



Board of Directors

March 3, 2010

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California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
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Subject: Required Technical Report for Investigative Order No. R9-2010-0009, Discharge of Untreated Sewage from Temecula Valley Regional Water Reclamation Facility

Board Secretary

Rosemarie V. Howell

Reference: 372834:oosibodu

General Manager

Anthony J. Pack

Dear Executive Officer:

**Director of the
Metropolitan Water
District of So. Calif.**
Randy A. Record

In response to your letter dated, February 1, 2010, we submit the enclosed Required Technical Report (RTR) for a discharge that occurred at the Temecula Valley Regional Water Reclamation Facility at 42565 Avenida Alvarado, Temecula, CA between December 25th and 26th, 2010. The RTR addresses each one of your concerns and provides requested details of the incident.

Legal Counsel

Redwine and Sherrill

This RTR is submitted under the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including possibility of fine and imprisonment for knowing violations."

Should you have any further questions in regards to the RTR, please contact Ms. Jayne Joy at (951) 928-3777 extension 6241.

Sincerely,

Anthony J. Pack
General Manager

AJP/JJ:tlg



Eastern Municipal Water District
Temecula Valley
Regional Water Reclamation Facility

California Regional Water Quality Control Board
San Diego Region

Investigative Order No. R9-2010-0009
Technical Report

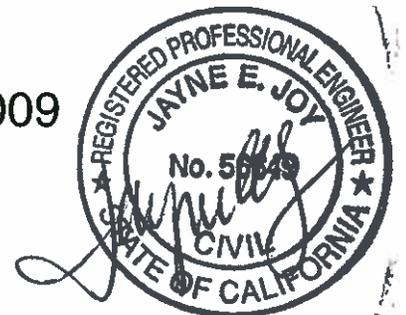


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1. PURPOSE

The purpose of this report is to comply with the San Diego Regional Water Quality Control Board (RWQCB) Investigative Order No. R9-2010-0009, Discharge of Untreated Sewage from the Temecula Valley Regional Water Reclamation Facility (TVRWRf). In particular, this technical report attempts to answer concerns through investigative and reporting of information related to the discharge of untreated sewage to Murrieta Creek between December 25 and 26, 2009 from the TVRWRf.

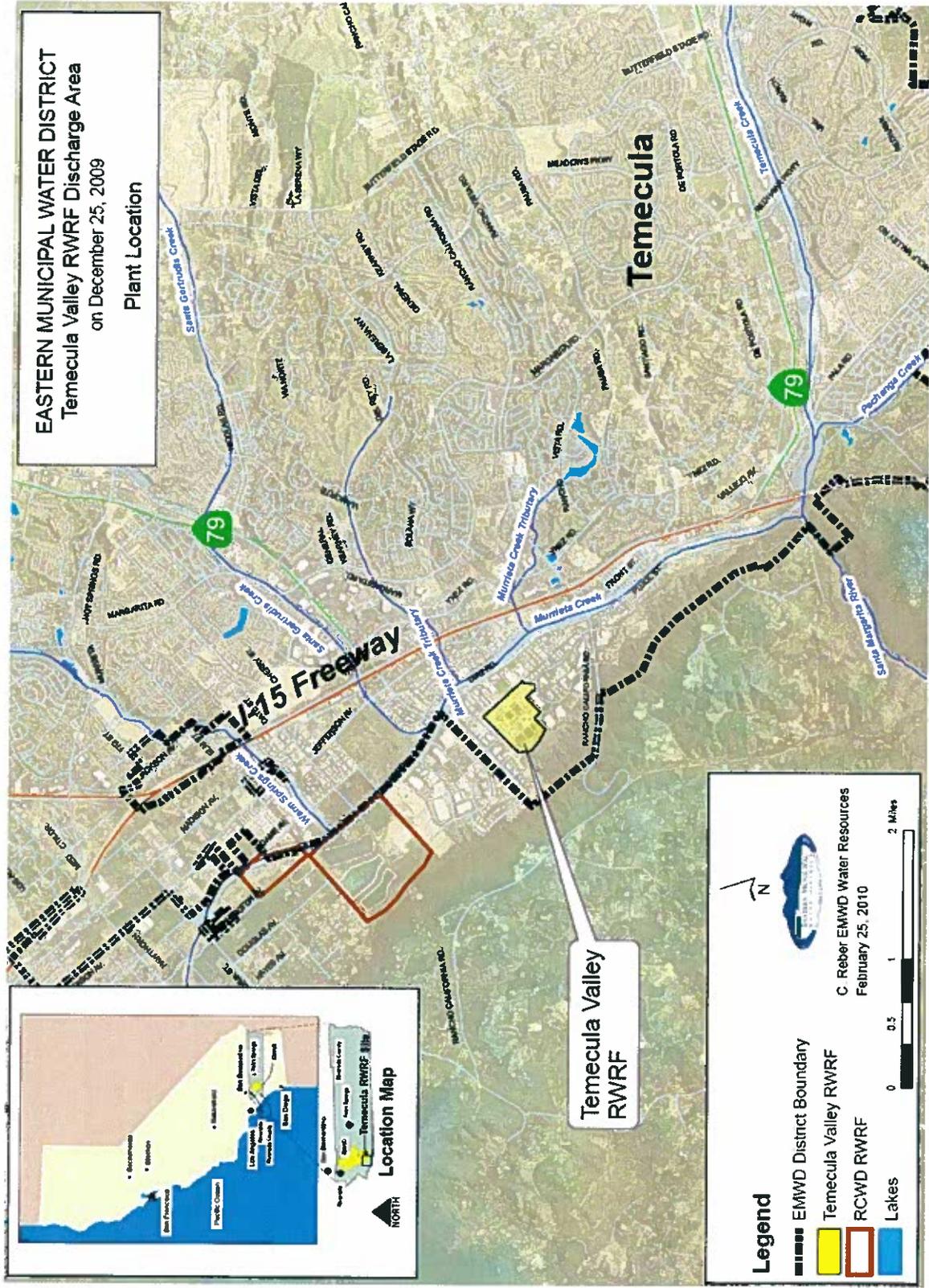
2. GENERAL INFORMATION

Eastern Municipal Water District (EMWD) encompasses approximately 555 square miles in western Riverside County. The EMWD is broken into five wastewater service areas including Temecula, Moreno Valley, Perris, Hemet/San Jacinto, and Winchester/Sun City. EMWD owns and operates regional water reclamation facilities in each service area. All of the service areas, except Temecula, are tributary to the San Jacinto River Basin and are under the jurisdiction of the Santa Ana RWQCB. The Temecula service area is tributary to the Santa Margarita River Basin and is under the jurisdiction of both Santa Ana and San Diego RWQCBs.

The Temecula, Murrieta and portion of unincorporated areas of Riverside County is serviced by the TVRWRf. Also, TVRWRf services a portion Pechanga Indian Reservation (Casino and Hotel) and Western Municipal Water District portion of Murrieta County Water District. The TVRWRf was originally constructed in the early 1970s at a capacity of 1.0 mgd. By 1993, expansions and upgrades increased the capacity of the plant and its level of treatment to 6.25 mgd for the primary and secondary facilities and 10 mgd for the advanced wastewater treatment facilities. Further expansions and upgrades completed in 1996 increased the nominal rated capacity of the primary and secondary treatment capacity to 8 mgd. These facilities comprise Plant 1. Plant 2, Phase 1 increased the treatment capacity to 15 mgd based on annual average flow (AAF), and Phases 2 of Plant 2 increased capacity to 18 mgd AAF. These upgrades included a common headworks, the aeration basins, additional tertiary filters, and increased solids handling facilities. This year, the TVRWRf will undergo modification to expand the on-site storage capacity and improve reliability to the solids handling capability of the facility. In addition, the TVRWRf is in the planning stage for the next future expansion at 23 mgd.

3. LOCATION

TVRWRf is located at 42565 Avenida Alvarado in the City of Temecula. The City of Temecula is within the southwest Riverside County and is adjacent to the San Diego County line. TVRWRf resides in the upper portion of the Santa Margarita Watershed and within 1,300 feet of the Murrieta Creek which is a tributary to the Santa Margarita River. Murrieta Creek is feed by Santa Gertrudis and Warm Springs and joins with Temecula Creek to the south to form the Santa Margarita River.



T:_Service_Requests\TVRWRP_Dec_2009_Discharge\CadGist.mxd\Temecula_RWRP_Discharge_20100223_Fig_1_01.mxd

Figure 3-1

4. TECHNICAL REPORT

4.1. Causes and circumstances of the discharge

4.1.1. *A complete, detailed explanation of how and when the discharge from the influent structure of the TVRWRF was discovered, including tabular and graphical summaries of the daily total influent flows to the TVRWRF and flow data from the lift stations serving the TVRWRF from December 25, 2009 through December 26, 2009.*

On Saturday, December 26, 2009 at 6:00 hours, operations personnel arrived at Temecula Valley Regional Wastewater Reclamation Facility (TVRWRF) and discovered wastewater spilling over the influent structure (headworks). Plant staff immediately mobilized to mitigate the spillage thereby lessening the impact to the environment. While in the process of mitigation it was noted that both Duperon Barscreens (mechanically-cleaned climber screens) were not operating. The bypass through the screen was further opened allowing influent flows back into the plant and stopping the spill. Also noted was that the Supervisory Control and Data Acquisition (SCADA) System was not displaying any alarm conditions on the first page of the annunciator screen (1 of 3). However, the third or last page of the annunciator screen did display the YIC 12 Programmable Logic Controller (PLC) failure associated with the influent structure. The Lead Plant Controls Technician (PCT) was then called to troubleshoot a communication issue with the YIC 12 PLC which also sends "run" commands to the barscreens based on the influent channel level. After further investigation, the PCT discovered that the YIC 12 PLC had faulted out; and was not updating the required signals at SCADA that was necessary to control the equipment (i.e., the loss of the critical "run" command for the barscreens). The spill was determined to be the result of the failure of the PLC to send a "Run" command to the Duperon Barscreens. The information being sent continually during the unmanned hours of plant operation was that all equipment was running and all flow levels within the headworks structure were normal. This resulted in rags and debris normally present in the waste-stream from being effectively removed so that the flow was blocked causing the overflow. Once the PLC faulted, there was a communication loss which did not report the actual high level condition that was occurring due to the blockage. The PCT also found that the communication loss (SCADA tracking of the last signal sent by the YIC 12 PLC, just before faulting) explains the lack of an alarm status on the annunciator screen which displays the YIC 12 PLC alarms associated with the influent structure. (M. Caldwell-Bettis, edited by Al Javier)

From Dept. 895 Control Technican Report TVRWRF Raw Sewage Spill 12/25/09 Report

Like other wastewater plants of similar size and scope, TVRWRF relies on PLCs for automated operation of the plant. The PLCs exchange data with two SCADA computers, which provide a graphical interface for plant operators, report alarm conditions both locally and to the IOC, and record plant data, conditions, and events.



Figure 4-1. TVRWRF Influent Structure

The PLCs use “watchdog” timers, to ensure all the PLCs are functioning correctly. It works like a chain, so if any of the links malfunction, the IOC will be notified. The wastewater plants use industry standard Allen Bradley PLCs to automate the plant. They perform well, however like anything else, they can malfunction.

As forementioned, PLC 12 malfunctioned (faulted), and the watchdog PLC (PLC 10) reported the failure to the IOC at 15:40 12/25/09. The Integrated Operation Center (IOC) contacted the on-call operator immediately, and the operator was already logged into SCADA remotely from home. The on-call operator acknowledged the first page of PLC12, however failed to check page three (3), where the PLC failure alarm was flashing red. This would have prompted him to dispatch a Control Technician to resolve the faulted PLC 12.

Another design flaw was from the original installation by Beavens Systems (the Contractor who installed the SCADA system in Aug 1999) which allowed the PLC failure alarms to be acknowledged on the SCADA computer, and thus, releasing the dispatch warning going to the IOC. This is precisely what happened on 12/25/09.

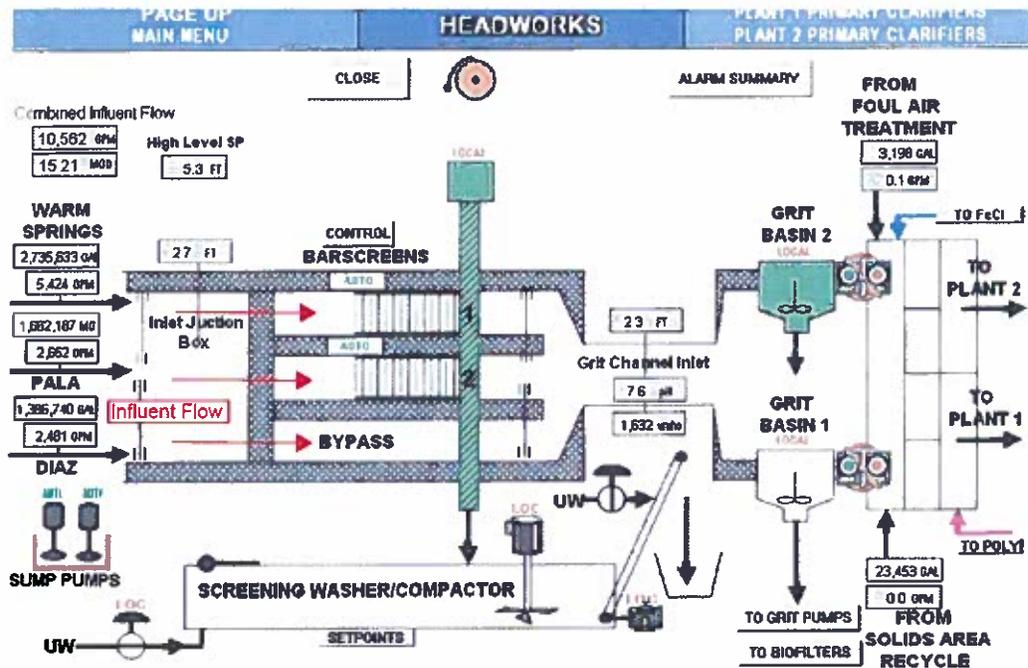


Figure 4-2. TVRWRF Influent SCADA Display

PLC failure alarms are such, that no acknowledge, or release should be available. Review of the other treatment plants (San Jacinto, Moreno Valley, and Perris Valley RWWFs) discovered that PLC failure alarms **cannot** be released, or acknowledged from the alarm page, and the IOC will continue to receive an alarm until the PLC is repaired. TVRWRF was EMWD's first original SCADA system that had the alarm annunciator screen. However, the SCADA system was never re-looked at or re-configured to correct the "Communication Fail" alarm and acknowledgement similar to the other treatment plants.

Additionally, it was discovered that a lack of training, lack of redundant visual cues (there should have been an additional PLC 12 failure visual indicator on the Headworks Machinery page), misled on-call operator to believe that the Barscreens were functioning correctly.

There were also a series of nuisance alarms, that led the on-call operator into believing the alarm he was responding to at 15:40 12/25/09, was with problematic equipment that had failed earlier in the day, posing no threat to the TVRWRF.

Critical alarms with no acknowledge option, alarm screens that force operators to view **all** alarm events, additional visual indicators on machinery pages, and better training of operations staff on the SCADA system, **could** all have prevented the spill. (B. Naranjo, edited by Al Javier)

The investigative documentations are attached in Appendix A. In particular, a detailed technical report for the TVRWRF Raw Sewage is presented, "Dept. 895 Control Technician Report TVRWRF Raw Sewage Spill 12/25/09". In this report, deficiencies are mentioned, and the associated action items to resolve deficiencies are discussed.

For example, the barscreens stoppage caused by a failed PLC has been rectified by installing a hard-wired High Level Float that independently operates the barscreens. Several changes to the SCADA Programming have been implemented to include (1) PLC Fail Alarms cannot be acknowledged from the Integrated Operation Center but rather by the standby duty operator, (2) the acknowledge button has been reprogrammed to be viewed only on the last alarm page, requiring the standby duty operator to review all pages prior to acknowledging the alarm, and (3) standardizing terminology on all SCADA pages have been corrected and thus eliminating confusion in reviewing SCADA pages.

Finally, from the TVRWRF Safety Investigation document found in Appendix A, the recommendation for creating a SCADA training has been contracted to the Beavens Systems Inc., the SCADA programmer. In March 2010, Art Beavens will be conducting training on the SCADA system to TVRWRF plant personnel on the upgraded programmed system. The training will be conduct on two separate days to accommodate the two crews. Training will be documented in EMWD's Training Depot, a training program database. A copy of the SCADA training outline can also be found in Appendix A.

Influent Flows

As seen in Figure 4-3, the influent flows on December 25, 2009 from Pala Lift Station, Warm Springs Lift Station and Diaz Lift Station held the last reading ("flat-lined") after 14:30 due to the PLC faulting. The TVRWRF influent flow reading was not corrected until 10:30 December 26, 2009 as seen in Figure 4-4. Thus, TVRWRF influent flow readings were erroneous for December 25 to December 26 as well as December 26 to 27. Figure 4-5 presents December 24, 2009 influent flows, which is a normal day's display for all the lift station flows that make up the total influent flow. Figure 4-5 shows after 14:30 flows from Pala lift station and Diaz lift station decreasing where as flows from Pala lift station stayed steady but with intermittent increases when additional pumps would come on. Further explanation of the flows and calculations for the discharge is described in the following section. The tabular and graphical data of the lift station and plant flows can be found in Appendix A.

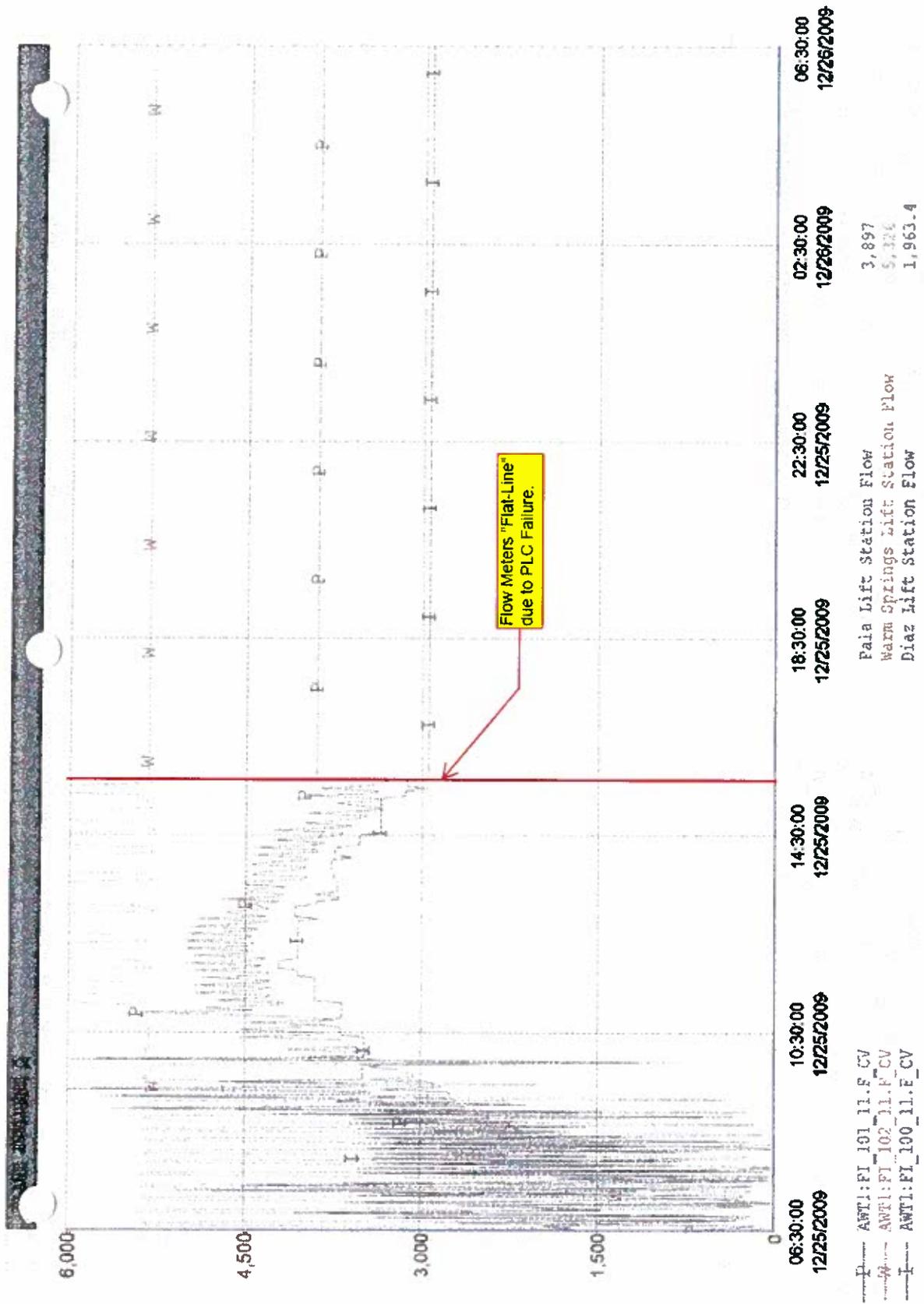


Figure 4-3. TVRWRF Influent Flows (12/25/2009)

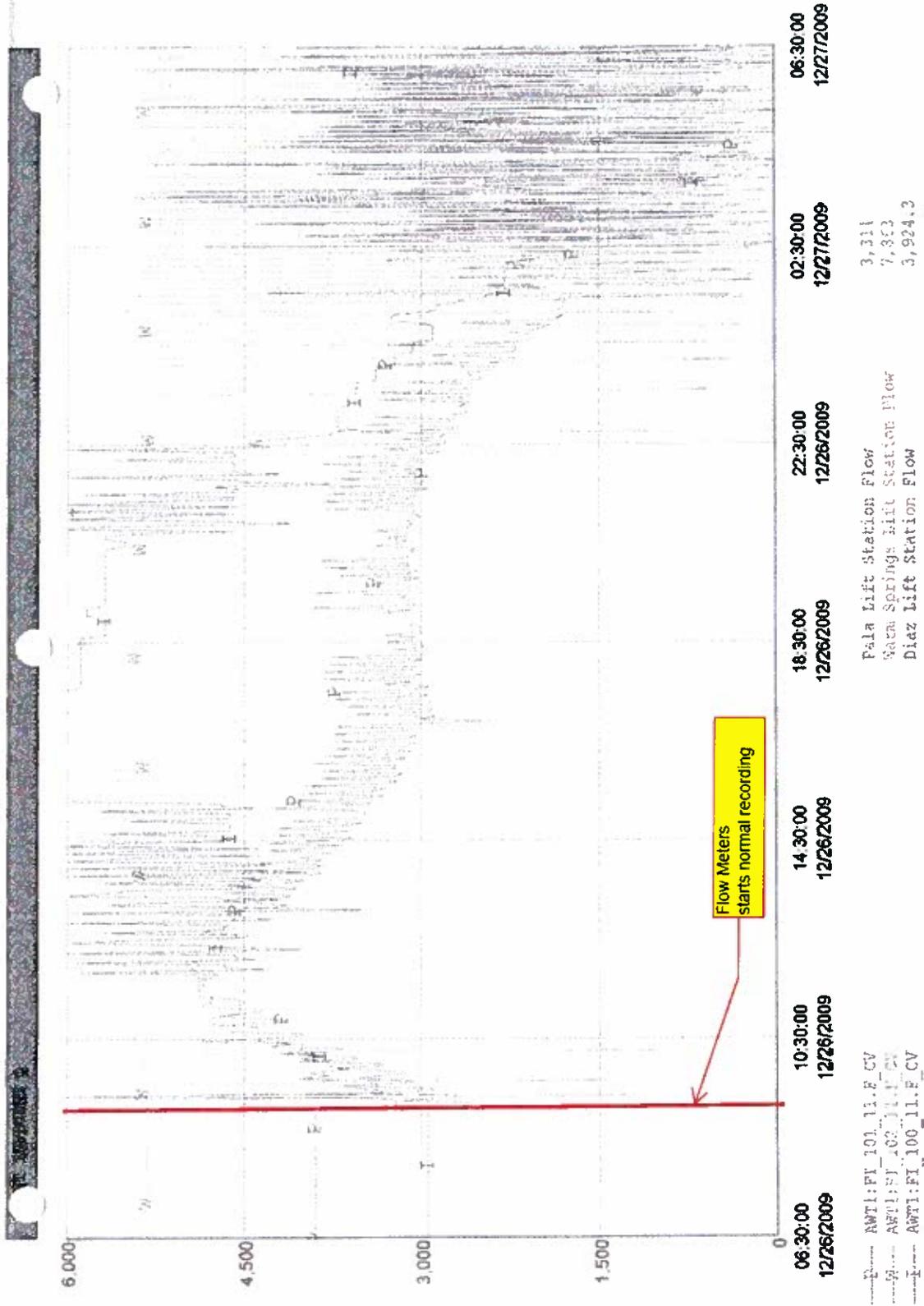


Figure 4-4. TV RWRf Influent Flows (12/26/2009)

San Diego RWQCB Investigative Order No. R9-2010-0009
 Temecula Valley RWRF Technical Report

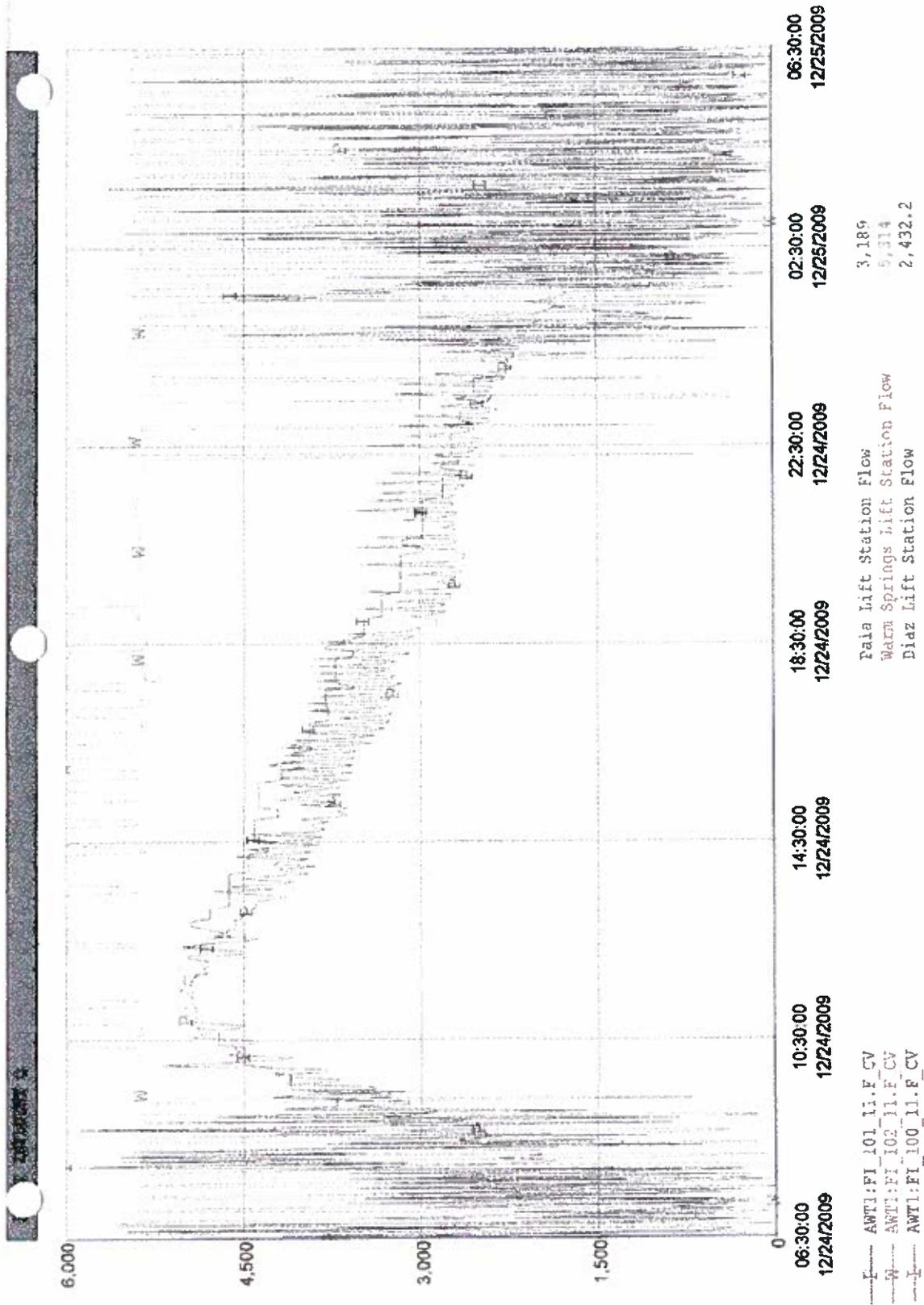


Figure 4-5. TVRWRF Influent Flows (12/24/2009)

4.1.2. An explanation of the methods and assumptions used in determining the total volume of sewage discharged.

The initial volume of the spill was reported at greater than 1.0 MG, with an advisement to the regulatory agencies that further confirmation was pending due to a temporary loss of telemetry which supports influent metering. An updated value of 5.0-7.0 MG was provided to better quantify the spill and offered as a worse case scenario. After a careful review of both electronic and hardcopy flow records, the bypass of raw sewage was calculated using information contained in operational reports which substantiate secondary effluent flow averages from both Plant #1 and Plant #2. The final calculation based on the following information was estimated to total 2.4 MG. The total volume recovered has been estimated by the pumping capacity of portable equipment and length of time in service; along with the storage capability of vactor trucks and number of loads employed to empty the contents. These calculations follow. (M. Caldwell-Betties)

Calculation of the Recovery Amount

The amount recovered from the release by the Wastewater Collection crews was 966,800 gallons. The calculation for the recovery amount is shown in Table 4-1. Two vactor trucks were utilized during the recovery. Most of the recovered amount from the vactor trucks came from the storm drain at Diaz Road. Two 6-inch pumps were also utilized to recover the release at two locations. One pump was situated in Murrieta Creek at the Via Montazuma Road crossing. The roadway was closed to the traffic as well as the public for several days. The area was pumped back into the collection system until no signs of sewage could be seen. The other 6-inch pump was situated in Murrieta Creek near Rancho California Road. Again the area was pumped back into the collection system until no signs of sewage could be seen.

Table 4-1. Wastewater Collection Recovery Amount

Description	Calculation	Amount Gallons
Vactor Unit 438	13 loads @ 2,000 gallons	26,000
Vactor Unit 384	14 loads @ 1,500 gallons	21,000
6" Pump (12/26 12:40 to 12/27 05:19)	999 minutes @ 450 gpm	449,550
6" Pump (12/26 15:04 to 12/27 05:19)	855 minutes @ 550 gpm	470,250
Total		966,800

Calculation of Sewage Release

Table 4-2 present the TVRWRF flows for both Influent and Secondary Effluent. The Daily Report sheets that support the table can be found in Appendix A. The TVRWRF Influent is the summation of the lift stations that feed into TVRWRF where as the TVRWRF Secondary Effluent is summation of plant 1 and plant 2 Secondary Effluent flows.

Table 4-2. TVRWRF Flows (mgd)

Date	TV Influent	TV Secondary
26 to 27-Dec	Error	14.45
25 to 26-Dec	Error	12.24
24 to 25-Dec	14.63	14.42
23 to 24-Dec	11.52	11.67
22 to 23-Dec	13.98	13.44
21 to 22-Dec	13.99	13.40
20 to 21-Dec	14.05	13.57
19 to 20-Dec	13.03	11.58
18 to 19-Dec	13.77	13.55

The incident occurred from December 25 to 26 which was the same day for the erroneous influent flow reading caused by a “flat-line” of the last recorded data of the lift station flows due to the PLC faulting. However, the secondary flows for the day were considered correct and accurate. Also, the recovered amount of 0.97 mgd was re-introduced to the collection system on December 26 to 27 creating an artificial increase of the influent flow of 15.62 mgd for that day as well as having a partial elevated “flat-line” reading for several hours.

TVRWRF Influent flow for December 25 to 26 was determined by using the maximum influent flow from the previous 7 days which was 14.63 mgd.

Therefore to determine the unaccounted flow on December 25 to 26 was to take the difference between the estimated TVRWRF influent flow and the secondary flow. The unaccounted flow of 2.39 mgd was deemed the release amount.

$$(\text{Est. Inf Flow}) - (\text{Sec. Flow}) = (\text{Unaccounted Flow})$$

$$14.63 \text{ mgd} - 12.24 \text{ mgd} = \mathbf{2.39 \text{ mgd}}$$

- 4.1.3. The portions of the facility operation manual pertaining to the headworks, the electronic components of the headworks, and the electronic alarm system serving the headworks. In addition, a copy of any operation, maintenance, and testing specifications provided to the District by the manufacturer of these systems must be submitted.**

As part of the plant routine, plant operators conduct a walk-around the plant at the beginning of the day as well as the end. Maintenance, throughout the EMWD District, is scheduled and documented through MAXIMO, a maintenance program database. In addition, repairs are scheduled and also documented through MAXIMO. As seen in Figure 4-7, the work order history showed that previous inspections were conducted on the TVRWRF. Those inspections include checks on the influent equipment such as the barscreens. As shown in Figure 4-6, the weekly inspection or job plan, include "INSPECT CHANNEL MONSTER" which was the predecessor of the barscreen units. Detailed work order summary of these inspections are attached in Appendix B.

Job Plan: RJP1052 T3400 PLANT 2 WEEKLY CHECKS		Est Dur.: 4 hrs
Task #	Task Description	Task Duration
1	VERIFY LOC# AND EQ#. IF WRONG NOTIFY PLANT CMMS	0
10	INSPECT CHANNEL MONSTERS	0.2
20	INSPECT SCREENING CONVEYOR	0.1
24	INSPECT GRIT WASHERS	0.2
28	INSPECT GRIT MIXERS	0.2
29	INSPECT GRIT PUMPS	0.2
30	INSPECT APT CHEMICAL PUMPS (FERRIC AND POLYMER)	0.3
40	INSPECT PRIMARY SLUDGE PUMPS	0.2
50	INSPECT PRIMARY CLARIFIER DRAIN PUMP	0.1
60	INSPECT PRIMARY COLLECTOR DRIVES	0.3
70	INSPECT SECONDARY COLLECTOR DRIVES	0.7
80	INSPECT RAS PUMPS	0.4
90	INSPECT WAS PUMPS	0.2
100	INSPECT SECONDARY CLARIFIER DRAIN PUMP	0.1

Figure 4-6. Job Plan

In addition, the manual for the barscreen installation, operation and maintenance, the historical Work Order List for inspection, the historical Work Order Summary of maintenance and repairs to the barscreens, and the Job Plan Details Report can be found in Appendix B.

 <h2 style="text-align: center;">Work Order List</h2>											
Work Order	Description	Work Type	Status	Prior.	Supervisor	Location	Equip	Parent WO	Target Start	Schedule Start	Completion Date
953850	T3400 PLANT 2 WEEKLY CHECKS GCH09 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			10/6/2009	10/1/2009	10/30/2009
971755	987194 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	COMP	17	1442	2947			11/3/2009	11/2/2009	11/20/2009
98079	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	20	1442	2947			1/4/2005	1/3/2005	2/1/2005
985349	DEC09 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	COMP	17	1442	2947			12/11/2009	12/1/2009	12/29/2009
985314	JAN 10 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	COMP	17	1442	2947			12/29/2009	1/1/2010	1/28/2010

Work Orders Selected: 85

Figure 4-7. Work Order History

The headwork electrical and electronic portions as well as the SCADA programming are custom and not an off-the-shelf product. However, specification of the system is also included in Appendix B. There is routine maintenance on the electrical or electronic equipment that included cleaning and servicing control panels that are scheduled. During installation and programming, loop checks are performed and alarms are verified. Through the programming of the SCADA system, failures of these devices, such PLC failure, are recognized at the SCADA terminal and displayed. This was displayed at the SCADA terminal when the incident occurred but not recognized easily. System improvements are discussed and diagramed in the document "Dept. 895 Control Technician Report TVRWRF Raw Sewage Spill 12/25/09" that can be found in Appendix A.

4.1.4. *The names of all wastewater operators who were on duty at the TVRWRF between December 25 and 26, 2009. State the hours each wastewater operator was on duty during the specified period, and specify the hours each day that at least one wastewater operator is schedule to work at the facility.*

The Temecula Valley Water Reclamation Facility is operated using eleven operations personnel, with one administration personnel working a regular Monday to Friday eight hour shift and the remaining operations personnel, working 10 hour shifts each day Monday to Wednesday or Wednesday to Friday with alternating weekends off. The automation provided by the SCADA upgrades has allowed the District to forego 24 hour daily operations and shift plant resources to on-call staffing during the unmanned hours of plant operation. Additional features include laptop access to provide remote monitoring of its facilities via a dial-up or high speed internet connection. The current staffing schedule is as follows:

"A" Crew

- For employees whose work schedule is on the A Crew assignment:

6:00 a.m. – 4:30 p.m. (with a half hour lunch) Monday – Wednesday
Days off Thursday, Friday with alternating weekends.

"B" Crew

- For employees whose work schedule is on the B Crew assignment:

6:00 a.m. – 4:30 p.m. (with a half hour lunch) Wednesday-Friday
Days off Monday and Tuesday with alternating weekends.

The names of scheduled operators at TVRWRf on December 25, 2009 from 0600-1630 hours were as follows:

Edward Westendorf	Shift Supervisor
James King	Water Reclamation Plant Operator III
Anthony Jiminez	Water Reclamation Plant Operator II
Charles Behrens	Water Reclamation Plant Operator II
James King	Standby Duty Operator 1630-0600 hours

The names of scheduled operators at the TVRWRf on December 26, 2009 from 0600-1630 hours were as follows:

Edward Westendorf	Shift Supervisor
Robert Cash	Water Reclamation Plant Operator III
James King	Water Reclamation Plant Operator III
Donald Ireland	Water Reclamation Plant Operator III
Anthony Jiminez	Water Reclamation Plant Operator II
Charles Behrens	Water Reclamation Plant Operator II
James King	Standby Duty Operator 1630-0600 hours

The names of other personnel who responded on-site to address the remediation of the spill:

Anthony Pack	General Manager
Michael Luker	Assistant General Manager of Operations
Melita Caldwell-Betties	Water Reclamation Plant Manager
Robert Naranjo	Lead Plant Controls Technician

(M. Caldwell-Bettis)

Collections

Mark Chamberlin	Wastewater Collection Manager
Ron Jubera	Wastewater Collection Supervisor
Bruce Malone	Wastewater Collection Lead
Wayne Pike	Wastewater Collection Lead
Jason Beard	Wastewater Collection Lead
Craig Frietas	Wastewater Collection Crew
James Baron	Wastewater Collection Crew

Additional Personnel

Al Javier	Senior Environmental Analyst
Peter Odencrans	Senior Public Affairs Officer

4.2. Response to the Discharge

- 4.2.1. A copy of the facility's overflow or spill response plan (for overflows or spills that occur within the TVRWRf). Describe how the plan was implemented before and during the discharge, and include a description of any changes/improvements that will be made in the plan as a result of experiences gained in responding to the discharge.**

Emergency Operations Plan

The Emergency Operations Plan (EOP) was not implemented during this incident. However, after review with staff in meeting on February 8, 2010, it was deemed that the incident command system should have been implemented but on a smaller scale. The current EOP does not have a provision for sewage release and this was seen as a deficiency. It has been noted by the District's Risk Management and will be included in the next revision of the EOP update. The District EOP is considered confidential, and therefore, not included with this report.

Wastewater Treatment Spill Notification

As required in EMWD Wastewater Treatment Spill Notification (WTSN) procedure, spills that are greater than 1000 gallons and/or reach surface water, notification to the Emergency Management Agency (EMA), Riverside County Environmental Health and Regional Board are required within 2 hours of spill discovery. In addition, a follow-up report must be submitted within 24 hours to the Regional Water Quality Control Board (RWQCB). All required notification according to the WTSN procedure was conducted in a timely matter on the day of the incident. According to Mr. James King, the following notifications were conducted on December 26, 2009:

<u>Time</u>	<u>Action</u>
06:40	Notified EMA (EMA No. 09-8567)
07:00	Notified ERC (Al Javier)
07:04	Notified Riverside County Environmental Health (Christina Parsons)
07:30	Left Message with San Diego RWQCB
09:15	Temecula City & Police

Mr. King also submitted the Follow-Up Notification via e-mail the morning of December 26, 2009 to the San Diego RWQCB. A copy of the Follow-Up Notification sent can be found in Appendix C. Also, Mr. Al Javier followed up on December 26, 2009 with messages left with San Diego RWQCB, Riverside County Environmental Health, City of Temecula, and Riverside County Flood Control. In addition, Mr. Javier re-submitted the Follow-Up Notification via e-mail and called EMA with the update status of the incident. A copy of the Wastewater Treatment Spill Notification Procedure can be reviewed in Appendix C.

Additional notifications were conducted on Monday, December 28, 2009 with the following agencies:

- Rancho California Water District (RCWD), Rich Ottolini.
- Fallbrook Public Utility District, David Horn
- Santa Margarita River Water Master (Left Message)
- San Diego RWQCB, Olufisayo Osibodu
- Riverside County Flood Control
- City of Temecula
- Camp Pendleton, Edward Kaulius
- Riverside County Department of Environmental Health (DEH), Matt Riha
- California Highway Patrol.
- Fish and Game, Jack Prescott

Sanitary Sewer Overflow Response Plan

As required by the Sanitary Sewer Overflow Response Plan (SSORP), the Collection crews followed the procedure as defined. After being notified by Integrated Operation Center at 07:16 on December 26, 2009, the stand-by crew responded approximately 08:00 to TVRWRF. Travel time from the District to TVRWRF is approximately 30 minutes and therefore, the response to the incident was well under 20 minutes "in route" procedure time. In addition, additional crews were called in, as well as, the Wastewater Collections Manager and Supervisor.



Figure 4-8. Vactoring Storm Drain at Diaz Road

The containment procedure described in the SSORP was already implemented by TVRWRF staff upstream of the storm drain at Diaz Road. As seen in Figure 4-8, sand-bags and plywood were used to dam up the spill. Thus, the collection crew immediately began to recover the release from that point using vector trucks (Figure 4-9).

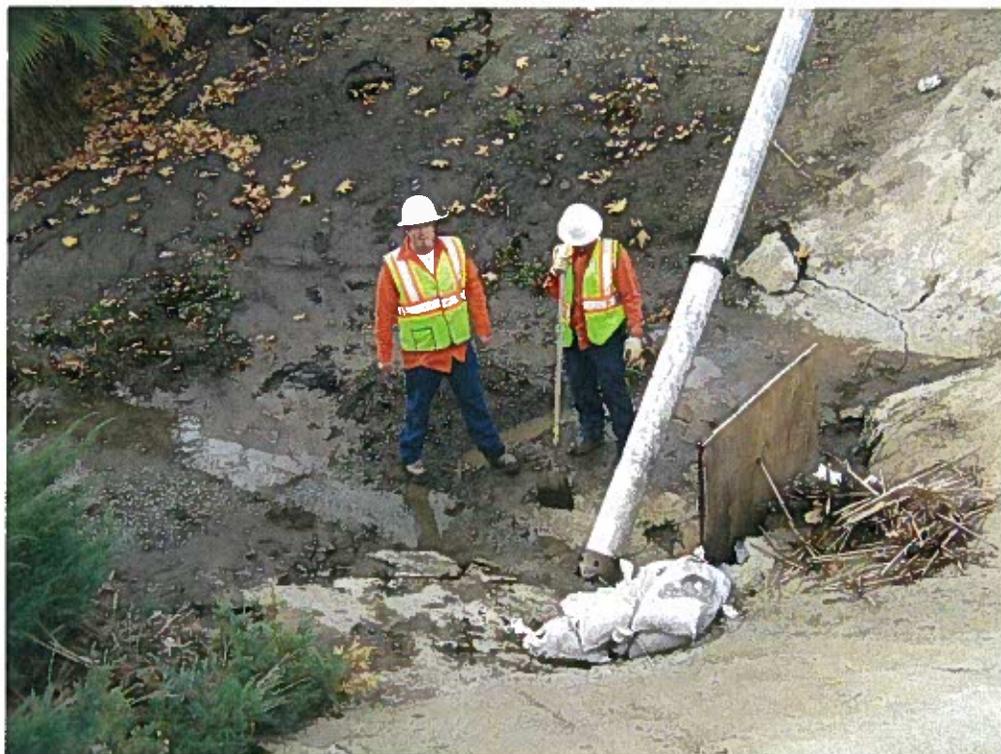


Figure 4-9. Cleaning-up Storm Drain at Diaz Road

TVRWRF staff and Collections crew also documented the incident as well as taking photographs for future reporting. The Collection field documents, Daily Sewer Line Cleaning Record, as well as e-mails, can be found in Appendix A. The Collections crew also posted warning signs along Murrieta Creek on the day of the spill. Pictures of the warning signs posting are shown in Figure 4-10. The warning sign were removed on February 9, 2010, 30-days (+) after all indications that the fecal coliform were less than 2,000 MPN/100 mL for REC 2 waters. This was requested via e-mail dated January 11, 2010 by Matt Riha, Riverside County Environmental Health.



Figure 4-10. Warning Signs along Murrieta Creek

Restoration of the area involved collecting and disposing the standing sewage that was accessible to the public. At Via Montazuma Road crossing in Murrieta Creek, a large amount of water passed over the road and contained sewage. TVRWRF personnel immediately closed the roadway eliminating contact of the sewage by vehicles as well as to the general public, and the roadway remained closed for several days. The pooling area on either side of the roadway crossing was pumped out and returned to the collection system as seen in the picture of Figure 4-11.

The SSORP Post Debriefing was conducted as part of the investigative study by EMWD Staff, Bob Naranjo Technician Report and Tony Hughes Safety Investigation which can be reviewed in Appendix A.



Figure 4-11. Pumping at Murrieta Creek @ Via Montazuma

Wastewater Treatment Plant Response

Currently, there is not a spill response plan for overflows that occur “within” the RWRfS. However, TVRWRF staff did respond correctly to the Sanitary Sewer Overflow Response Plan (SSORP) in the previous section. A spill response plan will be created and presented to RWRfS staff.

4.2.2. A detailed chronological description of all actions taken by the District to terminate the discharge, and mitigate its impacts. The narrative must include an evaluation of the results of these actions.

4.2.2.1. Temecula Valley RWRf Response:

December 26, 2009

06:00 Discovered Influent overflowing
06:14 Staff corrected influent flow, barricaded the storm drain at Diaz Road to prevent addition flow into Murrieta Creek & Barricaded Via Montezuma road to prevent traffic from crossing.
06:24 Notified Integrated Operations Center, TVRWRf Plant Manager Melita Caldwell-Betties, & On-Call Administration – Mark Iverson
06:40 Notified EMA (EMA No. 09-8567)
07:00 Notified ERC (Al Javier)
07:04 Notified Riverside County Environmental Health (Christina Parsons)
07:30 Left Message with San Diego RWQCB
09:15 Temecula Fire Department & Police
15:15 Updated EMA

4.2.2.2. Collections Response:

December 26, 2009

07:16 Wastewater Collection on-call crew notified of the spill.
08:00 Wastewater Collection crew arrived on-site.
09:00 Crew started vactoring from a storm channel tributary to Murrieta Creek located on the west side of Diaz Rd.
12:40 A 6" pump rated at 450 gpm was place at the crossing of Murrieta Creek and Via Montezuma Rd. and the area was pumped back into the collection system.
15:04 Another 6" pump rated at 550 gpm was place in Murrieta Creek upstream of Rancho California Road and this area was also pumped back into the collection system.
16:00 Warning signs were posted along the Murrieta Creek.

December 27, 2009

05:19 Pumping stopped due to no remaining visible evidence of the spill. The pump at Via Montezuma Rd. recovered 449,550 gallons and the other pump located at Rancho California Road recovered 470,250 gallons. Additionally, two vactor trucks pumped 27 loads for a total of 47,000 gallons. Therefore, the total recovered amount was 966,800 gallons.

February 9, 2010

Warning signs removed.

4.2.2.3. Environmental Regulatory Compliance Response:

December 26, 2009

07:00 Notification of ERC Staff – confirmed regulatory agency was notified.
09:45 Arrived at Main Office
10:10 Left Message with San Diego Regional Board
10:11 Sent Follow-Up Notification to San Diego Regional Board
10:15 Left Message with Riverside County Environmental Health (Call Center).
10:22 Again, sent Follow-Up Notification to San Diego Regional Board
11:00 Arrived on-site, evaluated situation, took pictures and began sampling. Samples were taken upstream, at the point-of-discharge within Murrieta Creek and downstream. The upstream sample was collected at Murrieta Creek at Blackdeer Road. The point-of-discharge was at Murrieta Creek at Via Montezuma Road. This was slightly downstream but had the easiest access for sampling. The downstream sample was on Murrieta Creek at Rancho California Road. This was also the farthest downstream surface flow for in Murrieta Creek.
12:45 Met with Riverside County Environmental Health-HazMat (Christine Parsons).
13:15 Left message with City of Temecula
13:20 Left message with Riverside County Flood Control
13:30 Update Emergency Management Agency of situation
14:30 Delivered samples to lab

December 28, 2009

08:00 Left message with Rancho California Water District (RCWD), Rich Ottolini.
08:05 Notified David Horn, Fallbrook Public Utility District
08:10 Left message with Santa Margarita River Water Master
08:15 Talked with Olufisayo Osibodu from San Diego RWQCB
08:25 Notified Riverside County Flood Control
09:05 Notified City of Temecula
09:15 Notified Rich Ottonlini, RCWD
09:20 Notified Edward Kaulius from Camp Pendleton
09:30 Notified Riverside County Department of Environmental Health (DEH), Matt Riha
10:00 Collected samples at the following 5 locations along Murrieta Creek:
Murrieta Creek @ Winchester Road (Upstream)
Murrieta Creek @ Via Montezuma Road (Discharge)
Murrieta Creek @ Rancho Way Road (Additional Downstream)
Murrieta Creek @ Rancho California Road (Downstream)
Temecula Creek (requested by Camp Pendleton)

Santa Margarita River Confluence (requested by Camp
Pendleton)

11:00 Met with Matt Riha, Riverside County DEH, and Chris Mean &
Olufisayo Osibodu from San Diego RWQCB

December 29, 2009

09:30 Met with Shay Lawrey, Tom Dodson & Associates
(Bioassessment)

10:00 Notified Anna Milloy, Fish and Game

December 30, 2009

09:00 Shay Lawrey conducted site assessment of Murrieta Creek.

December 31, 2009

09:00 Collected samples at the 5 locations along Murrieta Creek.

January 6, 2010

14:00 Collected samples at the 5 locations along Murrieta Creek.

January 14, 2010

10:00 Collected samples at the 5 locations along Murrieta Creek.

January 19, 2010

09:30 Collected samples at the 5 locations along Murrieta Creek.

January 25, 2010

10:00 Collected samples at the 5 locations along Murrieta Creek.

February 2, 2010

14:00 Collected samples at the 5 locations along Murrieta Creek.

February 9, 2010

10:00 Collected samples at the 5 locations along Murrieta Creek.

February 16, 2010

10:00 Collected samples at the 5 locations along Murrieta Creek.

February 23, 2010

11:00 Collected samples at the 5 locations along Murrieta Creek.

4.3. Monitoring and Analysis

4.3.1. Analyses results for any samples collected along Murrieta Creek at points upstream and downstream from where the discharge entered Murrieta Creek.

Table 4-3 represents the Ammonia-Nitrogen (NH₃-N) data for the sampling along Murrieta Creek. NH₃-N was only present during the initial day of the spill and only close to the discharge into Murrieta Creek. All other days, the NH₃-N was not detected. NH₃-N is a good indicator of sewage since it is typically elevated as seen in Table 4-8 where 12-month average for TVRWRF Influent was 35 mg/L NH₃-N.

Table 4-3. Murrieta Creek - Ammonia-Nitrogen (mg/L)

Date	@ Winchester	@ Via Montezuma	@ Rancho Way	@ Rancho CA
	Upstream	Discharge	Downstream	Downstream
12/26/2009	NA	14	NA	<2
12/28/2009	<2	<2	<2	<2
12/31/2009	<2	<2	<2	<2
1/6/2010	<2	<2	<2	<2
1/14/2010	<2	<2	<2	<2
1/19/2010	<2	<2	<2	<2
1/25/2010	<2	<2	<2	<2
2/2/2010	<2	<2	<2	<2
2/9/2010	<2	<2	<2	<2
2/16/2010	<2	<2	<2	<2
2/23/2010	<2	<2	<2	<2

Biochemical Oxygen Demand (BOD) is also another good indicator of sewage. The raw sewage BOD is typically high as seen in Table 4-8, where the 12-month average for TVRWRF Influent was 264 mg/L BOD. In Table 4-4, the elevated BOD is seen only during the initial day of the spill. All other days of sampling where similar to the upstream or reference site.

Table 4-4. Murrieta Creek – Biochemical Oxygen Demand (mg/L)

Date	@ Winchester	@ Via Montazuma	@ Rancho Way	@ Rancho CA
	Upstream	Discharge	Downstream	Downstream
12/26/2009	NA	90	NA	<50
12/28/2009	19	20	22	18
12/31/2009	5.2	6.2	11	5.5
1/6/2010	27	27	31	33
1/14/2010	5	7.2	4.6	3.7
1/19/2010	3.4	4.8	5.8	5.4
1/25/2010	3.4	3.1	3.5	3.6
2/2/2010	2.8	2.9	2.6	3.5
2/9/2010	<2	<2	<2	<2
2/16/2010	2.2	2.2	3.3	3.7
2/23/2010	11	<2	3.9	3.1

For Table 4-5, fecal coliform is presented for the sampling sites along Murrieta Creek. fecal coliform is another good indication of sewage. As seen in the table, the fecal coliform did stay elevated for several days at Via Montezuma and Rancho Way sampling sites. However, after one week the results drastically diminished at all sites. The Murrieta Creek at Rancho Way sampling is located in the vicinity of beaver lodge. There has been a confirmed sighting of the beaver pair and could be the reason for slightly elevated Fecal coliform results.

Table 4-5. Murrieta Creek – Fecal Coliform (MPN/100mL)

Date	@ Winchester	@ Montazuma	@ Rancho Way	@ Rancho CA
	Upstream	Discharge	Downstream	Downstream
12/26/2009	NA	>160000	NA	400
12/28/2009	<20	240000	110000	230
12/31/2009	200	1300	<200	1700
1/6/2010	<20	230	800	<20
1/14/2010	300	70	40	<20
1/19/2010	1100	800	1100	1100
1/25/2010	170	220	230	80
2/2/2010	40	20	110	140
2/9/2010	230	220	270	800
2/16/2010	20	40	270	40
2/23/2010	20	<20	210	130

Additional samplings were conducted on the initial day and are presented in Table 4-6. Sample Locations 1 and 3 were similar to TVRWRF Influent results for NH3-N and BOD whereas Sample Location 2 showed lower results probably due to dilution with existing flow in Murrieta Creek. For Sample Location 1, 2 & 3, samples were not collected for the bacteriological test; therefore, no fecal coliform data are presented. Murrieta Creek @ Black Deer was initially sampled as a upstream reference site. However, because the results were similar to Via Montezuma, the sample site was further omitted from sampling. Possible reasons for high results were the area of discharge influence was greater than expected or additional contaminated flow input from the major storm channel to the eastside of this sampling location could have contributed to the result.

Table 4-6. Additional Sampling

Sampling Locations		NH3-N	BOD	Fecal Coliform
		mg/L	mg/L	MPN/100mL
Sample Location 1	Diaz (West)	37	140	NA
Sample Location 2	Via Montezuma	18	92	NA
Sample Location 3	Airport Field	35	200	NA
Murrieta Creek @ Black Deer		26	96	>160000

For the request from Camp Pendleton, additional samplings were conducted at the Santa Margarita River (SMR) Confluence. In addition, Temecula Creek was sampled as a reference site to compare with both SMR Confluence and Murrieta Creek. The requested sampling results for only BOD and Fecal coliform are presented in Table 4-7. NH3-N is not presented for the requested data but all samples were Not Detected (<2 mg/L NH3-N).

Table 4-7. Santa Margarita River Sampling

Date	BOD (mg/L)		Fecal coliform (MPN/100mL)	
	Confluence	Temecula Crk	Confluence	Temecula Crk
12/28/2009	18	14	<20	20
1/6/2010	30	28	<20	<20
1/14/2010	4.4	6.2	<20	<20
1/19/2010	6.9	2.8	1100	5000
1/25/2010	3.4	3.5	500	140
2/2/2010	3.3	<2	20	20
2/9/2010	<2	<2	300	230
2/16/2010	3.3	<2	20	20
2/23/2010	<2	<2	17	20

All laboratory reports including Quality Control documentation for Murrieta Creek, Santa Margarita River and the additional sampling results can be found in Appendix K.

4.3.2. A detailed map of the discharge location, path of the discharge, and location of sampling points.

Figure 4-12 details the path of the sewage release from TVRWRF influent structure to Murrieta Creek. The TVRWRF influent structure is located to the north of the plant. The sewage release traveled north from the influent structure along the pavement to a storm channel that runs from west to east along the northern property line. From the storm channel, the flow went out to a field, east of the plant, where it drained into another storm channel running north to south along the east edge of the TVRWRF property. This channel meets up with several other storm channels and continues to flow from west to east leaving the TVRWRF property. The flow then travels towards Diaz Road and goes through an underground storm drain where it eventually enters Murrieta Creek.

On discovery of the release, operators collected several samples along the release path. Sample Location 1 is identified as Diaz Road. Sample Location 2 is Murrieta Creek @ Via Montezuma Road, and Sample Location 3 is the Airport Field. Temecula Airport was located along the east side of TVRWRF.

Pumping locations by Collections on Murrieta Creek are also displayed in Figure 4-12. One pump is located at Via Montezuma Road crossing in Murrieta Creek, and the other is located upstream of Rancho California Road in Murrieta Creek.

In Figure 4-13, the sampling locations are displayed. In addition, RCWD Well No. 101 and Well No. 118 are shown. RCWD Well No. 118 at the time of the release was offline. Sample location Murrieta Creek @ Winchester Road was considered the upstream reference sample site. Murrieta Creek @ Blackdeer was initially chosen as the upstream reference sample site but on the first day test results show that this was not a good location as a reference site. Murrieta Creek @ Rancho Way and Murrieta Creek @ Rancho California Road are both downstream sampling locations. Just past Murrieta Creek @ Rancho California Road was the farthest location where surface water flow occurred during the time of the release as seen in Figure 4-15. Pumping from Murrieta Creek at Rancho California Road caused the surface water flow in Murrieta Creek to recede back to Rancho California Road.



