for each result and indicates that the target parameter is primarily in the dissolved phase.

GLOSSARY OF TERMS

Qualifier	Definition
B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeds the calibration range
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
M1	Recovery of the MS and/or MSD compound was out of control due to matrix interference.
M2	The MS/MSD RPD was out of control due to matrix interference.
M3	Detection of the analyte was difficult due to matrix interference.
M4	Spike or surrogate compound recovery was out of control due to matrix interference. The associated method blank spike or surrogate compound was in control and therefore the sample data was reported without further clarification.
M5	Recovery of the MS and/or MSD compound was out of control due to an unknown compound(s) in the sample that interferes with the known target compound causing an increased response.
M6	Recovery of the MS and/or MSD compound was out of control due to unknown heavy hydrocarbons detected in the sample which elevates the baseline.
ND or U	Parameter not detected at the indicated reporting limit.
NES	Not enough sample.
Q1	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration.
Q2	The sample RPD was out of control. Sample is heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices.
Q3	RPD values are not accurate and not applicable because the results for R1 and/or R2 are lower than 10 times the MDL.
Q4	Due to the sample rate of the instrument, the peak area was underestimated because the apex of the peak was missed. This random error has caused this compound to fail for the spike and/or precision. This failure does not indicate any significant problems with the analysis of this sample and the data passes CRG's QAPP requirements.

Qualifier Summary for KIN005c

General Chemistry

Sample ID	*Client Sample ID*	*Qualifier*	*Parameter*
68256-R1	SM-DP-DW-02	J	Total Phosphorus-Low Range
68256-R2	SM-DP-DW-02	J	Total Phosphorus-Low Range
68262-R1	SM-SC-DW-02	J	Total Phosphorus-Low Range
68267-R1	SM-RG-DW-02	J	Total Phosphorus-Low Range

DATA REPORT

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
68256-R1 SM-DP-DW-02					**Water**		**Sampled: 14-May-08**		**Received: 15-May-08**	
Ammonia-N	NA	0.06	0.03	0.03	mg/L	5402013	5/27/2008	5/27/2008	SM 4500-NH3 F	
Dissolved Orthophosphate as P by IC	NA	0.0505	0.0075	0.01	mg/L	5415017	5/16/2008	5/16/2008	EPA 300.0	
Nitrate-N by IC	NA	4.74	0.01	0.05	mg/L	5412008	5/15/2008	5/15/2008	EPA 300.0	
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L	5413006	5/16/2008	5/16/2008	EPA 300.0	
Sulfate by IC	NA	315.17	0.01	0.05	mg/L	5419003	5/27/2008	5/27/2008	EPA 300.0	
Total Dissolved Solids	NA	1054	0.1	5	mg/L	5422003	5/21/2008	5/21/2008	SM 2540 C	
Total Phosphorus-Low Range	NA	0.024	0.016	0.05	mg/L	5417008	5/27/2008	5/27/2008	SM 4500-P E	J
68262-R1 SM-SC-DW-02					**Water**		**Sampled: 14-May-08**		**Received: 15-May-08**	
Ammonia-N	NA	0.04	0.03	0.03	mg/L	5402013	5/27/2008	5/27/2008	SM 4500-NH3 F	
Dissolved Orthophosphate as P by IC	NA	0.0419	0.0075	0.01	mg/L	5415017	5/16/2008	5/16/2008	EPA 300.0	
Nitrate-N by IC	NA	4.71	0.01	0.05	mg/L	5412008	5/15/2008	5/15/2008	EPA 300.0	
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L	5413006	5/16/2008	5/16/2008	EPA 300.0	
Sulfate by IC	NA	317.93	0.01	0.05	mg/L	5419003	5/27/2008	5/27/2008	EPA 300.0	
Total Dissolved Solids	NA	1080	0.1	5	mg/L	5422003	5/21/2008	5/21/2008	SM 2540 C	
Total Phosphorus-Low Range	NA	0.019	0.016	0.05	mg/L	5417008	5/27/2008	5/27/2008	SM 4500-P E	J
68267-R1 SM-RG-DW-02					**Water**		**Sampled: 14-May-08**		**Received: 15-May-08**	
Ammonia-N	NA	0.05	0.03	0.03	mg/L	5402013	5/27/2008	5/27/2008	SM 4500-NH3 F	
Dissolved Orthophosphate as P by IC	NA	ND	0.0075	0.01	mg/L	5415017	5/16/2008	5/16/2008	EPA 300.0	
Nitrate-N by IC	NA	0.65	0.01	0.05	mg/L	5412008	5/15/2008	5/15/2008	EPA 300.0	
Nitrite-N by IC	NA	ND	0.01	0.05	mg/L	5413006	5/16/2008	5/16/2008	EPA 300.0	
Sulfate by IC	NA	200.65	0.01	0.05	mg/L	5419003	5/27/2008	5/27/2008	EPA 300.0	
Total Dissolved Solids	NA	632	0.1	5	mg/L	5422003	5/21/2008	5/21/2008	SM 2540 C	
Total Phosphorus-Low Range	NA	0.016	0.016	0.05	mg/L	5417008	5/27/2008	5/27/2008	SM 4500-P E	J

CRG Marine Laboratories, Inc.

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Trace Metals

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
68256-R1 SM-DP-DW-02					**Water**		**Sampled: 14-May-08**		**Received: 15-May-08**	
Iron (Fe)	Total	32	5	10	µg/L	18134	5/27/2008	5/27/2008	EPA 200.8m	
Manganese (Mn)	Total	5	0.2	0.5	µg/L	18134	5/27/2008	5/27/2008	EPA 200.8m	
68262-R1 SM-SC-DW-02					**Water**		**Sampled: 14-May-08**		**Received: 15-May-08**	
Iron (Fe)	Total	33	5	10	µg/L	18134	5/27/2008	5/27/2008	EPA 200.8m	
Manganese (Mn)	Total	5	0.2	0.5	µg/L	18134	5/27/2008	5/27/2008	EPA 200.8m	
68267-R1 SM-RG-DW-02					**Water**		**Sampled: 14-May-08**		**Received: 15-May-08**	
Iron (Fe)	Total	60	5	10	µg/L	18134	5/27/2008	5/27/2008	EPA 200.8m	
Manganese (Mn)	Total	9.9	0.2	0.5	µg/L	18134	5/27/2008	5/27/2008	EPA 200.8m	

QUALITY CONTROL REPORT

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

General Chemistry

QUALITY CONTROL REPORT

Analyte	Batch ID	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Fraction: NA			**QAQC**	**Procedural Blank**				**Prepared 5/27/2008**				**Analyzed 27-May-08**		
Lab Blank 68255-B1				**DI Water**										
Ammonia-N	5402013	ND	0.03	0.03	mg/L									
Dissolved Orthophosphate as P by IC	5415017	ND	0.0075	0.01	mg/L									
Nitrate-N by IC	5412008	ND	0.01	0.05	mg/L									
Nitrite-N by IC	5413006	ND	0.01	0.05	mg/L									
Sulfate by IC	5419003	1.25	0.01	0.05	mg/L									
Total Dissolved Solids	5422003	ND	0.1	5	mg/L									
Total Phosphorus-Low Range	5417008	ND	0.016	0.05	mg/L									
Fraction: NA			**QAQC**	**Procedural Blank**				**Prepared 5/27/2008**				**Analyzed 27-May-08**		
Blank Spike 68255-BS1				**DI Water**										
Ammonia-N	5402013	0.25	0.03	0.03	mg/L	0.25	0	100	70 - 130%	PASS				
Dissolved Orthophosphate as P by IC	5415017	0.1462	0.0075	0.01	mg/L	0.165	0	89	70 - 130%	PASS				
Nitrate-N by IC	5412008	0.39	0.01	0.05	mg/L	0.5	0	78	70 - 130%	PASS				
Nitrite-N by IC	5413006	0.43	0.01	0.05	mg/L	0.5	0	86	70 - 130%	PASS				
Sulfate by IC	5419003	24.17	0.01	0.05	mg/L	25	0	97	70 - 130%	PASS				
Total Dissolved Solids	5422003	24900	0.1	5	mg/L	25000	0	100	70 - 130%	PASS				
Total Phosphorus-Low Range	5417008	0.173	0.016	0.05	mg/L	0.165	0	105	70 - 130%	PASS				
Fraction: NA			**QAQC**	**Procedural Blank**				**Prepared 5/27/2008**				**Analyzed 27-May-08**		
Blank Spike Dup 68255-BS2				**DI Water**										
Ammonia-N	5402013	0.27	0.03	0.03	mg/L	0.25	0	108	70 - 130%	PASS	8	30	PASS	
Dissolved Orthophosphate as P by IC	5415017	0.1399	0.0075	0.01	mg/L	0.165	0	85	70 - 130%	PASS	5	30	PASS	
Nitrate-N by IC	5412008	0.42	0.01	0.05	mg/L	0.5	0	84	70 - 130%	PASS	7	30	PASS	
Nitrite-N by IC	5413006	0.43	0.01	0.05	mg/L	0.5	0	86	70 - 130%	PASS	0	30	PASS	
Sulfate by IC	5419003	24.06	0.01	0.05	mg/L	25	0	96	70 - 130%	PASS	1	30	PASS	
Total Dissolved Solids	5422003	64500	0.1	5	mg/L	75000	0	86	70 - 130%	PASS	15	30	PASS	
Total Phosphorus-Low Range	5417008	0.168	0.016	0.05	mg/L	0.165	0	102	70 - 130%	PASS	3	30	PASS	

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

General Chemistry

QUALITY CONTROL REPORT

Analyte	Batch ID	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Fraction: NA	**SM-DP-DW-02**							**Prepared 5/27/2008**		**Analyzed 27-May-08**				
Matrix Spike 68256-MS1			**Water**											
Ammonia-N	**5402013**	0.3	0.03	0.03	mg/L	0.25	0.06	96	70 - 130%	PASS				
Dissolved Orthophosphate as P by IC	**5415017**	0.2535	0.0075	0.01	mg/L	0.165	0.04655	125	70 - 130%	PASS				
Nitrate-N by IC	**5412008**	5.67	0.01	0.05	mg/L	1	4.75	92	70 - 130%	PASS				
Nitrite-N by IC	**5413006**	0.41	0.01	0.05	mg/L	0.5	0	82	70 - 130%	PASS				
Sulfate by IC	**5419003**	405.11	0.01	0.05	mg/L	100	316.04	89	70 - 130%	PASS				
Total Phosphorus-Low Range	**5417008**	0.194	0.016	0.05	mg/L	0.165	0.0265	102	70 - 130%	PASS				
Fraction: NA	**SM-DP-DW-02**							**Prepared 5/27/2008**		**Analyzed 27-May-08**				
Matrix Spike Dup 68256-MS2			**Water**											
Ammonia-N	**5402013**	0.3	0.03	0.03	mg/L	0.25	0.06	96	70 - 130%	PASS	0	30	PASS	
Dissolved Orthophosphate as P by IC	**5415017**	0.3498	0.0075	0.01	mg/L	0.33	0.04655	92	70 - 130%	PASS	30	30	PASS	
Nitrate-N by IC	**5412008**	5.67	0.01	0.05	mg/L	1	4.75	92	70 - 130%	PASS	0	30	PASS	
Nitrite-N by IC	**5413006**	0.44	0.01	0.05	mg/L	0.5	0	88	70 - 130%	PASS	7	30	PASS	
Sulfate by IC	**5419003**	405.88	0.01	0.05	mg/L	100	316.04	90	70 - 130%	PASS	1	30	PASS	
Total Phosphorus-Low Range	**5417008**	0.195	0.016	0.05	mg/L	0.165	0.0265	102	70 - 130%	PASS	0	30	PASS	
Fraction: NA	**SM-DP-DW-02**							**Prepared 5/27/2008**		**Analyzed 27-May-08**				
Lab Dup 68256-R2			**Water**											
Ammonia-N	**5402013**	0.06	0.03	0.03	mg/L						0	30	PASS	
Dissolved Orthophosphate as P by IC	**5415017**	0.0426	0.0075	0.01	mg/L						17	30	PASS	
Nitrate-N by IC	**5412008**	4.76	0.01	0.05	mg/L						0	30	PASS	
Nitrite-N by IC	**5413006**	ND	0.01	0.05	mg/L						0	30	PASS	
Sulfate by IC	**5419003**	316.91	0.01	0.05	mg/L						1	30	PASS	
Total Dissolved Solids	**5422003**	1076	0.1	5	mg/L						2	30	PASS	
Total Phosphorus-Low Range	**5417008**	0.029	0.016	0.05	mg/L						19	30	PASS	J

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

Trace Metals

QUALITY CONTROL REPORT

Analyte	Fraction	Batch ID	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Batch ID:			QAQC	**Procedural Blank**							**Prepared 5/27/2008**		**Analyzed 27-May-08**		
Lab Blank	**68255-B1**			**DI Water**											
Iron (Fe)	Total	18134	ND	5	10	µg/L									
Manganese (Mn)	Total	18134	ND	0.2	0.5	µg/L									
Batch ID:			**SM-DP-DW-02**								**Prepared 5/27/2008**		**Analyzed 27-May-08**		
Matrix Spike	**68256-MS1**			**Water**											
Iron (Fe)	Total	18134	135	5	10	µg/L	100	31.5	103	31 - 163%	PASS				
Manganese (Mn)	Total	18134	103.8	0.2	0.5	µg/L	100	5	99	78 - 131%	PASS				
Batch ID:			**SM-DP-DW-02**								**Prepared 5/27/2008**		**Analyzed 27-May-08**		
Matrix Spike Dup	**68256-MS2**			**Water**											
Iron (Fe)	Total	18134	134.8	5	10	µg/L	100	31.5	103	31 - 163%	PASS	1	30	PASS	
Manganese (Mn)	Total	18134	104.9	0.2	0.5	µg/L	100	5	100	78 - 131%	PASS	1	30	PASS	
Batch ID:			**SM-DP-DW-02**								**Prepared 5/27/2008**		**Analyzed 27-May-08**		
Lab Dup	**68256-R2**			**Water**											
Iron (Fe)	Total	18134	31	5	10	µg/L						3	30	PASS	
Manganese (Mn)	Total	18134	5	0.2	0.5	µg/L						0	30	PASS	

SUB-CONTRACT LAB REPORT

CHAIN-OF-CUSTODY

RID: 08-405 KL 08-405 SC

Chain of Custody Record

To:		From:
CRG Marine Laboratories 2020 Del Amo Blvd. Torrance, CA 90501 (310) 533-5191 (310) 533-5003 Fax Contact: Misty Mercier	Date Received: Lab #:	Kinnetic Laboratories, Inc 307 Washington St. Santa Cruz, CA 95060 (831) 457-3950 (831) 426-0405 Fax Contact: Amy Howk

Project: Santa Margarita — Matrix: Water — Project #: 5300.03

Complete by: 3 weeks

SampleID	StationID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Bottles	LabID	Condition Upon Receipt
SM-SC-DW-02	SM-SC	5/14/08	1215	Comp	Ammonia-N	250 mL AG	H2SO4	1	68262	
SM-SC-DW-02	SM-SC			Comp	Total Fe, Mn	1L HDPE	4°c	1	68263	
SM-SC-DW-02	SM-SC			Comp	Nitrate-N, Nitrite-N, Dissolved Ortho-Phosphate, Sulfates, Total Phosphate-P	500 mL HDPE	4°c	1	68264	68262
SM-SC-DW-02	SM-SC			Comp	Total Dissolved Solids	1L HDPE	4°c	1	68265	
SM-SC-DW-02	SM-SC			Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1	68266	
SM-RG-DW-02	SM-RG		1030	Comp	Ammonia-N	250 mL AG	H2SO4	1	68267	
SM-RG-DW-02	SM-RG			Comp	Total Fe, Mn	1L HDPE	4°c	1	68268	
SM-RG-DW-02	SM-RG			Comp	Nitrate-N, Nitrite-N, Dissolved Ortho-Phosphate, Sulfates, Total Phosphate-P	500 mL HDPE	4°c	1	68269	68267
SM-RG-DW-02	SM-RG			Comp	Total Dissolved Solids	1L HDPE	4°c	1	68270	
SM-RG-DW-02	SM-RG			Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1	68271	

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinneticlabs.com. All times on this sheet are military time.

Special Instructions/Comments: Please send invoice to: Winzler and Kelly, Patrick Kaspari, 633 Third Street, Eureka, CA 95501. Ph: 707-443-8326 Fax: 707-444-8330

Sampled and Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:
	5/14/08 1515	Cal overnight		5/14/08 1515
Relinquished By:	**Date/Time:**	**Transporter**	**Received By:**	**Date/Time:**

v20020904

FIN005c

IRID: 68-406 [illegible]

Chain of Custody Record

To:	Date Received:	From:
CRG Marine Laboratories 2020 Del Amo Blvd. Torrance, CA 90501 (310) 533-5191 (310) 533-5003 Fax Contact: Misty Mercier	Lab #:	Kinnetic Laboratories, Inc 307 Washington St. Santa Cruz, CA 95060 (831) 457-3950 (831) 426-0405 Fax Contact: Amy Howk

Project: Santa Margarita — Matrix: Water — Project #: 5300.03

Complete by: 3 weeks

SampleID	StationID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Bottles	LabID	Condition Upon Receipt
SM-DP-DW-02	SM-DP	5/14/08		Comp	Ammonia-N	250 mL AG	H2SO4	1	68256	
SM-DP-DW-02	SM-DP			Comp	Total Fe, Mn	1L HDPE	4° c	1	68257	
SM-DP-DW-02	SM-DP			Comp	Nitrate-N, Nitrite-N, Dissolved Ortho-Phosphate, Sulfates, Total Phosphate-P	500 mL HDPE	4° c	1	68258	
SM-DP-DW-02	SM-DP			Comp	Total Dissolved Solids	1L HDPE	4° c	1	68259	
SM-DP-DW-02	SM-DP			Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1	68260	

68256

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinneticlabs.com. All times on this sheet are military time.

Special Instructions/Comments: Please send invoice to: Winzler and Kelly, Patrick Kaspari, 633 Third Street, Eureka, CA 95501. Ph: 707-443-8326 Fax: 707-444-8330

Sampled and Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:
[signature]	5/14/08 1515	Cal overnight	[signature]	5/14/08 1515
Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:

v20020904

KrN005c

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CRG PID	CRG RID
KIN005c	08-406

SAMPLE RECIEPT FORM

CLIENT: Kinnectic Laboratories, inc Date Received: May 14, 2008 Total # of Samples: 1

COURIER INFORMATION

○ CRG ◉ OTHER ○ FEDEX tracking # B10210175171

○ CLIENT California Overnight ○ UPS

0

TEMPERATURE

4 °C ○ WET ICE ◉ BLUE ICE ○ NO ICE

SAMPLE MATRIX

◉ LIQUID ○ TISSUE

☐ Composite at CRG, equal ☐ Homogenized

☐ Composite at CRG, flow-weighted ☐ Unhomogenized

Received By: _____

CLIENT COC

◉ INCLUDED ◉ SIGNED

○ NOT INCLUDED ○ NOT SIGNED ○ SOLID ○ OTHER _____

CONDITION OF SAMPLES UPON VERIFICATION

	Yes	No	NA
All sample containers received intact and in good condition.....	☒	☐	☐
All samples listed on COC(s) are present.....	☒	☐	☐
All sample IDs on containers are consistent with sample IDs on COC(s).....	☒	☐	☐
Correct containers used for analyses requested.....	☒	☐	☐
All samples received within method holding time.....	☒	☐	☐

Samples verified by: kl

NOTES

Print Form

CRG Marine Laboratories, Inc.
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2620 Del Amo Blvd., Suite 200, Torrance, CA 90501-1208 (310) 533-6180 Fax (310) 533-6003 www.crglabs.com

CRG PID	CRG RID
KIN005c	08-405

SAMPLE RECIEPT FORM

CLIENT: Kinnectic Laboratories, inc Date Received: May 14, 2008 Total # of Samples: 2

COURIER INFORMATION

○ CRG ◉ OTHER ○ FEDEX tracking # B10210175171

○ CLIENT California Overnight ○ UPS

TEMPERATURE

4 °C ○ WET ICE ◉ BLUE ICE ○ NO ICE

SAMPLE MATRIX

◉ LIQUID ○ TISSUE

☐ Composite at CRG, equal ☐ Homogenized

☐ Composite at CRG, flow-weighted ☐ Unhomogenized

CLIENT COC

◉ INCLUDED ◉ SIGNED

○ NOT INCLUDED ○ NOT SIGNED

○ SOLID ○ OTHER _____

Received By : _____

CONDITION OF SAMPLES UPON VERIFICATION

	Yes	No	NA
All sample containers received intact and in good condition.....	☒	☐	☐
All samples listed on COC(s) are present.....	☒	☐	☐
All sample IDs on containers are consistent with sample IDs on COC(s).....	☒	☐	☐
Correct containers used for analyses requested.....	☒	☐	☐
All samples received within method holding time.....	☒	☐	☐

Samples verified by: _____

NOTES

Print Form

Calscience
Environmental
Laboratories, Inc.

December 08, 2008

Sheri Fama
CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Subject: **Calscience Work Order No.:** **08-11-2535**
Client Reference: **08-1611**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/29/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Ranjit K. K. Clarke

Calscience Environmental
Laboratories, Inc.
Ranjit Clarke
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Date Received: 11/29/08
Work Order No: 08-11-2535

Project: 08-1611

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SM-SC-WW-02	**08-11-2535-1**	**11/28/08**	**Aqueous**

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Total Kjeldahl Nitrogen	2.8	0.50	1		mg/L	N/A	12/04/08	SM 4500 N Org B

Method Blank	**N/A**	**Aqueous**

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Total Kjeldahl Nitrogen	ND	0.50	1		mg/L	N/A	12/04/08	SM 4500 N Org B

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Date Received: N/A
Work Order No: 08-11-2535

Project: 08-1611

Matrix: Aqueous

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Total Kjeldahl Nitrogen	SM 4500 N Org B	08-11-2399-1	12/04/08	2.8	2.7	3	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-11-2535

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

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CHAIN-OF-CUSTODY

SUBCONTRACT

7535

CRG RID: 08-1611

Client Name	CRG Marine Laboratories, Inc.
Address	2020 Del Amo Blvd. Suite 200 Torrance, CA 90501
Subcontract Manager	Sheri Fama
Email	sfama@crglabs.com
Phone	310 533 5190 x 116
FAX	310 533 5003
Project Name/Number	
P.O. Number	
Sampled By	

REQUESTED ANALYSES

	Client Sample ID / Description	Sample Date	Sample Time	Sample Matrix*	Container Quantity	Container Type	TKN
1	SM-~~SC~~-WW-02 /(SM-SC)	11/28/2008	0617	W	1	1L	X
2							
3							
4							
5							
6							
7							
8							
9							
10							

CRG Containers used:	Yes	No	
Type of Ice used:	Wet	Blue	None
Sample Preservative:	Yes	No	
TAT:	**STD** 15-20 bd	RUSH specify in comments section	

COMMENTS:

To: Calscience

Please PDF results and EDD to: subcontract@crglabs.com

Please "J" flag results between the MDL and RL

CRG PID: _____

RELINQUISHED BY

Signature:	Sheri Fama	**DATE:** 11/29/2008
Print:	Sheri Fama	**TIME:** 1929
Company:	CRG	

RECEIVED BY

Signature:		**DATE:** 11-29-08
Print:	WEN-SHIANG CHANG	**TIME:** 14:29
Company:	CSL	

RELINQUISHED BY

Signature:		**DATE:**
Print:		**TIME:**
Company:		

RECEIVED BY

Signature:		**DATE:**
Print:		**TIME:**
Company:		

*CRG MATRIX CODES: (SED = Sediment); (TISS = Tissue); (SW = Seawater, Saltwater); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater); (W = other Water)

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-2535

SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: CRG. DATE: 11/29/08

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 5.4 °C - 0.2 °C (CF) = 5.0 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** W.S.C

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☑ N/A **Initial:** W.S.C

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** W.S.C

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
Sampler's name indicated on COC	☐	☑	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Correct containers and volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Proper preservation noted on sample label(s)	☑	☐	☐
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☑1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® ☐_____

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Checked/Labeled by: W.S.C

Reviewed by: W.C

Scanned by: W.S.C

Ranjit Clarke

From: Sheri Fama [sfama@crglabs.com]
Sent: Tuesday, December 02, 2008 9:05 AM
To: Ranjit Clarke
Cc: projectmanagers@crglabs.com
Subject: RID 08-1611

Hello Ranjit,
I submitted a sample on Sat. 11-29-08, with sample ID of SM-DP-WW-03 (with the COC to reflect this ID). On the report, can you please have the sample ID as: SM-SC-WW-02?
Thanks,

Sheri Fama
Sample Control Manager
CRG Marine Laboratories, Inc.
2020 Del Amo Blvd-Suite 200
Torrance, CA 90501-1206
310-533-5190 x 116 (office)
310-717-6705 (cell)
310-533-5003 (fax)
sfama@crglabs.com

CHAIN-OF-CUSTODY

Chain of Custody Record

LRQ08-1611

To:	Date Received:	From:
CRG Marine Laboratories 2020 Del Amo Blvd. Torrance, CA 90501 (310) 533-5191 (310) 533-5003 Fax Contact: Misty Mercier	Lab #:	Kinnetic Laboratories, Inc 307 Washington St. Santa Cruz, CA 95060 (831) 457-3950 (831) 426-0405 Fax Contact: Amy Howk

Project: Santa Margarita

Complete by: 3 weeks

Matrix: Water

Project #: 5300.03

SampleID	StationID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Bottles	LabID	Condition Upon Receipt
SM-SC-WW-02	SM-SC	11/28/08	0917	Comp	Ammonia-N	250 mL AG	H2SO4	1	78572	
SM-SC-WW-02	SM-SC			Comp	Total Fe, Mn	1L HDPE	4° c	1		
SM-SC-WW-02	SM-SC			Comp	Nitrate-N, Nitrite-N, Dissolved Ortho-Phosphate, Sulfates, Total Phosphate-P	500 mL HDPE	4° c	1		
SM-SC-WW-02	SM-SC			Comp	Total Dissolved Solids	1L HDPE	4° c	1		
SM-SC-WW-02	SM-SC			Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinneticlabs.com. All times on this sheet are military time.

Special Instructions/Comments: Please send invoice to: Winzler and Kelly, Patrick Kaspari, 633 Third Street, Eureka, CA 95501. Ph: 707-443-8326 Fax: 707-444-8330

Sampled and Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:
[signature]	11/28/08 0935	MESSENGER EXPRESS 858-550-1440		
Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:
			[signature] (QA)	11/28/08 1645

v20020904

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CRG PID	CRG RID
KIN005d	08-1611

SAMPLE RECIEPT FORM

CLIENT: Kinnetic Date Received: Nov 28, 2008 Total # of Samples: 1

COURIER INFORMATION

○ CRG ◉ OTHER ○ FEDEX tracking # 522
○ CLIENT Messenger Express ○ UPS

SF

TEMPERATURE

4 °C ◉ WET ICE ○ BLUE ICE ○ NO ICE

SAMPLE MATRIX

◉ LIQUID ○ TISSUE
☐ Composite at CRG, equal ☐ Homogenized
☐ Composite at CRG, flow-weighted ☐ Unhomogenized
○ SOLID ○ OTHER _____

Received By :

CLIENT COC

◉ INCLUDED ◉ SIGNED
○ NOT INCLUDED ○ NOT SIGNED

CONDITION OF SAMPLES UPON VERIFICATION

	Yes	No	NA
All sample containers received intact and in good condition.....	☒	☐	☐
All samples listed on COC(s) are present.....	☒	☐	☐
All sample IDs on containers are consistent with sample IDs on COC(s).....	☐	☒	☐
Correct containers used for analyses requested.....	☒	☐	☐
All samples received within method holding time.....	☒	☐	☐

Samples verified by :

NOTES

TKN container is labeled as: SM-DP-WW-03 (SF)

Print Form

CRG Marine Laboratories, Inc.
"A Center for Excellence in Analytical Chemistry and Environmental Microbiology"

January 05, 2009

Kinnetic Laboratories, Inc.
5225 Avenida Encinas
Suite H
Carlsbad, CA 92008

Re: CRG Marine Laboratories — Project ID: KIN005d
Kinnetic Laboratories, Inc. — Project ID: Santa Margarita

ATTN: Bob Shelquist

CRG Laboratories is pleased to provide you with the enclosed analytical data report for your Santa Margarita project. According to the chain-of-custody, 1 sample was received intact at CRG on 11/28/2008. Per your instructions, the sample was analyzed for:

- Ammonia-N Using Method SM 4500-NH3 F
- Dissolved Orthophosphate as P by IC Using Method EPA 300.0
- Nitrate-N by IC Using Method EPA 300.0
- Nitrite-N by IC Using Method EPA 300.0
- Sulfate by IC Using Method EPA 300.0
- Total Dissolved Solids Using Method SM 2540 C
- Total Phosphorus-Low Range Using Method SM 4500-P E
- Trace Metals By ICPMS Using Method EPA 200.8m

Please don't hesitate to call if you have any questions and thank you very much for using our laboratory for your analytical needs.

Regards,
Rhonda Moeller

Reviewed and Approved Rhonda Moeller Digitally signed by Rhonda Moeller DN: cn=Rhonda Moeller, c=US, o=CRG Marine Laboratories, Inc., ou=Project Manager, email=rmoeller@crglabs.com Date: 2009.01.05 08:51:23 -08'00'

Project Sample List

Kinnetic Laboratories, Inc.

CRG Project ID: **KIN005d**

Project Officer: Bob Shelquist

Project Description: Santa Margarita

CRG Sample ID#	*Client Sample ID*	*Sample Description*	*Date Sampled*	*Matrix*
78572	SM-SC-WW-02		28-Nov-08	Water

CRG's QUALITY ASSURANCE PROGRAM SUMMARY

BATCH: CRG's Quality Assurance Program Document defines a batch as a group of 20 or fewer samples of similar matrix, processed together under the same conditions and with the same reagents. Quality control samples are associated with each batch and are used to assess the validity of the sample analyses. CRG typically uses batch sizes of 10-15 samples.

PROCEDURAL BLANKS: Laboratory contamination was controlled through the analysis of procedural blanks on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that all procedural blanks be below 10 times the MDL and all detectable constituents in the blanks be flagged in the sample results. The Procedural Blanks are presented in the Procedural Blank section of this report.

ACCURACY: Accuracy of the project data was indicated by analysis of matrix spikes (MS/MSD), surrogate spikes, certified reference materials, positive controls, and/or laboratory control materials on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits. The Acceptance Ranges are presented in the Accuracy Data section of this report.

PRECISION: Precision of the project data was determined by analysis of duplicate matrix spikes, blank spikes, and/or duplicate test sample analysis on a minimum frequency of 1 per batch. CRG's Quality Assurance Program Document requires that for 95% of the compounds >10 times the MDL, the % Relative Percent Difference (%RPD) should be within the specified acceptance range. The %RPD for the duplicate test sample analysis can be significantly affected by the homogeneity of the sample matrix within the sample container itself causing additional variability in the analytical results. In these cases, the QA/QC Acceptance Limits may be exceeded. The %RPD and Acceptance Ranges are presented in the Precision Data section of this report.

TOTAL/DISSOLVED: In some instances, the results for the "Dissolved" fraction can be higher than the "Total" fraction for a particular parameter. This is typically caused by the analytical variation for each result and indicates that the target parameter is primarily in the dissolved phase.

GLOSSARY OF TERMS

Qualifier	Definition
B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeds the calibration range
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
M1	Recovery of the MS and/or MSD compound was out of control due to matrix interference.
M2	The MS/MSD RPD was out of control due to matrix interference.
M3	Detection of the analyte was difficult due to matrix interference.
M4	Spike or surrogate compound recovery was out of control due to matrix interference. The associated method blank spike or surrogate compound was in control and therefore the sample data was reported without further clarification.

M5	Recovery of the MS and/or MSD compound was out of control due to an unknown compound(s) in the sample that interferes with the known target compound causing an increased response.
M6	Recovery of the MS and/or MSD compound was out of control due to unknown heavy hydrocarbons detected in the sample which elevates the baseline.
ND or U	Parameter not detected at the indicated reporting limit.
NES	Not enough sample.
Q1	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration.
Q2	The sample RPD was out of control. Sample is heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices.
Q3	RPD values are not accurate and not applicable because the results for R1 and/or R2 are lower than 10 times the MDL.
Q4	Due to the sample rate of the instrument, the peak area was underestimated because the apex of the peak was missed. This random error has caused this compound to fail for the spike and/or precision. This failure does not indicate any significant problems with the analysis of this sample and the data passes CRG's QAPP requirements.
Q5	Precision failed due to one of the sample extractions having lower recoveries than the duplicate.
Q6	CRG's Quality Assurance Program Document allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and cannot be attributed to a specific issue.

Qualifier Summary for KIN005d

General Chemistry

Sample ID	*Client Sample ID*	*Qualifier*	*Parameter*
78572-R1	SM-SC-WW-02	J	Nitrite-N by IC
78572-R2	SM-SC-WW-02	Q3	Nitrite-N by IC

DATA REPORT

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

General Chemistry

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
78572-R1 **SM-SC-WW-02**					**Water**	**Sampled: 28-Nov-08 06:17**			**Received: 28-Nov-08**	
Ammonia-N	NA	0.08	0.03	0.03	mg/L	5802024	12/10/2008	12/10/2008	SM 4500-NH3 F	
Dissolved Orthophosphate as P by IC	NA	0.1581	0.0075	0.01	mg/L	5815023	11/28/2008	11/28/2008	EPA 300.0	
Nitrate-N by IC	NA	2.68	0.01	0.05	mg/L	5812022	11/28/2008	11/28/2008	EPA 300.0	
Nitrite-N by IC	NA	0.04	0.01	0.05	mg/L	5813015	11/28/2008	11/28/2008	EPA 300.0	J
Sulfate by IC	NA	321.27	0.01	0.05	mg/L	5819009	12/8/2008	12/8/2008	EPA 300.0	
Total Dissolved Solids	NA	952	0.1	5	mg/L	5822007	12/1/2008	12/1/2008	SM 2540 C	
Total Phosphorus-Low Range	NA	0.418	0.016	0.05	mg/L	5817014	12/1/2008	12/1/2008	SM 4500-P E	

CRG Marine Laboratories, Inc.