Figure 4-12 TVRWRf Influent Sewage Spill Pathway

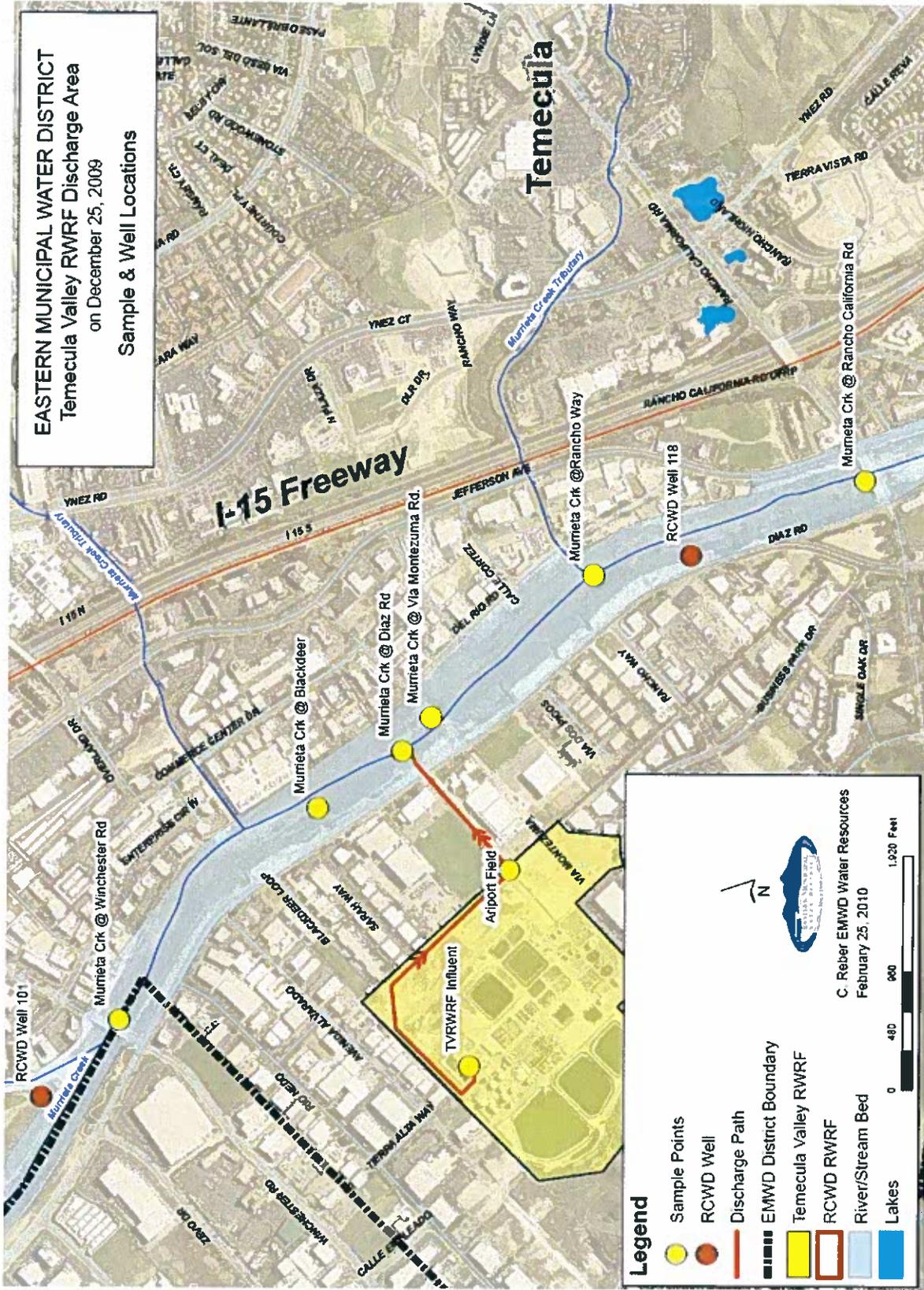
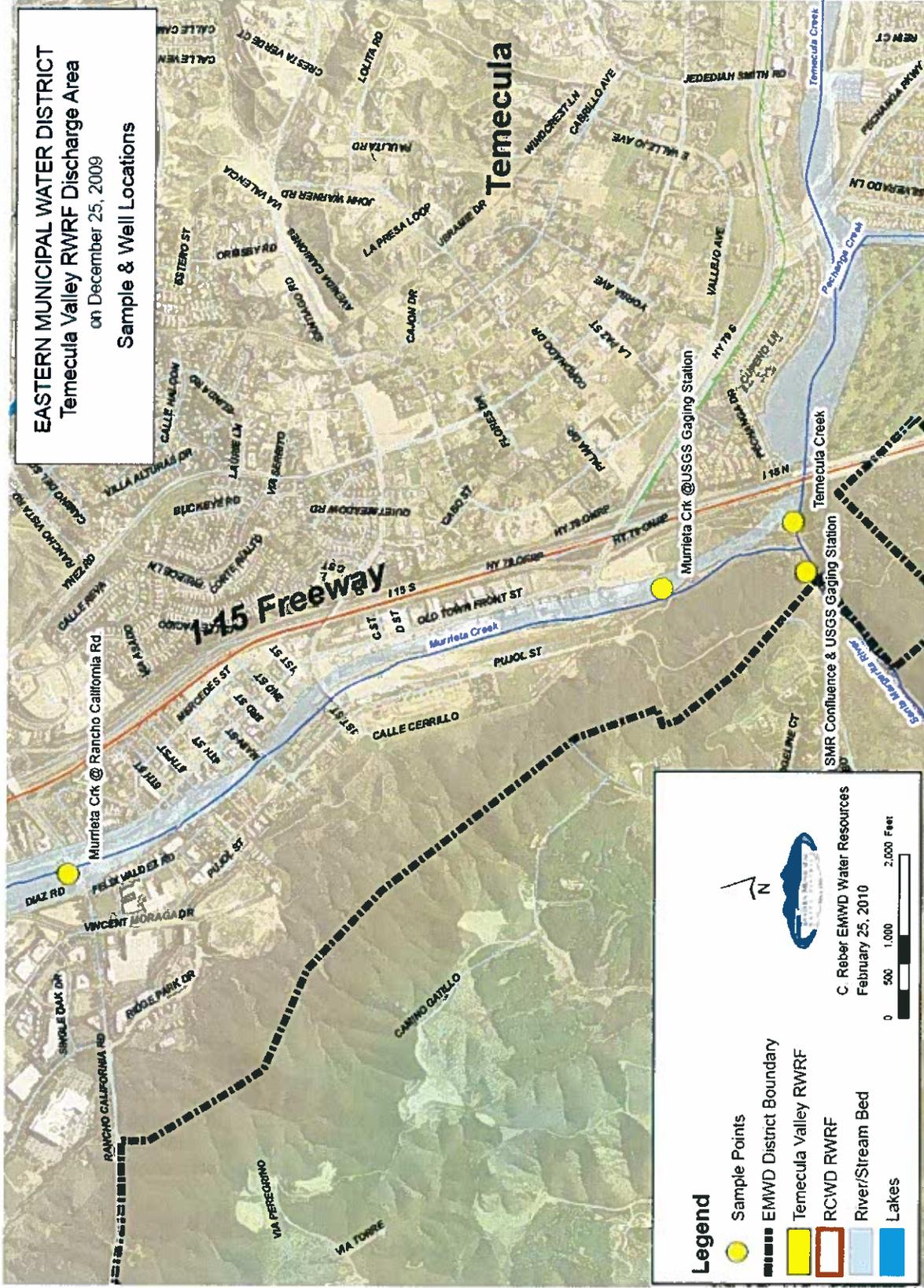


Figure 4-13. Murrieta Creek Sampling Locations



T:_Service_Requests\TVRWRf_Dec_2009_Discharge\CadGis\mxd\Temecula_RWRf_Discharge_20100223_Fig_4_01.mxd



Figure 4-15. Murrieta Creek south of Rancho California Road

In Figure 4-14, other sampling sites are displayed further downstream of Murrieta Creek at Temecula Creek and Santa Margarita River Confluence. These sampling sites were conducted at the request of Camp Pendleton. Both Temecula Creek and Murrieta Creek are tributaries to the Santa Margarita River, and the joining of the two creeks form the confluence of the Santa Margarita River. Temecula Creek was selected as a reference site to the additional sampling location of the Santa Margarita River Confluence. In addition, the USGS gaging stations location, Murrieta Creek USGS Gaging Station No. 11043000 and Santa Margarita River Gaging Station No. 11044000, are shown.

4.3.3. Characterization of the quality of the influent for the following chemical constituents: total nitrogen, total dissolved solids, chloride, sulfate, iron, manganese, biological oxygen demand, and methylene blue activated substances.

Table 4-8 characterizes the TVRWRF influent quality for the past 12 months or for the year 2009. Multiple results within the month, such as BOD, are averaged for the month and reported in the Table 4-8. Some data, such as Chloride and Sulfate, were only analyzed once during the year.

Table 4-8. TV RWRf Influent Quality (2009)

Month	NH3-N	BOD	Chloride	Iron	Manganese	Sulfate	TDS	TIN
	mg/L		mg/L	ug/L	ug/L	mg/L	mg/L	mg/L
January	32	285		660	61		730	31
February	32	253		520	67		770	30
March	32	254					750	34
April	35	255					730	33
May	37	308		730	62		764	
June	39	265		1,040	51		690	38
July	41	256	160	630	53	150	710	28
August	33	263					700	34
September	34	272					720	34
October	32	261			51		660	32
November	35	228		760	47		830	35
December	37	270		840	78		802	36
Average	35	264	160	740	59	150	738	33
Minimum	32	213	160	520	47	150	660	28
Maximum	41	308	160	1040	78	150	830	38
Count	12	12	1	7	8	1	12	11

Total Nitrogen and Methylene Blue Activated Substance do not have historical data for the past 12 months. Therefore, only recent analyses were conducted on these parameters and report as in the Table 4-9.

Table 4-9. TVRWRf Influent

Parameters	Unit	Result	Date Analyze
Total Nitrogen	mg/L	53	2/24/2010
Methylene Blue Activated Substance	mg/L	7.8	2/18/2010

Summarized reports for TVRWRf influent quality can be found in Appendix D.

4.4. Impacts of the Discharge

4.4.1. Identification of the hydrogeologic characteristics of the area impacted by the discharge; including groundwater depth, flow rate and direction, groundwater storage and assimilation capacity, and any interaction of groundwater with surface water bodies and water courses.

The discharge occurred in the South Murrieta Operational Subunit of the greater Temecula Valley Groundwater Basin located within the Upper Santa Margarita Watershed. Three groundwater aquifers have been documented in this area (Surface and Ground Water Model of the Murrieta – Temecula Groundwater Basin, California [Geoscience, 2003]). They are, from shallowest to deepest, the

Younger Alluvium, Pauba Aquifer, and Temecula Aquifer. The Younger Alluvium is an unconfined, approximately 50 to 60 foot thick aquifer in the Temecula Valley (Geoscience, 2003) comprised of interbedded sands and clays. The Pauba Aquifer occurs as a semi-confined aquifer with a maximum thickness on the order of 500 feet (Geoscience, 2003) and is comprised of sandstone, siltstone, fanglomerate, and mudstone facies. The Temecula Aquifer occurs as a semi-confined aquifer with a thickness ranging between 300 feet and greater than 1600 feet. The Temecula Aquifer is comprised of medium to coarse-grained arkosic sandstone with thin discontinuous beds of fine-grained tuffaceous sandstone, siltstone, and claystone (Geoscience, 2003).

The groundwater subunit is bounded to the east and to the west by faults that act as impermeable barriers to groundwater flow, to the north by a natural groundwater divide and to the south by impermeable materials near the Temecula Narrows. The subunit is primarily recharged along the stream channels along with aerially distributed rain and return flows from agriculture and landscaping in the valley which travel into the main production aquifers through numerous fine-grained silt and clay layers. The Groundwater elevations and gradient vary seasonally, however based on groundwater contour maps included in the RCWD 1988-1989 Water Resources Master Plan (Master Plan) by Ground Water Systems, Inc. (GWS, 1990), groundwater generally flows from northwest to southeast along the axis of the Temecula Valley at an estimated gradient of approximately 0.0025.

The area affected by the discharge is located between the TVRWRF to approximately 300 feet south of the Rancho California Road Bridge over Murrieta Creek and includes three area of potential percolation of the waters (see Figure 4-16). The discharge initially accumulated on property owned by EMWD immediately east of the TVRWRF (Potential Percolation Area 1) then flowed along an unlined drainage channel (Potential Percolation Area 2) entering Murrieta Creek about 200 feet north of Via Montezuma Road. The discharge flowed along the western portion of Murrieta Creek until spreading laterally across the stream channel at the Rancho California Road Bridge. Once the discharge topped the emplaced riprap/concrete at the base of the bridge, the surface water flow extended to approximately 300 feet south before the remainder percolated into the soils (Potential Percolation Area 3).

Potential percolation area 1 is a maintained, open, un-vegetated field approximately 1000 feet (ft) by 2000 ft with surface sediments ranging from medium-grained to fine-grained sands. The soils in this area may percolate at 0.1 to 0.5 ft/day.

Potential percolation area 2 is within an unlined drainage channel approximately 25 feet wide by 10 feet deep. A significant amount of vegetation is present in the drainage channel ranging from grasses to palm trees. The surface sediments in this channel are silty clays with some medium-grained sands. These soils do not appear very conductive, therefore percolation in this area is assumed to be minimal.

Potential percolation area 3 is within Murrieta Creek. Murrieta Creek has a coarse substrate with fine-grained to coarse-grained sands with some gravel. Annual flows in the streambed scour the sediments keeping percolation potential high. Typical percolation rates range from 1 to 4 ft/day.

Groundwater modeling in the area suggests a hydraulic conductivity range in the Younger Alluvium of approximately 69 ft/day to 1,315 ft/day (Geoscience, 2003).

In the area affected by the discharge, Murrieta Creek is predominantly a losing stream. At the time of the discharge there was groundwater storage available to assimilate the water discharged as evidenced by the rapidity and completeness of percolation of the discharge water. Based on data included in the Master Plan (GWS, 1990), local groundwater levels in the area range from approximately 20 feet below ground surface (ft bgs) during the high flow months to over 100 ft bgs during the low flow months. Approximately 5,000 feet downstream from the leading edge of discharge, Murrieta Creek is a gaining stream as it approaches the Temecula Narrows. Groundwater is forced to the surface and flows in the Murrieta Creek as it approaches the Temecula Narrows due to an impermeable subsurface barrier. The surface water then flows to the south where it combines with Temecula Creek and westward out of the valley through the Santa Margarita Gorge. The surface water then flows towards the ocean recharging aquifers downgradient.

The total groundwater storage capacity of the Temecula Valley Groundwater Basin is estimated to be 253,000 acre feet (AF) (California's Groundwater Bulletin 118, DWR updated 2004). The discharge amount after recovery efforts was estimated to be approximately 2.4 million gallons or about 7.4 AF. The amount of discharge represents less than 0.003% of the overall capacity of the groundwater basin.

Rancho California Water District Well 118 is the only well in the immediate vicinity of the discharge area. This well is used on an "as needed" basis for domestic water supply. In the most recent reporting year (2007-2008) Well 118 pumped 260 AF of water. Well 118 has a sanitary seal from ground surface to 68 feet below ground surface (ft bgs) and is screened in the Temecula Aquifer (Geoscience, 2003) from approximately 320 ft bgs to approximately 1100 ft bgs with a surface elevation of approximately 1008 ft above mean sea level.

Review of cross sections included in the Master Plan (GWS, 1990) and the well log for Well 118 show that there is a thick (about 35 feet) predominantly clay layer at about 30 ft bgs to 65 ft bgs. This clay layer helps to locally isolate the screened interval of Well 118 from direct surface discharges/interactions along Murrieta Creek. (J. Daverin)

4.4.2. An assessment of the potential short and long term impacts of the discharge on public health, animals and plant communities (including sensitive and/or endangered species), and on the overall ecosystem downstream of the discharge. The assessment must be prepared by a technical professional qualified to evaluate the short and long term impacts of the discharge on ecological receptors.

A biological assessment report conducted by Shay Lawrey from Tom Dodson & Associates is included with this report. The "Biological Resources Damage Assessment within Murrieta Creek in Relation to the Temecula Valley Regional Water Reclamation Facility December 25, 2009 Sewage Spill" can be found in Appendix E. The following is a summary of the bioassessment report.

The findings of the report showed that no special-status plant species were observed within the study area of the discharge and therefore, was not affected by the sewage release. Recently, the area of the concern was mowed and thus, the native habitat was less suitable for wildlife species of concern. The only notable species present was the arroyo chub that could be directly impacted by the discharge. However, CDFG discourages fish survey unless it is necessary. Other aquatic species, such as native and non-native frogs and crayfish, were observed in the study area.

The findings also discuss the impacts of discharge. The main concern would be the possibility of harmful effects resulting from nutrients, toxins and pathogen. In particular, these impacts associated on avifauna, mammals, reptiles, amphibians and fishes. It is noted that these impacts can not easily be determined. In fact, the impacts may naturally be removed by processes of nutrient uptake and/or breakdown of organic material through decomposition. These passive processes may provide a natural filtering of the water creating a quick recovery for the area impacted.

Finally, the report recommends additional monitoring of the impact site. This short-term habitat monitoring program would identify potential habitat damage and provide information about mitigation resulting from the spill. These two monitoring are recommended to occur between spring 2010 and spring 2011.

The immediate impact of the sewage release was to public health concerns. However, the spill was mostly confined to areas that were generally inaccessible to the public. The only accessible area was the Murrieta Creek crossing at Via Montezuma Road. This crossing was closed to traffic for the several days after the release, preventing public from coming in contact to the area of contamination. In addition, the contaminated water within the crossing area was pumped back into the collection system immediately after the release as seen in the picture of Figure 4-17. Warning signs were posted along the creek and until February 9, 2010.



Figure 4-17. Pumping at Murrieta Creek at Via Montazuma

The short-term water quality impacts are shown to be minimal. Within the first week after the discharge Murrieta Creek levels of Ammonia-Nitrogen (NH₃-N) and Biochemical Oxygen Demand (BOD) samples showed significant reduction, 14 mg/L to <2 mg/L NH₃-N and 90 mg/L to 6 mg/L BOD as seen in Table 4-3 and 4-4, respectively. Within 2 weeks, the fecal coliform counts were also significantly reduced from >160,000 MPN/100mL to 70 MPN/100mL as seen in Table 4-5. Continual sampling of discharge area and downstream on Murrieta Creek showed results for NH₃-N, BOD and fecal coliform similar to the upstream reference. The surface flow within the Murrieta Creek was confined up to Rancho California Road. As seen in Figure 4-18, Murrieta Creek did not have significant flows until January 18, 2010. Murrieta Creek USGS gaging station is located downstream of Rancho California Road and upstream of the Santa Margarita Confluence as seen on the map in Figure 4-14.

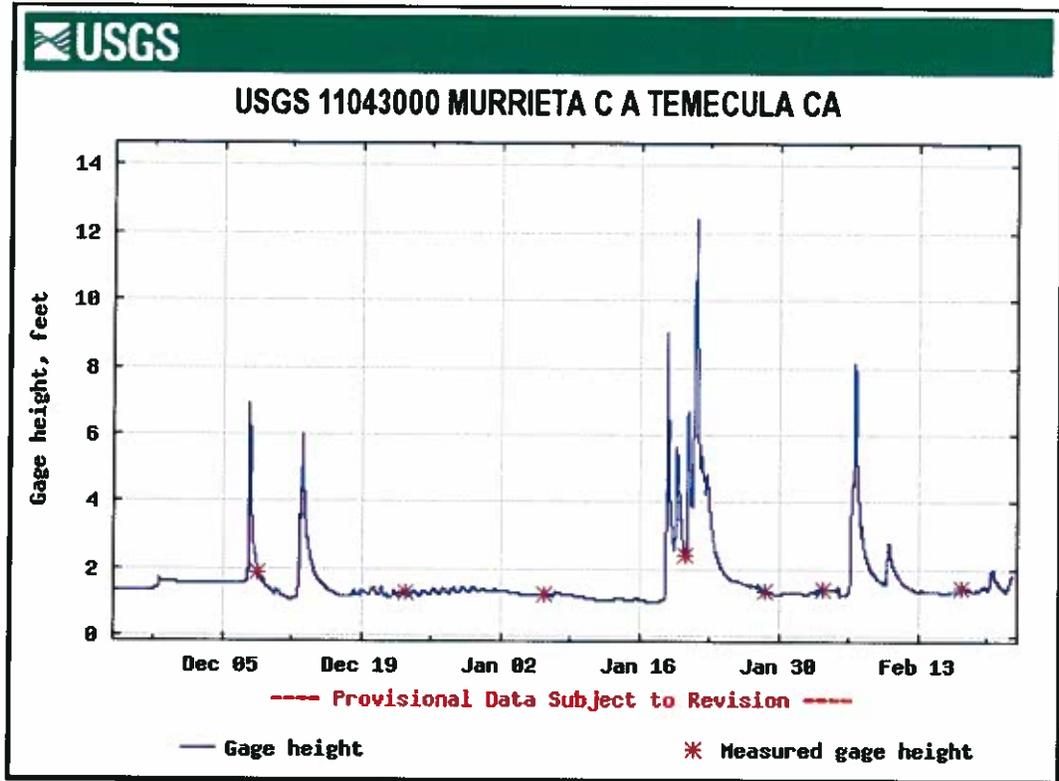


Figure 4-18. Murrieta Creek USGS Gaging Station Flows

No long-term impacts to water quality are expected from this release. Current conditions will change due to natural events, such as the storm events and vegetative regrowth. Murrieta Creek is known to be an ephemeral stream and flows are intermittent and inconsistent. Major storm event flows create a flushing affect as well as create high dilutions. As seen in Figure 4-19, the flows on January 18 and 21, 2010 for the USGS gaging station located near the confluence of the Santa Margarita River was approximately 1,000 cubic feet second (cfs) and 8,000 cfs, respectively. Therefore, there was quite a significant amount of storm water flows that would have flushed and diluted the discharge in Murrieta Creek. Again, the location of the Santa Margarita USGS gaging station can be seen in the map on Figure 4-14.

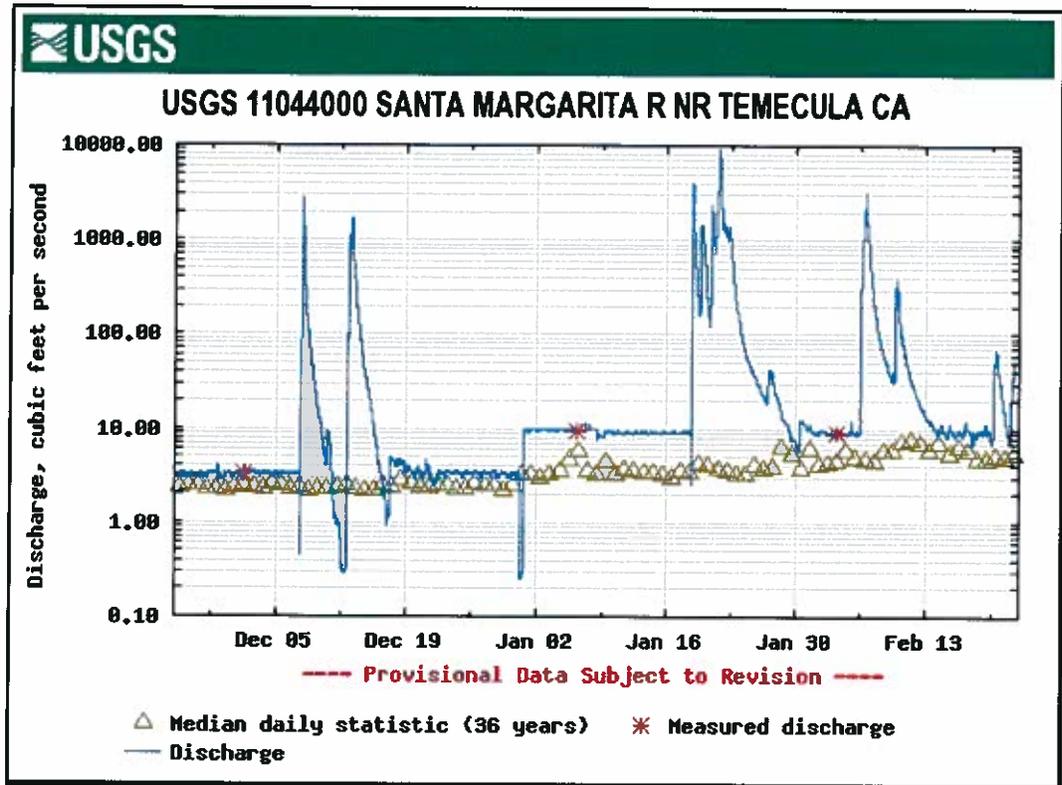


Figure 4-19. Santa Margarita River USGS Gaging Station Flows

4.5. Additional Information

4.5.1. Groundwater Management Zones

The spill occurred within the Murrieta Groundwater Management Zone (GMZ) for the Santa Margarita Basin (see Figure 4-18). The Murrieta GMZ has a TDS and TIN objectives of 750 mg/L and 2.3 mg/L, respectively. The TVRWRF Influent 12-month average for TDS and TIN is 738 mg/L and 33 mg/L, respectively. The TDS is within the objective for the GMZ; however, the TIN was at a high level which is expected for raw sewage. The impact to ground water would be minimal, however, due to the vadose zone nitrogen removal, vegetative nutrient uptake, stream flow dilution and being flushed downstream with high storm water flows.

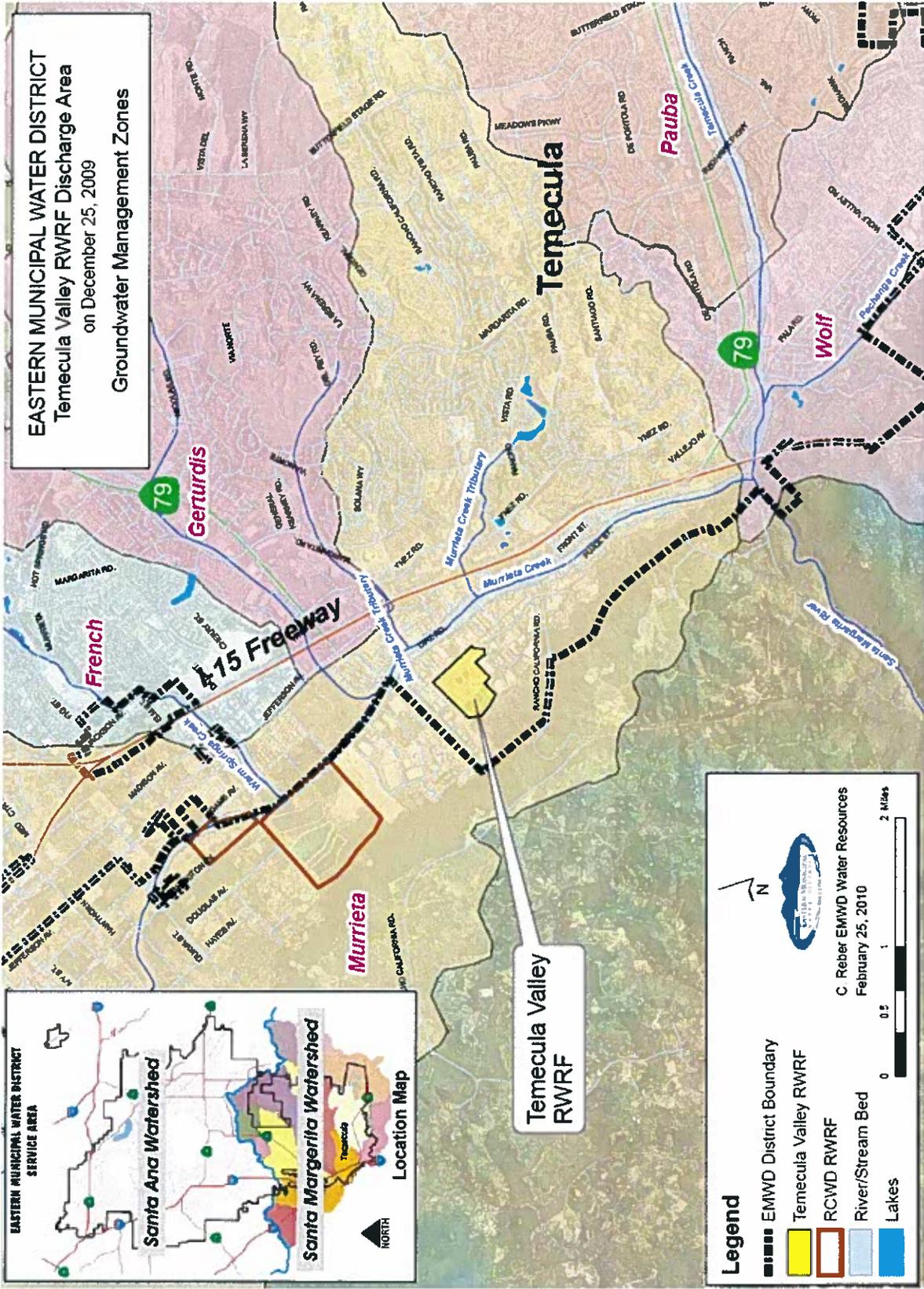


Figure 4-20. Groundwater Management Zones

T:_Service_Requests\TYRWRf_Dec_2009_Discharge\CadGis\mxd\Temecula_RWRf_Discharge_20100223_Fig_2_01.mxd

4.5.2. Rancho California Water District Wells

Rancho California Water District (RCWD) Well 118 is located downstream of the discharge on the west side of Murrieta Creek near Rancho Way. It is a production well for RCWD but was offline when the spill occurred and has been offline since. The depth of the well is 1110 feet with perforation located at intervals between 320 feet to 400 feet and 460 feet to 1100 feet. Table 4-10 displays the water quality data for RCWD Well 118. Compared from 11/6/2008 to 2/23/2010, the data is very similar in results.

Table 4-10. RCWD Well 118 Water Quality

Parameters	Unit	11/6/2008	2/23/2010
Nitrate	mg/L	<2.0	<0.4
Nitrite- Nitrogen	mg/L	<0.4	0.01
Total Dissolved Solids	mg/L	640	650

RCWD Well 101 is located upstream north of the impacted area along Murrieta Creek. Well information for RCWD Well 101 and Well 118 can be found in Appendix F including the laboratory results.

4.5.3. TVRWRF Influent Priority Pollutants Results

The TVRWRF Influent priority pollutant results indicated detection of bromodichloromethane, chloroform and toluene for volatile organics compounds. Detectable metal are total chromium, copper, lead, nickel, silver and zinc. All other priority pollutants from the EPA list are not detected. The TVRWRF Influent priority pollutant results can be found in Appendix G; included is the recent quarterly sampling which shows selected metals and selected.

4.5.4. Incident Pictures

Pictures of the incident can be found in Appendix H.

5. Qualifications

5.1. Laboratory

5.1.1. Eastern Municipal Water District

Eastern Municipal Water District's Water Quality Laboratory is a certified laboratory registered with the California Department of Public Health (CDPH), Environmental Laboratory Accreditation Program (ELAP). Currently, EMWD's Water Quality Laboratory maintains the certificate of analyses for water and wastewater. The CDPH ELAP certification for the lab is No. 1379 and is current with renewal required by 11/30/2010. The certification, Quality Assurance/Quality Control Documentation and CDPH ELAP application is included in Appendix I. Included with CDPH ELAP application are the laboratory manager and principle analyst qualifications.

5.1.2. Weck Laboratory

Weck Laboratory Inc. is the full service environmental laboratory that is contracted with EMWD for services that the District's Water Quality Laboratory cannot perform. Weck Laboratory Inc. is located in the City of Industry. They currently hold certificate from CDPH ELAP (No. 1132) and National Environmental Laboratory Accreditation Program (No. 04229CA).

5.2. Wastewater Operation

5.2.1. Writer – Bob Naranjo, Control Technician (San Jacinto RWRf)

Mr. Bob Naranjo holds an Associate Degree in Science for Computer Science and Mathematics from Mt. San Jacinto College. He has worked as a Wastewater Plant Controls Technician for 14 years with the last 4 years as a Senior Wastewater Plant Controls Technician and is assigned to San Jacinto RWRf. Previously, he worked 5 years as an Industrial Electrician for Apache Building Products. Mr. Naranjo is currently with a CWEA Grade III Electrical Control and Instrumentation Technologist Certification (No. 05017302).

5.2.2. Temecula Valley RWRf Manager – Melita Caldwell-Betties

Mrs. Caldwell-Betties holds a Master of Public Administration with an emphasis in Water Resource from the California State University, San Bernardino awarded in 2004. She graduated from the University of Redlands in 2001 with a Bachelor of Science in Business and Management. Mrs. Caldwell-Betties has been the Plant Manager for Eastern Municipal Water District, Temecula Valley Regional Water Reclamation Facility since 1998. She has been an operator since 1990. She currently maintains a Grade V Wastewater Treatment Plant Operations Certification (No. V-8110). In addition, Mrs. Caldwell-Betties is an associate faculty at Mt. San Jacinto College teaching Water Technology courses.

5.3. Electrical Manager – Tony Hughes

Mr. Tony Hughes served a 4 year Industrial Electrical apprenticeship with Imperial Chemical Industries (UK). He graduated from Cleveland Technical College (UK) as an Electrical/Electronics Technician. He has served as the Electrical Services Manager for the past 5 years, has 3 years as the Electrical Services Supervisor and 2 years as Supervisor in the Planning & Scheduling Department. Mr. Hughes has been in the Electrical/Instrumentation & Communications industry (Petro-Chem, Oil & Gas, Water) for a total of over 30 years.

5.4. Wastewater Collections Manager – Mark Chamberlin

Mr. Mark Chamberlin has been with Eastern Municipal Water District for 24 years, 9 of which have been as the Manager of the Wastewater Collection Division. Mark currently maintains a CWEA Grade IV Collection System Technologist certification (01012407). Mark is the current Chair of the CWEA state Collection System Committee and past Chair of the CWEA Southern Section Collection System Committee. Mark has participated in several CWEA workshops and has given CWEA classes on SSO response.

5.5. Hydrogeology – John Daverin P.G., C.Hg.

Mr. Daverin holds a Bachelor of Science Degree from California State University, Fullerton awarded in 1992. Since graduating Mr. Daverin has worked in varied aspects of the Geology and Hydrogeology fields. His professional experience includes groundwater modeling, water resources, mapping, well installation, and environmental investigations. He has worked at consulting firms and the Orange County Water District. Mr. Daverin is currently employed at Eastern Municipal Water District as their Senior Engineering Geologist. He is a California Registered Professional Geologist (#7722) and a Certified Hydrogeologist (#836).

5.6. Bioassessment – Shay Lawrey, Tom Dodson & Associates

Shay Lawrey is the ecologist and regulatory specialist for Tom Dodson & Associates. See Appendix J for Tom Dodson & Associates Statement of Qualifications as well as Shay Lawrey Qualifications.

5.7 Regulatory and Environmental Compliance

5.7.1 Principle Writer – Al Javier, Senior Environmental Analyst

Mr. Javier holds a Bachelor of Science Degree of Biology from University of California, Riverside awarded in 1988. Mr. Javier has worked with Eastern Municipal Water District since December 1988. He has worked in the laboratory for 18 years starting as a Laboratory Technician to the Biologist. In June 2006, he transferred into the Regulatory & Environmental Compliance Division as the Senior Environmental Analyst. Mr. Javier has a CWEA Grade IV Laboratory

Analyst certification (No. 01013402). In addition, Mr. Javier is an associate faculty at Mt. San Jacinto College teaching Water Technology courses.

5.7.2 Director of Regulatory and Environmental Compliance – Jayne Joy, P.E.

Jayne Joy is a Registered Civil Engineer with a bachelor's degree from University of California, San Diego in Chemical Engineering. She has worked as an Environmental Engineer for the last 24 years. Previously, she worked for the Marine Corps Base Camp Pendleton for fourteen years and as an Environmental Consultant for two years. Currently and for the last eight years, Jayne has held the position of Environmental & Regulatory Compliance Director for Eastern Municipal Water District. Jayne manages three divisions responsible for environmental permitting, reporting and legislative review, pretreatment and source control program as well as an analytical laboratory. Her department is comprised of 33 technicians, engineers and administrative staff. Jayne Joy has experience working with regulatory agencies in both San Diego and Riverside Counties, State agencies as well as with EPA Region 9.

**San Diego RWQCB
Investigative Order No. R9-2010-0009
Discharge of Untreated Sewage
From
The Temecula Valley
Regional Water Reclamation Facility**



Linda S. Adams
Secretary for
Environmental Protection

California Regional Water Quality Control Board

San Diego Region



Over 50 Years Serving San Diego, Orange, and Riverside Counties

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Governor

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(858) 467-2952 • Fax (858) 571-6972
<http://www.waterboards.ca.gov/sandiego>

February 1, 2010

CERTIFIED MAIL: 7009 1410 0002 2347 5838

Mr. Anthony J. Pack
General Manager
Eastern Municipal Water District
P.O. Box 8300
Perris, CA 92572-8300

In reply refer to:
372834:oosibodu

Dear Mr. Pack:

**SUBJECT: INVESTIGATIVE ORDER NO. R9-2010-0009, DISCHARGE OF
UNTREATED SEWAGE FROM THE TEMECULA VALLEY REGIONAL
WATER RECLAMATION FACILITY**

Enclosed is Investigative Order No. R9-2010-0009 (Order) issued by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) to Eastern Municipal Water District (District). The Order concerns the investigation and reporting of information related to the discharge of untreated sewage to Murrieta Creek between December 25 and 26, 2009 from the Temecula Valley Regional Water Reclamation Facility. This Order is issued under authority of California Water Code section 13267, and directs the District to submit a technical report, by **5:00 pm on March 5, 2010**, providing further information. This information is necessary for the San Diego Water Board to evaluate the nature, circumstances, extent, and gravity of the discharge of untreated sewage.

Please review the requirements contained within the Order and note that all technical reports submitted to the San Diego Water Board must be accompanied by the certification, under penalty of law, that the information is true, accurate, and complete. Failure to meet the requirements of this Order may subject the District to further enforcement action by the San Diego Water Board, including administrative civil liability pursuant to Water Code section 13268 of up to \$1,000 per day.

California Environmental Protection Agency



Mr. Anthony Pack

- 2 -

February 1, 2010

In the subject line of any response, please include the requested "in reply refer to" information located in the heading of this letter. For questions pertaining to the subject matter, please contact Mr. Fisayo Osibodu at (858) 637-5594 or via email at oosibodu@waterboards.ca.gov.

Sincerely,



MICHAEL P. McCANN
Assistant Executive Officer

MPM: jc: rwm: oo

Enclosure: Investigative Order No. R9-2010-0009

cc w/encl: Mr. Matthew Riha, Supervising Environmental Health Specialist, County of Riverside,
Department of Environmental Health, 39493 Los Alamos Road, Murrieta, CA 92562

California Environmental Protection Agency

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

INVESTIGATIVE ORDER NO. R9-2010-0009

**AN ORDER DIRECTING EASTERN MUNICIPAL WATER DISTRICT
TO SUBMIT A TECHNICAL REPORT PERTAINING TO INVESTIGATION OF A
DISCHARGE OF UNTREATED SEWAGE FROM THE TEMECULA VALLEY REGIONAL
WATER RECLAMATION FACILITY, RIVERSIDE COUNTY**

The California Regional Water Quality Control Board, San Diego Region (hereinafter San Diego Water Board) finds that:

1. **Legal and Regulatory Authority:** This Order is based in part on (1) sections 13267 and 13260 of the California Water Code (Water Code); (2) applicable state and federal regulations; (3) the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) adopted by the San Diego Water Board; (4) State Water Resources Control Board (State Water Board) policies and regulations, including State Water Board Resolution No. 68-16 (*Statement of Policy with Respect to Maintaining High Quality of Waters in California*); (5) Order No. R9-2000-0165 (*Waste Discharge Requirements for Eastern Municipal Water District Temecula Valley Regional Water Reclamation Facility, Riverside County*); and (6) relevant standards, criteria, and advisories adopted by other state and federal agencies.
2. **Persons Responsible for the Discharge of Wastes:** Eastern Municipal Water District (hereinafter the District) owns and operates the Temecula Valley Regional Water Reclamation Facility (TVRWF) which is located at 42565 Avenida Alvarado, Temecula, CA 92590.
3. **Discharge of Untreated Sewage:** The District reported the following about an illicit discharge of untreated sewage at the TVRWF that occurred between December 25, 2009 and December 26, 2009:
 - a. On December 26, 2009 at 6:30 a.m., District staff, when arriving at TVRWF found untreated sewage was overflowing from the influent structure to an offsite storm channel that discharged into Murrieta Creek near Via Montezuma Road, Temecula. The District staff immediately diverted the influent flow to a bypass screen to terminate the overflow and began cleanup efforts.
 - b. The flow of sewage in Murrieta Creek extended no further than Rancho California Road, approximately one mile downstream of discharge point at Via Montezuma Road.
 - c. The overflow began sometime after District staff left the facility on the previous day at 3:40 p.m.
 - d. The total discharge volume was estimated to be 2.4 million gallons, with 966,800 gallons of that amount being recovered from Murrieta Creek.

- e. The discharge was caused by an electronic miscommunication failure, which disrupted the automatic opening of the influent bar screens of the TVRWRF.
 - f. The District notified U.S. Marine Corps Base, Camp Pendleton, Fallbrook Public Utility District, and Rancho California Water District of the discharge.
4. **San Diego Water Board Notification:** The San Diego Water Board was first notified of the discharge at 6:53 a.m. on December 26, 2009 and was updated of the District's progress throughout the cleanup process.
5. **Violations of Order No. R9-2000-0165:** The discharge described in Finding No. 3 above is in violation of the following sections of Order No. R9-2000-0165, and subjects the District to potential enforcement actions, including, but not limited to, administrative civil liability pursuant to Water Code sections 13350 and 13385 in amounts up to \$10,000 per day, and up to \$10 per gallon for each gallon of waste discharged:
- a. Prohibition A.1 of Order No. R9-2000-0165: The discharge of untreated sewage flowed offsite to land area not described in a Report of Waste Discharge (ROWD), and as a result is a violation of Prohibition A.1 of Order No. R9-2000-0165. This prohibition states that discharges of waste to lands which have not been specifically described in the ROWD and for which valid waste discharge requirements are not in force are prohibited.
 - b. Prohibition A.2 of Order No. R9-2000-0165: The discharge of untreated sewage to Murrieta Creek was in violation of Prohibition A.2 of Order No. R9-2000-0165. This prohibition states that the treatment, storage, or disposal of waste shall not create a condition of pollution, contamination, or nuisance as defined by Water Code section 13050.
 - c. Prohibition A.3 of Order No. R9-2000-0165: The discharge of untreated sewage entered Murrieta Creek, and as a result is in violation of Prohibition A.3 of Order No. R9-2000-0165. This prohibition states that discharges of treated or untreated solid or liquid waste to a navigable water or tributary of a navigable water are prohibited unless authorized by a National Pollutant Discharge Elimination System permit issued by the San Diego Water Board.
 - d. Prohibition A.4 of Order No. R9-2000-0165: This prohibition specifies that the discharge from the TVRWRF shall not cause a violation of prohibitions contained in the Basin Plan. The discharge of untreated sewage is in violation of Waste Discharge Prohibitions No. 5 and 7 of the Basin Plan. Waste Discharge Prohibition No. 5 states that the discharge of waste to inland surface waters, except in cases where the quality of discharge complies with applicable water quality objectives is prohibited, while Waste Discharge Prohibition No. 7 states that dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the San Diego Water Board.

- e. **Discharge Specification B.3 of Order No. R9-2000-0165:** Untreated sewage typically contains high levels of nitrogen, suspended solids, dissolved solids, fecal and coliform bacteria, and oxygen-demanding organic compounds, typically above effluent limitations contained in Order No. R9-2000-0165. The discharge of untreated sewage was in violation of Discharge Specifications B.3 of Order No. R9-2000-0165, because the sewage discharged contained pollutants in excess of effluent limitations contained in Order No. R9-2000-0165.
6. **Potential Impacts of the Discharge:** Untreated sewage contains a mixture of pollutants and high levels of pathogenic organisms, which could potentially transmit diseases to ecological receptors. Consequently, a discharge of untreated sewage has the potential to adversely affect public health, adversely affect animal and plant life, pollute surface water or groundwater, and cause a public nuisance, particularly when untreated sewage is discharged to areas with high public exposure.
7. **Basis for Requiring Reports:** Water Code section 13267 provides that the San Diego Water Board may require discharges, past dischargers, or suspected dischargers to furnish technical or monitoring reports as the San Diego Water Board may specify, provided that the burden, including costs, of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the San Diego Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.
8. **Need for and Benefit of a Technical Report:** A technical report is needed to enable the San Diego Water Board to effectively evaluate the nature, circumstances, extent, and gravity of the illicit discharge of sewage. The burden of providing the required report bears a reasonable relationship to the need for the report and the benefits to be obtained from the report.
9. **California Environmental Quality Act (CEQA) Compliance:** This enforcement action is being taken for the protection of the environment and is exempt from the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 et seq.) in accordance with section 15308, Chapter 3, Title 14 of the California Code of Regulations (CCR). The issuance of this Order is also an enforcement action taken by a regulatory agency and is exempt from the provisions of CEQA pursuant to section 15321(a) (2), Chapter 3, Title 14 of the CCR. This action is also exempt from the provisions of CEQA in accordance with section 15061(b) (3) of Chapter 3, Title 14 of the CCR because it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment.
10. **Qualified Professionals:** Qualified professionals are necessary for preparing the technical report required by this Order, in order to ensure that information presented in the report is reliable and accurate. Professionals should be qualified, licensed where applicable, and competent and proficient in fields pertinent to the required activities.

February 1, 2010

IT IS HEREBY ORDERED, that pursuant to section 13267 of the Water Code, Eastern Municipal Water District is required to submit a technical report by **5:00 pm on March 5, 2010** presenting results of an investigation of the unauthorized discharge of sewage that occurred from the Temecula Valley Regional Water Reclamation Facility. The technical report must including the following information, and must comply with directives specified in this Order:

A. CONTENTS OF THE TECHNICAL REPORT

Causes and Circumstances of the Discharge

1. A complete, detailed explanation of how and when the discharge from the influent structure of the TVRWRF was discovered, including tabular and graphical summaries of the daily total influent flows to the TVRWRF and flow data from the lift stations serving the TVRWRF from December 25, 2009 through December 26, 2009.
2. An explanation of the methods and assumptions used in determining the total volume of sewage discharged.
3. The portions of the facility operation manual pertaining to the headworks, the electronic components of the headworks, and the electronic alarm system serving the headworks. In addition, a copy of any operation, maintenance, and testing specifications provided to the District by the manufacturer of these systems must be submitted.
4. The names of all wastewater operators who were on duty at the TVRWRF between December 25 and 26, 2009. State the hours each wastewater operator was on duty during the specified period, and specify the hours each day that at least one wastewater operator is scheduled to work at the facility.

Response to the Discharge

5. A copy of the facility's overflow or spill response plan (for overflows or spills that occur within the TVRWRF). Describe how the plan was implemented before and during the discharge, and include a description of any changes/improvements that will be made in the plan as a result of experiences gained in responding to the discharge.
6. A detailed chronological description of all actions taken by the District to terminate the discharge, and mitigate its impacts. The narrative must include an evaluation of the results of these actions.

Monitoring and Analysis

7. Analyses results for any samples collected along Murrieta Creek at points upstream and downstream from where the discharge entered Murrieta Creek.

8. A detailed map of the discharge location, path of the discharge, and location of sampling points.
9. Characterization of the quality of the influent for the following chemical constituents: total nitrogen, total dissolved solids, chloride, sulfate, iron, manganese, biological oxygen demand, and methylene blue activated substances.

Impacts of the Discharge

10. Identification of the hydrogeologic characteristics of the area impacted by the discharge; including groundwater depth, flow rate and direction, groundwater storage and assimilation capacity, and any interaction of groundwater with surface water bodies and water courses.
11. An assessment of the potential short and long term impacts of the discharge on public health, animal and plant communities (including sensitive and/or endangered species), and on the overall ecosystem downstream of the discharge. The assessment must include supporting rationale for conclusions made, and an explanation of what steps were taken, or will be taken to mitigate these impacts. This assessment must be prepared by a technical professional qualified to evaluate the short and long term impacts of the discharge on ecological receptors.

Additional Information

12. Any other pertinent information that will assist the San Diego Water Board in evaluating the nature, circumstances, extent, and gravity of the discharge.

B. PROVISIONS

1. **Use of Registered Professionals:** The District shall provide documentation that any reports required under this Order were prepared under the direction of appropriately qualified professionals. In preparing the technical report required by this Order, any engineering or geologic evaluations and judgments must be performed by or under the direction of registered professionals. A statement of qualifications and registration numbers of the responsible lead professional shall be included in the report submitted by the District. The lead professional shall sign and affix their registration stamp to the report.
2. **Use of Qualified Technical Professionals:** The District shall ensure that plans and reports, required under this Order, are prepared under the direction of technical professionals who are appropriately qualified to evaluate short and long term impacts to ecological receptors.
3. **Laboratory Qualifications:** Unless otherwise permitted by the San Diego Water Board, all analyses shall be conducted at a laboratory certified to perform such

- analyses by the California Department of Public Health (CDPH). The District must use a laboratory capable of producing and providing quality assurance/quality control (QA/QC) records for San Diego Water Board review. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports submitted to the San Diego Water Board.
4. **Laboratory Analytical Reports:** Any report presenting new analytical data is required to include the complete laboratory analytical report(s). The laboratory analytical report must be signed by the laboratory director and contain:
 - a. Complete sample analytical report;
 - b. Complete laboratory quality assurance/quality control (QA/QC) report;
 - c. Discussion of the QA/QC data; and
 - d. A transmittal letter that shall indicate whether or not all the analytical work was supervised by the director of the laboratory, and contain the following statement, "All analyses were conducted at a laboratory certified for such analyses by the CDPH in accordance with current United States Environmental Protection Agency (USEPA) procedures."
 5. **Analytical Methods:** Specific methods of analysis must be identified in the District's monitoring reports. If the District proposes to use methods or test procedures other than those included in the most current version of 40 CFR, Part 136, "*Guidelines Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification*", the exact methodology must be submitted for review and must be approved by the San Diego Water Board prior to use.
 6. **Signatory Requirements:** All reports required under this Order shall be signed and certified by either a principal executive officer or ranking elected official or the person with overall responsibility for environmental matters for that municipality.

Certification Statement: Any person signing a document under this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. **Report Submittal:** All reports required under this Order shall be submitted to the following address:

Executive Officer
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

C. NOTIFICATIONS

1. **Enforcement Discretion:** The San Diego Water Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of this Order.
2. **Enforcement Notification:** Water Code section 13268 (a) (1) provides that any person failing or refusing to furnish technical or monitoring report information as required by Water Code section 13267(b), or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly for an administered imposed liability of up to \$1,000 per day for each day compliance is not achieved with an Order issued in accordance with subdivision 13268(b).
3. **Requesting Evidentiary Hearing by the San Diego Water Board:** Any person affected by this action of the San Diego Water Board may request an evidentiary hearing before the San Diego Water Board. If you decide to request an evidentiary hearing, send your request to the San Diego Water Board Executive Officer, Attn: Mr. Robert W. Morris, Groundwater Basins Branch, at the address provided in Provision B.7 of this Order. Please consider the following carefully:
 - a. The San Diego Water Board must receive your request within 30 days of the date of this Order.
 - b. Your request must include all comments, technical analysis, documents, reports, and other evidence that you wish to submit for the evidentiary hearing. Please note, however, that the administrative record will include all materials the San Diego Water Board has previously received regarding this facility. You are not required to submit documents that are already in the record.
 - c. The Executive Officer or San Diego Water Board may deny your request for a hearing after reviewing the evidence.
 - d. If you do not request an evidentiary hearing, the State Water Board may prevent you from submitting new evidence in support of a State Water Board petition.

February 1, 2010

- e. Your request for an evidentiary hearing, if you submit one, does not stay the effective date of the Order, whether or not a hearing is scheduled.
 - f. A request for a hearing does not extend the 30-day period to file a petition with the State Water Board (see below). We suggest, however, that you ask the State Water Board to hold the petition in abeyance while your request for a hearing is pending. (Refer to CCR Title 23 section 2050.5(d)) Additional information regarding the State Water Board petition process is provided below.
4. **Requesting Administrative Review by the State Water Board:** Any person affected by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with section 13320 of the Water Code and CCR Title 23 section 2050. The petition must be received by the SWRCB (Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812) within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request.



MICHAEL P. McCANN
Assistant Executive Officer

2/1/2010
Date

MPM: jc: rwm: oo

**Dept. 895 Control Technician Report
TVRWRF Raw Sewage Spill 12/25/09**

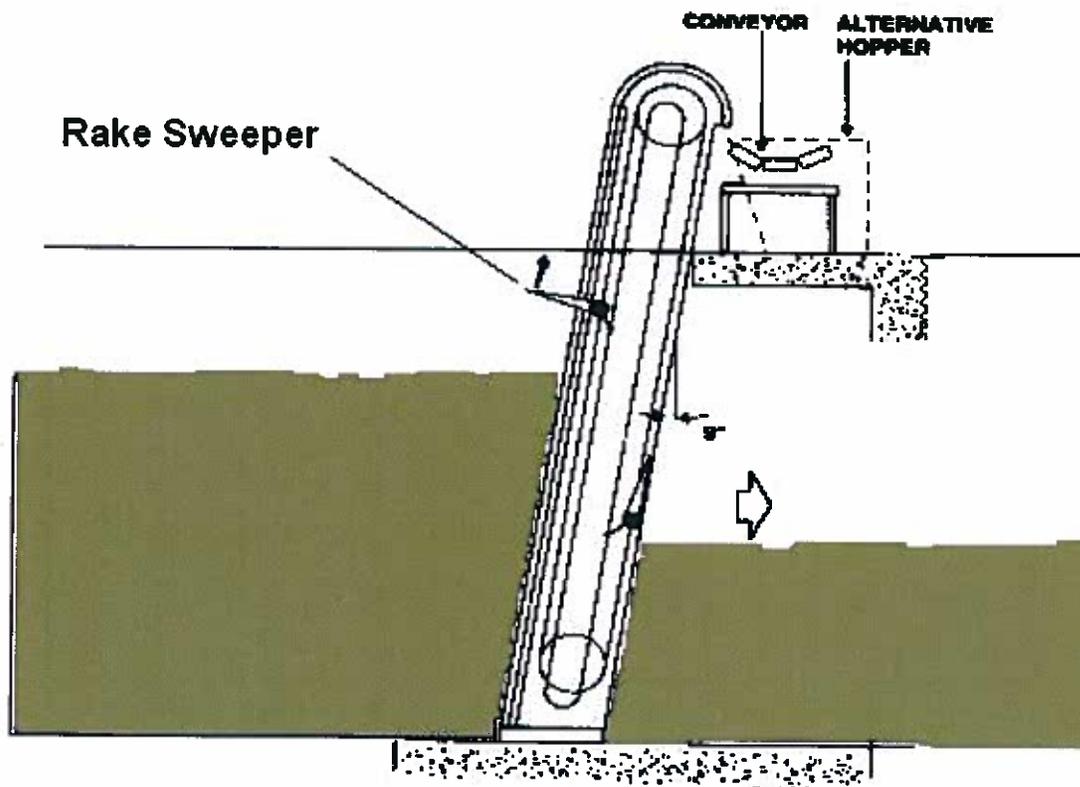
By Bob Naranjo

Dept. 895 Control Technician Report TVRWF Raw Sewage Spill 12/25/09

Bob Naranjo employee 1651

Cause of the Spill

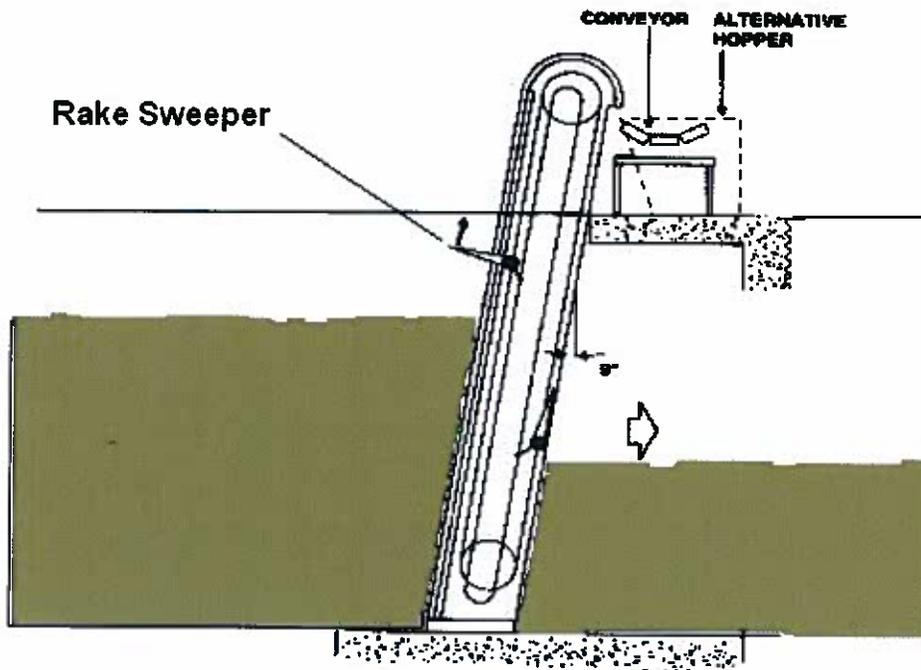
About 2 yrs. ago, the Plant installed 2 new Bar Screen machines, as an upgrade project, replacing the less effective Grinder/Auger. The Bar Screens remove larger debris and objects that can get caught or bind other machinery as the sewage is processed. It is the first thing done when the sewage arrives at the Plant.



Side View

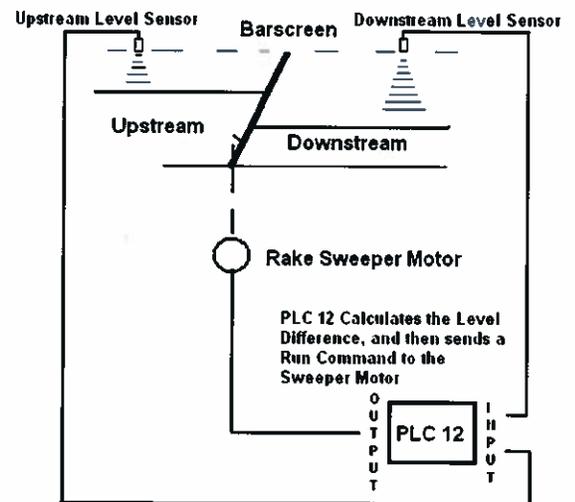
[Barscreen Video](#)

Sewage flows to the influent structure, and into 2 shallow channels. The Barscreen machines are installed in the channels. Debris is captured on the bars, clogging the flow across the channel. As the upstream level increases, the downstream level decreases due to the clogged grate. The level sensors detect this differential level, and activate the sweeper motor, sweeping clear the trapped debris. The debris is swept onto a conveyor which carries it away. When the levels equalize across the bars, the motor shuts off, and the cycle is complete, awaiting for the grate to clog again. Failure to sweep the grates will result in a sewage spill, so typically there are redundant controls to assure the grates **always** remain cleared. During periods of high flow, the sweeper rake will often remain running.



Side View

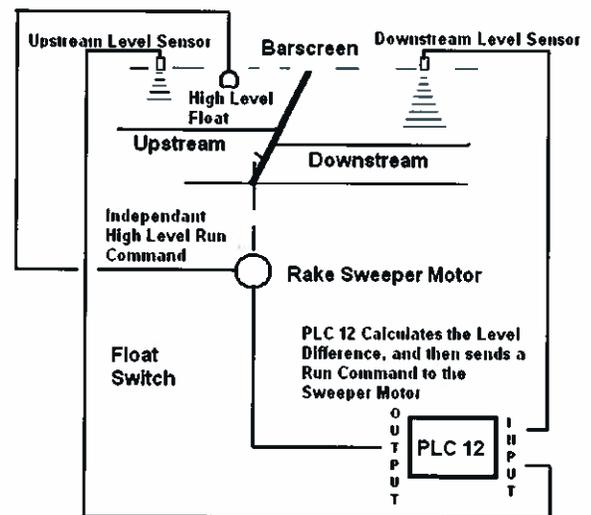
The Barscreens were installed with Programmable Logic Controller (PLC) 12 being the **only** source commanding the Sweeper Rakes to run. This design flaw makes PLC 12 a common denominator for both machines. If PLC 12 fails, **both** Barscreens will lose their run command. This is precisely what happened. Although both Barscreens were fully functional, PLC 12 faulted, disabling both machines



Flawed Design

Design Improvement

Typically, barscreens have an additional high level override float switches, hardwired directly to the motor controls, so if the electronic level sensors malfunction, or if the PLC fails, the Float switches will override and turn the machines on independently.



Design Improvement

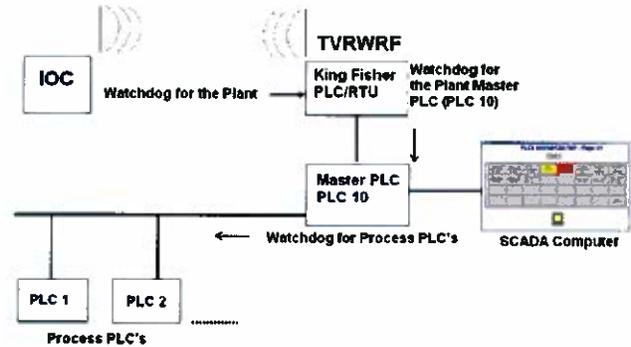
Action Item # 1 (Done)

Install High Level Floats, one for each machine, providing independent overriding control. They will turn on, and sweep the rakes if the level in the channel becomes unacceptably high. This would have prevented the spill.

PLC/SCADA Overview

Like other Wastewater Plants of similar size and scope, TVRWRF relies on Programmable Logic Controllers (PLC's) for automated operation of the plant. The PLC's exchange data with two Supervisory Control and Data Acquisition computers (SCADA), which provide a graphical interface for plant operators, report alarm conditions both locally and to the IOC, and record plant data, conditions, and events.

The PLC's use "watchdog" timers, to ensure all the PLC's are functioning correctly. It works like a chain, so if any of the links malfunction, the IOC will be notified. The Wastewater Plants use industry standard Allen Bradley PLC's to automate the plant. They perform well, however like anything else, they can malfunction.



Communication Chain

IOC is notified if any link is broken

As forementioned, PLC 12 malfunctioned (faulted), and the Watchdog PLC (PLC 10) reported the failure to the IOC at 15:40 12/25/09. The IOC contacted the on-call operator immediately, and the operator was already logged into Scada remotely from home. The on-call operator acknowledged the 1st page of PLC12, however failed to check page 3, where the PLC Failure alarm was flashing red. This would have prompted the him to dispatch a Control Technician to resolve the faulted PLC 12.

```

15:41:30.5 [AWT1 ] YIC12_COMM_FAIL      CFN  FAIL      YIC12 ALARM STATION COMM FAIL
15:41:30.5 [AWT1 ] DISPATCH_ALARM      CFN  ACTIVE    A DISPATCH ALARM IS ACTIVE
15:41:30.5 [AWT1 ] TELEMETRY_ALARM     CFN  CALLOUT   A DISPATCH ALARM IS ACTIVE FOR
SCADALARM
15:42:10.7 JAMES KING logged in as Application User
15:42:17.5 [AWT1 ] YIC12_ALM_ACK.F_0 set to 1.000 by AWT3::1811
15:42:18.3 [AWT1 ] YIC12_COMMFAIL_ACK.F_0 set to 1.000 by AWT3::1811
15:51:30.5 [AWT1 ] DISPATCH_ALARM      OK   OFF       A DISPATCH ALARM IS ACTIVE
15:51:30.5 [AWT1 ] TELEMETRY_ALARM     OK   OFF       A DISPATCH ALARM IS ACTIVE FOR
SCADALARM
16:02:11.1 Login Timed Out of Application User JAMES KING
    
```

Another design flaw, from the original installation by Beavens Systems (the Contractor who installed the Scada system in Aug 1999), allowed PLC failure alarms to be acknowledged on the SCADA computer, thus releasing the dispatch warning going to the IOC. This is precisely what happened on 12/25/09.

PLC failure alarms are such, that no acknowledge, or release should be available. Review of the other Treatment Plants (San Jacinto, Moreno, and Perris) discovered that PLC failure alarms **cannot** be released, or acknowledged from the Alarm page, and the IOC will remain dispatched until the PLC is repaired. For whatever reason, Temecula was configured differently.

Additionally, it was discovered that a lack of training, lack of redundant visual cues (there should have been an additional PLC 12 failure visual indicator on the Headworks Machinery page), misled Mr. King to believe that the Bar screens were functioning correctly.

There were also a series of nuisance alarms, that led Mr. King into believing the alarm he was responding to at 15:40 12/25/09, was with problematic equipment that had failed earlier in the day, posing no threat to the Plant.

Critical alarms with no acknowledge option, alarm screens that force operators to view **all** alarm events, additional visual indicators on machinery pages, and better training of operations staff on the Scada system, **could** all have prevented the spill.

Action Item # 2 (Done)

Re-program all PLC Fail Alarms at Temecula, so they cannot be acknowledged or released from IOC dispatch.

Action Item # 3 (Done)

Configure alarm pages, so that acknowledge button is located on the last page. Operators are forced to review all alarm pages before they can access the acknowledge button. Notify Beavens Systems new annunciator panels in future expansions must be configured the same

Action Item # 4 (Done)

Nomenclature. Add additional visual indicators on Machinery pages. There are several terms that have transcended from the past, that no longer apply, creating confusion among staff. Standardize terminology on Scada pages. Suggest more training be provided to operations staff regarding Scada System.

**December 25, 2009
TVRWRF Raw Sewage Spill
Investigation Findings and Report**

By Tony Hughes

**December 25, 2009 TVRWRF Raw Sewage Spill
Investigation Findings and Report
Date:
Report prepared by Tony Hughes**

Background:

On December 25th at the TVRWRF plant there was a sewage spill of approximately 2.4 million gallons. Waste water spilled over the influent structure, into Murrieta Creek. Mike Balkoski, Bob Naranjo and myself were tasked were to determine what happened with the plant SCADA system. We were to review the historical data and to test & verify the system operation where possible. We were also tasked to determine if the correct decisions were made by staff when they were attempting to rectify the condition and if they had the necessary skills and training.

Available information at the start of this investigation...

SCADA Alarm summary reports

Signed statement from James King # 1811

Copies of related SCADA screens

Memo from John Jannone to Stephen Moore re: Alarm Testing dated 1/12/10

Operational manuals for the channel mounted grinders & the FlexRake barscreens.

Employee accounts of the incident, Edward Westendorf #1134, Clete Fracchiolla # 1438,

James King # 1811, Robert Naranjo # 1651 & Jeramy Cook # 1895.

Investigation:

Explain what actions were taken to thoroughly investigate this spill/release.

1/11/10, a site visit and inspection of the TVRWRF headworks & influent structure was conducted by Tony Hughes, Mike Balkoski & Robert Naranjo.

It was determined that interviews of the following were required...

James King # 1811 to be interviewed by Tony Hughes & Mike Balkoski

Melita Caldwell # 1105 to be interviewed by Jane Joy

Interviews were conducted...

1/13/10 @ 2:00pm in the EOC room. James King # 1811 was interviewed by Tony Hughes & Mike Balkoski. with Union representative Steve Shockey in attendance. James King tape recorded the meeting.

Q1. How long have you worked at the TVRWRF facility?

A1. Approximately five and a half years

Q2. Approximately how long was it before you were put on call?

A2. Approximately the same time

Q3. While on call, if an alarm condition or a situation arose that you couldn't deal with, what would you do?

A3. Call my supervisor

Q4. When you logged in at 15:30 hours you stated that you saw a #3 grit pump common alarm. You acknowledged it, and you then acknowledged all. Did you look at the other two annunciator alarm pages?

A4. No, did not look at the other two pages.

Q5. Typically, would you?
A5. No

Q6. Do you recall what other alarms were present at that time?
A6. No other alarms were present.

Q7. What type of connection do you have at your house for the laptop? (dial-up, FIOS, etc?)
A7. Dial-up.

Meeting ended.

1/14/10 @ 11:30am @ the TVRWRF site, Melita Caldwell # 1105 Edward Westendorf #1134 were interviewed by Jane Joy

Both Melita Caldwell and Edward Westendorf were asked questions related to how Operators are trained and to how Operators demonstrate their abilities before being placed on call.

Q1. How are operators trained?

A1. Training is usually on the job training

Q2. How does an operator demonstrate their abilities?

A2. They are closely monitored by Supervisors until a degree of comfort in plant operation is shown.

Q3. How soon can an operator be placed on call?

Q4. When they have demonstrated that they are capable. No OIT's are placed on call.

Based on information gathered during these interviews, further testing of the SCADA operation and alarms was conducted on site by Robert Naranjo. This additional testing provided information that supported and clarified statements made by James King regarding the # 3 Grit Pump alarm and the YIC 12 alarm.

Findings of Facts:

The spill occurred due to the PLC failing to send a run command to the bar screens.

The PLC has no back up controls and is a single point of failure.

The wires that fed the power to the PLC was burned & damaged in the conduit.

The alarm from YIC 12 (PLC) did work and the IOC was notified

The headworks had mechanical float switches installed, but they go through the PLC. They should operate independently and send a run command directly to the bar screen starters.

Critical alarms are not prominent on the screens.

The headworks have been installed for approximately 10 years and have a long history of failures associated with them

Discussion:

The facts show that on December 25th 2010 approximately 2.4 million gallons of sewage was spilled into the Murrietta Creek from the TVRWRF site. The primary cause of the spill was that the PLC at the influent station headworks ceased to operate. Our investigation shows that this condition was due to wires feeding the PLC being burned up inside a conduit. When the PLC stopped operating, the barscreens also stopped. The barscreens soon became clogged with debris. The water level rose and eventually spilled outside the headworks. The spill made it to the

Murrietta Creek. The alarm from YIC 12 (PLC) did work and the IOC was notified of a problem. The on call operator, James King was notified by the IOC and he logged in to the plant. James King noticed on the first page of alarms a Grit Pump # 3 common fail alarm. He acknowledged it, and then acknowledged all. He reviewed the SCADA and proceeded to check other vital parts of the plant prior to logging off. By acknowledging the alarm on the first page he inadvertently released the alarm into the IOC, making the alarm a local alarm only. He logged out without checking pages two and three where the YIC 12 alarm was flashing.

Conclusion:

1) The spill was determined to be caused by the PLC (YIC 12) failing to send a run command to the barscreens at the Headworks.

2) Contributing factors were:

The PLC was the single point of failure.

The wiring feeding the PLC was damaged and burnt up inside a conduit.

There were no engineered redundant controls provided such as high level floats operating independently of the PLC. This should be standard requirement on this critical headworks process

There was a SCADA PLC failure alarm but the significance of this alarm was not clear and not elevated to the highest priority.

The headworks equipment has had a history of design flaws that continue to result in variety of nuisance alarms that resulted in staff having to modify the method of operation and monitoring. I.E. placing equipment in hand and adjustment of grit pump suction alarm pressure switch to minimize down time.

Recommendations:

DESIGN

Install additional float switches to by-pass the PLC in the event of a "PLC failure", and call for the bar screen(s) to run at full speed.

Install float switches inside the containment area to alarm and indicate a spill condition before the spill escapes the immediate area.

Engineering/plant maintenance & operations staff to work together with engineering to provide clarity on the final design of process control systems such as 3D functionality review of operation.

OPERATIONS

Create SOP's related to SCADA and make them readily available to all plant staff.

Coordinate testing of critical alarms and document.

SCADA

Create groups of alarms based on their criticality.

Elevate their priority.

Establish periodic alarm testing. Higher priority alarms would require a physical response to the site. Certain alarms should initiate the immediate response of a Control Technician for example a "PLC failure".

Clear up possible confusion between the old & new systems.

Standardization of alarms between the plants is very important, the naming and appearance means something.

Implement a "change management" procedure.

Conduct a review of the on call remote laptop connections, are they satisfactory? (high speed, dial-up etc)

Provide training on plant SCADA, and document it.

IMPROVEMENTS MADE SO FAR

Alarm acknowledge buttons are now located on the last page, thus forcing all pages to be viewed.

PLC failure alarms are now configured so they cannot be acknowledged or released from the IOC without first being repaired.

Art Beavans informed that these changes are to be enforced on all future expansions.

"YIC12 Comm Fail" alarms now read "YIC12 PLC fail"

High level float controls are being modified to work as local controls, independently of the PLC.

Front alarm pages are being modified to improve visibility of the more critical alarms.

Javier, Alfred

From: Joy, Jayne
Sent: Tuesday, February 23, 2010 12:02 PM
To: Javier, Alfred
Subject: RE: Tech Rpt

Al,

I met with Melita Caldwell and Ed Westendorf on January 14, 2010. I met with them to ask about when was staff allowed to be on duty and how were they trained on the SCADA alarms. And the response I received was the following:

1. When is staff allowed to be on-call?

None of the OIT's are allowed to be on-call or monitor the plant remotely. Staff that is allowed to be on-call is trained by the Supervisor, Ed Westendorf. Ed will run them through a several scenarios and when he feels the employee has the appropriate level of skill to manage the plant remotely then they are placed on-call. At the time of the spill, none of the staff was at OIT status and all were trained at the level to be capable of being on-call.

2. Who trains the staff on SCADA?

Staff received on the job training and Ed Westendorf performed this training.

Lastly, we discussed, the incident. It became clear that their was a staff error on acknowledging the alarms, however, the scenario that occurred had not happen before. So, we had an infrequently, high risk alarm go off. However, the corrections made to the SCADA should prevent this from re-occurring.

Let me know, if you need more information.
Thanks,
Jayne

From: Javier, Alfred
Sent: Tuesday, February 23, 2010 9:55 AM
To: Joy, Jayne
Subject: Tech Rpt

Do you have notes on the interview with Melita?

The report prepared by Tony Hughes states that you were going to interview her.

Thanks.

Al Javier

Eastern Municipal Water District
Senior Environmental Analyst
P.O. Box 8300, Perris CA 92572-8300
(951) 928-3777 extension 6327

Beavens Systems, Inc.

Temecula Operator Training Outline

TEMECULA OPERATOR TRAINING OUTLINE

2-12-1010

1. BACKGROUND

- a. Origin of the PLC
 - i. Ladder Logic vs Relay Logic
- b. Origin of HMI SCADA
 - i. Computer Based Graphics vs Standalone Graphic Panels
- c. Copper vs Fiber Optic Data Highway
- d. Block Diagram of Plant Communications
- e. Origin of the SCADA Annunciator
 - i. Computer Based Annunciator vs Panel Mounted Annunciator
 - ii. Remote Alarm Supervision

2. ALARM EXAMPLE

- a. Pump Overload heater trips
- b. Local MCC Alarm Lites
- c. Contact detected by PLC IO
 - i. Data table bit is set
 - ii. Annunciator logic sets Unacknowledged bit for use by SCADA
 - iii. Annunciator logic sets COMMON PLC Alarm for use by SCADA
 - iv. Kingfisher RTU sends COMMON PLC Alarm to OMC
- d. SCADA scans PLC data table
- e. Pump symbol on equipment graphic starts flashing
- f. Alarm Bell on each Graphic Screen turns Red to indicate an Unacknowledged exists
- g. SCADA Annunciator OVERVIEW Window for PLC turns red to indicate the PLC with an Unacknowledged Alarm
- h. Alarm prints
 - i. Local Printer
 - ii. Alarm Summary
 - iii. Alarm History

3. OPERATOR INTERACTION

- a. Click on Alarm Bell to find the PLC with an Alarm
- b. Scroll through the Alarm Windows to find the one or more Unacknowledged Alarm(s)
- c. Press Acknowledge Button when all alarms have been reviewed.
 - i. Acknowledge releases the COMMON PLC Alarm to OMC & and clears the Alarm Bell.
- d. Select the Equipment Graphic Screen containing the alarm to find the actual cause. The symbol will illuminate or flash Red and, if more than one condition exists, the alarm condition is displayed. Typical individual alarms are:
 - i. Overload
 - ii. Hi Temperature
 - iii. Hi Pressure
 - iv. Fail to Run
 - v. Seal Water Fail
 - vi. Etc
- e. Determine whether a physical inspection is required
 - i. If alarm is result of a LOCAL LOCKOUT (usually a Motor), the operator goes to the equipment and determines the problem and presses RESET if appropriate
 - ii. If alarm is result of a PLC LOCKOUT (usually a Valve), the operator goes to the equipment and determines the problem before pressing HMI RESET.
- f. If it is determined that physical inspection is not required, the operator needs to assure that a dangerous condition does not exist.
 - i. Observe other variables (flows, temperatures, pressures, levels, etc)
 - ii. Observe status of other equipment (possibly a standby device has been called in place of the failed device)

4. LOCAL SCADA MONITORING VS STANDBY REMOTE LAPTOP MONITORING

- a. As far as the information available and the control capabilities are concerned, both are identical.
- b. Remote monitoring requires additional caution, since the operator does not have the ability to directly observe the field conditions.
- c. A decision needs to be made as to whether to go to the Plant for further observation

5. PLC COMMUNICATIONS FAIL

a. Causes

- i. Loss of physical communications path between PLC and SCADA
 1. All data for PLC becomes ???? on SCADA Screen
- ii. Loss of physical communications path between PLC and Alarm Station PLC
 1. Triggers Annunciator & OMC Alarms
- iii. PLC failure (not running)
 1. Triggers Annunciator & OMC Alarms
 2. Data on SCADA Screen is locked at last value (IE:No ????)

b. How it works

- i. Each PLC contains a Communications Counter which increments once/second, counting up to 9999 before resetting.
- ii. Alarm Station PLC scans each PLC approximately 2-3 times per minute
 1. Compares new value with value from last scan
 2. Stores a value for comparison on next scan
 3. Enables a timer anytime the two values are the same
 4. Triggers the COMM FAIL window on SCADA Annunciator and OMC Common Fail bit if the value does not change for two minutes.
- iii. OMC Alarm continues until communications is re-established (IE:Not affected by Annunciator RESET)

6. PID CONTROL

- a. Components
 - i. Process Variable
 - ii. Setpoint
 1. Local
 2. Remote
 - iii. Gain
 - iv. Reset
 - v. Manual Loader
 - vi. Output
- b. Closed Loop Control Theory
- c. Adjusting Parameters

7. QUESTION & ANSWER SESSION

8. SCHEDULE

- a. Two separate days during the week of 3-1 thru 3-4-2010
- b. Each session will consist of:
 - i. 2 hr formal training
 - ii. Q&A Session
 - iii. Quiz
- c. All participants will:
 - i. Sign In
 - ii. At end of session, initial that they have received the training, understand the material and do not have any outstanding questions

9. Miscellaneous

- a. Staff at Temecula is encouraged to submit requests for any additional material and/or specific questions to be resolved.

BEAVENS SYSTEMS INC
2200 PACIFIC COAST HWY. SUITE 307
HERMOSA BEACH, CA 90254
310 376-0506 Phone 310 376-0599 Fax
Art or Greg@ beavens.com

2/12/2010

EMWD
Attn: Chuck Norberg

RE: Proposal for Temecula Maintenance Request TV35 – Operator Training

Dear Chuck;

1 Lot Training for Temecula Plant Operators, per attached Course Outline. Training will be broken into two separate days to allow training for both crews

Cost

\$7,200.00 Lot net (No Tax)

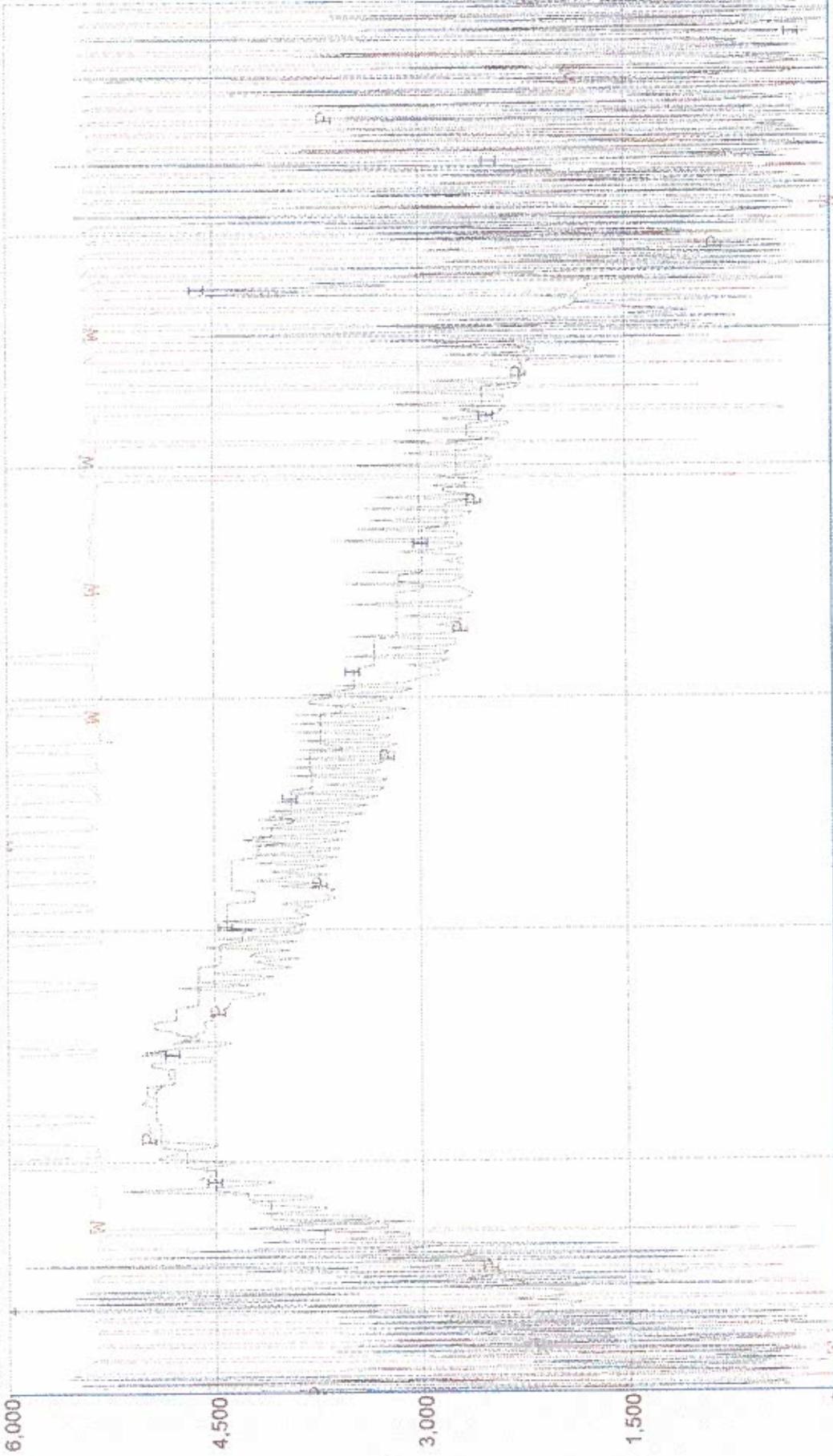
Regards;

Art Beavens

amb/WORD

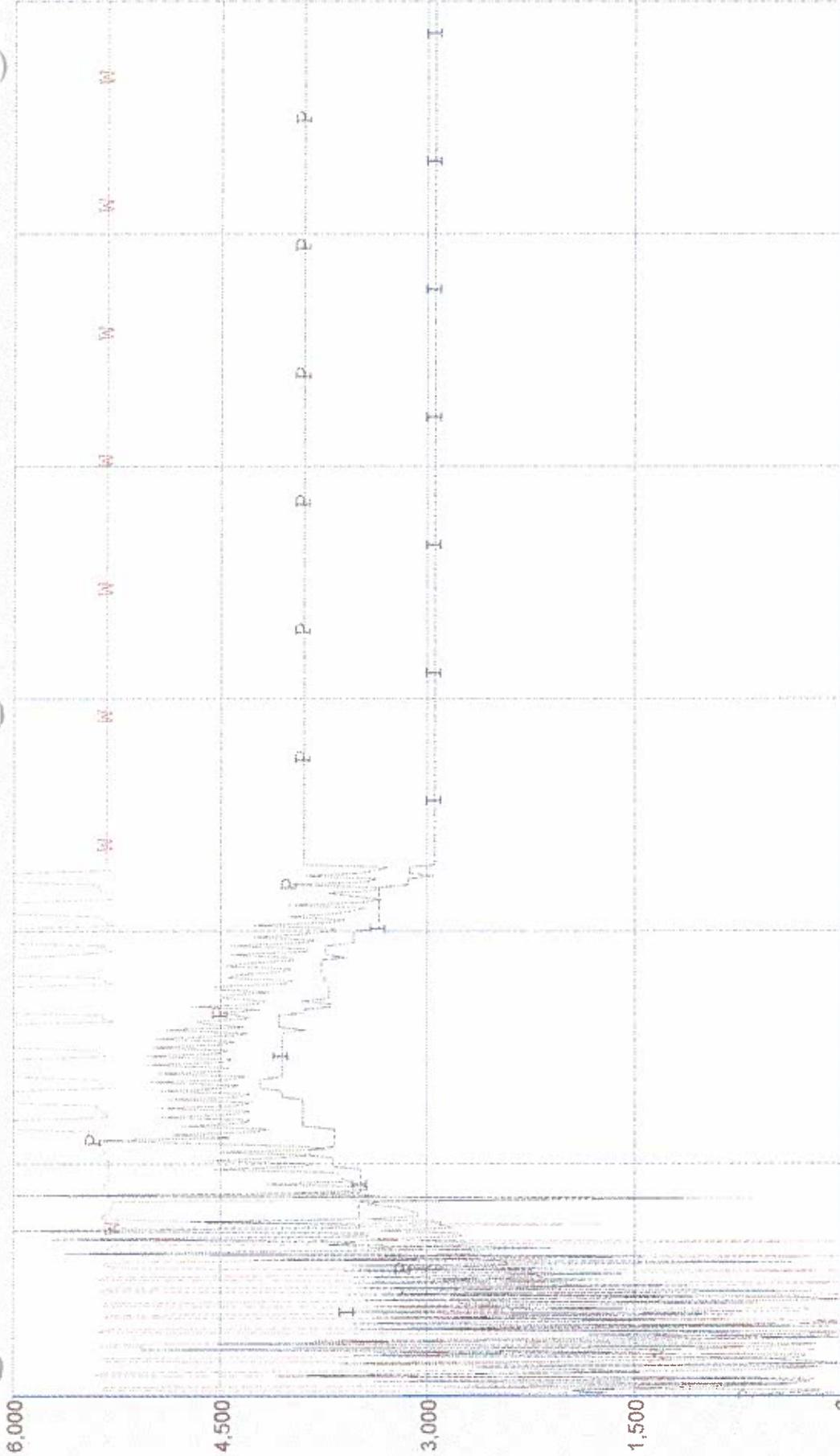
\\fs1\jobs\emwd\EMWD\Maintenance Contract\Temecula\TV35.DOC

TVRWRF Flows
Graphical and Tabular



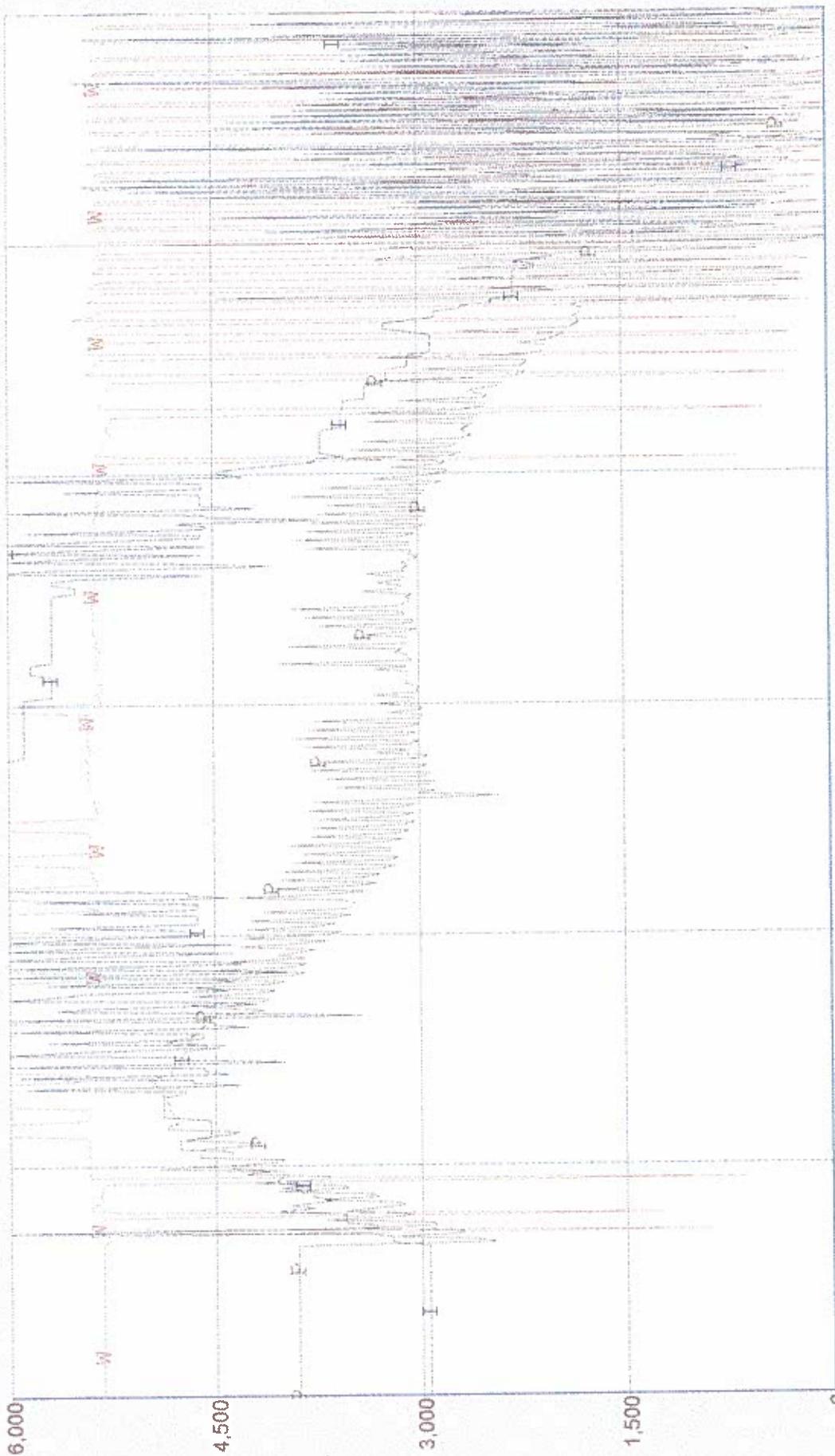
Time	Date	Pala Lift Station Flow	Warm Springs Lift Station Flow	Diaz Lift Station Flow
06:30:00	12/24/2009			
10:30:00	12/24/2009			
14:30:00	12/24/2009			
18:30:00	12/24/2009			
22:30:00	12/24/2009			
02:30:00	12/25/2009	3,189	5,314	2,432.2
06:30:00	12/25/2009			

-----P----- AWT1:PI_101_11.F_CV
-----W----- AWT1:PI_102_11.F_CV
-----I----- AWT1:PI_100_11.F_CV



Time	Date	Pala Lift Station Flow	Warm Springs Lift Station Flow	Diaz Lift Station Flow
06:30:00	12/25/2009			
10:30:00	12/25/2009			
14:30:00	12/25/2009			
18:30:00	12/25/2009			
22:30:00	12/25/2009			
02:30:00	12/26/2009	3,897	5,326	1,963.4
06:30:00	12/26/2009			

P ---- AWT1:FI_101_11.E_CV
W ---- AWT1:FI_102_11.E_CV
I ---- AWT1:FI_100_11.E_CV

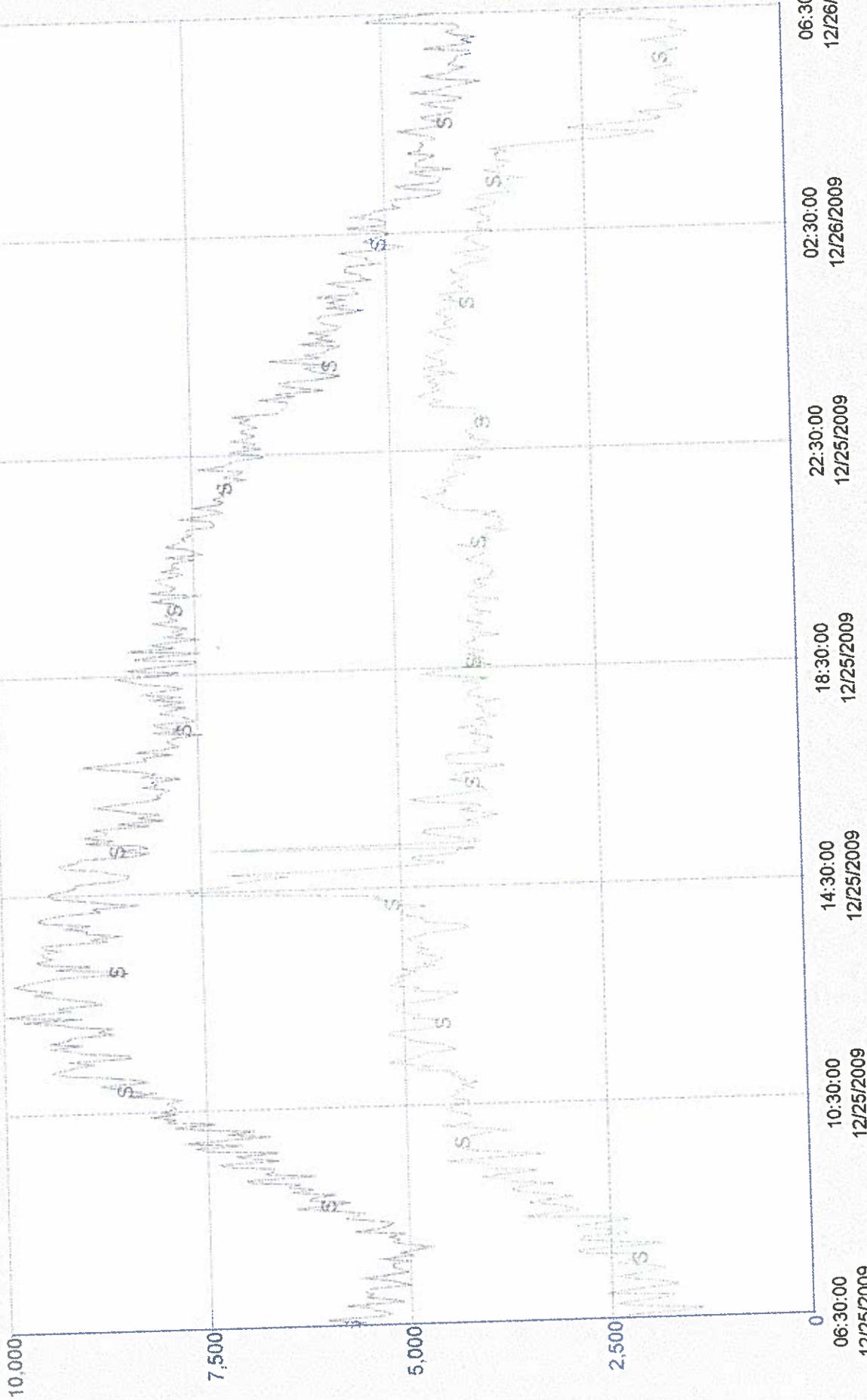


06:30:00 12/26/2009 10:30:00 12/26/2009 14:30:00 12/26/2009 18:30:00 12/26/2009 22:30:00 12/26/2009 02:30:00 12/27/2009 06:30:00 12/27/2009

— Pala Lift Station Flow
 - - - Warm Springs Lift Station Flow
 . . . Diaz Lift Station Flow

3,311
 7,853
 3,924.3

PLANT 2 FLOWS



Plant 2 Secondary Effluent Flow 7,888
PT100-1 PTF 1 SEC EFF FLOW SCALE VALUE 4,202

—S— AWT1:PI 150.30.F.CV
-S- AWT1:PT100-1S.F.CV

TYRWRP INFLUENT FLOW		READS FOR		12/18/2009		TO		12/19/2009		EMWD TEMECULA VALLEY R.W.R.F. DAILY REPORT		06:45:02	
VARIABLES				TOTAL FLOW		MINIMUM		MAXIMUM				MAXIMUM	
INFLUENT/EFFLUENT FLOWS													
DIAM LIFT FLOW	FL 100_11	3173485 GAL		FL 100_11_MIN	0 GPM	FL 100_11_MAX	4305 GPM						
WARM SPRINGS LIFT FLOW	FL 102_11	6809148 GAL		FL 102_11_MIN	0 GPM	FL 102_11_MAX	8232 GPM						
PALA LIFT FLOW	FL 101_11	3786120 GAL		FL 101_11_MIN	0 GPM	FL 101_11_MAX	4789 GPM						
TOTAL INFLUENT FLOW	INF TOTAL	13768753 GAL		INF TOTAL_MIN	117 GPM	INF TOTAL_MAX	15446 GPM						
TERTIARY EFF. FLOW	FOI 808_TOTAL	15046681 GAL		FOI 808_TOTAL_MIN	2225 GPM	FOI 808_TOTAL_MAX	13139 GPM						
WINCHESTER FLOW (FLOW - EFF#1)	FOI 1000_1	12780197 GAL		FOI 1000_1_MIN	332 GPM	FOI 1000_1_MAX	12886 GPM						
PLANT FLOW TO STORAGE PONDS	FL 1000-2	809308 GAL		FL 1000-2_MIN	0 GPM	FL 1000-2_MAX	10066 GPM						
PLANT 1 FLOWS													
SECONDARY EFF. FLOW	FOI 100_1	6247559 GAL		FOI 100_1_MIN	1474 GPM	FOI 100_1_MAX	12834 GPM						
WAS FLOW	FOI 431	86830 GAL		FOI 431_MIN	0 GPM	FOI 431_MAX	1085 GPM						
RAS FLOW	FOI 421_TOTAL	296899 GAL		FOI 421_TOTAL_MIN	0 GPM	FOI 421_TOTAL_MAX	23 GPM						
PRIMARY SLUDGE	FOI 220_1	25000 GAL		FOI 220_1_MIN	0 GPM	FOI 220_1_MAX	250 GPM						
PLANT 2 FLOWS													
SECONDARY EFF. FLOW	FOI 150_30	7298380 GAL		FOI 150_30_MIN	3922 GPM	FOI 150_30_MAX	9746 GPM						
WAS FLOW	FOI 182_22	170154 GAL		FOI 182_22_MIN	0 GPM	FOI 182_22_MAX	207 GPM						
RAS FLOW	FOI 181_22	5501638 GAL		FOI 181_22_MIN	533 GPM	FOI 181_22_MAX	2460 GPM						
PRIMARY SLUDGE	FOI 171_13	22830 GAL		FOI 171_13_MIN	0 GPM	FOI 171_13_MAX	158 GPM						
DENITRIFICATION FLOWS													
DENITRIFICATION FLOW #11-1	FOI 911_1	3412952 GAL		FOI 911_1_MIN	424 GPM	FOI 911_1_MAX	3634 GPM						
DENITRIFICATION FLOW #11-2	FOI 911_2	3475128 GAL		FOI 911_2_MIN	2110 GPM	FOI 911_2_MAX	6665 GPM						
TOTAL DENITRIFICATION FLOW	FOI 911_TOTAL	6888080 GAL		FOI 911_TOTAL_MIN	0 GPM	FOI 911_TOTAL_MAX	8197 GPM						
DENITRIFICATION BYPASS FLOW	FOI 911_3	3313403 GAL		FOI 911_3_MIN	1663 GPM	FOI 911_3_MAX	3062 GPM						
TWAS/GAS FLOWS													
TWAS TO DIGESTERS	FOI 120_50	37650 GAL		FOI 120_50_MIN	0 GPM	FOI 120_50_MAX	142 GPM						
TWAS FROM DAF	FOI 502_1	7198 GAL		FOI 502_1_MIN	0 GPM	FOI 502_1_MAX	300 GPM						
TWAS FROM GBT	TWAS TOTAL Q	30452 GAL		TWAS MIN Q	0 GAL	TWAS MAX Q	-158 GAL						
DIGESTER #1 GAS (S)	FOI 821_2	68065 CF		FOI 821_2_MIN	0 CFM	FOI 821_2_MAX	198 CFM						
DIGESTER #2 GAS (N)	FOI 822_2	91252 CF		FOI 822_2_MIN	49 CFM	FOI 822_2_MAX	96 CFM						
DIGESTER #3 GAS (E)	FOI 122_55	0 CF		FOI 122_55_MIN	54 CFM	FOI 122_55_MAX	261 CFM						
TOTAL DIGESTER GAS - (PRODUCTION)	FOI 821_T	159317 CF		FOI 821_TOTAL_MIN	0 CFM	FOI 821_TOTAL_MAX	323 CFM						
FLARE GAS	FL 107_FLARE	0 CF		FL 107_FLARE	0 CFM	FL 107_FLARE	1 CFM						
DIGESTER GAS TO IRON SPONGE	FOI 825_7	0 CF		FOI 825_7_MIN	0 CFM	FOI 825_7_MAX	202 CFM						
BLOWER GAS USAGE - NATURAL GAS	FOI X22_21_TOTAL	158570 CF		FOI X22_21_TOTAL_MIN	0 CFM	FOI X22_21_TOTAL_MAX	118 CFM						
BLOWER GAS USAGE - DIGESTER GAS	FOI X23_21_TOTAL	155864 CF		FOI X23_21_TOTAL_MIN	56 CFM	FOI X23_21_TOTAL_MAX	262 CFM						
TOTAL GAS FLOW	FOI 825_TOTAL	159317 CF		FOI 825_TOTAL	0 CFM	FOI 825_TOTAL	504 CFM						
SLUDGE/AERATION AIR													
SLUDGE FLOW #1	FOI 732_1	0 GAL		FOI 732_1_MIN	0 GPM	FOI 732_1_MAX	1 GPM						
SLUDGE FLOW #2	FOI 732_2	246084 GAL		FOI 732_2_MIN	0 GPM	FOI 732_2_MAX	301 GPM						
TOTAL SLUDGE FLOW	FOI 731_TOTAL	246084 GAL		FOI 731_TOTAL_MIN	0 GPM	FOI 731_TOTAL_MAX	1 GPM						
CENTRIFUGE SLUDGE FLOW	FL 81_08	118042 GAL		FL 81_08_MIN	0 GPM	FL 81_08_MAX	293 GPM						
RETURN WATER FLOW	FOI 736_1	5366181 GAL		FOI 736_1_MIN	0 GPM	FOI 736_1_MAX	4284 GPM						
WASHWATER FLOW FROM N. EQ METER	FOI WW_EQ	1227883 GAL		FOI WW_EQ_MIN	0 CFM	FOI WW_EQ_MAX	3086 GPM						
PLANT 1 AERATION AIR FLOW	FOI 311_TOTAL	1182596 CF		FOI 311_TOTAL_MIN	0 CFM	FOI 311_TOTAL_MAX	3086 GPM						
PLANT 2 AERATION AIR FLOW	FOI 11X_20_TOTAL	2961951 CF		FOI 11X_20_TOTAL_MIN	0 CFM	FOI 11X_20_TOTAL_MAX	5812 CFM						
EFFLUENT													
		AVERAGE		MINIMUM		MAXIMUM							
TURBIDITY	AL 940_1AV	0.51 NTU		AL 940_1_MIN	0.40 NTU	AL 940_1_MAX	0.94 NTU						
EFFLUENT PH	AL 940_3AV	6.57 PH		AL 940_3_MIN	6.40 PH	AL 940_3_MAX	6.89 PH						
CHLORINE	ALC 801_1P/AV	9.70 PPM		ALC 801_1PV_MIN	6.79 PPM	ALC 801_1PV_MAX	12.45 PPM						
INFLUENT PH	AL 131_11F_CV	7.16 PH		INF_PH_MIN	6.84 PH	INF_PH_MAX	7.78 PH						
CT VALUE	FL 805_CT1_AVE	1028 MmL		FL 805_CT1_MIN	77 MmL	FL 805_CT1_MAX	9999 MmL						
PLANT 1 AERATION DISSOLVED O2	AIT301-1_AVE	3.13 MG/L		AIT301-1_MIN	2.20 MG/L	AIT301-1_MAX	5.87 MG/L						
PLANT 2 AERATION DISSOLVED O2	AIT 11X_AVE	3.85 MG/L		AIT 11X_MIN	0.00 MG/L	AIT 11X_MAX	4.99 MG/L						

1.16 (Rounding up) = 1.2 IN Storage

TVRWRF INFLUENT FLOW READS FOR	12/19/2009	TO	12/20/2009	EMWD TEMECULA VALLEY R.W.R.F. DAILY REPORT	07:48:53
VARIABLES	TOTAL FLOW			MINIMUM	MAXIMUM
INFLUENT/EFFLUENT FLOWS					
DIAZ LIFT FLOW	FL_100_11	2871861 GAL	FL_100_11_MIN	0 GPM	FL_100_11_MAX
WARM SPRINGS LIFT FLOW	FL_102_11	6409248 GAL	FL_102_11_MIN	0 GPM	FL_102_11_MAX
PALA LIFT FLOW	FL_101_11	3749392 GAL	FL_101_11_MIN	0 GPM	FL_101_11_MAX
TOTAL INFLUENT FLOW	INF TOTAL	13,053,300,050.1 GAL	INF TOTAL_MIN	0 GPM	INF TOTAL_MAX
TERTIARY EFF. FLOW	FQI_805_TOTAL	13270938 GAL	FI_805_TOTAL_MIN	0 GPM	FI_805_TOTAL_MAX
WINCHESTER FLOW (FLOW - EFF#1)	FQI_1000_1	11577793 GAL	FI_1000_1_MIN	0 GPM	FI_1000_1_MAX
PLANT FLOW TO STORAGE PONDS	FL_1000-2	203355 GAL	FI_1000-2_MIN	0 GPM	FI_1000-2_MAX
PLANT 1 FLOWS	K-1701 - Called into 1000 (Naren) 7:45 AM				
SECONDARY EFF. FLOW	FQI_100_1	6560848 GAL	FL_100_1_MIN	1415 GPM	FL_100_1_MAX
WAS FLOW	FQI_431	144057	FL_431_MIN	0 GPM	FL_431_MAX
RAS FLOW	FQI_421_TOTAL	347328 GAL	FL_421_TOTAL_MIN	0 GPM	FL_421_TOTAL_MAX
PRIMARY SLUDGE	FQI_220_1	24750 GAL	FL_220_1_MIN	0 GPM	FL_220_1_MAX
PLANT 2 FLOWS					
SECONDARY EFF. FLOW	FQI_150_30	6273153 GAL	FL_150_30_MIN	4137 GPM	FL_150_30_MAX
WAS FLOW	FQI_162_22	237448 GAL	FL_162_22_MIN	0 GPM	FL_162_22_MAX
RAS FLOW	FQI_161_22	4809010 GAL	FL_161_22_MIN	573 GPM	FL_161_22_MAX
PRIMARY SLUDGE	FQI_171_13	17708 GAL	FL_171_13_MIN	0 GPM	FL_171_13_MAX
DENITRIFICATION FLOWS					
DENITRIFICATION FLOW 911-1	FQI_911_1	3518556 GAL	FL_911_1_MIN	426 GPM	FL_911_1_MAX
DENITRIFICATION FLOW 911-2	FQI_911_2	3599674 GAL	FL_911_2_MIN	0 GPM	FL_911_2_MAX
TOTAL DENITRIFICATION FLOW	FQI_911_TOTAL	7118230 GAL	FL_911_TOTAL_MIN	0 GPM	FL_911_TOTAL_MAX
DENITRIFICATION BYPASS FLOW	FQI_911_3	3319861 GAL	FL_911_3_MIN	1681 GPM	FL_911_3_MAX
TWAS GAS FLOWS					
TWAS TO DIGESTERS	FQI_120_50	59218 GAL	FL_120_50_MIN	0 GPM	FL_120_50_MAX
TWAS FROM DAF	FQI_502_1	4799 GAL	FL_502_1_MIN	0 GPM	FL_502_1_MAX
TWAS FROM GBT	TWAS TOTAL Q	54419 GAL	TWAS MIN Q	0 GAL	TWAS MAX Q
DIGESTER #1 GAS (S)	FQI_621_2	71323 CF	FL_621_2_MIN	0 CFM	FL_621_2_MAX
DIGESTER #2 GAS (N)	FQI_622_2	82424 CF	FL_622_2_MIN	52 CFM	FL_622_2_MAX
DIGESTER #3 GAS (E)	FQI_122_55	0 CF	FL_122_55_MIN	0 CFM	FL_122_55_MAX
TOTAL DIGESTER GAS - (PRODUCTION)	FQI_621_T	163748 CF	FL_621_TOTAL_MIN	0 CFM	FL_621_TOTAL_MAX
FLARE GAS	FL_107_FLARE	5477 CF	FL_107_FLARE	0 CFM	FL_107_FLARE
DIGESTER GAS TO IRON SPONGE	FQI_625_7	0 CF	FL_625_7_MIN	0 CFM	FL_625_7_MAX
BLOWER GAS USAGE - NATURAL GAS	FQI_X22_21_TOTAL	152332 CF	FL_X22_21_TOTAL_MIN	0 CFM	FL_X22_21_TOTAL_MAX
BLOWER GAS USAGE - DIGESTER GAS	FQI_X23_21_TOTAL	101034 CF	FL_X23_21_TOTAL_MIN	0 CFM	FL_X23_21_TOTAL_MAX
TOTAL GAS FLOW	FQI_625_TOTAL	169225 CF	FL_625_TOTAL	0 CFM	FL_625_TOTAL
SLUDGE/AERATION AIR					
SLUDGE FLOW #1	FQI_732_1	0 GAL	FL_732_1_MIN	0 GPM	FL_732_1_MAX
SLUDGE FLOW #2	FQI_732_2	90072 GAL	FL_732_2_MIN	0 GPM	FL_732_2_MAX
TOTAL SLUDGE FLOW	FQI_731_TOTAL	90072 GAL	FL_731_TOTAL_MIN	0 GPM	FL_731_TOTAL_MAX
CENTRIFUGE SLUDGE FLOW	FL_91_08	115004 GAL	FL_91_08_MIN	0 GPM	FL_91_08_MAX
RETURN WATER FLOW	FQI_736_1	4661862 GAL	FL_736_1_MIN	0 GPM	FL_736_1_MAX
WASHWATER FLOW FROM N. EQ METER	FQI_VW_EQ	1227883 GAL	FL_301_TOTAL_MIN	0 GPM	FL_301_TOTAL_MAX
PLANT 1 AERATION AIR FLOW	FQI_311_TOTAL	1182596 CF	FL_11X_20_TOTAL_MIN	0 CFM	FL_11X_20_TOTAL_MAX
PLANT 2 AERATION AIR FLOW	FQI_11X_20_TOTAL	2961951 CF	FL_11X_20_TOTAL_MIN	0 CFM	FL_11X_20_TOTAL_MAX
EFFLUENT					
TURBIDITY	AL_940_1AV	0.66 NTU	AL_940_1_MIN	0.42 NTU	AL_940_1_MAX
EFFLUENT PH	AL_940_3AV	6.52 PH	AL_940_3_MIN	6.17 PH	AL_940_3_MAX
CHLORINE	AIC_801_TPVA	8.87 PPM	AIC_801_1PV_MIN	6.40 PPM	AIC_801_1PV_MAX
INFLUENT PH	AL_131_11F_CV	7.22 PH	INF_PH_MIN	0.00 PH	INF_PH_MAX
CT VALUE	FL_805_CT1_AVE	1076 MmL	FL_805_CT1_MIN	220 MmL	FL_805_CT1_MAX
PLANT 1 AERATION DISSOLVED O2	AIT301-1_AVE	3.73 MGL	AIT301-1_MIN	2.20 MGL	AIT301-1_MAX
PLANT 2 AERATION DISSOLVED O2	AIT_11X_AVE	3.49 MGL	AIT_11X_MIN	0.00 MGL	AIT_11X_MAX
AVERAGE			MINIMUM		MAXIMUM

07:48:53

TVRWRF INFLUENT FLOW		READS FOR		12/20/2009		TO 12/21/2009		EMWD TEMECULA VALLEY R.W.R.F. DAILY REPORT		06:51:05	
VARIABLES				TOTAL FLOW		MINIMUM		MAXIMUM			
INFLUENT FLOWS											
DIAZ LIFT FLOW	FL_100_11			3081876 GAL	FL_100_11_MIN	0 GPM		3966 GPM	FL_100_11_MAX		
WARM SPRINGS LIFT FLOW	FL_102_11			6960069 GAL	FL_102_11_MIN	0 GPM		8154 GPM	FL_102_11_MAX		
PALA LIFT FLOW	FL_101_11			4003192 GAL	FL_101_11_MIN	0 GPM		5907 GPM	FL_101_11_MAX		
TOTAL INFLUENT FLOW	INF TOTAL			14045136 GAL	INF TOTAL_MIN	0 GPM		16059 GPM	INF TOTAL_MAX		
TERTIARY EFF. FLOW	FQI_805_TOTAL			15003361 GAL	FQI_805_TOTAL_MIN	0 GPM		13173 GPM	FQI_805_TOTAL_MAX		
WINCHESTER FLOW (FLOW - EFF#1)	FQI_1000_1			13321164 GAL	FQI_1000_1_MIN	0 GPM		14179 GPM	FQI_1000_1_MAX		
PLANT FLOW TO STORAGE PONDS	FL_1000-2			251527 GAL	FL_1000-2_MIN	0 GPM		10139 GPM	FL_1000-2_MAX		
PLANT 1 FLOWS	FQI_100_1			6212424 GAL	FQI_100_1_MIN	1337 GPM		12602 GPM	FQI_100_1_MAX		
SECONDARY EFF. FLOW	FQI_431			199457 GAL	FQI_431_MIN	0 GPM		1057 GPM	FQI_431_MAX		
WAS FLOW	FQI_421_TOTAL			25750 GAL	FQI_421_TOTAL_MIN	0 GPM		23 GPM	FQI_421_TOTAL_MAX		
PRIMARY SLUDGE	FQI_220_1			7356828 GAL	FQI_220_1_MIN	0 GPM		250 GPM	FQI_220_1_MAX		
PLANT 2 FLOWS	FQI_150_30			276388 GAL	FQI_150_30_MIN	2327 GPM		10000 GPM	FQI_150_30_MAX		
SECONDARY EFF. FLOW	FQI_182_22			5268855 GAL	FQI_182_22_MIN	0 GPM		207 GPM	FQI_182_22_MAX		
WAS FLOW	FQI_181_22			25738 GAL	FQI_181_22_MIN	635 GPM		2350 GPM	FQI_181_22_MAX		
PRIMARY SLUDGE	FQI_171_13			3351834 GAL	FQI_171_13_MIN	0 GPM		159 GPM	FQI_171_13_MAX		
DENITRIFICATION FLOWS	FQI_911_1			3407768 GAL	FQI_911_1_MIN	0 GPM		3706 GPM	FQI_911_1_MAX		
DENITRIFICATION FLOW 911-1	FQI_911_2			6759602 GAL	FQI_911_2_MIN	0 GPM		6706 GPM	FQI_911_2_MAX		
DENITRIFICATION FLOW 911-2	FQI_911_TOTAL			3182615 GAL	FQI_911_TOTAL_MIN	0 GPM		8197 GPM	FQI_911_TOTAL_MAX		
TOTAL DENITRIFICATION FLOW	FQI_911_3			69664 GAL	FQI_911_3_MIN	0 GPM		3029 GPM	FQI_911_3_MAX		
DENITRIFICATION BYPASS FLOW	FQI_120_50			6297 GAL	FQI_120_50_MIN	5 GPM		139 GPM	FQI_120_50_MAX		
TWAS/GAS FLOWS	FQI_502_1			63367 GAL	FQI_502_1_MIN	0 GPM		300 GPM	FQI_502_1_MAX		
TWAS TO DIGESTERS	TWAS TOTAL Q			82576 CF	TWAS MIN Q	5 GAL		-161 GAL	TWAS MAX Q		
TWAS FROM DAF	FQI_821_2			96803 CF	FQI_821_2_MIN	24 CFM		118 CFM	FQI_821_2_MAX		
TWAS FROM CRT	FQI_822_2			0 CF	FQI_822_2_MIN	51 CFM		99 CFM	FQI_822_2_MAX		
DIGESTER #1 GAS (S)	FQI_122_55			181157979 CF	FQI_122_55_MIN	0 CFM		179 CFM	FQI_122_55_MAX		
DIGESTER #2 GAS (N)	FQI_821_T			21550 CF	FQI_821_TOTAL_MIN	0 CFM		323 CFM	FQI_821_TOTAL_MAX		
DIGESTER #3 GAS (E)	FL_107_FLARE			0 CF	FL_107_FLARE	0 CFM		196 CFM	FL_107_FLARE		
TOTAL DIGESTER GAS - (PRODUCTION)	FQI_825_7			149465 CF	FQI_825_7_MIN	0 CFM		115 CFM	FQI_825_7_MAX		
FLARE GAS	FQI_X22_21_TOTAL			164612 CF	FQI_X22_21_TOTAL_MIN	0 CFM		118 CFM	FQI_X22_21_TOTAL_MAX		
DIGESTER GAS TO IRON SPONGE	FQI_X23_21_TOTAL			200723 CF	FQI_X23_21_TOTAL_MIN	0 CFM		342 CFM	FQI_X23_21_TOTAL_MAX		
BLOWER GAS USAGE - NATURAL GAS	FQI_825_TOTAL			0 GAL	FQI_825_TOTAL	0 CFM		504 CFM	FQI_825_TOTAL		
BLOWER GAS USAGE - DIGESTER GAS	FQI_732_1			73688 GAL	FQI_732_1_MIN	0 GPM		1 GPM	FQI_732_1_MAX		
TOTAL GAS FLOW	FQI_732_2			73688 GAL	FQI_732_2_MIN	0 GPM		301 GPM	FQI_732_2_MAX		
SLUDGE/AERATION AIR	FQI_731_TOTAL			11521 GAL	FQI_731_TOTAL_MIN	0 GPM		1 GPM	FQI_731_TOTAL_MAX		
SLUDGE FLOW #1	FL_81_08			5980740 GAL	FL_81_08_MIN	0 GPM		297 GPM	FL_81_08_MAX		
SLUDGE FLOW #2	FQI_730_1			1227883 GAL	FQI_730_1_MIN	0 GPM		4708 GPM	FQI_730_1_MAX		
TOTAL SLUDGE FLOW	FQI_WW_EO			1182596 CF	FQI_301_TOTAL_MIN	0 CFM		3086 GPM	FQI_301_TOTAL_MAX		
CENTRIFUGE SLUDGE FLOW	FQI_311_TOTAL			2961951 CF	FQI_11X_20_TOTAL_MIN	0 CFM		3086 GPM	FQI_11X_20_TOTAL_MAX		
RETURN WATER FLOW	FQI_11X_20_TOTAL			0.65 NTU	AL_940_1_MIN	0.37 NTU		1.22 NTU	AL_940_1_MAX		
WASHWATER FLOW FROM N. EQ METER	AL_940_1AV			6.51 PH	AL_940_3_MIN	6.23 PH		6.72 PH	AL_940_3_MAX		
PLANT 1 AERATION AIR FLOW	AL_940_3AV			10.36 PPM	AIC_801_1PV_MIN	5.58 PPM		14.50 PPM	AIC_801_1PV_MAX		
PLANT 2 AERATION AIR FLOW	AL_131_11F_CV			7.21 PH	INF_PH_MIN	6.91 PH		7.80 PH	INF_PH_MAX		
EFFLUENT	FL_805_CTI_AVE			1613 MmL	FL_805_CTI_MIN	350 MmL		9999 MmL	FL_805_CTI_MAX		
TURBIDITY	AIT301-1_AVE			3.22 MG/L	AIT301-1_MIN	2.20 MG/L		5.87 MG/L	AIT301-1_MAX		
EFFLUENT PH	AIT_11X_AVE			3.93 MG/L	AIT_11X_MIN	0.00 MG/L		4.99 MG/L	AIT_11X_MAX		
CHLORINE											
INFLUENT PH											
CT VALUE											
PLANT 1 AERATION DISSOLVED O2											
PLANT 2 AERATION DISSOLVED O2											