2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1206 (310) 533-5190 FAX (310) 533-5003 crglabs@sbcglobal.net

Trace Metals

ANALYTICAL REPORT

Analyte	Fraction	Result	MDL	RL	Units	Batch	Prepared	Analyzed	Method	QA Code
78572-R1 SM-SC-WW-02					**Water**	**Sampled: 28-Nov-08 06:17**			**Received: 28-Nov-08**	
Iron (Fe)	Total	2317	5	10	µg/L	20046	12/9/2008	12/14/2008	EPA 200.8m	
Manganese (Mn)	Total	387.1	0.2	0.5	µg/L	20046	12/9/2008	12/14/2008	EPA 200.8m	

QUALITY CONTROL REPORT

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Batch ID	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Fraction: NA					**QAQC Procedural Blank**									
Lab Blank 78571-B1					**DI Water**									
Ammonia-N	5802024	ND	0.03	0.03	mg/L									
Prepared: 10-Dec-08														
Analyzed: 10-Dec-08														
Dissolved Orthophosphate as P by IC	5815023	ND	0.0075	0.01	mg/L									
Prepared: 28-Nov-08														
Analyzed: 28-Nov-08														
Nitrate-N by IC	5812022	ND	0.01	0.05	mg/L									
Prepared: 28-Nov-08														
Analyzed: 28-Nov-08														
Nitrite-N by IC	5813015	ND	0.01	0.05	mg/L									
Prepared: 28-Nov-08														
Analyzed: 28-Nov-08														
Sulfate by IC	5819009	ND	0.01	0.05	mg/L									
Prepared: 08-Dec-08														
Analyzed: 08-Dec-08														
Total Dissolved Solids	5822007	ND	0.1	5	mg/L									
Prepared: 01-Dec-08														
Analyzed: 01-Dec-08														
Total Phosphorus-Low Range	5817014	ND	0.016	0.05	mg/L									
Prepared: 01-Dec-08														
Analyzed: 01-Dec-08														
Fraction: NA					**QAQC Procedural Blank**									
Blank Spike 78571-BS1					**DI Water**									
Ammonia-N	5802024	0.26	0.03	0.03	mg/L	0.25	0	104	70 - 130%	PASS				
Prepared: 10-Dec-08														
Analyzed: 10-Dec-08														
Dissolved Orthophosphate as P by IC	5815023	0.203	0.0075	0.01	mg/L	0.231	0	88	70 - 130%	PASS				
Prepared: 28-Nov-08														
Analyzed: 28-Nov-08														
Nitrate-N by IC	5812022	0.66	0.01	0.05	mg/L	0.7	0	94	70 - 130%	PASS				
Prepared: 28-Nov-08														
Analyzed: 28-Nov-08														

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Batch ID	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Nitrite-N by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5813015	0.58	0.01	0.05	mg/L	0.7	0	83	70 - 130%	PASS				
Sulfate by IC Prepared: 08-Dec-08 Analyzed: 08-Dec-08	5819009	29.74	0.01	0.05	mg/L	25	0	119	70 - 130%	PASS				
Total Dissolved Solids Prepared: 01-Dec-08 Analyzed: 01-Dec-08	5822007	24800	0.1	5	mg/L	25000	0	99	70 - 130%	PASS				
Total Phosphorus-Low Range Prepared: 01-Dec-08 Analyzed: 01-Dec-08	5817014	0.168	0.016	0.05	mg/L	0.165	0	102	70 - 130%	PASS				
Fraction: NA **Blank Spike Dup 78571-BS2**			**QAQC Procedural Blank DI Water**											
Ammonia-N Prepared: 10-Dec-08 Analyzed: 10-Dec-08	5802024	0.26	0.03	0.03	mg/L	0.25	0	104	70 - 130%	PASS	0	30	PASS	
Dissolved Orthophosphate as P by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5815023	0.2069	0.0075	0.01	mg/L	0.231	0	90	70 - 130%	PASS	2	30	PASS	
Nitrate-N by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5812022	0.65	0.01	0.05	mg/L	0.7	0	93	70 - 130%	PASS	1	30	PASS	
Nitrite-N by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5813015	0.56	0.01	0.05	mg/L	0.7	0	80	70 - 130%	PASS	4	30	PASS	
Sulfate by IC Prepared: 08-Dec-08 Analyzed: 08-Dec-08	5819009	25.37	0.01	0.05	mg/L	25	0	101	70 - 130%	PASS	16	30	PASS	
Total Dissolved Solids Prepared: 01-Dec-08 Analyzed: 01-Dec-08	5822007	72100	0.1	5	mg/L	70000	0	103	70 - 130%	PASS	4	30	PASS	
Total Phosphorus-Low Range Prepared: 01-Dec-08 Analyzed: 01-Dec-08	5817014	0.162	0.016	0.05	mg/L	0.165	0	98	70 - 130%	PASS	4	30	PASS	

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Batch ID	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Fraction: NA	**SM-SC-WW-02**													
Matrix Spike 78572-MS1					**Water**									
Ammonia-N Prepared: 10-Dec-08 Analyzed: 10-Dec-08	5802024	0.61	0.03	0.03	mg/L	0.5	0.085	105	70 - 130%	PASS				
Dissolved Orthophosphate as P by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5815023	0.3132	0.0075	0.01	mg/L	0.165	0.1627	91	70 - 130%	PASS				
Nitrate-N by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5812022	17.26	0.01	0.05	mg/L	12.5	2.84	115	70 - 130%	PASS				
Nitrite-N by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5813015	0.62	0.01	0.05	mg/L	0.5	0.05	114	70 - 130%	PASS				
Sulfate by IC Prepared: 08-Dec-08 Analyzed: 08-Dec-08	5819009	963.58	0.01	0.05	mg/L	625	303.3	106	70 - 130%	PASS				
Total Phosphorus-Low Range Prepared: 01-Dec-08 Analyzed: 01-Dec-08	5817014	0.741	0.016	0.05	mg/L	0.33	0.432	94	70 - 130%	PASS				
Fraction: NA	**SM-SC-WW-02**													
Matrix Spike Dup 78572-MS2					**Water**									
Ammonia-N Prepared: 10-Dec-08 Analyzed: 10-Dec-08	5802024	0.65	0.03	0.03	mg/L	0.5	0.085	113	70 - 130%	PASS	7	30	PASS	
Dissolved Orthophosphate as P by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5815023	0.3175	0.0075	0.01	mg/L	0.165	0.1627	94	70 - 130%	PASS	3	30	PASS	
Nitrate-N by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5812022	18.37	0.01	0.05	mg/L	12.5	2.84	124	70 - 130%	PASS	8	30	PASS	
Nitrite-N by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5813015	0.67	0.01	0.05	mg/L	0.5	0.05	124	70 - 130%	PASS	8	30	PASS	

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General Chemistry

QUALITY CONTROL REPORT

Analyte	Batch ID	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Sulfate by IC Prepared: 08-Dec-08 Analyzed: 08-Dec-08	5819009	921.73	0.01	0.05	mg/L	625	303.3	99	70 - 130%	PASS	7	30	PASS	
Total Phosphorus-Low Range Prepared: 01-Dec-08 Analyzed: 01-Dec-08	5817014	0.736	0.016	0.05	mg/L	0.33	0.432	92	70 - 130%	PASS	2	30	PASS	
Fraction: NA	**SM-SC-WW-02**													
Lab Dup 78572-R2					**Water**									
Ammonia-N Prepared: 10-Dec-08 Analyzed: 10-Dec-08	5802024	0.09	0.03	0.03	mg/L						12	30	PASS	
Dissolved Orthophosphate as P by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5815023	0.1673	0.0075	0.01	mg/L						6	30	PASS	
Nitrate-N by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5812022	3	0.01	0.05	mg/L						11	30	PASS	
Nitrite-N by IC Prepared: 28-Nov-08 Analyzed: 28-Nov-08	5813015	0.06	0.01	0.05	mg/L						40	30	FAIL	Q3
Sulfate by IC Prepared: 08-Dec-08 Analyzed: 08-Dec-08	5819009	285.33	0.01	0.05	mg/L						12	30	PASS	
Total Dissolved Solids Prepared: 01-Dec-08 Analyzed: 01-Dec-08	5822007	860	0.1	5	mg/L						10	30	PASS	
Total Phosphorus-Low Range Prepared: 01-Dec-08 Analyzed: 01-Dec-08	5817014	0.446	0.016	0.05	mg/L						6	30	PASS	

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Trace Metals

QUALITY CONTROL REPORT

Analyte	Fraction	Batch ID	Result	MDL	RL	Units	Spike Level	Source Result	% Recovery	Acceptance Limits	Limit Pass/Fail	RPD	RPD LIMIT	Limit Pass/Fail	QA Code
Lab Blank	**78571-B1**	QAQC	**Procedural Blank** DI Water									**Prepared 12/9/2008**		**Analyzed 14-Dec-08**	
Iron (Fe)	Total	20046	ND	5	10	µg/L									
Manganese (Mn)	Total	20046	ND	0.2	0.5	µg/L									
Matrix Spike	**78572-MS1**	**SM-SC-WW-02**		**Water**								**Prepared 12/9/2008**		**Analyzed 14-Dec-08**	
Iron (Fe)	Total	20046	2429	5	10	µg/L	100	2321.5	108	31 - 163%	PASS				
Manganese (Mn)	Total	20046	499.8	0.2	0.5	µg/L	100	389.3	111	78 - 131%	PASS				
Matrix Spike Dup	**78572-MS2**	**SM-SC-WW-02**		**Water**								**Prepared 12/9/2008**		**Analyzed 14-Dec-08**	
Iron (Fe)	Total	20046	2402	5	10	µg/L	100	2321.5	81	31 - 163%	PASS	30	30	PASS	
Manganese (Mn)	Total	20046	500.5	0.2	0.5	µg/L	100	389.3	111	78 - 131%	PASS	1	30	PASS	
Lab Dup	**78572-R2**	**SM-SC-WW-02**		**Water**								**Prepared 12/9/2008**		**Analyzed 14-Dec-08**	
Iron (Fe)	Total	20046	2326	5	10	µg/L						0	30	PASS	
Manganese (Mn)	Total	20046	391.5	0.2	0.5	µg/L						1	30	PASS	

SUB-CONTRACT LAB REPORT

Calscience
Environmental
Laboratories, Inc.

December 08, 2008

Sheri Fama
CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Subject: **Calscience Work Order No.:** **08-11-2535**
Client Reference: **08-1611**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/29/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Ranjit K. F. Clarke

Calscience Environmental
Laboratories, Inc.
Ranjit Clarke
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Date Received: 11/29/08
Work Order No: 08-11-2535

Project: 08-1611

Client Sample Number	Lab Sample Number	Date Collected	Matrix
SM-SC-WW-02	08-11-2535-1	11/28/08	Aqueous

Parameter	Result	RL	DF	Qual	Units	Date Prepared	Date Analyzed	Method
Total Kjeldahl Nitrogen	2.8	0.50	1		mg/L	N/A	12/04/08	SM 4500 N Org B

Method Blank					N/A	Aqueous		
Parameter	**Result**	**RL**	**DF**	**Qual**	**Units**	**Date Prepared**	**Date Analyzed**	**Method**
Total Kjeldahl Nitrogen	ND	0.50	1		mg/L	N/A	12/04/08	SM 4500 N Org B

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

CRG Marine Laboratories, Inc.
2020 Del Amo Blvd, Ste 200
Torrance, CA 90501-1206

Date Received: N/A
Work Order No: 08-11-2535

Project: 08-1611

Matrix: Aqueous

Parameter	Method	QC Sample ID	Date Analyzed	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Total Kjeldahl Nitrogen	SM 4500 N Org B	08-11-2399-1	12/04/08	2.8	2.7	3	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-11-2535

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

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2020 Del Amo Blvd., Suite 200, Torrance, CA 90501-1706 (310) 533-5190 Fax (310) 533-5003 www.crglabs.com

CHAIN-OF-CUSTODY

SUBCONTRACT

7535

page 1 of 1

CRG RID: 08-1611

Client Name	CRG Marine Laboratories, Inc.
Address	2020 Del Amo Blvd. Suite 200 Torrance, CA 90501
Subcontract Manager	Sheri Fama
Email	sfama@crglabs.com
Phone	310 533 5190 x 116
FAX	310 533 5003
Project Name/Number	
P.O. Number	
Sampled By	

REQUESTED ANALYSES

	Client Sample ID / Description	Sample Date	Sample Time	Sample Matrix*	Container Quantity	Container Type	TKN
1	SM-SC-WW-02 /(SM-SC)	11/28/2008	0617	W	1	1L	X
2							
3							
4							
5							
6							
7							
8							
9							
10							

CRG Containers used:	Yes	No	
Type of Ice used:	Wet	Blue	None
Sample Preservative:	Yes	No	
TAT:	**STD** 15-20 bd	RUSH specify in comments section	

COMMENTS:

To: Calscience

Please PDF results and EDD to: subcontract@crglabs.com

Please "J" flag results between the MDL and RL

CRG PID: _____

RELINQUISHED BY

Signature:		**DATE:** 11/29/2008
Print:	Sheri Fama	**TIME:** 1429
Company:	CRG	

RECEIVED BY

Signature:		**DATE:** 11-29-08
Print:	WEN-SHIANG CHANG	**TIME:** 14:29
Company:	CBL	

RELINQUISHED BY

Signature:		**DATE:**
Print:		**TIME:**
Company:		

RECEIVED BY

Signature:		**DATE:**
Print:		**TIME:**
Company:		

*CRG MATRIX CODES: (SED = Sediment); (TISS = Tissue); (SW = Seawater, Saltwater); (FW = Freshwater); (WW = Wastewater); (STRMW = Stormwater); (W = other Water)

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08-11-2535

SAMPLE RECEIPT FORM

Cooler 0 of 0

CLIENT: CRG.

DATE: 11/29/08

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 5.4 °C - 0.2 °C (CF) = 5.0 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** WSC

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☑ N/A **Initial:** WSC

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** WSC

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
Sampler's name indicated on COC	☐	☑	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Correct containers and volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Proper preservation noted on sample label(s)	☑	☐	☐
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☑1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® ☐_____

Checked/Labeled by: WSC

Reviewed by: WSC

Scanned by: WSC

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Ranjit Clarke

From: Sheri Fama [sfama@crglabs.com]
Sent: Tuesday, December 02, 2008 9:05 AM
To: Ranjit Clarke
Cc: projectmanagers@crglabs.com
Subject: RID 08-1611

Hello Ranjit,
I submitted a sample on Sat. 11-29-08, with sample ID of SM-DP-WW-03 (with the COC to reflect this ID). On the report, can you please have the sample ID as: SM-SC-WW-02?
Thanks,

Sheri Fama
Sample Control Manager
CRG Marine Laboratories, Inc.
2020 Del Amo Blvd-Suite 200
Torrance, CA 90501-1206
310-533-5190 x 116 (office)
310-717-6705 (cell)
310-533-5003 (fax)
sfama@crglabs.com

CHAIN-OF-CUSTODY

Chain of Custody Record

Page 1 of 1 (10-08-1611)

To:
CRG Marine Laboratories
2020 Del Amo Blvd.
Torrance, CA 90501
(310) 533-5191
(310) 533-5003 Fax
Contact: Misty Mercier

Date Received:

Lab #:

From:
Kinnetic Laboratories, Inc
307 Washington St.
Santa Cruz, CA 95060
(831) 457-3950
(831) 426-0405 Fax
Contact: Amy Howk

Project: Santa Margarita

Matrix: Water

Project #: 5300.03

Complete by: 3 weeks

SampleID	StationID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Bottles	LabID	Condition Upon Receipt
SM-SC-WW-02	SM-SC	11/28/08	0917	Comp	Ammonia-N	250 mL AG	H2SO4	1		
SM-SC-WW-02	SM-SC			Comp	Total Fe, Mn	1L HDPE	4° c	1		
SM-SC-WW-02	SM-SC			Comp	Nitrate-N, Nitrite-N, Dissolved Ortho-Phosphate, Sulfates, Total Phosphate-P	500 mL HDPE	4° c	1	78572	
SM-SC-WW-02	SM-SC			Comp	Total Dissolved Solids	1L HDPE	4° c	1		
SM-SC-WW-02	SM-SC			Comp	Total Kjeldahl Nitrogen	1L AG	H2SO4	1		

Data Report MUST include the following: Sample ID, Analytical Method, Detection Limit, Date of Extraction if applicable, Date of Analysis, Analytical Results and Signature of QA Reviewer. Submit all data in paper and digital formats to KLI. Email digital to edd@kinneticlabs.com. All times on this sheet are military time.

Special Instructions/Comments: Please send invoice to: Winzler and Kelly, Patrick Kaspari, 633 Third Street, Eureka, CA 95501. Ph: 707-443-8326 Fax: 707-444-8330

Sampled and Relinquished By:	Date/Time:	Transporter	Received By:	Date/Time:
	11/28/08 0925	MESSENGER EXPRESS 858-550-1400		
Relinquished By:	**Date/Time:**	**Transporter**	**Received By:**	**Date/Time:**
				11/28/08 1145

020904

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CRG PID	CRG RID
KIN005d	08-1611

SAMPLE RECIEPT FORM

CLIENT: Kinnetic Date Received: Nov 28, 2008 Total # of Samples: 1

COURIER INFORMATION

○ CRG ◉ OTHER ○ FEDEX tracking # 522
○ CLIENT Messenger Express ○ UPS

SF

TEMPERATURE

4 °C ◉ WET ICE ○ BLUE ICE ○ NO ICE

SAMPLE MATRIX

◉ LIQUID ○ TISSUE
☐ Composite at CRG, equal ☐ Homogenized
☐ Composite at CRG, flow-weighted ☐ Unhomogenized
○ SOLID ○ OTHER _____

Received By :

CLIENT COC

◉ INCLUDED ◉ SIGNED
○ NOT INCLUDED ○ NOT SIGNED

CONDITION OF SAMPLES UPON VERIFICATION

	Yes	No	NA
All sample containers received intact and in good condition.....	☒	☐	☐
All samples listed on COC(s) are present.....	☒	☐	☐
All sample IDs on containers are consistent with sample IDs on COC(s).....	☐	☒	☐
Correct containers used for analyses requested.....	☒	☐	☐
All samples received within method holding time.....	☒	☐	☐

Samples verified by:

NOTES

TKN container is labeled as: SM-DP-WW-03 (SF)

Print Form

Appendix D
Field Notes

Sandia Creek Field Data Log Sheet
Santa Margarita River Mass Loading Stations

GENERAL INFORMATION

Station ID 19.1 Date 12/7/07 Time (*5): Arrival 2000 PST

Station Name: Sandia Creek Departure 2020 PST

Field Crew: R. SHELQUIST, C. HARTMAN

OBSERVATIONS

Weather:

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

ACTIONS TAKEN

Bottle out:_____ Volume:_____ Vol/Sample:_____

Bottle in: _____ Circle One (Same) or (New)

Sampler error samples missed: _____

Temp (Celsius): 14.41

Specific Conductivity (us/cm): 1736

DO (mg/L): 17.16 mg/L *

pH: 7.73

Turbidity (NTU): 9.6

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1____ 2____ 3____ 4____ 5____ 6____ 7____ 8____

Dep: 1____ 2____ 3____ 4____ 5____ 6____ 7____ 8____

PROGRAM SIGNATURE (*B)

Arr:

Dep:

STATION DATA (*6):

Stage (ft)	02:		Est Vol 2 Sample	29:	
Flow (cfs)	04:		Sample Vol (ml)	42:	
Vol (kcf)	05:		Max Stage (day)	51:	
Vol Sum	06:		Max Stage (hr)	52:	
% Storm Capture	08:		Max Stage	53:	
Vol to Sample	14:		Storm V sum	72:	
Sample Count	17:		Storm Sample	75	
Station ID	21:		Day of Last Sample	105	
			Time of Last Sample	106	
			Staff Gauge		

COMMENTS:

Set auto-samplers up - time weighted composite
took field measurements
esn calculating to melt - reading not accurate

Santa Margarita River Mass Loading Stations
Field Data Log Sheet for ~~Santa Margarita~~ SANDIA CREEK

GENERAL INFORMATION

Station ID 19.1 Date 1/27/08 Time (*5): Arrival 1053 PST

Station Name: SANDIA CREEK Departure 1112 PST

Field Crew: BURNS, HARTMAN

OBSERVATIONS

Weather: partly sunny

Oil (extent): —

Floating material: —

Other observations (water color or odor, equipment condition): Creek highly turbid

ACTIONS TAKEN (1 in SIN)

pH	4.85 *	13.25
temp	14.4 °C	13.8°
EC (SP)	1093 µS/cm	1091
Turb	350 NTU	
DO	3.8	

All measurements collected @ 14:15 @ sample 25
1 L grab collected for field meas. (before 26)
~1 L sample in CHEM bottle
* bad reading

Bottle out: ____ Volume: 1 L Vol/Sample: .27

Bottle in: 75 Circle One (Same) or (New)

Sampler error samples missed: 16

pH probe checked in 7 standard - read 7.05

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

Dep: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

PROGRAM SIGNATURE (*B)

Arr: 254.00

Dep: 254.00

STATION DATA (*6):

Stage (ft)	02:	2.72	Est Vol 2 Sample	29:	10.966
Flow (cfs)	04:	110	Sample Vol (ml)	42:	0
Vol (kcf)	05:	.0066	Max Stage (day)	51:	27
Vol Sum	06:	.0654	Max Stage (hr)	52:	515
% Storm Capture	08:	100	Max Stage	53:	3.5
Vol to Sample	14:	.27	Storm V sum	72:	4.392
Sample Count	17:	16	Storm Sample	75	4.392
Station ID	21:	19.1	Staff Gage		2.56

COMMENTS:

Sample reports "ERRORS DURING SAMPLING"

~100 mL in bottle

~~Samples 6-13 no liquid detected~~ (CH)

~~6-13~~ (CH)

6-22 no liquid detected (couple samples report "no more liquid"

Manual grab performed - pump read no liquid detected

Checked pump tubing - clear of obstructions

took second manual grab - successful sample taken ~200 mL

pump reported "no more liquid" after ~200 mL drawn

Some air bubbles came up w/ sample

1st / next sample will be 23

Santa Margarita River Mass Loading Stations
Field Data Log Sheet for ~~Santa Margarita~~ SAHOIA CREEK

GENERAL INFORMATION
Station ID 19.1 Date 4/28/08 Time (*5): Arrival 1100 PST
Station Name: Sahoia Cam Departure 1117 PST
Field Crew: B. CH

OBSERVATIONS
Weather: PARTLY CLOUDY, LT RAIN
Oil (extent):
Floating material:
Other observations (water color or odor, equipment condition):

ACTIONS TAKEN
HEAT SAMP BOTTLE
Bottle out:_____ Volume:_____ Vol/Sample:_____
Bottle in: _____ Circle One (Same) or (New)
Sampler error samples missed: _____

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)
Arr: 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 1
Dep: 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 1

PROGRAM SIGNATURE (*B)
Arr: 254.00
Dep: 254.00

STATION DATA (*6):

Stage (ft)	02:	3.7292	Est Vol 2 Sample	29:	93.865
Flow (cfs)	04:	30	Sample Vol (ml)	42:	0
Vol (kcf)	05:	.012580	Max Stage (day)	51:	28
Vol Sum	06:	.208729	Max Stage (hr)	52:	955
% Storm Capture	08:	100	Max Stage	53:	4.095-3
Vol to Sample	14:	2.7	Storm V sum	72:	18.325
Sample Count	17:	07	Storm Sample	75	18.325
Station ID	21:	19.1	Staff Gage		OVER 100

COMMENTS:

SAMPLER STILL NOT FUNCTIONING PROPERLY, WATER NOT GETTING PURGED FROM TUBE WHEN I DO "NO LIQUID DETECTED" OR "NO MORE LIQUID". IF SAMPLE DOES MAKE IT UP, ~2L IN BOTTLE AT MOST. UNABLE TO TEST VACUUM AS GRAB WON'T TURN WHEN I "OPERATE PUMP" DOESN'T SEEM TO BE AN OPTION.
SPOKE W/ JOSH (USGS) & HE CONFIRMED BLOCK OF THIS STATION IS ~19' FROM RIVER BOTTOM

Santa Margarita River Mass Loading Stations
Field Data Log Sheet for Sandia Creek

GENERAL INFORMATION

Station ID 19.1 Date 1/29/08 Time (*5): Arrival 1253 PST

Station Name: SANDIA CREEK Departure _____ PST

Field Crew: BURNS, HARTMAN

OBSERVATIONS

Weather: cloudy

Oil (extent): —

Floating material: —

Other observations (water color or odor, equipment condition):

creek running significantly less turbid

ACTIONS TAKEN

Bottle out: _____ Volume: _____ Vol/Sample: _____

Bottle in: — Circle One (Same) or (New)

Sampler error samples missed: _____

Temp (Celsius): _____

Specific Conductivity (us/cm): _____

DO (mg/L): _____

pH: _____

Turbidity (NTU): _____

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

Dep: 1 — 2 — 3 — 4 — 5 1 6 — 7 — 8 —

PROGRAM SIGNATURE (*B)

Arr: 254,00

Dep: ~~254.00~~ 21246

STATION DATA (*6):

Stage (ft)	02:	2.4088	Est Vol 2 Sample	29:	5.9815
Flow (cfs)	04:	0	Sample Vol (ml)	42:	0
Vol (kcf)	05:	.0036	Max Stage (day)	51:	28
Vol Sum	06:	.23939	Max Stage (hr)	52:	955
% Storm Capture	08:	98.44	Max Stage	53:	4.0953
Vol to Sample	14:	.27	Storm V sum	72:	28.222
Sample Count	17:	23	Storm Sample	75	29.783
Station ID	21:	19.1	Staff Gage		

COMMENTS:

bubbler level 1.3

downloaded data

raised FS

103 or 108 total samples

INCREASE TRIGGER LEVEL (0.4-1.0) TO 3' IN ORDER TO LOWER FS SO LOGGING GOES TO NON-STORM INTERVAL (1 HR)

Sandia Creek Field Data Log Sheet
Santa Margarita River Mass Loading Stations

GENERAL INFORMATION

Station ID 19.1 Date 2/21/08 Time (*5): Arrival 1416 PST

Station Name: Sandia Creek Departure 1423 PST

Field Crew: Hartman, Nowak

OBSERVATIONS

Weather: mostly cloudy

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

battery 12.55

ACTIONS TAKEN

Bottle out: — Volume: 1L Vol/Sample: .27

Bottle in: 13 Circle One (Same) or (New)

Sampler error samples missed:

Temp (Celsius):

Specific Conductivity (us/cm):

DO (mg/L):

pH:

Turbidity (NTU):

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

Dep: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

PROGRAM SIGNATURE (*B)

Arr: 59452

Dep: 59452

STATION DATA (*6):

Stage (ft)	02:	1.7464	Est Vol 2 Sample	29:	.99692
Flow (cfs)	04:	10	Sample Vol (ml)	42:	0
Vol (kcf)	05:	.000060	Max Stage (day)	51:	51
Vol Sum	06:	.13866	Max Stage (hr)	52:	1457
% Storm Capture	08:	100	Max Stage	53:	1.8481
Vol to Sample	14:	.27	Storm V sum	72:	.94926
Sample Count	17:	3	Storm Sample	75	.94926
Station ID	21:	19.1	Day of Last Sample	105	52
			Time of Last Sample	106	1027
			Staff Gauge		

COMMENTS:

Sampler has taken 3 samples, looks like appropriate amount in bottle

did not change stage trigger level

disconnected com. cable for Santa Margarita RG testing

iced bottle

Sandia Creek Field Data Log Sheet
Santa Margarita River Mass Loading Stations

GENERAL INFORMATION

Station ID 19.1 Date 2/23/08 Time (*5): Arrival 1602 PST

Station Name: Sandia Creek Departure 1645 PST

Field Crew: PARENT, HARTMAN

OBSERVATIONS

Weather: overcast

Oil (extent): —

Floating material: —

Other observations (water color or odor, equipment condition):

Battery Voltage = 12.50

ACTIONS TAKEN

Bottle out: 13 Volume: ~~8L~~ 9.5L Vol/Sample: 27

Bottle in: 057 Circle One (Same) or (New)

Sampler error samples missed: _____

Temp (Celsius): 14.0

Specific Conductivity (us/cm): 1203 µS

DO (mg/L): 9.11 mg/L

pH: 8.28

Turbidity (NTU): (grab) 13.3 (2/25/08 10:20)

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

Dep: 1 1 2 — 3 — 4 — 5 — 6 — 7 — 8 —

PROGRAM SIGNATURE (*B)

Arr: 59452

Dep: 38379

STATION DATA (*6):

Stage (ft)	02:	1.9205	Est Vol 2 Sample	29:	1.9938
Flow (cfs)	04:	2.0	Sample Vol (ml)	42:	0.0
Vol (kcf)	05:	.00120	Max Stage (day)	51:	53
Vol Sum	06:	.19356	Max Stage (hr)	52:	1115.0
% Storm Capture	08:	100	Max Stage	53:	2.8121
Vol to Sample	14:	.27	Storm V sum	72:	6.4061
Sample Count	17:	23	Storm Sample	75	6.4061
Station ID	21:	19.1	Day of Last Sample	105	54
			Time of Last Sample	106	1323
			Staff Gauge		

COMMENTS:

pulled bottle

Sample - brown and opaque

did F7 high

~~F5 9~~

Changed minimum stage to 2.0

*4 9 Δ 0 → 2.0

*4 10 Δ 1.8 → 2.0

replaced sampler hose

iced clean bottle

hose placed in bottle

Measured pH, temp, cond, DO in situ

took grab for turbidity

Sampler is on 25

Sample count is 23

- Error message to replace pump tubing
- replaced but did not reset sampler so error message did not go away

Sandia Creek Field Data Log Sheet
Santa Margarita River Mass Loading Stations

GENERAL INFORMATION

Station ID 19.1 Date 2/25/08 Time (*5): Arrival 1440 PST

Station Name: Sandia Creek Departure 1500 PST

Field Crew: PARENT, HARTMAN

OBSERVATIONS

Weather: Sunny, clear, 70°

Oil (extent): —

Floating material: —

Other observations (water color or odor, equipment condition):

creek looks fairly clear / non-turbid
intake strainer visible

Battery Voltage = 12.5

ACTIONS TAKEN

Bottle out: 057 Volume: 2L Vol/Sample: 0.27

Bottle in: ____ Circle One (Same) or (New)

Sampler error samples missed: ____

Temp (Celsius): ____

Specific Conductivity (us/cm): ____

DO (mg/L): ____

pH: ____

Turbidity (NTU): ____

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 1 2 0 3 0 4 0 5 0 6 0 7 0 8 1

Dep: 1 1 2 — 3 — 4 — 5 1 6 — 7 — 8 —

PROGRAM SIGNATURE (*B)

Arr: 30379

Dep: 30379

STATION DATA (*6):

Stage (ft)	02:	1.9762	Est Vol 2 Sample	29:	0
Flow (cfs)	04:	0.0	Sample Vol (ml)	42:	0
Vol (kcf)	05:	0.0	Max Stage (day)	51:	55
Vol Sum	06:	.21480	Max Stage (hr)	52:	1310
% Storm Capture	08:	100	Max Stage	53:	2.4463
Vol to Sample	14:	.27	Storm V sum	72:	1.8348
Sample Count	17:	6	Storm Sample	75	1.8348
Station ID	21:	19.1	Day of Last Sample	105	55
			Time of Last Sample	106	20.34
			Staff Gauge		

COMMENTS:

Downloaded data onto Dale's laptop ~~battery died before download complete~~

Sampler count = 31

collected bottle

turned off sampler to conserve power

Santa Margarita River Mass Loading Stations
Field Data Log Sheet for Sandia Creek
Druck Transducer Log Sheet

GENERAL INFORMATION

Station ID ______ Date 5/13/08 Time (*5): Arrival 1102 PST

Station Name: ______ Departure 1113 PST

Field Crew:

OBSERVATIONS

Weather:

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

ACTIONS TAKEN

Bottle out: — Volume: ______ Vol/Sample: ______

Bottle in: 95 Circle One (Same) or (New)

Sampler error samples missed:

Temp (Celsius):

Specific Conductivity (us/cm):

DO (mg/L):

pH:

Turbidity (NTU):

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 ___ 2 ___ 3 — 4 — 5 1 6 — 7 — 8 —

Dep: 1 ___ 2 — 3 — 4 — 5 1 6 — 7 — 8 —

PROGRAM SIGNATURE (*B)

Arr: 14091.0

Dep: 23769

STATION DATA (*6):

Item	Code	Value	Item	Code	Value
Stage (ft)	02:	1.6499	Tot Vol Exp	30:	6.5
MeasVolt	03:	12.65	Samp Size	31:	[illegible]
Flow (cfs)	04:	7	Num Samp	33:	26
Vol (mcf)	05:	0	MeasStage	35:	[illegible]
Vol Sum	06:	0	Sample Num	41:	[illegible]
Stage (in)	07:	0	Sample Vol (ml)	42:	[illegible]
% Storm Capture	08:	0	Total Sample Vol	43:	
StageOfSt	10:	.90243	Max Stage (day)	51:	[illegible]
Vol to Sample	14:	.135	Max Stage (hr)	52:	
Sample Count	17:	0	Max Stage	53:	[illegible]
Station ID	21:	[illegible]	Storm V sum	72:	0
CR-10 Batt Voltage	22:	11.884	Storm Sample	75:	0
DaysSample	28:	30	Sample Limit	91:	69
Est Vol 2 Sample	29:	.19335	Staff Gage		

COMMENTS:

Sampler ... - ... 2

... 2

set for 30 minute ... samples

... (*4 -34)

... sample 260mL, ... not calibrate

...

... replaced bag

STARTED @ ~1245 PDT

Santa Margarita River Mass Loading Stations
Field Data Log Sheet for Sandia Creek
Druck Transducer Log Sheet

GENERAL INFORMATION

Station ID: SANDIA Date: 5/14/08 Time (*5): Arrival: 1050 PST

Station Name: 19.1 Departure: 1115 PST

Field Crew: Burns, Hartman

OBSERVATIONS

Weather: Sunny, hot

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

ACTIONS TAKEN

Bottle out: _____ Volume: _____ Vol/Sample: _____

Bottle in: _____ Circle One (Same) or (New)

Sampler error samples missed: ———

Temp (Celsius): 17.9

Specific Conductivity (us/cm): 1132

DO (mg/L): 10.06 106.6%

pH: 8.45

Turbidity (NTU): 0.7

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 — 2 — 3 — 4 — 5 1 6 — 7 — 8 —

Dep: 1 — 2 — 3 — 4 — 5 1 6 — 7 — 8 —

PROGRAM SIGNATURE (*B)

Arr: 23769

Dep:

STATION DATA (*6):

Stage (ft)	02:	1.6197	Tot Vol Exp	30:	6.5
MeasVolt	03:	0	Samp Size	31:	250
Flow (cfs)	04:	7	Num Samp	33:	26
Vol (mcf)	05:	0	MeasStage	35:	1.6186
Vol Sum	06:	0	Sample Num	41:	NA
Stage (in)	07:	0	Sample Vol (ml)	42:	0
% Storm Capture	08:	0	Total Sample Vol	43:	0
StageOfSt	10:	.90243	Max Stage (day)	51:	130
Vol to Sample	14:	.135	Max Stage (hr)	52:	0337
Sample Count	17:	0	Max Stage	53:	1.7073
Station ID	21:	19.1	Storm V sum	72:	0
CR-10 Batt Voltage	22:	11.871	Storm Sample	75:	0
DaysSample	28:	30	Sample Limit	91:	67
Est Vol 2 Sample	29:	.69785	Staff Gage		

COMMENTS:

measured DO + temp/cond/pH in situ } 1045 PST / 1145 PDT
grabbed sample for turbidity

[DO calibrated in field
cond/temp/pH calibrated in lab
turbidimeter calibrated in field]

last sample pulled 1215 PDT.

pulled bottle + electronics

Santa Margarita River Mass Loading Stations
Field Data Log Sheet for Santa Margarita

GENERAL INFORMATION

Station ID 19.2 Date 12/7/07 Time (*5): Arrival 1800 PST

Station Name: Santa Margarita Departure 1820 PST

Field Crew: R. SHELQUIST, C. HARTMAN

OBSERVATIONS

Weather:

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

ACTIONS TAKEN

Bottle out:_____ Volume:_____ Vol/Sample:_____

Bottle in: _____ Circle One (Same) or (New)

Sampler error samples missed: _____

Temp (Celsius): 13.37

Specific Conductivity (us/cm): 1704

DO (mg/L): 16.87 mg/L (error in calibration)

pH: 7.54

Turbidity (NTU): 11.4

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1____ 2____ 3____ 4____ 5____ 6____ 7____ 8____

Dep: 1____ 2____ 3____ 4____ 5____ 6____ 7____ 8____

PROGRAM SIGNATURE (*B)

Arr:

Dep:

STATION DATA (*6):

Stage (ft)	02:		Est Vol 2 Sample	29:	
Flow (cfs)	04:		Sample Vol (ml)	42:	
Vol (kcf)	05:		Max Stage (day)	51:	
Vol Sum	06:		Max Stage (hr)	52:	
% Storm Capture	08:		Max Stage	53:	
Vol to Sample	14:		Storm V sum	72:	
Sample Count	17:		Storm Sample	75	
Station ID	21:		Staff Gage		

COMMENTS:

Set auto-sampler up - time weighted composite

took field measurements

error calibrating DO meter - reading not accurate

Santa Margarita River Mass Loading Stations
Field Data Log Sheet for Santa Margarita

GENERAL INFORMATION

Station ID 19.2 Date 1/27/08 Time (*5): Arrival 11:58 PST

Station Name: SANTA MARGARITA Departure 12:28 PST

Field Crew: BORNS, HARTMAN

OBSERVATIONS

Weather: partly cloudy

Oil (extent): —

Floating material: —

Other observations (water color or odor, equipment condition): river high + turbid

ACTIONS TAKEN

6.5L

Bottle out: Q71 Volume: ~~6L~~ Vol/Sample: 1.44

Bottle in: 48 Circle One (Same) or (New)

Sampler error samples missed: —

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

Dep: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

PROGRAM SIGNATURE (*B)

Arr: 433.00

Dep: 433.00

STATION DATA (*6):

Stage (ft)	02:	4.65	Est Vol 2 Sample	29:	113.65
Flow (cfs)	04:	1150	Sample Vol (ml)	42:	0
Vol (kcf)	05:	1069	Max Stage (day)	51:	27
Vol Sum	06:	.54718	Max Stage (hr)	52:	750
% Storm Capture	08:	100	Max Stage	53:	5.983
Vol to Sample	14:	1.44	Storm V sum	72:	46.696
Sample Count	17:	32 *	Storm Sample	75	46.696
Station ID	21:	19.2	Staff Gage		~ 4.7'

top of strap above end of tape

COMMENTS:

Bubbler level - 4.67'

grabbed 1L sample in poly bottle to make field measurements

* took additional sample during visit bottle scrap after sample 33

pH	6.68	YSI 63
temp	13.8 °C	YSI 58
cond (sp)	307.2 µS/cm	YSI 63
turbidity	820 NTU	DRT-15CE
DO	10.85	YSI 58

Santa Margarita River Mass Loading Stations
Field Data Log Sheet for Santa Margarita

GENERAL INFORMATION

Station ID 19.2 Date 1/28/08 Time (*5): Arrival 1207 PST

Station Name: Santa Margarita River Departure [illegible] PST

Field Crew: JS / [illegible]

OBSERVATIONS

Weather: [illegible] CLOUDY

Oil (extent): [illegible]

Floating material:

Other observations (water color or odor, equipment condition): [illegible] high flow — [illegible] 6" [illegible] pull box [illegible]

ACTIONS TAKEN

↑ 9L

Bottle out: [illegible] Volume: [illegible] Vol/Sample: [illegible]

Bottle in: 14 Circle One (Same) or (New)

Sampler error samples missed:

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 — 2 — 3 — 4 — 5 1 6 — 7 — 8 1

Dep: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

PROGRAM SIGNATURE (*B)

Arr: 433.00

Dep: 29867

STATION DATA (*6):

Stage (ft)	02:	5.498	[illegible]	Est Vol 2 Sample	29:	165.45	[illegible]
Flow (cfs)	04:	16.70	[illegible]	Sample Vol (ml)	42:	0	
Vol (kcf)	05:	.1002	[illegible]	Max Stage (day)	51:	27	[illegible]
Vol Sum	06:	.0827	[illegible]	Max Stage (hr)	52:	2210	
% Storm Capture	08:	67.132	[illegible]	Max Stage	53:	6.789	[illegible]
Vol to Sample	14:	1.44	[illegible]	Storm V sum	72:	169.68	
Sample Count	17:	0	0	Storm Sample	75	113.8[illegible]	
Station ID	21:	19.2	[illegible]	Staff Gage		[illegible]	

COMMENTS:

pH [illegible]
Temp [illegible]
Cond [illegible]
DO [illegible]
[illegible]

[illegible] @ 1250

[illegible]

F57 [illegible] COMMAND, [illegible] DATA [illegible] PROGRAM [illegible] LOCKED (NOT [illegible]) ATTEMPTED F7 [illegible] - NO [illegible] REINSTALLED PROGRAM, [illegible] THRESHOLDS + CHANGED V4.19 TO 500. HUNG [illegible] @ 8 PM, [illegible] STAGE TO [illegible] SAMPLER - SUCCESSFUL

Need new pull-box (1) screw and wingnuts (2)

Santa Margarita River Mass Loading Stations
Field Data Log Sheet for Santa Margarita

GENERAL INFORMATION

Station ID 19.2 Date 1/29/08 Time (*5): Arrival 11.25 PST

Station Name: Santa Margarita River Departure 12.00 PST

Field Crew: JB/CA

OBSERVATIONS

Weather: partly sunny

Oil (extent): —

Floating material: —

Other observations (water color or odor, equipment condition):

river turbid, sudsy

ACTIONS TAKEN

Bottle out: 14 Volume: 5L Vol/Sample: 1.44

Bottle in: ___ Circle One (Same) or (New)

Sampler error samples missed: —

Temp (Celsius): ___

Specific Conductivity (us/cm): ___

DO (mg/L): ___

pH: ___

Turbidity (NTU): ___

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 1 2 — 3 — 4 — 5 — 6 — 7 — 8 1

Dep: 1 1 2 — 3 — 4 — 5 1 6 — 7 — 8 1

PROGRAM SIGNATURE (*B)

Arr: 29829

Dep: 29829

STATION DATA (*6):

Stage (ft)	02:	.01074	Est Vol 2 Sample	29:	0
Flow (cfs)	04:	0	Sample Vol (ml)	42:	0
Vol (kcf)	05:	0	Max Stage (day)	51:	28
Vol Sum	06:	.19318	Max Stage (hr)	52:	-1302
% Storm Capture	08:	100	Max Stage	53:	5.1090
Vol to Sample	14:	1.44	Storm V sum	72:	39.073
Sample Count	17:	27	Storm Sample	75	39.073
Station ID	21:	19.2	Staff Gage		28'

COMMENTS:

bubbler level = 0.02' - physically examined bubbler tubing - no obstructions

battery bank voltage 12.2

Downloaded data

level dropped between 0945 and 0950 from 2.177 → 0.943 (0945) (0950)

last sample 0924

pulled bottle - called Storm

brought CR10 back

left - 3 banked batteries + 1 spare

- pump + base
- all cables
- holed stopper

BENCH TEST - LAB TEST 1/30/08

Santa Margarita River Mass Loading Stations
Field Data Log Sheet for Santa Margarita

GENERAL INFORMATION

Station ID_____ Date 1/30/08 Time (*5): Arrival_____PST

Station Name: _____ Departure_____PST

Field Crew:

OBSERVATIONS

Weather:

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

ACTIONS TAKEN

Bottle out:_____ Volume:_____Vol/Sample:_____

Bottle in: _____ Circle One (Same) or (New)

Sampler error samples missed: _____

Temp (Celsius): _____

Specific Conductivity (us/cm): _____

DO (mg/L): _____

pH: _____

Turbidity (NTU): _____

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1____ 2____ 3____ 4____ 5____ 6____ 7____ 8____

Dep: 1____ 2____ 3____ 4____ 5____ 6____ 7____ 8____

PROGRAM SIGNATURE (*B)

Arr:

Dep:

STATION DATA (*6):

Stage (ft)	02:		Est Vol 2 Sample	29:	
Flow (cfs)	04:		Sample Vol (ml)	42:	
Vol (kcf)	05:		Max Stage (day)	51:	
Vol Sum	06:		Max Stage (hr)	52:	
% Storm Capture	08:		Max Stage	53:	
Vol to Sample	14:		Storm V sum	72:	
Sample Count	17:		Storm Sample	75	
Station ID	21:		Staff Gage		

COMMENTS: Bubbler

@ 1' = 0' .00277

@ 2' = 0' .00234

@ 3' = .04' .03644

@ 4' = .05' .04592

@ 5' = .14 .03768

3.72'/3.73' @ 30 sec interval

Tubing ... 3.5 ... interval

... "out FS" from 25' to 9'

3.4.1 - changed from 3 min to 30 sec to 1 min (Sample time)

Santa Margarita DRCKFLOT.CSI program
*6 Log Sheet.