Handwritten note: 18L 16-17-79-79 CF WAS

Handwritten note: 150

Handwritten note: 17d called into Bob to turn

TVWRWF INFLUENT FLOW READS FOR		12/21/2009	TO	12/22/2009	EMWD TEMECULA VALLEY R.W.R.F. DAILY REPORT		06:46:06
VARIABLES		TOTAL FLOW			MINIMUM	MAXIMUM	
INFLUENT/EFFLUENT FLOWS							
DIAZ LIFT FLOW	FL 100_11	3175375 GAL		FL 100_11_MIN	0 GPM	FL 100_11_MAX	5148 GPM
WARM SPRINGS LIFT FLOW	FL 102_11	6935290 GAL		FL 102_11_MIN	0 GPM	FL 102_11_MAX	8186 GPM
PALA LIFT FLOW	FL 101_11	3877588 GAL		FL 101_11_MIN	0 GPM	FL 101_11_MAX	5289 GPM
TOTAL INFLUENT FLOW	INF TOTAL	13988233 GAL		INF TOTAL_MIN	7 GPM	INF TOTAL_MAX	16256 GPM
TERTIARY EFF. FLOW	FOL 805_TOTAL	15237065 GAL		FOL 805_TOTAL_MIN	1906 GPM	FOL 805_TOTAL_MAX	12997 GPM
WINCHESTER FLOW (FLOW - EFF#1)	FOL 1000_1	13438152 GAL		FOL 1000_1_MIN	0 GPM	FOL 1000_1_MAX	13167 GPM
PLANT FLOW TO STORAGE PONDS	FL 1000-2	410897 GAL		FL 1000-2_MIN	0 GPM	FL 1000-2_MAX	10220 GPM
PLANT 1 FLOWS	CARD 100_1	6040469 GAL		FL 100_1_MIN	1600 GPM	FL 100_1_MAX	9768 GPM
SECONDARY EFF. FLOW	FOL 431	95021		FL 431_MIN	0 GPM	FL 431_MAX	1078 GPM
WAS FLOW	FOL 421_TOTAL	5.06		FL 421_TOTAL_MIN	0 GPM	FL 421_TOTAL_MAX	23 GPM
RAS FLOW	FOL 220_1	25500 GAL		FL 220_1_MIN	0 GPM	FL 220_1_MAX	250 GPM
PRIMARY SLUDGE							
PLANT 2 FLOWS							
SECONDARY EFF. FLOW	FOL 150_30	7355387 GAL		FL 150_30_MIN	4352 GPM	FL 150_30_MAX	9956 GPM
WAS FLOW	FOL 182_22	221386 GAL		FL 182_22_MIN	42 GPM	FL 182_22_MAX	200 GPM
RAS FLOW	FOL 181_22	5616070 GAL		FL 181_22_MIN	679 GPM	FL 181_22_MAX	2398 GPM
PRIMARY SLUDGE	FOL 171_13	25218 GAL		FL 171_13_MIN	0 GPM	FL 171_13_MAX	156 GPM
DENITRIFICATION FLOWS							
DENITRIFICATION FLOW 911-1	FOL 911_1	3372497 GAL		FL 911_1_MIN	467 GPM	FL 911_1_MAX	3102 GPM
DENITRIFICATION FLOW 911-2	FOL 911_2	3404255 GAL		FL 911_2_MIN	2169 GPM	FL 911_2_MAX	5860 GPM
TOTAL DENITRIFICATION FLOW	FOL 911_TOTAL	6776752 GAL		FL 911_TOTAL_MIN	0 GPM	FL 911_TOTAL_MAX	8197 GPM
DENITRIFICATION BYPASS FLOW	FOL 911_3	3289319 GAL		FL 911_3_MIN	1692 GPM	FL 911_3_MAX	2773 GPM
TWAS/GAS FLOWS							
TWAS TO DIGESTERS	FOL 120_50	46226 GAL		FL 120_50_MIN	4 GPM	FL 120_50_MAX	153 GPM
TWAS FROM DAF	FOL 502_1	4798 GAL		FL 502_1_MIN	0 GPM	FL 502_1_MAX	300 GPM
TWAS FROM G8T	TWAS TOTAL Q	41428 GAL		TWAS MIN Q	4 GAL	TWAS MAX Q	-147 GAL
DIGESTER #1 GAS (S)	FOL 821_2	41654		FL 821_2_MIN	29 CFM	FL 821_2_MAX	109 CFM
DIGESTER #2 GAS (N)	FOL 822_2	41654		FL 822_2_MIN	52 CFM	FL 822_2_MAX	97 CFM
DIGESTER #3 GAS (E)	FOL 122_55	41654		FL 122_55_MIN	86 CFM	FL 122_55_MAX	181 CFM
TOTAL DIGESTER GAS - (PRODUCTION)	FOL 821_T	106646		FL 821_TOTAL_MIN	0 CFM	FL 821_TOTAL_MAX	323 CFM
FLARE GAS	FL 107_Flare	0 CF		FL 107_Flare	0 CFM	FL 107_Flare	1 CFM
DIGESTER GAS TO IRON SPONGE	FOL 825_7	0 CF		FL 825_7_MIN	100 CFM	FL 825_7_MAX	115 CFM
BLOWER GAS USAGE - NATURAL GAS	FOL X22_21_TOTAL	154687 CF		FL X22_21_TOTAL_MIN	112 CFM	FL X22_21_TOTAL_MAX	118 CFM
BLOWER GAS USAGE - DIGESTER GAS	FOL X23_21_TOTAL	166618 CF		FL X23_21_TOTAL_MIN	87 CFM	FL X23_21_TOTAL_MAX	183 CFM
TOTAL GAS FLOW	FOL 825_TOTAL	179644 CF		FL 825_TOTAL	0 CFM	FL 825_TOTAL	504 CFM
SLUDGE/AERATION AIR							
SLUDGE FLOW #1	FOL 732_1	0 GAL		FL 732_1_MIN	0 GPM	FL 732_1_MAX	1 GPM
SLUDGE FLOW #2	FOL 732_2	316075 GAL		FL 732_2_MIN	0 GPM	FL 732_2_MAX	301 GPM
TOTAL SLUDGE FLOW	FOL 731_TOTAL	316075 GAL		FL 731_TOTAL_MIN	0 GPM	FL 731_TOTAL_MAX	1 GPM
CENTRIFUGE SLUDGE FLOW	FL 81_08	114059 GAL		FL 81_08_MIN	0 GPM	FL 81_08_MAX	298 GPM
RETURN WATER FLOW	FOL 736_1	5896633 GAL		FL 736_1_MIN	3699 GPM	FL 736_1_MAX	4629 GPM
WASHWATER FLOW FROM N. EQ METER	FOL WW_EQ	1227883 GAL			0 GPM		3086 GPM
PLANT 1 AERATION AIR FLOW	FOL 311_TOTAL	1182596 CF		FL 301_TOTAL_MIN	0 CFM	FL 301_TOTAL_MAX	3086 CFM
PLANT 2 AERATION AIR FLOW	FOL 11X_20_TOTAL	2961951 CF		FL 11X_20_TOTAL_MIN	0 CFM	FL 11X_20_TOTAL_MAX	5812 CFM
EFFLUENT							
		AVERAGE		ANALYSIS	MINIMUM	MAXIMUM	
TURBIDITY	AI 940_1AV	0.51 NTU		AI 940_1_MIN	0.33 NTU	AI 940_1_MAX	2.63 NTU
EFFLUENT PH	AI 940_3AV	6.58 PH		AI 940_3_MIN	6.22 PH	AI 940_3_MAX	6.73 PH
CHLORINE	AIC 801_1P/AV	11.53 PPM		AIC 801_1PV_MIN	7.84 PPM	AIC 801_1PV_MAX	13.83 PPM
INFLUENT PH	AI 131_11.F.CV	7.22 PH		INF PH_MIN	6.95 PH	INF PH_MAX	7.76 PH
CT VALUE	FL 805_CTI_AVE	1451 MmL		FL 805_CTI_MIN	450	FL 805_CTI_MAX	8646 MmL
PLANT 1 AERATION DISSOLVED O2	AIT301-1_AVE	3.30 MG/L		AIT301-1_MIN	2.20 MG/L	AIT301-1_MAX	5.87 MG/L
PLANT 2 AERATION DISSOLVED O2	AIT_11X_AVE	3.98 MG/L		AIT_11X_MIN	0.00 MG/L	AIT_11X_MAX	4.99 MG/L

2/2/2010

TVRWR INFLUENT FLOW READS FOR 12/22/2009 TO 12/23/2009 EMWD TEMECULA VALLEY R.W.R.F. DAILY REPORT 10:52:39

VARIABLES	TOTAL FLOW	FL 100_11	FL 100_11_MIN	FL 100_11_MAX	MINIMUM	MAXIMUM
INFLUENT EFFLUENT FLOWS						
DIAZ LIFT FLOW	3173976 GAL	FL 100_11	0 GPM	FL 100_11_MAX	0 GPM	4205 GPM
WARM SPRINGS LIFT FLOW	6979124 GAL	FL 102_11	0 GPM	FL 102_11_MAX	0 GPM	8237 GPM
PALA LIFT FLOW	38277714 GAL	FL 101_11	0 GPM	FL 101_11_MAX	0 GPM	5629 GPM
TOTAL INFLUENT FLOW	13980814 GAL	INF TOTAL	0 GPM	INF TOTAL_MAX	0 GPM	16662 GPM
TERTIARY EFF. FLOW	15044460 GAL	FOI 805 TOTAL	0 GPM	FOI 805_TOTAL_MAX	0 GPM	12434 GPM
WINCHESTER FLOW (FLOW - EFF#1)	13317251 GAL	FL 1000_1	0 GPM	FL 1000_1_MAX	0 GPM	14101 GPM
PLANT FLOW TO STORAGE PONDS	454037 GAL	FL 1000-2	0 GPM	FL 1000-2_MAX	0 GPM	10275 GPM
PLANT FLOWS						
SECONDARY EFF FLOW	6042089 GAL	FOI 100_1	889 GPM	FL 100_1_MAX	889 GPM	8171 GPM
WAS FLOW	173013	FOI 431	0 GPM	FL 431_MAX	0 GPM	1078 GPM
RAS FLOW	334977 GAL	FOI 421 TOTAL	0 GPM	FL 421_TOTAL_MAX	0 GPM	23 GPM
PRIMARY SLUDGE	25750 GAL	FOI 220_1	0 GPM	FL 220_1_MAX	0 GPM	250 GPM
PLANT 2 FLOWS						
SECONDARY EFF FLOW	7400148 GAL	FL 150_30	3057 GPM	FL 150_30_MAX	3057 GPM	10000 GPM
WAS FLOW	206277 GAL	FL 162_22	0 GPM	FL 162_22_MAX	0 GPM	196 GPM
RAS FLOW	5418718 GAL	FL 161_22	519 GPM	FL 161_22_MAX	519 GPM	2340 GPM
PRIMARY SLUDGE	24397 GAL	FL 171_13	0 GPM	FL 171_13_MAX	0 GPM	160 GPM
DENITRIFICATION FLOWS						
DENITRIFICATION FLOW 911-1	3318179 GAL	FL 911_1	440 GPM	FL 911_1_MAX	440 GPM	3612 GPM
DENITRIFICATION FLOW 911-2	3368973 GAL	FL 911_2	0 GPM	FL 911_2_MAX	0 GPM	6620 GPM
TOTAL DENITRIFICATION FLOW	6687152 GAL	FL 911 TOTAL	0 GPM	FL 911_TOTAL_MAX	0 GPM	8197 GPM
DENITRIFICATION BYPASS FLOW	3272355 GAL	FL 911_3	1652 GPM	FL 911_3_MAX	1652 GPM	3007 GPM
TWAS GAS FLOWS						
TWAS TO DIGESTERS	87464 GAL	FL 120_50	0 GPM	FL 120_50_MAX	0 GPM	153 GPM
TWAS FROM DAF	9296 GAL	FL 502_1	0 GPM	FL 502_1_MAX	0 GPM	300 GPM
TWAS FROM GBT	78167 GAL	TWAS TOTAL Q	0 GAL	TWAS MAX Q	0 GAL	-147 GAL
DIGESTER #1 GAS (S)	78781 CF	FL 821_2	32 CFM	FL 821_2_MAX	32 CFM	105 CFM
DIGESTER #2 GAS (N)	91091 CF	FL 822_2	50 CFM	FL 822_2_MAX	50 CFM	92 CFM
DIGESTER #3 GAS (E)	0 CF	FL 122_55	0 CFM	FL 122_55_MAX	0 CFM	166 CFM
TOTAL DIGESTER GAS (PRODUCTION)	169873 CF	FL 821 TOTAL	0 CFM	FL 821_TOTAL_MAX	0 CFM	323 CFM
FLARE GAS	9967 CF	FL 107 FLARE	0 CFM	FL 107 FLARE	0 CFM	193 CFM
DIGESTER GAS TO IRON SPONGE	0 CF	FL 825_7	0 CFM	FL 825_7_MAX	0 CFM	192 CFM
BLOWER GAS USAGE - NATURAL GAS	136617 CF	FL X22 21 TOTAL	0 CFM	FL X22 21_TOTAL_MAX	0 CFM	117 CFM
BLOWER GAS USAGE - DIGESTER GAS	88709 CF	FL X23 21 TOTAL	0 CFM	FL X23 21_TOTAL_MAX	0 CFM	356 CFM
TOTAL GAS FLOW	179840 CF	FL 625 TOTAL	0 CFM	FL 625_TOTAL_MAX	0 CFM	504 CFM
SLUDGE/AERATION AIR						
SLUDGE FLOW #1	0 GAL	FL 732_1	0 GPM	FL 732_1_MAX	0 GPM	1 GPM
SLUDGE FLOW #2	257516 GAL	FL 732_2	0 GPM	FL 732_2_MAX	0 GPM	301 GPM
TOTAL SLUDGE FLOW	257516 GAL	FL 731 TOTAL	0 GPM	FL 731_TOTAL_MAX	0 GPM	1 GPM
CENTRIFUGE SLUDGE FLOW	124174 GAL	FL 81_08	0 GPM	FL 81_08_MAX	0 GPM	293 GPM
RETURN WATER FLOW	1259220 GAL	FL 736_1	0 GPM	FL 736_1_MAX	0 GPM	4538 GPM
WASHWATER FLOW FROM N EQ METER	1227883 GAL	FL 301 TOTAL	0 CFM	FL 301_TOTAL_MAX	0 CFM	3086 GPM
PLANT 1 AERATION AIR FLOW	1182596 CF	FL 11X 20 TOTAL	0 CFM	FL 11X 20_TOTAL_MAX	0 CFM	3086 CFM
PLANT 2 AERATION AIR FLOW	2961951 CF	FL 11X 20 TOTAL	0 CFM	FL 11X 20_TOTAL_MAX	0 CFM	5812 CFM
ANALYSIS						
AVERAGE		MINIMUM		MAXIMUM		
TURBIDITY	0.52 NTU	AI 940_1	0.29 NTU	AI 940_1_MAX	0.75 NTU	
EFFLUENT PH	6.60 PH	AI 940_3	6.5 PH	AI 940_3_MAX	6.80 PH	
CHLORINE	8.66 PPM	AIC 801_1PV	7.84 PPM	AIC 801_1PV_MAX	13.47 PPM	
INFLUENT PH	7.22 PH	INF PH	6.93 PH	INF PH_MAX	7.67 PH	
CT VALUE	1421 MmL	FL 805 CT1	1421 MmL	FL 805_CT1_MAX	6229 MmL	
PLANT 1 AERATION DISSOLVED O2	#VALUE!	AIT301-1	2.20 MGAL	AIT301-1_MAX	5.87 MGAL	
PLANT 2 AERATION DISSOLVED O2	5.48 MGAL	AIT 11X	0.00 MGAL	AIT 11X_MAX	4.99 MGAL	

* FALSE READ, SEE ATTACHED TREND
 ** CL2 AVG. ALLOWED DISCHARGE

TVRWRF INFLUENT FLOW		READS FOR		12/23/2009		TO		12/24/2009		EMWD TEMECULA VALLEY R.W.R.F. DAILY REPORT		06:45:08	
VARIABLES				TOTAL FLOW		MINIMUM		MINIMUM		MAXIMUM		MAXIMUM	
INFLUENT/EFFLUENT FLOWS													
DIAZ LIFT FLOW	FL 100_11			2631724 GAL	FL 100_11_MIN			0 GPM	FL 100_11_MAX			4933 GPM	
WARM SPRINGS LIFT FLOW	FL 102_11			5679746 GAL	FL 102_11_MIN			0 GPM	FL 102_11_MAX			7978 GPM	
PALA LIFT FLOW	FL 101_11			3203941 GAL	FL 101_11_MIN			0 GPM	FL 101_11_MAX			5426 GPM	
TOTAL INFLUENT FLOW	INF TOTAL			11515412 GAL	INF TOTAL_MIN			0 GPM	INF TOTAL_MAX			15477 GPM	
TERTIARY EFF FLOW	FOI 805_TOTAL			13010711 GAL	FOI 805_TOTAL_MIN			0 GPM	FOI 805_TOTAL_MAX			12332 GPM	
WINCHESTER FLOW (FLOW EFF#1)	FOI 1000_1			11832942 GAL	FOI 1000_1_MIN			0 GPM	FOI 1000_1_MAX			14843 GPM	
PLANT FLOW TO STORAGE PONDS	FL 1000-2			202073 GAL	FL 1000-2_MIN			0 GPM	FL 1000-2_MAX			10033 GPM	
SECONDARY EFF FLOW	FOI 100_1			5446236 GAL	FOI 100_1_MIN			756 GPM	FOI 100_1_MAX			12701 GPM	
WAS FLOW	FOI 431			161747	FOI 431_MIN			0 GPM	FOI 431_MAX			1064 GPM	
RAS FLOW	FOI 421_TOTAL			280273 GAL	FOI 421_TOTAL_MIN			0 GPM	FOI 421_TOTAL_MAX			23 GPM	
PRIMARY SLUDGE	FOI 220_1			22500 GAL	FOI 220_1_MIN			0 GPM	FOI 220_1_MAX			250 GPM	
SECONDARY EFF FLOW	FOI 150_30			6222203 GAL	FOI 150_30_MIN			4193 GPM	FOI 150_30_MAX			9700 GPM	
WAS FLOW	FOI 182_22			180592 GAL	FOI 182_22_MIN			139 GPM	FOI 182_22_MAX			155 GPM	
RAS FLOW	FOI 181_22			4549378 GAL	FOI 181_22_MIN			444 GPM	FOI 181_22_MAX			2331 GPM	
PRIMARY SLUDGE	FOI 171_13			19864 GAL	FOI 171_13_MIN			0 GPM	FOI 171_13_MAX			155 GPM	
DENITRIFICATION FLOWS													
DENITRIFICATION FLOW 911-1	FOI 911_1			2973404 GAL	FOI 911_1_MIN			459 GPM	FOI 911_1_MAX			3731 GPM	
DENITRIFICATION FLOW 911-2	FOI 911_2			3008254 GAL	FOI 911_2_MIN			0 GPM	FOI 911_2_MAX			6819 GPM	
TOTAL DENITRIFICATION FLOW	FOI 911_TOTAL			5981658 GAL	FOI 911_TOTAL_MIN			0 GPM	FOI 911_TOTAL_MAX			8197 GPM	
DENITRIFICATION BYPASS FLOW	FOI 911_3			2848923 GAL	FOI 911_3_MIN			1663 GPM	FOI 911_3_MAX			3088 GPM	
TWAS/GAS FLOWS													
TWAS TO DIGESTERS	FOI 120_50			45779 GAL	FOI 120_50_MIN			6 GPM	FOI 120_50_MAX			138 GPM	
TWAS FROM DAF	FOI 502_1			6897 GAL	FOI 502_1_MIN			0 GPM	FOI 502_1_MAX			300 GPM	
TWAS TOTAL Q	TWAS TOTAL Q			38882 GAL	TWAS MIN Q			6 GAL	TWAS MAX Q			-162 GAL	
DIGESTER #1 GAS (S)	FOI 821_2			67542 CF	FOI 821_2_MIN			33 CFM	FOI 821_2_MAX			97 CFM	
DIGESTER #2 GAS (N)	FOI 822_2			78307 CF	FOI 822_2_MIN			50 CFM	FOI 822_2_MAX			99 CFM	
DIGESTER #3 GAS (E)	FOI 122_55			0 CF	FOI 122_55_MIN			0 CFM	FOI 122_55_MAX			159 CFM	
TOTAL DIGESTER GAS - (PRODUCTION)	FOI 821_T			145850 CF	FOI 821_TOTAL_MIN			0 CFM	FOI 821_TOTAL_MAX			323 CFM	
FLARE GAS	FL 107_FLARE			0 CF	FL 107_FLARE			0 CFM	FL 107_FLARE			2 CFM	
DIGESTER GAS TO IRON SPONGE	FOI 825_7			0 CF	FOI 825_7_MIN			0 CFM	FOI 825_7_MAX			209 CFM	
BLOWER GAS USAGE - NATURAL GAS	FOI X22_21_TOTAL			142658 CF	FOI X22_21_TOTAL_MIN			0 CFM	FOI X22_21_TOTAL_MAX			118 CFM	
BLOWER GAS USAGE - DIGESTER GAS	FOI X23_21_TOTAL			132386 CF	FOI X23_21_TOTAL_MIN			0 CFM	FOI X23_21_TOTAL_MAX			162 CFM	
TOTAL GAS FLOW	FOI 625_TOTAL			145850 CF	FOI 625_TOTAL			0 CFM	FOI 625_TOTAL			504 CFM	
SLUDGE/AERATION AIR													
SLUDGE FLOW #1	FOI 732_1			0 GAL	FOI 732_1_MIN			0 GPM	FOI 732_1_MAX			1 GPM	
SLUDGE FLOW #2	FOI 732_2			325611 GAL	FOI 732_2_MIN			0 GPM	FOI 732_2_MAX			301 GPM	
TOTAL SLUDGE FLOW	FOI 731_TOTAL			325611 GAL	FOI 731_TOTAL_MIN			0 GPM	FOI 731_TOTAL_MAX			1 GPM	
CENTRIFUGE SLUDGE FLOW	FL 81_08			60366 GAL	FL 81_08_MIN			0 GPM	FL 81_08_MAX			295 GPM	
RETURN WATER FLOW	FOI 736_1			0 GAL	FOI 736_1_MIN			0 GPM	FOI 736_1_MAX			0 GPM	
WASHWATER FLOW FROM N. EQ METER	FOI WW_EQ			1227883 GAL	FOI 301_TOTAL_MIN			0 GPM	FOI 301_TOTAL_MAX			3086 GPM	
PLANT 1 AERATION AIR FLOW	FOI 311_TOTAL			1182596 CF	FOI 11X_20_TOTAL_MIN			0 CFM	FOI 11X_20_TOTAL_MAX			3086 CFM	
PLANT 2 AERATION AIR FLOW	FOI 11X_20_TOTAL			2961951 CF	FOI 11X_20_TOTAL_MIN			0 CFM	FOI 11X_20_TOTAL_MAX			5812 CFM	
EFFLUENT													
TURBIDITY	AL 940_1AV			0.57 NTU	AL 940_1_MIN			0.40 NTU	AL 940_1_MAX			0.73 NTU	
EFFLUENT PH	AL 940_3AV			6.55 PH	AL 940_3_MIN			6.28 PH	AL 940_3_MAX			6.82 PH	
CHLORINE	AIC 801_1PVAV			9.68 PPM	AIC 801_1PV_MIN			7.42 PPM	AIC 801_1PV_MAX			14.00 PPM	
INFLUENT PH	AL 131_11F_CV			7.19 PH	INF_PH_MIN			6.95 PH	INF_PH_MAX			7.75 PH	
CT VALUE	FL 805_CT1_AVE			1229 Mm/L	FL 805_CT1_MIN			450 Mm/L	FL 805_CT1_MAX			5973 Mm/L	
PLANT 1 AERATION DISSOLVED O2	AIT301-1_AVE			#VALUE!	AIT301-1_MIN			2.20 MGL	AIT301-1_MAX			5.87 MGL	
PLANT 2 AERATION DISSOLVED O2	AIT 11X_AVE			MGL	AIT 11X_MIN			0.00 MGL	AIT 11X_MAX			4.99 MGL	

Called 0835

5.5

36.96

11

TVWRWF INFLUENT FLOW		READS FOR		12/25/2009		TO		12/26/2009		EMWD TEMECULA VALLEY R.W.R.F. DAILY REPORT		06:45:08	
VARIABLES													
INFLUENT/EFFLUENT FLOWS		TOTAL FLOW		MINIMUM		MAXIMUM							MAXIMUM
QIAZ LIFT FLOW	FI_100_11	2960195 GAL		FI_100_11_MIN		0 GPM		FI_100_11_MAX		4615 GPM			
WARM SPRINGS LIFT FLOW	FI_102_11	7709014 GAL		FI_102_11_MIN		0 GPM		FI_102_11_MAX		8203 GPM			
PALA LIFT FLOW	FI_101_11	5348293 GAL		FI_101_11_MIN		0 GPM		FI_101_11_MAX		5609 GPM			
TOTAL INFLUENT FLOW	INF TOTAL	16,02-16017503 GAL		INF TOTAL_MIN		437 GPM		INF TOTAL_MAX		15939 GPM			
TERTIARY EFF. FLOW	FQI_805_TOTAL	13781580 GAL		FQI_805_TOTAL_MIN		2822 GPM		FQI_805_TOTAL_MAX		12251 GPM			
WINCHESTER FLOW (FLOW - EFF#1)	FQI_1000_1	12,25-12746621 GAL		FQI_1000_1_MIN		0 GPM		FQI_1000_1_MAX		11882 GPM			
PLANT FLOW TO STORAGE PONDS	FI_1000-2	0 GAL		FI_1000-2_MIN		0 GPM		FI_1000-2_MAX		0 GPM			
PLANT 1 FLOWS	FI_100_1	5517323 GAL		FI_100_1_MIN		1087 GPM		FI_100_1_MAX		11644 GPM			
SECONDARY EFF. FLOW	FQI_431	201579		FQI_431_MIN		0 GPM		FQI_431_MAX		1057 GPM			
WAS FLOW	FQI_421_TOTAL	5.01-329402 GAL		FQI_421_TOTAL_MIN		0 GPM		FQI_421_TOTAL_MAX		23 GPM			
PRIMARY SLUDGE	FQI_220_1	25000 GAL		FQI_220_1_MIN		0 GPM		FQI_220_1_MAX		250 GPM			
PLANT 2 FLOWS													
SECONDARY EFF. FLOW	FQI_150_30	6724175 GAL		FQI_150_30_MIN		3761 GPM		FQI_150_30_MAX		9963 GPM			
WAS FLOW	FQI_182_22	218021 GAL		FQI_182_22_MIN		116 GPM		FQI_182_22_MAX		156 GPM			
PRIMARY SLUDGE	FQI_181_22	5945923 GAL		FQI_181_22_MIN		560 GPM		FQI_181_22_MAX		2338 GPM			
DENITRIFICATION FLOWS	FQI_171_13	9187 GAL		FQI_171_13_MIN		0 GPM		FQI_171_13_MAX		156 GPM			
DENITRIFICATION FLOW #11-1	FQI_911_1	3078611 GAL		FQI_911_1_MIN		455 GPM		FQI_911_1_MAX		3563 GPM			
DENITRIFICATION FLOW #11-2	FQI_911_2	3098884 GAL		FQI_911_2_MIN		2122 GPM		FQI_911_2_MAX		6560 GPM			
TOTAL DENITRIFICATION FLOW	FQI_911_TOTAL	6177495 GAL		FQI_911_TOTAL_MIN		0 GPM		FQI_911_TOTAL_MAX		8197 GPM			
DENITRIFICATION BYPASS FLOW	FQI_911_3	3169557 GAL		FQI_911_3_MIN		1637 GPM		FQI_911_3_MAX		3022 GPM			
TWAS/GAS FLOWS													
TWAS TO DIGESTERS	FQI_120_50	52100 GAL		FQI_120_50_MIN		7 GPM		FQI_120_50_MAX		72 GPM			
TWAS FROM DAF	FQI_502_1	5998 GAL		FQI_502_1_MIN		0 GPM		FQI_502_1_MAX		300 GPM			
TWAS TOTAL Q	TWAS TOTAL Q	46102 GAL		TWAS MIN Q		7 GAL		TWAS MAX Q		-228 GAL			
DIGESTER #1 GAS (S)	FQI_821_2	4148-72789 CF		FQI_821_2_MIN		0 CFM		FQI_821_2_MAX		92 CFM			
DIGESTER #2 GAS (N)	FQI_822_2	912707 CF		FQI_822_2_MIN		50 CFM		FQI_822_2_MAX		94 CFM			
DIGESTER #3 GAS (E)	FQI_122_55	0 CF		FQI_122_55_MIN		78 CFM		FQI_122_55_MAX		161 CFM			
TOTAL DIGESTER GAS - (PRODUCTION)	FQI_821_T	165931-704662 CF		FQI_821_TOTAL_MIN		0 CFM		FQI_821_TOTAL_MAX		323 CFM			
FLARE GAS	FI_107_FLARE	0 CF		FI_107_FLARE		0 CFM		FI_107_FLARE		2 CFM			
DIGESTER GAS TO IRON SPONGE	FQI_825_7	0 CF		FQI_825_7_MIN		88 CFM		FQI_825_7_MAX		115 CFM			
BLOWER GAS USAGE - NATURAL GAS	FQI_X22_21_TOTAL	149700 CF		FQI_X22_21_TOTAL_MIN		111 CFM		FQI_X22_21_TOTAL_MAX		118 CFM			
BLOWER GAS USAGE - DIGESTER GAS	FQI_X23_21_TOTAL	165931 CF		FQI_X23_21_TOTAL_MIN		79 CFM		FQI_X23_21_TOTAL_MAX		163 CFM			
TOTAL GAS FLOW	FQI_825_TOTAL	164063 CF		FQI_825_TOTAL		0 CFM		FQI_825_TOTAL		504 CFM			
SLUDGE/AERATION AIR													
SLUDGE FLOW #1	FQI_732_1	0 GAL		FQI_732_1_MIN		0 GPM		FQI_732_1_MAX		1 GPM			
SLUDGE FLOW #2	FQI_732_2	430957 GAL		FQI_732_2_MIN		164 GPM		FQI_732_2_MAX		301 GPM			
TOTAL SLUDGE FLOW	FQI_731_TOTAL	430957 GAL		FQI_731_TOTAL_MIN		0 GPM		FQI_731_TOTAL_MAX		1 GPM			
CENTRIFUGE SLUDGE FLOW	FI_81_08	58419 GAL		FI_81_08_MIN		0 GPM		FI_81_08_MAX		279 GPM			
RETURN WATER FLOW	FQI_796_1	0 GAL		FQI_796_1_MIN		0 GPM		FI_796_1_MAX		0 GPM			
WASHWATER FLOW FROM N. EQ METER	FQI_WW_EQ	1227883 GAL				0 GPM				3086 GPM			
PLANT 1 AERATION AIR FLOW	FQI_311_TOTAL	1182596 CF		FQI_311_TOTAL_MIN		0 CFM		FQI_311_TOTAL_MAX		3086 CFM			
PLANT 2 AERATION AIR FLOW	FQI_11X_20_TOTAL	2961951 CF		FQI_11X_20_TOTAL_MIN		0 CFM		FQI_11X_20_TOTAL_MAX		5812 CFM			
EFFLUENT													
		AVERAGE		MINIMUM		MAXIMUM							
TURBIDITY	AI_940_1AV	0.69 NTU		AI_940_1_MIN		0.48 NTU		AI_940_1_MAX		1.17 NTU			
EFFLUENT PH	AI_940_3AV	6.55 PH		AI_940_3_MIN		6.26 PH		AI_940_3_MAX		6.77 PH			
CHLORINE	AIC_801_1PVAV	9.92 PPM		AIC_801_1PV_MIN		7.49 PPM		AIC_801_1PV_MAX		11.84 PPM			
INFLUENT PH	AL_131_11F_CV	7.10 PH		INF_PH_MIN		6.92 PH		INF_PH_MAX		7.82 PH			
CT VALUE	FI_805_CT1_AVE	1220 MML		FI_805_CT1_MIN		442 MML		FI_805_CT1_MAX		3799 MML			
PLANT 1 AERATION DISSOLVED O2	AIT301-1_AVE	#VALUE!	MGL	AIT301-1_MIN		2.20 MGL		AIT301-1_MAX		5.87 MGL			
PLANT 2 AERATION DISSOLVED O2	AIT_11X_AVE	#VALUE!	MGL	AIT_11X_MIN		0.00 MGL		AIT_11X_MAX		4.99 MGL			

FI_101 - Called into Johnson @ 1:30 pm

TYWRWF INFLUENT FLOW		READS FOR		12/26/2009		TO 12/27/2009		EMWD TEMECULA VALLEY R.W.R.F. DAILY REPORT		06:45:09	
VARIABLES		TOTAL FLOW		MINIMUM		MAXIMUM					
INFLUENT/EFFLUENT FLOWS											
DIAZ LIFT FLOW	FI_100_11	3961976 GAL		FI_100_11_MIN		0 GPM		FI_100_11_MAX		5458 GPM	
WARM SPRINGS LIFT FLOW	FI_102_11	7228603 GAL		FI_102_11_MIN		0 GPM		FI_102_11_MAX		7968 GPM	
PALA LIFT FLOW	FI_101_11	4428203 GAL		FI_101_11_MIN		0 GPM		FI_101_11_MAX		5558 GPM	
TOTAL INFLUENT FLOW	INF TOTAL	15.62 15618682 GAL		INF TOTAL_MIN		0 GPM		INF TOTAL_MAX		17514 GPM	
TERTIARY EFF. FLOW	FOI_805_TOTAL	15976309 GAL		FOI_805_TOTAL_MIN		1730 GPM		FOI_805_TOTAL_MAX		13207 GPM	
WINCHESTER FLOW (FLOW - EFF#1)	FOI_1000_1	13461631 GAL		FOI_1000_1_MIN		0 GPM		FOI_1000_1_MAX		14742 GPM	
PLANT FLOW TO STORAGE PONDS	FI_1000-2	523729 GAL		FI_1000-2_MIN		0 GPM		FI_1000-2_MAX		10158 GPM	
PLANT 1 FLOWS											
SECONDARY EFF. FLOW	FI_100_1	6543785 GAL		FI_100_1_MIN		1511 GPM		FI_100_1_MAX		6342 GPM	
WAS FLOW	FOI_431	158473		FOI_431_MIN		0 GPM		FOI_431_MAX		1057 GPM	
RAS FLOW	FOI_421_TOTAL	278116 GAL		FOI_421_TOTAL_MIN		0 GPM		FOI_421_TOTAL_MAX		23 GPM	
PRIMARY SLUDGE	FOI_220_1	26250 GAL		FOI_220_1_MIN		0 GPM		FOI_220_1_MAX		250 GPM	
PLANT 2 FLOWS											
SECONDARY EFF. FLOW	FOI_150_30	7904760 GAL		FOI_150_30_MIN		4020 GPM		FOI_150_30_MAX		10000 GPM	
WAS FLOW	FOI_182_22	172636 GAL		FOI_182_22_MIN		115 GPM		FOI_182_22_MAX		125 GPM	
RAS FLOW	FOI_181_22	5634045 GAL		FOI_181_22_MIN		503 GPM		FOI_181_22_MAX		2332 GPM	
PRIMARY SLUDGE	FOI_171_13	20715 GAL		FOI_171_13_MIN		0 GPM		FOI_171_13_MAX		157 GPM	
DENITRIFICATION FLOWS											
DENITRIFICATION FLOW 811-1	FOI_811_1	3501320 GAL		FOI_811_1_MIN		463 GPM		FOI_811_1_MAX		3854 GPM	
DENITRIFICATION FLOW 811-2	FOI_811_2	3474342 GAL		FOI_811_2_MIN		2140 GPM		FOI_811_2_MAX		7095 GPM	
TOTAL DENITRIFICATION FLOW	FOI_811_TOTAL	6975662 GAL		FOI_811_TOTAL_MIN		0 GPM		FOI_811_TOTAL_MAX		8197 GPM	
DENITRIFICATION BYPASS FLOW	FOI_811_3	3343429 GAL		FOI_811_3_MIN		1652 GPM		FOI_811_3_MAX		3253 GPM	
TWAS/GAS FLOWS											
TWAS TO DIGESTERS	FOI_120_50	44563 GAL		FOI_120_50_MIN		5 GPM		FOI_120_50_MAX		118 GPM	
TWAS FROM DAF	FOI_502_1	5698 GAL		FOI_502_1_MIN		0 GPM		FOI_502_1_MAX		300 GPM	
TWAS FROM GBT	TWAS TOTAL Q	38565 GAL		TWAS MIN Q		5 GAL		TWAS MAX Q		-182 GAL	
DIGESTER #1 GAS (S)	FOI_821_2	75948 CF		FOI_821_2_MIN		33 CFM		FOI_821_2_MAX		89 CFM	
DIGESTER #2 GAS (N)	FOI_822_2	88843 CF		FOI_822_2_MIN		49 CFM		FOI_822_2_MAX		92 CFM	
DIGESTER #3 GAS (E)	FOI_122_55	0 CF		FOI_122_55_MIN		88 CFM		FOI_122_55_MAX		154 CFM	
TOTAL DIGESTER GAS - (PRODUCTION)	FOI_821_T	164792 CF		FOI_821_TOTAL_MIN		0 CFM		FOI_821_TOTAL_MAX		323 CFM	
FLARE GAS	FOI_107_FLARE	0 CF		FOI_107_FLARE		0 CFM		FOI_107_FLARE		2 CFM	
DIGESTER GAS TO IRON SPONGE	FOI_825_7	0 CF		FOI_825_7_MIN		0 CFM		FOI_825_7_MAX		113 CFM	
BLOWER GAS USAGE - NATURAL GAS	FOI_X22_21_TOTAL	154700 CF		FOI_X22_21_TOTAL_MIN		0 CFM		FOI_X22_21_TOTAL_MAX		118 CFM	
BLOWER GAS USAGE - DIGESTER GAS	FOI_X23_21_TOTAL	167869 CF		FOI_X23_21_TOTAL_MIN		89 CFM		FOI_X23_21_TOTAL_MAX		157 CFM	
TOTAL GAS FLOW	FOI_825_TOTAL	164792 CF		FOI_825_TOTAL		0 CFM		FOI_825_TOTAL		504 CFM	
SLUDGE/AERATION AIR											
SLUDGE FLOW #1	FOI_732_1	0 GAL		FOI_732_1_MIN		0 GPM		FOI_732_1_MAX		1 GPM	
SLUDGE FLOW #2	FOI_732_2	394045 GAL		FOI_732_2_MIN		0 GPM		FOI_732_2_MAX		301 GPM	
TOTAL SLUDGE FLOW	FOI_731_TOTAL	394045 GAL		FOI_731_TOTAL_MIN		0 GPM		FOI_731_TOTAL_MAX		1 GPM	
CENTRIFUGE SLUDGE FLOW	FI_81_08	122831 GAL		FI_81_08_MIN		0 GPM		FI_81_08_MAX		294 GPM	
RETURN WATER FLOW	FOI_736_1	0 GAL		FOI_736_1_MIN		0 GPM		FOI_736_1_MAX		0 GPM	
WASHWATER FLOW FROM N. EQ METER	FOI_WW_EQ	1227883 GAL		FOI_WW_EQ_MIN		0 GPM		FOI_WW_EQ_MAX		3086 GPM	
PLANT 1 AERATION AIR FLOW	FOI_311_TOTAL	1182596 CF		FOI_311_TOTAL_MIN		0 CFM		FOI_311_TOTAL_MAX		3086 CFM	
PLANT 2 AERATION AIR FLOW	FOI_11X_20_TOTAL	2961951 CF		FOI_11X_20_TOTAL_MIN		0 CFM		FOI_11X_20_TOTAL_MAX		5812 CFM	
EFFLUENT				ANALYSIS							
		AVERAGE		MINIMUM		MAXIMUM					
TURBIDITY	AI_940_1AV	0.62 NTU		AI_940_1_MIN		0.41 NTU		AI_940_1_MAX		1.33 NTU	
EFFLUENT PH	AI_940_3AV	6.48 PH		AI_940_3_MIN		6.12 PH		AI_940_3_MAX		6.81 PH	
CHLORINE	AIC_801_1PVAV	9.23 PPM		AIC_801_1PV_MIN		6.55 PPM		AIC_801_1PV_MAX		12.10 PPM	
INFLUENT PH	AI_131_11F_CV	7.28 PH		INF_PH_MIN		6.97 PH		INF_PH_MAX		7.95 PH	
CT VALUE	FL_805_CT1_AVE	1157 MmL		FL_805_CT1_MIN	450	189 MmL		FL_805_CT1_MAX		9999 MmL	
PLANT 1 AERATION DISSOLVED O2	AIT301-1_AVE	#VALUE!		AIT301-1_MIN		2.20 MGL		AIT301-1_MAX		5.87 MGL	
PLANT 2 AERATION DISSOLVED O2	AIT_11X_AVE	#VALUE!		AIT_11X_MIN		0.00 MGL		AIT_11X_MAX		4.99 MGL	

Wastewater Collections Response

By Mark Chamberlin

TO: Jayne Joy
FROM: Mark Chamberlin *mc*
DATE: February 11, 2010
SUBJECT: TVRWRF Spill 12/26/09



Below is a summary of the series of events that included assistance from the Wastewater Collection Division concerning the spill of 12/26/09 at the Temecula Wastewater Reclamation Facility.

The on-call crew for the Wastewater Collection was notified of the spill at 07:16 and responded immediately. After they arrived at 08:00, they requested more assistance for cleanup and recovery of water from the creek. A total of 5 Wastewater Collection Staff were dispatched to the site.

At 09:00 the crew started vacuuming with vacators from the storm channel tributary to Murrieta Creek just north of the Via Montezuma crossing. The RWRF staff had blocked the culvert off with plywood and sandbags allowing the sewage to pool.

- One vacator picked up 13 loads @ 2000 gal each and the other vacator picked up 14 loads at 1500 gal each for a total of **47,000** gallons recovered at that location.

The first of two 6" trash pumps was set up at the dry crossing of Via Montezuma in the creek.

- This pumped from 12:40 on 12/26/09 until 05:19 on 12/27/09 at approximately 450 GPM. Estimated water recovered from this location was **449,550** gallons.

The second 6" trash pump was placed 200' north of the bridge at Rancho California Rd in the creek.

- This pumped from 15:04 on 12/26/09 until 05:19 on 12/27/09 at approximately 550 GPM. Estimated water recovered from this location was **470,250** gallons.

Total amount of water removed from Murrieta Creek is estimated to be **966,800** gallons.

Pumping was halted because the field observation of the water was clear. Warning signs were posted on 12/26/09 and taken down 2/9/10

We strongly believe that sewage that entered the creek did not exceed 1,000,000 gallons. We do not have flow meters on the pumps used to recover spills. Flows rated are based on first hand knowledge from our competently trained staff. Most of our staff holds current Collection System Maintenance Technologist certifications issued by the California Water Environment Association. We train throughout year on estimating spills. We use pictures from previous spills and the City of San Diego Reference sheet for estimating sewer spills. We have attached all supporting documentation.

**Eastern Municipal Water District
DAILY SEWER LINE CLEANING RECORD**

NAME	HOURS WORKED	EQUIP NO.	EQUIP HOURS	OT HOURS	WATER USED		
Bruce 1390	27						
Wayne 1691	10						
Craig 1996	27						
Jason 1666	24.5						
STREETS CLEANED	LINE SIZE	% FULL	IMPRVMT DISTRICT	# OF SECTIONS CLEANED	# OF FEET CLEANED	QUANTITY REMOVED	MATERIAL REMOVED
James 2001	24.5						
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
TOTALS:				0	0	0	
WEEKLY TAILGATE TOPIC:							
REMARKS:							
<p>Called out to Temecula treatment plant to recover large spill that went into Temecula creek. We vacuumed 13 loads with unit 438 and 14 loads with unit 384 we set up a 6" pump on the creek at via Montazuma and pumped 450 GPM from 12:40 Pm Saturday to 5:19 Am Sunday. We also placed another 6" pump on the creek Aprox 200 feet north of Rancho Calif. Rd. and pumped 550 GPM from 3:04PM Sat. till 5:19 AM Sunday Morn. Picked up all suction hoses and rolled up all the discharge hoses returned treatment plant hose reel and pump to them. Brought collection equipment and fresh water light plant and generator back to the yard. Please see photos in my 2009 photos folder under Temecula.</p>							

SIGNATURE: Bruce Malone

DATE: 12/27/09

**Eastern Municipal Water District
DAILY SEWER LINE CLEANING RECORD**

NAME		HOURS WORKED	EQUIP NO.	EQUIP HOURS	OT HOURS	WATER USED		
1540		10	485	7				
1879		10	384	4				
						4000 Gal.		
STREETS CLEANED		LINE SIZE	% FULL	IMPRVMT DISTRICT	# OF SECTIONS CLEANED	# OF FEET CLEANED	QUANTITY REMOVED	MATERIAL REMOVED
1	Pinion Pine.	8		34	3	611		
2	Tamarack	8		34	1	204		
3	Timbermine Ln.	8		34	1	284		
4	Green oak Way.	8		34	4	655		
5	Rock Trail Ln.	8		34	2	398		
6	Fireside Dr.	8		34	2	424		
7	Teton Trail.	8		34	1	202		
8	Live oak Dr.	8		34	3	482		
9	Wolf Creek Rd.	8		34	3	1043		
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
TOTALS:					20	4303	0	
WEEKLY TAILGATE TOPIC:								
REMARKS:								
Picked up all signs from TVRWRF sewer spill that was placed along Temecula creek channel. Started and stopped cleaning several times today due to rainy weather. Inspected manholes after 1:30 due to heavy rain.								

SIGNATURE: Greg Carlos

DATE: 2/9/10

Chamberlin, Mark

Subject: FW: TVRWRF Spill Assumptions

From: Chamberlin, Mark
Sent: Tuesday, December 29, 2009 6:54 AM
To: Iverson, Mark; Jannone, John
Subject: TVRWRF Spill Assumptions

- 11/15/2006 Diaz Lift spilled into Murrieta Creek 1,007,000 gallons over a period of 7.5 hours.
- That spilled moved down the creek 3,000 feet where we started recovery efforts in 5 hours.
- The creek has minimal slope.
- We had no rainfall before the spill.

- This spill is reported to have started at 15:30 on 12/25/2009
- At 11:00 on 12/26/2009 the spill was witnessed no further the the Rancho Calif Rd bridge.
- From the plant to the creek is quite a bit steeper and 2,500 feet.
- From the point the spill entered the creek to the recovery point at the bridge is 6,000 feet.
- We have experienced recent rains.

- Our crew recovered 966,800 gallons of sewage/water and the creek appears to be free of sewage.

It is our opinion that had the spill been much greater then 1,000,000 gallons, the spill would have gone much further down stream and would not have been recovered so quickly.

Mark Chamberlin
Wastewater Collection Manager
Eastern Municipal Water District
2270 Trumble Road
Post Office Box 8300
Perris, CA 92572-8300
Ph # (951) 928-3777 Ext 6290
Fax # (951) 928-6173

Chamberlin, Mark

From: Malone, Bruce
Sent: Sunday, December 27, 2009 9:55 AM
To: Caldwell, Melita
Cc: Westendorf, Ed; Chamberlin, Mark; Jubera, Ron
Subject: Pump times and GPM

First pump setup and pumping at Via Montizuma started 12:40 pM Sat. 12/26/09 450 Gpm stopped pumping 5:19 Am Sunday 12/27/09

Second pump setup 200 feet north of Rancho Calif Rd. Started 3:04 Pm Sat 12/26/09 550 Gpm stopped pumping 5:19 Am Sunday 12/27/09

Unit 438 vacuumed 13 loads 2000 Gal. ea from Storm drain where you had bulk head in and unit 384 vacuumed 14 loads 1500 Gal. ea. from same location

**B. Maintenance &
Training**

MAXIMO
Work Order Summary
Maintenance Weekly Checks
For November & December



Work Order Summary

WO #971755 - 987194

THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.

Location: 2947 T3400 PLANT 2 PRI CLAR/AER BASIN/SEC CLAR AREA

Work Type: PM

Status: COMP

EQ #:

Lead Craft: PLANT MAINTENANCE

Start Date: 11/3/2009

Asset/PSM:

Supervisor: DIAZ, JESS R

Complete Date: 11/20/2009

Parent:

GL Account #: 0034-????-064000-0-000

Reported By: AUTOGEN

Status History

Status	Change By	Date	Notes
COMP	FOPIANOC	12/1/2009	
SCHED	DIAZJ	10/27/2009	
WSCH	AUTOGEN	10/20/2009	

Labor Estimate (includes all child WO's)

Qty	Est. Hrs	Est. Labor Cost
1	4	\$230.04
Total Hrs/Cost:	4	\$230.04

Labor Actual (includes all child WO's)

	Req Hrs.	OT Hrs.	Cost
0849 CRAWFORD, BRADLEY D	15	0	\$994.05
1520 BEWLEY, DAVID	3	0	\$198.81
1894 MARTINEZ, MARTIN R	12	0	\$721.56
Total Hrs/Cost:	30		\$1,914.42

Material Used (includes all child WO's)

Item #	Description	Quantity	Unit Cost	Cost
				\$0.00
Total Material Cost:				\$0.00

Total Cost (Labor + Material):

\$1,914.42

Failure Reporting

Failure Class:

Remarks

- 11/3/09 #1894 3.0 hrs complete tasks 1 thru 100.
- 11/4/09,849-4hrs complete tasks 1 thru 100.
- 11/5/09 #1894 3.0 hrs complete tasks 1 thru 100.
- 11/6/09 #1894 3.0 hrs complete tasks 1 thru 100.
- 11/9/09,849-4hrs complete tasks 1 thru 100.



Work Order Summary

WO #971755 - 987194

THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.

Remarks

11/13/09 #1520 3hrs. Completed tasks 1-100.

11/16/09-849,3hrs. completed tasks

11/18/09-849,2hrs. plant two checks in the headworks area

11/20/09 #1894 3.0 hrs complete tasks 1 thru 100.

11/30/09-849,2hrs. checked the secondary and aeration areas



Work Order Summary

WO #971755 - T3400 PLT 2 WEEKLY CHECKS NOVEMBER 2009
 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINENT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.

Location: 2947 T3400 PLANT 2 PRI CLAR/AER BASIN/SEC CLAR AREA
Work Type: PM
Status: COMP
EQ #:
Lead Craft: PLANT MAINTENANCE
Start Date: 11/3/2009
Asset/PSM: DIAZ, JESS R
Supervisor: DIAZ, JESS R
Complete Date: 11/20/2009
Parent: GL Account #: 0034-????-064000-0-000
Reported By: AUTOGEN

Status History

Status	Change By	Date	Notes
COMP	FOPIANOC	12/1/2009	
SCHED	DIAZJ	10/27/2009	
WSCH	AUTOGEN	10/20/2009	

Labor Estimate (includes all child WO's)

PMT	Qty	Est. Hrs	Est. Labor Cost
	1	4	\$230.04
Total Hrs/Cost:	4	4	\$230.04

Labor Actual (includes all child WO's)

	Req Hrs.	OT Hrs.	Cost
0849 CRAWFORD, BRADLEY D	15	0	\$994.05
1520 BEWLEY, DAVID	3	0	\$198.81
1894 MARTINEZ, MARTIN R	12	0	\$721.56
Total Hrs/Cost:	30		\$1,914.42

Material Used (includes all child WO's)

Item #	Description	Quantity	Unit Cost	Cost
				\$0.00
Total Material Cost:				\$0.00

Total Cost (Labor + Material): \$1,914.42

Failure Reporting

Failure Class:

Remarks

- 11/3/09 #1894 3.0 hrs complete tasks 1 thru 100.
- 11/4/09,849-4hrs complete tasks 1 thru 100.
- 11/5/09 #1894 3.0 hrs complete tasks 1 thru 100.
- 11/6/09 #1894 3.0 hrs complete tasks 1 thru 100.
- 11/9/09,849-4hrs complete tasks 1 thru 100.



Work Order Summary

WO #971755 - T3400 PLT 2 WEEKLY CHECKS NOVEMBER 2009

THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.

Remarks

11/13/09 #1520 3hrs. Completed tasks 1-100.

11/16/09-849,3hrs. completed tasks

11/18/09-849,2hrs. plant two checks in the headworks area

11/20/09 #1894 3.0 hrs complete tasks 1 thru 100.

11/30/09-849,2hrs. checked the secondary and aeration areas



Work Order Summary

WO #985349 - T3400 PLANT 2 WEEKLY CHECKS DEC09

THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.

Location: 2947 T3400 PLANT 2 PRI CLAR/AER BASIN/SEC CLAR AREA

Work Type: PM

Status: COMP

EQ #:

Start Date: 11/25/2009

Asset/PSM:

Complete Date: 12/29/2009

Parent:

Reported By: AUTOGEN

Status History

Status	Change By	Date	Notes
COMP	FOPIANOC	1/4/2010	
SCHED	DIAZJ	11/19/2009	
WSCH	AUTOGEN	11/17/2009	

Labor Estimate (includes all child WO's)

PMT	Qty	Est. Hrs	Est. Labor Cost
	1	4	\$230.04
Total Hrs/Cost:	4	4	\$230.04

Labor Actual (includes all child WO's)

	Req Hrs.	OT Hrs.	Cost
0849 CRAWFORD, BRADLEY D	15	0	\$994.05
0927 FOPIANO, CHRISTOPHER	8.5	0	\$638.66
1520 BEWLEY, DAVID	10	0	\$653.15
1894 MARTINEZ, MARTIN R	3	0	\$183.75
Total Hrs/Cost:	36.5		\$2,469.61

Material Used (includes all child WO's)

Item #	Description	Quantity	Unit Cost	Cost
				\$0.00
Total Material Cost:				\$0.00

Total Cost (Labor + Material):

\$2,469.61

Failure Reporting

Failure Class:

Remarks

- 11/25/09-849,3hrs. checked plant two secondary and primary areas
- 12/04/09 #1520 3hrs. Completed tasks 1-100.
- 12/7/09-849,4hrs. checked out plant
- 12/9/09-849,4hrs. walked plant, found the discharge flapper on the number 1 bio-filter closed.
- 12/14/09 - #927 - 3.0 hours - Completed items 1 thru 100.
- 12/16/09-849,2hrs. checked out the secondary area



Work Order Summary

WO #985349 - T3400 PLANT 2 WEEKLY CHECKS DEC09

THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.

Remarks

- 12/18/09 #1520 3hrs. Completed tasks 1-100.
- 12/14/09 - #927 - 2.5 hours - Completed items 1 thru 100.
- 12/21/09 - #927 - 2.5 hours - Completed items 1 thru 100.
- 12/24/09 #1894 3.0 hrs complete tasks 1 thru 100.
- 12/29/09 - #927 - 3.0 hours - Completed items 1 thru 100.

**TVRWRF Influent Equipment
Manuals**

Installation

Section 2: Installation

1. Site Specific Pre-Install Instructions

1. *Inserted where applicable*

2. The FlexRake® Fully Assembled

1. General Pre-Installation Tasks
2. Unloading the FlexRake
3. Handling during Installation
4. Single Strand Models, Fully Assembled

3. The FlexRake Partially Assembled

1. I-Beam Style Mounting Assembly
2. Standard Side Fab Mounting Assembly
3. Mounting the Drive Head
4. To Assemble the FlexRake Chain

4. FlexRake Accessories

1. To Install Return Guides
2. To Install Chain Slides
3. To Install Strippers

5. Pre-Start Up Checklist

6. Installation Checklist

DUPERON® CORPORATION

FLEXRAKE®

**Eastern Municipal Water
District**

*Temecula Valley Regional Water
Reclamation Facility*

INSTALL GUIDE

**Serial No:
379-0708-W1527-1**

August 28, 2007

The FlexRake® Fully Assembled

General Pre-Installation Tasks

Installation Requires:

1. Unloading units from the truck (see instructions that follow).
2. Check Shipping Documents to determine if all components have been delivered.
3. Inspection of the units. Check for any damage. If damage is found, contact Duperon Corporation immediately and note the damage on the bill of lading.
4. Temporary storage of units. Place on cribbing, blocks, or beams for easy handling and pre-installation tasks.
5. Preparation for Installation:
 - ◆ Removal of all temporary, protective and/or containment devices used for shipment **EXCEPT FOR THE CRIBBING USED TO SUPPORT THE DRIVE HEAD AS SEEN IN THE FOLLOWING SECTIONS.**
 - ◆ Check bolts, set screws, retaining rings for tightness and proper seating due to vibration during shipment. Examine motors and bearings for any signs of leakage or damage. They should be sealed and lubricated and should not require any further attention.
6. Placement of the Unit:
 - ◆ Prepare site as appropriate by dewatering, clearing bay area of debris, having a diver on hand, etc. Assure that there are no critical clearance issues or possible obstructions such as overhead wires, etc.
 - ◆ Follow handling instructions for placement in the section that follows.
 - ◆ The units will have a base plate that will be at the same angle as the screen was designed. The unit can withstand standard variations in the concrete floor without grouting and shimming. Most often the FlexRake® mounting, chain slides, strippers, and return guides have been attached (unless shipping and handling prevented it). If Duperon provided support channels, typically these will be attached as well. If not, then it is easiest if these supports are temporarily bolted or clamped to the unit for proper location. Once support structures or accessories have been marked for location or anchored in place, you may then anchor the FlexRake® unit.
 - ◆ There are several ways to support and anchor the FlexRake®, depending upon your structure and if there are seismic or other similar considerations. Refer to approved site drawings for details specific to your site.

The FlexRake® - Modular, Fully Assembled

Site Specific Instructions — W1527, EMWD, Temecula Valley Regional Water Reclamation Facility

Items required for installation—not provided by Duperon:

- (16) 1/2" Dia x 4-1/2" Lg. Embed HAS Rods w/Hiti RE-500 Adhesive System (DWG 1527A001, part mark #4)
- (10) 3/8" Dia x 3-3/8" Lg. Embed HAS Rods w/Hiti RE-500 Adhesive System (DWG 1527A001, part mark #6)
- (4) Shackles to fit 1-1/4" Dia Lifting Lug Hole (DWG 1527P001, part mark #10)

Other Notes:

- See 1527A002, Drawing Detail #1 and 1527A001, Note #1 for field welding requirements

Prepare site for installation:

- Ensure existing auger is removed.
- Dewater site.

IMPORTANT!

A SPREADER BAR MUST BE USED TO AVOID DAMAGE TO THE UNIT

Picking Unit: When loading and unloading the unit, use spreader bars (not provided). Pick up unit at lifting lugs/shackles (1527A001, part marks #9 and #10).

Preparing Unit:

1. Remove all packing and shipping materials.
2. Install Chain Slides
3. Verify all connections are tight and all snap rings are in grooves.

Set the unit in position in the channel:

1. Lower unit into channel.
2. Assure unit is plumb and true.
3. Provide grout as needed/mortar bed (See 1527A002, Drawing Detail # 1).
4. Assure each side of unit is an equal distance from face of deck to toe of unit.
5. Assure installation angle is maintained and true at 30 degrees from vertical (see 1527A001 for installation angle)

Anchoring:

1. Anchor unit to operating deck with anchor plates, 1527D116 (part mark #3), using 1/2" dia. HILTI's w/ RE-500 Adhesive System (part mark #4) as shown on drawing 1527A001, Detail #1.- Field weld anchor plates as shown on drawing 1527A001, Detail #1.
2. Anchor unit to operating deck with support anchor, 1527D502 (part mark #2), using 1/2" dia. HILTI's w/RE-500 Adhesive System (part mark #4) as shown on drawing 1527A001, Detail #1.
3. Anchor into channel bottom using 1/2" dia. HILTI's w/RE-500 Adhesive System. (part mark #4) as shown on drawing 1527A001, Detail #5.

The FlexRake® - Modular, Fully Assembled

Site Specific Instructions (cont.) — W1527, EMWD, Temecula Valley Regional Water Reclamation Facility

Install Accessories:

1. Discharge Chute:
 - Bolt on discharge chute, 1527D501 (1527A001, part mark #13) using appropriate fasteners (part marks #13, #14, #15, 16 and #18).
 2. Return Guides:
 - Set dowels/pins into side fabrications of unit.
 - Anchor return guides to side of channel using 3/8" dia. HILTI's w/RE-500 Adhesive System. (part mark #6).
 3. Install Discharge Sprayer System, 1527.S.SN1.001 (1527A001, Part Mark #24)
 4. Install Enclosure Subassembly, 1527S001, 1527S002 (1527A001, part mark #27, #28)
- Note: Precaution must be taken to avoid distorting the frame of the FlexRake when anchoring return guides.

The Flex Rake® Fully Assembled

Pre-Start Up Checklist:

1. If controls are provided, refer to the controls drawings and the motor wiring data provided.
2. Make certain that all containment or shipping devices have been removed.
3. Check to be certain that there are no obstructions to hinder the travel of the FlexRake®.
4. Check that all snap rings are secure and that all bolts have been tightened. (It is not unusual to have bolts loosen during shipment.)
5. There are no lubrication requirements because the motor and bearings are pre-lubricated (grease filled) and sealed.
6. Make sure that any wiring, especially temporary in nature, is secured with clamps or conduit to prevent a tripping hazard or so that it cannot become tangled in the raking mechanism.
7. Be certain that the stripper (part detail #6) has been pulled back so it is not able to engage the scrapers' travel. If this is not done, and operation accidentally begins in reverse, it will cause damage to the unit.

Safety

WARNING!

Although the FlexRake® moves very SLOWLY, it is important to **NEVER REACH INTO THE MOVING UNIT**, particularly to dislodge jammed debris. Often the slow operation of a unit is deceiving as to the risks of injury. There is a tremendous amount of torque against jammed material (and body parts if they were trapped while reaching into the unit).

Automatic Unit Operation: (if available and enabled)

1. Eliminate the possibility for injuries for operators, trespassers or vandals if the unit begins operation automatically. Some customers have done this by "caging" the raking mechanism, using audible alarms with signs posted, or using video equipment for personnel in a central control room to visually assure that no one is in harm's way.
2. Reduce any other risks associated with the rake functioning automatically in the current debris and/or site condition, with no operator on site.
3. Assure that the unit will not be set up for automatic operation in such a way as to have the raking mechanism starting under "full load" conditions (ie, large matted debris against the screen).

Maintenance:

1. An operator must be present whenever the unit is run in reverse. Note that the FlexRake® is not designed to run in reverse for an extended period of time.
2. Insure all operators and maintenance personnel do not wear loose fitting clothing when near equipment in operation.
3. Assure that personnel are trained and use proper power "Lockout/Tag-Out" procedures for the controls whenever maintenance is required on the FlexRake® or any areas where the spontaneous operation of the unit could cause a hazard.

Operation

Section 3: Operation

1. Continuous Operation

2. Automatic Operation

3. Reverse Operation

4. FlexRake® Removal

Continuous Operation:

The FlexRake® at its simplest may operate continuously. The unit operates at 0.5 output rpm to provide for long product life. The FlexRake moves at an approximate rate of 28 inches per minute. With standard scraper spacing of 63 inches between scrapers, the entire bar screen has been raked and will discharge approximately every 2 minutes. A 1/8 hp, 1/60/110 volt motor operates at 4.2 full load amps. (Please see the **Control** module &/or **Maintenance** section for all details for your motor).

With a 110 volt configuration, the unit can be hardwired or wired for a plug into a simple 110 volt receptacle (for temporary use— i.e., testing the unit prior to permanent wiring being complete).

It is important to have the FlexRake operate "ahead" of accumulating debris conditions, rather than starting under full-load conditions— as would be the case after significant head loss has developed.

It is important to note, due to the fractional horsepower and standard gear ratio of 3511:1, the unit will not have torque overload protection without an "electronic shear pin" or power monitor. Standard thermal protections such as fuses, typically WILL NOT STOP the drive.

CAUTION—WARNING!

Though the FlexRake moves very SLOWLY, it is important to NEVER REACH INTO THE MOVING UNIT, particularly to dislodge jammed debris. Often the slow operation of a unit is deceiving as to the risks of injury. There is a tremendous amount of torque against jammed material (and body parts if they were trapped while reaching into the unit).

**NEVER
REACH INTO THE UNIT
WHILE THE UNIT IS IN OPERATION.**

Automatic Operation:

The FlexRake® may operate by timed sequence or by level differential across the screen.

Controls can be designed, either customized or with a Standard Duperon® Corporation package, to begin the operation of the FlexRake with signals received from timers or received by a level system to indicate head loss, to operate for a timed sequence or until level across the screen again.

Automatic operation may also be signaled by peripheral equipment. For example, whenever your pumps are going to begin operation, it signals the start of the raking mechanism. It may also use a timer to run an extra 10 minutes after the pump stops.

PLEASE REFER TO THE CONTROLS MODULE FOR SPECIFIC INFORMATION ABOUT YOUR CONTROLS.

Torque overload protection is provided by a power monitor, similar to continuous operation packages and moves at the same speeds and discharge rates.

Some things to consider when setting up the operation of your unit:

1. If your unit operates automatically, you will want to eliminate the possibility for injuries for operators, trespassers or vandals if the unit begins operation, discharges debris, etc. Some customers have done this by "caging" the raking mechanism, using audible alarms with signs posted, or using video equipment for personnel in a central control room to visually assure that no one is in harm's way.
2. Assure that personnel are trained and use proper lockout procedures whenever maintaining the area where the operation of the unit could cause a hazard.
3. Consider what peripheral equipment should have synchronized or sequenced operations. For example, a conveyor may be signaled to begin first, the raking mechanism next and then pumps or turbines.
4. What exposure or risk is there to have the unit run automatically, without an operator during the current debris and/or site conditions?
5. Assure that the unit will not be set up for automatic operation in such a way as to have the raking mechanism starting under "full load" conditions (i.e., large matted debris against the screen).

Reverse Operation:

The FlexRake® utilizes a reversing motor which allows for the operation of the unit in reverse (See the wiring diagram in both the Controls module and Maintenance Sections).

CAUTION—WARNING!
The FlexRake is NOT designed for continuous reverse operation.

With Standard Duperon® Corporation control packages, the JOG REVERSE button is always performed in manual (or hand) operation. It is a momentary button that requires an operator to maintain pushing the button for continued operation.

We typically recommend using JOG REVERSE for two occasions:

1. Jammed Debris: Use reverse to back off pressure from a jammed condition. Often, a small jog in reverse will allow the debris to reposition or the FlexRake to do so. Jog the unit no more than 1-foot at a time.
2. Removal of Chain: Use reverse if you wish to remove the chain for maintenance on the screen, your channel or for other conditions. Follow the instructions below.

REMOVAL OF CHAIN using Jog Reverse:

To remove the FlexRake chain from the raking mechanism, simply disconnect the power. Remove the snap rings from a link pin on the downstream chain near the deck. **BE SURE TO PREVENT THE CHAIN FROM FALLING INTO THE WATER.** Tie the 2 FlexLinks™ to the deck or drive. Once the chain is secure, turn on the power. Run the rake in reverse while the chain piles up on the deck. If there are chain slides, make sure that you have disconnected the 2 chain's links on a FlexLink with the scraper mounted to it. Once you have removed the chain to the level of the chain slide, using a rope, allow the chain to be lowered so that it is no longer trapped around the chain slide and continue to operate the unit in reverse until all chain is on the deck. It may take as long as 30 minutes due to the slow operation of the unit.

FlexRake® Removal:

It is also possible to remove the entire FlexRake from the deck, including the bar screen. Simply remove the anchor bolts from the deck and lift the unit with the same instructions given for how to place the unit.

Support the drive head by placing a block between it and the mounting tubes. This assures that no undue loading occurs on the hinge bars which allow the rake to pivot. Lift vertically, then place on the ground with blocks under it to allow for easier rigging.

See the TROUBLESHOOTING section for assistance when having difficulty with operation.

Maintenance

Section 4: Maintenance

1. FlexRake® Maintenance

1. Daily, Monthly, Quarterly, Annual

2. Gearbox & Motor Manufacturer's Manuals

1. Gearbox Manual
2. Motor Manual
3. In-Field Motor Service

3. Bearing Data Sheet

4. Snap Ring Tool Instructions

Maintenance

FlexRake® Maintenance:

The FlexRake has been designed to be a simple, mechanical device with few maintenance requirements. The following pages provide motor, bearing and bushing catalog cuts or manufacturer's maintenance books for detailed maintenance data.

Maintenance Period:	
Daily:	None
Monthly:	None
Quarterly:	Check drive and bearings for any apparent leakage or damage.
Annual:	<ul style="list-style-type: none"> <input type="checkbox"/> Check specific drive requirements for your drive and site conditions. <input type="checkbox"/> Check the drive and bearings to assure that there are no leaks or apparent damage. <input type="checkbox"/> Check oil/grease in drive to see if it requires changing or additions. Most lubricants will break down over time. <input type="checkbox"/> Assure that all snap rings are in good shape and seated in the groove of the drive pins and link pins.

The gearmotors for the FlexRake are typically in the Y4 position. The "L" Series Buddy Box, "Right Angle Gear" section uses oil (see chart for oil selection on page 4 of the Sumitomo manual). Shell Alvania #2 or equivalent should be used for the single and double reduction sections until "weep out" overflow. There are several ports for fill, drain and overflow and depending upon the orientation and location of the gear motor on your unit, may not be readily apparent. See the sketches on page 4 for lubrication instructions.

Maintenance

Gearbox and Motor Data:

Gearbox and Motor Data

Duperon Part Number

FR.S.GM.016

-Left Hand Mount FR.S.GM.016.003-

-Right Hand Mount FR.S.GM.016.004-

Sumitomo ID

LHYXMS05-3A12DAYA-AV-XP-Y4-809

Sumitomo BBB Gearmotor, A size BBB

½ HP, 3/60/230/460 Volt

Marathon Motor #Y602

Explosion-Proof Class I Group C & D or Class II
Group F&G

56C, 1735 RPM inverter duty 10:1 speedrange, Class
F insulation, N/C thermostat with 2" Bushing, 809:1
Ratio

Mounting: Y4, Junction Box in 12:00 Position
Wire outlet to face fan end

Sumitomo Drive Technologies

Always on the Move

TO: DUPERON CORPORATION CITY: SAGINAW, MI. DATE: 12/8/03
FROM: _____ CITY: _____
SUBJECT: MAINTENANCE SCHEDULE FOR GREASE LUBRICATED BBB

The lubrication system has been modified for DUPERON CORPORATION.
The following is the recommend maintenance to be performed:

Cyclo

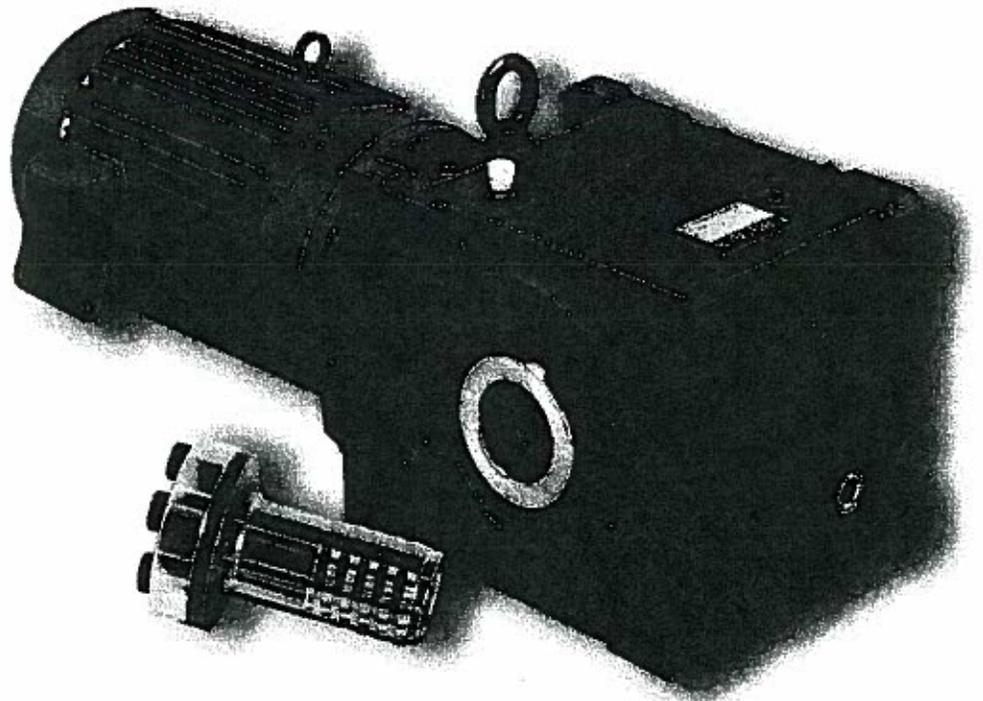
– This is the round reducer portion between the motor and the square shaped Bevel Buddy Box “BBB”. The Cyclo has been grease lubricated with Shell Alvania #2 grease and is considered maintenance free and needs no replenishment, but it is recommended the unit be disassembled every 20,000 hours or 4 – 5 years to clean and repack with designated grease to prolong service life.

Bevel Buddy Box

– This is the square shaped portion with the shaft running through it. This has been filled with “**SHELL ALVANIA EP R00**” or equivalent and can be changed every 4 – 5 years or (20,000 hours) to provide longer service. This is pourable grease and has the viscosity like that of molasses. It is recommend to drain during warm weather or the unit is warm from running. There is no need for venting.

Quarterly inspection for leakage, loose fasteners, excessive heat, etc. should be done to assure trouble free operation.

Operation and Maintenance Manual



Cyclo[®] BBB
Bevel Buddybox

Cyclo BBB BEVEL BUDDYBOX

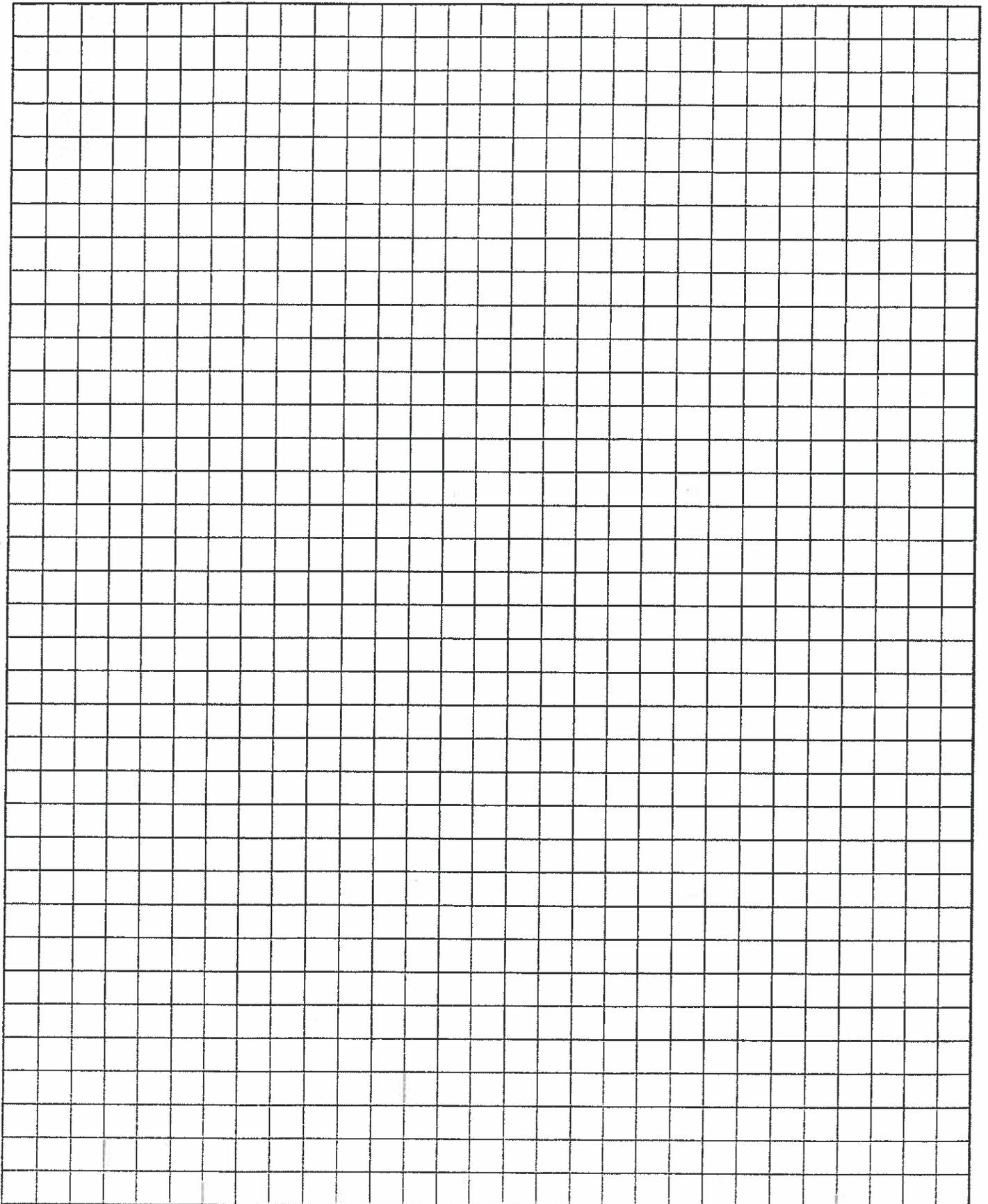
Speed Reducers and Gearmotors
featuring Keyless Taper-Grip® Bushing

Operation and Maintenance Manual Table of Contents

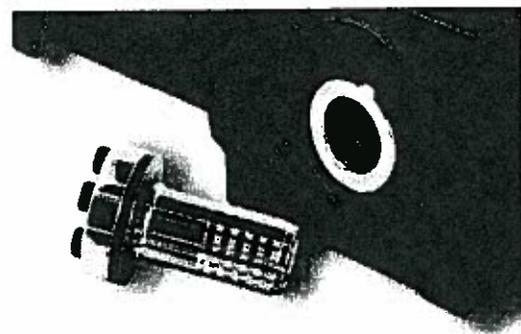


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Brakemotor Characteristics	7
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Lubrication	10
Installation	12

Notes



Taper Grip® Bushing



NOTE: Similar to all shrink disk type devices. It is essential to properly assemble and tighten the mounting bolts. Carefully follow the Sumitomo instructions for selection and installation in order to avoid any slippage. Incorrect mounting or slippage of the bushing will impair function and removal of the drive.

Fitting the Reducer on the Shaft

1. Check the size and condition of the shaft to which the reducer will be fitted. Permissible shaft tolerances are given in Figure 1.
2. Ensure all mating surfaces of the hub, the inside and outside diameters of the Taper-Grip® bushing and the shaft are free from burrs and corrosion. Clean each surface with a solvent to REMOVE ALL TRACES OF GREASE AND OIL.
3. Lightly oil each screw and insert into the bushing flange; ensure they do not protrude beyond the rear face.
4. Slide the thrust collar onto the Taper-Grip® bushing, ensuring that it is located immediately behind the flange. Screw the Taper-Grip® bushing into the hub in a clockwise direction until the flange contacts the thrust collar.
5. Unscrew the Taper-Grip® bushing until a gap of 1mm minimum exists between the flange and thrust collar. Tighten all screws until they are finger tight.
6. Slide the reducer onto the shaft at least as far as the counter bore in the Taper-Grip® bushing. Gradually tighten each screw in a star pattern to the torque levels shown in Figure 2.
7. Install the torque arm assembly if one is used.
8. After mounting is complete, the Cyclo BBB can then be filled with oil. Please follow proper guidelines for oil lubrication. Grease lubricated units are pre-filled at the factory.
9. After the reducer has been running for 20 or 30 hours, re-tighten the screws to the torque values listed in Figure 2. Screw torque should be subsequently checked at normal service intervals.

Figure 1. PERMISSIBLE SHAFT TOLERANCE

Shaft Dia.	Tolerance
$3/4" - 1 1/8"$	+0 - .005"
$1 3/16" - 2"$	+0 - .006"
$2 1/16" - 3 1/8"$	+0 - .007"
$3 3/16" - 4 3/4"$	+0 - .008"

NOTE: Shaft runout TIR should be no greater than .001".

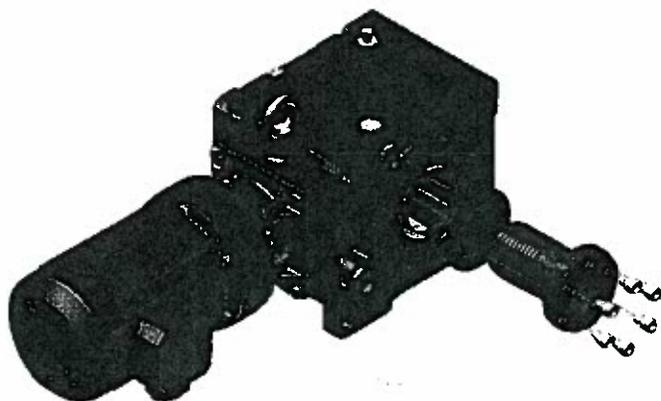
Figure 2. BUSHING SCREW TIGHTENING TORQUES

Size	Screw Size Qty. & Code	Screw Torque lb. ft.
A	6 X M12 112E7003	56
B	6 X M12 112E7003	104
C	6 X M16 112G7003	185
D	6 X M16 112G7003	185
E	8 X M16 112G7003	185

Figure 3. BUSHING BORE TOLERANCES

Inch	Tolerance	Metric mm	Tolerance*
$1 1/16" - 1 15/16"$	+ .003 / .001	40-50	.064 / .025
$2 - 2 7/16"$	+ .003 / .001	50-65	.076 / .030
$2 1/2 - 3 7/16"$	+ .003 / .001	65-80	.076 / .030
$3 1/2 - 3 15/16"$	+ .003 / .001	80-100	.090 / .036

*Metric Tolerances are F8.



Parts List

General Construction Bevel Gear Case

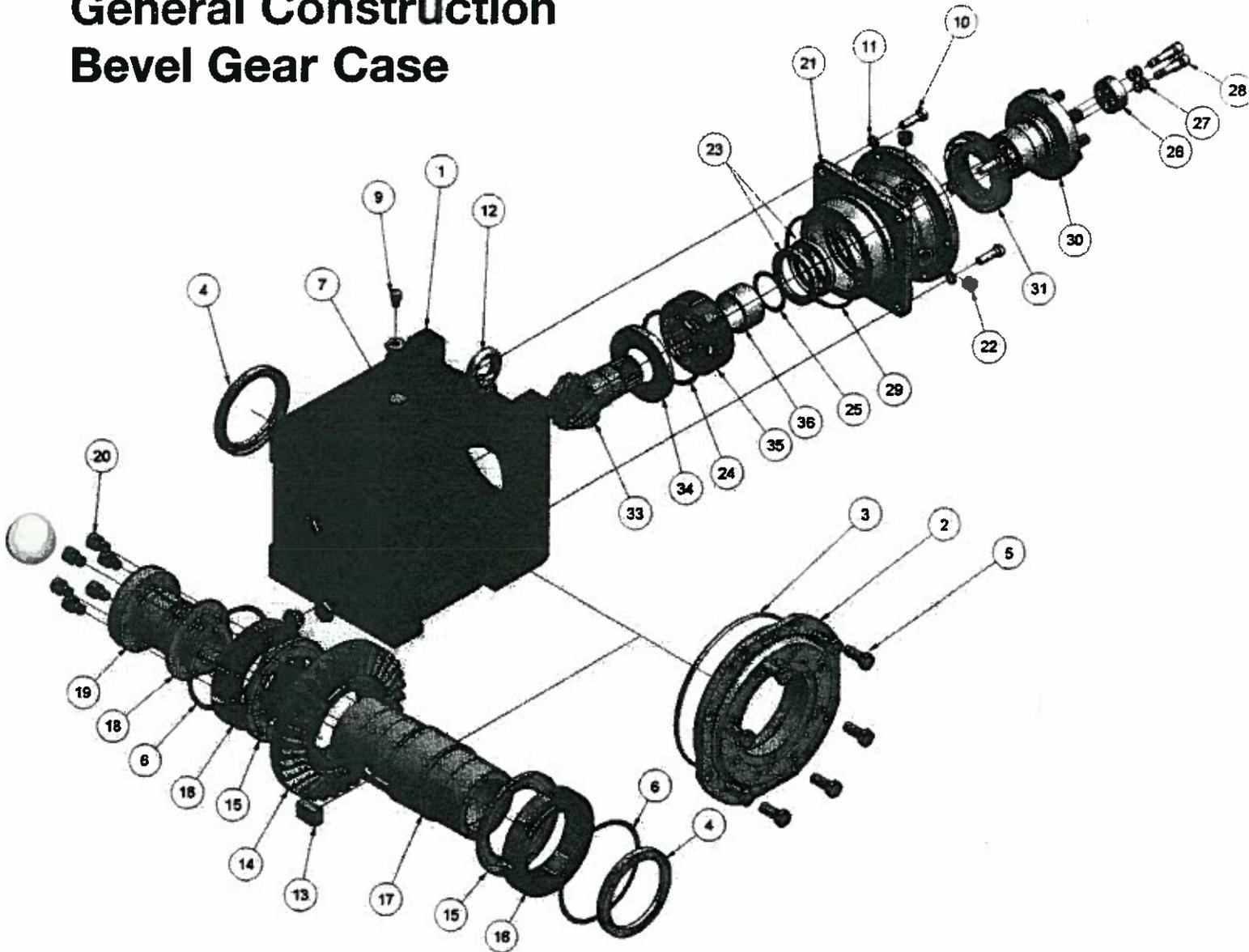


FIGURE 4. Parts Code Numbers

			Unit Size				
Item No.	Description	QTY	A	B	C	D	E
1	Gear Housing	1	AE693LG	AE774LG	AE695LG	AE696LG	AE697LG
2	Output Cover	1	BL520LG	BL531LG	BL542LG	BL550LG	BL554LG
3	O-Ring	1	540NG1701-A-G	540NG2101-A-G	540NG2601-A-G	541N5.7-3258G	541N5.7-3757G
4	Oil Seal	2	531N8511013-G	531N10012513G	531N12015014G	531N14017014G	531N16019016G
5	Hex Head Bolt	8	001M010R030NG	001M012R030NG	001M016R040NG	001M020R050NG	001M020R050NG
6[2]	Shim	Varies	As required				
7	Plug	8	343C008R-- -NG	343C008R-- -NG	343C012R-- -NG	343C012R-- -NG	343C012R-- -NG
8	Bushing	1	332F008R004NG	332F008R004NG	332F012R004NG	332F012R004NG	332F012R004NG
9	Air Vent	1	DT206LG	DT206LG	DT206LG	DT206LG	DT206LG
10	Hex Head Bolt	4	001M010R030NG	001M010R030NG	001M012R040NG	001M016R050NG	001M016R050NG
11	Spring Washer	4	062W010- - -NG	062W010- - -NG	062W012- - -NG	062W016- - -NG	062W016- - -NG
12	Eye Bolt	1	006C016R- - -NG	006C016R- - -NG	006C020R- - -NG	006C020R- - -NG	006C024R- - -NG
13	Key	1	233M2214021NG	233M2514028NG	233M2816040NG	233M3218050NG	233M3620060NG
14	Bevel Gear	1	AP0646G	AP0647G	AP0648G	AP0649G	AP0650G
15	Nilos Ring	2	50532017XAV-G	50532020XAV-G	50532024XAV-G	50532028XAV-G	50532032XAV-G
16	Tapered Roller Bearing	2	503T32017XU-G	503T32020XU-G	503T32024XU-G	503T32028XU-G	503T32032XU-G
17	Taper-Grip® Output Hub	1	BL937LG	BL938LG	BL939LG	BL940LG	BL941LG
18[3]	Thrust Plate	1	—	—	—	—	—
19	Taper-Grip® Bushing	1	As required				
20[3]	Taper-Grip® Bushing Screws	Varies	—	—	—	—	—
21[4]	Flanged Casing	1	As required				
22	Hex Socket Plug	Varies	As required	343C008R-- -NG	343C008R-- -NG	343C008R-- -NG	343C008R-- -NG
23	Oil Seal	2	530N50689-- -G	530N6075B-- -G	530N709513-- -G	530N9011513-G	530N9011513-G
24[2]	Shim	Varies	As required				
25[2]	Shim	Varies	As required				
26	End Plate	1	AW7028G	AW7030G	AW7032G	As required	AW7036G
27	Lock Washer	4	EU593WW-05	EU593WW-05	EU593WW-07	As required	EU593WW-09
28	Hex. Soc. Hd. Cap Screw	4	009M008R030NG	009M010R035NG	009M012R040NG	As required	009M016R055NG
29	O-Ring	1	540NG1101-A-G	540NG1301-A-G	540NG1501-A-G	540NG1751-A-G	540NG1851-A-G
30[5]	Pin Carrier	1	As required				
31	Tapered Roller Bearing	1	As required				
33	Bevel Pinion Shaft	1	BL513LG	BL525LG	BL536LG	As required	BL553LG
34	Nilos Ring	1	50532308AV- -G	50532310AV- -G	50532312AV- -G	50532314AV- -G	50532315AV- -G
35	Tapered Roller Bearing	1	503T32308U- -G	503T32310U- -G	503T32312U- -G	503T32314U- -G	503T32315U- -G
36	Collar	1	AW7027G	AW7029G	AW7031G	As required	AW7034G

- Notes: [1] When ordering replacement parts, please indicate the complete unit model number, ratio and serial number.
 [2] Shimms are not available individually. They may be ordered as a complete set only.
 [3] Item Numbers 18 and 20 are not available as individual parts. They come complete with the Taper-Grip® Bushing.
 [4] The Flange Casing is determined based on the associated input Cyclo size.
 [5] Item Number 30 is available as a complete subassembly only.

Cyclo Parts List



Cyclo Reducer Input Section

Single Reduction

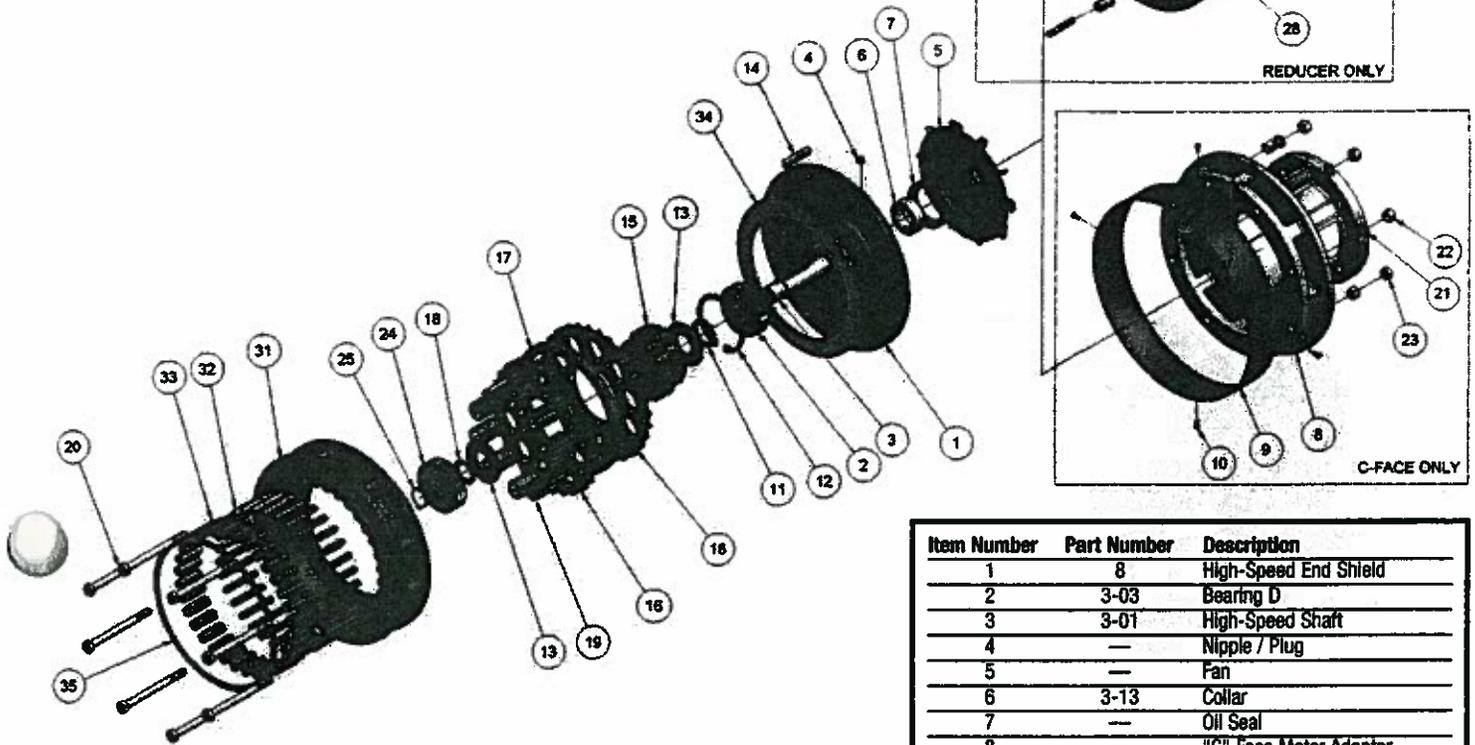


Figure 5. Main Parts

Item Number	Part Number	Description
1	8	High-Speed End Shield
2	3-03	Bearing D
3	3-01	High-Speed Shaft
4	—	Nipple / Plug
5	—	Fan
6	3-13	Collar
7	—	Oil Seal
8	—	"C" Face Motor Adapter
9	—	Fan Shroud
10	—	Shroud Bolts/Screws
11	3-08	Spacer
12	3-11	Snap Ring
13	—	Endplate
14	3-05	Eccentric Key
15	3-04	Eccentric Cam Assembly
16	2-04	Cycloid Discs
17	2-05	Disc Spacer
18	3-09	Spacer
19	—	Slow Speed Shaft Rollers
20	—	Housing Bolts
21	—	Washers
22	—	Nuts
23	—	Locknut
24	3-02	Bearing C
25	3-10	Snap Ring
26	—	Tap-End Stud
27	—	Fan Spacer
28	—	Fan Cover
29	—	Washers
30	—	Nuts
31	2-01	Ring Gear Housing
32	2-02	Ring Gear Pins
33	2-03	Ring Gear Rollers
34	—	Gasket*
35	—	Gasket*

*Supplied as a set only

Cyclo Reducer Input Section

Double Reduction

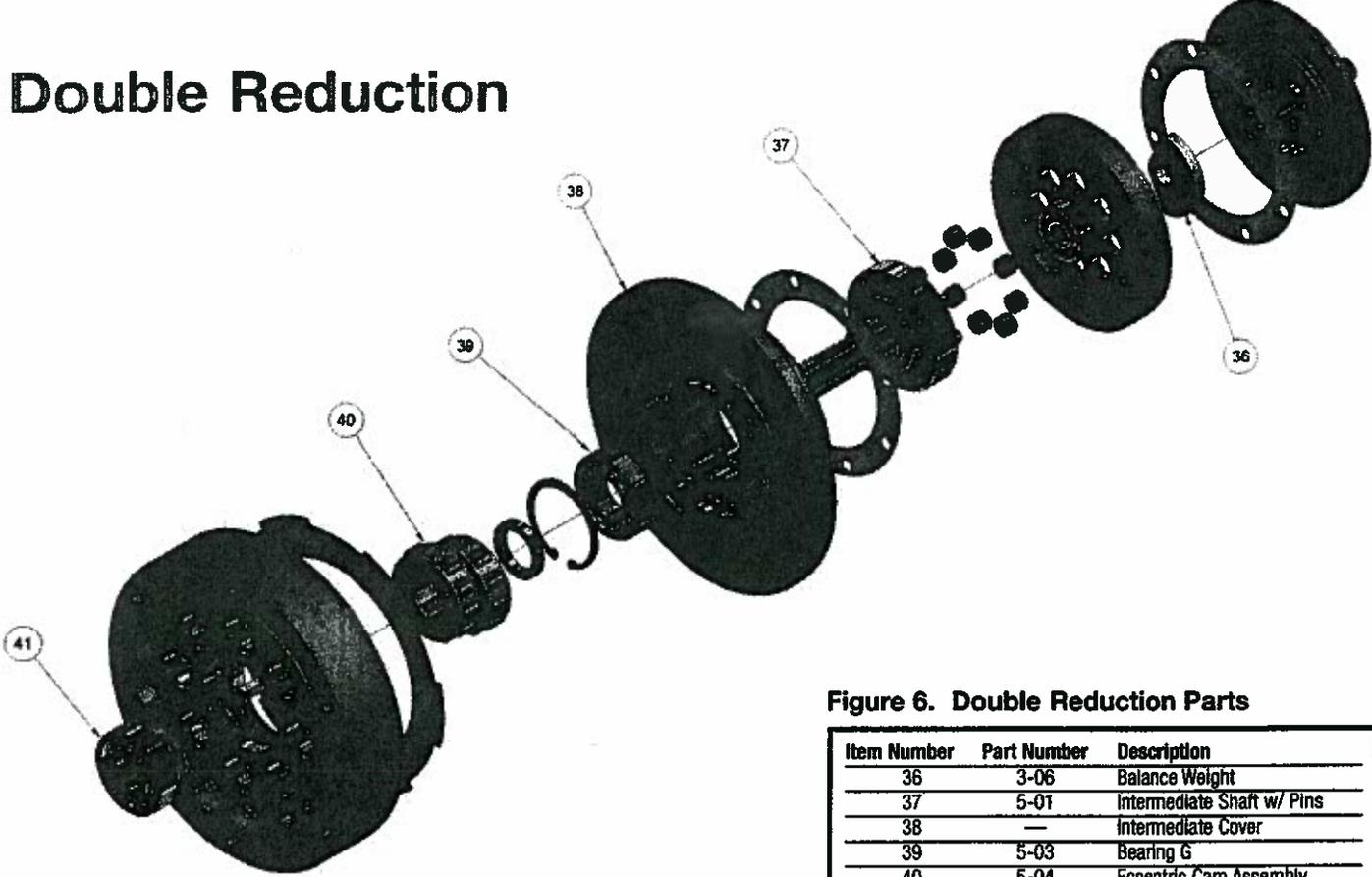


Figure 6. Double Reduction Parts

Item Number	Part Number	Description
36	3-06	Balance Weight
37	5-01	Intermediate Shaft w/ Pins
38	—	Intermediate Cover
39	5-03	Bearing G
40	5-04	Eccentric Cam Assembly
41	5-02	Bearing F

NOTE: The parts listed are a general representation of the components found in a single and double reduction Cyclo.

Specific units may or may not contain all shown here.

Please consult the factory for specific part questions.

Standard Motor Characteristics

Motor Characteristics

The Cyclo® BBB gearmotors full load ratings and amperage can be found below in Figure 7. These ratings are based on the motor's design values. If additional information is required, please consult factory.

Figure 7. 230/460 Volt, Synchronous Speed 1800 rpm, 60 Hz, Continuous Duty, TEFC

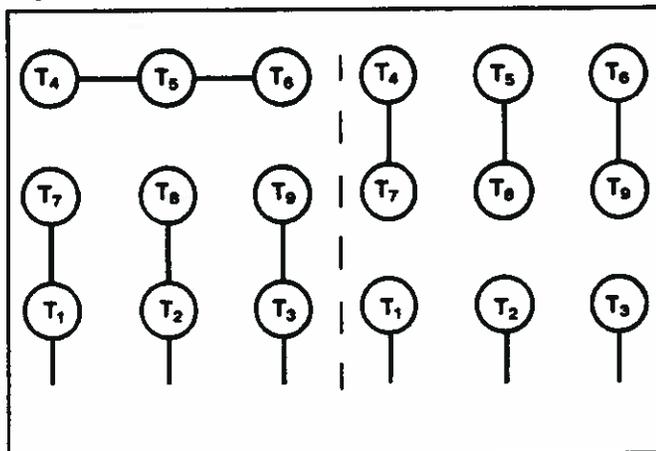
HP	Frame Size	Full Load rpm	Torque in. lb.	Full Load Current Amperage			Starting Current Amperage		Torque % of F.L. Break-down		Efficiency %	Power Factor %	Code Letter*	Inertia Wt. lb. ft²
				230V	460V	208V	230V	460V	Starting	Break-down				
1/2	F-71M	1740	18.3	2.1	1.1	2.0	9.8	4.9	295	280	71.9	65.1	J	0.0154
3/4	F-80S	1730	27.4	2.5	1.2	2.5	12.3	6.2	266	245	76.9	73.0	H	0.0227
1	F-80	1750	36.0	3.4	1.7	3.4	17.6	8.8	269	303	77.2	72.3	H	0.0285
1.5	F-90S	1730	54.7	4.6	2.3	4.7	28.6	14.3	273	281	80.3	74.1	J	0.0451
2	F-90L	1740	72.5	6.0	3.0	6.2	36.8	18.4	263	270	82.3	75.6	J	0.0504
3	F-100L	1730	109	8.4	4.2	8.7	54.8	27.4	277	266	84.4	77.2	J	0.0789
5	F-112M	1730	183	13.0	6.5	13.7	91.5	45.8	308	279	86.3	82.4	K	0.201
7.5	F-132S	1710	277	18.1	9.0	20.1	120	61	223	221	86.7	88.2	H	0.271
10	F-132M	1740	361	23.6	11.8	26.4	147	73.5	212	214	89.6	88.9	G	0.635
15	F-160M	1740	542	34.3	17.2	38.2	231	115	248	221	90.5	89.0	G	0.891
20	G-160L	1740	725	45.8	22.9	51	272	136	222	220	91.6	89.9	F	2.13
25	G-180M	1770	891	57	28.4	63	343	171	199	235	92.6	88.2	F	5.34
30	G-180M	1760	1075	68	34.2	77	388	194	192	226	91.5	88.1	F	5.34

*Code letter shown is for 230V or 460V operation. Consult factory for other voltages.

Standard Wiring Diagram – 208, 230/460V

Illustrated below are the wiring diagrams for our standard motor. For additional information please refer to motor name plate. Due to changes in design features, this diagram may not always agree with that on the motor. If different, the motor diagram found inside the conduit box cover is correct.

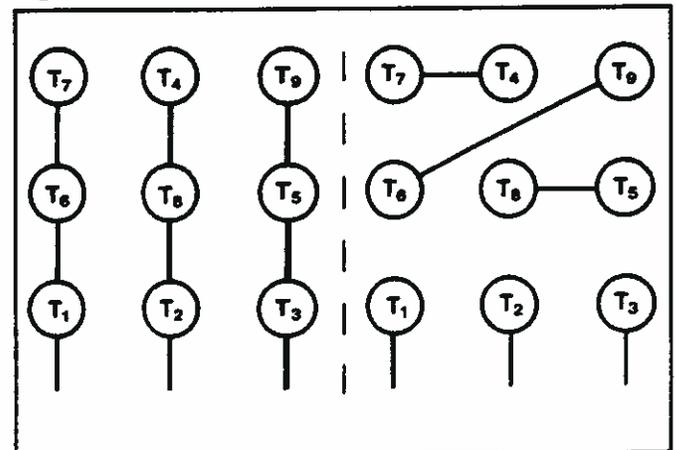
Figure 8. Y-Connected (5 HP and smaller)



Line 208/230V 60Hz

Line 460V 60Hz

Figure 9. Delta-Connected (7 1/2 HP and larger)



Line 208/230V 60Hz

Line 460V 60Hz

Brakemotor Characteristics

The brakemotor on Cyclo® BBB gearmotors operates on a D.C. current supplied by a dual voltage rectifier mounted on the motor conduit box.

The standard brake input voltage is 208V OR 230V OR 460V at 60 Hz. (For other available voltages consult factory.)

Our standard brakemotor when used for outdoor installations must be protected with some type of covering. Such coverings are available from the factory, please inquire when ordering.

Note: While the brake torque can be field adjusted within a limited range, if you require larger or smaller brake torque than those listed, please advise the factory when ordering.

Figure 10. Required Brake Response Action

Condition	% Motor Torque Rating	Typical Application	Remarks
Rapid Brake Action	100%	Machine Tool Cutter and Table Transfer	
Frequent Start/Stop	100%	Conveyor Drive	Fast Brake Action May Be Required
Rapid Braking and Fail Safe	Over 150%	Crane, Hoist Winch, Gate, Lifting	Wiring Connection for Fast Brake Action Required
Rapid Deceleration of High Inertia	Over 150%	Centrifuge Drive Textile	

Figure 11. Brake Torque

HP	TYPE		BRAKE Torque ft. lb.		Inertia WR ² lb. ft. ²	Brake Delay Time (sec)		Coil Current AC Amperage		
	Motor Frame	Brake Model	Std.	Max.		Normal Braking Action	Fast Braking Action	230V	460V	208V
1/8	F-63S	FB-01A	0.7	1.0	0.0083	0.15 ~ 0.2	0.015 ~ 0.02	0.06	0.04	0.06
1/4	F-63M	FB-02A	1.4	2.0	0.0131	0.15 ~ 0.2	0.015 ~ 0.02	0.1	0.06	0.1
1/3	F-63M	FB-02A	1.4	2.9	0.0131	0.15 ~ 0.2	0.015 ~ 0.02	0.1	0.06	0.1
1/2	F-71M	FB-05A	2.9	2.9	0.016	0.1 ~ 0.15	0.01 ~ 0.015	0.1	0.06	0.1
3/4	F-80S	FB-1B	5.8	7.7	0.0267	0.2 ~ 0.3	0.01 ~ 0.02	0.1	0.1	0.1
1	F-80M	FB-1B	5.8	7.7	0.0308	0.2 ~ 0.3	0.01 ~ 0.02	0.1	0.1	0.1
1.5	F-90S	FB-2B	11	14	0.0510	0.2 ~ 0.3	0.01 ~ 0.02	0.3	0.2	0.3
2	F-90L	FB-2B	11	14	0.0564	0.2 ~ 0.3	0.01 ~ 0.02	0.3	0.2	0.3
3	F-100L	FB-3B	16	21	0.0884	0.3 ~ 0.4	0.02 ~ 0.03	0.4	0.2	0.4
5	F-112M	FB-5B	27	36	0.239	0.4 ~ 0.5	0.02 ~ 0.03	0.5	0.3	0.4
7.5	F-132S	FB-8B	40	53	0.309	0.3 ~ 0.4	0.02 ~ 0.03	0.5	0.3	0.4
10	F-132M	FB-10B	54	72	0.736	0.7 ~ 0.8	0.04 ~ 0.05	0.8	0.5	0.7
15	F-160M	FB-15B	80	80	0.991	0.5 ~ 0.6	0.04 ~ 0.05	0.8	0.5	0.7
20	G-160L	CMB-20	72	80	3.150	0.6 ~ 0.8	0.1 ~ 0.15	1.7	1.9	1.5

Figure 12. Rectifier

BRAKE TYPE	MOTOR (HP X P)	VOLTAGE (V)	RECTIFIER P.N. SINGLE VOLTAGE (SEE NOTE BELOW)	BRAKE TYPE	MOTOR (HP X P)	VOLTAGE (V)	RECTIFIER P.N. SINGLE VOLTAGE (SEE NOTE BELOW)
FB-01A	1/8 x 4	190 ~ 230 380 ~ 460	25FW-4FB	FB-5B	5 x 4	190 ~ 230 380 ~ 460	25FW-4FB
FB-02A	1/4 x 4 1/3 x 4	190 ~ 230 380 ~ 460	25FW-4FB	FB-8B	7.5 x 4	190 ~ 230 380 ~ 460	25FW-4FB
FB-05A	1/2 x 4	190 ~ 230 380 ~ 460	25FW-4FB	FB-10B	10 x 4	190 ~ 230 380 ~ 460	25FW-4FB
FB-1B	3/4 x 4 1/4 x 4	190 ~ 230 380 ~ 460	25FW-4FB	FB-15B	15 x 4	190 ~ 230 380 ~ 460	25FW-4FB
FB-2B	1.5 x 4 2 x 4	190 ~ 230 380 ~ 460	25FW-4FB	CMB-20	20 x 4	180 ~ 460	SB25F-3HS
FB-3B	3 x 4	190 ~ 230 380 ~ 460	25FW-4FB				

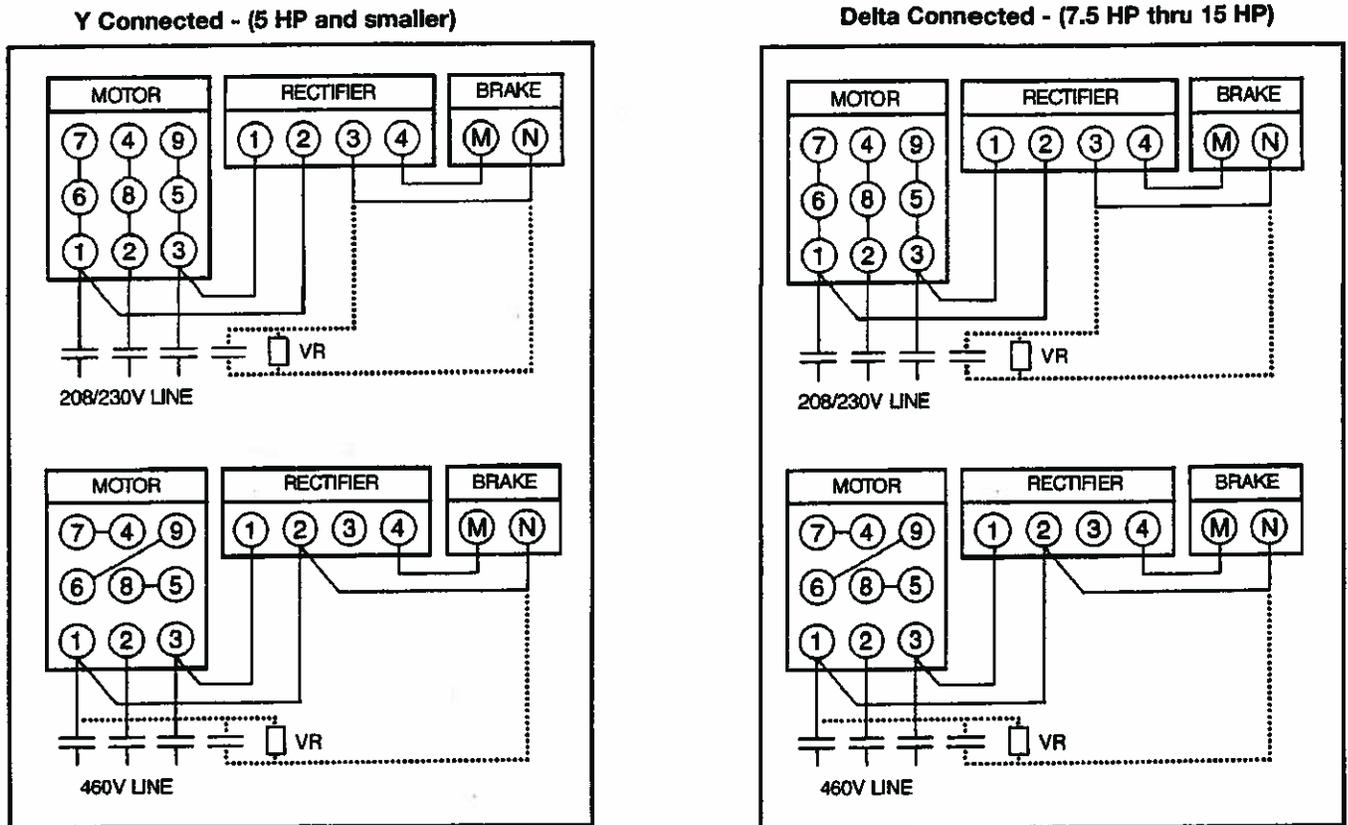
NOTE: Dual Voltage Rectifier P.N. 25FW-4FB is now standard for all FB brakes. The voltage range is 190 ~ 460 V.

Brakemotor Characteristics: Wiring

Typical Brakemotor Wiring

Illustrated below is a typical brakemotor wiring schematic. Note the rectifier shown is supplied in the motor conduit box. Due to changes in design features, this diagram may not always agree with that on the motor. If different, the motor diagram found inside the conduit box cover is correct.

Figure 13.



- New dual voltage rectifier can be wired for 230V or 460V supply.
- Solid lines show the wiring connections for standard brake action.
- For fast brake action connect terminals as indicated by dotted lines. Add an additional contactor, and varistor VR from Figure 14 below. Do not connect terminal N on brake coil to terminal 3 on rectifier for fast brake action. For 460V fast action braking do not connect terminal N on brake coil to terminal 2 on rectifier.

Figure 14. Varistors for Fast Braking Action

OPERATING VOLTAGE		208 V / 230 V	460 V	575 V
Varistor Rated Voltage		AC260 ~ 300 V	AC510 V	AC604 V
Varistor Voltage		430 ~ 470 V	820 V	1000 V
Varistor Rated Wattage	FB-01A, 02A, 05A	Over 0.2 W	Over 0.4 W	Over 0.4 W
	FB-1A	Over 0.4 W	Over 0.6 W	Over 0.6 W
	FB-2A, 3A, 5A, 8A	Over 0.6 W	Over 1.5 W	Over 1.5 W
	FB-10A, 15A	Over 1 W	Over 1.5 W	Over 1.5 W

- Please refer to page 5.13, Figure 5.24 for rectifier data.

Standard Wiring Connection

Quick Brake Relay Equipped Models (1/8 to 7.5 HP)

Figure 15. Quick Brake Action, Low Voltage (FB-05A, FB-1B, FB-2B, FB-3B)

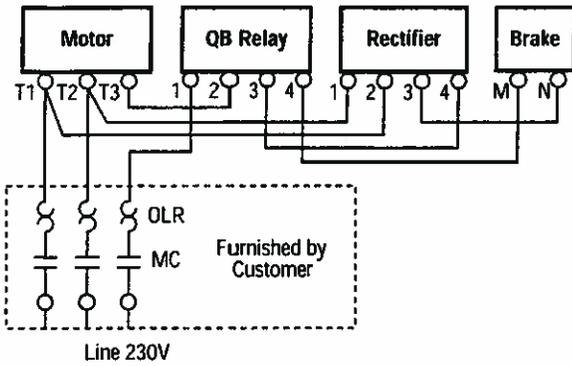
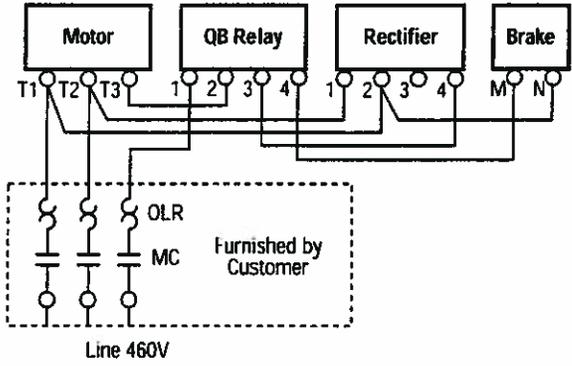


Figure 16. Quick Brake Action, High Voltage (FB-2B, FB-3B, FB-5B, FB-8B)



FB Brake (1/8 to 7.5 HP) with Inverter

Figure 17. Normal Brake Action, Low Voltage

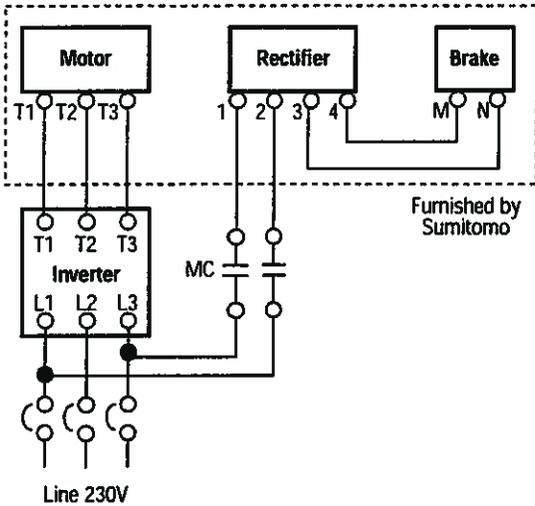


Figure 18. Fast Brake Action, Low Voltage

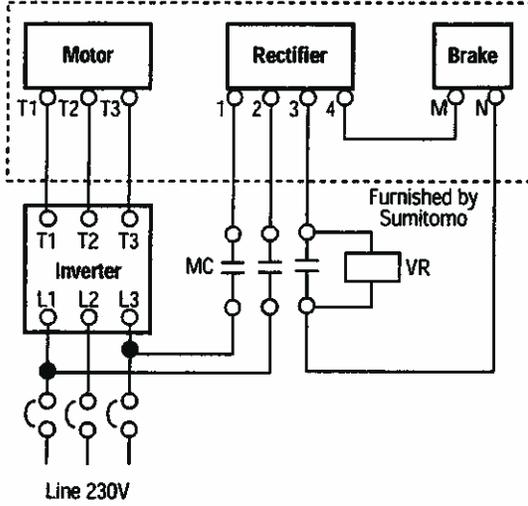


Figure 19. Normal Brake Action, High Voltage

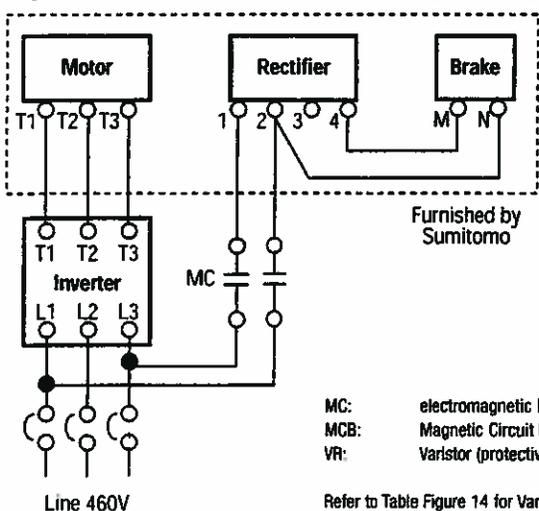
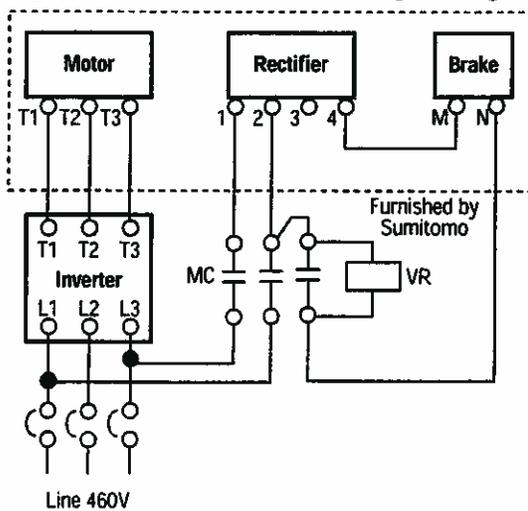


Figure 20. Fast Brake Action, High Voltage



MC: electromagnetic Relay
 MCB: Magnetic Circuit Breaker
 VR: Varistor (protective device)¹

Refer to Table Figure 14 for Varistor specifications

Lubrication

Oil lubricated models are not filled with oil prior to shipping.

Before operating, fill the unit with the appropriate amount of the correct lubricant for the mounting position (see Figure 22 and 24). When operating in winter or other relatively low ambient temperatures, use the lower viscosity oil specified for each ambient temperature range. Please consult the factory if the unit will be operated consistently in ambient temperatures other than 32°F–104°F.

Grease lubricated models are lubricated with grease prior to shipment from the factory.

Adding grease prior to initial start-up is not required. If grease must be replenished or changed (see Grease Lubrication section), avoid using greases other than those listed in the Figure 23. Please consult the factory when the units will be used in widely fluctuating temperatures, ambient temperatures other than those specified in Figure 23, or when other special conditions exist for the application. When motors from another manufacturer will be used, please consult and adhere to the associated motor maintenance manual for the appropriate lubrication instructions.

Figure 21. Lubrication Type Per Unit Size

Unit Size	Output (Gear Side)	Input (Cyclo Side)	
		Motor Horizontal	Motor Vertical
2A100, 2A105, 2A110, 2A115 2A120, 2A125, 2B120, 2B125	Oil Bath	Grease	Grease
2A140, 2A145 2B140, 2B145, 2C140, 2C145, 2B160, 2B165, 2C160, 2C165, 2D160, 2D165, 2C170, 2C175, 2D170, 2D175 2E170, 2E175		Oil Bath	Grease

Figure 22. Standard Oils

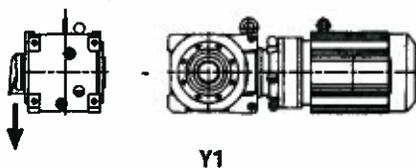
Ambient Temperature (°F)	ChevronTexaco	Exxon Oil	Mobil Oil	Shell Oil	BP Oil
14 to 41°	EP Gear Compound 68	Spartan EP 68	Mobilgear 626 (ISO VG 68)	Omala Oil 68	Energol GR-XP 68
32 to 95°	EP Gear Compound 100, 150	Spartan EP 100 EP 150	Mobilgear 627, 629 (ISO VG 100, 150)	Omala Oil 100, 150	Energol GR-XP 100 GR-XP 150
86 to 122°	EP Gear Compound 220, 320, 460	Spartan EP 220 EP 320 EP 460	Mobilgear 630, 632 633, 634 (ISO VG 220–460)	Omala Oil 220, 320 460	Energol GR-XP 220 GR-XP 320 GR-XP 460

Figure 23. Standard Greases

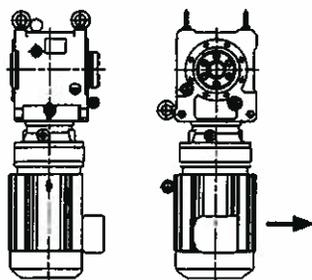
Ambient Temperature (°F)	Reduction Ratio	Input (Cyclo Side)	Sumitomo Manufactured Motor Open Bearing	
			B Type Insulation	F Type Insulation
14 to 122°	11, 18:1	Shell Alvania EP R0	Shell Alvania Grease #2	Shell Darina Grease #2
	21:1 and higher	Shell Alvania Grease #2		

Figure 24.