GENERAL INFORMATION

Station ID 19.2 Date 2/21/08 Time (*5): Arrival 1234 PST

Departure 1329 PST

Station Name: Santa Margarita River

time 2 – in 1530

Field Crew: NOVAK, HARTMAN

out 1553

OBSERVATIONS

Weather: partly cloudy

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

river looks greenish, low turbidity

ACTIONS TAKEN

Bottle out: — Volume: — Vol/Sample: 1500

Bottle in: 11 Circle One (Same) or (New)

Sampler error samples missed: 5 per CR10

Temp (Celsius):

Specific Conductivity (us/cm):

DO (mg/L):

pH:

Turbidity (NTU):

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low

Arr: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

Dep: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

PROGRAM SIGNATURE (*B)

Arr: 51325

Dep: 51325

STATION DATA (*6):

Station Info			After F7 Reset				After F7 Reset
Station ID	01:	19.2	19.2	Max Stage Month	64:	2	2
Measure Battery Voltage with a VOM		12.61		Max Stage Day	65:	20	21
				Max Stage Hour	66:	2148	1324
				Maximum Stage (ft)	67:	1.8673	1.8683
Physical Parameters							
Stage (ft)	03:	1.8649	1.8683	*Sample Information*			
Q-Flow (cfs)	05:	67.294	67.396	Sample Count	21:	5	6
Volume (kcf)	06:	4.0376	4.0438	Minutes to Next Sample	25:	23.083	366.51
Volume Sum (kcf)	07:	1402.8	8.1094	Last Sample Month	27:	0	0
Total Storm Volume (kcf)	08:	8902.8	8.1094	Last Sample Day	28:	0	0
Total. Storm Volume Sampled	09:	8902.8	8.1094	Last Sample Hour	29:	0	0
Percent Storm Capture	10:	100	100	Staff Gage (ft)		22.5	

(margin beside Sample Information: 0, 371.29, 0, 0, 0)

SAMPLING CONTROL PARAMETERS (*6)

			F7				F7
Volume To Sample (kcf)	55:	1500	✓	✓Year to Start Sampling	49:	0 ✓	✓
Rainfall To Sample (kcf)	56:	0 ✓	✓	✓Month to Start Sampling	50:	0 ✓	✓
Time Sample Pacing Value (min)	57:	0 ✓	✓	✓Day to Start Sampling	51:	0 ✓	✓
Stage Trigger Level (ft)	47:	1.8	1.8	✓Time to Start Sampling	52:	0 ✓	✓
Rainfall Trigger Level (in)	48:	0 ✓	✓	✓			

Stage Storm Start Parameter 1 = Start if Stage Exceeds Trig Level 0 = Do Not Start with Stage	40:	1 ✓ ✓	Rainfall Storm Start Parameter ✓1 = Start if Rain Exceeds Trig Level 0 = Do Not Start With Rain	41:	0 ✓ ✓
Time Start Parameter 1= Start if Time Exceeds Start Time 0= Do Not Start With Time	42:	0 ✓ ✓	Sampler Pacing Parameter ✓1 = Flow Based Sampling 2 = Rain Based Sampling 3 = Time Based Sampling	59:	1 ✓ ✓

COMMENTS:

CR-10 data shows 5 samples collected
No sample in bottle
downloaded data onto IBM field laptop
pulled manual grab – successfully pulled 200mL
while onsite CR-10 sample count bumped up to 6 but no
sample was attempted by pump
communication cable issue between CR10 + sampler?
wiggled / disconnected – reconnected all wires
Did an F7 reset

(2) Came back @ 1534 w/ SC cable. Tested cable by putting [illegible] 5V [illegible] triggered sample successfully
(3) [illegible] sample to [illegible] trigger successful sample
(4) downloaded data & F7 reset
assume [illegible] [illegible] at [illegible] [illegible] engaged

Santa Margarita DRCKFLOT.CSI program
*6 Log Sheet.

GENERAL INFORMATION

Station ID 19.2 Date 2/22/08 Time (*5): Arrival 1451 PST
Departure 1[illegible] PST

Station Name: Santa Margarita River

Field Crew: JHAGQUIST / HALTMAN

OBSERVATIONS

Weather:

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

ACTIONS TAKEN

Bottle out: _____ Volume: _____ Vol/Sample: _____
Bottle in: _____ Circle One (Same) or (New)
Sampler error samples missed: _____

Temp (Celsius): _____
Specific Conductivity (us/cm): _____
DO (mg/L): _____
pH: _____
Turbidity (NTU):

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low

Arr: 1____ 2____ 3____ 4____ 5____ 6____ 7____ 8____
Dep: 1____ 2____ 3____ 4____ 5____ 6____ 7____ 8____

PROGRAM SIGNATURE (*B)

Arr:
Dep:

STATION DATA (*6):

		After F7 Reset				After F7 Reset
Station Info						
Station ID	01:			Max Stage Month	64:	
Measure Battery Voltage with a VOM				Max Stage Day	65:	
				Max Stage Hour	66:	
				Maximum Stage (ft)	67:	
Physical Parameters						
Stage (ft)	03:			***Sample Information***		
Q-Flow (cfs)	05:			Sample Count	21:	7
Volume (kcf)	06:			Minutes to Next Sample	25:	
Volume Sum (kcf)	07:			Last Sample Month	27:	
Total Storm Volume (kcf)	08:			Last Sample Day	28:	
Total. Storm Volume Sampled	09:			Last Sample Hour	29:	
Percent Storm Capture	10:			Staff Gage (ft)		

SAMPLING CONTROL PARAMETERS (*6)

Volume To Sample (kcf)	55:	10	Year to Start Sampling	49:	0
Rainfall To Sample (kcf)	56:	0	Month to Start Sampling	50:	0
Time Sample Pacing Value (min)	57:	0	Day to Start Sampling	51:	0
Stage Trigger Level (ft)	47:		Time to Start Sampling	52:	0
Rainfall Trigger Level (in)	48:	0			

Stage Storm Start Parameter 1 = Start if Stage Exceeds Trig Level 0 = Do Not Start with Stage	40:	1	Rainfall Storm Start Parameter 1 = Start if Rain Exceeds Trig Level 0 = Do Not Start With Rain	41:	0
Time Start Parameter 1= Start if Time Exceeds Start Time 0= Do Not Start With Time	42:	0	Sampler Pacing Parameter 1 = Flow Based Sampling 2 = Rain Based Sampling 3 = Time Based Sampling	59:	1

COMMENTS:

1. WE RETURNED TO CHECK SAMPLER COUNTS. IT HAS ADVANCED TWICE W/ NO WATER COLLECTED
2. SET VAR, *C-55 TO 10. 5TH CRIB RECORDED 2 SAMPLES BUT W/ NO SAMPLE TAKEN
3. @ 1430 PROGRAMMED SAMPLER FOR 30 minute, 250 ml Time Based Sample. START PROGRAM

Santa Margarita DRCKFLOT.CSI program
*6 Log Sheet.

GENERAL INFORMATION

Station ID 19.2 Date 2/12/08 Time (*5): Arrival 1257 PST
Departure 1335 PST

Station Name: Santa Margarita River

Field Crew: SHEARMAN / HAMMOND

OBSERVATIONS

Weather: OVERCAST, DRIZZLE

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

ACTIONS TAKEN

Bottle out: _____ Volume: _____ Vol/Sample: _____
Bottle in: _____ Circle One (Same) or (New)
Sampler error samples missed: _____

Temp (Celsius): _____
Specific Conductivity (us/cm): _____
DO (mg/L): _____
pH: _____
Turbidity (NTU):

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 1
Dep: 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 1

PROGRAM SIGNATURE (*B)

Arr: 5/13/25
Dep: 5/13/25

STATION DATA (*6):

			After F7 Reset
Station Info			
Station ID	01:	19.2	
Measure Battery Voltage with a VOM			
Physical Parameters			
Stage (ft)	03:	3.773	
Q-Flow (cfs)	05:	522.38	
Volume (kcf)	06:	31,456	
Volume Sum (kcf)	07:	77,185	
Total Storm Volume (kcf)	08:	77,185	
Total. Storm Volume Sampled	09:	77,185	
Percent Storm Capture	10:	100	

			After F7 Reset
Max Stage Month	64:	2	
Max Stage Day	65:	22	
Max Stage Hour	66:	1257	
Maximum Stage (ft)	67:	3.3734	
Sample Information			
Sample Count	21:	5	
Minutes to Next Sample	25:	27.936	
Last Sample Month	27:	0	
Last Sample Day	28:	0	
Last Sample Hour	29:	0	
Staff Gage (ft)			

SAMPLING CONTROL PARAMETERS (*6)

Volume To Sample (kcf)	55:	1500	Year to Start Sampling	49:	0
Rainfall To Sample (kcf)	56:	0	Month to Start Sampling	50:	0
Time Sample Pacing Value (min)	57:	0	Day to Start Sampling	51:	0
Stage Trigger Level (ft)	47:	1.8	Time to Start Sampling	52:	0
Rainfall Trigger Level (in)	48:	0			
Stage Storm Start Parameter 1 = Start if Stage Exceeds Trig Level 0 = Do Not Start with Stage	40:	1	Rainfall Storm Start Parameter 1 = Start if Rain Exceeds Trig Level 0 = Do Not Start With Rain	41:	0
Time Start Parameter 1= Start if Time Exceeds Start Time 0= Do Not Start With Time	42:	0	Sampler Pacing Parameter 1 = Flow Based Sampling 2 = Rain Based Sampling 3 = Time Based Sampling	59:	1

COMMENTS:

CR10 SAYS 5 SAMPLES. LESS THAN 250 ML IN BOTTLE. PURGED PORT 5 SAMPLE TAKEN MANUALLY CHECKED SAMPLER PROGRAM. OK BUT WAS THERE A PROGRAM RESET OF RTC JAN 08

Sandia Creek Field Data Log Sheet
Santa Margarita River Mass Loading Stations

GENERAL INFORMATION

Station ID 19.1 Date 2/22/08 Time (*5): Arrival 1541 PST

Station Name: SHERMAN ST / HARTMAN Departure 1557 PST

Field Crew:

OBSERVATIONS

Weather: OVERCAST W/ SPRINKLES

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

ACTIONS TAKEN

Bottle out:_____ Volume:_____ Vol/Sample:_____

Bottle in: _____ Circle One (Same) or (New)

Sampler error samples missed: _____

Temp (Celsius): _____

Specific Conductivity (us/cm): _____

DO (mg/L): _____

pH: _____

Turbidity (NTU): _____

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low)

Arr: 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 1

Dep: 1 0 2 0 3 0 4 0 5 0 6 0 7 0 8 1

PROGRAM SIGNATURE (*B)

Arr: 5941 52

Dep: 5941 52

STATION DATA (*6):

Stage (ft)	02:	2.3715	Est Vol 2 Sample	29:	5.9815
Flow (cfs)	04:	60	Sample Vol (ml)	42:	0
Vol (kcf)	05:	0.0036	Max Stage (day)	51:	53
Vol Sum	06:	0.5115	Max Stage (hr)	52:	1115
% Storm Capture	08:	100	Max Stage	53:	2.8121
Vol to Sample	14:	0.27	Storm V sum	72:	4.1679
Sample Count	17:	15	Storm Sample	75	4.1678
Station ID	21:	19.1	Day of Last Sample	105	53
			Time of Last Sample	106	1512
			Staff Gauge		

COMMENTS:

CHECKED SAMPLER CALIBRATION, 250ml SAMPLE

Santa Margarita DRCKFLOT.CSI program
*6 Log Sheet.

GENERAL INFORMATION
Station ID 19.2 Date 2/23/08 Time (*5): Arrival 1312 PST
Departure ____ PST
Station Name: Santa Margarita River
Field Crew: Hartman, Parent

OBSERVATIONS
Weather: mostly cloudy
Oil (extent):
Floating material: 1 beaver
Other observations (water color or odor, equipment condition):
Some salt but less than yesterday

ACTIONS TAKEN
Bottle out: 11 Volume: ____ Vol/Sample: ~~1500~~
Bottle in: 86 Circle One (Same) or (New)
Sampler error samples missed: ____
- grab collected for field [illegible]
Temp (Celsius): 10.3°C
Specific Conductivity (us/cm): 492
DO (mg/L): 6.63
pH: 8.38 / 10.2°C
Turbidity (NTU): 31 (2/25/08 - 1020 am)

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low
Arr: 1 2 3 4 5 6 7 8 1
Dep: 1 2 3 4 5 6 7 8

PROGRAM SIGNATURE (*B)
Arr: 51325
Dep:

STATION DATA (*6):

			After F7 Reset
Station Info			
Station ID	01:	19.2	
Measure Battery Voltage with a VOM		12.52	
Physical Parameters			
Stage (ft)	03:	1.8371	
Q-Flow (cfs)	05:	61.430	
Volume (kcf)	06:	3.6858	
Volume Sum (kcf)	07:	421.38	
Total Storm Volume (kcf)	08:	28941	
Total. Storm Volume Sampled	09:	28941	
Percent Storm Capture	10:	100	

			After F7 Reset
Max Stage Month	64:	2	
Max Stage Day	65:	22	
Max Stage Hour	66:	1102	
Maximum Stage (ft)	67:	3.4763	
Sample Information			
Sample Count	21:	21	
Minutes to Next Sample	25:	293.17	
Last Sample Month	27:	0	
Last Sample Day	28:	0	
Last Sample Hour	29:	0	
Staff Gage (ft) ~22"			

SAMPLING CONTROL PARAMETERS (*6)

			F7↑
Volume To Sample (kcf)	55:	1500	
Rainfall To Sample (kcf)	56:	✓ 0	
Time Sample Pacing Value (min)	57:	✓ 0	
Stage Trigger Level (ft)	47:	1.8	
Rainfall Trigger Level (in)	48:	✓ 0	

			F7↑
Year to Start Sampling	49:	✓ 0	
Month to Start Sampling	50:	✓ 0	
Day to Start Sampling	51:	✓ 0	
Time to Start Sampling	52:	✓ 0	

Stage Storm Start Parameter 1 = Start if Stage Exceeds Trig Level 0 = Do Not Start with Stage	40:	✓ 1
Time Start Parameter 1= Start if Time Exceeds Start Time 0= Do Not Start With Time	42:	✓ 0

Rainfall Storm Start Parameter 1 = Start if Rain Exceeds Trig Level 0 = Do Not Start With Rain	41:	✓ 0
Sampler Pacing Parameter 1 = Flow Based Sampling 2 = Rain Based Sampling 3 = Time Based Sampling	59:	✓ 1

COMMENTS:

took grab sample for field parameters

reprogrammed sampler

Sampler/CR10 still not working. Left site unlocked, not ready to sample

field parameters sampled in lab @ 2100 2/23/08

Vol/Sample irrelevant, sample was ~~collected by~~ a time weighted composite

Santa Margarita DRCKFLOT.CSI program
*6 Log Sheet.

GENERAL INFORMATION

Station ID 19.2 Date 5|13|08 Time (*5): Arrival 0908 PST, Departure 1036 PST

Station Name: Santa Margarita River

Field Crew: Evans, Hartman

OBSERVATIONS

Weather: [illegible]

Oil (extent):

Floating material:

Other observations (water color or odor, equipment condition):

[illegible]

ACTIONS TAKEN

Bottle out: — Volume: ____ Vol/Sample: ____

Bottle in: 24 Circle One (Same) or (New)

Sampler error samples missed: ____

Temp (Celsius): [illegible]

Specific Conductivity (µs/cm):

DO (mg/L):

pH:

Turbidity (NTU):

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low

Arr: 1 — 2 — 3 — 4 — 5 1 6 — 7 — 8 —

Dep: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1

PROGRAM SIGNATURE (*B)

Arr: 31145

Dep: 31145

STATION DATA (*6):

Station Info

			After F7 Reset
Station ID	01:	19.2	19.2
Measure Battery Voltage with a VOM		12.45	12.45

			After F7 Reset
Max Stage Month	64:	5	✓
Max Stage Day	65:	6	13
Max Stage Hour	66:	1134	0920
Maximum Stage (ft)	67:	1.9587	1.9357

Physical Parameters

Stage (ft)	03:	1.9358	1.935
Q-Flow (cfs)	05:	81.877	81.705
Volume (kcf)	06:	4.9126	4.9023
Volume Sum (kcf)	07:	0	✓
Total Storm Volume (kcf)	08:	0	✓
Total. Storm Volume Sampled	09:	0	✓
Percent Storm Capture	10:	0	✓

Sample Information

Sample Count	21:	0	✓
Minutes to Next Sample	25:	0	✓
Last Sample Month	27:	0	✓
Last Sample Day	28:	0	✓
Last Sample Hour	29:	0	✓
Staff Gage (ft)			

SAMPLING CONTROL PARAMETERS (*6)

Volume To Sample (kcf)	55:	750		✓
Rainfall To Sample (kcf)	56:	✓	0	✓
Time Sample Pacing Value (min)	57:	✓	0	30
Stage Trigger Level (ft)	47:	1.9822		✓
Rainfall Trigger Level (in)	48:	✓	0	✓

Year to Start Sampling	49:	✓	0 2008
Month to Start Sampling	50:	✓	0 5
Day to Start Sampling	51:	✓	0 13
Time to Start Sampling	52:	✓	0 0940

Stage Storm Start Parameter
1 = Start if Stage Exceeds Trig Level
0 = Do Not Start with Stage
40: ✓ 1 0

Time Start Parameter
1= Start if Time Exceeds Start Time
0= Do Not Start With Time
42: ✓ 0 1

Rainfall Storm Start Parameter
1 = Start if Rain Exceeds Trig Level
0 = Do Not Start With Rain
41: ✓ 0 ✓

Sampler Pacing Parameter
1 = Flow Based Sampling
2 = Rain Based Sampling
3 = Time Based Sampling
59: ✓ 1 3

COMMENTS: [illegible] 12

[illegible] pump

[illegible] to collect samples every 30 minutes

did a 3rd F7↑ @ 0940 due to weird data (samps [illegible])

[illegible] 2 samples to trip (1st took <30 min)

Santa Margarita DRCKFLOT.CSI program
*6 Log Sheet.

GENERAL INFORMATION
Station ID 19.2 Date 5/14/08 Time (*5): Arrival 0830 PST
Departure 1000 PST
Station Name: Santa Margarita River
Field Crew: B. Vos Hartman

OBSERVATIONS
Weather:
Oil (extent):
Floating material:
Other observations (water color or odor, equipment condition):
noted fresh footprints & cigarette debris on site.

ACTIONS TAKEN
Bottle out: 24 Volume: ~12L Vol/Sample: 30 ml
Bottle in: _____ Circle One (Same) or (New)
Sampler error samples missed: _____
Temp (Celsius): 17.7
Specific Conductivity (us/cm): 971
DO (mg/L): 95.5% 8.85 mg/L
pH: 8.08
Turbidity (NTU): 1.5

SYSTEM STATUS FLAGS (*6-AD; 1=high, 0=low
Arr: 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 1
Dep: 1 — 2 — 3 — 4 — 5 1 6 — 7 — 8 1

PROGRAM SIGNATURE (*B)
Arr: 31145
Dep:

STATION DATA (*6):

		0923	After F7 Reset
Station Info			
Station ID	01:	19.2	
Measure Battery Voltage with a VOM			
Physical Parameters			
Stage (ft)	03:	1.9404	
Q-Flow (cfs)	05:	82.866	
Volume (kcf)	06:	4.9513	
Volume Sum (kcf)	07:	6868.3	
Total Storm Volume (kcf)	08:	6868.3	
Total. Storm Volume Sampled	09:	6868.3	
Percent Storm Capture	10:	100	

			After F7 Reset
Max Stage Month	64:	5	
Max Stage Day	65:	14	
Max Stage Hour	66:	0621	
Maximum Stage (ft)	67:	1.9965	
Sample Information			
Sample Count	21:	47	
Minutes to Next Sample	25:	6	
Last Sample Month	27:	0	
Last Sample Day	28:	0	
Last Sample Hour	29:	0	
Staff Gage (ft)			

SAMPLING CONTROL PARAMETERS (*6)

Volume To Sample (kcf)	55:	750	Year to Start Sampling	49:	2008 0
Rainfall To Sample (kcf)	56:	0 0	Month to Start Sampling	50:	5 0
Time Sample Pacing Value (min)	57:	30 0	Day to Start Sampling	51:	13 0
Stage Trigger Level (ft)	47:	1.9822	Time to Start Sampling	52:	0950 0
Rainfall Trigger Level (in)	48:	0 0			
Stage Storm Start Parameter 1 = Start if Stage Exceeds Trig Level 0 = Do Not Start with Stage	40:	0 1	Rainfall Storm Start Parameter 1 = Start if Rain Exceeds Trig Level 0 = Do Not Start With Rain	41:	0 0
Time Start Parameter 1= Start if Time Exceeds Start Time 0= Do Not Start With Time	42:	1 0	Sampler Pacing Parameter 1 = Flow Based Sampling 2 = Rain Based Sampling 3 = Time Based Sampling	59:	3 1

COMMENTS:

field measurements taken @ ~ 0845 PST
YSI 63 was calibrated in lab
YSI 58 calibrated on site
turbidimeter calibrated on site
photos taken on 3B Kodak camera
pulled bottle @ 0930 PST / 1030 PDT
shut down station, no F7 ↑