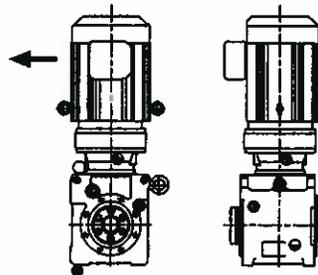
Oil Plug Locations



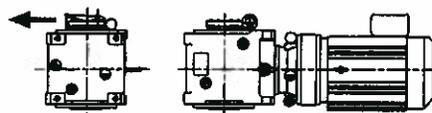
Floor—All Positions



Y4



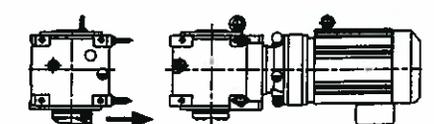
Y2



Y5



Y3



Y6

- Oil Drain Plug
- ◐ Oil Overflow Plug (Oil Level)
- Oil Fill Plug

Figure 25. Oil Fill Quantities Unit: U.S. Gallons

*G = Grease

Frame Size	Mounting Configuration											
	Y1		Y2		Y3		Y4		Y5		Y6	
	Output	Input*	Output	Input*	Output	Input*	Output	Input*	Output	Input*	Output	Input*
2A100, 2A105		G		G		G		G		G		G
2A110, 2A115	0.29	G	0.26	G	0.29	G	0.26	G	0.45	G	0.42	G
2A120, 2A125		G		G		G		G		G		G
2A140, 2A145		0.08		G		0.08		G		0.08		0.08
2B120, 2B125		G		G		G		G		G		G
2B140, 2B145	0.48	0.12	0.37	G	0.48	0.12	0.48	G	0.61	0.12	0.66	0.12
2B160, 2B165		0.20		G		0.20		G		0.20		0.20
2C140, 2C145		0.12		G		0.12		G		0.12		0.12
2C160, 2C165	0.87	0.20	0.92	G	0.87	0.20	1.16	G	0.95	0.20	1.4	0.20
2C170, 2C175		0.28		G		0.28		G		0.28		0.28
2D160, 2D165	1.16	0.18	1.32	G	1.16	0.18	1.11	G	1.48	0.18	1.59	0.18
2D170, 2D175		0.24		G		0.24		G		0.24		0.24
2E170, 2E175	1.95	0.24	1.93	G	1.95	0.24	1.59	G	1.90	0.24	2.80	0.24

Figure 26. Grease Replenishment and Change Interval (Cyclo Portion)

Model	Condition		Interval
Single & Double Reduction (Maintenance-Free Type)	Replenishment		NOT REQUIRED
	Overhaul		Every 20,000 hours or every 4 - 5 years
Double Reduction (Non Maintenance-Free Type)	Replenishment	Less than 10 hours per day operation	Every 3 - 6 months
		10 - 24 hours per day operation	Every 500 - 1000 hours
	Change	Speed reduction mechanism, high speed shaft bearings (speed reducer type)	Every 2 - 3 years

Oil lubricated units are shipped without oil. Prior to initial start-up, the unit must be filled with the correct amount of oil (see Figure 25). For those units where both the gear and Cyclo® portions are oil lubricated, the oil must be filled in two separate locations, one on the gear housing and one on the Cyclo® housing.

Grease lubricated models are lubricated at the factory. Additional grease does not need to be added prior to initial start-up.

Oil Replenishment and Change Interval

- A. Maintain proper oil levels at all times.
- B. An oil change after the first 500 hours of operation is highly recommended.
- C. Sumitomo recommends an oil change every 2500 hours, or six months, whichever comes first. If a proper preventive maintenance program is implemented and maintained, a longer change period may be acceptable.
- D. If the unit is running in a high ambient, high humidity, or corrosive environment, the lubricant will have to be changed more frequently. Consult the factory for recommendations.
- E. Note: The Cyclo® portion and Bevel portion, where applicable, must be filled with oil separately. Oil does not flow from one section to the other.

Grease Replenishment and Change Interval Bevel Portion

- A. Grease replenishment is usually not necessary.
- B. Drain, flush and regrease the bevel gearcase every 3000 - 5000 hours of operation. The unit should be overhauled every 2 - 3 years

Cyclo Portion

- A. On single reduction Cyclo® Bevel Buddybox (Cyclo® BBB) sizes 2A100~125 and 2B120~125, the Cyclo® portion is grease lubricated as standard and usually maintenance free.
- B. For Cyclo® BBB sizes 2A140~145, 2B140~145, 2B160~165, and all sizes of 2C, 2D, and 2E mounted in the Y2 and Y4 positions, please refer to Figure 26 for the proper grease replenishment and change interval.

Double Reduction Units

- A. The geared (output) portion is oil lubricated and must be filled by the customer with the correct amount of oil (see Figure 25).
- B. The Cyclo® (input) portion of all double reduction units is grease lubricated at the factory. Additional grease is not required prior to initial start-up.

Installation

Shaft Connections

Pulley, sprocket or sheave connection – When using any of these connections, mount as close to the unit housing as possible, never beyond the midpoint of the shaft projection, to avoid undue bearing load and shaft deflection. Never overtighten belts or chains. Careful and accurate installation is essential for best results and for trouble-free operation. Before installing, the shafts should be checked to make sure that they are parallel and level. Perfect alignment after mounting can be checked with a string or straight edge held against the sides of the sprocket or pulley base.

Couplings should be properly aligned to the limits specified by the manufacturer. On coupled speed reducers coupling alignment should be checked prior to initial startup.

Shaft Rotation

On single reduction Cyclo® BBB speed reducers, ratios 11 through 305, the slow speed shaft rotates in a reverse direction to that of the high speed shaft.

On double reduction units, ratios 357 through 26,492, both the high speed and the slow speed shaft rotate in the same direction.

Input Speeds

In general terms, the standard input speeds of single reduction units are 1750 and 1165 RPM.

When non-standard input speeds are used, the horsepower and torque ratings will also vary.

Thermal Capacity

The Cyclo® BBB speed reducer's smooth, almost frictionless operation all but eliminates the conventional limitations due to heat. In all sizes, Cyclo® BBB speed reducers have thermal ratings that exceed their mechanical capacity.

Mounting Tips

Horizontal and vertical oil-lubricated units should be mounted in exact planes whenever possible. When they are mounted on inclined surfaces, minor modifications are necessary, since an inclined mounting could lower the oil to a level that will starve reduction parts and bearings. On the other hand, overfilling a unit with oil may cause leakage through the air vent, foaming and churning and consequently overheating. Any of the above could result in damage to the unit. In many cases we can provide grease lubrication to solve this problem.

Installation

Be sure to install and operate Cyclo® BBB speed reducers in compliance with applicable local and national safety codes. Appropriate guards for rotating shafts should be used and are available from local stocks.

Dimensions

All dimensions in this catalog are for reference purposes only. Consult factory for certified dimensions.

Installation: Keyed Hollow Shaft

Mounting procedure:

1. Smear the surface of the shaft (e) with molybdenum disulfide compound. See Fig. 26.
2. Turn nut (b) and slide the reducer over the driven shaft. Install spacer (c) if necessary.
3. After mounting the reducer on the shaft, install bolt (f) and washer. See Fig. 27.

NOTE: The bore should be protected by a cover (g).

4. If the driven shaft does not have a shoulder, a spacer (h) should be used. See Fig. 28.

Removal procedure:

1. Remove mount bolt (n). Attach bolt (j) to spacer (d) and turn bolt (j) to remove the hollow shaft from the driven shaft. See Fig. 29.

NOTE: Parts a through j and n are not provided by Sumitomo.

Fig. 26.

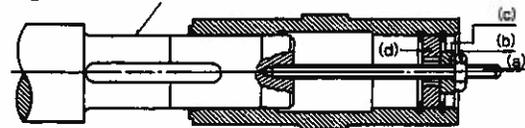


Fig. 27.

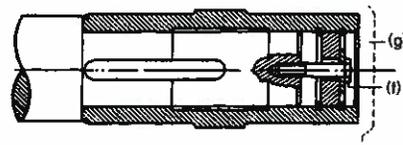


Fig. 28.

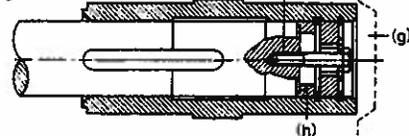
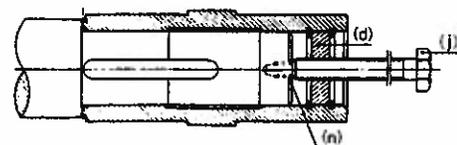
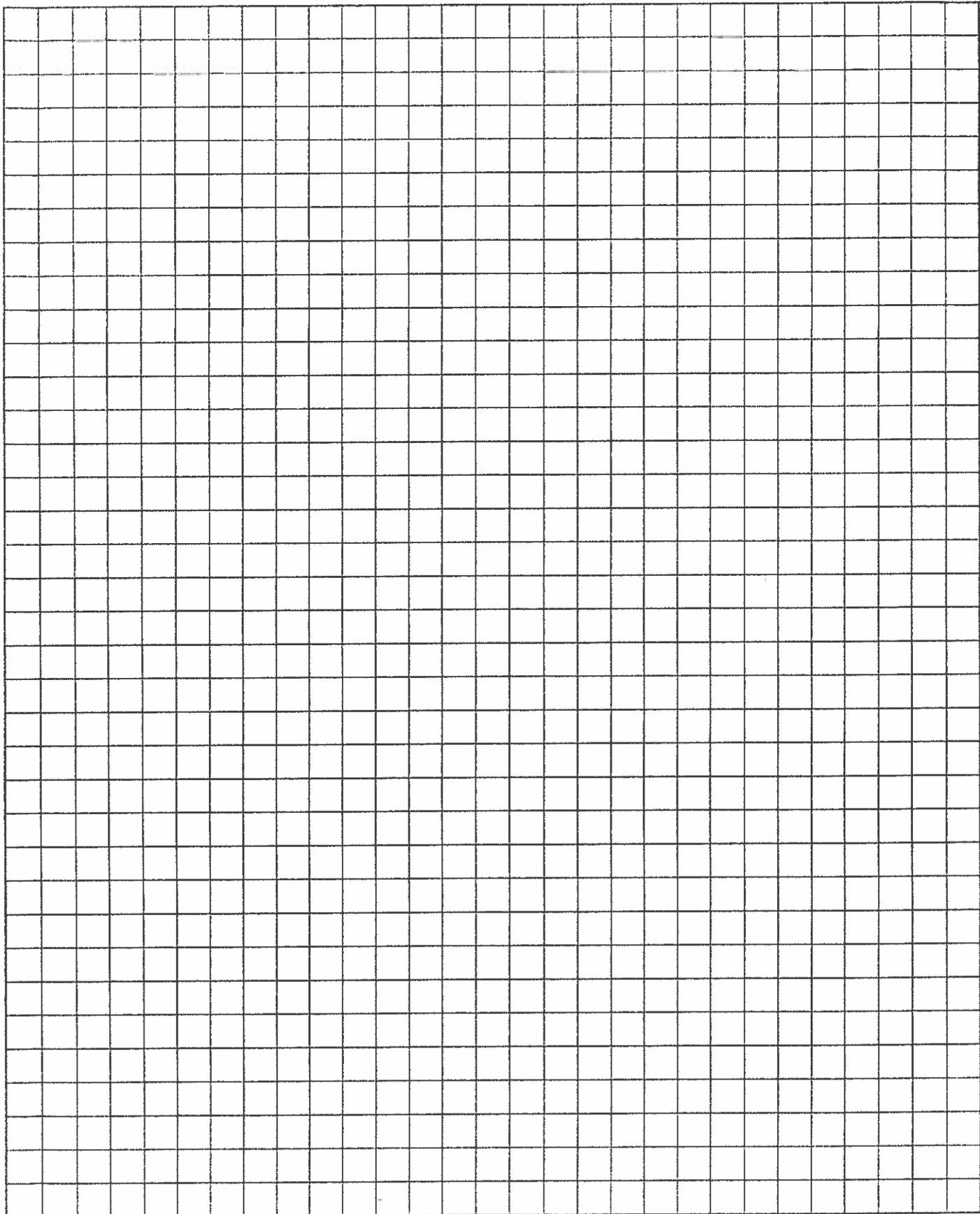
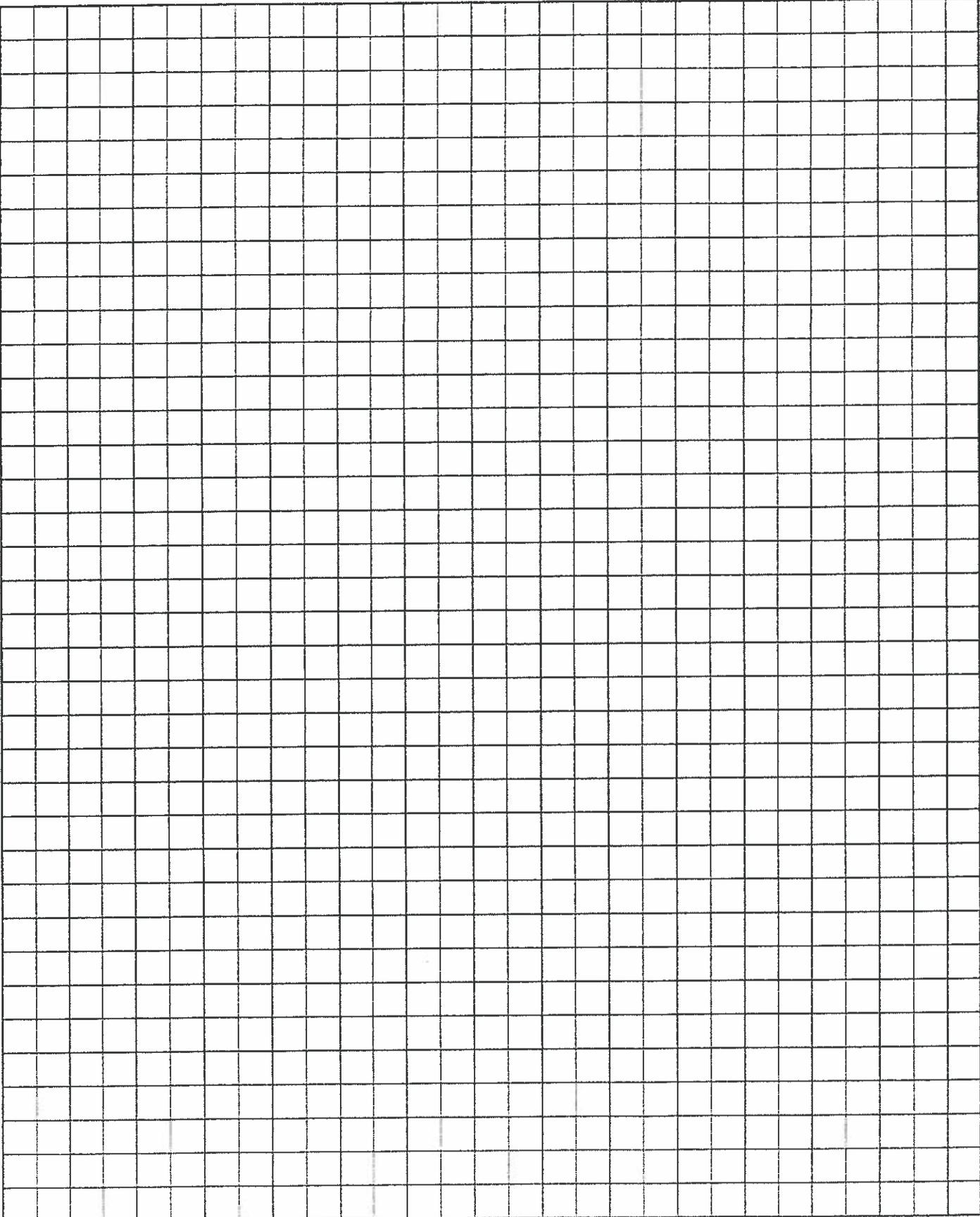


Fig. 29.





Notes



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In-Field Motor Service

Removal of Drive Motor and Cyclo Gear Reduction Unit as a Single Subassembly

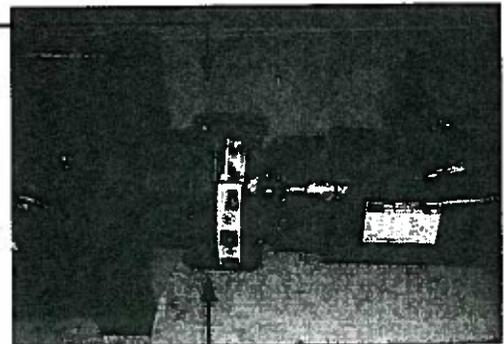
Duperon gearmotor assemblies seldom require service, but if warranty or service of the motor is necessary, the service unit will be supplied as a subassembly which includes the Cyclo gear reduction units. There are two Cyclo units located between the motor and the gearbox. There is a small diameter unit mounted directly to the motor with 6 studs, nuts and lockwashers. There is a large diameter unit mounted to the gearbox with 8 bolts, nuts, and lockwashers.

The Cyclo gear reducers are sophisticated planetary gear sets that contain loose needle bearings that are timed. For this reason, disassembly of Cyclos in the field is **NOT recommended**. Cyclo service and motor replacement are covered in a different set of instructions and should be handled in a shop setting.

Motor and Cyclo Subassembly Removal:

1. Loosen and remove 6 of the 8 bolts attaching the large Cyclo to the gearbox, leaving 2 remaining bolts 180 degrees apart.
2. Loosen the 2 remaining nuts enough to allow 1/8" separation at the gasket surface. Because the motor is facing down, gravity will assist in separating the gaskets. The remaining bolts are insurance to make sure that the unit does not fall out until you are ready to remove it.
3. Loosen the gaskets by striking the outside diameter of the large Cyclo with a block of hardwood or similar material and a hammer. When loose, you will see a gap between the Cyclo gasket on either or both sides of the Cyclo. You want separation at the gasket surface closest to the large square gearbox. The remaining bolts will allow you to rotate the unit a couple of degrees in either direction to help free the gasket. The gaskets will normally release quite easily without major effort, but if not, use a paint scraper or small screwdriver to assist.

Separate here – may require prying gently at this parting line to separate.



Maintenance

Bearing Data:

Service Instructions — 1-3/16" to 5" Shaft Sizes

IMPORTANT - READ CAREFULLY

Correct selection for reliability requires that all loads, speeds, alignment, mountings, operating conditions and maintenance be properly considered. Housings should not be used under tension loads without adequate safeguards. Pillow Blocks are best suited to be used with radial loads passing through the base particularly when heavy or shock loads are encountered. When the load line falls outside the base, fastener and housing deflection or failure may occur. These conditions require designs using proper engineering principles applied to materials, fasteners, mounting and etc. with adequate safety factors.

INSTALLATION INSTRUCTIONS

Cleanliness — Clean shaft and bore of the bearing. Keep chips, dirt and water off all parts.

Handling — Slip bearing on shaft. Use of excessive force can damage parts.

Bolts — Mounting bolt tightness is important. Use proper torque for bolt size after alignment of bearing, using shims if necessary. The effort required to turn the shaft should be the same before and after bolts and set screws are tightened.

Drive Collars — Position the drive collars so they are flush with the ends of the Timken inner race. Tighten set screws firmly on shaft.

LUBRICATION AND OPERATING INSTRUCTIONS

Seals — Dual lip medium contact seals offer the advantage of a primary lip that prevents the loss of lubricant and a secondary lip for dirt and dust exclusion. Contact type seals will normally run warmer than a clearance type seal. ROYERSFORD "TYPE E" BEARING UNITS are provided with a pressure relief type grease fitting to prevent excessive lubrication. Grease escaping at the fitting indicates too much grease has been added. Continuing to add grease once it has begun to purge through the fitting may cause premature bearing failure.

Normal Operation — The bearing has been greased during manufacture and is ready to run. The following tables are a general guide for subsequent lubrication.

Suggested Lubrication Period in Weeks

Hours Run Per Day	1 to 250 RPM	251 to 500 RPM	501 to 750 RPM	751 to 1000 RPM	1001 to 1500 RPM	1501 to 2000 RPM	2001 to 2500 RPM	2501 to 3000 RPM
8	12	12	10	7	5	4	3	2
16	12	7	5	4	2	2	2	1
24	10	5	3	2	1	1	1	1

Initial Lubrication Grease Charge

Shaft Size	1-3/16 - 1-1/4	1-3/8 - 1-7/16	1-1/2 - 1-11/16	1-3/4 - 2	2-3/16	2-1/4 - 2-1/2	2-11/16 - 3	3-3/16 - 3-1/2	3-15/16 - 4	4-7/16 - 4-1/2	4-15/16 - 5
Oz.	.3	.6	.8	1.0	1.3	1.3	2.0	3.0	5.0	6.0	9.0

The quantity of grease added at each lubrication interval should be approximately 10% of the initial charge. Relubrication of bearings, if possible, should be performed with bearings rotating, and should be discontinued when grease has purged through the fitting regardless of the quantity added.

Certain conditions can require a revised lubrication schedule as indicated by experience. See all paragraphs before establishing a lubrication period.

Type of Grease — Many ordinary greases will breakdown at speeds far below those at which Royersford Pillow Blocks equipped with Timken Bearings will operate successfully if proper grease is used. The factory uses a No. 2 consistency lithium base grease which is suitable for normal operating conditions. Relubricate with the same grease or one which is compatible with the original lubricant and suitable for roller bearing service. A reputable grease manufacturer should be consulted in doubtful or unusual cases for their recommendation.

Operating Temperature — Unusual bearing temperature may indicate faulty lubrication. Normal temperature would range from warm to touch, to a point too hot to touch depending on bearing size and speed and operating conditions. Unusually high temperatures coupled with excessive leakage of grease at the fitting indicates too much grease. High temperature with no grease showing at the fitting, particularly if bearing seems noisy, usually indicates too little grease. Normal temperature and no grease leakage indicates proper lubrication.

High Speed Operation — Too much grease in the higher speed ranges will cause overheating. The proper amount of grease can only be determined by experience - see "Operating Temperature" above. If overheating is caused by excessive grease it will escape at the grease fitting. Note that a small amount of grease at frequent intervals is preferable when establishing a lubrication schedule rather than a large amount at longer intervals.

Operation in Presence of Dust, Water or Corrosive Vapors — With these conditions present the bearing must contain as much grease as the speed will permit. A bearing with slight grease leakage is the most advantageous protection against the entrance of contaminants. With lower speed ranges it is suggested extra grease be added to a new bearing before being put into operation.

WARNING — Possible danger exists to property or person(s) from accidents with improper use of products. Correct procedures must be followed in the design and use of equipment incorporating these products. This includes but is not limited to installation, maintenance and operational procedures based on generally accepted engineering principles. Instructions must be followed and inspections made as required to assure safe operation under prevailing conditions. Some installations may require suitable safety devices and guards as specified in applicable safety codes; this is the sole responsibility of the equipment builder and user. Guards and safety devices are neither provided by Royersford nor are the responsibility of Royersford.

Snap Ring Tool Instructions:

Sumitomo Drive Technologies

Always on the Move

TO: DUPERON CORPORATION CITY: SAGINAW, MI. DATE: 12/8/03
FROM: _____ CITY: _____
SUBJECT: MAINTENANCE SCHEDULE FOR GREASE LUBRICATED BBB

The lubrication system has been modified for DUPERON CORPORATION.
The following is the recommend maintenance to be performed:

Cyclo

– This is the round reducer portion between the motor and the square shaped Bevel Buddy Box "BBB". The Cyclo has been grease lubricated with Shell Alvania #2 grease and is considered maintenance free and needs no replenishment, but it is recommended the unit be disassembled every 20,000 hours or 4 – 5 years to clean and repack with designated grease to prolong service life.

Bevel Buddy Box – This is the square shaped portion with the shaft running through it. This has been filled with "SHELL ALVANIA EP R00" or equivalent and can be changed every 4 – 5 years or (20,000 hours) to provide longer service. This is pourable grease and has the viscosity like that of molasses. It is recommend to drain during warm weather or the unit is warm from running. There is no need for venting.

Quarterly inspection for leakage, loose fasteners, excessive heat, etc. should be done to assure trouble free operation.

MAXIMO
Work Order List
History



Work Order List

Work Order	Description	Work Type	Status	Prior.	Supervisor	Location	Equip	Parent WO	Target Start	Schedule Start	Completion Date
1026096	T3400 PLANT 2 WEEKLY CHECKS FEB10 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	SCHED	17	1442	2947			2/1/2010	2/1/2010	
1030668	T3400 PLANT 2 WEEKLY CHECKS MAR10 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	SCHED	17	1442	2947			3/1/2010	3/1/2010	
105479	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	20	1442	2947			2/1/2005	1/31/2005	3/7/2005
105905	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	20	1442	2947			3/1/2005	3/7/2005	3/7/2005
111159	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	6	1442	2947			3/29/2005	2/28/2005	4/5/2005
115283	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	6	1442	2947			4/26/2005	4/4/2005	5/17/2005
126318	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	6	1442	2947			5/24/2005	5/3/2005	6/6/2005
134457	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	6	1442	2947			6/21/2005	6/1/2005	7/6/2005
139299	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	6	1442	2947			7/19/2005	7/5/2005	8/9/2005
156596	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	6	1442	2947			8/16/2005	8/1/2005	9/8/2005
166834	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	6	1442	2947			9/13/2005	9/5/2005	10/4/2005
174760	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	6	1442	2947			10/11/2005	10/3/2005	11/7/2005



Work Order List

Work Order	Description	Work Type	Status	Prior.	Supervisor	Location	Equip	Parent WO	Target Start	Schedule Start	Completion Date
17838	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS	PM	CLOSE	1	1442	2947		11/4/2003	11/3/2003		12/1/2003
17852	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. 11/21/03 #1373 3.0hrs check operation of all the rotating equipment in plant two area, including flytes in primary area removing covers to inspect. getting familiar with equipment. T3400 PLANT 2 WEEKLY CHECKS	PM	CLOSE	1	1442	2947		12/2/2003	12/1/2003		1/6/2004
186734	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947		11/8/2005	10/31/2005		12/7/2005
196864	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947		12/6/2005	12/5/2005		1/5/2006
20166	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	25	1442	2947		12/30/2003	12/1/2003		1/6/2004
205013	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947		1/3/2006	1/3/2006		2/1/2006
214718	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947		1/3/2006	1/30/2006		2/6/2006
22626	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	25	1442	2947		1/27/2004	1/5/2004		1/30/2004
226449	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947		2/28/2006	2/27/2006		4/3/2006
233879	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947		3/28/2006	4/3/2006		5/1/2006
247754	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947		4/25/2006	4/24/2006		6/6/2006



Work Order List

Work Order	Description	Work Type	Status	Prior.	Supervisor	Location	Equip	Parent WO	Target Start	Schedule Start	Completion Date
260537	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947			5/23/2006	6/5/2006	7/3/2006
271872	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947			6/20/2006	7/3/2006	8/8/2006
27328	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	25	1442	2947			2/24/2004	2/2/2004	3/1/2004
287859	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947			7/18/2006	7/18/2006	8/8/2006
32649	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	25	1442	2947			3/23/2004	3/8/2004	4/1/2004
355669	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947			8/15/2006	7/31/2006	8/8/2006
372048	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	6	1442	2947			9/12/2006	9/4/2006	10/2/2006
38190	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	25	1442	2947			4/20/2004	4/1/2004	5/5/2004
392543	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	19	1442	2947			10/10/2006	10/2/2006	11/6/2006
40283	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	25	1442	2947			5/18/2004	5/3/2004	6/3/2004
407508	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	19	1442	2947			11/7/2006	11/6/2006	12/4/2006



Work Order List

Work Order	Description	Work Type	Status	Prior.	Supervisor	Location	Equip	Parent WO	Target Start	Schedule Start	Completion Date
419640	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	19	1442	2947			12/15/2006	12/1/2006	1/2/2007
430417	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	19	1442	2947			1/2/2007	1/1/2007	2/1/2007
443919	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			1/30/2007	2/1/2007	3/1/2007
456638	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			2/27/2007	3/1/2007	3/27/2007
474323	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			3/27/2007	4/1/2007	5/1/2007
490274	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			4/24/2007	4/30/2007	6/4/2007
500363	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			5/22/2007	6/1/2007	7/2/2007
513442	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			6/19/2007	7/1/2007	8/1/2007
528628	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			7/17/2007	8/1/2007	9/5/2007
544209	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			8/14/2007	9/1/2007	10/2/2007
554011	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			9/11/2007	10/1/2007	11/1/2007
571122	T3400 PLANT 2 WEEKLY CHECKS (use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			10/9/2007	10/1/2007	10/8/2007



Work Order List

Work Order	Description	Work Type	Status	Prior.	Supervisor	Location	Equip	Parent WO	Target Start	Schedule Start	Completion Date
585840	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	17	1442	2947			11/6/2007	11/1/2007	12/3/2007
599149	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	17	1442	2947			12/4/2007	12/3/2007	1/3/2008
611287	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	17	1442	2947			1/1/2008	12/31/2007	2/4/2008
621151	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (FEB 08)	PM	CLOSE	17	1442	2947			1/29/2008	2/1/2008	3/4/2008
635494	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (MARCH 08)	PM	CLOSE	17	1442	2947			2/26/2008	3/1/2008	4/1/2008
63754	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	25	1442	2947			6/15/2004	6/1/2004	7/6/2004
649980	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS APRIL 08	PM	CLOSE	17	1442	2947			3/25/2008	4/1/2008	5/5/2008
663230	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS MAY 08	PM	CLOSE	17	1442	2947			4/22/2008	5/1/2008	6/2/2008
676839	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS JUNE 08	PM	CLOSE	17	1442	2947			5/20/2008	6/2/2008	7/2/2008
67976	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS (use for a month)	PM	CLOSE	25	1442	2947			7/13/2004	7/6/2004	8/4/2004
691955	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS JULY 08	PM	CLOSE	17	1442	2947			6/17/2008	7/1/2008	8/4/2008
	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.										



Work Order List

Work Order	Description	Work Type	Status	Prior.	Supervisor	Location	Equip	Parent WO	Target Start	Schedule Start	Completion Date
70375	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	20	1442	2947			8/10/2004	8/2/2004	9/3/2004
705300	T3400 PLANT 2 WEEKLY CHECKS AUGUST08 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			7/15/2008	8/1/2008	9/2/2008
720591	T3400 PLANT 2 WEEKLY CHECKS SEPT08 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			8/12/2008	9/1/2008	10/1/2008
736416	T3400 PLANT 2 WEEKLY CHECKS OCT08 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			9/9/2008	10/1/2008	11/3/2008
751687	T3400 PLANT 2 WEEKLY CHECKS OCT08 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			10/7/2008	10/6/2008	10/2/2008
768243	T3400 PLANT 2 WEEKLY CHECKS NOV08 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			11/4/2008	11/3/2008	12/4/2008
783829	T3400 PLANT 2 WEEKLY CHECKS DEC08 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			12/2/2008	12/1/2008	12/31/2008
78621	T3400 PLANT 2 WEEKLY CHECKS CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	20	1442	2947			9/7/2004	9/6/2004	10/1/2004
796189	T3400 PLANT 2 WEEKLY CHECKS JAN09 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			12/30/2008	12/29/2008	2/2/2009
811646	T3400 PLANT 2 WEEKLY CHECKS FEB09 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			1/27/2009	2/1/2009	3/2/2009
828228	T3400 PLANT 2 WEEKLY CHECKS MAR09 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			2/24/2009	3/1/2009	4/1/2009
845638	T3400 PLANT 2 WEEKLY CHECKS ARP09 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED,EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			3/24/2009	4/1/2009	5/4/2009



Work Order List

Work Order	Description	Work Type	Status	Prior.	Supervisor	Location	Equip	Parent WO	Target Start	Schedule Start	Completion Date
84655	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS(use for a month)	PM	CLOSE	20	1442	2947			10/5/2004	10/1/2004	11/1/2004
862853	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS	PM	CLOSE	17	1442	2947			4/21/2009	5/1/2009	6/1/2009
878478	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS	PM	CLOSE	17	1442	2947			5/19/2009	6/1/2009	6/23/2009
88872	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS(use for a month)	PM	CAN	20	1442	2947			11/2/2004	11/1/2004	
88886	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS(use for a month)	PM	CLOSE	20	1442	2947			11/30/2004	11/2/2004	12/1/2004
893006	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS	PM	CLOSE	17	1442	2947			6/16/2009	7/1/2009	7/27/2009
90283	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS(use for a month)	PM	CLOSE	20	1442	2947			11/4/2004	11/1/2004	11/22/2004
908446	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS	PM	CLOSE	17	1442	2947			7/14/2009	8/1/2009	8/28/2009
922958	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS	PM	CLOSE	17	1442	2947			8/11/2009	9/1/2009	9/28/2009
939746	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS	PM	CLOSE	17	1442	2947			9/8/2009	9/1/2009	9/3/2009
94440	THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED. T3400 PLANT 2 WEEKLY CHECKS(use for a month)	PM	CLOSE	20	1442	2947			12/4/2004	11/29/2004	1/4/2005



Work Order List

Work Order	Description	Work Type	Status	Prior.	Supervisor	Location	Equip	Parent WO	Target Start	Schedule Start	Completion Date
953850	T3400 PLANT 2 WEEKLY CHECKS OCT09 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	17	1442	2947			10/6/2009	10/1/2009	10/30/2009
971755	987194 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	COMP	17	1442	2947			11/3/2009	11/2/2009	11/20/2009
98079	T3400 PLANT 2 WEEKLY CHECKS(use for a month) THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	CLOSE	20	1442	2947			1/4/2005	1/3/2005	2/1/2005
985349	T3400 PLANT 2 WEEKLY CHECKS DEC09 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE FAILURE REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	COMP	17	1442	2947			12/1/2009	12/1/2009	12/29/2009
996814	T3400 PLANT 2 WEEKLY CHECKS JAN10 THIS PM IS FOR 4 WEEKS OF INSPECTIONS. MAKE NOTATIONS IN THE WO REPORTING TAB WEEKLY INCLUDING DATE, HOURS WORKED, EMPLOYEE NUMBER AND ANY OTHER PERTINANT INFORMATION. COMPLETE THIS WORK ORDER AT THE END OF FOUR WEEKS AND A NEW ONE WILL BE ISSUED.	PM	COMP	17	1442	2947			12/29/2009	1/1/2010	1/28/2010

Work Orders Selected: 85

MAXIMO
Work Order Summary
Historical Repairs
to
TVRWRF Influent Equipment



Work Order Summary

WO #580334 - barscreen start up is wednesday

barscreen start up is wednesday 10-17-07 , would like to bump and check out operation of unit prior to start up.

Location: 2977 T3400 HEADWORKS SCREENINGS CONVEYOR ASSEMBLY

EQ #: 11831 SCREENINGS CONVEYOR ASSEMBLY

Asset/PSM:

Parent:

Work Type: IMP

Lead Craft: FOPIANO, CHRISTOPHER C

Supervisor: DIAZ, JESS R

GL Account #: 0034-??7??-064000-0-000

Status: CLOSE

Start Date: 10/16/2007

Complete Date: 10/18/2007

Reported By: 1438

Status History

Status	Change By	Date	Notes
CLOSE	AGNERB	1/17/2008	90 DAYS OLD
COMP	FOPIANOC	10/18/2007	
SCHD	FOPIANOC	10/18/2007	
APPR	DIAZJ	10/16/2007	
WESTIM	FRACCHIC	10/16/2007	

Labor Estimate	Qty	Est. Hrs	Est. Labor Cost	Labor Actual	Reg Hrs.	OT Hrs.	Cost
PMT	2	4	\$222.64	0849 CRAWFORD, BRADLEY D	2	0	\$115.02
				1891 MUNSTOCK, JASON E	1.5	0	\$69.33
				1895 COOK, JERAMYA	2	0	\$112.24
Total Hrs/Cost:		4	\$222.64				
				Total Hrs/Cost:	5.5		\$296.59

Material Used

Item #	Description	Quantity	Unit Cost	Cost
				\$0.00
	Total Material Cost:			\$0.00

Total Cost (Labor + Material): \$296.59

Failure Reporting

Failure Class:

Remarks

10/17/07-849.2hrs. had instnction on the rake and watched it work.

10/17/07 #1895 2hrs

Received instruction on rake operation. Assist with minor troubleshooting. Rack will not jog in reverse. The VFD is getting the command but will not respond. The vendor is working on reprogramming the VFD. **NOTE** the face of the VFD fell out during operation. It appears the fasteners were over tightened and pulled the treads out of the plastic housing.

10/17/07 #1891 1hr. assisted the control tech. and operations with the barscreen start up. and troubleshooting of the reversing problem



Work Order Summary

WO #583479 - DUPERON BAR SCREEN
 DUPERON BAR SCREEN AT THE SPEED 20 HTZ CANNOT KEEP UP WITH THE AMOUNT OF RAGS AT 20+MGD HAVING HIGH INFLUENT CHANNEL DURING THE DAY

Location: 2920 T3400 HEADWORKS AREA
Work Type: CM
EQ #:
Lead Date: 10/20/2007
Status: CLOSE
Asset/PSM: NORBERG, CHARLES L
Supervisor: NORBERG, CHARLES L
Complete Date: 10/29/2007
Parent: GL Account #: 0034-????-064000-0-000
Reported By: 0868

Status History			
Status	Change By	Date	Notes
CLOSE	AGNERB	1/28/2008	90 DAYS OLD
COMP	COOKJ	10/29/2007	
SCHD	NORBERGC	10/22/2007	
WESTIM	CASHR	10/20/2007	

Labor Estimate	Qty	Est. Hrs	Est. Labor Cost	Labor Actual	Reg Hrs.	OT Hrs.	Cost
PCT	1	6	\$385.86	1895 COOK, JERAMY A	0	6	\$505.08
Total Hrs/Cost:			6 \$385.86	Total Hrs/Cost:		6	\$505.08

Material Used	Item #	Description	Quantity	Unit Cost	Cost
Total Material Cost:					\$0.00

Total Cost (Labor + Material): \$505.08

Failure Reporting
Failure Class:

Remarks
 10/20/07 #1895 6hrs
 Ops informed me the screen would not keep up with the plant flow of rags. The salesman had just been out the previous Thursday and started the unit. The factory wanted the speed to be @ 15Hz. While the salesman was here he noticed that 15 was too slow and rags were building up, so he set it to 20Hz. Now 20 isn't fast enough because of the increase in flow. Thought I could just increase it more, but that would only be a temp fix. There are 4 twisted pairs in the cabinet next to this LCP, so I ran one of them over and set the VFD up to use a 4-20mA signal. Went into SCADA and set the speed of the rake to track the influent junction box level. There are now 4 different speeds the rake will run @. Will need to have the electrician who installed the rake run the conduit for the analog signal. This was capped off and abandoned for ????? reason. Will get with the inspector to find out why. When that is done will run the signal wire to get a command signal and a speed feedback.
 Still need to call Toshiba to find out why we cant get reverse out of the VFD.
 Will right a follow up work order for the wire pull.



Work Order Summary

WO #587417 - DUPERON BAR SCREEN pull analog signal to LCP

Need to pull two twisted pairs out of the channel monster LCP back to the J-box next to the new bar rake LCP. One will be for a speed command the other will be for a speed feedback.

Original WO**

DUPERON BAR SCREEN AT THE SPEED 20 HTZ CANNOT KEEP UP WITH THE AMOUNT OF RAGS AT 20+MGD HAVING HIGH INFLUENT CHANNEL DURRING THE DAY

Location: 2920 T3400 HEADWORKS AREA Work Type: IMP Status: CLOSE
 EQ #: Lead Craft: 11/8/2007 Start Date: 11/8/2007
 Asset/PSM: NORBERG, CHARLES L Complete Date: 11/8/2007
 Parent: GL Account #: 0034-?????-064000-0-000 Reported By: 1895

Status	Change By	Date	Notes
CLOSE	AGNERB	2/7/2008	90 DAYS OLD
COMP	COOKJ	11/8/2007	
SCHD	NORBERG	10/29/2007	
WESTIM	COOKJ	10/29/2007	

Labor Estimate	Qty	Est. Hrs	Est. Labor Cost	Labor Actual	Reg Hrs.	OT Hrs.	Cost
PCT	1	2	\$128.62	1895 COOK, JERAMY A	4	0	\$224.48
		2	\$128.62	2075 ANDERSON, DANIEL B	4	0	\$198.80
Total Hrs/Cost:				Total Hrs/Cost:		8	\$423.28

Material Used	Item #	Description	Quantity	Unit Cost	Cost
Total Material Cost:					\$0.00

Total Cost (Labor + Material): \$423.28

Failure Reporting

Failure Class:

Remarks



Work Order Summary

WO #587417 - DUPERON BAR SCREEN pull analog signal to LCP

Need to pull two twisted pairs out of the channel monster LCP back to the J-box next to flare then into the new bar rake LCP. One will be for a speed command the other will be for a speed feedback.

Original WO**

DUPERON BAR SCREEN AT THE SPEED 20 HTZ CANNOT KEEP UP WITH THE AMOUNT OF RAGS AT 20+MGD HAVING HIGH INFLUENT CHANNEL DURING THE DAY

Remarks

11/8/07 #1895,2075 4hrs

Search to find the vault conduit runs to. The only vault between MCC12 and the LCP is on the south side of the flare. Run a vacuumed to see if one of the spare conduits come from this LCP. Couldn't find one. Run a fish tape to see if we can get through to the vault. @ about 90feet we hit something that stopped the tape. Decided to use two of the 4 twisted pairs that were pulled into the channel monster LCP next to the new Duperon LCP. When the next Duperon LCP is installed a conduit run will have to go from one to the other for the signal wire. Until then a strain relief was placed on the twisted pair to keep it from pulling out of the VFD terminal. The extra conduit that was stubbed and we couldn't find the end will be capped.



Work Order Summary

WO #600469 - NEW BAR SCREEN PROGRAM ADJUSTMENT

BARSCREEN IS CURRENTLY PROGRAMMED TO INCREASE IN SPEED ON CHANNEL LEVEL, DURING HOLIDAY PEAK FLOW OF 25MGD BARSCREEN WAS UNABLE TO KEEP UP PACE. RECEIVED SEVERAL HIGH INFLUENT BOX HIGH LEVEL ALARMS. MANUAL BAR SCREEN VALVE OPENED TO ALLEVIATE HIGH LEVEL ALARMS.

Location: 20020 T3400 PRELIMINARY TREATMENT SCREENING

Work Type: CM **Status:** CAN

EQ #:

Lead Craft:

Asset/PSM:

Supervisor: NORBERG, CHARLES L

Parent:

Complete Date:

GL Account #: 0034-????-064000-0-000

Reported By: 1134

Status History

Status	Change By	Date	Notes
CAN	MOORES	3/7/2008	not needed due to additional rake
WESTIM	WESTENDE	11/23/2007	

Labor Estimate	Qty	Est. Hrs	Est. Labor Cost	Labor Actual	Reg Hrs.	OT Hrs.	Cost
		0	\$0.00			0	\$0.00
Total Hrs/Cost:				Total Hrs/Cost:			

Material Used

Item #	Description	Quantity	Unit Cost	Cost
Total Material Cost:				\$0.00

Total Cost (Labor + Material): \$0.00

Failure Reporting

Failure Class:

Remarks



Work Order Summary

WO #708721 - Replace VFD for new Bar Screen

The new VFD has failed and the contractor sent a new one for replacement. The contractor won't be able to install it for a couple weeks, so we will be installing the new unit. A letter stating we won't void the warranty by doing so.

Location: 2921 T3400 HEADWORKS INFLUENT BAR SCREEN

Work Type: IMP

Status: CLOSE

Start Date: 7/10/2008

Complete Date: 7/11/2008

Reported By: 1895

Lead Craft: NORBERG, CHARLES L

Supervisor: NORBERG, CHARLES L

GL Account #: 0034-????-064000-0-000

Status History

<u>Status</u>	<u>Change By</u>	<u>Date</u>	<u>Notes</u>
CLOSE	AGNERB	10/10/2008	90 DAYS OLD
COMP	ANDERSOD	7/11/2008	
SCHD	NORBERGC	7/10/2008	
WESTIM	COOKJ	7/9/2008	

<u>Labor Estimate</u>	<u>Qty</u>	<u>Est. Hrs</u>	<u>Est. Labor Cost</u>	<u>Labor Actual</u>	<u>Reg Hrs.</u>	<u>OT Hrs.</u>	<u>Cost</u>
PCT	2	4	\$265.84	1895 COOK, JERAMY A	1	0	\$53.10
		4	\$265.84	2075 ANDERSON, DANIEL B	2	0	\$94.06
Total Hrs/Cost:						3	\$147.16

Material Used

<u>Item #</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Cost</u>
Total Material Cost:				\$0.00

Total Cost (Labor + Material): \$147.16

Failure Reporting

Failure Class:

Remarks

7-10-08 #1895 1hr

the VFD showed up yesterday with no manuals or parameter settings. went through Bar Screen #1 VFD to get the parameter setpoints needed to run #2. the existing VFD has a blank screen, so I cant get anything from that. E-mail the Duperon rep Dave Connors @dconnors@duperon.com to ask for a list of the parameters that have been changed from their default values.

*****NOTE***** this is a copy of the letter sent by Duperon*****

July 8, 2008

Mr. Clete Fracchiolla

Eastern Municipal Water District



Work Order Summary

WO #708721 - Replace VFD for new Bar Screen

The new VFD has failed and the contractor sent a new one for replacement. The contractor won't be able to install it for a couple weeks, so we will be installing the new unit. A letter stating we won't void the warranty by doing so.

Remarks

42565 Avenida Alvaado

Temecula, CA 92590

RE: Toshiba G7 VFD Replacement

Clete and District Personnel,

While performing the start-up for the Duperon FlexRake® at your Temecula Plant, the Toshiba G7 VFD suffered what appears to be an infantile failure. I have started the process of replacing that VFD with a new one from our supplier. Once the serial number is received for that unit, the other one will be on its way to your facility.

To resolve this matter quickly, the EMWD has agreed to swap out the new VFD for the failed unit. This letter serves as a statement that your warranty will not be jeopardized after successful completion of this task.

We thank you for your cooperation and look forward to working with you on future projects.

Sincerely,

Duperon Corporation

Dave Cornors

7-10-08-2075-2hrs

Deenergized the unit. Verified unit was deenergized. Identify input and output digital signal wires. Identify motor phasing. Removed old VFD. Install new VFD. Replaced digital I/O wires. Energized VFD. Programmed Motor parameters. in VFD. The analog cable was not hooked up; it may not be programmed in yet. Tested VFD without motor connected. Deenergized the VFD. Verified motor was deenergized. Hook up motor leads. Tested rotation. The unit may be operated by selecting LOCAL and pushing RUN on the VFD panel. The speed can be adjusted by using the potentiometer on the VFD panel.



Work Order Summary

WO #710221 - Program Bar Screen VFD

A new VFD has been installed for the bar screen. Need to set the up the VFD for run the bar screen and set up Automatic control

Location: 45687 T3400 HEADWORKS #1 BARSREEN ASSEMBLY

EQ #:

Asset/PSM:

Parent:

Work Type: IMP

Lead Craft:

Supervisor: NORBERG, CHARLES L

GL Account #: 0034-????-064000-0-000

Status: CLOSE

Start Date: 7/17/2008

Complete Date: 7/24/2008

Reported By: 1895

Status History

Status	Change By	Date	Notes
CLOSE	AGNERB	11/14/2008	90 DAYS OLD
COMP	COOKJ	7/24/2008	
SCHD	NORBERG	7/16/2008	
WESTIM	COOKJ	7/15/2008	

Labor Estimate	Qty	Est. Hrs	Est. Labor Cost	Labor Actual	Reg Hrs.	OT Hrs.	Cost
PCT	1	2	\$132.92	1895 COOK, JERAMY A	11	0	\$584.10
		2	\$132.92	2074 SANDOVAL, EDUARDO	2	0	\$87.48
				2075 ANDERSON, DANIEL B	7	0	\$329.21
Total Hrs/Cost:							
				Total Hrs/Cost:	20		\$1,000.79

Material Used

Item #	Description	Quantity	Unit Cost	Cost
		Total Material Cost:		\$0.00

Total Cost (Labor + Material): \$1,000.79

Failure Reporting

Failure Class:

Remarks

072208 - 2074, 2 hrs. Assisted in installing and testing the new VFD.

7-22-08 #1895 10hrs

New VFD for the Duperon screen WO 710221

Program the VFD to the same settings as #2. Traced the twisted pair from the box in #1 back to YIC12. Landed the signal on N10:7 which was a spare output. Tested the signal back to the VFD and it was good. Tested the VFD with the signal and it would only ramp to 20 Hz and no further. Ran through drawings and saw the VFD came wired to run off a preset Setpoint of 20 Hz removed the jumper causing this and then ran again. Had a couple other parameter changes that needed to be made. In SCADA remade the drawings showing the screens in operation. Animated the rake to make it easier to tell when it is running at a glance.



Work Order Summary

WO #990830 - T3400 BARSREEN #1 VFD/LCP SERVICE

Location: 56672 T3400 HEADWORKS BARSREEN #1 LCP/VFD

Work Type: PM

Status: COMP

Lead Craft: PLANT CONTROL TECHNICIAN

Start Date: 12/3/2009

Supervisor: NORBERG, CHARLES L

Complete Date: 12/3/2009

GL Account #: 0034-????-064000-0-000

Reported By: 1474

Status History

Status	Change By	Date	Notes
COMP	FRANCIAM	12/3/2009	
SCHED	TIMMED	11/24/2009	
WSCH	TIMMED	11/24/2009	

Labor Estimate (includes all child WO's)

PCT	Qty	Est.Hrs	Est.Labor Cost
	1	4	\$265.84
Total Hrs/Cost:	4	4	\$265.84

Labor Actual (includes all child WO's)

1306 2085	14 2	Reg Hrs.	OT Hrs.	Cost
FISH STEVE E			0	\$978.64
FRANCIA, MELCHOR R			0	\$106.54
Total Hrs/Cost:	16			\$985.18

Material Used (includes all child WO's)

Item #	Description	Quantity	Unit Cost	Cost
				\$0.00
Total Material Cost:				\$0.00

Total Cost (Labor + Material): \$985.18

Failure Reporting

Failure Class:

Remarks

12/03/09 - 2085, 2 hrs. Completed preventive maintenance cleaned, inspected wiring and retorqued terminal connections.



Work Order Summary

WO #990846 - T3400 BARSREEN #2 VFD/LCP SERVICE

Location: 55673 T3400 HEADWORKS BARSREEN #2 LCP/VFD

EQ #:

Asset/PSM:

Parent:

Work Type: PM

Lead Craft: PLANT CONTROL TECHNICIAN

Supervisor: NORBERG, CHARLES L

GL Account #: 0034-????-064000-0-000

Status: COMP

Start Date: 12/3/2009

Complete Date: 12/3/2009

Reported By: 1474

Status History

Status	Change By	Date	Notes
COMP	SANDOVAE	12/3/2009	
SCHED	TIMMED	11/24/2009	
WSCH	TIMMED	11/24/2009	

Labor Estimate (includes all child WO's)

PCT	Qty	Est. Hrs	Est. Labor Cost
	1	4	\$265.84
Total Hrs/Cost:		4	\$265.84

Labor Actual (includes all child WO's)

	Reg Hrs.	OI Hrs.	Cost
2074 SANDOVAE, EDUARDO	3	0	\$176.10
Total Hrs/Cost:	3	3	\$176.10

Material Used (includes all child WO's)

Item #	Description	Quantity	Unit Cost	Cost
Total Material Cost:				\$0.00

Total Cost (Labor + Material): \$176.10

Failure Reporting

Failure Class:

Remarks

120309 - 2074, 3 hrs. Completed preventive maintenance cleaned, inspected wiring and terminal connections.

MAXIMO
Job Plan Details Report
for
Maintenance Weekly Check



Job Plan Details Report

Job Plan: RJP1052 T3400 PLANT 2 WEEKLY CHECKS

Est Dur.: 4 hrs

<u>Task #</u>	<u>Task Description</u>	<u>Task Duration</u>
1	VERIFY LOC# AND EQ#, IF WRONG NOTIFY PLANT CMMS	0
10	INSPECT CHANNEL MONSTERS	0.2
20	INSPECT SCREENING CONVEYOR	0.1
24	INSPECT GRIT WASHERS	0.2
28	INSPECT GRIT MIXERS	0.2
29	INSPECT GRIT PUMPS	0.2
30	INSPECT APT CHEMICAL PUMPS (FERRIC AND POLYMER)	0.3
40	INSPECT PRIMARY SLUDGE PUMPS	0.2
50	INSPECT PRIMARY CLARIFIER DRAIN PUMP	0.1
60	INSPECT PRIMARY COLLECTOR DRIVES	0.3
70	INSPECT SECONDARY COLLECTOR DRIVES	0.7
80	INSPECT RAS PUMPS	0.4
90	INSPECT WAS PUMPS	0.2
100	INSPECT SECONDARY CLARIFIER DRAIN PUMP	0.1

Labor

PLANT MAINTENANCE TECHNICIAN	1 person(s)	4 hr(s)	\$57.51 per hour	\$230.04
				\$230.04 total

Material

				\$0.00 total
--	--	--	--	---------------------

Tools

				\$0.00 total
--	--	--	--	---------------------

Grand Total \$230.04

General Manager	_____	Authorized	_____	Date
Asst. General Manager	_____	Authorized	_____	Date
Dept. Director	_____	Authorized	_____	Date
Dept. Manager	_____	Authorized	_____	Date

(Required)

(Required)

**TVRWRF Influent
Construction Specification**

SECTION 11332C
MECHANICAL BAR SCREENS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Catenary-type front-cleaning, front-return link driven mechanically cleaned bar screen assembly, including the bar screen and all auxiliary equipment and accessories, as shown on the drawings and as specified herein.
 - 1. Equipment Tag Numbers:
 - a. Bar Screen No. 2 (Temecula Valley RWRf) - 11MTR122.
- B. All equipment shall conform to the requirements of Section 15050, Basic Mechanical Materials and Methods except as modified herein.
- C. Related Sections:
 - 1. Section F - Labor and Construction.
 - 2. Section E01430 - Maintenance Manual Requirement Section.
 - 3. Section 01140 - Work Restrictions.
 - 4. Section 01612 - Seismic Design Criteria.
 - 5. Section 01756 - Testing, Training, and Facility Start-Up.
 - 6. Section 05120 - Structural Steel.
 - 7. Section 05500 - Metal Fabrications.
 - 8. Section 09960 - Coatings.
 - 9. Section 15050 - Basic Mechanical Materials and Methods.
 - 10. Section 15120 - Piping Specialties.
 - 11. Section 15958 - Mechanical Equipment Testing.
 - 12. Section 16222 - Motors.
 - 13. Section 16262 - Variable Frequency Drives Below 100 Horsepower.

1.02 PREPURCHASED ITEMS

- A. Some of the items in this Section of the Specifications has been prenegotiated with the specified manufacturer and preurchased by the DISTRICT. Refer to the applicable prepurchase proposal included in Appendix B for more details. The CONTRACTOR shall provide additional items as indicated in the applicable prepurchase proposal included in Appendix B, even if they are not included in the specifications and/or drawings. The CONTRACTOR is very strongly cautioned to carefully review the applicable prepurchase proposal, because the prepurchase proposal does not include all the items included in the Specifications and Drawings. The CONTRACTOR shall include in his bid the costs for the following:
 - 1. All items not specifically mentioned in the scope of supply of the prepurchase proposal, but required per Specifications and Drawings and required to complete the installation to provide an operational system.
 - 2. All other items indicated in the prepurchase proposal to be provided by others, by customer, by DISTRICT or any other similar designation.

3. All freight and applicable taxes, unless specifically included in prepurchase proposal.
4. All labor, materials, and all other associated costs not included in the prepurchase proposal but required per Specifications and Drawings and required to complete the installation to provide an operational system.
5. All labor, materials, and other costs associated with coordinating supply, delivery, installation assistance, startup, training, and other manufacturer services and requirements with the manufacturer of the prepurchased equipment. CONTRACTOR shall be responsible for this coordination effort.

1.03 SYSTEM DESCRIPTION

A. General:

1. One (1) front-cleaned, front return catenary-type, mechanical bar screen unit complete with all accessories and controls necessary to provide a complete, operational system in accordance with the Contract Documents.

B. Design Requirements:

1. Catenary system with the rake bars mounted onto chains on both sides of the frame.
2. Design so that all maintenance to the mechanism can be accomplished at the operating floor level.
3. Parts of the mechanisms shall be amply proportioned for stresses, which may occur during fabrication, erection, or operation. Duplicate parts shall be interchangeable.

C. Bar Screen Design Criteria:

Parameter	Temecula Valley RWRP
Channel width	3.5 feet
Channel depth	7.5 feet
Maximum water depth	4.5 feet
Discharge height above operating floor	As shown on the drawings.
Angle of screen	60 degrees
Clear space between bars	3/8 inches
Bar size (tapered)	0.31 inch by 0.15 inch by 1.57 inch
Bar rack height	Full channel depth

D. Performance Requirements:

1. Screen and remove debris from the channel flow:
 - a. Bar Rack: Retain debris on the front face of the screen.
 - b. Traveling Rakes: Positively clean the bar screen by engaging the bar rack at the channel bottom, removing/elevating retained debris on its upward travel to the point of discharge to the screenings conveyor.
2. Smooth operation, positive engagement of rake teeth between bars.

1.04 SUBMITTALS

- A. In addition to the requirements of Section 01330 and Section 15050, submit information specified herein.
- B. Shop Drawings (including main layout drawings, furnished by the equipment manufacturer).
 - 1. The following shall be submitted in compliance with Section F and Section 15050:
 - a. Make, model, and weight of each equipment assembly.
 - b. Complete catalog information, descriptive literature, specifications, and materials of construction.
 - c. Detailed structural and mechanical drawings showing the equipment dimensions, size, and installation.
 - d. Process data and design calculations.
 - e. Factory protective coatings.
 - f. Anchor bolt layout drawings.
- C. Calculations: Detailed calculations and design data verifying conformance with the Drawings and Specifications.
 - 1. Structural calculations for the complete system, including all welded joint details and anchor bolts, signed by a Registered Structural Engineer registered in California.
 - 2. Mechanical calculations and details.
 - 3. Hydraulic calculations and details.
 - 4. Seismic design as specified in Section 01612.
- D. As-Built Drawings of the Mechanically Cleaned Bar Screen, Controls, and Accessories (as is applicable).
- E. List of Spare Parts and Special Tools (if applicable).
- F. Maintenance Manuals (to be shipped separately from equipment prior to delivery of the equipment).
 - 1. The following shall be included in the Maintenance Manual in compliance with Section E01430:
 - a. Fabrication drawings.
 - 2. Data as required by Section E01430.
- G. Warranties.
- H. Certificates.
- I. Complete Bill of Materials.
- J. Manufacturer's Installation Instructions.
- K. Discharge Chute System Drawings and Details.
- L. Quality Control Submittals:
 - 1. Detailed Performance Test Procedures: Factory and field testing.
 - 2. Performance Test Data.
 - 3. Certificates.

- M. Operation and Maintenance Manual.
- N. Wiring Schematics and Control Panel Layouts.
- O. Technician Qualifications Resume: Submit resume of technician to perform Manufacturer's Field Services.
- P. Submit location of the nearest permanent service headquarters of the screen and motor manufacturer for the screen and motor submitted.
- Q. Submit operating instructions with descriptive literature.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Comply with Section 01600 and 15050.
- B. Bar Screen Mechanism:
 - 1. Follow the requirements of Section 01140.
 - 2. Ship in one piece, assembled for erection by the CONTRACTOR unless shipping limitations dictate otherwise. If knocked-down, equipment shall be shipped in the minimum practical number of pieces for field assembly by the CONTRACTOR.

1.06 PROJECT CONDITIONS

- A. As specified in Section 15050.
- B. All devices mounted within the bar screen classified area as indicated on the drawings shall be suitable for Class 1, Division 2, Group D hazardous areas.

1.07 QUALITY ASSURANCE

- A. The equipment furnished shall be fabricated, assembled, erected, and placed in proper operating condition in full conformity with approved drawings, specifications, engineering data, and/or recommendations furnished by the equipment manufacturer.
- B. The bar screen manufacturer shall furnish a Performance Bond for 100 percent of the contract price for equipment covered under this Specification Section. This bond shall be valid for the first two years of the warranty period. Performance shall include but not be limited to conformance with the Contract Documents, delivery, service, equipment performance, reliability, and warranty.
- C. Manufacturer's shop welds, welding procedures, and welders: Qualified and certified in accordance with the requirements of ANSI/AWS D1.1, or ASME Boiler and Pressure Vessel Code Section IX.
- D. Assembled Bar Screen Mechanism: Shop inspected, adjusted, and tested before shipping.

E. References:

1. American National Standards Institute (ANSI):
 - a. ANSI B18.6.2 - (1972) Slotted Head Cap Screws, Square Head Set Screws, and Slotted Headless Set Screws (R1983).
 - b. ANSI B46.1 - (1985) Surface Texture (Surface Roughness, Waviness, and Lay).
2. American Society for Testing and Materials (ASTM):
 - a. ASTM A36 - (1989) Structural Steel.
 - b. ASTM A307 - (1989) Carbon Steel Bolts and Studs - 60,000 PSI Tensile.
 - c. ASTM A48 - Cast Iron Castings.
3. American Welding Society (AWS):
 - a. AWS D1.1 - Structural Welding Code - Steel.
4. American Institute of Steel Construction (AISC):
 - a. Manual of Steel Construction.
5. Research Council on Structural Connections:
 - a. (1988) Load and Resistance Factor Design Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts.

1.08 WARRANTY

- A. In addition to the requirements specified in Section 15050, warrant equipment parts free of defects in material and workmanship for a period of 4 years starting from the date of acceptance or date of first beneficial use of the equipment by the DISTRICT, whichever is later. Cover parts and labor.
- B. Manufacturer's warranty shall be issued in the DISTRICT's name.

1.09 MAINTENANCE

- A. Spare Parts: Furnish the following spare parts:
 1. Each installation shall receive a minimum of Spare parts shall include:
 - a. One motor with gearbox.
 - b. Set (2 pieces) of upper sprockets.
 - c. Two scraper assemblies.
 - d. FlexLink[®] castings, 2 with and 2 without mounting.
 - e. One set of drive clevis pins (8 pieces).
 - f. 12 each link clevis pins and retaining rings.
 - g. Scraper bolts and nuts sufficient for 5 scrapers.
 - h. 2 wiper blades.
- B. Special Tools:
 1. All special tools that are required to assemble, disassemble, repair, and maintain any item of mechanical equipment shall be furnished with the equipment.
 - a. Special tools shall include any type of tool that has been specifically made for us on an item of equipment for assembly, disassembly, repair, and maintenance.
 - b. Provide one Snap Ring Tool used to install the retaining rings.
 - c. When special tools are provided, they shall be marked or tagged and a list of such tools shall be included with the maintenance and operation instructions describing the use of each marked tool.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Duperon Corporation, FlexRake Bar Screen.
- B. The Contract Drawings are based on the Duperon FlexRake Bar Screen equipment, no equal.

2.02 GENERAL

- A. Type: The mechanically cleaned bar screen shall be a stainless steel link driven, front-cleaning, front-return type mechanically cleaned bar screen.
 - 1. Shall have a head sprocket only, with no sprockets, bearings, or similar drive components under water.
 - 2. Shall clean continuously, from bottom to top, the entire width of the scraper.
 - 3. Shall run continuously.
 - 4. The link system shall be such that it bends in one direction only, which allows it to become its own lower sprocket and frame. The link system shall also have the ability to flex around a large object such as a drum, tire, log, etc. to avoid shutting down the unit.
 - 5. All non-corrosive materials shall be used in components traveling underwater. The scrapers shall be of UHMWPE with 316 stainless steel teeth, and the links and pins shall be of 316 stainless steel.
- B. Equipment Supports:
 - 1. Screen equipment shall be supported at top of deck on top of channel side walls only. The partial concrete wall behind the screen (downstream side) shall not be used to support screen equipment in any way. Any screen supports on the back side of the screen shall be suitably supported by a beam, supplied by the bar screen manufacturer, that is supported by the channel side walls.

2.03 MATERIALS

- A. All wetted and unwetted parts, including fasteners and hardware, except as specified herein: Type 316 stainless steel; Type 316L stainless steel if material is to be welded.
- B. Bolts and nuts shall be of Grade 316 Stainless Steel.
- C. Anchor Bolts shall be Grade 316 Stainless Steel and furnished by the CONTRACTOR.
- D. Steel and Stainless Steel: As specified in Section 05120, Structural Steel.
- E. All welds in stainless steel subassemblies shall be electrochemically cleaned or acid passivated after welding for corrosion resistance.
- F. All stainless steel components shall be glass bead blasted.

2.04 EQUIPMENT

- A. Equipment shall be the standard product of the manufacturer, modified as necessary to conform to the specifications.

2.05 COMPONENTS

- A. Bar Rack: Minimum of 1/4-inch by 3/4-inch flat bar able to withstand a 5-foot head differential. The bar screen anchors and fasteners shall be of 316 stainless steel. The mechanically cleaned bar screen unit shall be designed to be shipped as a complete assembly.
- B. Scrapers: UHMWPE and 316 stainless steel and shall not cause damage to the bar screen finish or structure. Scraper shall be easily modified by the customer if necessary to suit future changes in debris conditions. Scrapers shall penetrate the bar screen, cleaning three sides of the bars.
- C. Dead Plate:
 - 1. Dead plate of Grade 316 stainless steel plate shall extend to the point of discharge. Dead plate shall be true and flat such that a close clearance between the raking tines and the plate can be maintained during the cleaning cycle. The backside of the dead plate shall be suitably reinforced and constructed to guarantee a maximum gap between rake bar and dead plate, leading to the discharge chute without interruption.
 - 2. Extend from top of the bar rack to the discharge chute.
- D. Link System: 316 stainless steel and 302/4 stainless steel pins. It shall either be shipped fully assembled up on the bar screen (if applicable) or shipped in pre-assembled sections. Lifting capacity shall be 1,000 lbs.
- E. Chain Slides: UHMWPE and 316 stainless steel. Support the upstream link system.
- F. Lower Return Guides: 316 stainless steel plates.
- G. Discharge Chute:
 - 1. 10-gauge minimum Type 316L stainless steel, suitably reinforced.
 - 2. Extend from dead plate to the point above the screenings conveyor shown on the Drawings.
 - 3. Include sides to contain/direct screenings to the screenings conveyor.
- H. Discharge Chute Spray System:
 - 1. Designed and provided by bar screen manufacturer as part of the bar screen package.
 - 2. Water spray to move screenings material down the discharge chute and into the screenings conveyor.
 - 3. Piping, fittings, and valves shall be as specified in DIVISION 15.
 - 4. Manufacturer shall provide and install on bar screen unit spray bar and piping routed to point where it clears bar screen mechanism for connection to field routed piping provided by CONTRACTOR.
 - 5. Components:
 - a. Solenoid Valve: Suitable for installation in Class 1, Division 2, Group D hazardous area.

- b. Spray Nozzles:
 - 1) As specified in Section 15120.
 - 2) Number of nozzles required to provide full coverage of discharge chute with sufficient overlap of spray.
- c. Piping and Pipe Supports:
 - 3) Type 316 stainless steel.
 - 4) Piping supported from bar screen unit so that it does not interfere with the bar screen operation or cause screenings to hang up.
- I. Screen Framework:
 - 1. Framework of screen shall be constructed of Grade 316 stainless steel and cross section with a minimum thickness 3/16-inch.
 - 2. Various parts fastened by welding, riveting, or bolting shall be braced as necessary to insure a rigid structure.
 - 3. No braces, gussets, or stiffeners shall be inside the screen frame that will allow for screenings to collect.
 - 4. The screen frame shall be supplied in one piece requiring no field assembly.
 - 5. Suitably reinforced to support the required loads.
- J. Drive Unit: The electric gear motor shall be continuous inverter duty, shaft mounted and explosion proof. The motor shall be 1/2 hp, 1,735 rpm, 3 phase, 60 cycle, 460 volt. Final drive speed shall range from approximately 0.5 to 2.2 rpm, 4,650 in-lb output torque 809:1 ratio. The drive unit shall have coated, CL40 cast iron drive sprocket and end castings. The drive shaft shall be of 1018 steel. Each mechanically cleaned bar screen shall operate independently and will have its own drive unit and driven components.
- K. VFD: Manufacturer to provide 3 phase, 480 volts, variable frequency drive in a NEMA 4X conforming to Specification 16262 and rated for use with a 1/2 HP continuous inverter-duty motor.
- L. Return Guides: Guide the rakes in proper tracking.
- M. Wiper Assembly: Installed to assist in removing debris from the rakes.
- N. Bearings: Shall be greased ball bearing type, non self-aligning, sealed and lubricated.
- O. Enclosure:
 - 1. Completely enclose equipment above operating deck except motor.
 - 2. Easily removable for maintenance access.
 - 3. Extend over discharge chute to discharge point at conveyor.
 - 4. Provide front and rear openings with double doors.
 - 5. Provide additional access hatches as necessary for easy maintenance access.
 - 6. Fabricated from 316 stainless steel.

2.06 CONTROLS

- A. The manufacturer of the bar screen shall provide a bar screen vendor control panel with each bar screen and associated field mounted devices as indicated on the Drawings and specified in Section 13411, Process Control Strategy.

- B. All devices mounted within the bar screen classified area shall be rated for Class 1, Division 2, Group D hazardous areas.
- C. Refer to DIVISION 13 and DIVISION 16 for additional instrumentation and electrical requirements.
- D. Control Voltage: 120 volt, single phase.
- E. All screen-mounted electrical devices, including the motor, will be wired to a junction box mounted on bar screen side frame.
- F. Bar Screen Field Control Station. Provide panels consisting of, but not limited to, the following to provide a complete and operable system:
 - 1. Panel mounted devices including selector switches, pushbuttons, and status and alarm lights as shown on the Drawings and specified in Section 13411.
- G. Bar Screen Vendor Control Panels: Provide panels consisting of, but not limited to, the following to provide a complete and operable system:
 - 1. Location: As shown on the drawings.
 - 2. Enclosure: NEMA 4X in accordance with Section 13442 and 16135.
 - 3. Main circuit breaker with lockable disconnect handle.
 - 4. VFD in accordance with Section 16262.
 - 5. Load current relay with capacitor.
 - 6. Relays and timers as required for hard-wired interlock and timer functions as specified in Section 13411.
 - 7. Panel mounted devices including selector switches, pushbuttons and status and alarm lights as shown on the Drawings and specified in Section 13411.
 - 8. Terminals for field wiring.
 - 9. Input and Output terminals for remote control system as shown on the Drawings and specified in Section 13411.
 - 10. UL Label.
 - 11. VFD mounted in panel.

2.07 FABRICATION

- A. Shop Assembly:
 - 1. Bar screens shall be factory assembled and tested.
 - 2. Mount all accessories and appurtenances including but not limited to limit switches and discharge chute spray bar so that the complete system may be tested.

2.08 FINISHES

- A. Surface preparation, factory prime, field prime, and finish coats as specified in Section 09960.

2.09 SOURCE QUALITY CONTROL

- A. Factory Testing:
 - 1. The bar screens shall be factory assembled and tested before shipment.
 - 2. Test equipment in accordance with Section 15958.
 - 3. Witnessed by the ENGINEER and/or DISTRICT.

4. CONTRACTOR shall bear the cost for factory witnessed testing in accordance with Section 01756.
5. Run bar screen mechanism to verify proper operation of the mechanism and all controls:
 - a. Smooth operation, positive engagement of rake teeth between bars.
 - b. Functionality of all controls including control panel and limit switches.
6. Discharge chute spray water system.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install as indicated on the Drawings and in strict conformance with the manufacturer's installation instructions, shop drawings, and recommendations.
- B. Interconnecting piping and wiring:
 1. Routed by the CONTRACTOR as shown on the Drawings.
 2. Coordinated with the bar screen manufacturer to ensure that it does not interfere with the bar screen operation or cause screenings to hang up.

3.02 MANUFACTURER'S FIELD SERVICES

- A. Coordinate field service work with the manufacturer's representative, DISTRICT, and ENGINEER prior to initiating such work.
- B. Require manufacturer's representative to perform the following services as described below and as specified in Section 01756, Testing, Training, and Facility Start-up. The specified durations are the minimum required time on the job site. Additional services and/or longer durations shall be provided as needed at no cost to the DISTRICT to meet the required quality of work. Include a minimum of two trips.
 1. Installation Assistance:
 - a. Advise/observe the CONTRACTOR on the installation of the bar screens.
 - b. Provide additional assistance as required.
 2. Installation Inspection: One trip. One workday each trip.
 3. Start-up/Testing Assistance: One workday.
 - a. Prior to start-up, the equipment shall be inspected for proper alignment, operation, and satisfactory performance.
 - b. Test rake assembly linkage system to rotate and allow rake to climb over and be free of an encountered object that cannot be removed.
 - c. Provide additional start-up/testing assistance as required.
 4. Training: As defined in Specification Section 01756, Testing, Training, and Facility Start-up. Provide training as follows:
 - a. Operations Training: Two hours of training, presented twice, for a total of four hours.
 - b. Mechanical Maintenance Training: Two hours of training, presented twice, for a total of four hours.
 - c. Electrical Maintenance Training: One hour of training, presented twice, for a total of two hours.
 5. Final Acceptance Checkout: One workday.

6. **Post Start-up Checkout: One workday. Scheduled up to 6 months after equipment startup.**

END OF SECTION

SECTION 13410

BASIC MEASUREMENT AND CONTROL INSTRUMENTATION MATERIALS AND METHODS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
1. This Section includes general design, material, equipment fabrication, installation, calibration, testing, commissioning, training, and documentation requirements for instrumentation and control systems.
 2. Additional or more stringent requirements, when given in other Sections, shall prevail.
- B. Related DIVISIONS and Sections:
1. DIVISION 15 - MECHANICAL.
 2. DIVISION 16 - ELECTRICAL.
 3. Section F - Labor and Construction.
 4. Section 01352 - Alteration Project Procedures.
 5. Section 01500 - Temporary Facilities and Controls.
 6. Section 01770 - Closeout Procedures.
 7. Section 01756 - Testing, Training, and Facility Start-Up.

1.02 REFERENCES

- A. American National Standards Institute (ANSI):
1. ANSI B16.5 - Pipe Flanges and Flanged Fittings.
- B. American National Standards Institute/American Petroleum Institute (ANSI/API):
1. API RP550 - Manual on Installation of Refinery Instruments and Control Systems.
 2. ANSI/API 551-1992 - Process Measurement Instrumentation.
- C. American Society of Testing and Materials (ASTM):
1. ASTM A269 - Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
- D. Instrumentation, Systems, and Automation Society (ISA):
1. ISA S5.1 - Instrumentation Symbols and Identification.
 2. ISA S5.3 - Graphic Symbols for Distributed Control/Shared Display Instrumentation, Logic, and Computer Systems.
 3. ISA S5.4 - Instrument Loop Diagrams.
 4. ISA S5.5 - Graphic Symbols for Process Displays.
 5. ISA RP7.1 - Pneumatic Control Circuit Pressure Test.
 6. ISA S7.3 - Quality Standard for Instrument Air.
 7. ISA S12.4 - Instrument Purging for Reduction of Hazardous Area Classification.
 8. ISA S18.1 - Annunciator Sequences and Specifications.

9. ISA S20 - Specification Forms for Process Measurement and Control Instruments, Primary Elements, and Control Valves.
 10. ISA S51.1 - Process Instrumentation Terminology.
 11. ISA RP60.3 - Human Engineering for Control Centers.
 12. ISA S71.04 - Environmental Conditions for Process Measurement and Control Systems: Airborne Contaminants.
- E. Milspec:
1. MIL-I-46058C - Electrical Insulating Compound.
- F. National Electrical Manufacturers Association (NEMA):
1. NEMA 250 - Enclosures for Electrical Equipment (1,000 volts maximum).
- G. National Fire Protection Association (NFPA):
1. NFPA 70 - National Electric Code (NEC).
 2. NFPA 496 - Purged and Pressurized Enclosures for Electrical Equipment.
 3. NFPA 820 - Standard for Fire Protection in Wastewater Treatment and Collection Facilities.
- H. Scientific Apparatus Makers Association (SAMA):
1. SAMA PMC-5 - Resistance Thermometers.
 2. SAMA PMC-6 - Filled System Thermometers.
 3. SAMA PMC-8 - Thermocouple Thermometers.
 4. SAMA PMC-17 - Bushings and Wells for Temperature Sensing Elements.
- I. Underwriters Laboratories, Inc. (UL):
1. UL 508 - Industrial Control Equipment.

1.03 DEFINITIONS

- A. Where a term is used in Specification Section number series 13400 through 13499 relating to instrumentation, and the meaning is not defined therein or elsewhere in the Contract Documents, the meaning of the term shall be as defined in ISA S51.1 Process Instrumentation Terminology, or if not contained in ISA 51.1, as defined in listed reference standards under "References".
- B. **Control Circuit:** Any circuit whose principal purpose is the conveyance of information and not the conveyance of energy for the operation of an electrically powered device.
- C. **Panel:** An instrument support system, which may be a flat surface, a partial enclosure, or a complete enclosure for instruments and other devices, used in process control systems. Unless otherwise specified or clearly indicated by the context, the term "panel" in these Contract Documents shall be interpreted as a general term, which includes flat panels, enclosures, cabinets, and consoles.
- D. **Power Circuit:** Any circuit operating at 80 volts (AC or DC) or more, whose principal purpose is the conveyance of energy for the operation of an electrically powered device.
- E. **SCADA:** Supervisory Control and Data Acquisition.
- F. **Signal Circuit:** Any circuit operating at less than 80 volts AC or DC.

- G. **Two-Wire Transmitter:** A transmitter that derives its operating power supply from the signal transmission circuit and therefore requires no separate power supply connections. As used in this Specification, two-wire transmitter refers to a transmitter, which provides a 4 to 20 milliampere current regulation of signal in a series circuit with an external 24-volt direct current driving potential and a maximum external circuit resistance of 600 ohms.
- H. **WAN:** Wide Area Network.

1.04 INSTRUMENTATION AND CONTROL SYSTEM DESCRIPTION

A. Scope of Work:

1. The Moreno and Temecula Valley Regional Water Reclamation Facilities (MVRWRF and TVRWRF) Bar Screen Rehabilitation Project consists of the following project elements:
 - a. **Moreno Valley RWRF:** Replacement of three existing climber-type mechanical bar screen with a chain and rake type mechanical bar screen, replacement of the existing belt conveyor with a shaftless screw conveyor, and installation of a proposed screenings washer/compactor.
 - b. **Temecula Valley RWRF:** Replacement of one existing channel grinder and associated auger with a catenary-type mechanical bar screen, modification of the existing shaftless screw conveyor for use with the new screen, and installation of a proposed screenings washer/compactor.
2. Programming will reside at the existing Programmable Logic Controllers (PLCs) as indicated on the P&IDs.
3. Instrumentation and control additions and modifications are required for the following facilities at MVRWRF and TVRWRF for this project:
 - a. **Headworks.**
4. The Instrumentation and Control System Contractor (ICSC) shall be Beavens System Incorporated. The ICSC shall be responsible for all PLC and SCADA programming and integration. The ICSC shall be responsible to provide all PLC and control system hardware i.e. switches, patch panels, etc. and software as identified in Contract Documents.
5. The ICSC shall be responsible to configure the existing Plant SCADA system to communicate with the vendor-furnished PLCs through DH+ as shown on SCADA block diagrams.
6. When necessary, the ICSC shall coordinate with the bar screen, conveyor and washer/compactor Suppliers to ensure the HMI graphics development are consistent with the plant graphics design requirements i.e. color convention, symbol, etc.
7. The ICSC shall coordinate with all Supplier PLC systems for IP addressing and SCADA interfaces to these systems.
8. The ICSC will be involved in PLC programming for following existing PLC systems:
 - a. **PLC-11 - Headworks Moreno Valley.**
 - b. **YIC-12 - Headworks Temecula Valley.**
9. The ICSC will be involved in integrating the following equipment with the existing Plant SCADA systems:
 - a. **Mechanical Bar Screens:**
 - 1) Tag No. 1-ME-1 - MVRWRF Bar Screen No. 1.
 - 2) Tag No. 1-ME-2 - MVRWRF Bar Screen No. 2.
 - 3) Tag No. 1-ME-4 - MVRWRF Bar Screen No. 4.

- 4) Tag No. 11MTR121 - TVRWRF Bar Screen No. 1.
- b. Shaftless Screw Conveyor:
 - 1) Tag No. 1-ME-5 - MVRWRF Conveyor No. 1.
- c. Screenings Washer Compactors:
 - 1) Tag No. 1-ME-6 - MVRWRF Washer/Compactor No. 1.
 - 2) Tag No. 11WSC125 - TVRWRF Washer/Compactor No. 1.

B. Retrofit:

- 1. Retrofit and extension of existing plant controls and instrumentation shall be subject to special scheduling and sequencing as specified herein.
- 2. According to individual circumstances and compliance with the drawings, conduit and cable connections shall be extended from existing locations or replaced entirely. The resulting installation shall be neat, rigid, and provide no obstructions.
- 3. Where shown or specified, existing field instruments shall be replaced with new.
- 4. The CONTRACTOR shall be responsible for the integrity and measurement accuracy of all loops; however, any defect found in existing equipment shall be the responsibility of the DISTRICT.
- 5. The standards of documentation, instrument tagging, cable and conductor ferruling, and terminal identification and labeling which apply to the new installation shall be applied equally to all of the existing installation which will form part of the modified system.
- 6. Cables that are abandoned shall be removed, where practical, unless otherwise specified or accepted by the ENGINEER. Abandoned cables not removed shall be terminated on spare terminals or disconnected and individually coiled at each end, individually ferruled at each end, and identified on CONTRACTOR's cable schedules as "spare".

1.05 DESIGN REQUIREMENTS

- A. Review other Sections and DIVISIONS of the Contract Documents and ensure full compliance with the total Contract Documents. In the event of a conflict between Sections, the CONTRACTOR shall promptly seek clarification from the ENGINEER.
- B. Unless different requirements are clearly specified or shown elsewhere, instrumentation and control design, materials, equipment, installation, and testing shall comply with the requirements of DIVISION 16.
- C. Completeness:
 - 1. Provide a complete and fully functional instrumentation and control system ready for use.
 - 2. Components which are not identified on the Drawings and Specifications, but necessary to meet the full functional operation and performance requirements, shall be provided.
 - 3. Equipment shall be designed and installed in full conformity with the Drawings, Specifications, instructions, and recommendations of the related equipment manufacturer.
- D. Connections and Appurtenances:
 - 1. The instrumentation and control systems shall include all necessary connections to sources of electrical power, air, water, drains, and vents, with

all required valves, switches, and accessories as specified or as recommended for best operation by the manufacturer of the equipment furnished.

2. All necessary mounting panels, stands, hangers, and brackets shall be furnished and installed and shall comply with the relevant Sections of these Specifications.

E. Coordination:

1. Systems and equipment provided under this Section shall be designed and coordinated for proper operation with related equipment and materials provided under other Sections of these Specifications, and where applicable, under other referenced contracts, and with identified existing equipment.

F. Control Functions: The complete instrumentation and control system shall perform functions as specified in the Control Descriptions column of the P&IDs.

G. Instrument Tagging:

1. All field mounted instruments shall be provided with stainless steel tags stamped or engraved with the instrument's full tag number. Tags shall be affixed with stainless steel wire fasteners.
2. All back of panel instruments shall be provided with black-white-black plastic laminate nameplates engraved with the instrument's full tag number. Nameplates shall be secured to the panel with stainless steel screws.
3. All front of panel instruments shall include the instrument's full tag number and service description in the nameplate legend. Unless it is part of the instrument, the nameplate shall be engraved black-white-black plastic laminate, secured with stainless steel screws.

H. Electrical Marking:

1. All electrical devices, terminal blocks, terminals, cables, and conductors shall be clearly labeled.
2. Cables and conductors shall be fitted with heat shrink identification sleeves. Adhesive tape identification markers shall not be used. A unique numbering system shall be provided by the CONTRACTOR, but this shall conform to requirements specified in DIVISION 16. Cables shall be tagged at both ends and at any intermediate pull box or manhole through which the cables are routed. All cables shall be identified on the CONTRACTOR's cable schedule.

I. Cable and Conductor Termination:

1. All cables and conductors shall be terminated on terminal blocks with full identification.
2. Terminal Block Enclosures: Field mounted terminal blocks shall have NEMA 4 enclosures or NEMA 4X enclosures in wet or corrosive areas unless otherwise specified.
3. Terminal blocks, except those which are part of a manufactured unit, shall be capable of terminating 22-12 AWG wire with contact resistance no greater than 3 milliohms. Screws shall be captive and have metal on metal friction locking such that when wire is clamped into the metal body, self-loosening is not possible. Metal components shall be manufactured from 85 percent copper alloy and be nickel-plated over 100 percent of their surface area.
4. Manufacturers:
 - a. Terminal Blocks: Phoenix Contact, Type No. UK4, or equal.

- J. Signal Transmission:**
1. Unless otherwise specified, analog signal transmission between electronic (and electric) instruments not located within a common panel shall be 4 to 20 milliamperes and operate at 24 volt DC.
 2. Milliamperes signals shall be current regulated and not affected by changes in supply voltage and load resistance within the unit's rating.
- K. Loop Impedance:**
1. Total loop impedance for 4 to 20 milliamperes signals shall not exceed the rated value for the regulating device at the loop operating voltage.
 2. Where necessary, loop impedance shall be reduced by providing current-to-current (I/I) isolation amplifiers for signal retransmission.
- L. Grounding:**
1. Instrument panels shall be provided with a signal ground bus, which shall be isolated from the power ground bus. Multiple panels in one location shall have a common point for signal ground bus connection to ground.
 2. Shields and measurement loops shall be single point grounded at the source panel external terminals by bonding to the instrument panel signal ground bus.
 3. Isolating amplifiers shall be provided within the panel for field equipment possessing a grounded input or output, except when the panel circuit is galvanically isolated.
- M. Discrete Circuit Configuration:**
1. Discrete control circuits shall be configured to fail safe, i.e., on loss of continuity or loss of power. Alarm contacts shall fail to the alarm condition which shall be open. Control contacts shall fail to the inoperative condition unless otherwise indicated on the Drawings.
- N. Instrument and Loop Power:**
1. Power to instruments and instrument loops shall be from sources providing the highest integrity, e.g., from the loop primary receiving instrument/module, or from a UPS when so specified. A loop shall not be dependent on a diversity of power sources, unless otherwise indicated on the Drawings.
- O. Field Instruments Installation Design:**
1. Field instruments shall be installed in accordance with the Contract Documents, ANSI/API 550 and 551, and the manufacturer's instructions.
 2. Flow conditioning devices or other required accessories shall be furnished and installed if necessary to meet the accuracy requirements in the Contract Documents.
 3. Field instruments shall be mounted so that they can be easily read, readily approached, and easily serviced, and so they do not restrict access to mechanical equipment. Field instruments not directly mounted shall be mounted on a pipe stand or local panel, unless otherwise indicated on the Drawings.
 4. Field electronic instruments exposed to direct sunlight shall be provided with sun shields. LED, LCD, or other digital readouts shall be oriented and shielded to eliminate exposure to direct sunlight.
 5. Field instrument enclosures shall be NEMA 4 minimum. For corrosive environments, or where otherwise specified, enclosures shall be NEMA 4X.

6. Connections from rigid conduit systems to field instruments shall be made with jacketed flexible conduit with a maximum length of 3 feet.
7. Field instruments shall be connected with cable as specified in DIVISION 16, except when the manufacturer requires the use of special cable, or otherwise specified herein. Special cable applications shall be in accordance with the NEC.
8. Provide a power disconnect switch (NEMA 4) for 120 VAC powered instrument which does not have a built-in power disconnect.

P. Hazardous (Classified) Areas:

1. Instrumentation and control equipment specified is subject to the requirements for hazardous (classified) areas as indicated on the Electrical Drawings.
2. Two-wire transmitters to be installed in a hazardous (classified) area shall be Factory Mutual approved intrinsically safe, and made safe by means of suitably rated Factory Mutual approved intrinsically safe barriers installed in a nonhazardous area.
3. Switches to be installed in a hazardous (classified) area shall be made safe by means of suitably rated Factory Mutual approved intrinsically safe barriers or intrinsically safe relays installed in a nonhazardous area.

Q. Corrosion Protection:

1. The CONTRACTOR is specifically cautioned that the treatment plant ambient air contains airborne contaminants, including but not limited to, the corrosive gases: hydrogen sulfide, chlorine, and ammonia. The corrosion severity level will vary according to specific location, temperature, relative humidity, rate of change of relative humidity, wind speed, and wind direction, and may, therefore, also be subject to seasonal variation.
2. Unless otherwise specified, electronic equipment (except for modifications to existing units) shall be installed such that no significant or detrimental corrosion shall occur over a 20-year period. Installation in a NEMA 4X enclosure is acceptable.

R. Documentation to be Provided:

1. All aspects of the instrumentation and control systems design shall be fully documented, and subsequently revised to conform with the "As-Built" installation.
2. This documentation shall include a fully annotated record of all application programming, e.g., for programmable logic controllers and SCADA computers, etc.
3. The numbering of all instruments, equipment, terminal blocks, conductors, and cables shall be shown on all related documents.
4. Where an existing installation is subject to minor modifications, a comprehensive upgrade of existing documentation may satisfy the documentation requirements; however, prior acceptance by the ENGINEER shall be obtained.

1.06 SUBMITTALS

A. General:

1. Submit in accordance with Section F - Labor and Construction.
2. Submittal data shall be grouped in a logical manner to facilitate review of subsystems and each submittal shall be substantially complete. Individual

drawings and data sheets submitted at random intervals will not be accepted for review.

3. Incomplete submittals will be returned to the CONTRACTOR without the ENGINEER's review and without contract time extension.
4. Design Data submittals shall be reviewed and returned with resubmittal not required, before fabrication is started.
5. All panel drawings and loop drawings shall be produced with latest version of AutoCAD software.

B. Design Submittals:

1. Bill of Material for all equipment.
2. Instrument Data Sheets using ISA S20 format, with variations/enhancements to accommodate specific types of instruments.
3. Catalog Data for all instruments and equipment, with applicable features and options "arrowed".
4. System Configuration Diagrams.
5. Panel Arrangement Drawings for panels or enclosures showing size, arrangement, cut-outs, color, item identification, nameplate legends, and annunciator engravings.
6. Panel Wiring/Piping Drawings.
7. Loop Diagrams for Analog and Discrete Signals, in accordance with ISA S5.4 and the Drawings: "Typical Loop Diagrams".
 - a. The diagrams shall be fully detailed including all equipment and locations, new and existing, reached by the loop and its branches.
 - b. The diagrams shall include instruments, electrical equipment, mechanical packaged equipment, and terminal strip, wire, and cable numbers. Loops with associated inputs and outputs shall be drawn compositely.
 - c. Loop continuity via programmable control functions shall be depicted schematically using P&ID symbology.
8. Schematic Diagrams (also known as elementary diagrams, control diagrams, and logic diagrams) shall be provided for hardwired and programmable logic/control. Diagrams (including printouts) shall include full annotation of all elements, cross references, and explanation of annotation.
9. Electrical cable and wire marking (identification) system, for all analog and discrete loops.

C. Installation Submittals:

1. Installation, Operation, and Maintenance Manuals for proprietary instruments and systems. Upon acceptance of equipment and before installation, submit 3 sets for information only.
2. Retrofit Schedules: 70 days prior to scheduled start of retrofit.
3. Cable and Wire Schedules, including existing which are not removed under retrofit or demolition work.

D. Testing Submittals:

1. Test plan: 70 days prior to scheduled start of testing.
2. Test procedures: 70 days prior to scheduled start of testing.
3. Factory test data records, certified.
4. Field test data records.

- E. **Training Program Submittals:** 70 days prior to scheduled start of training, submit training program course outline and training schedule.
 - 1. Training Program course outline and training schedule shall be submitted with: technical or operation heading, subjects, times, duration of sessions, name of instructor. There shall be a description of each subject-session. There shall be a list of instructors with their employer's name, job title, and qualifications. Be prepared to tailor the training schedule for compatibility with the plant operations staffing requirements.

- F. **Project Closeout Submittals:**
 - 1. **Recommended Spare Parts List.**
 - 2. **Operation and Maintenance Manuals** for project, fully indexed, incorporating all instrumentation and control system documentation submitted and produced, and revised to conform with the "As-Built" installation. Application specific operation and maintenance instruction and application program records shall be included. Submit one set for review and four sets of the final accepted manuals.
 - 3. Submit reproducible Mylar copies of all drawings revised to conform to the "As-Built" installation for the DISTRICT's records after acceptance of the project Operation and Maintenance Manuals.
 - 4. **Magnetic Media**, two sets, in the form of CD-ROM disks or 3-1/2 inch diskettes, bearing all electronically formatted documents including "As-Built" CAD drawings and application programs, shall be submitted for information only and the DISTRICT's records, after acceptance of Operation and Maintenance Manuals for project. The media shall contain a table of contents, ASCII formatted, identifying the contents of each file and the software program/version with which it was produced. The media shall contain a CAD-plotting document providing definition of and correlation between layers/colors and line types for all CAD files.

1.07 QUALITY ASSURANCE

- A. **Procurement Restriction:**
 - 1. Certain equipment manufacturers with marketing operations based on local agents have terms where the selling agent has responsibility for after sales service. In such cases, the CONTRACTOR's procurement of such equipment is restricted to the selling agent within whose service area the equipment will be finally installed, thus assuring the DISTRICT of the availability of local after sales service.

- B. **CONTRACTOR or Subcontractor Qualifications:**
 - 1. Instrumentation and Control Systems shall be provided under the supervision of a single contractor or subcontractor, which has been regularly engaged over the previous 5 years in supervision of projects of similar scope and complexity.
 - 2. Supervision shall include responsibility for, but not be limited to design, procurement, fabrication, installation, field loop integrity, programming, calibration, testing, commissioning, training, documentation, and interfacing requirements.

C. Quality Assurance Procedure:

1. A quality assurance procedure shall be defined and implemented by the CONTRACTOR or subcontractor supervising instrumentation and control systems. The procedure shall:
 - a. Require that the project manager schedule and budget for in-house and inter-contractor checking.
 - b. Specify qualifications required for engineering and technical personnel in the execution and checking of specific tasks.
 - c. Identify the responsibilities of the executor and the checker.
 - d. Provide quality assurance data sheets listing specific tasks and stages of tasks, with space for the printed names of the executor and checker, and the checker's signature and date.
2. The quality assurance procedure shall form part of the contractual requirements for subcontractors, and manufacturers or suppliers with unit responsibility.
3. The quality assurance data sheets shall be maintained current and shall be available for inspection upon request.

D. Unit Manufacturer or Supplier Responsibility Qualifications:

1. Specific control system(s) shall be contracted or subcontracted as a whole to one manufacturer or supplier who shall have unit responsibility. This shall apply to the following system(s): RVWRWF Screenings Conveyor/Washer/Compactor System.
2. Unit responsibility shall include, but not be limited to, design, procurement, fabrication, installation, field loop integrity, programming, calibration, testing, commissioning, training, documentation, and interfacing requirements. This shall also include obtaining final acceptance. Final acceptance shall be dependent on a complete system, fully tested and operating in a manner satisfactory to the DISTRICT and the ENGINEER, and in accordance with the Contract Documents.
3. A unit manufacturer or supplier shall have been regularly engaged over the previous 5 years in the business of providing comparable control systems with the same level of responsibility.

E. Substitutes and "Or-Equals":

1. Substitutes and "Or-Equals" may be proposed in accordance with the General Conditions.
2. Where manufacturers of instrumentation or control system products other than those specified are proposed, they shall have a minimum of 5 years experience in the manufacture of comparable equipment used in similar applications. The CONTRACTOR shall provide manufacturers' references to existing installations upon request of the ENGINEER. Noncompliance shall be a basis for rejection.

F. Instrumentation and Control Systems Installation Supervisor:

1. Installation and wiring of instrumentation and controls shall be supervised by an on-site experienced registered Electrical Engineer or registered Control Systems Engineer. This supervisor shall be employed for a minimum of 20 hours per week, for a minimum of 25 weeks.
2. The supervisor shall be subject to acceptance by the ENGINEER. The supervisor's resume shall be submitted showing relevant and sufficient

experience. If so required, the supervisor shall attend an interview at the ENGINEER's facility. The ENGINEER's decisions shall be final.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Delivery Timing:
 - 1. No instrumentation or control system equipment shall be delivered to the job site until required for integration with other construction and all necessary environmental preparations have been made.
- B. Intermediate Storage and Handling:
 - 1. When the CONTRACTOR is obliged to take delivery in advance of this time, the CONTRACTOR shall do so at a bonded air-conditioned warehouse.
 - 2. The CONTRACTOR shall provide for storage at the warehouse and transport of the equipment to the jobsite by suitably qualified movers with moving equipment (e.g., floating bed truck) as recommended by the manufacturer.
- C. Non-compliance:
 - 1. Should the equipment be delivered to the jobsite and be stored in adverse conditions or installed in improper environmental conditions, then at the ENGINEER's discretion, prior testing may be declared void.
 - 2. The prior testing (e.g., factory acceptance testing) shall be repeated and/or, at the discretion of the ENGINEER, a reduced value dollar credit shall be provided by the CONTRACTOR.
 - 3. The equipment shall still be required to satisfy site testing performance criteria.

1.09 SITE CONDITIONS

- A. General: Instrumentation and control systems equipment shall be suitable, or made suitable, for site conditions at the project location.
- B. Temperature:
 - 1. Electrical and Control Room Temperature: 60 to 100 degrees Fahrenheit.
 - 2. Field Locations Temperature: 20 to 120 degrees Fahrenheit.
 - 3. Above temperatures do not include affects of direct sunlight or wind chill.
- C. Relative Humidity (RH):
 - 1. Electrical and Control Rooms RH: 20 to 80 percent.
 - 2. Field Locations RH: 10 to 100 percent.
- D. Atmospheric Contaminants:
 - 1. Atmospheric contaminants include hydrogen sulfide, chlorine, ammonia, and dust in indeterminate concentrations.
 - 2. Corrosive atmosphere testing shall be conducted, where specified.
- E. Hazardous Areas:
 - 1. Hazardous areas shall be as specified in DIVISION 16 and as shown on the electrical Drawings.
- F. Electromagnetic Radiation:
 - 1. Electromagnetic Radiation: 27 to 500 MHz: 10 volts/m.

1.10 SEQUENCING AND SCHEDULING

- A. General:
 - 1. Sequence and schedule instrumentation and control system provisions in accordance with Section 01352 and the progress schedule submitted in accordance with Section F.
 - 2. Coordinate instrumentation and control system delivery and installation with other portions of the Work.

- B. Special Planning:
 - 1. Retrofit of the existing plant shall be specifically scheduled and sequenced. Shutdown of existing plant shall be minimized. All shutdown operations shall be scheduled with the DISTRICT. Detailed planning and careful execution shall be conducted to limit risk of accidental shutdown of adjoining existing facilities.
 - 2. The work shall be divided into stages that shall be individually scheduled with the DISTRICT. For each stage, a detailed retrofit schedule shall be submitted. The retrofit schedule shall list each individual action in step order, identifying individual devices, terminals, and wire numbers. Prior to commencing each stage of retrofit work and prior to shutdown, the CONTRACTOR shall make a "dummy run" through the schedule to add identification markers to all unmarked devices, terminals, and wires.
 - 3. Planning of work shall include allowance for testing requirements detailed in Part 3.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Refer to other instrumentation and control Sections.

2.02 SOURCE QUALITY CONTROL

- A. Factory Testing:
 - 1. Instrumentation and control systems shall be factory tested and calibrated.
 - 2. Factory test/calibration records shall be submitted to the ENGINEER to show that the equipment has achieved the specified performance and accuracy.
 - 3. Additional Factory Testing: Refer to other instrumentation and control Sections.

PART 3 EXECUTION

3.01 INSTALLATION

- A. General:
 - 1. Install instrumentation and control systems in accordance with Drawings and Specifications, final submittals, manufacturers instructions, and (where applicable) API RP550/551.

- B. Electrical: Install cable and wiring in accordance with applicable Sections in DIVISION 16.

- C. Piping: Install piping and fittings in accordance with applicable Sections of DIVISIONS 2 and 15.
- D. Field Equipment:
 - 1. Install field equipment such that ports, terminals, and adjustments have unobstructed access for in-place testing and calibration. Equipment shall not obstruct walkways. Where possible, hand controls and indicators shall be 48 to 60 inches above the floor or a permanent work platform.
 - 2. Equipment shall be installed suitably protected from environmental conditions. Equipment shall be mounted such that shock or vibration will not impair its operation.
 - 3. Sun Shade:
 - a. Each instrument transmitter with a readout and each control panel located outdoors shall be provided with a sun shield.
 - b. Sun shield shall be designed and installed to minimize heat gain in instruments and panels.
 - c. Where practical, outdoor instruments shall be installed so readouts face north to minimize direct sun exposure.
 - d. Design and install sun shield to prevent direct sunlight from striking instrument readouts.

3.02 FIELD QUALITY CONTROL

- A. Testing - General:
 - 1. The requirements given in this Section are a minimum and may be augmented, but not replaced, by more specific requirements in subsequent Sections.
 - 2. 70 days before the commencement of any testing activity, the CONTRACTOR shall submit a detailed test plan; and detailed step-by-step test procedures, complete with forms for the recording of test results, testing equipment used, and space for signature identification of the individual witnessing the test.
 - 3. No required test shall be applied without prior notice to the DISTRICT. Testing shall not be conducted without being witnessed unless with the prior acceptance of the DISTRICT or DISTRICT's representative.
 - 4. Each unit of test equipment used shall have a certified calibration report traceable to the National Institute of Standards and Technology (NIST), and issued within 6 months of the testing date. These calibration reports shall be submitted with the test records. Test instruments shall have accuracy three times better than that of the device under test. Analog devices shall be tested at five equally spread points over the full range.
- B. Field Calibration Testing:
 - 1. Field test and calibrate all control systems and instrumentation in accordance with the reviewed Testing Procedure submittal and the manufacturer's instructions.
 - 2. Field test/calibration data sheets shall be submitted to the ENGINEER to show that the equipment has achieved the specified performance and accuracy.
 - 3. Unless identified by the CONTRACTOR as an exception in the bid, accuracy shall be within the specified tolerance. Accuracy shall be within the manufacturer's stated tolerance where this is a lesser value.
 - 4. Field testing shall include all discrete and analog loops.

C. Acceptance Testing - General:

1. Conduct control system and loop acceptance tests proving control system performance and loop integrity and accuracy, in accordance with the reviewed Testing Procedure submittal and the manufacturer's instructions.
2. Acceptance tests shall be witnessed by the ENGINEER and data sheets shall be submitted recording results and acceptance.
3. Where equipment or systems fail to meet the manufacturer's specified performance and accuracy, the CONTRACTOR shall provide the on-site services of the manufacturer's field service engineer to resolve the problem at no cost to the DISTRICT.

D. Loop Acceptance Testing:

1. For each and every analog and discrete circuit, verify the proper operation of all hardwired circuits, functions, and logic.
2. Test the accuracy of each hardwired loop. Overall loop accuracy shall not exceed the sum of the accuracies of the loop components as determined under Field Calibration Testing.

E. End-to-End Acceptance Tests:

1. For each and every analog and discrete circuit, perform an end-to-end test. Also test each signal circuit transmitted over digital networks (i.e. valve networks, RS-422 links, etc.).
2. Check each loop from the field element to the respective computer control display. Include all intermediate field instruments, control devices, panels, indicators, and other devices in the loop to ensure proper operation and linkage to computer control station displays.
3. Analog signals shall be tested at 0, 50, and 100 percent of scale to verify the proper receipt on computer control displays.
4. Discrete input circuits shall be tested to verify proper state when the field device is switched between states. Discrete output circuits shall be tested to verify equipment responds properly (start, stop, etc.).

F. Control Strategy Acceptance Tests:

1. For each control strategy and for each electrical schematic diagram, demonstrate the proper operation of all hardware and software logic and control functions. Perform a step-by-step test of each function described in each control strategy.
2. Perform separate tests on each individual piece of equipment, and for each control loop.
3. Perform the proper operation of each discrete control loop to ensure the proper operation of motors, hand switches, interlocks, solenoid valves, other auxiliary devices, status lights, computer control operator interfaces, and alarms.

3.03 TRAINING

A. General:

1. The requirements given in this Section that follow are a minimum and may be augmented, but not replaced, by more specific requirements in subsequent Sections.
 - a. Provide training to the DISTRICT in the maintenance, programming, and operation of the instrumentation and control systems. Instructors shall

have in-depth knowledge and experience in the subjects they cover. Instructors on major systems, complex instruments or analyzers shall be employed or certified by the manufacturer.

- b. Each attendee shall be provided with a set of documentation covering the subject matter.
 - c. One set of documentation and one copy of any videotapes used shall be provided to the DISTRICT.
 - d. The DISTRICT shall be permitted to videotape all live training sessions.
2. The costs associated with training of the DISTRICT's and ENGINEER's designated staff shall be included in the Contract Price, including travel, accommodation, and per diem for instructors visiting the plant and/or attendees visiting the manufacturer.

B. Factory Training:

1. Factory training shall be provided for complex instrumentation and major control systems. Factory training shall include: fundamentals, features, testing and maintenance techniques, set-up, calibration, system programming and configuration, and application programming. Both theory and hands-on experience shall be provided.
2. Allow for a total of four persons in two groups, each group separately attending 24 hours of factory training.

C. On-site Training:

1. Provide on-site training for all instrumentation and control systems. On-site training shall include: testing and maintenance techniques, set-up, calibration, operation, application programming, system reconfiguration, a thorough description and explanation of the on-site control system, failure and recovery procedures (inducing failures), and operation during failures. Both theory and hands-on experience shall be provided.
2. Allow for 16 hours of operational training and 8 hours of technical training with no limitation on the number of allowable attendees.

3.04 CLEANING

- A. Clean area during construction in accordance with Section 01500, and after completion of construction in accordance with Section 01770.
- B. Vacuum panels, cabinets, and enclosures to remove dust and debris. Wipe surfaces clean.

END OF SECTION

SECTION 13411

PROCESS CONTROL STRATEGIES

PART 1 GENERAL

1.01 BAR SCREEN (MVRWRF) - P&ID 01N02

- A. System Overview:
1. Two existing bar screens and one existing grinder/auger collect and remove coarse material from the influent wastewater.
 2. Three new bar screens will be installed to replace two of the existing bar screens and the grinder/auger.
 3. Operation of the new bar screens shall be based on differential level control by existing 1-PDSH-901 and timed control.
- B. Equipment: Refer to the P&IDs, electrical drawings, and equipment specifications for specific instruments and devices included in this system.
1. Bar Screen No. 1: 1-ME-1.
 2. Bar Screen No. 2: 1-ME-2.
 3. Bar Screen No. 4: 1-ME-4.
- C. Control System Overview: Refer to the P&IDs, electrical drawings, and equipment specifications for specific instruments and devices at the following locations:
1. Field:
 - a. Local control stations at upper level and lower level of Headworks.
 2. Electrical Area:
 - a. Vendor control panel (VCP) with VFD.
 3. SCADA:
 - a. Monitoring and control.
- D. Bar Screen No. 4:
1. Field: At minimum, the following control devices/functions shall be provided at the upper and lower local control stations for the bar screen:
 - a. Emergency Stop mushroom pushbutton stops screen in all modes of operation.
 - b. FORWARD-SLOW (F-S), FORWARD-FAST (F-F), and JOG REVERSE (REV) pushbuttons:
 - 1) F-S: Starts the bar screen motor in the forward direction with low speed in Local mode.
 - 2) F-F: Starts the bar screen motor in the forward direction with high speed in Local mode.
 - 3) JOG REV: Momentary pushbutton. Starts the bar screen motor in the reverse direction in Local mode. Slow speed only. Bar screen will stop when the pushbutton is released.
 2. Electrical Room: At minimum, the following devices/controls shall be provided at the VCP/VFD:
 - a. LOCAL/OFF/REMOTE (LOR) selector switch:
 - 1) LOCAL: Enables the F-F, F-S, and JOG REV pushbuttons.

- 2) OFF: Prohibits the bar screen from running.
 - 3) REMOTE: SCADA starts/stops the bar screen based on the Bar Screening Control Strategy.
- b. Indicating Lights:
 - 1) Fwd Run.
 - 2) Fast Run.
 - 3) Reverse.
 - 4) Common Fail.
 - c. Overload Protection Auto Reverse Program: Shall be initiated automatically in all modes of operation if screenings obstruct the movement of the bar screen rakes. When the Auto Reverse Program is activated, the VCP shall send a signal to the SCADA system.
 - d. Discharge Chute Spray Solenoid Valve: Provide output signal to solenoid valve to open valve when the bar screen starts and close after an adjustable time delay.
3. SCADA:
 - a. The bar screen LOR selector switch must be in the REMOTE position to enable SCADA control.
 - b. AUTO/MANUAL Software Selector Switch:
 - 1) MANUAL: Enable the SLOW START/STOP and FAST START/STOP software switches.
 - a) SLOW START/STOP: Starts and stops the bar screen motor in the forward direction at low speed.
 - b) FAST START/STOP: Starts and stops the bar screen motor in the forward direction at high speed.
 - 2) AUTO: SCADA controls bar screen motor starting and stopping based on the Bar Screening Control Strategy as follows.
 - c. Bar Screening Control Strategy (AUTO):
 - 1) Two alternative modes would be provided: Auto-Time and Auto-Differential as selected with a software selector switch.
 - 2) Auto-Time Mode:
 - a) A rake cycle is initiated periodically, based on an operator-adjustable setpoint time. An operator-adjustable setpoint differential level across the bar screens would override the time function. The timer would reset after any initiation of a rake cycle.
 - 3) Auto-Differential Mode:
 - a) A rake cycle is initiated based on differential level across the bar screens as measured by level sensors/transmitters mounted in the bar screen influent channel and the bar screen effluent channel. An adjustable setpoint time would override differential level control. The timer would reset after any initiation of a rake cycle.
 - 4) When a rake cycle is initiated, the SCADA starts the bar screen in the forward direction at Low Speed.
 - 5) The bar screen will run for an operator-adjustable time. If the differential level has dropped below an operator adjustable Stop setpoint, then the bar screen will stop. If the differential level is still above the Stop setpoint, the bar screen will continue to operate until the differential level drops below the setpoint.

- 6) If the differential level reaches an operator adjustable High Differential Level setpoint, the SCADA will run the screen in High Speed until the differential level drops below the initiation setpoint.
 - 7) If the Overload Protection Auto Reverse Program is activated by the VCP, the VCP shall send a signal to SCADA and Automatic Start and Stop control shall be suspended until the blockage is cleared and the overload protection device is reset.
 - 8) The new screenings conveyor is interlocked with operation of any one or all three bar screens to start after initiation of the Rake Cycle and a time delay.
- d. Monitoring and Alarms:
- 1) At minimum, the following monitoring and alarm functions shall be provided for the bar screen:
 - a) Bar Screen Running.
 - b) Bar Screen Fail Alarm.
 - c) LOR in Remote.
 - 2) SCADA-Generated Monitoring and Alarms:
 - a) Change-of-State (Mismatch) Alarms: Signify that the feedback signal does not match the corresponding command signal after a predetermined period has elapsed.
 - b) Fail-to-Start.
 - c) Fail-to-Stop.

1.02 SCREENINGS CONVEYOR (MVRWRF) - P&ID 01N02

- A. System Overview:
1. A new conveyor shall be installed to replace an existing conveyor.
 2. Conveys screenings material discharged by the bar screens to the screenings washer/compactors and transport container.
- B. Equipment: Refer to the P&IDs, electrical drawings, and equipment specifications for specific instruments and devices included in this system.
1. Screenings Conveyor No. 1: 1-ME-5.
- C. Control System Overview: Refer to the P&IDs and electrical drawings for specific instruments and devices located at the following locations:
1. Field:
 - a. Local control station.
 2. Electrical Room:
 - a. Local control panel (LCP).
 3. SCADA:
 - a. Monitoring and control.
- D. Screenings Conveyor No. 1:
1. Field: The following control devices/functions shall be provided for the screenings conveyor:
 - a. LOCAL/OFF/REMOTE selector switch:
 - 1) LOCAL: Enables the Start pushbutton.
 - 2) OFF: Prohibits the conveyor from running.
 - 3) REMOTE: SCADA starts/stops the conveyor based on the Screenings Conveyor Control Strategy.

- b. Emergency Stop mushroom pushbutton stops conveyor in all modes of operation.
 - c. Emergency Stop latching cable switch (along length of conveyor) stops conveyor in all modes of operation and activates an alarm.
 - d. Zero-Speed sensor/switch stops the conveyor motor and sends an alarm to SCADA.
2. MCC: The following control devices/functions shall be provided for the screenings conveyor:
- a. Reset: Resets the conveyor motor after a conveyor shutdown.
 - b. Conveyor Shutdown: Hardwired interlocks to shut down the conveyor in all modes of operation and activate the Conveyor Fail Alarm upon any of the following conditions:
 - 1) Zero Speed switch activation.
 - 2) Motor overload.
 - c. Emergency Shutdown: Hardwired interlocks to shut down the conveyor in all modes of operation and activate an Emergency Stop Alarm upon any of the following conditions.
 - 1) Emergency Stop mushroom pushbutton pressed.
 - 2) Emergency Stop latching cable switch activation.
 - d. Indicating lights:
 - 1) Conveyor Running.
 - 2) Conveyor Fail Alarm.
3. SCADA:
- a. The conveyor LOR selector switch must be in the REMOTE position to enable SCADA control.
 - b. AUTO/MANUAL Software Selector Switch:
 - 1) MANUAL: Enable the START/STOP software switches.
 - 2) AUTO: SCADA starts and stops the Conveyor based on the Screenings Conveyor Control Strategy as follows.
 - c. Screenings Conveyor Control Strategy (AUTO):
 - 1) The conveyor will start when any bar screen starts, following an adjustable time delay (0 to 120 seconds, set at 30) and run for an adjustable time (1 to 15 minutes, set at 2).
 - 2) If a bar screen continues to run after the conveyor has stopped, the conveyor will restart after an adjustable time delay (0 to 120 seconds, set at 30) and run for an adjustable time (1 to 15 minutes, set at 2).
 - 3) Stop conveyor following an adjustable time delay (0 to 120 seconds, set at 30) after all bar screens stop.
 - 4) Conveyor run time shall initiate the Washer/Compactor Wash Cycle Start command as described under the Screenings Washer/Compactor control strategy in Article 1.04 Paragraph D.2.c.
 - d. Monitoring and Alarms:
 - 1) At minimum, the following monitoring and alarm functions shall be provided for the conveyor:
 - a) Conveyor in Remote.
 - b) Conveyor Motor Run Status.
 - c) Conveyor Fail Alarm.
 - d) Conveyor Emergency Shutdown.
 - e) Zero Speed Alarm.

1.03 BAR SCREEN (TVRWRF) - P&ID 11N02

- A. System Overview:
1. Two existing grinders/augers chop, collect, and remove coarse material from the influent wastewater.
 2. One new bar screen with a VFD will be installed to replace one existing grinder/auger.
 3. Operation of the new bar screen is independent of the remaining existing grinder/auger.
 4. Controls for the existing conveyor shall be modified as necessary to accommodate the new bar screen.
- B. Equipment: Refer to the P&IDs, electrical drawings, and equipment specifications for specific instruments and devices included in this system.
1. Bar Screen No.2: 11MIR122.
- C. Control System Overview: Refer to the P&IDs and electrical drawings for specific instruments and devices located at the following locations:
1. Field:
 - a. Local control station.
 2. Electrical Area:
 - a. VCP with VFD.
 3. SCADA:
 - a. Monitoring and control.
- D. Bar Screen No. 2:
1. Field: At minimum, the following control devices/functions shall be provided at the local control station for the bar screen:
 - a. Emergency Stop mushroom pushbutton stops screen in all modes of operation.
 - b. FORWARD and JOG REVERSE pushbuttons:
 - 1) FORWARD: Starts the bar screen motor in the forward direction in Local mode.
 - 2) JOG REVERSE: Momentary contact. Starts the bar screen motor in the reverse direction in Local mode. Bar screen will stop when the pushbutton is released.
 2. Electrical Area: At minimum, the following devices/controls shall be provided at the VCP/VFD:
 - a. LOR Selector Switch:
 - 1) LOCAL: Enables the FORWARD and JOG REVERSE pushbuttons and speed control of the VFD.
 - 2) OFF: Prohibits the bar screen from running.
 - 3) REMOTE: SCADA starts/stops the bar screen.
 - b. Speed Control Potentiometer: Sets the speed of the motor in LOCAL or REMOTE mode.
 - c. Indicating Lights:
 - 1) Forward Run.
 - 2) Reverse.
 - 3) Common Fail.
 - d. Discharge Chute Spray Solenoid Valve: Provide output signals to alternate opening and closing solenoid valve when the bar screen is

running. Open valve for an adjustable time. Then close valve for an adjustable time.

3. SCADA:
 - a. The bar screen LOR selector switch must be in the REMOTE position to enable SCADA control.
 - b. AUTO/MANUAL Software Selector Switch:
 - 1) MANUAL: Enable the START/STOP software switch.
 - a) START software switch: Starts the bar screen motor in the forward direction. Speed is set at the VCP/VFD.
 - b) STOP software switch: Stops the bar screen motor.
 - 2) AUTO: None.
 - c. Monitoring and Alarms:
 - 1) At minimum, the following monitoring and alarm functions shall be provided for the bar screen:
 - a) Bar Screen Running.
 - b) Bar Screen Fail Alarm.
 - c) LOR in REMOTE.
 - 2) SCADA-Generated Monitoring and Alarms:
 - a) Change-of-State (Mismatch) Alarms: Signify that the feedback signal does not match the corresponding command signal after a predetermined period has elapsed:
 - (1) Fail-to-Start.
 - (2) Fail-to-Stop.

1.04 SCREENINGS WASHER/COMPACTOR (MVRWRF/TVRWRF) - P&IDs 01N03, 11N03

- A. System Overview:
 1. One new washer/compactor at each plant washes and dewateres raw screenings material conveyed by the screenings conveyor before discharge to transport container.
- B. Equipment: Refer to the P&IDs, electrical drawings, and equipment specifications for specific instruments and devices included in this system.
 1. TVRWRF:
 - a. Screenings Washer/Compactor No. 1: 11WSC125.
 - b. Spray Water Solenoid Valve: 11SV125.
 - c. Wash Water Supply Valve: 11MV124.
 2. MVRWRF:
 - a. Screenings Washer/Compactor No. 1: 1-ME-6.
 - b. Spray Water Solenoid Valve: 1-SV-360.
 - c. Wash Water Supply Valve: 1-MV-359.
- C. Control System Overview: Refer to the P&IDs and electrical drawings for specific instruments and devices located at the following locations:
 1. Field:
 - a. Pushbuttons and instrumentation.
 2. Electrical Room/Area:
 - a. VCP with VFD and PLC.
 3. SCADA:
 - a. Monitoring and control.