Appendix E
Storm Hydrographs

Figure E-1 USGS Gage# 11044000 SMR Temecula 1/27/2008

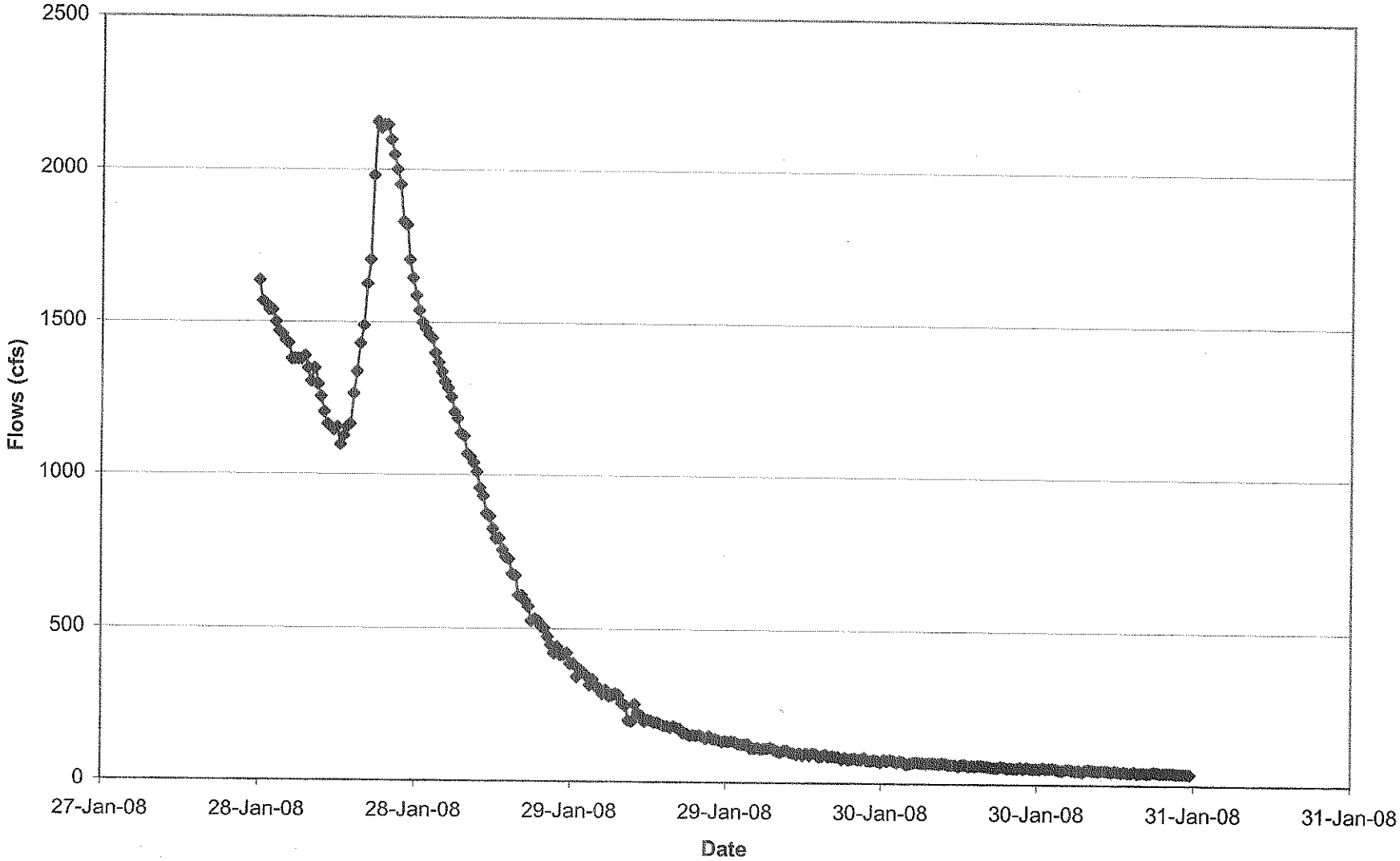

Figure E-2 USGS Gage# 11044000 SMR Temecula 2/24/2008

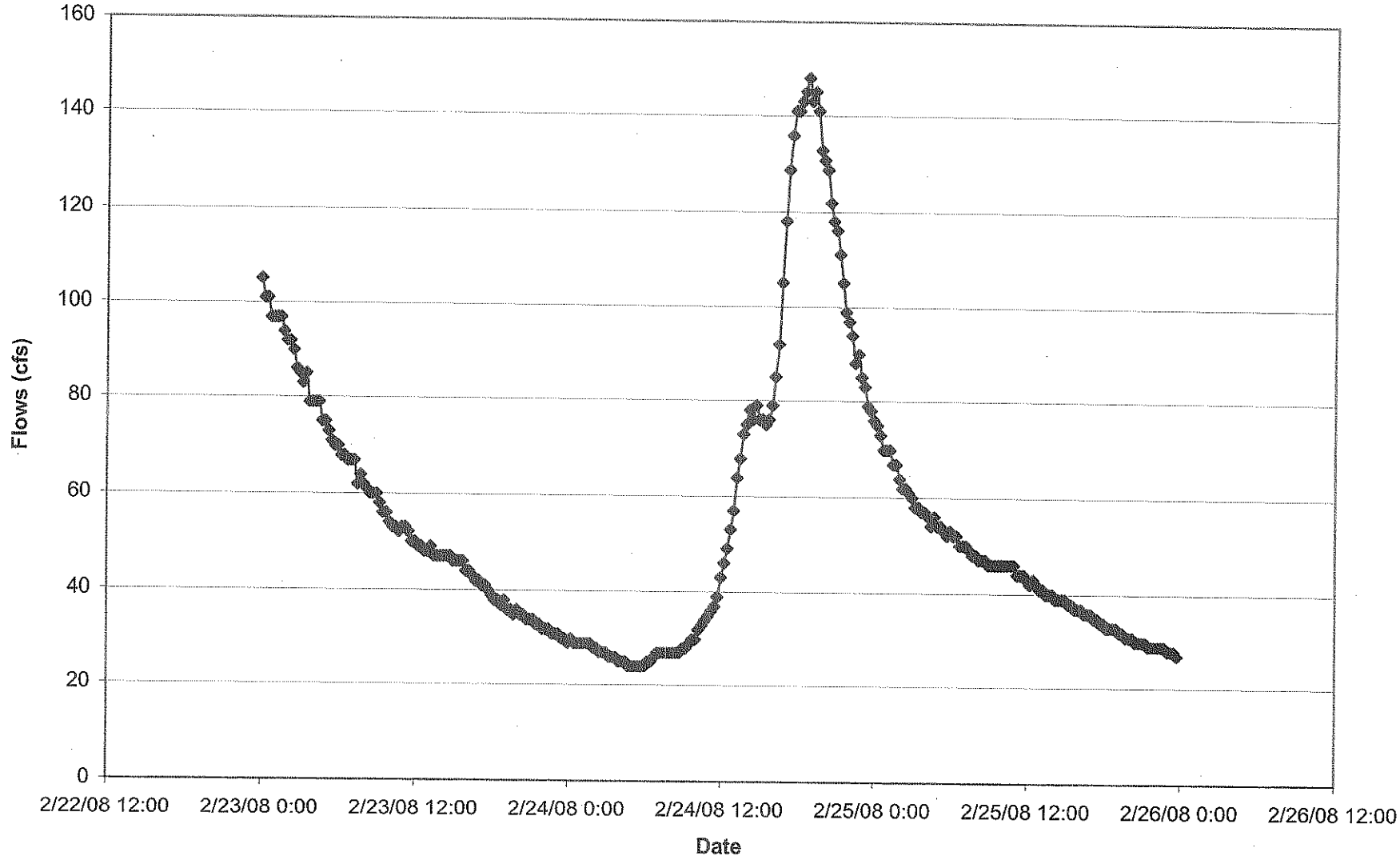

Figure E-3 USGS Gage# 11044000 SMR Temecula 11/27/2008

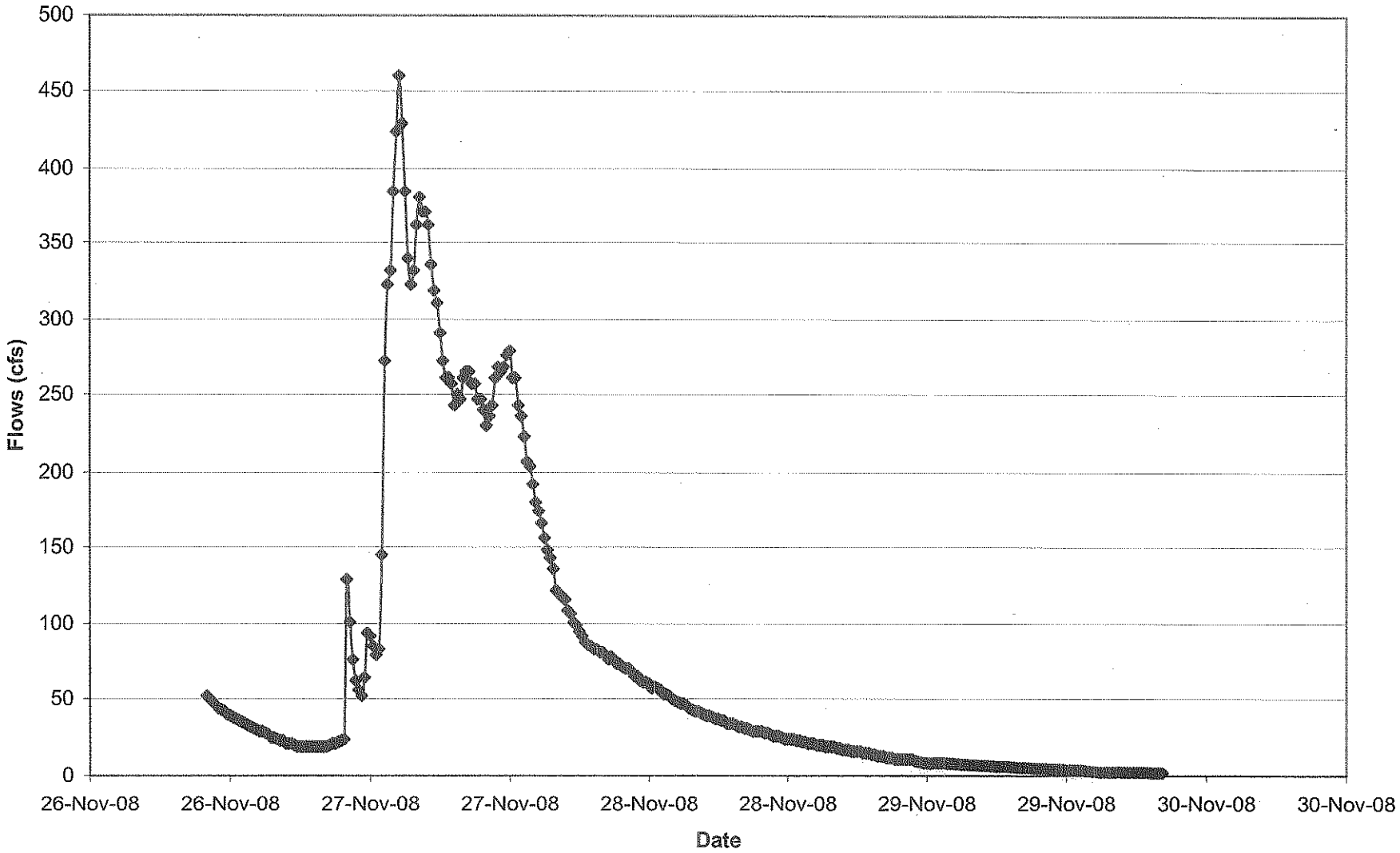

Figure E-4 USGS Gage#11044350 Sandia Creek 1/28/2008

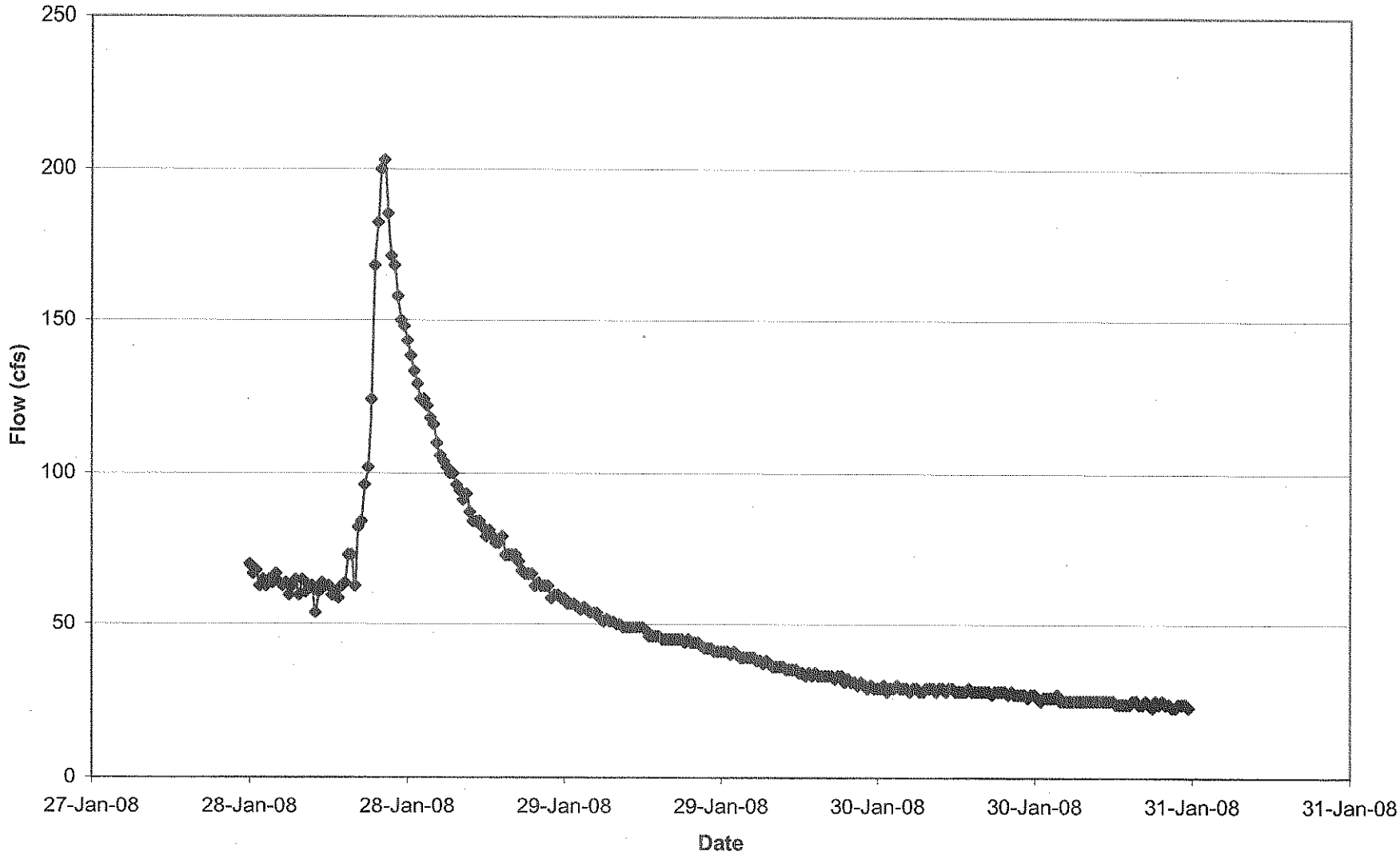

Figure E-5 USGS Gage#11044350 Sandia Creek 2/24/2008

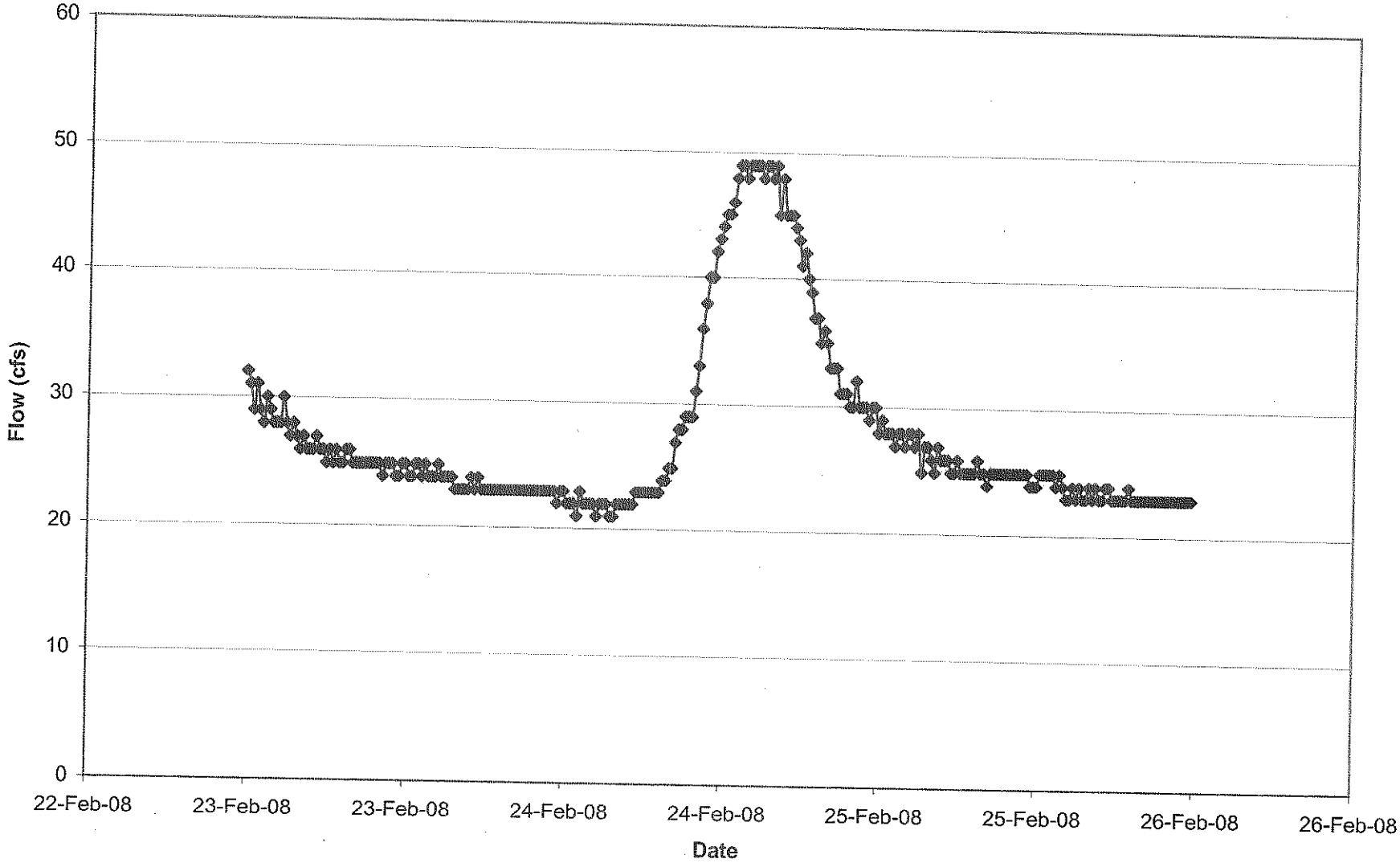

Figure E-6 USGS Gage# 11044350 Sandia Creek 11/28/2008

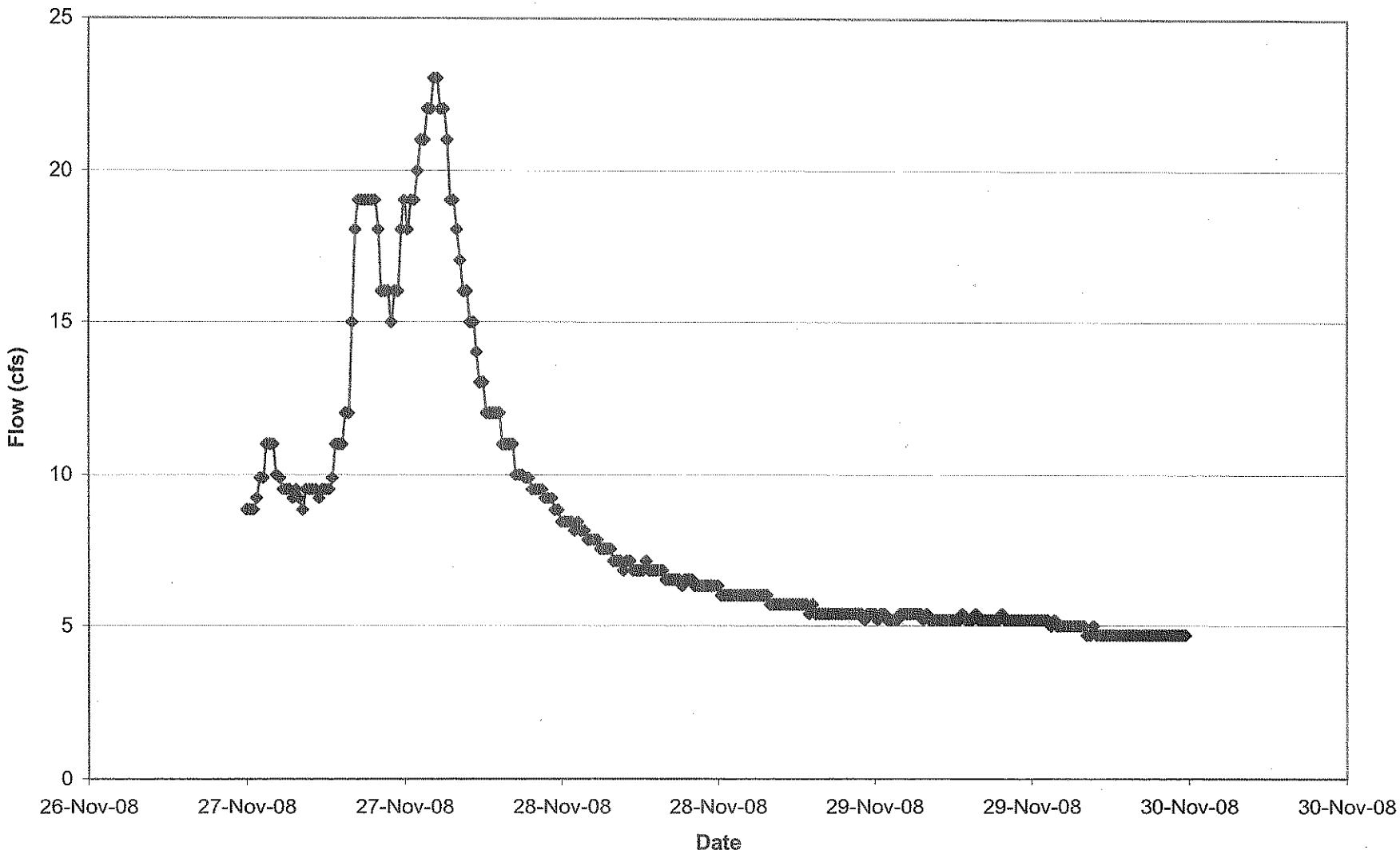

Figure E-7 USGS Gage#11044300 SMR Fallbrook 1/282008 through 1/30/2008

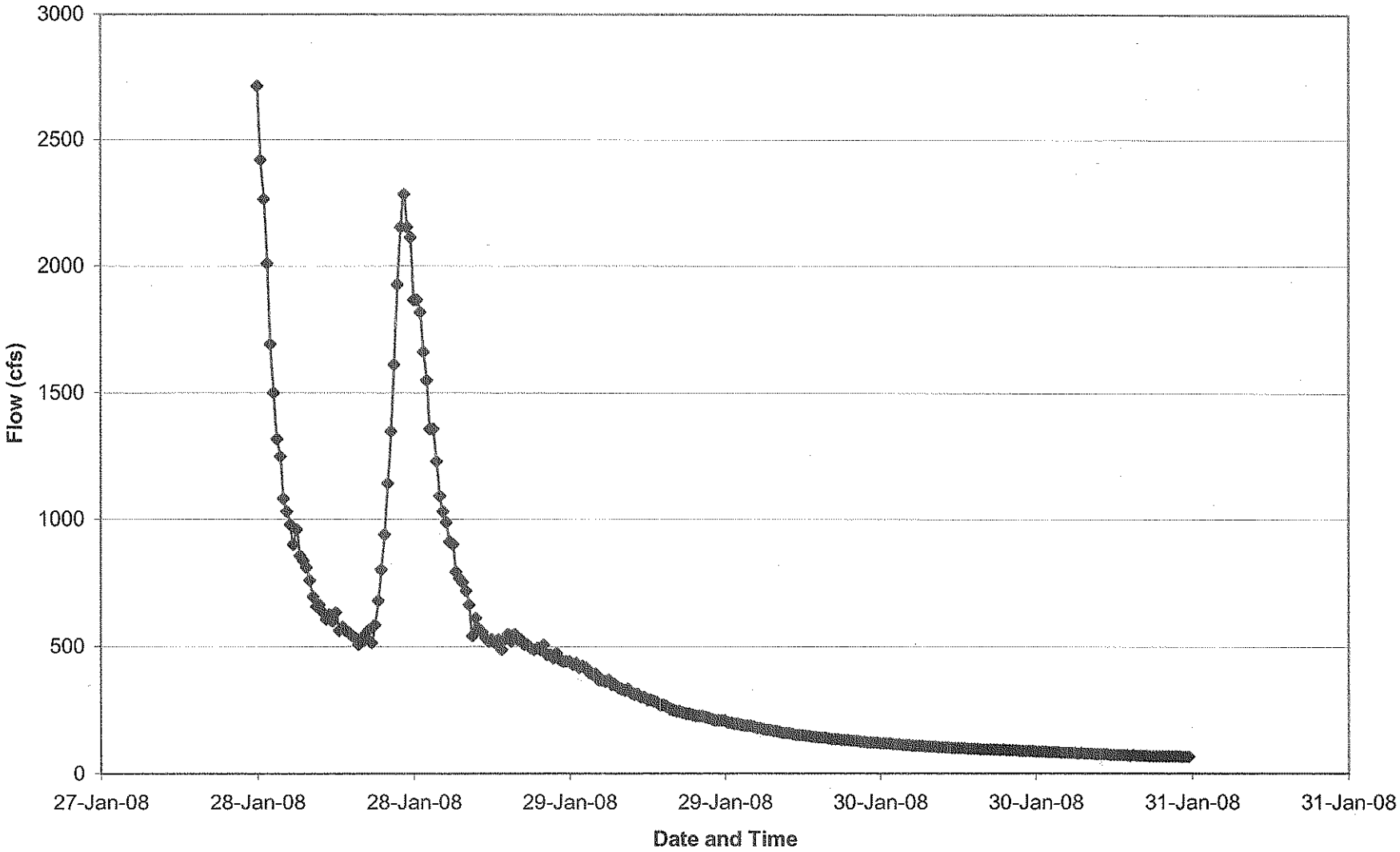

Figure E-8 USGS Gage# 11044300 SMR FAllbrook 2/23/2008 through 2/25/2008

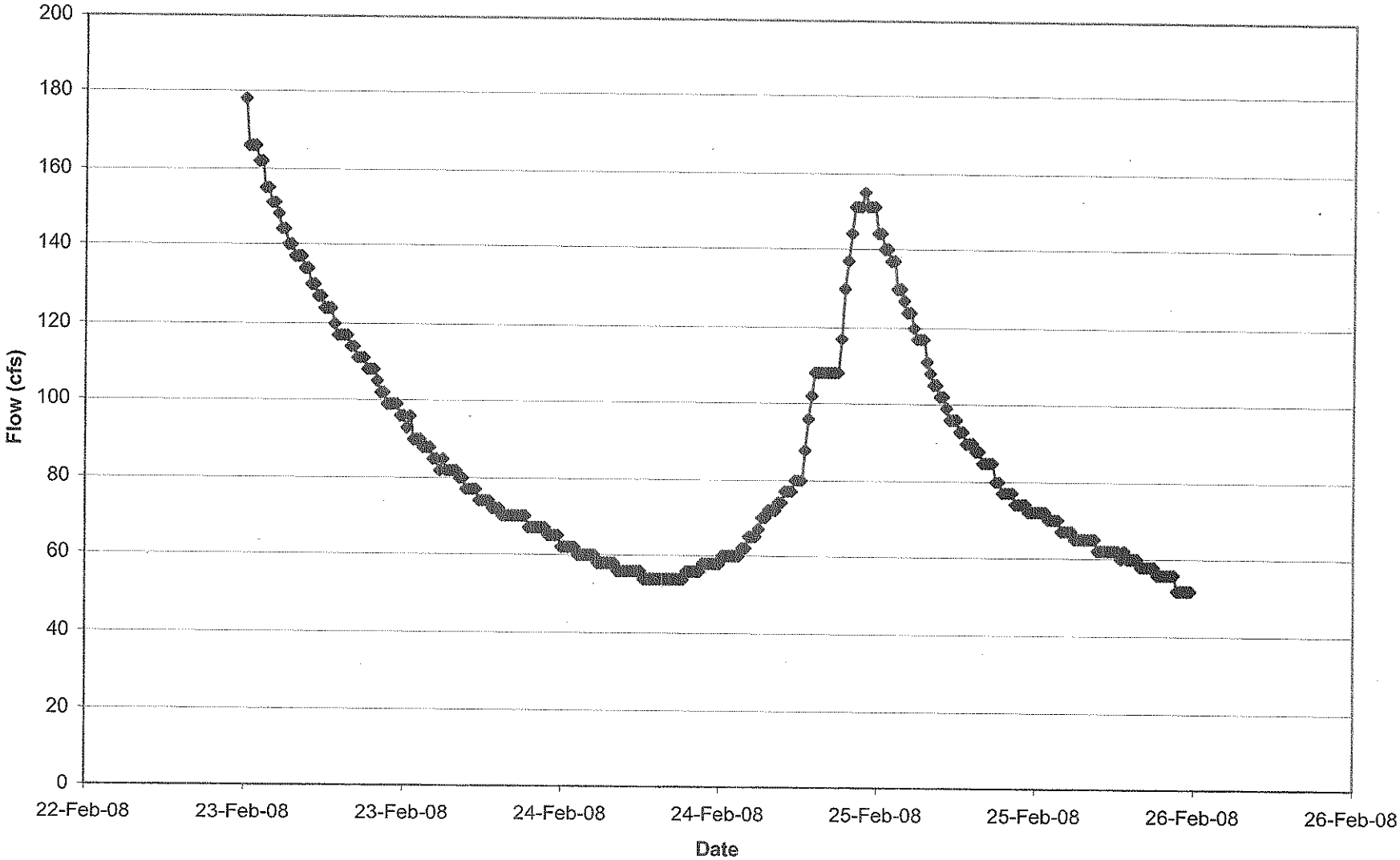

Figure E-9 USGS Gage# 11044300 SMR Fallbrook 11/26-11/28 2008

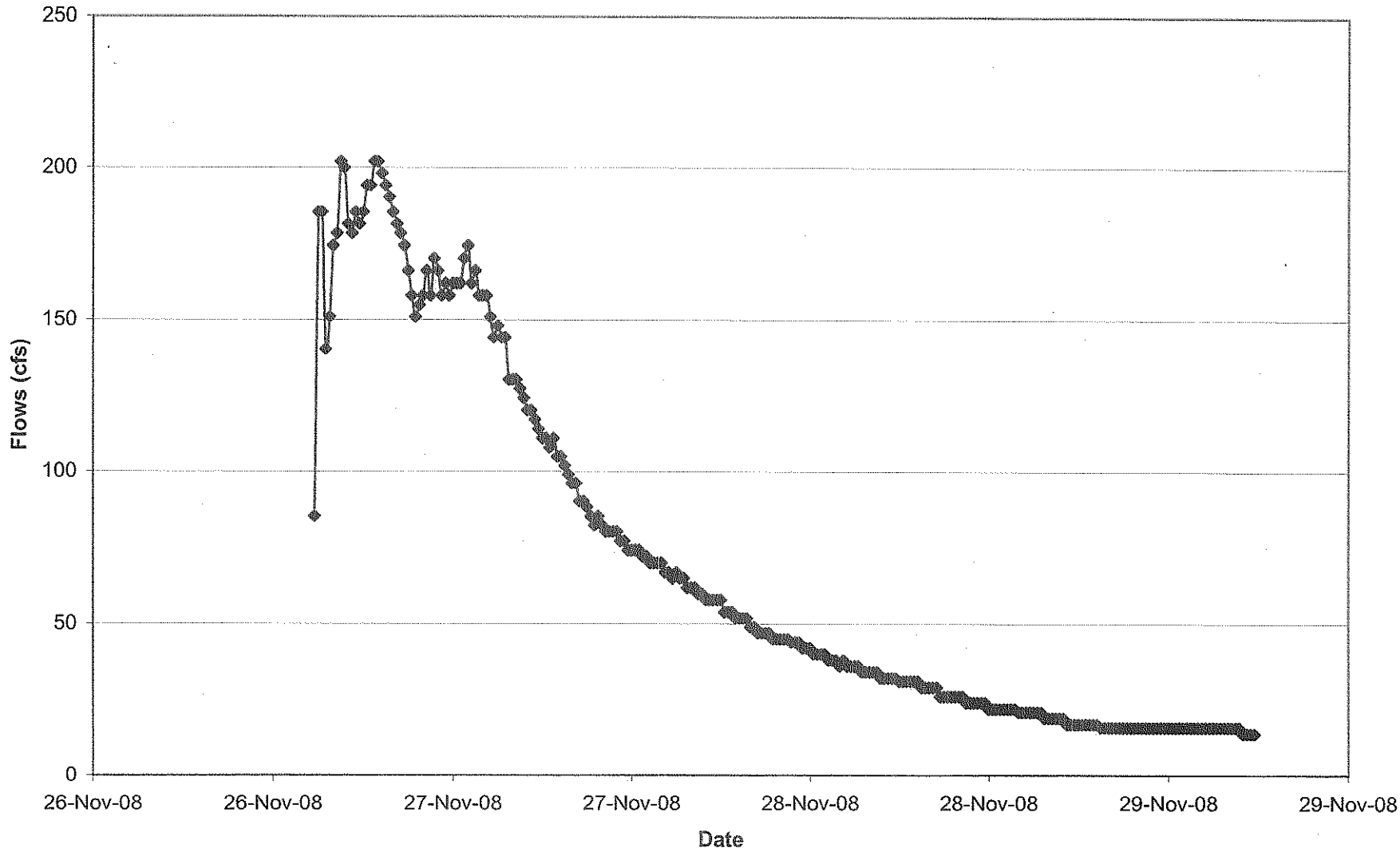

Table E-1
Flow Meter and Sampler Data
for Sandia Creek Storm Event 2

Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data		
Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)
2/20/2008 0:05	1.677	8.37	2/20/2008 9:45	1.737	10.51	2/20/2008 19:25	1.782	12.32	2/21/2008 5:05	1.706	9.37	2/21/2008 14:45	1.763	11.53	2/22/2008 0:25	1.709	9.48	2/22/2008 10:05	2.557	81.25
2/20/2008 0:10	1.684	8.61	2/20/2008 9:50	1.732	10.32	2/20/2008 19:30	1.783	12.36	2/21/2008 5:10	1.706	9.37	2/21/2008 14:50	1.756	11.25	2/22/2008 0:30	1.711	9.55	2/22/2008 10:10	2.509	74.41
2/20/2008 0:15	1.701	9.19	2/20/2008 9:55	1.732	10.32	2/20/2008 19:35	1.792	12.75	2/21/2008 5:15	1.708	9.44	2/21/2008 14:55	1.758	11.33	2/22/2008 0:35	1.707	9.40	2/22/2008 10:15	2.591	86.35
2/20/2008 0:20	1.698	9.09	2/20/2008 10:00	1.753	11.13	2/20/2008 19:40	1.79	12.66	2/21/2008 5:20	1.708	9.44	2/21/2008 15:00	1.758	11.33	2/22/2008 0:40	1.708	9.44	2/22/2008 10:20	2.537	78.35
2/20/2008 0:25	1.695	8.98	2/20/2008 10:05	1.735	10.43	2/20/2008 19:45	1.793	12.79	2/21/2008 5:25	1.708	9.44	2/21/2008 15:05	1.763	11.53	2/22/2008 0:45	1.71	9.51	2/22/2008 10:25	2.607	88.83
2/20/2008 0:30	1.69	8.81	2/20/2008 10:10	1.752	11.09	2/20/2008 19:50	1.795	12.88	2/21/2008 5:30	1.704	9.30	2/21/2008 15:10	1.764	11.57	2/22/2008 0:50	1.709	9.48	2/22/2008 10:30	2.589	86.05
2/20/2008 0:35	1.698	9.09	2/20/2008 10:15	1.755	11.21	2/20/2008 19:55	1.778	12.15	2/21/2008 5:35	1.711	9.55	2/21/2008 15:15	1.749	10.98	2/22/2008 0:55	1.704	9.30	2/22/2008 10:35	2.552	80.52
2/20/2008 0:40	1.686	8.68	2/20/2008 10:20	1.743	10.74	2/20/2008 20:00	1.782	12.32	2/21/2008 5:40	1.704	9.30	2/21/2008 15:20	1.759	11.37	2/22/2008 1:00	1.718	9.80	2/22/2008 10:40	2.522	76.22
2/20/2008 0:45	1.691	8.85	2/20/2008 10:25	1.738	10.55	2/20/2008 20:05	1.781	12.28	2/21/2008 5:45	1.713	9.62	2/21/2008 15:25	1.759	11.37	2/22/2008 1:05	1.717	9.76	2/22/2008 10:45	2.582	84.98
2/20/2008 0:50	1.696	9.02	2/20/2008 10:30	1.755	11.21	2/20/2008 20:10	1.778	12.15	2/21/2008 5:50	1.701	9.19	2/21/2008 15:30	1.759	11.37	2/22/2008 1:10	1.714	9.66	2/22/2008 10:50	2.523	76.36
2/20/2008 0:55	1.685	8.64	2/20/2008 10:35	1.762	11.49	2/20/2008 20:15	1.777	12.11	2/21/2008 5:55	1.708	9.44	2/21/2008 15:35	1.743	10.74	2/22/2008 1:15	1.721	9.91	2/22/2008 10:55	2.517	75.52
2/20/2008 1:00	1.695	8.98	2/20/2008 10:40	1.77	11.82	2/20/2008 20:20	1.775	12.03	2/21/2008 6:00	1.706	9.37	2/21/2008 15:40	1.748	10.94	2/22/2008 1:20	1.724	10.02	2/22/2008 11:00	2.497	72.76
2/20/2008 1:05	1.7	9.16	2/20/2008 10:45	1.753	11.13	2/20/2008 20:25	1.79	12.66	2/21/2008 6:05	1.696	9.02	2/21/2008 15:45	1.758	11.33	2/22/2008 1:25	1.718	9.80	2/22/2008 11:05	2.507	74.13
2/20/2008 1:10	1.678	8.41	2/20/2008 10:50	1.765	11.62	2/20/2008 20:30	1.785	12.45	2/21/2008 6:10	1.703	9.26	2/21/2008 15:50	1.748	10.94	2/22/2008 1:30	1.716	9.73	2/22/2008 11:10	2.461	67.97
2/20/2008 1:15	1.696	9.02	2/20/2008 10:55	1.76	11.41	2/20/2008 20:35	1.787	12.53	2/21/2008 6:15	1.709	9.48	2/21/2008 15:55	1.751	11.05	2/22/2008 1:35	1.728	10.17	2/22/2008 11:15	2.678	100.38
2/20/2008 1:20	1.696	9.02	2/20/2008 11:00	1.772	11.90	2/20/2008 20:40	1.793	12.79	2/21/2008 6:20	1.704	9.30	2/21/2008 16:00	1.749	10.98	2/22/2008 1:40	1.732	10.32	2/22/2008 11:20	2.566	82.58
2/20/2008 1:25	1.689	8.78	2/20/2008 11:05	1.777	12.11	2/20/2008 20:45	1.795	12.88	2/21/2008 6:25	1.703	9.26	2/21/2008 16:05	1.746	10.86	2/22/2008 1:45	1.728	10.17	2/22/2008 11:25	2.515	75.24
2/20/2008 1:30	1.696	9.02	2/20/2008 11:10	1.784	12.41	2/20/2008 20:50	1.777	12.11	2/21/2008 6:30	1.701	9.19	2/21/2008 16:10	1.746	10.86	2/22/2008 1:50	1.727	10.13	2/22/2008 11:30	2.593	86.66
2/20/2008 1:35	1.691	8.85	2/20/2008 11:15	1.786	12.49	2/20/2008 20:55	1.783	12.36	2/21/2008 6:35	1.701	9.19	2/21/2008 16:15	1.749	10.98	2/22/2008 1:55	1.726	10.10	2/22/2008 11:35	2.493	72.22
2/20/2008 1:40	1.683	8.57	2/20/2008 11:20	1.785	12.45	2/20/2008 21:00	1.782	12.32	2/21/2008 6:40	1.706	9.37	2/21/2008 16:20	1.754	11.17	2/22/2008 2:00	1.733	10.36	2/22/2008 11:40	2.468	68.88
2/20/2008 1:45	1.7	9.16	2/20/2008 11:25	1.793	12.79	2/20/2008 21:05	1.774	11.99	2/21/2008 6:45	1.703	9.26	2/21/2008 16:25	1.739	10.59	2/22/2008 2:05	1.733	10.36	2/22/2008 11:45	2.455	67.19
2/20/2008 1:50	1.69	8.81	2/20/2008 11:30	1.792	12.75	2/20/2008 21:10	1.773	11.94	2/21/2008 6:50	1.7	9.16	2/21/2008 16:30	1.743	10.74	2/22/2008 2:10	1.731	10.28	2/22/2008 11:50	2.43	64.01
2/20/2008 1:55	1.685	8.64	2/20/2008 11:35	1.798	13.01	2/20/2008 21:15	1.774	11.99	2/21/2008 6:55	1.701	9.19	2/21/2008 16:35	1.74	10.63	2/22/2008 2:15	1.732	10.32	2/22/2008 11:55	2.46	67.84
2/20/2008 2:00	1.681	8.51	2/20/2008 11:40	1.8	13.10	2/20/2008 21:20	1.772	11.90	2/21/2008 7:00	1.696	9.02	2/21/2008 16:40	1.742	10.70	2/22/2008 2:20	1.739	10.59	2/22/2008 12:00	2.445	65.90
2/20/2008 2:05	1.691	8.85	2/20/2008 11:45	1.799	13.05	2/20/2008 21:25	1.77	11.82	2/21/2008 7:05	1.703	9.26	2/21/2008 16:45	1.739	10.59	2/22/2008 2:25	1.756	11.25	2/22/2008 12:05	2.435	64.64
2/20/2008 2:10	1.696	9.02	2/20/2008 11:50	1.806	13.36	2/20/2008 21:30	1.777	12.11	2/21/2008 7:10	1.709	9.48	2/21/2008 16:50	1.739	10.59	2/22/2008 2:30	1.743	10.74	2/22/2008 12:10	2.431	64.14
2/20/2008 2:15	1.703	9.26	2/20/2008 11:55	1.807	13.41	2/20/2008 21:35	1.78	12.24	2/21/2008 7:15	1.709	9.48	2/21/2008 16:55	1.739	10.59	2/22/2008 2:35	1.754	11.17	2/22/2008 12:15	2.425	63.39
2/20/2008 2:20	1.703	9.26	2/20/2008 12:00	1.802	13.19	2/20/2008 21:40	1.79	12.66	2/21/2008 7:20	1.704	9.30	2/21/2008 17:00	1.74	10.63	2/22/2008 2:40	1.771	11.86	2/22/2008 12:20	2.423	63.14
2/20/2008 2:25	1.708	9.44	2/20/2008 12:05	1.805	13.32	2/20/2008 21:45	1.786	12.49	2/21/2008 7:25	1.694	8.95	2/21/2008 17:05	1.739	10.59	2/22/2008 2:45	1.78	12.24	2/22/2008 12:25	2.406	61.06
2/20/2008 2:30	1.695	8.98	2/20/2008 12:10	1.807	13.41	2/20/2008 21:50	1.801	13.14	2/21/2008 7:30	1.703	9.26	2/21/2008 17:10	1.723	9.98	2/22/2008 2:50	1.791	12.71	2/22/2008 12:30	2.391	59.26
2/20/2008 2:35	1.686	8.68	2/20/2008 12:15	1.817	13.86	2/20/2008 21:55	1.804	13.27	2/21/2008 7:35	1.701	9.19	2/21/2008 17:15	1.736	10.47	2/22/2008 2:55	1.798	13.01	2/22/2008 12:35	2.436	64.76
2/20/2008 2:40	1.698	9.09	2/20/2008 12:20	1.809	13.50	2/20/2008 22:00	1.808	13.45	2/21/2008 7:40	1.706	9.37	2/21/2008 17:20	1.739	10.59	2/22/2008 3:00	1.794	12.84	2/22/2008 12:40	2.415	62.15
2/20/2008 2:45	1.694	8.95	2/20/2008 12:25	1.812	13.63	2/20/2008 22:05	1.811	13.59	2/21/2008 7:45	1.706	9.37	2/21/2008 17:25	1.74	10.63	2/22/2008 3:05	1.816	13.81	2/22/2008 12:45	2.401	60.46
2/20/2008 2:50	1.691	8.85	2/20/2008 12:30	1.803	13.23	2/20/2008 22:10	1.799	13.05	2/21/2008 7:50	1.701	9.19	2/21/2008 17:30	1.739	10.59	2/22/2008 3:10	1.819	13.95	2/22/2008 12:50	2.388	58.91
2/20/2008 2:55	1.706	9.37	2/20/2008 12:35	1.815	13.77	2/20/2008 22:15	1.799	13.05	2/21/2008 7:55	1.714	9.66	2/21/2008 17:35	1.732	10.32	2/22/2008 3:15	1.828	14.37	2/22/2008 12:55	2.393	59.50
2/20/2008 3:00	1.696	9.02	2/20/2008 12:40	1.807	13.41	2/20/2008 22:20	1.803	13.23	2/21/2008 8:00	1.713	9.62	2/21/2008 17:40	1.728	10.17	2/22/2008 3:20	1.824	14.18	2/22/2008 13:00	2.388	58.91
2/20/2008 3:05	1.694	8.95	2/20/2008 12:45	1.821	14.04	2/20/2008 22:25	1.803	13.23	2/21/2008 8:05	1.703	9.26	2/21/2008 17:45	1.73	10.25	2/22/2008 3:25	1.84	14.93	2/22/2008 13:05	2.395	59.74
2/20/2008 3:10	1.698	9.09	2/20/2008 12:50	1.812	13.63	2/20/2008 22:30	1.803	13.23	2/21/2008 8:10	1.708	9.44	2/21/2008 17:50	1.732	10.32	2/22/2008 3:30	1.843	15.08	2/22/2008 13:10	2.392	59.38
2/20/2008 3:15	1.694	8.95	2/20/2008 12:55	1.821	14.04	2/20/2008 22:35	1.794	12.84	2/21/2008 8:15	1.706	9.37	2/21/2008 17:55	1.738	10.55	2/22/2008 3:35	1.841	14.98	2/22/2008 13:15	2.375	57.38
2/20/2008 3:20	1.691	8.85	2/20/2008 13:00	1.818	13.90	2/20/2008 22:40	1.789	12.62	2/21/2008 8:20	1.706	9.37	2/21/2008 18:00	1.725	10.06	2/22/2008 3:40	1.851	15.47	2/22/2008 13:20	2.395	59.74
2/20/2008 3:25	1.698	9.09	2/20/2008 13:05	1.828	14.37	2/20/2008 22:45	1.794	12.84	2/21/2008 8:25	1.723	9.98	2/21/2008 18:05	1.724	10.02	2/22/2008 3:45	1.861	15.96	2/22/2008 13:25	2.351	54.64
2/20/2008 3:30	1.694	8.95	2/20/2008 13:10	1.815	13.77	2/20/2008 22:50	1.789	12.62	2/21/2008 8:30	1.719	9.84	2/21/2008 18:10	1.727	10.13	2/22/2008 3:50	1.861	15.96	2/22/2008 13:30	2.378	57.73
2/20/2008 3:35	1.714	9.66	2/20/2008 13:15	1.827	14.32	2/20/2008 22:55	1.785	12.45	2/21/2008 8:35	1.706	9.37	2/21/2008 18:15	1.719	9.84	2/22/2008 3:55	1.866	16.21	2/22/2008 13:35	2.495	72.49
2/20/2008 3:40	1.695	8.98	2/20/2008 13:20	1.828	14.37	2/20/2008 23:00	1.788	12.58	2/21/2008 8:40	1.714	9.66	2/21/2008 18:20	1.717	9.76	2/22/2008 4:00	1.891	17.50	2/22/2008 13:40	2.391	59.26
2/20/2008 3:45	1.694	8.95	2/20/2008 13:25	1.83	14.46	2/20/2008 23:05	1.778	12.15	2/21/2008 8:45	1.714	9.66	2/21/2008 18:25	1.72	9.87	2/22/2008 4:05	1.894	17.66	2/22/2008 13:45	2.388	58.91
2/20/2008 3:50	1.695	8.98	2/20/2008 13:30	1.845	15.17	2/20/2008 23:10	1.787	12.53	2/21/2008 8:50	1.714	9.66	2/21/2008 18:30	1.732	10.32	2/22/2008 4:10	1.924	19.31	2/22/2008 13:50	2.388	58.91
2/20/2008 3:55	1.695	8.98	2/20/2008 13:35	1.84	14.93	2/20/2008 23:15	1.776	12.07	2/21/2008 8:55	1.718	9.80	2/21/2008 18:35	1.719	9.84	2/22/2008 4:15	1.933	19.83	2/22/2008 13:55	2.38	57.97
2/20/2008 4:00	1.696	9.02	2/20/2008 13:40	1.835	14.70	2/20/2008 23:20	1.768	11.74	2/21/2008 9:00	1.716	9.73	2/21/2008 18:40	1.722	9.95	2/22/2008 4:20	1.938	20.11	2/22/2008 14:00	2.383	58.32
2/20/2008 4:05	1.685	8.64	2/20/2008 13:45	1.822	14.09	2/20/2008 23:25	1.764	11.57	2/21/2008 9:05	1.732	10.32	2/21/2008 18:45	1.719	9.84	2/22/2008 4:25	1.981	22.71	2/22/2008 14:05	2.382	58.20
2/20/2008 4:10	1.689	8.78	2/20/2008 13:50	1.838	14.84	2/20/2008 23:30	1.761	11.45	2/21/2008 9:10	1.716	9.73	2/21/2008 18:50	1.72	9.87	2/22/2008 4:30	2.008	24.45	2/22/2008 14:10	2.367	56.46
2/20/2008 4:15	1.688	8.74	2/20/2008 13:55	1.832	14.55	2/20/2008 23:35	1.766	11.66	2/21/2008 9:15	1.716	9.73	2/21/2008 18:55	1.712	9.58	2/22/2008 4:35	2.04	26.62	2/22/2008 14:15	2.373	57.15
2/20/2008 4:20	1.682	8.54	2/20/2008 14:00	1.843	15.08	2/20/2008 23:40	1.77	11.82	2/21/2008 9:20	1.726	10.10	2/21/2008 19:00	1.717	9.76	2/22/2008 4:40	2.055	27.68	2/22/2008 14:20	2.39	59.14
2/20/2008 4:25	1.7	9.16	2/20/2008 14:05	1.836	14.74	2/20/2008 23:45	1.76	11.41	2/21/2008 9:25	1.724	10.02	2/21/2008 19:05	1.717	9.76	2/22/2008 4:45	2.08	29.50	2/22/2008 14:25	2.385	58.55
2/20/2008 4:30	1.685	8.64	2/20/2008 14:10	1.835	14.70	2/20/2008 23:50	1.755	11.21	2/21/2008 9:30	1.714	9.66	2/21/2008 19:10	1.713	9.62	2/22/2008 4:50	2.087	30.03	2/22/2008 14:30	2.383	58.32
2/20/2008 4:35	1.69	8.81	2/20/2008 14:15	1.83	14.46	2/20/2008 23:55	1.75	11.01	2/21/2008 9:35	1.713	9.62	2/21/2008 19:15	1.705	9.33	2/22/2008 4:55	2.18	37.60	2/22/2008 14:35	2.382	58.20
2/20/2008 4:40	1.696	9.02	2/20/2008 14:20	1.832	14.55	2/21/2008 0:00	1.751	11.05	2/21/2008 9:40	1.713	9.62	2/21/2008 19:20	1.713	9.62	2/22/2008 5:00	2.115	32.19	2/22/2008 14:40	2.352	54.75
2/20/2008 4:45	1.683	8.57	2/20/2008 14:25	1.833	14.60	2/21/2008 0:05	1.755	11.21	2/21/2008 9:45	1.715	9.69	2/21/2008 19:25	1.72	9.87	2/22/2008 5:05	2.137	33.96	2/22/2008 14:45	2.406	61.06

Table E-1
Flow Meter and Sampler Data
for Sandia Creek Storm Event 2

Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data		
Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)
2/20/2008 4:50	1.695	8.98	2/20/2008 14:30	1.83	14.46	2/21/2008 0:10	1.753	11.13	2/21/2008 9:50	1.729	10.21	2/21/2008 19:30	1.714	9.66	2/22/2008 5:10	2.164	36.22	2/22/2008 14:50	2.373	57.15
2/20/2008 4:55	1.695	8.98	2/20/2008 14:35	1.84	14.93	2/21/2008 0:15	1.756	11.25	2/21/2008 9:55	1.718	9.80	2/21/2008 19:35	1.714	9.66	2/22/2008 5:15	2.203	39.65	2/22/2008 14:55	2.377	57.62
2/20/2008 5:00	1.69	8.81	2/20/2008 14:40	1.836	14.74	2/21/2008 0:20	1.755	11.21	2/21/2008 10:00	1.721	9.91	2/21/2008 19:40	1.705	9.33	2/22/2008 5:20	2.186	38.13	2/22/2008 15:00	2.383	58.32
2/20/2008 5:05	1.69	8.81	2/20/2008 14:45	1.83	14.46	2/21/2008 0:25	1.758	11.33	2/21/2008 10:05	1.723	9.98	2/21/2008 19:45	1.708	9.44	2/22/2008 5:25	2.267	45.74	2/22/2008 15:05	2.368	56.57
2/20/2008 5:10	1.705	9.33	2/20/2008 14:50	1.835	14.70	2/21/2008 0:30	1.753	11.13	2/21/2008 10:10	1.711	9.55	2/21/2008 19:50	1.705	9.33	2/22/2008 5:30	2.267	45.74	2/22/2008 15:10	2.373	57.15
2/20/2008 5:15	1.691	8.85	2/20/2008 14:55	1.827	14.32	2/21/2008 0:35	1.75	11.01	2/21/2008 10:15	1.721	9.91	2/21/2008 19:55	1.705	9.33	2/22/2008 5:35	2.243	43.39	2/22/2008 15:15	2.372	57.04
2/20/2008 5:20	1.696	9.02	2/20/2008 15:00	1.843	15.08	2/21/2008 0:40	1.75	11.01	2/21/2008 10:20	1.732	10.32	2/21/2008 20:00	1.708	9.44	2/22/2008 5:40	2.276	46.64	2/22/2008 15:20	2.37	56.80
2/20/2008 5:25	1.695	8.98	2/20/2008 15:05	1.832	14.55	2/21/2008 0:45	1.755	11.21	2/21/2008 10:25	1.727	10.13	2/21/2008 20:05	1.708	9.44	2/22/2008 5:45	2.328	52.10	2/22/2008 15:25	2.364	56.11
2/20/2008 5:30	1.688	8.74	2/20/2008 15:10	1.828	14.37	2/21/2008 0:50	1.75	11.01	2/21/2008 10:30	1.719	9.84	2/21/2008 20:10	1.712	9.58	2/22/2008 5:50	2.347	54.19	2/22/2008 15:30	2.385	58.55
2/20/2008 5:35	1.686	8.68	2/20/2008 15:15	1.815	13.77	2/21/2008 0:55	1.751	11.05	2/21/2008 10:35	1.72	9.87	2/21/2008 20:15	1.702	9.23	2/22/2008 5:55	2.351	54.64	2/22/2008 15:35	2.396	59.86
2/20/2008 5:40	1.685	8.64	2/20/2008 15:20	1.832	14.55	2/21/2008 1:00	1.742	10.70	2/21/2008 10:40	1.719	9.84	2/21/2008 20:20	1.713	9.62	2/22/2008 6:00	2.323	51.56	2/22/2008 15:40	2.453	66.93
2/20/2008 5:45	1.694	8.95	2/20/2008 15:25	1.827	14.32	2/21/2008 1:05	1.735	10.43	2/21/2008 10:45	1.724	10.02	2/21/2008 20:25	1.708	9.44	2/22/2008 6:05	2.336	52.97	2/22/2008 15:45	2.368	56.57
2/20/2008 5:50	1.699	9.12	2/20/2008 15:30	1.827	14.32	2/21/2008 1:10	1.742	10.70	2/21/2008 10:50	1.724	10.02	2/21/2008 20:30	1.705	9.33	2/22/2008 6:10	2.331	52.43	2/22/2008 15:50	2.363	56.00
2/20/2008 5:55	1.689	8.78	2/20/2008 15:35	1.83	14.46	2/21/2008 1:15	1.744	10.78	2/21/2008 10:55	1.714	9.66	2/21/2008 20:35	1.699	9.12	2/22/2008 6:15	2.377	57.62	2/22/2008 15:55	2.348	54.30
2/20/2008 6:00	1.698	9.09	2/20/2008 15:40	1.828	14.37	2/21/2008 1:20	1.737	10.51	2/21/2008 11:00	1.725	10.06	2/21/2008 20:40	1.711	9.55	2/22/2008 6:20	2.413	61.91	2/22/2008 16:00	2.344	53.86
2/20/2008 6:05	1.703	9.26	2/20/2008 15:45	1.819	13.95	2/21/2008 1:25	1.737	10.51	2/21/2008 11:05	1.727	10.13	2/21/2008 20:45	1.71	9.51	2/22/2008 6:25	2.382	58.20	2/22/2008 16:05	2.35	54.53
2/20/2008 6:10	1.693	8.91	2/20/2008 15:50	1.827	14.32	2/21/2008 1:30	1.739	10.59	2/21/2008 11:10	1.719	9.84	2/21/2008 20:50	1.702	9.23	2/22/2008 6:30	2.419	62.65	2/22/2008 16:10	2.335	52.86
2/20/2008 6:15	1.7	9.16	2/20/2008 15:55	1.818	13.90	2/21/2008 1:35	1.733	10.36	2/21/2008 11:15	1.727	10.13	2/21/2008 20:55	1.693	8.91	2/22/2008 6:35	2.416	62.28	2/22/2008 16:15	2.322	51.45
2/20/2008 6:20	1.688	8.74	2/20/2008 16:00	1.81	13.54	2/21/2008 1:40	1.734	10.40	2/21/2008 11:20	1.737	10.51	2/21/2008 21:00	1.712	9.58	2/22/2008 6:40	2.421	62.89	2/22/2008 16:20	2.33	52.32
2/20/2008 6:25	1.696	9.02	2/20/2008 16:05	1.815	13.77	2/21/2008 1:45	1.729	10.21	2/21/2008 11:25	1.72	9.87	2/21/2008 21:05	1.702	9.23	2/22/2008 6:45	2.424	63.26	2/22/2008 16:25	2.327	51.99
2/20/2008 6:30	1.701	9.19	2/20/2008 16:10	1.807	13.41	2/21/2008 1:50	1.729	10.21	2/21/2008 11:30	1.729	10.21	2/21/2008 21:10	1.704	9.30	2/22/2008 6:50	2.434	64.51	2/22/2008 16:30	2.323	51.56
2/20/2008 6:35	1.698	9.09	2/20/2008 16:15	1.808	13.45	2/21/2008 1:55	1.742	10.70	2/21/2008 11:35	1.732	10.32	2/21/2008 21:15	1.704	9.30	2/22/2008 6:55	2.447	66.16	2/22/2008 16:35	2.321	51.34
2/20/2008 6:40	1.694	8.95	2/20/2008 16:20	1.815	13.77	2/21/2008 2:00	1.731	10.28	2/21/2008 11:40	1.733	10.36	2/21/2008 21:20	1.707	9.40	2/22/2008 7:00	2.437	64.89	2/22/2008 16:40	2.298	48.90
2/20/2008 6:45	1.7	9.16	2/20/2008 16:25	1.812	13.63	2/21/2008 2:05	1.723	9.98	2/21/2008 11:45	1.725	10.06	2/21/2008 21:25	1.707	9.40	2/22/2008 7:05	2.446	66.03	2/22/2008 16:45	2.31	50.16
2/20/2008 6:50	1.7	9.16	2/20/2008 16:30	1.798	13.01	2/21/2008 2:10	1.727	10.13	2/21/2008 11:50	1.733	10.36	2/21/2008 21:30	1.707	9.40	2/22/2008 7:10	2.446	66.03	2/22/2008 16:50	2.303	49.42
2/20/2008 6:55	1.688	8.74	2/20/2008 16:35	1.815	13.77	2/21/2008 2:15	1.731	10.28	2/21/2008 11:55	1.732	10.32	2/21/2008 21:35	1.704	9.30	2/22/2008 7:15	2.595	86.97	2/22/2008 16:55	2.298	48.90
2/20/2008 7:00	1.69	8.81	2/20/2008 16:40	1.807	13.41	2/21/2008 2:20	1.721	9.91	2/21/2008 12:00	1.727	10.13	2/21/2008 21:40	1.699	9.12	2/22/2008 7:20	2.499	73.03	2/22/2008 17:00	2.265	45.54
2/20/2008 7:05	1.695	8.98	2/20/2008 16:45	1.788	12.58	2/21/2008 2:25	1.728	10.17	2/21/2008 12:05	1.724	10.02	2/21/2008 21:45	1.704	9.30	2/22/2008 7:25	2.479	70.34	2/22/2008 17:05	2.292	48.28
2/20/2008 7:10	1.69	8.81	2/20/2008 16:50	1.802	13.19	2/21/2008 2:30	1.73	10.25	2/21/2008 12:10	1.73	10.25	2/21/2008 21:50	1.702	9.23	2/22/2008 7:30	2.488	71.54	2/22/2008 17:10	2.303	49.42
2/20/2008 7:15	1.694	8.95	2/20/2008 16:55	1.795	12.88	2/21/2008 2:35	1.724	10.02	2/21/2008 12:15	1.732	10.32	2/21/2008 21:55	1.707	9.40	2/22/2008 7:35	2.479	70.34	2/22/2008 17:15	2.272	46.24
2/20/2008 7:20	1.708	9.44	2/20/2008 17:00	1.793	12.79	2/21/2008 2:40	1.723	9.98	2/21/2008 12:20	1.722	9.95	2/21/2008 22:00	1.709	9.48	2/22/2008 7:40	2.5	73.17	2/22/2008 17:20	2.252	44.26
2/20/2008 7:25	1.701	9.19	2/20/2008 17:05	1.798	13.01	2/21/2008 2:45	1.726	10.10	2/21/2008 12:25	1.733	10.36	2/21/2008 22:05	1.715	9.69	2/22/2008 7:45	2.628	92.14	2/22/2008 17:25	2.248	43.87
2/20/2008 7:30	1.69	8.81	2/20/2008 17:10	1.79	12.66	2/21/2008 2:50	1.717	9.76	2/21/2008 12:30	1.74	10.63	2/21/2008 22:10	1.699	9.12	2/22/2008 7:50	2.508	74.27	2/22/2008 17:30	2.257	44.75
2/20/2008 7:35	1.693	8.91	2/20/2008 17:15	1.782	12.32	2/21/2008 2:55	1.726	10.10	2/21/2008 12:35	1.74	10.63	2/21/2008 22:15	1.704	9.30	2/22/2008 7:55	2.477	70.07	2/22/2008 17:35	2.242	43.29
2/20/2008 7:40	1.709	9.48	2/20/2008 17:20	1.797	12.97	2/21/2008 3:00	1.709	9.48	2/21/2008 12:40	1.74	10.63	2/21/2008 22:20	1.707	9.40	2/22/2008 8:00	2.537	78.35	2/22/2008 17:40	2.293	48.38
2/20/2008 7:45	1.709	9.48	2/20/2008 17:25	1.797	12.97	2/21/2008 3:05	1.718	9.80	2/21/2008 12:45	1.733	10.36	2/21/2008 22:25	1.702	9.23	2/22/2008 8:05	2.485	71.14	2/22/2008 17:45	2.26	45.04
2/20/2008 7:50	1.706	9.37	2/20/2008 17:30	1.785	12.45	2/21/2008 3:10	1.701	9.19	2/21/2008 12:50	1.737	10.51	2/21/2008 22:30	1.707	9.40	2/22/2008 8:10	2.61	89.29	2/22/2008 17:50	2.229	42.05
2/20/2008 7:55	1.705	9.33	2/20/2008 17:35	1.795	12.88	2/21/2008 3:15	1.705	9.33	2/21/2008 12:55	1.753	11.13	2/21/2008 22:35	1.704	9.30	2/22/2008 8:15	2.532	77.64	2/22/2008 17:55	2.252	44.26
2/20/2008 8:00	1.704	9.30	2/20/2008 17:40	1.784	12.41	2/21/2008 3:20	1.698	9.09	2/21/2008 13:00	1.749	10.98	2/21/2008 22:40	1.709	9.48	2/22/2008 8:20	2.539	78.64	2/22/2008 18:00	2.227	41.86
2/20/2008 8:05	1.716	9.73	2/20/2008 17:45	1.782	12.32	2/21/2008 3:25	1.704	9.30	2/21/2008 13:05	1.748	10.94	2/21/2008 22:45	1.705	9.33	2/22/2008 8:25	2.54	78.78	2/22/2008 18:05	2.207	40.01
2/20/2008 8:10	1.708	9.44	2/20/2008 17:50	1.781	12.28	2/21/2008 3:30	1.719	9.84	2/21/2008 13:10	1.748	10.94	2/21/2008 22:50	1.701	9.19	2/22/2008 8:30	2.608	88.98	2/22/2008 18:10	2.204	39.74
2/20/2008 8:15	1.699	9.12	2/20/2008 17:55	1.78	12.24	2/21/2008 3:35	1.714	9.66	2/21/2008 13:15	1.75	11.01	2/21/2008 22:55	1.699	9.12	2/22/2008 8:35	2.542	79.07	2/22/2008 18:15	2.197	39.11
2/20/2008 8:20	1.708	9.44	2/20/2008 18:00	1.791	12.71	2/21/2008 3:40	1.704	9.30	2/21/2008 13:20	1.757	11.29	2/21/2008 23:00	1.704	9.30	2/22/2008 8:40	2.505	73.86	2/22/2008 18:20	2.212	40.47
2/20/2008 8:25	1.713	9.62	2/20/2008 18:05	1.787	12.53	2/21/2008 3:45	1.714	9.66	2/21/2008 13:25	1.743	10.74	2/21/2008 23:05	1.704	9.30	2/22/2008 8:45	2.547	79.79	2/22/2008 18:25	2.199	39.29
2/20/2008 8:30	1.719	9.84	2/20/2008 18:10	1.781	12.28	2/21/2008 3:50	1.704	9.30	2/21/2008 13:30	1.749	10.98	2/21/2008 23:10	1.706	9.37	2/22/2008 8:50	2.615	90.08	2/22/2008 18:30	2.2	39.38
2/20/2008 8:35	1.714	9.66	2/20/2008 18:15	1.779	12.19	2/21/2008 3:55	1.709	9.48	2/21/2008 13:35	1.759	11.37	2/21/2008 23:15	1.704	9.30	2/22/2008 8:55	2.568	82.88	2/22/2008 18:35	2.19	38.48
2/20/2008 8:40	1.713	9.62	2/20/2008 18:20	1.778	12.15	2/21/2008 4:00	1.703	9.26	2/21/2008 13:40	1.759	11.37	2/21/2008 23:20	1.697	9.05	2/22/2008 9:00	2.553	80.67	2/22/2008 18:40	2.18	37.60
2/20/2008 8:45	1.707	9.40	2/20/2008 18:25	1.773	11.94	2/21/2008 4:05	1.704	9.30	2/21/2008 13:45	1.762	11.49	2/21/2008 23:25	1.707	9.40	2/22/2008 9:05	2.562	81.99	2/22/2008 18:45	2.185	38.04
2/20/2008 8:50	1.704	9.30	2/20/2008 18:30	1.78	12.24	2/21/2008 4:10	1.713	9.62	2/21/2008 13:50	1.752	11.09	2/21/2008 23:30	1.703	9.26	2/22/2008 9:10	2.574	83.78	2/22/2008 18:50	2.245	43.58
2/20/2008 8:55	1.725	10.06	2/20/2008 18:35	1.763	11.53	2/21/2008 4:15	1.706	9.37	2/21/2008 13:55	1.752	11.09	2/21/2008 23:35	1.709	9.48	2/22/2008 9:15	2.573	83.63	2/22/2008 18:55	2.172	36.90
2/20/2008 9:00	1.722	9.95	2/20/2008 18:40	1.775	12.03	2/21/2008 4:20	1.71	9.51	2/21/2008 14:00	1.747	10.90	2/21/2008 23:40	1.698	9.09	2/22/2008 9:20	2.594	86.81	2/22/2008 19:00	2.161	35.96
2/20/2008 9:05	1.724	10.02	2/20/2008 18:45	1.781	12.28	2/21/2008 4:25	1.72	9.87	2/21/2008 14:05	1.752	11.09	2/21/2008 23:45	1.707	9.40	2/22/2008 9:25	2.571	83.33	2/22/2008 19:05	2.164	36.22
2/20/2008 9:10	1.714	9.66	2/20/2008 18:50	1.78	12.24	2/21/2008 4:30	1.706	9.37	2/21/2008 14:10	1.75	11.01	2/21/2008 23:50	1.708	9.44	2/22/2008 9:30	2.594	86.81	2/22/2008 19:10	2.144	34.53
2/20/2008 9:15	1.718	9.80	2/20/2008 18:55	1.779	12.19	2/21/2008 4:35	1.706	9.37	2/21/2008 14:15	1.749	10.98	2/21/2008 23:55	1.709	9.48	2/22/2008 9:35	2.564	82.29	2/22/2008 19:15	2.149	34.95
2/20/2008 9:20	1.729	10.21	2/20/2008 19:00	1.779	12.19	2/21/2008 4:40	1.708	9.44	2/21/2008 14:20	1.749	10.98	2/22/2008 0:00	1.698	9.09	2/22/2008 9:40	2.569	83.03	2/22/2008 19:20	2.175	37.16
2/20/2008 9:25	1.727	10.13	2/20/2008 19:05	1.797	12.97	2/21/2008 4:45	1.709	9.48	2/21/2008 14:25	1.755	11.21	2/22/2008 0:05	1.694	8.95	2/22/2008 9:45	2.609	89.14	2/22/2008 19:25	2.137	33.96
2/20/2008 9:30	1.725	10.06	2/20/2008 19:10	1.795	12.88	2/21/2008 4:50	1.709	9.48	2/21/2008 14:30	1.743	10.74	2/22/2008 0:10	1.711	9.55	2/22/2008 9:50	2.542	79.07	2/22/2008 19:30	2.141	34.29
2/20/2008 9:35	1.727	10.13	2/20/2008 19:15	1.776	12.07	2/21/2008 4:55	1.704	9.30	2/21/2008 14:35	1.754	11.17	2/22/2008 0:15	1.709	9.48	2/22/2008 9:55	2.509	74.41	2/22/2008 19:35	2.135	33.79
2/20/2008 9:40	1.733	10.36	2/20/2008 19:20	1.791	12.71	2/21/2008 5:00	1.721	9.91	2/21/2008 14:40	1.758	11.33	2/22/2008 0:20	1.706	9.37	2/22/2008 10:00	2.539	78.64	2/22/2008 19:40	2.133	33.63

Table E-1
Flow Meter and Sampler Data
for Sandia Creek Storm Event 2

Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Sample Data
Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	
2/22/2008 19:45	2.137	33.96	2/23/2008 5:25	1.914	18.75	2/23/2008 15:05	1.959	21.36	2/24/2008 1:00	1.858	15.81	2/24/2008 10:40	2.129	33.31	2/24/2008 20:20	2.077	29.28	2/25/2008 6:00	1.888	17.35	2/20/2008 18:56
2/22/2008 19:50	2.119	32.51	2/23/2008 5:30	1.913	18.70	2/23/2008 15:10	1.94	20.23	2/24/2008 1:05	1.861	15.96	2/24/2008 10:45	2.141	34.29	2/24/2008 20:25	2.048	27.18	2/25/2008 6:05	1.888	17.35	2/21/2008 2:26
2/22/2008 19:55	2.127	33.15	2/23/2008 5:35	1.921	19.14	2/23/2008 15:15	1.942	20.35	2/24/2008 1:10	1.86	15.91	2/24/2008 10:50	2.153	35.28	2/24/2008 20:30	2.066	28.47	2/25/2008 6:10	1.893	17.61	2/21/2008 10:27
2/22/2008 20:00	2.162	36.04	2/23/2008 5:40	1.924	19.31	2/23/2008 15:20	1.955	21.12	2/24/2008 1:15	1.866	16.21	2/24/2008 10:55	2.138	34.04	2/24/2008 20:35	2.058	27.89	2/25/2008 6:15	1.897	17.83	2/21/2008 17:57
2/22/2008 20:05	2.124	32.91	2/23/2008 5:45	1.913	18.70	2/23/2008 15:25	1.945	20.52	2/24/2008 1:20	1.865	16.16	2/24/2008 11:00	2.146	34.70	2/24/2008 20:40	2.045	26.97	2/25/2008 6:20	1.903	18.15	2/22/2008 1:55
2/22/2008 20:10	2.122	32.75	2/23/2008 5:50	1.909	18.48	2/23/2008 15:30	1.94	20.23	2/24/2008 1:25	1.858	15.81	2/24/2008 11:05	2.158	35.71	2/24/2008 20:45	2.031	26.00	2/25/2008 6:25	1.886	17.24	2/22/2008 5:36
2/22/2008 20:15	2.108	31.64	2/23/2008 5:55	1.918	18.97	2/23/2008 15:35	1.94	20.23	2/24/2008 1:30	1.852	15.52	2/24/2008 11:10	2.158	35.71	2/24/2008 20:50	2.035	26.27	2/25/2008 6:30	1.895	17.72	2/22/2008 6:54
2/22/2008 20:20	2.137	33.96	2/23/2008 6:00	1.902	18.09	2/23/2008 15:40	1.93	19.65	2/24/2008 1:35	1.855	15.66	2/24/2008 11:15	2.169	36.64	2/24/2008 20:55	2.035	26.27	2/25/2008 6:35	1.902	18.09	2/22/2008 7:55
2/22/2008 20:25	2.112	31.95	2/23/2008 6:05	1.914	18.75	2/23/2008 15:45	1.931	19.71	2/24/2008 1:40	1.863	16.06	2/24/2008 11:20	2.176	37.25	2/24/2008 21:00	2.037	26.41	2/25/2008 6:40	1.897	17.83	2/22/2008 8:50
2/22/2008 20:30	2.096	30.71	2/23/2008 6:10	1.916	18.86	2/23/2008 15:50	1.935	19.94	2/24/2008 1:45	1.859	15.86	2/24/2008 11:25	2.269	45.94	2/24/2008 21:05	2.079	29.43	2/25/2008 6:45	1.891	17.50	2/22/2008 9:42
2/22/2008 20:35	2.104	31.33	2/23/2008 6:15	1.919	19.03	2/23/2008 15:55	1.945	20.52	2/24/2008 1:50	1.854	15.61	2/24/2008 11:30	2.171	36.82	2/24/2008 21:10	2.034	26.20	2/25/2008 6:50	1.895	17.72	2/22/2008 10:37
2/22/2008 20:40	2.099	30.94	2/23/2008 6:20	1.911	18.59	2/23/2008 16:00	1.935	19.94	2/24/2008 1:55	1.853	15.56	2/24/2008 11:35	2.187	38.21	2/24/2008 21:15	2.015	24.91	2/25/2008 6:55	1.893	17.61	2/22/2008 11:32
2/22/2008 20:45	2.077	29.28	2/23/2008 6:25	1.908	18.42	2/23/2008 16:05	1.923	19.26	2/24/2008 2:00	1.862	16.01	2/24/2008 11:40	2.205	39.83	2/24/2008 21:20	2.013	24.78	2/25/2008 7:00	1.876	16.72	2/22/2008 12:43
2/22/2008 20:50	2.082	29.65	2/23/2008 6:30	1.903	18.15	2/23/2008 16:15	1.926	19.43	2/24/2008 2:05	1.858	15.81	2/24/2008 11:45	2.194	38.84	2/24/2008 21:25	2.038	26.48	2/25/2008 7:05	1.886	17.24	2/22/2008 13:57
2/22/2008 20:55	2.083	29.73	2/23/2008 6:35	1.9	17.99	2/23/2008 16:20	1.926	19.43	2/24/2008 2:10	1.853	15.56	2/24/2008 11:50	2.21	40.29	2/24/2008 21:30	2.023	25.45	2/25/2008 7:10	1.89	17.45	2/22/2008 15:12
2/22/2008 21:00	2.081	29.58	2/23/2008 6:40	1.909	18.48	2/23/2008 16:25	1.932	19.77	2/24/2008 2:15	1.864	16.11	2/24/2008 11:55	2.202	39.56	2/24/2008 21:35	2.018	25.11	2/25/2008 7:15	1.883	17.08	2/22/2008 16:32
2/22/2008 21:05	2.075	29.13	2/23/2008 6:45	1.899	17.93	2/23/2008 16:30	1.933	19.83	2/24/2008 2:20	1.86	15.91	2/24/2008 12:00	2.222	41.40	2/24/2008 21:40	2.01	24.58	2/25/2008 7:20	1.895	17.72	2/22/2008 18:10
2/22/2008 21:10	2.084	29.80	2/23/2008 6:50	1.893	17.61	2/23/2008 16:45	1.927	19.48	2/24/2008 2:25	1.85	15.42	2/24/2008 12:05	2.205	39.83	2/24/2008 21:45	2.012	24.71	2/25/2008 7:25	1.886	17.24	2/22/2008 20:17
2/22/2008 21:15	2.079	29.43	2/23/2008 6:55	1.898	17.88	2/23/2008 16:50	1.925	19.37	2/24/2008 2:30	1.859	15.86	2/24/2008 12:10	2.249	43.97	2/24/2008 21:50	2.012	24.71	2/25/2008 7:30	1.898	17.88	2/22/2008 22:46
2/22/2008 21:20	2.077	29.28	2/23/2008 7:00	1.897	17.83	2/23/2008 16:55	1.923	19.26	2/24/2008 2:35	1.865	16.16	2/24/2008 12:15	2.227	41.86	2/24/2008 21:55	2.013	24.78	2/25/2008 7:35	1.896	17.77	2/23/2008 2:08
2/22/2008 21:25	2.073	28.98	2/23/2008 7:05	1.901	18.04	2/23/2008 17:00	1.925	19.37	2/24/2008 2:40	1.863	16.06	2/24/2008 12:20	2.244	43.48	2/24/2008 22:00	2.007	24.38	2/25/2008 7:40	1.898	17.88	2/23/2008 5:53
2/22/2008 21:30	2.063	28.25	2/23/2008 7:10	1.886	17.24	2/23/2008 17:05	1.921	19.14	2/24/2008 2:45	1.855	15.66	2/24/2008 12:25	2.237	42.81	2/24/2008 22:05	2.017	25.05	2/25/2008 7:45	1.876	16.72	2/23/2008 9:38
2/22/2008 21:35	2.053	27.53	2/23/2008 7:15	1.888	17.35	2/23/2008 17:10	1.906	18.31	2/24/2008 2:50	1.865	16.16	2/24/2008 12:30	2.285	47.56	2/24/2008 22:10	2.012	24.71	2/25/2008 7:50	1.88	16.93	2/23/2008 13:23
2/22/2008 21:40	2.063	28.25	2/23/2008 7:20	1.899	17.93	2/23/2008 17:15	1.926	19.43	2/24/2008 2:55	1.859	15.86	2/24/2008 12:35	2.243	43.39	2/24/2008 22:15	2.012	24.71	2/25/2008 7:55	1.883	17.08	2/24/2008 11:22
2/22/2008 21:45	2.067	28.54	2/23/2008 7:25	1.903	18.15	2/23/2008 17:20	1.935	19.94	2/24/2008 3:00	1.853	15.56	2/24/2008 12:40	2.221	41.30	2/24/2008 22:20	2	23.93	2/25/2008 8:00	1.895	17.72	2/24/2008 13:09
2/22/2008 21:50	2.05	27.32	2/23/2008 7:30	1.898	17.88	2/23/2008 17:25	1.921	19.14	2/24/2008 3:05	1.852	15.52	2/24/2008 12:45	2.247	43.77	2/24/2008 22:25	2.01	24.58	2/25/2008 8:05	1.876	16.72	2/24/2008 14:43
2/22/2008 21:55	2.083	29.73	2/23/2008 7:35	1.888	17.35	2/23/2008 17:30	1.921	19.14	2/24/2008 3:10	1.87	16.41	2/24/2008 12:50	2.269	45.94	2/24/2008 22:30	1.998	23.80	2/25/2008 8:10	1.878	16.82	2/24/2008 16:28
2/22/2008 22:00	2.058	27.89	2/23/2008 7:40	1.893	17.61	2/23/2008 17:35	1.921	19.14	2/24/2008 3:15	1.853	15.56	2/24/2008 12:55	2.3	49.11	2/24/2008 22:35	2.003	24.12	2/25/2008 8:15	1.88	16.93	2/24/2008 18:14
2/22/2008 22:05	2.043	26.83	2/23/2008 7:45	1.878	16.82	2/23/2008 17:40	1.913	18.70	2/24/2008 3:20	1.863	16.06	2/24/2008 13:00	2.255	44.55	2/24/2008 22:40	2.007	24.38	2/25/2008 8:20	1.879	16.88	2/24/2008 20:34
2/22/2008 22:10	2.047	27.11	2/23/2008 7:50	1.9	17.99	2/23/2008 17:45	1.919	19.03	2/24/2008 3:25	1.863	16.06	2/24/2008 13:05	2.255	44.55	2/24/2008 22:45	1.998	23.80	2/25/2008 8:25	1.89	17.45	
2/22/2008 22:15	2.05	27.32	2/23/2008 7:55	1.888	17.35	2/23/2008 17:50	1.911	18.59	2/24/2008 3:30	1.863	16.06	2/24/2008 13:10	2.367	56.46	2/24/2008 22:50	1.997	23.73	2/25/2008 8:30	1.895	17.72	
2/22/2008 22:20	2.042	26.76	2/23/2008 8:00	1.881	16.98	2/23/2008 17:55	1.917	18.92	2/24/2008 3:35	1.864	16.11	2/24/2008 13:15	2.247	43.77	2/24/2008 22:55	1.999	23.86	2/25/2008 8:35	1.885	17.19	
2/22/2008 22:25	2.052	27.46	2/23/2008 8:05	1.887	17.29	2/23/2008 18:00	1.92	19.09	2/24/2008 3:40	1.861	15.96	2/24/2008 13:20	2.27	46.04	2/24/2008 23:00	2.004	24.19	2/25/2008 8:40	1.883	17.08	
2/22/2008 22:30	2.032	26.06	2/23/2008 8:10	1.883	17.08	2/23/2008 18:05	1.921	19.14	2/24/2008 3:45	1.864	16.11	2/24/2008 13:25	2.275	46.54	2/24/2008 23:05	1.988	23.15	2/25/2008 8:45	1.891	17.50	
2/22/2008 22:35	2.03	25.93	2/23/2008 8:15	1.891	17.50	2/23/2008 18:10	1.912	18.64	2/24/2008 3:50	1.856	15.71	2/24/2008 13:30	2.269	45.94	2/24/2008 23:10	1.989	23.22	2/25/2008 8:50	1.898	17.88	
2/22/2008 22:40	2.05	27.32	2/23/2008 8:20	1.887	17.29	2/23/2008 18:15	1.91	18.53	2/24/2008 3:55	1.866	16.21	2/24/2008 13:35	2.268	45.84	2/24/2008 23:15	1.982	22.77	2/25/2008 8:55	1.895	17.72	
2/22/2008 22:45	2.033	26.13	2/23/2008 8:25	1.898	17.88	2/23/2008 18:20	1.906	18.31	2/24/2008 4:00	1.868	16.31	2/24/2008 13:40	2.27	46.04	2/24/2008 23:20	1.985	22.96	2/25/2008 9:00	1.886	17.24	
2/22/2008 22:50	2.032	26.06	2/23/2008 8:30	1.886	17.24	2/23/2008 18:25	1.91	18.53	2/24/2008 4:05	1.869	16.36	2/24/2008 13:45	2.274	46.44	2/24/2008 23:25	1.981	22.71	2/25/2008 9:05	1.903	18.15	
2/22/2008 22:55	2.035	26.27	2/23/2008 8:35	1.886	17.24	2/23/2008 18:30	1.896	17.77	2/24/2008 4:10	1.866	16.21	2/24/2008 13:50	2.287	47.76	2/24/2008 23:30	1.99	23.28	2/25/2008 9:10	1.905	18.26	
2/22/2008 23:00	2.028	25.79	2/23/2008 8:40	1.892	17.56	2/23/2008 18:35	1.898	17.88	2/24/2008 4:15	1.861	15.96	2/24/2008 13:55	2.332	52.53	2/24/2008 23:35	1.976	22.40	2/25/2008 9:15	1.893	17.61	
2/22/2008 23:05	2.047	27.11	2/23/2008 8:45	1.895	17.72	2/23/2008 18:40	1.891	17.50	2/24/2008 4:20	1.861	15.96	2/24/2008 14:00	2.267	45.74	2/24/2008 23:40	1.983	22.84	2/25/2008 9:20	1.917	18.92	
2/22/2008 23:10	2.027	25.72	2/23/2008 8:50	1.897	17.83	2/23/2008 18:45	1.891	17.50	2/24/2008 4:25	1.859	15.86	2/24/2008 14:05	2.272	46.24	2/24/2008 23:45	1.984	22.90	2/25/2008 9:25	1.91	18.53	
2/22/2008 23:15	2.035	26.27	2/23/2008 8:55	1.899	17.93	2/23/2008 18:50	1.913	18.70	2/24/2008 4:30	1.866	16.21	2/24/2008 14:10	2.26	45.04	2/24/2008 23:50	1.989	23.22	2/25/2008 9:30	1.899	17.93	
2/22/2008 23:20	2.029	25.86	2/23/2008 9:00	1.908	18.42	2/23/2008 18:55	1.896	17.77	2/24/2008 4:35	1.866	16.21	2/24/2008 14:15	2.255	44.55	2/24/2008 23:55	1.978	22.52	2/25/2008 9:35	1.899	17.93	
2/22/2008 23:25	2.012	24.71	2/23/2008 9:05	1.906	18.31	2/23/2008 19:00	1.893	17.61	2/24/2008 4:40	1.866	16.21	2/24/2008 14:20	2.249	43.97	2/25/2008 0:00	1.97	22.03	2/25/2008 9:40	1.911	18.59	
2/22/2008 23:30	2.017	25.05	2/23/2008 9:10	1.903	18.15	2/23/2008 19:05	1.883	17.08	2/24/2008 4:45	1.866	16.21	2/24/2008 14:25	2.247	43.77	2/25/2008 0:05	1.986	23.03	2/25/2008 9:45	1.919	19.03	
2/22/2008 23:35	2.007	24.38	2/23/2008 9:15	1.909	18.48	2/23/2008 19:10	1.891	17.50	2/24/2008 4:50	1.866	16.21	2/24/2008 14:30	2.254	44.45	2/25/2008 0:10	1.969	21.97	2/25/2008 9:50	1.91	18.53	
2/22/2008 23:40	2	23.93	2/23/2008 9:20	1.919	19.03	2/23/2008 19:15	1.89	17.45	2/24/2008 4:55	1.872	16.52	2/24/2008 14:35	2.265	45.54	2/25/2008 0:15	1.974	22.27	2/25/2008 9:55	1.909	18.48	
2/22/2008 23:45	1.997	23.73	2/23/2008 9:25	1.91	18.53	2/23/2008 19:20	1.878	16.82	2/24/2008 5:00	1.874	16.62	2/24/2008 14:40	2.269	45.94	2/25/2008 0:20	1.971	22.09	2/25/2008 10:00	1.92	19.09	
2/22/2008 23:50	2.008	24.45	2/23/2008 9:30	1.915	18.81	2/23/2008 19:25	1.873	16.57	2/24/2008 5:05	1.872	16.52	2/24/2008 14:45	2.265	45.54	2/25/2008 0:25	1.967	21.84	2/25/2008 10:05	1.92	19.09	
2/22/2008 23:55	2.002	24.06	2/23/2008 9:35	1.918	18.97	2/23/2008 19:30	1.885	17.19	2/24/2008 5:10	1.881	16.98	2/24/2008 14:50	2.265	45.54	2/25/2008 0:30	1.97	22.03	2/25/2008 10:10	1.92	19.09	
2/23/2008 0:00	2.005	24.25	2/23/2008 9:40	1.927	19.48	2/23/2008 19:35	1.885	17.19	2/24/2008 5:15	1.882	17.03	2/24/2008 14:55	2.268	45.84	2/25/2008 0:35	1.956	21.18	2/25/2008 10:15	1.915	18.81	
2/23/2008 0:05	2.005	24.25	2/23/2008 9:45	1.922	19.20	2/23/2008 19:40	1.88	16.93	2/24/2008 5:20	1.879	16.88	2/24/2008 15:00	2.265	45.54	2/25/2008 0:40	1.953	21.00	2/25/2008 10:20	1.904	18.20	
2/23/2008 0:10	1.998	23.80	2/23/2008 9:50	1.919	19.03	2/23/2008 19:45	1.873	16.57	2/24/2008 5:25	1.871	16.47	2/24/2008 15:05	2.249	43.97	2/25/2008 0:45	1.954	21.06	2/25/2008 10:25	1.91	18.53	
2/23/2008 0:15	2.004	24.19	2/23/2008 9:55	1.914	18.75	2/23/2008 19:50	1.87	16.41	2/24/2008 5:30	1.871	16.47	2/24/2008 15:10	2.265	45.54	2/25/2008 0:50	1.966	21.78	2/25/2008 10:30	1.914	18.75	
2/23/2008 0:20	2.012	24.71	2/23/2008 10:00	1.911	18.59	2/23/2008 19:55	1.877	16.77	2/24/2008 5:35	1.886	17.24	2/24/2008 15:15	2.257	44.75	2/25/2008 0:55	1.968	21.90	2/25/2008 10:35	1.912	18.64	
2/23/2008 0:25	1.997	23.73	2/23/2008 10:05	1.931	19.71	2/23/2008 20:00	1.885	17.19	2/24/2008 5:40	1.879	16.88	2/24/2008 15:20	2.259	44.95	2/25/2008 1:00	1.958	21.30	2/25/2008 10:40	1.929	19.60	

Table E-1
Flow Meter and Sampler Data
for Sandia Creek Storm Event 2

Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Flow Data			Sandia Event 2 Sample Data
Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	
2/23/2008 0:30	1.986	23.03	2/23/2008 10:10	1.933	19.83	2/23/2008 20:05	1.889	17.40	2/24/2008 5:45	1.881	16.98	2/24/2008 15:25	2.244	43.48	2/25/2008 1:05	1.953	21.00	2/25/2008 10:45	1.929	19.60	
2/23/2008 0:35	1.982	22.77	2/23/2008 10:15	1.915	18.81	2/23/2008 20:10	1.886	17.24	2/24/2008 5:50	1.886	17.24	2/24/2008 15:30	2.247	43.77	2/25/2008 1:10	1.96	21.42	2/25/2008 10:50	1.927	19.48	
2/23/2008 0:40	1.989	23.22	2/23/2008 10:20	1.92	19.09	2/23/2008 20:15	1.872	16.52	2/24/2008 5:55	1.873	16.57	2/24/2008 15:35	2.254	44.45	2/25/2008 1:15	1.957	21.24	2/25/2008 10:55	1.925	19.37	
2/23/2008 0:45	1.989	23.22	2/23/2008 10:25	1.924	19.31	2/23/2008 20:20	1.869	16.36	2/24/2008 6:00	1.883	17.08	2/24/2008 15:40	2.254	44.45	2/25/2008 1:20	1.944	20.46	2/25/2008 11:00	1.928	19.54	
2/23/2008 0:50	1.976	22.40	2/23/2008 10:30	1.924	19.31	2/23/2008 20:25	1.879	16.88	2/24/2008 6:05	1.878	16.82	2/24/2008 15:45	2.348	54.30	2/25/2008 1:25	1.949	20.76	2/25/2008 11:05	1.925	19.37	
2/23/2008 0:55	1.975	22.34	2/23/2008 10:35	1.929	19.60	2/23/2008 20:30	1.877	16.77	2/24/2008 6:10	1.886	17.24	2/24/2008 15:50	2.229	42.05	2/25/2008 1:30	1.948	20.70	2/25/2008 11:10	1.923	19.26	
2/23/2008 1:00	1.993	23.47	2/23/2008 10:40	1.938	20.11	2/23/2008 20:35	1.876	16.72	2/24/2008 6:15	1.877	16.77	2/24/2008 15:55	2.239	43.00	2/25/2008 1:35	1.949	20.76	2/25/2008 11:15	1.936	20.00	
2/23/2008 1:05	1.994	23.54	2/23/2008 10:45	1.923	19.26	2/23/2008 20:40	1.864	16.11	2/24/2008 6:20	1.876	16.72	2/24/2008 16:00	2.234	42.53	2/25/2008 1:40	1.951	20.88	2/25/2008 11:20	1.938	20.11	
2/23/2008 1:10	1.967	21.84	2/23/2008 10:50	1.934	19.88	2/23/2008 20:45	1.865	16.16	2/24/2008 6:25	1.883	17.08	2/24/2008 16:05	2.252	44.26	2/25/2008 1:45	1.938	20.11	2/25/2008 11:25	1.936	20.00	
2/23/2008 1:15	1.963	21.60	2/23/2008 10:55	1.933	19.83	2/23/2008 20:50	1.868	16.31	2/24/2008 6:30	1.883	17.08	2/24/2008 16:10	2.274	46.44	2/25/2008 1:50	1.944	20.46	2/25/2008 11:30	1.925	19.37	
2/23/2008 1:20	1.965	21.72	2/23/2008 11:00	1.937	20.06	2/23/2008 20:55	1.872	16.52	2/24/2008 6:35	1.89	17.45	2/24/2008 16:15	2.285	47.56	2/25/2008 1:55	1.934	19.88	2/25/2008 11:35	1.94	20.23	
2/23/2008 1:25	1.974	22.27	2/23/2008 11:05	1.936	20.00	2/23/2008 21:00	1.875	16.67	2/24/2008 6:40	1.889	17.40	2/24/2008 16:20	2.24	43.10	2/25/2008 2:00	1.939	20.17	2/25/2008 11:40	1.94	20.23	
2/23/2008 1:30	1.974	22.27	2/23/2008 11:10	1.934	19.88	2/23/2008 21:05	1.866	16.21	2/24/2008 6:45	1.891	17.50	2/24/2008 16:25	2.242	43.29	2/25/2008 2:05	1.939	20.17	2/25/2008 11:45	1.946	20.58	
2/23/2008 1:35	1.976	22.40	2/23/2008 11:15	1.937	20.06	2/23/2008 21:10	1.861	15.96	2/24/2008 6:50	1.899	17.93	2/24/2008 16:30	2.217	40.93	2/25/2008 2:10	1.944	20.46	2/25/2008 11:50	1.945	20.52	
2/23/2008 1:40	1.973	22.21	2/23/2008 11:20	1.95	20.82	2/23/2008 21:15	1.866	16.21	2/24/2008 6:55	1.899	17.93	2/24/2008 16:35	2.22	41.21	2/25/2008 2:15	1.936	20.00	2/25/2008 11:55	1.958	21.30	
2/23/2008 1:45	1.973	22.21	2/23/2008 11:25	1.94	20.23	2/23/2008 21:20	1.866	16.21	2/24/2008 7:00	1.905	18.26	2/24/2008 16:40	2.229	42.05	2/25/2008 2:20	1.926	19.43	2/25/2008 12:00	1.954	21.06	
2/23/2008 1:50	1.973	22.21	2/23/2008 11:30	1.94	20.23	2/23/2008 21:25	1.869	16.36	2/24/2008 7:05	1.906	18.31	2/24/2008 16:45	2.23	42.15	2/25/2008 2:25	1.919	19.03	2/25/2008 12:05	1.943	20.41	
2/23/2008 1:55	1.973	22.21	2/23/2008 11:35	1.948	20.70	2/23/2008 21:30	1.866	16.21	2/24/2008 7:10	1.918	18.97	2/24/2008 16:50	2.252	44.26	2/25/2008 2:30	1.934	19.88	2/25/2008 12:10	1.951	20.88	
2/23/2008 2:00	1.972	22.15	2/23/2008 11:40	1.953	21.00	2/23/2008 21:35	1.871	16.47	2/24/2008 7:15	1.908	18.42	2/24/2008 16:55	2.249	43.97	2/25/2008 2:35	1.928	19.54	2/25/2008 12:15	1.949	20.76	
2/23/2008 2:05	1.956	21.18	2/23/2008 11:45	1.948	20.70	2/23/2008 21:40	1.867	16.26	2/24/2008 7:20	1.909	18.48	2/24/2008 17:00	2.227	41.86	2/25/2008 2:40	1.921	19.14	2/25/2008 12:20	1.95	20.82	
2/23/2008 2:10	1.958	21.30	2/23/2008 11:50	1.95	20.82	2/23/2008 21:45	1.883	17.08	2/24/2008 7:25	1.909	18.48	2/24/2008 17:05	2.222	41.40	2/25/2008 2:45	1.923	19.26	2/25/2008 12:25	1.955	21.12	
2/23/2008 2:15	1.969	21.97	2/23/2008 11:55	1.956	21.18	2/23/2008 21:50	1.875	16.67	2/24/2008 7:30	1.908	18.42	2/24/2008 17:10	2.237	42.81	2/25/2008 2:50	1.921	19.14	2/25/2008 12:30	1.958	21.30	
2/23/2008 2:20	1.959	21.36	2/23/2008 12:00	1.959	21.36	2/23/2008 21:55	1.866	16.21	2/24/2008 7:35	1.908	18.42	2/24/2008 17:15	2.278	46.85	2/25/2008 2:55	1.924	19.31	2/25/2008 12:35	1.959	21.36	
2/23/2008 2:25	1.964	21.66	2/23/2008 12:05	1.959	21.36	2/23/2008 22:00	1.868	16.31	2/24/2008 7:40	1.922	19.20	2/24/2008 17:20	2.27	46.04	2/25/2008 3:00	1.923	19.26	2/25/2008 12:40	1.963	21.60	
2/23/2008 2:30	1.939	20.17	2/23/2008 12:10	1.95	20.82	2/23/2008 22:05	1.875	16.67	2/24/2008 7:45	1.931	19.71	2/24/2008 17:25	2.202	39.56	2/25/2008 3:05	1.919	19.03	2/25/2008 12:45	1.962	21.54	
2/23/2008 2:35	1.967	21.84	2/23/2008 12:15	1.956	21.18	2/23/2008 22:10	1.865	16.16	2/24/2008 7:50	1.928	19.54	2/24/2008 17:30	2.192	38.66	2/25/2008 3:10	1.914	18.75	2/25/2008 12:50	1.969	21.97	
2/23/2008 2:40	1.959	21.36	2/23/2008 12:20	1.953	21.00	2/23/2008 22:15	1.874	16.62	2/24/2008 7:55	1.946	20.58	2/24/2008 17:35	2.272	46.24	2/25/2008 3:15	1.913	18.70	2/25/2008 12:55	1.97	22.03	
2/23/2008 2:45	1.957	21.24	2/23/2008 12:25	1.954	21.06	2/23/2008 22:20	1.862	16.01	2/24/2008 8:00	1.938	20.11	2/24/2008 17:40	2.175	37.16	2/25/2008 3:20	1.922	19.20	2/25/2008 13:00	1.97	22.03	
2/23/2008 2:50	1.953	21.00	2/23/2008 12:30	1.955	21.12	2/23/2008 22:25	1.872	16.52	2/24/2008 8:05	1.955	21.12	2/24/2008 17:45	2.194	38.84	2/25/2008 3:25	1.919	19.03	2/25/2008 13:05	1.975	22.34	
2/23/2008 2:55	1.948	20.70	2/23/2008 12:35	1.953	21.00	2/23/2008 22:30	1.875	16.67	2/24/2008 8:10	1.96	21.42	2/24/2008 17:50	2.25	44.06	2/25/2008 3:30	1.916	18.86	2/25/2008 13:10	1.99	23.28	
2/23/2008 3:00	1.949	20.76	2/23/2008 12:40	1.963	21.60	2/23/2008 22:35	1.871	16.47	2/24/2008 8:15	1.971	22.09	2/24/2008 17:55	2.219	41.12	2/25/2008 3:35	1.903	18.15	2/25/2008 13:15	1.988	23.15	
2/23/2008 3:05	1.939	20.17	2/23/2008 12:45	1.958	21.30	2/23/2008 22:40	1.875	16.67	2/24/2008 8:20	1.978	22.52	2/24/2008 18:00	2.232	42.34	2/25/2008 3:40	1.914	18.75	2/25/2008 13:20	1.983	22.84	
2/23/2008 3:10	1.958	21.30	2/23/2008 12:50	1.968	21.90	2/23/2008 22:45	1.88	16.93	2/24/2008 8:25	1.971	22.09	2/24/2008 18:05	2.194	38.84	2/25/2008 3:45	1.919	19.03	2/25/2008 13:25	1.977	22.46	
2/23/2008 3:15	1.948	20.70	2/23/2008 12:55	1.952	20.94	2/23/2008 22:50	1.865	16.16	2/24/2008 8:30	1.986	23.03	2/24/2008 18:10	2.175	37.16	2/25/2008 3:50	1.911	18.59	2/25/2008 13:30	1.986	23.03	
2/23/2008 3:20	1.936	20.00	2/23/2008 13:00	1.964	21.66	2/23/2008 22:55	1.871	16.47	2/24/2008 8:35	2	23.93	2/24/2008 18:15	2.177	37.34	2/25/2008 3:55	1.915	18.81	2/25/2008 13:35	1.977	22.46	
2/23/2008 3:25	1.939	20.17	2/23/2008 13:05	1.973	22.21	2/23/2008 23:00	1.866	16.21	2/24/2008 8:40	2	23.93	2/24/2008 18:20	2.164	36.22	2/25/2008 4:00	1.914	18.75	2/25/2008 13:40	1.973	22.21	
2/23/2008 3:30	1.941	20.29	2/23/2008 13:10	1.965	21.72	2/23/2008 23:05	1.861	15.96	2/24/2008 8:45	1.999	23.86	2/24/2008 18:25	2.253	44.36	2/25/2008 4:05	1.903	18.15	2/25/2008 13:45	1.975	22.34	
2/23/2008 3:35	1.941	20.29	2/23/2008 13:15	1.966	21.78	2/23/2008 23:10	1.86	15.91	2/24/2008 8:50	1.999	23.86	2/24/2008 18:30	2.162	36.04	2/25/2008 4:10	1.903	18.15	2/25/2008 13:50	1.983	22.84	
2/23/2008 3:40	1.944	20.46	2/23/2008 13:20	1.98	22.65	2/23/2008 23:15	1.856	15.71	2/24/2008 8:55	1.999	23.86	2/24/2008 18:35	2.156	35.54	2/25/2008 4:15	1.892	17.56	2/25/2008 13:55	1.976	22.40	
2/23/2008 3:45	1.945	20.52	2/23/2008 13:25	1.97	22.03	2/23/2008 23:20	1.866	16.21	2/24/2008 9:00	2.003	24.12	2/24/2008 18:40	2.147	34.78	2/25/2008 4:20	1.898	17.88	2/25/2008 14:00	1.975	22.34	
2/23/2008 3:50	1.936	20.00	2/23/2008 13:30	1.975	22.34	2/23/2008 23:25	1.863	16.06	2/24/2008 9:05	2.005	24.25	2/24/2008 18:45	2.124	32.91	2/25/2008 4:25	1.906	18.31	2/25/2008 14:05	1.976	22.40	
2/23/2008 3:55	1.934	19.88	2/23/2008 13:35	1.962	21.54	2/23/2008 23:30	1.862	16.01	2/24/2008 9:10	2.021	25.32	2/24/2008 18:50	2.136	33.88	2/25/2008 4:30	1.915	18.81	2/25/2008 14:10	1.975	22.34	
2/23/2008 4:00	1.921	19.14	2/23/2008 13:40	1.962	21.54	2/23/2008 23:35	1.859	15.86	2/24/2008 9:15	2.025	25.59	2/24/2008 18:55	2.147	34.78	2/25/2008 4:35	1.893	17.61	2/25/2008 14:15	1.975	22.34	
2/23/2008 4:05	1.939	20.17	2/23/2008 13:45	1.959	21.36	2/23/2008 23:40	1.865	16.16	2/24/2008 9:20	2.014	24.85	2/24/2008 19:00	2.131	33.47	2/25/2008 4:40	1.903	18.15	2/25/2008 14:20	1.975	22.34	
2/23/2008 4:10	1.936	20.00	2/23/2008 13:50	1.96	21.42	2/23/2008 23:45	1.864	16.11	2/24/2008 9:25	2.024	25.52	2/24/2008 19:05	2.119	32.51	2/25/2008 4:45	1.908	18.42	2/25/2008 14:25	1.98	22.65	
2/23/2008 4:15	1.934	19.88	2/23/2008 13:55	1.962	21.54	2/23/2008 23:50	1.859	15.86	2/24/2008 9:30	2.037	26.41	2/24/2008 19:10	2.112	31.95	2/25/2008 4:50	1.903	18.15	2/25/2008 14:30	1.981	22.71	
2/23/2008 4:20	1.933	19.83	2/23/2008 14:00	1.949	20.76	2/23/2008 23:55	1.858	15.81	2/24/2008 9:35	2.045	26.97	2/24/2008 19:15	2.111	31.87	2/25/2008 4:55	1.903	18.15	2/25/2008 14:35	1.976	22.40	
2/23/2008 4:25	1.921	19.14	2/23/2008 14:05	1.965	21.72	2/24/2008 0:00	1.855	15.66	2/24/2008 9:40	2.046	27.04	2/24/2008 19:20	2.114	32.11	2/25/2008 5:00	1.885	17.19	2/25/2008 14:40	1.986	23.03	
2/23/2008 4:30	1.918	18.97	2/23/2008 14:10	1.965	21.72	2/24/2008 0:05	1.865	16.16	2/24/2008 9:45	2.041	26.69	2/24/2008 19:25	2.167	36.47	2/25/2008 5:05	1.899	17.93	2/25/2008 14:45	1.976	22.40	
2/23/2008 4:35	1.933	19.83	2/23/2008 14:15	1.957	21.24	2/24/2008 0:10	1.864	16.11	2/24/2008 9:50	2.045	26.97	2/24/2008 19:30	2.103	31.25	2/25/2008 5:10	1.893	17.61	2/25/2008 14:50	1.979	22.59	
2/23/2008 4:40	1.923	19.26	2/23/2008 14:20	1.962	21.54	2/24/2008 0:15	1.865	16.16	2/24/2008 9:55	2.064	28.33	2/24/2008 19:35	2.085	29.88	2/25/2008 5:15	1.896	17.77	2/25/2008 14:55	1.992	23.41	
2/23/2008 4:45	1.944	20.46	2/23/2008 14:25	1.955	21.12	2/24/2008 0:20	1.861	15.96	2/24/2008 10:00	2.072	28.91	2/24/2008 19:40	2.097	30.79	2/25/2008 5:20	1.895	17.72	2/25/2008 15:00	1.986	23.03	
2/23/2008 4:50	1.938	20.11	2/23/2008 14:30	1.964	21.66	2/24/2008 0:25	1.862	16.01	2/24/2008 10:05	2.072	28.91	2/24/2008 19:45	2.082	29.65	2/25/2008 5:25	1.891	17.50				
2/23/2008 4:55	1.916	18.86	2/23/2008 14:35	1.962	21.54	2/24/2008 0:30	1.858	15.81	2/24/2008 10:10	2.09	30.25	2/24/2008 19:50	2.078	29.35	2/25/2008 5:30	1.893	17.61				
2/23/2008 5:00	1.923	19.26	2/23/2008 14:40	1.96	21.42	2/24/2008 0:35	1.852	15.52	2/24/2008 10:15	2.104	31.33	2/24/2008 19:55	2.07	28.76	2/25/2008 5:35	1.908	18.42				
2/23/2008 5:05	1.923	19.26	2/23/2008 14:45	1.957	21.24	2/24/2008 0:40	1.862	16.01	2/24/2008 10:20	2.089	30.18	2/24/2008 20:00	2.073	28.98	2/25/2008 5:40	1.902	18.09				
2/23/2008 5:10	1.909	18.48	2/23/2008 14:50	1.959	21.36	2/24/2008 0:45	1.853	15.56	2/24/2008 10:25	2.153	35.28	2/24/2008 20:05	2.077	29.28	2/25/2008 5:45	1.899	17.93				
2/23/2008 5:15	1.909	18.48	2/23/2008 14:55	1.947	20.64	2/24/2008 0:50	1.863	16.06	2/24/2008 10:30	2.172	36.90	2/24/2008 20:10	2.06	28.04	2/25/2008 5:50	1.901	18.04				
2/23/2008 5:20	1.919	19.03	2/23/2008 15:00	1.952	20.94	2/24/2008 0:55	1.853	15.56	2/24/2008 10:35	2.125	32.99	2/24/2008 20:15	2.067	28.54	2/25/2008 5:55	1.888	17.35				

Table E-2
Flow meter and Sampler Data for
Sandia Creek Storm Event 3

Sandia Event 3 Flow Data			Sandia Event 3 Flow Data			Sandia Event 3 Flow Data			Sandia Event 3 Flow Data			Sandia Event 3 Flow Data			Sandia Event 3 Flow Data			Sandia Event 3 Sample Data
Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	
11/26/2008 0:00	1.541	4.60	11/26/2008 9:40	1.877	16.77	11/26/2008 19:20	1.715	9.69	11/27/2008 5:00	1.894	17.66	11/27/2008 14:40	2.216	40.84	11/28/2008 0:20	1.866	16.21	11/26/2008 2:19
11/26/2008 0:05	1.542	4.62	11/26/2008 9:45	1.875	16.67	11/26/2008 19:25	1.714	9.66	11/27/2008 5:05	1.899	17.93	11/27/2008 14:45	2.21	40.29	11/28/2008 0:25	1.863	16.06	11/26/2008 7:51
11/26/2008 0:10	1.542	4.62	11/26/2008 9:50	1.875	16.67	11/26/2008 19:30	1.714	9.66	11/27/2008 5:10	1.898	17.88	11/27/2008 14:50	2.201	39.47	11/28/2008 0:30	1.864	16.11	11/26/2008 10:40
11/26/2008 0:15	1.542	4.62	11/26/2008 9:55	1.869	16.36	11/26/2008 19:35	1.715	9.69	11/27/2008 5:15	1.894	17.66	11/27/2008 14:55	2.205	39.83	11/28/2008 0:35	1.863	16.06	11/26/2008 16:09
11/26/2008 0:20	1.542	4.62	11/26/2008 10:00	1.868	16.31	11/26/2008 19:40	1.712	9.58	11/27/2008 5:20	1.889	17.40	11/27/2008 15:00	2.202	39.56	11/28/2008 0:40	1.86	15.91	11/26/2008 22:02
11/26/2008 0:25	1.542	4.62	11/26/2008 10:05	1.866	16.21	11/26/2008 19:45	1.712	9.58	11/27/2008 5:25	1.89	17.45	11/27/2008 15:05	2.187	38.21	11/28/2008 0:45	1.856	15.71	11/27/2008 1:30
11/26/2008 0:30	1.542	4.62	11/26/2008 10:10	1.862	16.01	11/26/2008 19:50	1.711	9.55	11/27/2008 5:30	1.894	17.66	11/27/2008 15:10	2.18	37.60	11/28/2008 0:50	1.858	15.81	11/27/2008 4:17
11/26/2008 0:35	1.542	4.62	11/26/2008 10:15	1.864	16.11	11/26/2008 19:55	1.709	9.48	11/27/2008 5:35	1.892	17.56	11/27/2008 15:15	2.172	36.90	11/28/2008 0:55	1.857	15.76	11/27/2008 7:04
11/26/2008 0:40	1.543	4.65	11/26/2008 10:20	1.857	15.76	11/26/2008 20:00	1.706	9.37	11/27/2008 5:40	1.896	17.77	11/27/2008 15:20	2.166	36.39	11/28/2008 1:00	1.854	15.61	11/27/2008 9:05
11/26/2008 0:45	1.543	4.65	11/26/2008 10:25	1.849	15.37	11/26/2008 20:05	1.708	9.44	11/27/2008 5:45	1.888	17.35	11/27/2008 15:25	2.163	36.13	11/28/2008 1:05	1.856	15.71	11/27/2008 10:52
11/26/2008 0:50	1.544	4.67	11/26/2008 10:30	1.85	15.42	11/26/2008 20:10	1.712	9.58	11/27/2008 5:50	1.891	17.50	11/27/2008 15:30	2.149	34.95	11/28/2008 1:10	1.857	15.76	11/27/2008 12:43
11/26/2008 0:55	1.547	4.74	11/26/2008 10:35	1.851	15.47	11/26/2008 20:15	1.719	9.84	11/27/2008 5:55	1.892	17.56	11/27/2008 15:35	2.137	33.96	11/28/2008 1:15	1.853	15.56	11/27/2008 14:07
11/26/2008 1:00	1.547	4.74	11/26/2008 10:40	1.842	15.03	11/26/2008 20:20	1.73	10.25	11/27/2008 6:00	1.89	17.45	11/27/2008 15:40	2.146	34.70	11/28/2008 1:20	1.851	15.47	11/27/2008 15:32
11/26/2008 1:05	1.548	4.76	11/26/2008 10:45	1.843	15.08	11/26/2008 20:25	1.737	10.51	11/27/2008 6:05	1.896	17.77	11/27/2008 15:45	2.122	32.75	11/28/2008 1:25	1.85	15.42	11/27/2008 17:23
11/26/2008 1:10	1.551	4.83	11/26/2008 10:50	1.839	14.89	11/26/2008 20:30	1.745	10.82	11/27/2008 6:10	1.895	17.72	11/27/2008 15:50	2.121	32.67	11/28/2008 1:30	1.851	15.47	11/27/2008 20:04
11/26/2008 1:15	1.552	4.86	11/26/2008 10:55	1.834	14.65	11/26/2008 20:35	1.754	11.17	11/27/2008 6:15	1.895	17.72	11/27/2008 15:55	2.123	32.83	11/28/2008 1:35	1.852	15.52	11/27/2008 22:50
11/26/2008 1:20	1.555	4.93	11/26/2008 11:00	1.83	14.46	11/26/2008 20:40	1.766	11.66	11/27/2008 6:20	1.898	17.88	11/27/2008 16:00	2.118	32.43	11/28/2008 1:40	1.854	15.61	11/28/2008 1:38
11/26/2008 1:25	1.558	5.00	11/26/2008 11:05	1.824	14.18	11/26/2008 20:45	1.78	12.24	11/27/2008 6:25	1.906	18.31	11/27/2008 16:05	2.106	31.48	11/28/2008 1:45	1.847	15.27	11/28/2008 6:17
11/26/2008 1:30	1.56	5.05	11/26/2008 11:10	1.827	14.32	11/26/2008 20:50	1.79	12.66	11/27/2008 6:30	1.916	18.86	11/27/2008 16:10	2.103	31.25	11/28/2008 1:50	1.845	15.17	
11/26/2008 1:35	1.563	5.12	11/26/2008 11:15	1.823	14.13	11/26/2008 20:55	1.792	12.75	11/27/2008 6:35	1.922	19.20	11/27/2008 16:15	2.098	30.87	11/28/2008 1:55	1.853	15.56	
11/26/2008 1:40	1.565	5.17	11/26/2008 11:20	1.82	14.00	11/26/2008 21:00	1.795	12.88	11/27/2008 6:40	1.933	19.83	11/27/2008 16:20	2.1	31.02	11/28/2008 2:00	1.848	15.32	
11/26/2008 1:45	1.567	5.22	11/26/2008 11:25	1.815	13.77	11/26/2008 21:05	1.788	12.58	11/27/2008 6:45	1.939	20.17	11/27/2008 16:25	2.093	30.48	11/28/2008 2:05	1.852	15.52	
11/26/2008 1:50	1.57	5.29	11/26/2008 11:30	1.814	13.72	11/26/2008 21:10	1.782	12.32	11/27/2008 6:50	1.938	20.11	11/27/2008 16:30	2.09	30.25	11/28/2008 2:10	1.846	15.22	
11/26/2008 1:55	1.574	5.39	11/26/2008 11:35	1.812	13.63	11/26/2008 21:15	1.779	12.19	11/27/2008 6:55	1.94	20.23	11/27/2008 16:35	2.078	29.35	11/28/2008 2:15	1.843	15.08	
11/26/2008 2:00	1.577	5.46	11/26/2008 11:40	1.808	13.45	11/26/2008 21:20	1.78	12.24	11/27/2008 7:00	1.95	20.82	11/27/2008 16:40	2.066	28.47	11/28/2008 2:20	1.844	15.13	
11/26/2008 2:05	1.582	5.59	11/26/2008 11:45	1.809	13.50	11/26/2008 21:25	1.786	12.49	11/27/2008 7:05	1.949	20.76	11/27/2008 16:45	2.068	28.62	11/28/2008 2:25	1.841	14.98	
11/26/2008 2:10	1.589	5.77	11/26/2008 11:50	1.803	13.23	11/26/2008 21:30	1.792	12.75	11/27/2008 7:10	1.941	20.29	11/27/2008 16:50	2.072	28.91	11/28/2008 2:30	1.842	15.03	
11/26/2008 2:15	1.595	5.93	11/26/2008 11:55	1.804	13.27	11/26/2008 21:35	1.797	12.97	11/27/2008 7:15	1.948	20.70	11/27/2008 16:55	2.057	27.82	11/28/2008 2:35	1.84	14.93	
11/26/2008 2:20	1.6	6.07	11/26/2008 12:00	1.801	13.14	11/26/2008 21:40	1.799	13.05	11/27/2008 7:20	1.952	20.94	11/27/2008 17:00	2.042	26.76	11/28/2008 2:40	1.841	14.98	
11/26/2008 2:25	1.606	6.23	11/26/2008 12:05	1.796	12.92	11/26/2008 21:45	1.805	13.32	11/27/2008 7:25	1.959	21.36	11/27/2008 17:05	2.049	27.25	11/28/2008 2:45	1.839	14.89	
11/26/2008 2:30	1.612	6.39	11/26/2008 12:10	1.792	12.75	11/26/2008 21:50	1.804	13.27	11/27/2008 7:30	1.967	21.84	11/27/2008 17:10	2.045	26.97	11/28/2008 2:50	1.841	14.98	
11/26/2008 2:35	1.618	6.56	11/26/2008 12:15	1.794	12.84	11/26/2008 21:55	1.807	13.41	11/27/2008 7:35	1.981	22.71	11/27/2008 17:15	2.035	26.27	11/28/2008 2:55	1.837	14.79	
11/26/2008 2:40	1.627	6.82	11/26/2008 12:20	1.789	12.62	11/26/2008 22:00	1.805	13.32	11/27/2008 7:40	1.982	22.77	11/27/2008 17:20	2.03	25.93	11/28/2008 3:00	1.84	14.93	
11/26/2008 2:45	1.637	7.12	11/26/2008 12:25	1.786	12.49	11/26/2008 22:05	1.798	13.01	11/27/2008 7:45	1.996	23.67	11/27/2008 17:25	2.024	25.52	11/28/2008 3:05	1.835	14.70	
11/26/2008 2:50	1.646	7.39	11/26/2008 12:30	1.785	12.45	11/26/2008 22:10	1.795	12.88	11/27/2008 7:50	2.009	24.51	11/27/2008 17:30	2.02	25.25	11/28/2008 3:10	1.836	14.74	
11/26/2008 2:55	1.65	7.51	11/26/2008 12:35	1.783	12.36	11/26/2008 22:15	1.791	12.71	11/27/2008 7:55	2.019	25.18	11/27/2008 17:35	2.017	25.05	11/28/2008 3:15	1.834	14.65	
11/26/2008 3:00	1.654	7.64	11/26/2008 12:40	1.781	12.28	11/26/2008 22:20	1.789	12.62	11/27/2008 8:00	2.048	27.18	11/27/2008 17:40	2.017	25.05	11/28/2008 3:20	1.834	14.65	
11/26/2008 3:05	1.654	7.64	11/26/2008 12:45	1.776	12.07	11/26/2008 22:25	1.783	12.36	11/27/2008 8:05	2.087	30.03	11/27/2008 17:45	2.009	24.51	11/28/2008 3:25	1.833	14.60	
11/26/2008 3:10	1.651	7.54	11/26/2008 12:50	1.775	12.03	11/26/2008 22:30	1.779	12.19	11/27/2008 8:10	2.104	31.33	11/27/2008 17:50	2.009	24.51	11/28/2008 3:30	1.828	14.37	
11/26/2008 3:15	1.649	7.48	11/26/2008 12:55	1.774	11.99	11/26/2008 22:35	1.778	12.15	11/27/2008 8:15	2.116	32.27	11/27/2008 17:55	2.008	24.45	11/28/2008 3:35	1.831	14.51	
11/26/2008 3:20	1.649	7.48	11/26/2008 13:00	1.771	11.86	11/26/2008 22:40	1.778	12.15	11/27/2008 8:20	2.119	32.51	11/27/2008 18:00	1.997	23.73	11/28/2008 3:40	1.834	14.65	
11/26/2008 3:25	1.65	7.51	11/26/2008 13:05	1.767	11.70	11/26/2008 22:45	1.775	12.03	11/27/2008 8:25	2.133	33.63	11/27/2008 18:05	1.997	23.73	11/28/2008 3:45	1.831	14.51	
11/26/2008 3:30	1.654	7.64	11/26/2008 13:10	1.764	11.57	11/26/2008 22:50	1.771	11.86	11/27/2008 8:30	2.133	33.63	11/27/2008 18:10	1.996	23.67	11/28/2008 3:50	1.829	14.41	
11/26/2008 3:35	1.654	7.64	11/26/2008 13:15	1.765	11.62	11/26/2008 22:55	1.769	11.78	11/27/2008 8:35	2.139	34.12	11/27/2008 18:15	1.996	23.67	11/28/2008 3:55	1.83	14.46	
11/26/2008 3:40	1.654	7.64	11/26/2008 13:20	1.762	11.49	11/26/2008 23:00	1.766	11.66	11/27/2008 8:40	2.146	34.70	11/27/2008 18:20	1.992	23.41	11/28/2008 4:00	1.826	14.27	
11/26/2008 3:45	1.655	7.67	11/26/2008 13:25	1.76	11.41	11/26/2008 23:05	1.768	11.74	11/27/2008 8:45	2.154	35.37	11/27/2008 18:25	1.988	23.15	11/28/2008 4:05	1.828	14.37	
11/26/2008 3:50	1.655	7.67	11/26/2008 13:30	1.758	11.33	11/26/2008 23:10	1.768	11.74	11/27/2008 8:50	2.15	35.03	11/27/2008 18:30	1.986	23.03	11/28/2008 4:10	1.825	14.23	
11/26/2008 3:55	1.655	7.67	11/26/2008 13:35	1.757	11.29	11/26/2008 23:15	1.779	12.19	11/27/2008 8:55	2.147	34.78	11/27/2008 18:35	1.98	22.65	11/28/2008 4:15	1.819	13.95	
11/26/2008 4:00	1.657	7.73	11/26/2008 13:40	1.756	11.25	11/26/2008 23:20	1.797	12.97	11/27/2008 9:00	2.165	36.30	11/27/2008 18:40	1.978	22.52	11/28/2008 4:20	1.82	14.00	
11/26/2008 4:05	1.662	7.89	11/26/2008 13:45	1.752	11.09	11/26/2008 23:25	1.823	14.13	11/27/2008 9:05	2.156	35.54	11/27/2008 18:45	1.977	22.46	11/28/2008 4:25	1.821	14.04	
11/26/2008 4:10	1.662	7.89	11/26/2008 13:50	1.751	11.05	11/26/2008 23:30	1.854	15.61	11/27/2008 9:10	2.15	35.03	11/27/2008 18:50	1.969	21.97	11/28/2008 4:30	1.821	14.04	
11/26/2008 4:15	1.664	7.95	11/26/2008 13:55	1.749	10.98	11/26/2008 23:35	1.866	16.21	11/27/2008 9:15	2.16	35.87	11/27/2008 18:55	1.965	21.72	11/28/2008 4:35	1.82	14.00	
11/26/2008 4:20	1.668	8.08	11/26/2008 14:00	1.744	10.78	11/26/2008 23:40	1.873	16.57	11/27/2008 9:20	2.159	35.79	11/27/2008 19:00	1.966	21.78	11/28/2008 4:40	1.815	13.77	
11/26/2008 4:25	1.67	8.14	11/26/2008 14:05	1.743	10.74	11/26/2008 23:45	1.874	16.62	11/27/2008 9:25	2.149	34.95	11/27/2008 19:05	1.958	21.30	11/28/2008 4:45	1.819	13.95	
11/26/2008 4:30	1.669	8.11	11/26/2008 14:10	1.742	10.70	11/26/2008 23:50	1.874	16.62	11/27/2008 9:30	2.134	33.71	11/27/2008 19:10	1.962	21.54	11/28/2008 4:50	1.818	13.90	
11/26/2008 4:35	1.666	8.02	11/26/2008 14:15	1.74	10.63	11/26/2008 23:55	1.877	16.77	11/27/2008 9:35	2.141	34.29	11/27/2008 19:15	1.961	21.48	11/28/2008 4:55	1.814	13.72	
11/26/2008 4:40	1.666	8.02	11/26/2008 14:20	1.739	10.59	11/27/2008 0:00	1.873	16.57	11/27/2008 9:40	2.137	33.96	11/27/2008 19:20	1.96	21.42	11/28/2008 5:00	1.818	13.90	

Table E-2
Flow meter and Sampler Data for
Sandia Creek Storm Event 3

Sandia Event 3 Flow Data			Sandia Event 3 Flow Data			Sandia Event 3 Flow Data			Sandia Event 3 Flow Data			Sandia Event 3 Flow Data			Sandia Event 3 Flow Data			Sandia Event 3 Sample Data
Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	Date/Time	Stage (ft)	Flow (cfs)	
11/26/2008 4:45	1.669	8.11	11/26/2008 14:25	1.738	10.55	11/27/2008 0:05	1.87	16.41	11/27/2008 9:45	2.129	33.31	11/27/2008 19:25	1.954	21.06	11/28/2008 5:05	1.815	13.77	
11/26/2008 4:50	1.667	8.05	11/26/2008 14:30	1.738	10.55	11/27/2008 0:10	1.87	16.41	11/27/2008 9:50	2.12	32.59	11/27/2008 19:30	1.948	20.70	11/28/2008 5:10	1.818	13.90	
11/26/2008 4:55	1.668	8.08	11/26/2008 14:35	1.734	10.40	11/27/2008 0:15	1.873	16.57	11/27/2008 9:55	2.126	33.07	11/27/2008 19:35	1.95	20.82	11/28/2008 5:15	1.813	13.68	
11/26/2008 5:00	1.667	8.05	11/26/2008 14:40	1.734	10.40	11/27/2008 0:20	1.872	16.52	11/27/2008 10:00	2.121	32.67	11/27/2008 19:40	1.944	20.46	11/28/2008 5:20	1.811	13.59	
11/26/2008 5:05	1.668	8.08	11/26/2008 14:45	1.732	10.32	11/27/2008 0:25	1.867	16.26	11/27/2008 10:05	2.112	31.95	11/27/2008 19:45	1.94	20.23	11/28/2008 5:25	1.812	13.63	
11/26/2008 5:10	1.668	8.08	11/26/2008 14:50	1.731	10.28	11/27/2008 0:30	1.873	16.57	11/27/2008 10:10	2.107	31.56	11/27/2008 19:50	1.937	20.06	11/28/2008 5:30	1.813	13.68	
11/26/2008 5:15	1.671	8.18	11/26/2008 14:55	1.731	10.28	11/27/2008 0:35	1.873	16.57	11/27/2008 10:15	2.092	30.41	11/27/2008 19:55	1.936	20.00	11/28/2008 5:35	1.811	13.59	
11/26/2008 5:20	1.675	8.31	11/26/2008 15:00	1.728	10.17	11/27/2008 0:40	1.875	16.67	11/27/2008 10:20	2.087	30.03	11/27/2008 20:00	1.934	19.88	11/28/2008 5:40	1.809	13.50	
11/26/2008 5:25	1.679	8.44	11/26/2008 15:05	1.726	10.10	11/27/2008 0:45	1.875	16.67	11/27/2008 10:25	2.093	30.48	11/27/2008 20:05	1.934	19.88	11/28/2008 5:45	1.81	13.54	
11/26/2008 5:30	1.687	8.71	11/26/2008 15:10	1.726	10.10	11/27/2008 0:50	1.885	17.19	11/27/2008 10:30	2.087	30.03	11/27/2008 20:10	1.93	19.65	11/28/2008 5:50	1.812	13.63	
11/26/2008 5:35	1.696	9.02	11/26/2008 15:15	1.724	10.02	11/27/2008 0:55	1.886	17.24	11/27/2008 10:35	2.081	29.58	11/27/2008 20:15	1.926	19.43	11/28/2008 5:55	1.807	13.41	
11/26/2008 5:40	1.707	9.40	11/26/2008 15:20	1.723	9.98	11/27/2008 1:00	1.895	17.72	11/27/2008 10:40	2.08	29.50	11/27/2008 20:20	1.932	19.77	11/28/2008 6:00	1.813	13.68	
11/26/2008 5:45	1.719	9.84	11/26/2008 15:25	1.722	9.95	11/27/2008 1:05	1.898	17.88	11/27/2008 10:45	2.075	29.13	11/27/2008 20:25	1.929	19.60	11/28/2008 6:05	1.811	13.59	
11/26/2008 5:50	1.732	10.32	11/26/2008 15:30	1.719	9.84	11/27/2008 1:10	1.904	18.20	11/27/2008 10:50	2.081	29.58	11/27/2008 20:30	1.926	19.43	11/28/2008 6:10	1.807	13.41	
11/26/2008 5:55	1.752	11.09	11/26/2008 15:35	1.718	9.80	11/27/2008 1:15	1.906	18.31	11/27/2008 10:55	2.073	28.98	11/27/2008 20:35	1.922	19.20	11/28/2008 6:15	1.808	13.45	
11/26/2008 6:00	1.756	11.25	11/26/2008 15:40	1.716	9.73	11/27/2008 1:20	1.913	18.70	11/27/2008 11:00	2.071	28.84	11/27/2008 20:40	1.922	19.20	11/28/2008 6:20	1.806	13.36	
11/26/2008 6:05	1.762	11.49	11/26/2008 15:45	1.714	9.66	11/27/2008 1:25	1.923	19.26	11/27/2008 11:05	2.079	29.43	11/27/2008 20:45	1.921	19.14	11/28/2008 6:25	1.807	13.41	
11/26/2008 6:10	1.769	11.78	11/26/2008 15:50	1.713	9.62	11/27/2008 1:30	1.927	19.48	11/27/2008 11:10	2.075	29.13	11/27/2008 20:50	1.917	18.92	11/28/2008 6:30	1.808	13.45	
11/26/2008 6:15	1.766	11.66	11/26/2008 15:55	1.712	9.58	11/27/2008 1:35	1.929	19.60	11/27/2008 11:15	2.089	30.18	11/27/2008 20:55	1.923	19.26	11/28/2008 6:35	1.808	13.45	
11/26/2008 6:20	1.768	11.74	11/26/2008 16:00	1.712	9.58	11/27/2008 1:40	1.925	19.37	11/27/2008 11:20	2.083	29.73	11/27/2008 21:00	1.921	19.14	11/28/2008 6:40	1.805	13.32	
11/26/2008 6:25	1.77	11.82	11/26/2008 16:05	1.71	9.51	11/27/2008 1:45	1.925	19.37	11/27/2008 11:25	2.092	30.41	11/27/2008 21:05	1.915	18.81	11/28/2008 6:45	1.807	13.41	
11/26/2008 6:30	1.771	11.86	11/26/2008 16:10	1.71	9.51	11/27/2008 1:50	1.916	18.86	11/27/2008 11:30	2.09	30.25	11/27/2008 21:10	1.908	18.42	11/28/2008 6:50	1.806	13.36	
11/26/2008 6:35	1.782	12.32	11/26/2008 16:15	1.707	9.40	11/27/2008 1:55	1.922	19.20	11/27/2008 11:35	2.103	31.25	11/27/2008 21:15	1.91	18.53	11/28/2008 6:55	1.803	13.23	
11/26/2008 6:40	1.788	12.58	11/26/2008 16:20	1.705	9.33	11/27/2008 2:00	1.92	19.09	11/27/2008 11:40	2.124	32.91	11/27/2008 21:20	1.911	18.59	11/28/2008 7:00	1.803	13.23	
11/26/2008 6:45	1.793	12.79	11/26/2008 16:25	1.705	9.33	11/27/2008 2:05	1.93	19.65	11/27/2008 11:45	2.118	32.43	11/27/2008 21:25	1.908	18.42	11/28/2008 7:05	1.803	13.23	
11/26/2008 6:50	1.808	13.45	11/26/2008 16:30	1.706	9.37	11/27/2008 2:10	1.926	19.43	11/27/2008 11:50	2.123	32.83	11/27/2008 21:30	1.904	18.20	11/28/2008 7:10	1.803	13.23	
11/26/2008 6:55	1.813	13.68	11/26/2008 16:35	1.703	9.26	11/27/2008 2:15	1.92	19.09	11/27/2008 11:55	2.127	33.15	11/27/2008 21:35	1.908	18.42	11/28/2008 7:15	1.805	13.32	
11/26/2008 7:00	1.821	14.04	11/26/2008 16:40	1.703	9.26	11/27/2008 2:20	1.922	19.20	11/27/2008 12:00	2.13	33.39	11/27/2008 21:40	1.905	18.26	11/28/2008 7:20	1.803	13.23	
11/26/2008 7:05	1.832	14.55	11/26/2008 16:45	1.702	9.23	11/27/2008 2:25	1.916	18.86	11/27/2008 12:05	2.12	32.59	11/27/2008 21:45	1.901	18.04	11/28/2008 7:25	1.801	13.14	
11/26/2008 7:10	1.843	15.08	11/26/2008 16:50	1.701	9.19	11/27/2008 2:30	1.917	18.92	11/27/2008 12:10	2.127	33.15	11/27/2008 21:50	1.905	18.26				
11/26/2008 7:15	1.857	15.76	11/26/2008 16:55	1.701	9.19	11/27/2008 2:35	1.911	18.59	11/27/2008 12:15	2.118	32.43	11/27/2008 21:55	1.895	17.72				
11/26/2008 7:20	1.867	16.26	11/26/2008 17:00	1.698	9.09	11/27/2008 2:40	1.914	18.75	11/27/2008 12:20	2.125	32.99	11/27/2008 22:00	1.9	17.99				
11/26/2008 7:25	1.877	16.77	11/26/2008 17:05	1.699	9.12	11/27/2008 2:45	1.91	18.53	11/27/2008 12:25	2.125	32.99	11/27/2008 22:05	1.905	18.26				
11/26/2008 7:30	1.882	17.03	11/26/2008 17:10	1.698	9.09	11/27/2008 2:50	1.904	18.20	11/27/2008 12:30	2.131	33.47	11/27/2008 22:10	1.897	17.83				
11/26/2008 7:35	1.882	17.03	11/26/2008 17:15	1.697	9.05	11/27/2008 2:55	1.903	18.15	11/27/2008 12:35	2.133	33.63	11/27/2008 22:15	1.895	17.72				
11/26/2008 7:40	1.881	16.98	11/26/2008 17:20	1.697	9.05	11/27/2008 3:00	1.901	18.04	11/27/2008 12:40	2.14	34.20	11/27/2008 22:20	1.891	17.50				
11/26/2008 7:45	1.889	17.40	11/26/2008 17:25	1.696	9.02	11/27/2008 3:05	1.893	17.61	11/27/2008 12:45	2.147	34.78	11/27/2008 22:25	1.895	17.72				
11/26/2008 7:50	1.9	17.99	11/26/2008 17:30	1.694	8.95	11/27/2008 3:10	1.901	18.04	11/27/2008 12:50	2.151	35.12	11/27/2008 22:30	1.887	17.29				
11/26/2008 7:55	1.899	17.93	11/26/2008 17:35	1.694	8.95	11/27/2008 3:15	1.896	17.77	11/27/2008 12:55	2.168	36.56	11/27/2008 22:35	1.888	17.35				
11/26/2008 8:00	1.902	18.09	11/26/2008 17:40	1.693	8.91	11/27/2008 3:20	1.898	17.88	11/27/2008 13:00	2.171	36.82	11/27/2008 22:40	1.887	17.29				
11/26/2008 8:05	1.905	18.26	11/26/2008 17:45	1.692	8.88	11/27/2008 3:25	1.895	17.72	11/27/2008 13:05	2.182	37.77	11/27/2008 22:45	1.881	16.98				
11/26/2008 8:10	1.9	17.99	11/26/2008 17:50	1.69	8.81	11/27/2008 3:30	1.896	17.77	11/27/2008 13:10	2.184	37.95	11/27/2008 22:50	1.883	17.08				
11/26/2008 8:15	1.9	17.99	11/26/2008 17:55	1.688	8.74	11/27/2008 3:35	1.894	17.66	11/27/2008 13:15	2.199	39.29	11/27/2008 22:55	1.88	16.93				
11/26/2008 8:20	1.898	17.88	11/26/2008 18:00	1.688	8.74	11/27/2008 3:40	1.896	17.77	11/27/2008 13:20	2.196	39.02	11/27/2008 23:00	1.881	16.98				
11/26/2008 8:25	1.918	18.97	11/26/2008 18:05	1.688	8.74	11/27/2008 3:45	1.901	18.04	11/27/2008 13:25	2.202	39.56	11/27/2008 23:05	1.879	16.88				
11/26/2008 8:30	1.913	18.70	11/26/2008 18:10	1.691	8.85	11/27/2008 3:50	1.895	17.72	11/27/2008 13:30	2.209	40.19	11/27/2008 23:10	1.876	16.72				
11/26/2008 8:35	1.914	18.75	11/26/2008 18:15	1.694	8.95	11/27/2008 3:55	1.894	17.66	11/27/2008 13:35	2.207	40.01	11/27/2008 23:15	1.878	16.82				
11/26/2008 8:40	1.908	18.42	11/26/2008 18:20	1.695	8.98	11/27/2008 4:00	1.895	17.72	11/27/2008 13:40	2.208	40.10	11/27/2008 23:20	1.875	16.67				
11/26/2008 8:45	1.91	18.53	11/26/2008 18:25	1.696	9.02	11/27/2008 4:05	1.897	17.83	11/27/2008 13:45	2.206	39.92	11/27/2008 23:25	1.872	16.52				
11/26/2008 8:50	1.909	18.48	11/26/2008 18:30	1.695	8.98	11/27/2008 4:10	1.899	17.93	11/27/2008 13:50	2.203	39.65	11/27/2008 23:30	1.867	16.26				
11/26/2008 8:55	1.907	18.37	11/26/2008 18:35	1.696	9.02	11/27/2008 4:15	1.893	17.61	11/27/2008 13:55	2.208	40.10	11/27/2008 23:35	1.869	16.36				
11/26/2008 9:00	1.903	18.15	11/26/2008 18:40	1.693	8.91	11/27/2008 4:20	1.895	17.72	11/27/2008 14:00	2.219	41.12	11/27/2008 23:40	1.873	16.57				
11/26/2008 9:05	1.901	18.04	11/26/2008 18:45	1.692	8.88	11/27/2008 4:25	1.889	17.40	11/27/2008 14:05	2.218	41.02	11/27/2008 23:45	1.869	16.36				
11/26/2008 9:10	1.896	17.77	11/26/2008 18:50	1.695	8.98	11/27/2008 4:30	1.896	17.77	11/27/2008 14:10	2.212	40.47	11/27/2008 23:50	1.868	16.31				
11/26/2008 9:15	1.895	17.72	11/26/2008 18:55	1.699	9.12	11/27/2008 4:35	1.904	18.20	11/27/2008 14:15	2.225	41.68	11/27/2008 23:55	1.863	16.06				
11/26/2008 9:20	1.898	17.88	11/26/2008 19:00	1.701	9.19	11/27/2008 4:40	1.898	17.88	11/27/2008 14:20	2.224	41.58	11/28/2008 0:00	1.869	16.36				
11/26/2008 9:25	1.89	17.45	11/26/2008 19:05	1.703	9.26	11/27/2008 4:45	1.904	18.20	11/27/2008 14:25	2.222	41.40	11/28/2008 0:05	1.862	16.01				
11/26/2008 9:30	1.884	17.14	11/26/2008 19:10	1.708	9.44	11/27/2008 4:50	1.903	18.15	11/27/2008 14:30	2.218	41.02	11/28/2008 0:10	1.862	16.01				
11/26/2008 9:35	1.873	16.57	11/26/2008 19:15	1.713	9.62	11/27/2008 4:55	1.903	18.15	11/27/2008 14:35	2.214	40.65	11/28/2008 0:15	1.859	15.86				

Table E-3
Flow Meter and Sampler Data
for Santa Margarita River
Storm Event 1

Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Sample Data
Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	
1/26/08 0:00	1.802	50	1/26/08 9:40	1.661	28	1/26/08 19:20	1.548	9	1/27/08 5:10	5.197	1476	1/27/08 15:00	3.882	746	1/28/08 0:50	5.218	1488	1/28/08 10:40	5.907	1960	1/28/08 20:40	3.461	560	1/29/08 6:30	2.387	192	1/27/08 4:18
1/26/08 0:05	1.802	50	1/26/08 9:45	1.665	28.8	1/26/08 19:25	1.553	9.6	1/27/08 5:15	5.244	1506	1/27/08 15:05	3.865	738	1/28/08 0:55	5.181	1466	1/28/08 10:45	5.875	1940	1/28/08 20:45	3.449	556	1/29/08 6:35	2.385	190	1/27/08 4:40
1/26/08 0:10	1.811	60	1/26/08 9:50	1.66	28	1/26/08 19:30	1.553	9.6	1/27/08 5:20	5.271	1520	1/27/08 15:10	3.845	730	1/28/08 1:00	5.155	1448	1/28/08 10:50	5.882	1948	1/28/08 20:50	3.435	550	1/29/08 6:40	2.376	190	1/27/08 4:58
1/26/08 0:15	1.803	52	1/26/08 9:55	1.663	28.4	1/26/08 19:35	1.551	9.4	1/27/08 5:25	5.288	1530	1/27/08 15:15	3.82	720	1/28/08 1:05	5.126	1430	1/28/08 10:55	5.856	1926	1/28/08 20:55	3.424	546	1/29/08 6:45	2.367	188	1/27/08 5:15
1/26/08 0:20	1.8	50	1/26/08 10:00	1.663	28.4	1/26/08 19:40	1.556	10	1/27/08 5:30	5.303	1544	1/27/08 15:20	3.814	714	1/28/08 1:10	5.109	1418	1/28/08 11:00	5.834	1914	1/28/08 21:00	3.399	532	1/29/08 6:50	2.355	180	1/27/08 5:30
1/26/08 0:25	1.8	50	1/26/08 10:05	1.656	27.2	1/26/08 19:45	1.553	10	1/27/08 5:35	5.317	1552	1/27/08 15:25	3.798	706	1/28/08 1:15	5.092	1408	1/28/08 11:05	5.829	1908	1/28/08 21:05	3.393	530	1/29/08 6:55	2.358	182	1/27/08 5:46
1/26/08 0:30	1.797	50	1/26/08 10:10	1.657	27.6	1/26/08 19:50	1.549	9	1/27/08 5:40	5.336	1566	1/27/08 15:30	3.779	698	1/28/08 1:20	5.065	1390	1/28/08 11:10	5.802	1890	1/28/08 21:10	3.384	530	1/29/08 7:00	2.353	180	1/27/08 6:01
1/26/08 0:35	1.804	50	1/26/08 10:15	1.659	28	1/26/08 19:55	1.551	9.4	1/27/08 5:45	5.343	1574	1/27/08 15:35	3.755	690	1/28/08 1:25	5.052	1382	1/28/08 11:15	5.782	1874	1/28/08 21:15	3.366	522	1/29/08 7:05	2.348	180	1/27/08 6:16
1/26/08 0:40	1.802	50	1/26/08 10:20	1.659	28	1/26/08 20:00	1.55	9	1/27/08 5:50	5.359	1582	1/27/08 15:40	3.734	676	1/28/08 1:30	5.037	1374	1/28/08 11:20	5.736	1842	1/28/08 21:20	3.351	514	1/29/08 7:10	2.337	180	1/27/08 6:30
1/26/08 0:45	1.795	50	1/26/08 10:25	1.654	26.8	1/26/08 20:05	1.551	9.2	1/27/08 5:55	5.366	1584	1/27/08 15:45	3.709	668	1/28/08 1:35	5.023	1370	1/28/08 11:25	5.72	1828	1/28/08 21:25	3.337	508	1/29/08 7:15	2.333	180	1/27/08 6:44
1/26/08 0:50	1.792	50	1/26/08 10:30	1.654	26.8	1/26/08 20:10	1.553	9.8	1/27/08 6:00	5.377	1590	1/27/08 15:50	3.694	660	1/28/08 1:40	5.02	1362	1/28/08 11:30	5.696	1812	1/28/08 21:30	3.324	500	1/29/08 7:20	2.334	180	1/27/08 6:58
1/26/08 0:55	1.79	50	1/26/08 10:35	1.657	27.6	1/26/08 20:15	1.55	9	1/27/08 6:05	5.408	1612	1/27/08 15:55	3.676	652	1/28/08 1:45	5.022	1366	1/28/08 11:35	5.663	1790	1/28/08 21:35	3.313	500	1/29/08 7:25	2.327	180	1/27/08 7:11
1/26/08 1:00	1.787	50	1/26/08 10:40	1.648	25.6	1/26/08 20:20	1.55	9	1/27/08 6:10	5.448	1638	1/27/08 16:00	3.657	642	1/28/08 1:50	5.018	1364	1/28/08 11:40	5.638	1772	1/28/08 21:40	3.304	500	1/29/08 7:30	2.318	170	1/27/08 7:24
1/26/08 1:05	1.795	50	1/26/08 10:45	1.648	25.6	1/26/08 20:25	1.55	9	1/27/08 6:15	5.454	1644	1/27/08 16:05	3.644	636	1/28/08 1:55	5.013	1364	1/28/08 11:45	5.619	1756	1/28/08 21:45	3.297	492	1/29/08 7:35	2.308	170	1/27/08 7:36
1/26/08 1:10	1.783	50	1/26/08 10:50	1.647	25.6	1/26/08 20:30	1.552	9.4	1/27/08 6:20	5.465	1656	1/27/08 16:10	3.625	630	1/28/08 2:00	5.005	1356	1/28/08 11:50	5.585	1734	1/28/08 21:50	3.28	490	1/29/08 7:40	2.307	170	1/27/08 7:48
1/26/08 1:15	1.788	50	1/26/08 10:55	1.645	25.2	1/26/08 20:35	1.55	9	1/27/08 6:25	5.479	1664	1/27/08 16:15	3.61	624	1/28/08 2:05	4.994	1348	1/28/08 11:55	5.564	1722	1/28/08 21:55	3.263	482	1/29/08 7:45	2.302	170	1/27/08 8:00
1/26/08 1:20	1.787	50	1/26/08 11:00	1.648	26	1/26/08 20:40	1.55	9	1/27/08 6:30	5.503	1680	1/27/08 16:20	3.583	610	1/28/08 2:10	4.97	1334	1/28/08 12:00	5.544	1708	1/28/08 22:00	3.253	480	1/29/08 7:50	2.3	170	1/27/08 8:12
1/26/08 1:25	1.787	50	1/26/08 11:05	1.646	25.6	1/26/08 20:45	1.551	9.2	1/27/08 6:35	5.526	1690	1/27/08 16:25	3.563	602	1/28/08 2:15	4.962	1330	1/28/08 12:05	5.522	1694	1/28/08 22:05	3.237	470	1/29/08 7:55	2.293	170	1/27/08 8:24
1/26/08 1:30	1.785	50	1/26/08 11:10	1.645	25.2	1/26/08 20:50	1.55	9	1/27/08 6:40	5.542	1702	1/27/08 16:30	3.548	598	1/28/08 2:20	4.939	1312	1/28/08 12:10	5.49	1666	1/28/08 22:10	3.231	466	1/29/08 8:00	2.294	170	1/27/08 8:36
1/26/08 1:35	1.779	50	1/26/08 11:15	1.653	26.6	1/26/08 20:55	1.55	9	1/27/08 6:45	5.567	1720	1/27/08 16:35	3.538	592	1/28/08 2:25	4.925	1306	1/28/08 12:15	5.464	1652	1/28/08 22:15	3.216	460	1/29/08 8:05	2.294	170	1/27/08 8:48
1/26/08 1:40	1.779	50	1/26/08 11:20	1.639	24	1/26/08 21:00	1.55	9	1/27/08 6:50	5.572	1724	1/27/08 16:40	3.543	590	1/28/08 2:30	4.915	1300	1/28/08 12:20	4.07	0	1/28/08 22:20	3.206	458	1/29/08 8:10	2.29	166	1/27/08 9:00
1/26/08 1:45	1.776	50	1/26/08 11:25	1.636	23.6	1/26/08 21:05	1.549	9	1/27/08 6:55	5.602	1750	1/27/08 16:45	3.541	590	1/28/08 2:35	4.898	1288	1/28/08 12:25	5.394	0	1/28/08 22:25	3.192	450	1/29/08 8:15	2.282	160	1/27/08 9:13
1/26/08 1:50	1.777	50	1/26/08 11:30	1.638	24	1/26/08 21:10	1.55	9	1/27/08 7:00	5.638	1770	1/27/08 16:50	3.549	598	1/28/08 2:40	4.888	1280	1/28/08 12:30	5.355	0	1/28/08 22:30	3.181	450	1/29/08 8:20	2.271	160	1/27/08 9:26
1/26/08 1:55	1.774	50	1/26/08 11:35	1.637	24	1/26/08 21:15	1.553	9.6	1/27/08 7:05	5.67	1792	1/27/08 16:55	3.552	600	1/28/08 2:45	4.862	1270	1/28/08 12:35	5.337	0	1/28/08 22:35	3.166	444	1/29/08 8:25	2.273	160	1/27/08 9:39
1/26/08 2:00	1.772	50	1/26/08 11:40	1.639	24.6	1/26/08 21:20	1.549	9	1/27/08 7:10	5.724	1834	1/27/08 17:00	3.567	604	1/28/08 2:50	4.843	1260	1/28/08 12:40	5.29	0	1/28/08 22:40	3.149	440	1/29/08 8:30	2.272	160	1/27/08 9:53
1/26/08 2:05	1.771	50	1/26/08 11:45	1.637	24.2	1/26/08 21:25	1.546	8.8	1/27/08 7:15	5.75	1848	1/27/08 17:05	3.595	618	1/28/08 2:55	4.84	1254	1/28/08 12:50	5.214	0	1/28/08 22:45	3.145	438	1/29/08 8:35	2.267	160	1/27/08 10:07
1/26/08 2:10	1.771	50	1/26/08 11:50	1.643	25	1/26/08 21:30	1.547	8.6	1/27/08 7:20	5.782	1874	1/27/08 17:10	3.635	634	1/28/08 3:00	4.827	1246	1/28/08 12:55	5.191	0	1/28/08 22:50	3.13	430	1/29/08 8:40	2.258	160	1/27/08 10:22
1/26/08 2:15	1.771	50	1/26/08 11:55	1.641	24.6	1/26/08 21:35	1.549	9	1/27/08 7:25	5.842	1918	1/27/08 17:15	3.673	650	1/28/08 3:05	4.82	1240	1/28/08 13:05	4.082	0	1/28/08 22:55	3.123	430	1/29/08 8:45	2.251	160	1/27/08 10:38
1/26/08 2:20	1.766	50	1/26/08 12:00	1.639	24.2	1/26/08 21:40	1.551	9	1/27/08 7:30	5.866	1932	1/27/08 17:20	3.708	666	1/28/08 3:10	4.806	1232	1/28/08 13:10	5.087	840	1/28/08 23:00	3.119	428	1/29/08 8:50	2.253	160	1/27/08 10:55
1/26/08 2:25	1.762	50	1/26/08 12:05	1.633	23	1/26/08 21:45	1.547	9	1/27/08 7:35	5.906	1962	1/27/08 17:25	3.747	684	1/28/08 3:15	4.797	1230	1/28/08 13:15	5.056	1386	1/28/08 23:05	3.106	420	1/29/08 8:55	2.244	152	1/27/08 11:13
1/26/08 2:30	1.762	50	1/26/08 12:10	1.632	23	1/26/08 21:50	1.548	9	1/27/08 7:40	5.927	1980	1/27/08 17:30	3.78	700	1/28/08 3:20	4.78	1220	1/28/08 13:20	5.033	1370	1/28/08 23:10	3.088	414	1/29/08 9:00	2.247	156	1/27/08 11:32
1/26/08 2:35	1.757	50	1/26/08 12:15	1.631	23	1/26/08 21:55	1.551	9	1/27/08 7:45	5.936	1986	1/27/08 17:35	3.815	716	1/28/08 3:25	4.762	1210	1/28/08 13:25	5.021	1360	1/28/08 23:15	3.08	412	1/29/08 9:05	2.233	150	1/27/08 11:52
1/26/08 2:40	1.762	50	1/26/08 12:20	1.63	23	1/26/08 22:00	1.549	9	1/27/08 7:50	5.971	2012	1/27/08 17:40	3.868	738	1/28/08 3:30	4.738	1200	1/28/08 13:30	4.993	1348	1/28/08 23:20	3.066	410	1/29/08 9:10	2.233	150	1/27/08 12:13
1/26/08 2:45	1.762	50	1/26/08 12:25	1.623	21.4	1/26/08 22:05	1.55	9	1/27/08 7:55	5.946	1994	1/27/08 17:45	3.913	762	1/28/08 3:35	4.725	1190	1/28/08 13:35	4.979	1336	1/28/08 23:25	3.066	408	1/29/08 9:15	2.229	150	1/27/08 12:35
1/26/08 2:50	1.762	50	1/26/08 12:30	1.622	21.4	1/26/08 22:10	1.55	9	1/27/08 8:00	5.971	2014	1/27/08 17:50	4.019	810	1/28/08 3:40	4.712	1180	1/28/08 13:40	4.961	1326	1/28/08 23:30	3.048	400	1/29/08 9:20	2.224	150	1/27/08 12:58
1/26/08 2:55	1.762	50	1/26/08 12:35	1.624	22	1/26/08 22:15	1.549	9	1/27/08 8:05	5.959	2004	1/27/08 17:55	4.184	894	1/28/08 3:45	4.686	1166	1/28/08 13:45	4.943	1320	1/28/08 23:35	3.036	400	1/29/08 9:25	2.224	150	1/27/08 13:23
1/26/08 3:00	1.762	50	1/26/08 12:40	1.623	21.4	1/26/08 22:20	1.551	9	1/27/08 8:10	5.974	2014	1/27/08 18:00	4.383	996	1/28/08 3:50	4.671	1160	1/28/08 13:50	4.928	1308	1/28/08 23:40	3.033	398	1/29/08 9:30	2.215	150	1/27/08 13:49
1/26/08 3:05	1.754	50	1/26/08 12:45	1.619	21	1/26/08 22:25	1.548	9	1/27/08 8:15	5.967	2010	1/27/08 18:05	4.623	1128	1/28/08 3:55	4.664	1154	1/28/08 13:55	4.916	1302	1/28/08 23:45	3.029	390	1/29/08 9:35	2.201	142	1/27/08 14:17
1/26/08 3:10	1.761	50	1/26/08 12:50	1.619	21	1/26/08 22:30	1.551	9	1/27/08 8:20	5.956	2000	1/27/08 18:10	4.83	1248	1/28/08 4:00	4.655	1150	1/28/08 14:00	4.898	1290	1/28/08 23:50	3.003	386	1/29/08 9:40	2.191	140	1/27/08 14:47
1/26/08 3:15	1.749	44	1/26/08 12:55	1.613	19.8	1/26/08 22:35	1.552	9	1/27/08 8:25	5.962	2002	1/27/08 18:15	5.03	1374	1/28/08 4:05	4.655	1150	1/28/08 14:05	4.882	1284	1/28/08 23:55	2.994	380	1/29/08 9:45	2.177	136	1/27/08 15:20
1/26/08 3:20	1.752	48	1/26/08 13:00	1.613	19.8	1/26/08 22:40	1.551	9	1/27/08 8:30	5.971	2012	1/27/08 18:20	5.244	1504	1/28/08 4:10	4.666	1156	1/28/08 14:10	4.849	1262	1/29/08 0:00	2.987	380				1/27/08 15:55
1/26/08 3:25	1.746	40	1/26/08 13:05	1.612	19.8	1/26/08 22:45	1.551	9	1/27/08 8:35	5.936	1986	1/27/08 18:25	5.407	1612	1/28/08 4:15	4.678	1160	1/28/08 14:15	4.836	1250	1/29/08 0:05	2.976	374				1/27/08 16:34
1/26/08 3:30	1.748	46	1/26/08 13:10	1.609	19	1/26/08 22:50	1.552	9	1/27/08 8:40	5.969	2012	1/27/08 18:30	5.602	1742	1/28/08 4:20	4.68	1160	1/28/08 14:20	4.819	1246	1/29/08 0:10	2.974	374				1/27/08 17:14
1/26/08 3:35	1.743	40	1/26/08 13:15	1.611	19.6	1/26/08 22:55	1.552	9.2	1/27/08 8:45	5.934	1984	1/27/08 18:35	5.731	1834	1/28/08 4:25	4.682	1160	1/28/08 14:25	4.806	1238	1/29/08 0:15	2.961	370				1/27/08 17:47
1/26/08 3:40	1.745	40	1/26/08 13:20	1.61	19.6	1/26/08 23:00	1.551	9.8	1/27/08 8:50	5.931	1982	1/27/08 18:40	5.867	1932	1/28/08 4:30	4.676	1158	1/28/08 14:30	4.795	1230	1/29/08 0:20	2.947	362				1/27/08 18:11
1/26/08 3:45	1.739	40	1/26/08 13:25	1.608	19.2	1/26/08 23:05	1.551	9.8	1/27/08 8:55	5.92	1974	1/27/08 18:45	5.936	1986	1/28/08 4:35	4.661	1150	1/28/08 14:35	4.765	1212	1/29/08 0:25	2.943	360				1/27/08 18:26
1/26/08 3:50	1.744	40	1/26/08 13:30	1.607	19	1/26/08 23:10	1.551	9.8	1/27/08 9:00	5.899	1956	1/27/08 18:50	6.012	2044	1/28/08 4:40	4.65	1146	1/28/08 14:40	4.733	1192	1/29/08 0:30	2.919	358				1/27/08 18:40
1/26/08 3:55	1.739	40	1/26/08 13:35	1.607	19	1/26/08 23:15	1.552	10	1/27/08 9:05	5.881	1942	1/27/08 18:55	6.049	2072	1/28/08 4:45	4.64	1140	1/28/08 14:45	4.726	1186	1/29/08 0:35	2.913	352				1/27/08 18:51
1/26/08 4:00	1.74	40	1/26/08 13:40	1.607	19	1/26/08 23:20	1.552	10	1/27/08 9:10	5.856	1924	1/27/08 19:00	6.069	2082	1/28/08 4:50	4.629	1136	1/28/08 14:50	4.7	1176	1/29/08 0:40	2.903	350				1/27/08 19:03
1/26/08 4:05	1.738	40	1/26/08 13:45	1.602	17.8	1/26/08 23:25	1.551	9.8	1/27/08 9:15	5.824	1902	1/27/08 19:05	6.098	2108	1/28/08 4:55	4.614	1126	1/28/08 14:55	4.674	1160	1/29/08 0:45	2.898	350				1/27/08 19:14
1/26/08 4:10	1.731	39.6	1/26/08 13:50	1.602	17.8	1/26/08 23:30	1.55	9.6	1/27/08 9:20	5.79	1880	1/27/08 19:10	6.123	2126	1/28/08 5:00	4.598	1114	1/28/08 15:00	4.661	1150	1/29/08 0:50	2.89	344				1/27/08 19:26
1/26/08 4:15	1.732	40	1/26/08 13:55	1.6	17.4	1/26/08 23:35	1.551	9.8	1/27/08 9:25	5.755	1852	1/27/08 19:15	6.135	2138	1/28/08 5:05	4.593	1110	1/28/08 15:05	4.632	1134	1/29/08 0:55	2.875	340				1/27/08 19:37
1/26/08 4:20	1.734	40.4	1/26/08 14:00	1.598	17	1/26/08 23:40	1.552	10	1/27/08 9:30	5.71	1822	1/27/08 19:20	6.088	2102	1/28/08 5:10	4.586	1108	1/28/08 15:10	4.624	1130	1/29/08 1:00	2.871	340				1/27/08 19:49
1/26/08 4:25	1.736	40.2	1/26/08 14:05	1.594	16.6	1/26/08 23:45	1.551	9.8	1/27/08 9:35	5.681	1798	1/27/08 19:25	6.076	2092	1/28/08 5:15	4.577	1100	1/28/08 15:15	4.598	1116	1/29/08 1:05	2.858	334				1/27/08 20:02
1/26/08 4:30	1.729	41	1/26/08 14:10	1.596	16.6	1/26/08 23:50	1.552	10	1/27/08 9:40	5.642	1772	1/27/08 19:30	6.06	2080	1/28/08 5:20	4.563	1096	1/28/08 15:20	4.594	1110	1/29/08 1:10	2.846	330				1/27/08 20:15

Table E-3
Flow Meter and Sampler Data
for Santa Margarita River
Storm Event 1

Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Flow Data			Santa Margarita Event 1 Sample Data
Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	Date/Time	Stage (ft)	Flow(cfs)	
1/26/08 4:35	1.735	40.4	1/26/08 14:15	1.592	16	1/26/08 23:55	1.552	10	1/27/08 9:45	5.62	1760	1/27/08 19:35	6.03	2060	1/28/08 5:25	4.551	1090	1/28/08 15:25	4.567	1096	1/29/08 1:15	2.848	330				1/27/08 20:27
1/26/08 4:40	1.728	40.6	1/26/08 14:20	1.586	15.2	1/27/08 0:00	1.56	11	1/27/08 9:50	5.579	1730	1/27/08 19:40	5.978	2018	1/28/08 5:30	4.528	1074	1/28/08 15:30	4.549	1088	1/29/08 1:20	2.823	320				1/27/08 20:40
1/26/08 4:45	1.721	39	1/26/08 14:25	1.591	16	1/27/08 0:05	1.56	11	1/27/08 9:55	5.542	1702	1/27/08 19:45	5.93	1982	1/28/08 5:35	4.514	1066	1/28/08 15:35	4.526	1074	1/29/08 1:25	2.821	320				1/27/08 20:52
1/26/08 4:50	1.721	39	1/26/08 14:30	1.589	16	1/27/08 0:10	1.56	11	1/27/08 10:00	5.501	1674	1/27/08 19:50	5.875	1940	1/28/08 5:40	4.51	1064	1/28/08 15:40	4.497	1060	1/29/08 1:30	2.812	320				1/27/08 21:03
1/26/08 4:55	1.721	39	1/26/08 14:35	1.589	16	1/27/08 0:15	1.568	12	1/27/08 10:05	5.462	1652	1/27/08 19:55	5.86	1928	1/28/08 5:45	4.478	1050	1/28/08 15:45	4.484	1052	1/29/08 1:35	2.805	320				1/27/08 21:13
1/26/08 5:00	1.72	39	1/26/08 14:40	1.589	16	1/27/08 0:20	1.562	11.2	1/27/08 10:10	5.412	1618	1/27/08 20:00	5.846	1918	1/28/08 5:50	4.463	1040	1/28/08 15:50	4.465	1044	1/29/08 1:40	2.788	312				1/27/08 21:23
1/26/08 5:05	1.718	38.4	1/26/08 14:45	1.585	15.2	1/27/08 0:25	1.568	12	1/27/08 10:15	5.374	1590	1/27/08 20:05	5.814	1894	1/28/08 5:55	4.443	1030	1/28/08 15:55	4.444	1030	1/29/08 1:45	2.783	310				1/27/08 21:33
1/26/08 5:10	1.718	38.4	1/26/08 14:50	1.587	15.6	1/27/08 0:30	1.568	12	1/27/08 10:20	5.334	1568	1/27/08 20:10	5.809	1892	1/28/08 6:00	4.428	1020	1/28/08 16:00	4.429	1024	1/29/08 1:50	2.774	310				1/27/08 21:42
1/26/08 5:15	1.715	37.6	1/26/08 14:55	1.589	16	1/27/08 0:35	1.568	12	1/27/08 10:25	5.297	1540	1/27/08 20:15	5.805	1886	1/28/08 6:05	4.42	1018	1/28/08 16:05	4.407	1010	1/29/08 1:55	2.769	310				1/27/08 21:52
1/26/08 5:20	1.715	37.6	1/26/08 15:00	1.589	16	1/27/08 0:40	1.568	12	1/27/08 10:30	5.279	1528	1/27/08 20:20	5.815	1894	1/28/08 6:10	4.406	1010	1/28/08 16:10	4.393	1006	1/29/08 2:00	2.76	300				1/27/08 22:01
1/26/08 5:25	1.713	37	1/26/08 15:05	1.59	16	1/27/08 0:45	1.568	12	1/27/08 10:35	5.229	1492	1/27/08 20:25	5.812	1896	1/28/08 6:15	4.386	1000	1/28/08 16:15	4.369	990	1/29/08 2:05	2.746	300				1/27/08 22:10
1/26/08 5:30	1.715	37.6	1/26/08 15:10	1.589	15.8	1/27/08 0:50	1.568	12	1/27/08 10:40	5.189	1468	1/27/08 20:30	5.847	1922	1/28/08 6:20	4.374	990	1/28/08 16:20	4.353	982	1/29/08 2:10	2.741	300				1/27/08 22:19
1/26/08 5:35	1.713	37	1/26/08 15:15	1.583	14.4	1/27/08 0:55	1.568	12	1/27/08 10:45	5.154	1448	1/27/08 20:35	5.88	1944	1/28/08 6:25	4.36	986	1/28/08 16:25	4.323	962	1/29/08 2:15	2.724	290				1/27/08 22:28
1/26/08 5:40	1.713	37	1/26/08 15:20	1.582	14	1/27/08 1:00	1.568	12	1/27/08 10:50	5.108	1422	1/27/08 20:40	5.926	1978	1/28/08 6:30	4.342	978	1/28/08 16:30	4.314	960	1/29/08 2:20	2.72	290				1/27/08 22:38
1/26/08 5:45	1.713	37.2	1/26/08 15:25	1.587	15.2	1/27/08 1:05	1.569	12.2	1/27/08 10:55	5.073	1396	1/27/08 20:45	5.937	1982	1/28/08 6:35	4.329	970	1/28/08 16:35	4.297	948	1/29/08 2:25	2.714	290				1/27/08 22:47
1/26/08 5:50	1.713	37.4	1/26/08 15:30	1.58	14.4	1/27/08 1:10	1.57	12.4	1/27/08 11:00	5.038	1378	1/27/08 20:50	5.99	2024	1/28/08 6:40	4.317	960	1/28/08 16:40	4.271	938	1/29/08 2:30	2.701	280				1/27/08 22:57
1/26/08 5:55	1.709	36.6	1/26/08 15:35	1.579	13.8	1/27/08 1:15	1.571	12.6	1/27/08 11:05	5	1350	1/27/08 20:55	6.106	2114	1/28/08 6:45	4.309	960	1/28/08 16:45	4.248	926	1/29/08 2:35	2.691	280				1/27/08 23:08
1/26/08 6:00	1.704	36	1/26/08 15:40	1.582	15	1/27/08 1:20	1.574	13.4	1/27/08 11:10	4.973	1334	1/27/08 21:00	6.176	2168	1/28/08 6:50	4.303	950	1/28/08 16:50	4.233	918	1/29/08 2:40	2.687	280				1/27/08 23:19
1/26/08 6:05	1.709	36.6	1/26/08 15:45	1.584	14.8	1/27/08 1:25	1.571	12.6	1/27/08 11:15	4.927	1306	1/27/08 21:05	6.23	2204	1/28/08 6:55	4.296	950	1/28/08 16:55	4.21	904	1/29/08 2:45	2.668	272				1/27/08 23:31
1/26/08 6:10	1.709	36.6	1/26/08 15:50	1.576	13.4	1/27/08 1:30	1.577	14	1/27/08 11:20	4.9	1290	1/27/08 21:10	6.301	2264	1/28/08 7:00	4.284	944	1/28/08 17:00	4.196	900	1/29/08 2:50	2.66	270				1/27/08 23:43
1/26/08 6:15	1.704	36	1/26/08 15:55	1.575	13.2	1/27/08 1:35	1.578	14.2	1/27/08 11:25	4.859	1268	1/27/08 21:15	6.366	2314	1/28/08 7:05	4.283	946	1/28/08 17:05	4.175	890	1/29/08 2:55	2.658	270				1/27/08 23:56
1/26/08 6:20	1.707	36.4	1/26/08 16:00	1.574	13	1/27/08 1:40	1.585	15	1/27/08 11:30	4.831	1250	1/27/08 21:20	6.45	2380	1/28/08 7:10	4.279	942	1/28/08 17:10	4.153	880	1/29/08 3:00	2.652	270				1/28/08 0:10
1/26/08 6:25	1.704	35.8	1/26/08 16:05	1.577	13.6	1/27/08 1:45	1.589	15.4	1/27/08 11:35	4.817	1240	1/27/08 21:25	6.485	2406	1/28/08 7:15	4.283	944	1/28/08 17:15	4.144	872	1/29/08 3:05	2.633	264				1/28/08 0:24
1/26/08 6:30	1.706	35.8	1/26/08 16:10	1.579	13.8	1/27/08 1:50	1.594	16	1/27/08 11:40	4.776	1216	1/27/08 21:30	6.569	2476	1/28/08 7:20	4.281	944	1/28/08 17:20	4.131	866	1/29/08 3:10	2.632	260				1/28/08 0:40
1/26/08 6:35	1.704	36	1/26/08 16:15	1.578	13.6	1/27/08 1:55	1.594	16	1/27/08 11:45	4.756	1206	1/27/08 21:35	6.646	2542	1/28/08 7:25	4.279	946	1/28/08 17:25	4.102	850	1/29/08 3:15	2.629	260				1/28/08 13:25
1/26/08 6:40	1.704	36	1/26/08 16:20	1.576	13	1/27/08 2:00	1.594	16	1/27/08 11:50	4.721	1184	1/27/08 21:40	6.702	2588	1/28/08 7:30	4.294	950	1/28/08 17:30	4.081	842	1/29/08 3:20	2.623	260				1/28/08 13:43
1/26/08 6:45	1.699	34.8	1/26/08 16:25	1.572	12.6	1/27/08 2:05	1.6	17.6	1/27/08 11:55	4.69	1166	1/27/08 21:45	6.698	2586	1/28/08 7:35	4.305	958	1/28/08 17:35	4.06	834	1/29/08 3:25	2.619	260				1/28/08 14:01
1/26/08 6:50	1.696	34	1/26/08 16:30	1.576	13	1/27/08 2:10	1.607	18.6	1/27/08 12:00	4.658	1150	1/27/08 21:50	6.763	2640	1/28/08 7:40	4.324	966	1/28/08 17:40	4.036	820	1/29/08 3:30	2.613	254				1/28/08 14:20
1/26/08 6:55	1.696	34	1/26/08 16:35	1.576	13	1/27/08 2:15	1.617	20.6	1/27/08 12:05	4.637	1134	1/27/08 21:55	6.76	2636	1/28/08 7:45	4.366	990	1/28/08 17:45	4.022	812	1/29/08 3:35	2.609	260				1/28/08 14:40
1/26/08 7:00	1.696	34	1/26/08 16:40	1.575	13.8	1/27/08 2:20	1.624	21.6	1/27/08 12:10	4.616	1128	1/27/08 22:00	6.779	2656	1/28/08 7:50	4.394	1000	1/28/08 17:50	4.006	806	1/29/08 3:40	2.603	256				1/28/08 15:01
1/26/08 7:05	1.696	34	1/26/08 16:45	1.574	13.6	1/27/08 2:25	1.63	22.8	1/27/08 12:15	4.587	1108	1/27/08 22:05	6.778	2650	1/28/08 7:55	4.415	1014	1/28/08 17:55	3.984	792	1/29/08 3:45	2.584	250				1/28/08 15:22
1/26/08 7:10	1.692	33.6	1/26/08 16:50	1.577	14	1/27/08 2:30	1.636	24	1/27/08 12:20	4.566	1096	1/27/08 22:10	6.752	2628	1/28/08 8:00	4.445	1032	1/28/08 18:00	3.967	784	1/29/08 3:50	2.586	250				1/28/08 15:44
1/26/08 7:15	1.696	34	1/26/08 16:55	1.571	12.6	1/27/08 2:35	1.641	24.6	1/27/08 12:25	4.54	1082	1/27/08 22:15	6.737	2618	1/28/08 8:05	4.489	1056	1/28/08 18:05	3.947	776	1/29/08 3:55	2.589	252				1/28/08 16:08
1/26/08 7:20	1.691	33.4	1/26/08 17:00	1.573	13	1/27/08 2:40	1.644	25	1/27/08 12:30	4.521	1074	1/27/08 22:20	6.761	2638	1/28/08 8:10	4.514	1068	1/28/08 18:10	3.931	768	1/29/08 4:00	2.575	250				1/28/08 16:32
1/26/08 7:25	1.689	33	1/26/08 17:05	1.571	12.4	1/27/08 2:45	1.651	26.6	1/27/08 12:35	4.493	1056	1/27/08 22:25	6.697	2588	1/28/08 8:15	4.557	1096	1/28/08 18:15	3.913	760	1/29/08 4:05	2.565	242				1/28/08 16:58
1/26/08 7:30	1.693	33.4	1/26/08 17:10	1.57	12.2	1/27/08 2:50	1.652	27	1/27/08 12:40	4.476	1048	1/27/08 22:30	6.694	2582	1/28/08 8:20	4.577	1106	1/28/08 18:20	3.887	750	1/29/08 4:10	2.56	240				1/28/08 17:26
1/26/08 7:35	1.691	33.4	1/26/08 17:15	1.569	12	1/27/08 2:55	1.654	27.2	1/27/08 12:45	4.449	1034	1/27/08 22:35	6.635	2532	1/28/08 8:25	4.632	1138	1/28/08 18:25	3.869	742	1/29/08 4:15	2.547	240				1/28/08 17:55
1/26/08 7:40	1.679	31	1/26/08 17:20	1.57	12.8	1/27/08 3:00	1.661	28	1/27/08 12:50	4.429	1022	1/27/08 22:40	6.572	2480	1/28/08 8:30	4.678	1158	1/28/08 18:30	3.858	736	1/29/08 4:20	2.549	240				1/28/08 18:27
1/26/08 7:45	1.686	32.6	1/26/08 17:25	1.568	12.4	1/27/08 3:05	1.66	27.8	1/27/08 12:55	4.412	1014	1/27/08 22:45	6.526	2444	1/28/08 8:35	4.73	1192	1/28/08 18:35	3.839	728	1/29/08 4:25	2.542	240				1/28/08 19:01
1/26/08 7:50	1.683	31.8	1/26/08 17:30	1.565	11.8	1/27/08 3:10	1.661	28	1/27/08 13:00	4.385	996	1/27/08 22:50	6.495	2420	1/28/08 8:40	4.794	1228	1/28/08 18:40	3.814	714	1/29/08 4:30	2.527	232				1/28/08 19:37
1/26/08 7:55	1.679	31	1/26/08 17:35	1.567	12.2	1/27/08 3:15	1.661	28	1/27/08 13:05	4.364	988	1/27/08 22:55	6.433	2368	1/28/08 8:45	4.868	1268	1/28/08 18:45	3.797	706	1/29/08 4:35	2.524	230				1/28/08 20:16
1/26/08 8:00	1.684	32	1/26/08 17:40	1.564	11.4	1/27/08 3:20	1.664	28.8	1/27/08 13:10	4.344	974	1/27/08 23:00	6.337	2292	1/28/08 8:50	4.941	1316	1/28/08 18:50	3.774	698	1/29/08 4:40	2.517	230				1/28/08 20:59
1/26/08 8:05	1.682	31.8	1/26/08 17:45	1.568	12.2	1/27/08 3:25	1.663	28.6	1/27/08 13:15	4.33	970	1/27/08 23:05	6.291	2258	1/28/08 8:55	5.03	1370	1/28/08 18:55	3.762	690	1/29/08 4:45	2.511	230				1/28/08 21:46
1/26/08 8:10	1.678	31.4	1/26/08 17:50	1.566	11.8	1/27/08 3:30	1.675	31	1/27/08 13:20	4.304	954	1/27/08 23:10	6.219	2198	1/28/08 9:00	5.104	1418	1/28/08 19:00	3.749	686	1/29/08 4:50	2.509	230				1/28/08 22:38
1/26/08 8:15	1.676	30.8	1/26/08 17:55	1.565	11.4	1/27/08 3:35	1.987	92.6	1/27/08 13:25	4.277	940	1/27/08 23:15	6.194	2180	1/28/08 9:05	5.183	1468	1/28/08 19:05	3.73	674	1/29/08 4:55	2.496	220				1/28/08 23:36
1/26/08 8:20	1.677	30.8	1/26/08 18:00	1.565	11.6	1/27/08 3:40	2.348	178	1/27/08 13:30	4.257	932	1/27/08 23:20	6.144	2138	1/28/08 9:10	5.242	1506	1/28/08 19:10	3.723	670	1/29/08 5:00	2.496	220				1/29/08 0:40
1/26/08 8:25	1.678	30.8	1/26/08 18:05	1.563	11	1/27/08 3:45	2.448	210	1/27/08 13:35	4.237	924	1/27/08 23:25	6.072	2088	1/28/08 9:15	5.33	1562	1/28/08 19:15	3.71	668	1/29/08 5:05	2.492	220				1/29/08 1:54
1/26/08 8:30	1.678	30.8	1/26/08 18:10	1.564	11	1/27/08 3:50	2.611	256	1/27/08 13:40	4.215	910	1/27/08 23:30	6.013	2044	1/28/08 9:20	5.393	1602	1/28/08 19:20	3.694	660	1/29/08 5:10	2.483	220				1/29/08 3:19
1/26/08 8:35	1.678	31	1/26/08 18:15	1.567	12	1/27/08 3:55	3.167	446	1/27/08 13:45	4.192	900	1/27/08 23:35	5.941	1992	1/28/08 9:25	5.478	1660	1/28/08 19:25	3.672	650	1/29/08 5:15	2.469	214				1/29/08 4:59
1/26/08 8:40	1.677	30.8	1/26/08 18:20	1.566	12.2	1/27/08 4:00	3.715	672	1/27/08 13:50	4.171	888	1/27/08 23:40	5.889	1950	1/28/08 9:30	5.582	1734	1/28/08 19:30	3.66	648	1/29/08 5:20	2.463	212				1/29/08 6:58
1/26/08 8:45	1.677	30.8	1/26/08 18:25	1.564	12	1/27/08 4:05	3.909	756	1/27/08 13:55	4.154	876	1/27/08 23:45	5.798	1884	1/28/08 9:35	5.675	1796	1/28/08 19:35	3.645	640	1/29/08 5:25	2.461	212				1/29/08 9:24
1/26/08 8:50	1.677	30.6	1/26/08 18:30	1.568	12.4	1/27/08 4:10	4.122	860	1/27/08 14:00	4.136	870	1/27/08 23:50	5.753	1854	1/28/08 9:40	5.762	1862	1/28/08 19:40	3.638	638	1/29/08 5:30	2.454	210				
1/26/08 8:55	1.672	30.2	1/26/08 18:35	1.563	11.8	1/27/08 4:15	4.242	924	1/27/08 14:05	4.11	858	1/27/08 23:55	5.709	1824	1/28/08 9:45	5.853	1926	1/28/08 19:45	3.617	624	1/29/08 5:35	2.448	210				
1/26/08 9:00	1.678	31	1/26/08 18:40	1.564	12	1/27/08 4:20	4.319	962	1/27/08 14:10	4.091	844	1/28/08 0:00	5.662	1786	1/28/08 9:50	5.921	1974	1/28/08 19:50	3.604	620	1/29/08 5:40	2.441	204				
1/26/08 9:05	1.676	30.6	1/26/08 18:45	1.552	9.6	1/27/08 4:25	4.41	1012	1/27/08 14:15	4.076	840	1/28/08 0:05	5.602	1744	1/28/08 9:55	5.967	2006	1/28/08 19:55	3.585	612	1/29/08 5:45	2.433	200				
1/26/08 9:10	1.67	30	1/26/08 18:50	1.558	10.4	1/27/08 4:30	4.498	1060	1/27/08 14:20	4.049	825	1/28/08 0:10	5.542	1706	1/28/08 10:00	5.961	2002	1/28/08 20:00	3.571	610	1/29/08 5:50	2.429	200				
1/26/08 9:15	1.673	30.4	1/26/08 18:55	1.556	10	1/27/08 4:35	4.587	1108	1/27/08 14:25	4.025	814	1/28/08 0:15	5.506	1682	1/28/08 10:05	5.949	1994	1/28/08 20:05	3.555	600	1/29/08 5:55	2.434	200				
1/26/08 9:20	1.673	30.4	1/26/08 19:00	1.554	9.8	1/27/08 4:40	4.706	1178	1/27/08 14:30	4	800	1/28/08 0:20	5.454	1644	1/28/08 10:10	5.966	2006	1/28/08 20:10	3.546	600	1/29/08 6:00	2.421	200				
1/26/08 9:25	1.667	29.2	1/26/08 19:05	1.553	9.6	1/27/08 4:45	4.806	1234	1/27/08 14:35	3.988	798	1/28/08 0:25	5.412	1614	1/28/08 10:15	5.964	2008	1/28/08 20:15	3.538	594	1/29/08 6:05	2.42	200				
1/26/08 9:30	1.662	28.2	1/26/08 19:10	1.556	10	1/27/08 4:50	4.95	1324	1/27/08 14:40	3.969	788	1/28/08 0:30	5.372	1590	1/28/08 10:20	5.942	1986	1/28/08 20:20	3.516	582	1/29/08 6:10	2.414	200				
1/26/08 9:35	1.665	28.8	1/26/08 19:15	1.554	9.8	1/27/08 4:55	5.02	1362	1/27/08 14:45	3.946	776	1/28/08 0:35	5.35	1578	1/28/08 10:25	5.942	1988	1/28/08 20:25	3.507	580	1/29/08 6:15	2.411	200				
						1/27/08 5:00	5.084	1402	1/27/08 14:50	3.921	766	1/28/08 0:40	5.283	1530	1/28/08 10:30	5.944	1992	1/28/08 20:30	3.484	570	1/29/08 6:20	2.402	200				
						1/27/08 5:05	5.152	1448	1/27/08 14:55	3.899	754	1/28/08 0:45	5.26	1518	1/28/08 10:35	5.919	1968	1/28/08 20:35	3.47	562	1/29/08 6:25	2.4	198				

Table E-4
Flow Meter and Sampler Data
for Santa Margarita River
Storm Event 2

Santa Margarita Event 2 Flow Data			Santa Margarita Event 2 Flow Data			Santa Margarita Event 2 Flow Data			Santa Margarita Event 2 Flow Data			Santa Margarita Event 2 Flow Data			Santa Margarita Event 2 Sample Data
Time	Stage	Flow	Time	Stage	Flow	Time	Stage	Flow	Time	Stage	Flow	Time	Stage	Flow	
2/21/08 1:43	1.94	11	2/21/08 15:58	1.79	5.4	2/22/08 6:43	2.03	16	2/22/08 21:28	3.01	166	2/23/08 11:43	2.41	54	2/22/2008 14:38
2/21/08 1:58	1.95	11	2/21/08 16:13	1.79	5.4	2/22/08 6:58	2.05	17	2/22/08 21:43	3	164	2/23/08 11:58	2.4	53	2/22/2008 15:08
2/21/08 2:13	1.95	11	2/21/08 16:28	1.79	5.4	2/22/08 7:13	2.27	34	2/22/08 21:58	3	166	2/23/08 12:13	2.4	53	2/22/2008 15:38
2/21/08 2:28	1.95	11	2/21/08 16:43	1.79	5.4	2/22/08 7:28	2.3	37	2/22/08 22:13	2.95	153	2/23/08 12:28	2.39	52	2/22/2008 16:08
2/21/08 2:43	1.95	11	2/21/08 16:58	1.79	5.4	2/22/08 7:43	2.31	38	2/22/08 22:28	2.94	150	2/23/08 12:43	2.39	53	2/22/2008 16:38
2/21/08 2:58	1.95	11	2/21/08 17:13	1.79	5.4	2/22/08 7:58	2.33	40	2/22/08 22:43	2.93	148	2/23/08 12:58	2.39	53	2/22/2008 17:08
2/21/08 3:13	1.95	11	2/21/08 17:28	1.79	5.4	2/22/08 8:13	2.39	47	2/22/08 22:58	2.89	138	2/23/08 13:13	2.38	52	2/22/2008 17:38
2/21/08 3:28	1.95	11	2/21/08 17:43	1.79	5.4	2/22/08 8:28	2.46	56	2/22/08 23:13	2.87	133	2/23/08 13:28	2.37	50	2/22/2008 18:08
2/21/08 3:43	1.95	11	2/21/08 17:58	1.79	5.4	2/22/08 8:43	2.55	68	2/22/08 23:28	2.86	131	2/23/08 13:43	2.37	50	2/22/2008 18:38
2/21/08 3:58	1.96	12	2/21/08 18:13	1.78	5.2	2/22/08 8:58	2.65	85	2/22/08 23:43	2.86	131	2/23/08 13:58	2.36	49	2/22/2008 19:08
2/21/08 4:13	1.96	12	2/21/08 18:28	1.79	5.4	2/22/08 9:13	2.73	99	2/22/08 23:58	2.84	127	2/23/08 14:13	2.36	49	2/22/2008 19:38
2/21/08 4:28	1.95	11	2/21/08 18:43	1.78	5.2	2/22/08 9:28	2.81	116	2/23/08 0:13	2.83	124	2/23/08 14:28	2.35	48	2/22/2008 20:08
2/21/08 4:43	1.96	12	2/21/08 18:58	1.79	5.4	2/22/08 9:43	2.9	136	2/23/08 0:28	2.81	120	2/23/08 14:43	2.35	48	2/22/2008 20:38
2/21/08 4:58	1.95	11	2/21/08 19:13	1.78	5.2	2/22/08 9:58	2.93	143	2/23/08 0:43	2.8	118	2/23/08 14:58	2.36	49	2/22/2008 21:08
2/21/08 5:13	1.95	11	2/21/08 19:28	1.79	5.4	2/22/08 10:13	3	161	2/23/08 0:58	2.78	113	2/23/08 15:13	2.34	47	2/22/2008 21:38
2/21/08 5:28	1.96	12	2/21/08 19:43	1.78	5.2	2/22/08 10:28	3.1	189	2/23/08 1:13	2.77	111	2/23/08 15:28	2.34	47	2/22/2008 22:08
2/21/08 5:43	1.95	11	2/21/08 19:58	1.78	5.2	2/22/08 10:43	3.25	236	2/23/08 1:28	2.75	107	2/23/08 15:43	2.34	47	2/22/2008 22:38
2/21/08 5:58	1.95	11	2/21/08 20:13	1.78	5.2	2/22/08 10:58	3.4	291	2/23/08 1:43	2.74	105	2/23/08 15:58	2.34	47	2/22/2008 23:08
2/21/08 6:13	1.95	11	2/21/08 20:28	1.78	5.2	2/22/08 11:13	3.49	328	2/23/08 1:58	2.72	101	2/23/08 16:13	2.34	47	2/22/2008 23:38
2/21/08 6:28	1.95	11	2/21/08 20:43	1.78	5.2	2/22/08 11:28	3.54	349	2/23/08 2:13	2.72	101	2/23/08 16:28	2.34	47	2/23/2008 0:08
2/21/08 6:43	1.95	11	2/21/08 20:58	1.78	5.2	2/22/08 11:43	3.56	358	2/23/08 2:28	2.7	97	2/23/08 16:43	2.33	46	2/23/2008 0:38
2/21/08 6:58	1.95	11	2/21/08 21:13	1.78	5.2	2/22/08 11:58	3.59	371	2/23/08 2:43	2.69	97	2/23/08 16:58	2.33	46	2/23/2008 1:08
2/21/08 7:13	1.95	11	2/21/08 21:28	1.78	5.2	2/22/08 12:13	3.63	390	2/23/08 2:58	2.69	97	2/23/08 17:13	2.33	46	2/23/2008 1:38
2/21/08 7:28	1.95	11	2/21/08 21:43	1.77	4.9	2/22/08 12:28	3.64	395	2/23/08 3:13	2.69	97	2/23/08 17:28	2.33	46	2/23/2008 2:08
2/21/08 7:43	1.95	11	2/21/08 21:58	1.78	5.2	2/22/08 12:43	3.65	400	2/23/08 3:28	2.67	94	2/23/08 17:43	2.32	44	2/23/2008 2:38
2/21/08 7:58	1.95	11	2/21/08 22:13	1.77	4.9	2/22/08 12:58	3.69	419	2/23/08 3:43	2.66	92	2/23/08 17:58	2.32	44	2/23/2008 3:08
2/21/08 8:13	1.95	11	2/21/08 22:28	1.77	4.9	2/22/08 13:13	3.7	424	2/23/08 3:58	2.66	92	2/23/08 18:13	2.31	43	2/23/2008 3:38
2/21/08 8:28	1.94	11	2/21/08 22:43	1.77	4.9	2/22/08 13:28	3.73	439	2/23/08 4:13	2.65	90	2/23/08 18:28	2.3	42	2/23/2008 4:08
2/21/08 8:43	1.94	11	2/21/08 22:58	1.77	4.9	2/22/08 13:43	3.75	449	2/23/08 4:28	2.63	86	2/23/08 18:43	2.3	42	2/23/2008 4:38
2/21/08 8:58	1.94	11	2/21/08 23:13	1.77	4.9	2/22/08 13:58	3.76	455	2/23/08 4:43	2.62	85	2/23/08 18:58	2.29	41	2/22/2008 14:38
2/21/08 9:13	1.94	11	2/21/08 23:28	1.77	4.9	2/22/08 14:13	3.8	476	2/23/08 4:58	2.61	83	2/23/08 19:13	2.29	41	2/22/2008 15:08
2/21/08 9:28	1.94	11	2/21/08 23:43	1.77	4.9	2/22/08 14:28	3.8	476	2/23/08 5:13	2.62	85	2/23/08 19:28	2.28	40	2/22/2008 15:38
2/21/08 9:43	1.94	11	2/21/08 23:58	1.77	4.9	2/22/08 14:43	3.74	444	2/23/08 5:28	2.59	79	2/23/08 19:43	2.27	39	2/22/2008 16:08
2/21/08 9:58	1.93	11	2/22/08 0:13	1.77	4.9	2/22/08 14:58	3.72	434	2/23/08 5:43	2.59	79	2/23/08 19:58	2.26	38	2/22/2008 16:38
2/21/08 10:13	1.89	8.9	2/22/08 0:28	1.77	4.9	2/22/08 15:13	3.69	419	2/23/08 5:58	2.59	79	2/23/08 20:13	2.26	38	2/22/2008 17:08
2/21/08 10:28	1.86	7.7	2/22/08 0:43	1.77	4.9	2/22/08 15:28	3.66	404	2/23/08 6:13	2.59	79	2/23/08 20:28	2.25	37	2/22/2008 17:38
2/21/08 10:43	1.84	7	2/22/08 0:58	1.77	4.9	2/22/08 15:43	3.61	381	2/23/08 6:28	2.56	75	2/23/08 20:43	2.26	38	2/22/2008 18:08
2/21/08 10:58	1.82	6.4	2/22/08 1:13	1.77	4.9	2/22/08 15:58	3.58	367	2/23/08 6:43	2.56	75	2/23/08 20:58	2.24	36	
2/21/08 11:13	1.81	6	2/22/08 1:28	1.76	4.6	2/22/08 16:13	3.56	358	2/23/08 6:58	2.55	73	2/23/08 21:13	2.24	36	
2/21/08 11:28	1.81	6	2/22/08 1:43	1.76	4.6	2/22/08 16:28	3.52	340	2/23/08 7:13	2.54	71	2/23/08 21:28	2.23	35	
2/21/08 11:43	1.8	5.7	2/22/08 1:58	1.77	4.9	2/22/08 16:43	3.47	323	2/23/08 7:28	2.53	70	2/23/08 21:43	2.24	36	
2/21/08 11:58	1.8	5.7	2/22/08 2:13	1.77	4.9	2/22/08 16:58	3.44	311	2/23/08 7:43	2.53	70	2/23/08 21:58	2.23	35	
2/21/08 12:13	1.8	5.7	2/22/08 2:28	1.77	4.9	2/22/08 17:13	3.42	303	2/23/08 7:58	2.51	68	2/23/08 22:13	2.23	35	
2/21/08 12:28	1.8	5.7	2/22/08 2:43	1.77	4.9	2/22/08 17:28	3.41	299	2/23/08 8:13	2.51	68	2/23/08 22:28	2.22	34	
2/21/08 12:43	1.8	5.7	2/22/08 2:58	1.77	4.9	2/22/08 17:43	3.37	283	2/23/08 8:28	2.5	67	2/23/08 22:43	2.22	34	
2/21/08 12:58	1.8	5.7	2/22/08 3:13	1.77	4.9	2/22/08 17:58	3.35	276	2/23/08 8:43	2.5	67	2/23/08 22:58	2.22	34	
2/21/08 13:13	1.8	5.7	2/22/08 3:28	1.78	5.2	2/22/08 18:13	3.32	265	2/23/08 8:58	2.5	67	2/23/08 23:13	2.21	33	
2/21/08 13:28	1.8	5.7	2/22/08 3:43	1.79	5.4	2/22/08 18:28	3.31	261	2/23/08 9:13	2.47	62	2/23/08 23:28	2.21	33	
2/21/08 13:43	1.8	5.7	2/22/08 3:58	1.79	5.4	2/22/08 18:43	3.27	247	2/23/08 9:28	2.48	64	2/23/08 23:43	2.2	32	
2/21/08 13:58	1.79	5.4	2/22/08 4:13	1.8	5.7	2/22/08 18:58	3.26	243	2/23/08 9:43	2.47	62	2/23/08 23:58	2.2	32	
2/21/08 14:13	1.79	5.4	2/22/08 4:28	1.81	6	2/22/08 19:13	3.25	240	2/23/08 9:58	2.46	61	2/24/08 0:13	2.2	32	
2/21/08 14:28	1.79	5.4	2/22/08 4:43	1.83	6.7	2/22/08 19:28	3.23	233	2/23/08 10:13	2.45	60	2/24/08 0:28	2.19	31	
2/21/08 14:43	1.79	5.4	2/22/08 4:58	1.85	7.4	2/22/08 19:43	3.22	230	2/23/08 10:28	2.45	60	2/24/08 0:43	2.19	31	
2/21/08 14:58	1.79	5.4	2/22/08 5:13	1.88	8.5	2/22/08 19:58	3.17	213	2/23/08 10:43	2.45	60	2/24/08 0:58	2.19	31	
2/21/08 15:13	1.79	5.4	2/22/08 5:28	1.9	9.3	2/22/08 20:13	3.15	207	2/23/08 10:58	2.44	58	2/24/08 1:13	2.18	30	
2/21/08 15:28	1.79	5.4	2/22/08 5:43	1.91	9.7	2/22/08 20:28	3.13	201	2/23/08 11:13	2.42	56	2/24/08 1:28	2.18	30	
2/21/08 15:43	1.79	5.4	2/22/08 5:58	1.94	11	2/22/08 20:43	3.09	189	2/23/08 11:28	2.42	56	2/24/08 1:43	2.17	29	
			2/22/08 6:13	1.97	12	2/22/08 20:58	3.06	180							
			2/22/08 6:28	2	14	2/22/08 21:13	3.06	180							