D. Screenings Washer/Compactor No. 1:

1. **Field:**
 - a. **Emergency Stop:** Mushroom pushbutton mounted on both sides. Stops washer/compactor in all modes of operation and activates an alarm.
 - b. **Ultrasonic level sensor/transmitter:** Located in the washer/compactor upstream of the spiral. Measures liquid level in the washer/compactor tank and transmits the information to the PLC located in the VCP.
 - c. **Tank Door and Inspection Hatch Switches:** Stop washer/compactor and send an alarm to SCADA.
2. **Electrical Area:** The following devices/controls shall be provided at the VCP supplied by the equipment manufacturer.
 - a. **Control Devices:**
 - 1) Washer/Compactor Stop pushbutton.
 - 2) Agitator HAND-OFF-AUTO (HOA) selector switch.
 - 3) Spiral HOA selector switch.
 - 4) Spiral FORWARD-OFF-REVERSE selector switch.
 - 5) Agitator fault Reset pushbutton.
 - 6) Spiral fault Reset pushbutton.
 - 7) Wash Cycle Start pushbutton.
 - 8) Wash Water Supply Valve OPEN-AUTO-CLOSE selector switch.
 - 9) Spray Water OPEN-AUTO-CLOSE selector switch.
 - 10) Manufacturer-programmed PLC.
 - b. **Manual Control:**
 - 1) When the HOA selector switches are in HAND position, the associated washer/compactor components will operate. In AUTO, control of the equipment is by the PLC in the VCP.
 - c. **Automatic Control:**
 - 1) The agitator and spiral HOA selector switches at the LCP must be placed in AUTO in order to allow Automatic PLC control of the washer/compactor as described below. If the spiral is in AUTO mode, but the agitator is not in AUTO mode, the PLC will still cycle the spiral automatically as described below. If the spiral is not in AUTO mode, the PLC will not cycle the agitator automatically, even if the agitator is in AUTO mode.
 - 2) The PLC shall be programmed by the washer/compactor manufacturer to provide automatic control as follows:
 - a) The agitator and spiral are normally not operating when the Wash Water Supply Valve opens.
 - b) A wash cycle is initiated by an adjustable liquid level setpoint in the washer/compactor, by the Wash Cycle Start pushbutton, or by a Wash Cycle Start signal from SCADA. When the Wash Cycle Start pushbutton is pressed or a Wash Cycle Start command is sent from SCADA, the Wash Water Supply Valve will Open. When a wash cycle is initiated, the agitator starts and the spiral cycles On and Off in the reverse direction a preset number of times. The spiral cycles On in the forward direction and runs for an adjustable time. The agitator continues to run during the discharge cycle for an adjustable time. The Wash Water Supply Valve will Close after an adjustable time after completion of the discharge cycle.
 - c) In the event of a High liquid level condition in the washer/compactor, all previous cycles stop immediately and the

- washer/compactor will commence a clearing cycle. The agitator will operate continuously and the spiral will cycle On and Off in the forward direction until the high level condition is cleared. After the high level is cleared, a normal wash cycle is initiated.
- d) In the event of a High-High liquid level condition in the washer/compactor, all previous cycles stop immediately, the Wash Water Supply Valve will Close, the agitator will Stop and the washer/compactor will commence a clearing cycle. The spiral will cycle On and Off in the forward direction until the high level condition is cleared. After the high level is cleared, a normal wash cycle is initiated after a time delay.
 - e) In the event of an agitator excessive motor current condition, an agitator reverse cycle will be initiated. The agitator motor will stop and then, following a time delay, the agitator will start in reverse and the spiral will start in forward operation. The spiral and agitator will run for adjustable time periods, then stop and remain off for an adjustable time duration. The agitator will then restart in the forward direction and if no overload condition is sensed for an adjustable time, the normal wash cycle will resume. If the overload condition still exists, the agitator reverse cycle will be repeated an adjustable number of times. If the overload condition still exists after these attempts, the agitator will shut down and an alarm will be activated. The spiral will continue to operate even if the agitator shuts down.
 - f) The spray water valve will be sequenced by the PLC independently from the wash cycle. The valve will repeat cycle through an adjustable off time duration and then through an adjustable on time duration.
- d. **Washer/Compactor Shutdown:** Hardwired interlocks to shut down the unit in all modes of operation and activate the Fail Alarm upon any of the following conditions:
- 1) Agitator Motor Overload: Stop agitator motor.
 - 2) Agitator High Motor Temperature: Stop agitator motor.
 - 3) Spiral Motor Overload: Stop the washer/compactor (spiral and agitator).
 - 4) Spiral Excessive Motor Current: Excessive momentary motor current will stop the washer/compactor (spiral and agitator).
 - 5) Opened Tank Door and Inspection Door: Stop the washer/compactor (spiral and agitator).
 - 6) Emergency Stop Pushbuttons: Stop the washer/compactor (spiral and agitator).
- e. **Agitator Excessive Motor Current:** Hardwired interlock to stop agitator and activate an alarm in HAND mode only. The spiral will continue to operate even if the agitator shuts down.
- f. **Indicating Lights:**
- 1) Compactor Running.
 - 2) Compactor Stopped.
 - 3) Agitator Motor Overload.
 - 4) Agitator Excessive Motor Current.
 - 5) Agitator High Motor Temperature.
 - 6) Spiral Motor Overload.
 - 7) Spiral Excessive Motor Current.

- 8) Opened Tank Door or Inspection Door.
 - 9) Washer/Compactor Emergency Stop.
 - 10) High Liquid Level in Washer.
 - 11) High-High Liquid Level in Washer.
 - 12) Compactor Fail Alarm.
3. SCADA:
- a. The washer/compactor Spiral HOA switch and Wash Water Supply valve HOA switch must be in AUTO position to enable SCADA control.
 - b. An operator shall be able to enter a run-time setpoint for the screenings conveyor (0 to 60 minutes, set at 15). When this time setpoint expires, the plant PLC shall issue a Washer/Compactor Start Command through data link.
 - c. Monitored and Alarmed Inputs: the following monitoring and alarm functions shall be provided for the washer/compactor through data link.
 - 1) Agitator HOA in AUTO.
 - 2) Agitator Running.
 - 3) Agitator Fail Alarm.
 - 4) Agitator Motor Overload Alarm.
 - 5) Agitator Excessive Motor Current Alarm.
 - 6) Agitator High Motor Temperature Alarm.
 - 7) Spiral HOA in AUTO.
 - 8) Spiral Running.
 - 9) Spiral Fail Alarm.
 - 10) Spiral Motor Overload Alarm.
 - 11) Spiral Excessive Motor Current Alarm.
 - 12) Spiral High Motor Temperature Alarm.
 - 13) Wash Water Supply Valve HOA in AUTO.
 - 14) Wash Water Supply Valve Open.
 - 15) Wash Water Supply Valve Closed.
 - 16) Spray Water Solenoid Valve Open.
 - 17) Opened Tank Door or Inspection Hatch Alarm.
 - 18) High Liquid Level in Washer Alarm.
 - 19) High-High Liquid Level in Washer Alarm.
 - 20) Washer/Compactor Emergency Stop Alarm.

E. Wash Water Supply Valve:

- 1. Field:
 - a. Actuator-mounted pushbuttons and switches.
- 2. Electrical Area: The following controls/devices shall be provided at the Screenings Washer/Compactor VCP:
 - a. HOA switch.
 - 1) HAND: OPEN and CLOSE pushbuttons control the valve.
 - 2) OFF.
 - 3) AUTO: Valve is controlled by the PLC in the Washer/Compactor VCP.
- 3. SCADA: See Screenings Washer/Compactor.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 13423
LEVEL FIELD INSTRUMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Level instruments installed permanently in field.
- B. Related Sections:
 - 1. Section 13481 - Instrument Index.

1.02 SUBMITTALS

- A. Product Data.
- B. Shop Drawings: Include the following:
 - 1. Connection diagram.
 - 2. Loop diagram.
- C. Manufacturer's Installation Instructions: Include mounting details.
- D. Certified factory and field calibration data sheets for instruments and devices that require set up and calibration.

1.03 QUALITY ASSURANCE

- A. Provide sensing probe mounting hardware.
- B. Manufacturer shall verify use of over 100 feet of 3 terminal coaxial connection cable for multi-point level control device.
- C. Manufacturer Qualifications: Manufacturer of proposed sludge level sensors of minimum 5 successful operating installation.

1.04 WARRANTY

- A. Submit manufacturer's standard warranty modified to comply with Contract Documents.

PART 2 PRODUCTS

2.01 ULTRASONIC LEVEL TRANSMITTERS

- A. Manufacturers: One of the following, or equal:
 - 1. Milltronics, HydroRanger or MultiRanger Plus with Echomax XPS transducer.
 - 2. Endress-Hauser, Prosonic FMU Series.
- B. Range: Refer to Section 13481 - Instrument Index.

- C. Accuracy: 0.3 percent of range.
- D. Output Signal: 4-20 mA current.
- E. Power Supply: 120 VAC, 60 hertz.
- F. Housing: NEMA Type 8, explosion-proof.
- G. Connection: 3-inch ANSI 300# flange.

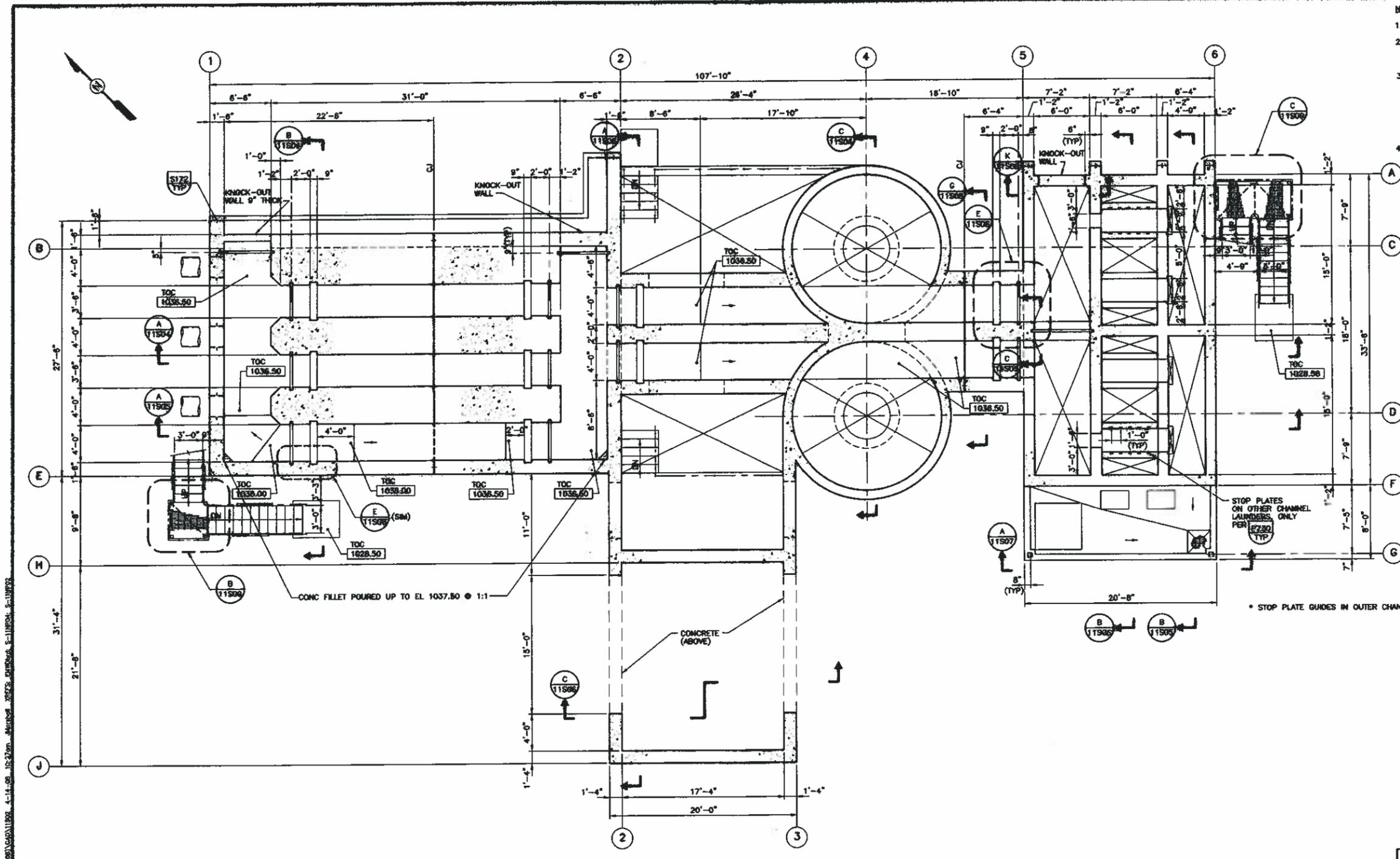
PART 3 EXECUTION

3.01 INSTALLATION

- A. As recommended by equipment manufacturer.

END OF SECTION

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- NOTES:
- FOR STRUCTURAL NOTES SEE DWG NO. 01009.
 - NOT ALL PIPE PENETRATIONS ARE SHOWN. REFER TO MECHANICAL DWGS FOR LOCATION AND SIZE OF PENETRATIONS.
 - PROVIDE PVC LINER PER 9270 AT:
 - A. ALL WET WALLS ABOVE EL. 1037.50, UNO.
 - B. ALL BOTTOM FADE OF ANY CONCRETE TOP SLAB.
 - C. INTERIOR FADE OF ALL LAUNDERS.
 - COORDINATE PIPE SUPPORT REQUIREMENTS WITH MECHANICAL DWGS.

A PLAN AT EL. 1036.50
 3/16" = 1'-0"
 S-111NFO2.5-111NFO4

RECORD DRAWING
 THESE RECORD DRAWINGS HAVE BEEN PREPARED BY PART ON INFORMATION PROVIDED BY OTHERS

NO.	DATE	INITIAL	DESCRIPTION	APP'D.

VERIFY SCALES
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 0 = 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY



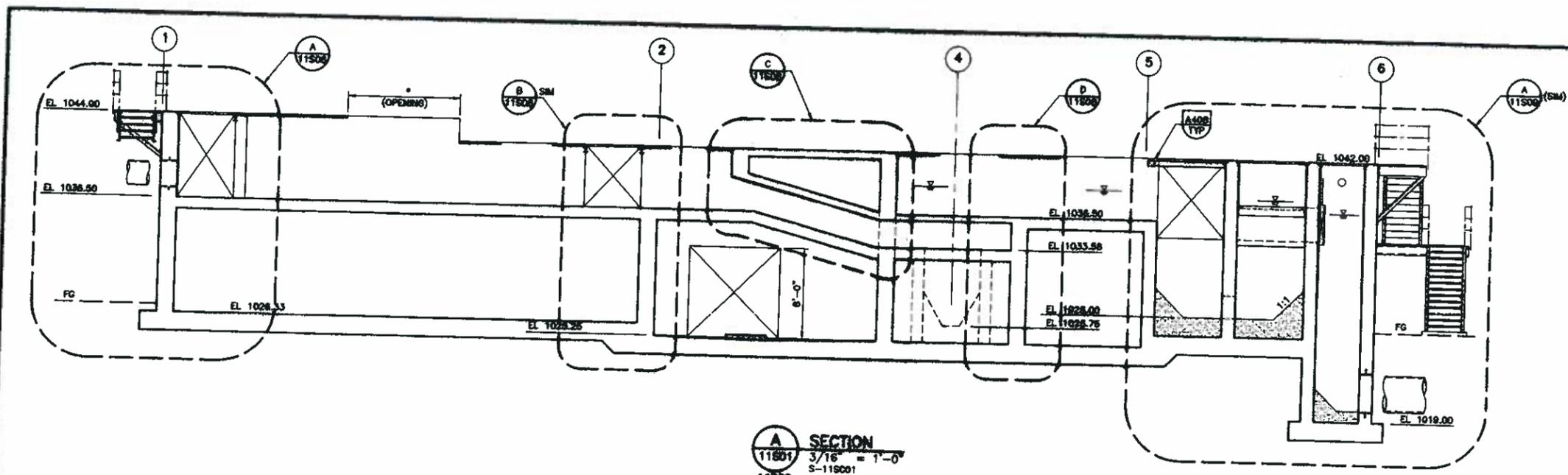
APPROVED BY: _____
 DIRECTOR OF ENGINEERING DATE: _____
 REFERENCES: _____

EASTERN MUNICIPAL WATER DISTRICT
 APPROVALS: _____
 PROJECT MANAGER: _____
 DESIGNER: _____
 CHECKED: _____
 SUBMITTED: _____

DESIGNED: SEM 08/00
 DRAWN: ROP 08/00
 CHECKED: CAG 09/00
 SUBMITTED: 09/00
 SCALE: AS SHOWN

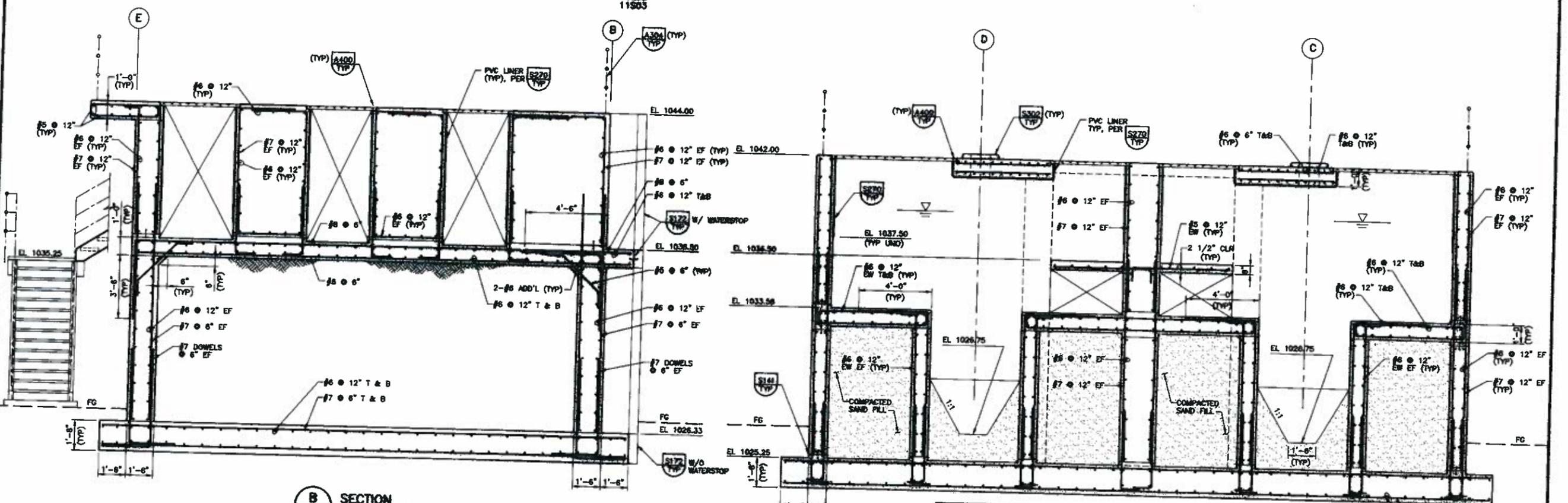
EASTERN MUNICIPAL WATER DISTRICT
 INDIAN COUNTY, CALIFORNIA
 TWENTY EXPANSION TO 12 MGD
 HEADWORKS
 BOTTOM PLAN

SHEET 22 OF 300
 11502



- NOTES:
- FOR STRUCTURAL NOTES SEE DWG NO. 01600.
 - NOT ALL PIPE PENETRATIONS ARE SHOWN. REFER TO MECHANICAL DWGS FOR LOCATION AND SIZE OF PENETRATIONS.
 - * COORDINATE DIMENSIONS WITH EQUIPMENT SUPPLIER.
 - COORDINATE PIPE SUPPORT REQUIREMENTS WITH MECHANICAL DWGS.

A SECTION
 11501 3/8" = 1'-0"
 11502 S-115001
 11503



B SECTION
 3/8" = 1'-0"
 11502 S-115002
 11503

C SECTION
 3/8" = 1'-0"
 11502 S-115003
 11503

RECORD DRAWING
 THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS



NO.	DATE	INITIAL	REVISIONS	DESCRIPTION	APP'D.
02/04	7/01	EX	RECORD DRAWING	FIELD CHANGES	



VERIFY SCALES
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 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

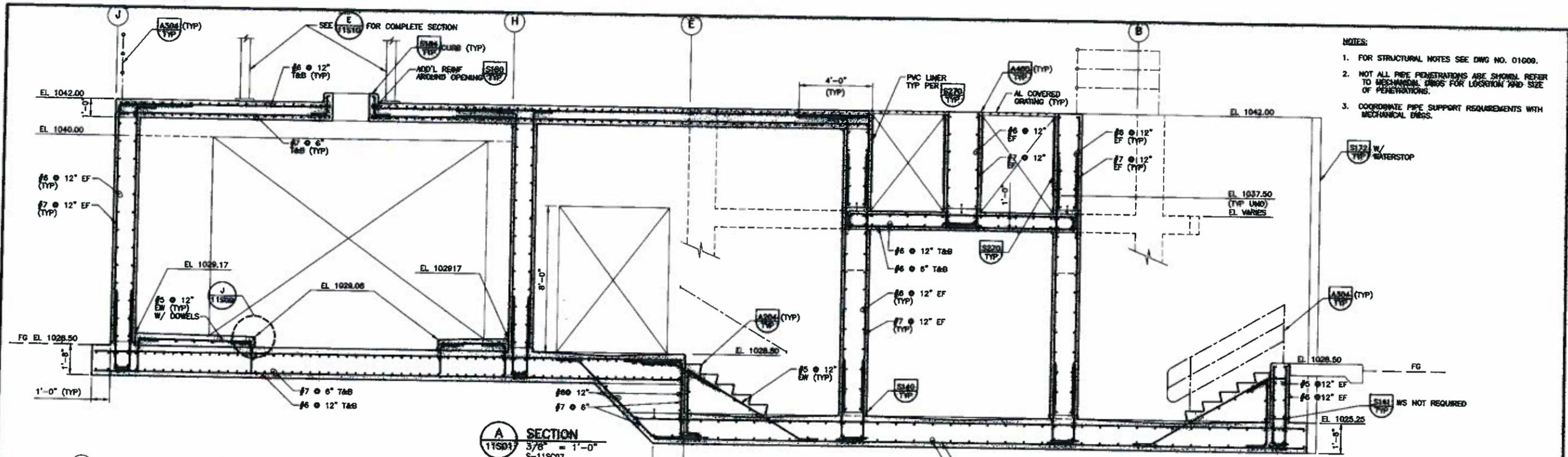


APPROVED BY:
 DIRECTOR OF DISTRICTS
 DATE: 7/01

DATE	BY	DESCRIPTION
08/00	SDM	DESIGNED
09/00	RCP	DRAWN
09/00		TRACED
08/00	CAC	CHECKED
08/00		PERMITTED
08/00		SCALE AS SHOWN

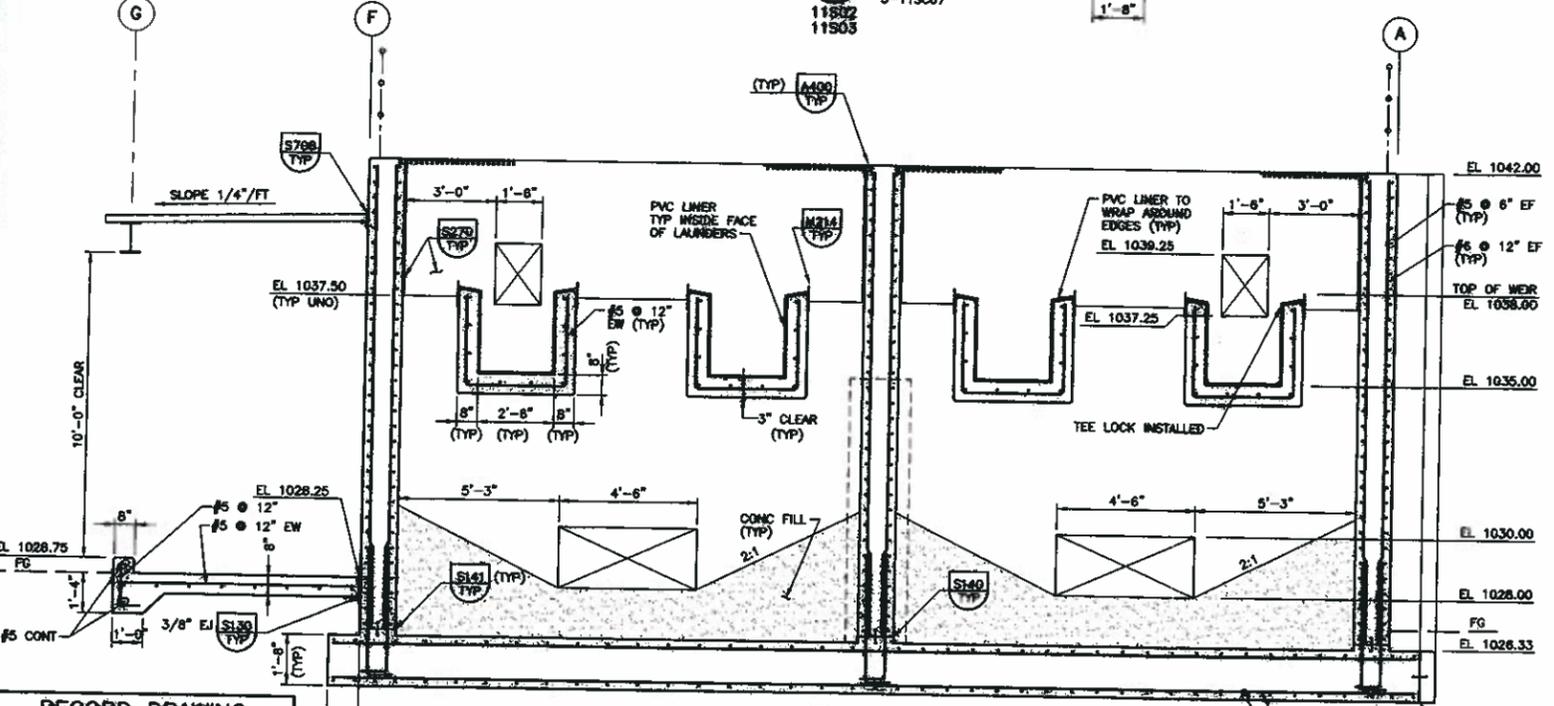
spec. 7045
EASTERN MUNICIPAL WATER DISTRICT
 INDIAN COUNTY, CALIFORNIA
TWO-STAGE EXPANSION TO 12 MGD
 HEADWORKS SECTIONS

DR. 22418
S.A. 34
NO. 00000
C.A. 00000
DATE 08/00
SCALE AS SHOWN
11504

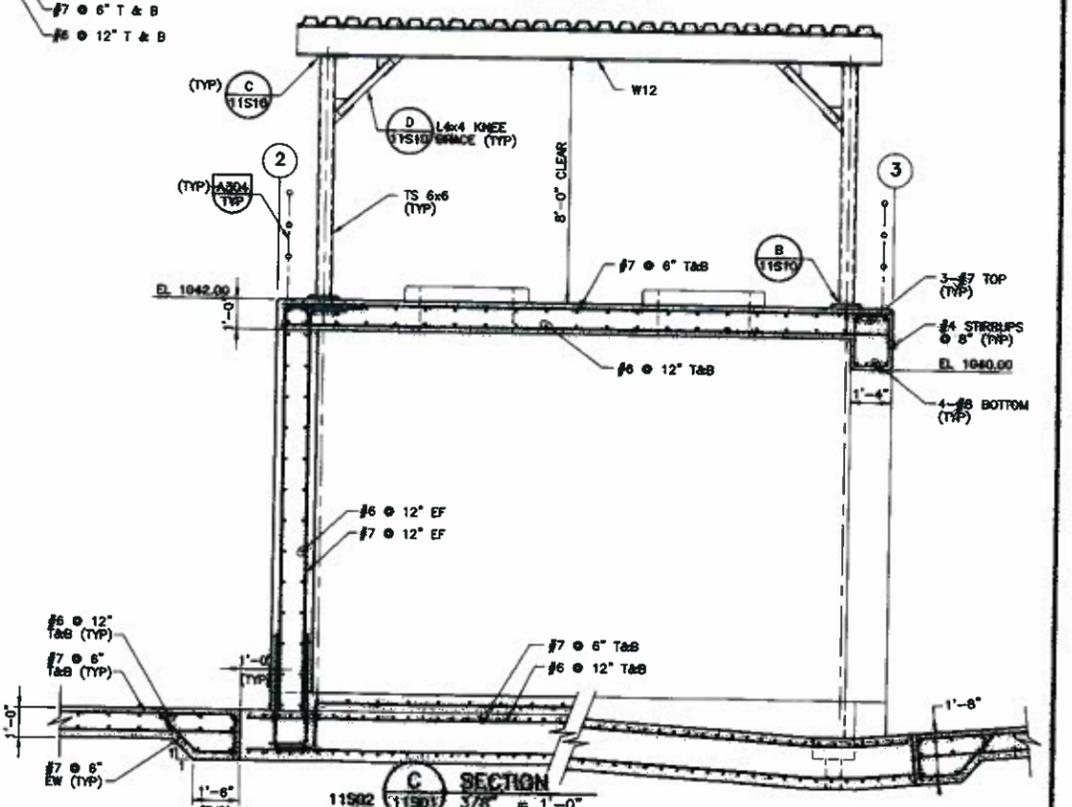


- NOTES:
1. FOR STRUCTURAL NOTES SEE DWG NO. 01609.
 2. NOT ALL PIPE PENETRATIONS ARE SHOWN. REFER TO MECHANICAL DWGS FOR LOCATION AND SIZE OF PENETRATIONS.
 3. COORDINATE PIPE SUPPORT REQUIREMENTS WITH MECHANICAL DWGS.

A SECTION
 11501 3/8" = 1'-0"
 11502 S-115007
 11503



B SECTION
 11501 3/8" = 1'-0"
 11502 S-115004
 11503



C SECTION
 11501 3/8" = 1'-0"
 11502 S-115008
 11503

RECORD DRAWING
 THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS

NO.	DATE	INITIAL	REVISIONS	DESCRIPTION	APP'VD.
02/04	EK		RECORD DRAWING		
7/01	RCP		FIELD CHANGES		
7/01	RCP		FOR AMENDMENT NO. 1		

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 = 1" (TYP)
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY



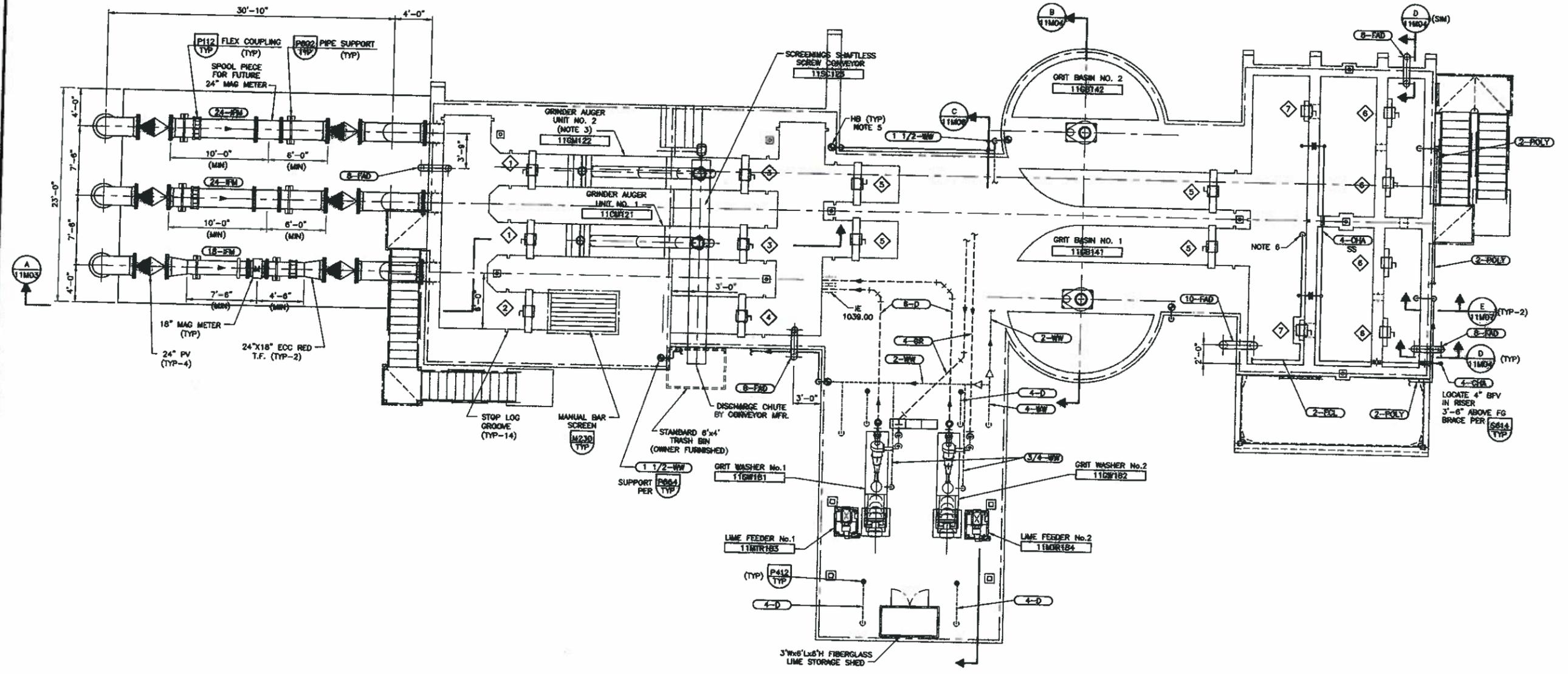
APPROVED BY:	DATE:	SCALE:
DIRECTOR OF ENGINEERING		AS SHOWN
REPRESENTATIVE		
APPROVALS:	DATE:	SCALE:
PROJECT ENGINEER		AS SHOWN
DESIGNER		
CHECKED	DATE:	SCALE:
AS SHOWN		AS SHOWN

EASTERN MUNICIPAL WATER DISTRICT
 ENGINEERING DIVISION
 TANK EXPANSION TO 12 MGD
 HEADWORKS SECTIONS
 U.S. 22848
 S.A. 34
 S.D. 00000
 C.O. 00000
 11503



- KEY NOTES:**
- 1 GATE 11MK01
 - 2 GATE 11MK02
 - 3 GATE 11MK03
 - 4 GATE 11MK04
 - 5 GATE 11MK05
 - 6 GATE 11MK06
 - 7 GATE 11MK07

- GENERAL NOTES:**
1. REFER TO DWG. 01G10 FOR GENERAL MECHANICAL AND HYAC NOTES.
 2. ALL PIPE PENETRATIONS SHALL BE PER UNO.
 3. RELOCATE EXISTING GRINDER AUGER NO. 2 FROM PLANT 1 HEADWORKS FOLLOWING PLANT 2 START-UP.
 4. FOR YARD PIPING THIS AREA SEE DRAWING 01Y10.
 5. INDICATES HOSE BIBB LOCATION W/ 1-1/2" PER PER TYP.
 6. TURN 2-FCL DOWN 90° TO DISCHARGE AT ELEVATION 1040.00



A TOP PLAN
3/16" = 1'-0"
M-11PP01

RECORD DRAWING
THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS

Government Printing Office
Cat. TOLL FREE
1-800-277-2600
780 MISSING DAYS BEFORE YOU DO
Last revised by: 10/1/00

NO.	DATE	INITIAL	REVISIONS	DESCRIPTION	APP'D.
1	02/04/99	EK	RECORD DRAWING	PER APPROVAL No. 1	



VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 = 1" (Scale)
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY



APPROVED BY:
DIRECTOR OF ENGINEERING
DATE: 3/16/01
REFERENCES:

APPROVALS	DATE
PROJECT ENGINEER	
DESIGNER	
CHECKED	
DATE SUBMITTED	
SCALE: AS SHOWN	

NO. 7845
EASTERN MUNICIPAL WATER DISTRICT
INSIDE COUNTY, CALIFORNIA
TWRWTF EXPANSION TO 12 MGD
HEADWORKS
TOP PLAN

LE. 22888
S.A. 58
E.O. 50480
C.O. 2222
COORD. 05/20/99
SHT. 46 OF 200
D-2234
11MG1

C. Response Plans

**Wastewater Treatment
Spill Notification**

EMWD Interim Wastewater Treatment Spill Notification

With the modification to the Master Permit (Order No. R8-2008-0008), the District has additional notifications and follow-up certification requirements for wastewater spills that occur at the treatment plants. For all wastewater spills, the appropriate Regional Board and Riverside County Department of Environmental Health (RivCo DEH) should be notified. For spills greater than 1,000 gallons (less than tertiary) wastewater or 50,000 gallons of tertiary, the Office of Emergency services must be notified. For spill that reach a storm drain or water way, the appropriate Regional Board, OES and RivCo DEH must be notified within 2 hours after becoming aware of a wastewater spill. In addition, the District needs to certify that the notifications have been made within 24 hours to the appropriate Regional Board.

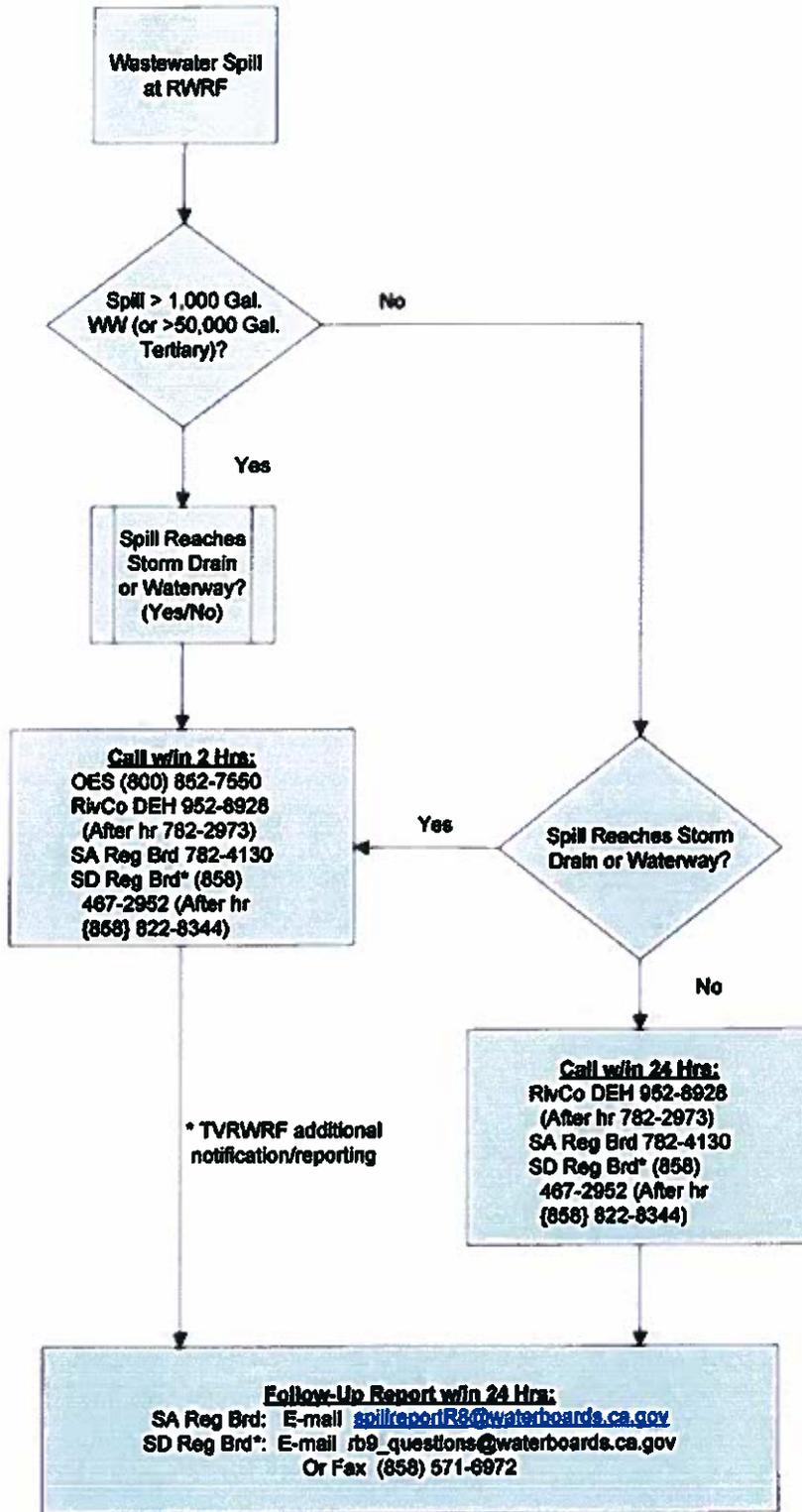
During normal business hours, Environmental and Regulatory Compliance (ERC) Division will be responsible for the initial notification as well as the follow-up certification requirements. However, for after hours, the on-call treatment plant operator will be responsible for the initial notification of a wastewater spill with ERC responsible for the follow-up certification. On the weekend (Friday evening to Monday morning) and holidays, the treatment plant operator/supervisor will be responsible for the both the initial notification and follow-up notification certification. The attached form (EMWD Follow-Up Notification Certification) needs to be filled out and e-mailed to the appropriate Regional Board. ERC will follow-up either with a letter or include with the monthly SMR. The on-call administrator (and IOC) should be notified after hours, weekends and holidays of any spills.

Treatment Plant Spill Notification				
Condition	OES	RivCo DEH	Reg Brd	Follow-up
Greater than (>) 1,000 gallons	2 hours	24 hours	24 hours	24 hours
Reach storm drain drainage or surface water	2 hours	2 hours	2 hours	24 hours
Less than (<) 1,000 gallons		24 hours	24 hours	24 hours

Code	Reporting Agency	Contact	Phone#	After Hour (Call) Phone #
ERC	Environmental and Regulatory Compliance	Al Javier	Ext. 6327	(909) 229-3063
		Ed Filadelfia	Ext. 4318	(951) 533-9001
		Doug Edwards	Ext. 4511	(760) 845-3431
		Jayne Joy	Ext. 6241	(760) 644-2806
		Admin	Ext. 6252	
OES	Office of Emergency Service		(800) 852-7550	(800) 852-7550
RivCo DEH	Riverside County Department of Environmental Health	Jim Gillis	955-8928	782-2973
			955-8980	782-2974
		Chuck Strey	955-8982	
Reg Brd	Santa Ana RWQCB		782-4130	782-4130
	E-mail: spillreportR8@waterboards.ca.gov		Fax: (951) 781-6288	
	San Diego RWQCB *		(858) 467-2952	(858) 822-8344
	E-mail: rb9_questions@waterboards.ca.gov		Fax: (858) 571-6972	

* TV RWRf also reports to San Diego RWQCB

**EMWD
RWRf Wastewater Spill
Notification**



Follow-Up Notification Certification

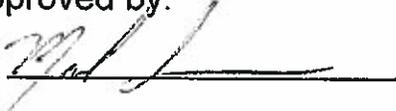
Eastern Municipal Water District
Follow-Up Notification Certification

1. REGIONAL BOARD NOTIFIED: S.D. RWQCB
CONTACT: *IF message*
DATE (MM/DD/YY): *12/26/09* TIME (HH:MM): 07:30
2. REPORTED BY: *James King*
CONTACT PHONE: 951-928-3777 x7100
3. RELEASE START: DATE (MM/DD/YY): *12/25/09* TIME (HH:MM): *13:30 -*
RELEASE END: DATE (MM/DD/YY): *12/26/09* TIME (HH:MM): *06:00*
~ 14:00
4. TYPE OF RELEASE (ex. Secondary): *HEADWORKS Inflow*
RELEASE VOLUME (Gallons): *~ > 1M gal*
VOLUME RECOVERED (Gallons):
VOLUME RELEASE TO ENVIRONMENT (Gallons):
5. FACILITY NAME: *TVRWRP*
STREET ADDRESS: *42565 AVENIDA ANARIBO*
CITY: *Temecula CA 92590*
6. RELEASE CAUSE - SHORT DESCRIPTION OF CAUSE: *410 Comm fail*
7. CORRECTIVE ACTION: *Containment w/ sand bags*
8. NAME OR DESCRIPTION WHERE THE OVERFLOW REACHED A STORM DRAIN OR RECEIVING WATER (IF NONE, TYPE NONE).
TVRWRP Rain (88000)
9. RIVERSIDE COUNTY ENVIRONMENTAL HEALTH NOTIFIED: *Cal. EMA*
CONTACT: *Cal. EMA Envir. Health*
DATE (MM/DD/YY): *12/26/09* TIME (HH:MM): *0649 - NO ANSWER OR ANSWERING machine*
0833 " " " " "
10. OES NOTIFIED: (IF APPLICABLE):
OES#: *Cal. EMA*
DATE (MM/DD/YY): *12/26/09* TIME (HH:MM): *0649*

Sanitary Sewer Overflow Response Plan

EASTERN MUNICIPAL WATER DISTRICT

PERRIS, CALIFORNIA

Maintenance Services Standard Operating Procedures Manual	Date: September 19, 2008
Subject: Sanitary Sewer Overflow Response Plan (SSORP)	Approved by: 

PURPOSE

The purpose of the Sanitary Sewer Overflow Response Plan (SSORP) is to minimize the impact of sanitary sewer overflows (SSO's) to the public and the environment. All sanitary sewer overflows must be responded to with minimal delay to begin the necessary steps to mitigate the overflow. Spill containment will be our highest priority, taking into consideration public health concerns. This document will be the guideline and standard operating procedures to follow in the event of a sanitary sewer overflow. This document will be reviewed on a regular basis and changes will be made when they are necessary.

1. To establish standard operating procedures for District Wastewater Collections staff in the event of a sanitary sewer overflows (SSO).
2. To provide clear and concise notification procedures to the appropriate District staff that will assist them in reporting SSO's to the appropriate regulatory agencies.

AUTHORITY

1. Assistant General Manager Operations and Maintenance
2. Director of Maintenance
3. Wastewater Collection Manager

POLICY

1. It is the policy of the District to comply with all regulatory agency requirements in regards to reporting and cleanup procedures in the event of a SSO.
2. It is the policy of the Wastewater Collection Division to report all spills regardless of size or origin to the Integrated Operations Center as soon as possible.

DEFINITIONS

1. SSO (Sanitary Sewer Overflow)
2. IOC (Integrated Operations Center)
3. SSMP (Sewer System Management Plan)
4. ERC (Environmental and Regulatory Compliance)

NOTIFICATION PROCEDURES

1. The Wastewater Collection crew will respond to all reported spills with the appropriate equipment needed to eliminate and contain the SSO.
2. After the Wastewater Collection staff arrives at the location of a SSO, the person in charge for the Wastewater Collection Division will report to the IOC and give a condition assessment. After the IOC receives the information on the SSO, they will start the notification procedures in accordance with the District's notification procedures.

SPILL RESPONSE PROCEDURES

1. During working hours, Wastewater Collection staff will respond to the site of any reported spills or overflows with the Spill Response Trailer and a combination vacuum/hydro flushing machine.
2. During non-working hours, the Wastewater Collection Division will have three properly trained employees on stand-by ready to respond to a SSO or other emergency. Stand-by crews will be in route to the reported location within 20 minutes of notification from the IOC.
3. While performing stand-by duty, Wastewater Collection staff will take a District vehicle home and respond directly to the source of the problem or SSO.

4. The stand-by person in charge will assess the problem and begin to direct the crew as how to correct the problem or eliminate the overflow.
5. If the spill is from a private lateral, the person in charge will contact the IOC and obtain a 124# to bill the private party so the District can be reimbursed for all costs associated with the SSO.
6. If the problem has evolved to a situation that emergency contractor support is needed for repair or traffic control, we will use the following approved contractors:

United Rentals (Traffic Control)

Bob Myers (951) 471-2890

CP Construction (Line repair and related services)

Mike Pfister (909) 266-6595

Russell Pfister (909) 229-7033

Downstream Services (Line video and mainline services)

Jake Jacobsen (760) 746-2544

EL-CO Construction (Line repair and related services)

John Wiles (951) 887-1013

(951) 887-2610

White House (Pumping services)

Tim Blackburn (951) 943-1550

Wright Pumping (Pumping services)

(951) 654-4840

Interstate Sweeping (Street Sweeping)

Dispatcher (800)-310-3002

Innerline Engineering (Line video and mainline services)

Jim Aanderud (800) 209-0000

Morr-Is-Tested (Line video and mainline services)

Jeff Cravens (714) 713-9411

EMERGENCY TRAFFIC CONTROL

In the event the spill is located in a high traffic area, the District will contact the respective municipality for assistance. The following is a list of contacts for each city within the District's sewer service area. This list will be reviewed and updated as needed.

The City of Temecula

Brad Buron

Maintenance Superintendent – Public Works

During Working Hours: (951) 694-6411

After Hours: Temecula Police Department (951) 696-3000

The City of Murrieta

Mike Brooks

Maintenance Superintendent

During Working Hours: (951) 304-9273

After Hours: Murrieta Police Department (951) 696-3615

The City of Perris

Kirk Cloyd

Public Works Superintendent

During Working Hours: (951) 657-3280

Pager Number (951) 830-8599

Emergency Answering Service: (951) 359-2987

After Hours: Perris Police Department (951) 955-2444

The City of Hemet

Kenneth Anderson

Street Department Supervisor

During Working Hours: (951) 765-3712

After Hours: Hemet Police Department (951) 765-2400

The City of San Jacinto

(Contract Employee)

Water and Sewer Division Supervisor

During Working Hours: (951) 487-7381

After Hours: San Jacinto Police Department (951) 654-2702

The City of Moreno Valley

Craig Neustaedter

Director of Transportation

During Working Hours: (951) 413-3140

After Hours: Moreno Valley Police Department (951) 275-2444

EMERGENCY RESPONSE EQUIPMENT

Vehicles

#106 Vactor Combination unit
#105 Vac-Con Combination unit
#438 Vactor PD unit
#38 Vactor Combination unit
#384 Vactor Combination unit
#599 High pressure rodder
#165 Spill response trailer
#119 Easement cleaner
#290 6" Trash pump
#528 6" Trash pump
#112 6" Hose reel trailer & 1,200' of hose

Equipment

2" Trash pump & 100' of hose
3" Trash pump & 100' of hose
(3) Lateral cameras with mainline capabilities
1 Jet camera

BYPASS PROCEDURES

If proper flow is not restored within 5 minutes it is critical that the bypass procedures are followed immediately.

Bypass by pumps

1. Locate the nearest manhole that can accept the additional flow.
2. Set up the 3-inch pump for collection lines and the 6-inch pump for transmission lines. This is just a guideline; larger pumps may be needed. The pump discharge hose should be secured or placed far enough into the manhole that it cannot come out during pumping. The pump and pump hose should be protected from traffic by barricades. If additional pumps are needed, they may be obtained by contacting the Mechanical Services Division or the Fleet Services Division.

Bypass by vacuum truck

1. Bypass should be conducted with a vacuum truck by pulling water from the overflowing manhole and discharging it into a downstream manhole.

CONTAINMENT PROCEDURES

Containment of the SSO will be completed as soon as possible. The District's crew will attempt to keep the SSO in as small an area as possible. If reasonable, the crew will attempt to keep the SSO in the street and out of the storm drain. To insure that the SSO is contained, the crew will use the following general methods:

1. Block the storm drain openings with rubber blankets or divert the flow with sand or soil. If reasonable, we should keep the flow contained on the street.
2. Should the overflow take place in an area not normally accessible to the public (i.e. fields, etc.), the crew will use any reasonable means to pool the flow in that area for recovery.
3. Should the flow be too much to be contained on the street and is identified as a danger to the public, the crew will allow the flow to enter the storm drain or catch basin. The crew will make every reasonable attempt to dam up the spill in the storm drain or catch basin and recover it from that point.

REPORTING AND NOTIFICATION

Reporting and notification will be given to the proper authorities per the Environmental and Regulatory Compliance Division's SSORP by the IOC. The District's ERC Division will be responsible for all reporting to local and state regulatory agencies.

During working hours, reporting and notification will be made by the IOC by contacting ERC. In addition, the **Community Involvement Division will be contacted regardless of the size of the SSO.**

After hours, the person in charge of the stand-by crew will notify the IOC that there has been a SSO. The IOC will then contact the **Administrator on call**, on-duty personnel for the Community Involvement Division and the on-duty personnel for ERC.

The Wastewater Collections Division staff will be responsible for submitting a Daily Shift report, SSO Field report, and any photographs taken to the Wastewater Collections Supervisor or Manager by the beginning of the next shift. This information will be supplied to ERC as soon as possible. A copy of all items related to the SSO will be kept on file with the Collection System Supervisor for two calendar years.

POSTING PROCEDURES

1. Public health and safety is of great concern to this division and the District. We will do everything reasonable to ensure that areas of contamination are posted to warn the public of the potential hazards.
2. Posting locations of contamination will be done in all cases where the ground is still wet or pooled water is present.
3. Signs will be placed in locations with high visibility so that they can be seen from all routes that the public might take to enter an area.
4. Signs will remain posted for a period of not less than five days unless directed by the Department of Environmental Health. Laboratory tests may be conducted to indicate appropriate site remediation has taken place.

RESTORATION PROCEDURES

We will make every effort to restore the environment to the condition that existed before the SSO occurred by using the following procedures:

1. If the SSO occurred in the street, we will apply bleach to the affected area, wash down, recover wash water, and use a street sweeper to clean the asphalt.
2. Collect and dispose of any standing or pooled sewage that is accessible to the public.
3. Recover any sewage possible within storm drains/channels, curb, gutters, and culverts.
4. Clear surrounding area of paper, solids, and any other signs of a SSO.
5. We will replace vegetation, sidewalks, asphalt, fencing, or any other items that were damaged as a result of the SSO or damage caused by the crews working to restore service.

POST SSO DEBRIEFING

Following all SSO's the Wastewater Collection staff will conduct a meeting and discuss:

1. What happened?
2. What was the cause?
3. Does the line need to be televised?
4. What could we have done better?
5. What follow-up is needed?
6. How can we prevent it from occurring again?
7. Does the SSORP need to be revised?

D. Influent Data

Analytical Results Report



Lab ID:	E100224014
Sample ID:	Influent - TV RWRF
Company:	RWRF-Temecula Valley
Profile:	WED-TV
Collect Date:	2/24/2010
Collected By:	
Received Date:	2/24/2010

Parameter	Result	Units	Report Limit	Analyzed	By	Method
NUTRIENTS						
Ammonia (NH3-N)	35	mg/L	2.0	02/24/10	MK	NH3, SM4500 NH3 C
TKN - Total Kjeldahl Nitrogen	53	mg/L	5.0	02/24/10	MK	TKN, SM4500-NH3 C
Nitrite as N	0.18	mg/L	0.01	02/24/10	SD	NO2 Disc, SM 4500 NO2 B
Total Organic Nitrogen	18	mg/L	5	02/24/10	MK	TKN, SM4500-NH3 C
CHEMISTRY						
BOD	390	mg/L	2	02/24/10	NS	BOD, SM 5210B
Nitrate as N	<0.1	mg/L	0.1	02/24/10	LP	Anions, EPA 300.0
Nitrate-NO3	<0.40	mg/L	0.40	02/24/10	LP	Anions, EPA 300.0
Total Inorganic Nitrogen	35	mg/L	3.0	02/24/10	LP	Anions, EPA 300.0
PHYSICAL PARMs						
Total Suspend Solids	260	mg/L	3	02/24/10	SD	TSS, SM 2540 D
Total Nitrogen	53	mg/L		03/02/10	CG	Total Nitrogen

Catherine Graden



Report Date: Wednesday, February 24, 2010
Received Date: Thursday, February 18, 2010
Received Time: 4:40 pm
Turnaround Time: Normal

Client: Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570

Phone: (951) 928-3777
FAX: (951) 928-6177

Attn: Ken Marshall

Project: E100218011

P.O.#:

Certificate of Analysis

Work Order No: 0818038-01
Sampled by: Client

Sample ID: E100218011
Sampled: 02/18/10 00:00

Matrix: Water
Sample Note: TV Influent

Analyte	Result	Qualifier	Units	RL	Dilution	Method	Prepared	Analyzed	Batch
MBAS.....	7.8		mg/l	1.0	1x20	SM 5540 C	02/18/10 17:20	02/18/10 17:37	W080737

Case Narrative:



Authorized Signature

Contact: Kim G Tu (Project Manager)

ELAP # 1132
LACSD # 10143
NELAC # 04229CA



The results in this report apply to the samples analyzed in accordance with the chain of custody document. Weck Laboratories certifies that the test results meet all requirements of NELAC unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Notes:

The Chain of Custody document is part of the analytical report.

Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

Dil = The total dilution factor is expressed as a multiplication between the preparation dilution factor (a) and the analysis dilution factor (b) as "a x b". (a) and (b) are indicated as whole numbers with rounding up for ≥ 0.5 and off for < 0.5

ND = NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL)

Sub = Subcontracted analysis, original report enclosed.

An Absence of Total Coliform meets the drinking water standards as established by the State of California Department of Health Services.

The Reporting Limit (RL) is referenced as laboratory's Practical Quantitation Limit (PQL).

For Potable water analysis, the Reporting Limit (RL) is referenced as Detection Limit for reporting purposes (DLRs) defined by EPA.

If sample collected by Weck Laboratories, sampled in accordance to lab SOP M18002

Flags for Data Qualifiers

Lab#: 0818038-01

Eastern Municipal Water District
 Contracted Laboratory Analysis Request Form



OB18038

WECK
 14859 East Clark Avenue
 City of Industry, CA 91745
 626 336-2139

Workorder #: E1000537
 Date Sampled: FEB 18, 2010
 Requested By: RWRP-Temecula Valley
 Prepared By: Suzanne Watson

Purchase Order #: 53439

Location	EMWD Lab ID #	Analysis Requested	Account #	# Bottles
TV INFLUENT	E100218011	MBAS, EPA 425.1		1

Remarks:

Call the Water Quality Dept., Laboratory Division, at (951) 928-3777, ext. 6278 if you have any questions regarding this request.

**SAMPLE
 PICK-UP**

Carrier Release

Chain of Custody Attached? Yes No

RELINQUISHED BY	DATE	TIME	RECEIVED BY
<i>[Signature]</i>	2/18/10	13:05	<i>[Signature]</i>
<i>[Signature]</i>	2/18/10	440	<i>[Signature]</i> 2/18/10 1640

Thursday, February 18, 2010 10:24:07 AM

262

Eastern Municipal Water District
Contracted Laboratory Analysis Request Form



Test Request Details

MBAS, EPA 425.1
Foaming Agents

Eastern Municipal Water District
Temecula Valley RWRf Influent
Biochemical Oxygen Demand (BOD) - mg/L

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	280	350	250	180	270	170	230	260	370	340	280	230
2	280	280	270	220	430	190	290	290	270	190	210	240
3	380	290	350	260	410	310	370	320	240	270	230	280
4	380	240	220	240	240	340	250	310	310	180	260	220
5	290	180	230	390	340	390	240	170	270	220	210	280
6	230	270	280	250	400	260	400	160	260	290	190	140
7	200	370	250	200	260	210	280	190	260	250	230	
8	360	220	200	250	310	340	270	480	360	320	230	150
9	450	200	250	280	240	290	340	190	300	270	280	130
10	370	140	250	160	330	360	480	340	240	240	180	230
11	240	250	230	240	380	150	340	330	270	250	230	210
12	250	240	190	300	340	310	270	160	310	200	200	300
13	240	320	230	280	270	210	180	250	300	180	130	230
14	270	290	310	240	310	390	280	240	220	210	220	250
15	220	300	270	190	280	310	250	270	190	190	190	260
16	270	300	230	280	290	280	240	240	290	290	190	220
17	380	170	290	280	330	160	150	210	350	300	220	200
18	290	180	260	300	410	160	360	290	190	430	220	280
19	280	210	210	230	370	360	240	330	220	210		260
20	160	330		360	370	260	220	210	230	330	190	290
21	290	240	360	270	210	250	140	190	240	140	200	350
22	240	240	230	330	250	300	230		280	220	260	480
23	250	180	270	240	370	260	110	260	300	250	250	260
24	260	270	260	91	250	250	240	180	250	310	230	300
25	280	270	290	160	210	320	180	250	360	340	240	340
26	250	320	280	180	180	180	220	280	350	480		350
27	150	230	330	220	380	300	240	320	290	260	330	274
28	210	210	170	380	250	230	300	260	260	220	250	280
29	320		230	380	400	140	130	360	210	210	270	302
30	340		160	270	240	260	230	300	180	208	270	250
31	410		260		220		250	240		280		514
Average	285	253	254	255	308	265	256	263	272	261	228	270
Minimum	150	140	160	91	180	140	110	160	180	140	130	130
Maximum	450	370	360	390	430	390	480	480	370	480	330	514
Count	31	28	30	30	31	30	31	30	30	31	28	30

Eastern Municipal Water District
Temecula Valley RWRf Influent
January 2009

Date	Sample ID	Ammonia-N		Chloride		Iron		Manganese		Sulfate		TDS		TIN
		NH3-N	mg/L	Cl	mg/L	Fe	ug/L	Mn	ug/L	SO4	mg/L	mg/L	mg/L	
01/04/09	E09010503-01		29											
01/06/09	E09010703-01		33											34
01/08/09	E09010903-01		35											
01/11/09	E09011203-01		30											
01/12/09	E09011315-03		31			960		61				730		31
01/13/09	E09011403-01		35											35
01/15/09	E09011603-01		32											
01/18/09	E09011903-01		36											
01/20/09	E09012103-01		31											
01/22/09	E09012303-01		33											
01/25/09	E09012603-01		34											
01/27/09	E09012803-01		21											22
01/28/09	E09012910-01					360								
01/29/09	E09013003-01		34											
	Minimum		21	NA	NA	360		61		NA	NA	730		22
	Average		32	NA	NA	660		61		NA	NA	730		31
	Maximum		36	NA	NA	960		61		NA	NA	730		35
	Count		13	NA	NA	2		1		NA	NA	1		4

**Eastern Municipal Water District
Temecula Valley RWRF Influent
February 2009**

Date	Sample ID	Ammonia-N	Chloride	Iron	Manganese	Sulfate	TDS	TIN
		NH3-N mg/L	Cl mg/L	Fe ug/L	Mn ug/L	SO ₄ mg/L	mg/L	mg/L
02/01/09	E09020203-01	34						
02/03/09	E09020403-01	30						30
02/05/09	E09020603-01	34						
02/08/09	E09020903-01	34						
02/09/09	E09021007-03	29		520	67		770	29
02/10/09	E09021103-01	31						31
02/12/09	E09021303-01	32						
02/17/09	E09021803-01	30						30
02/19/09	E09022003-01	32						
02/22/09	E09022303-01	32						
02/24/09	E09022503-01	31						31
02/26/09	E09022703-01	33						
Minimum		29	NA	520	67	NA	770	29
Average		32	NA	520	67	NA	770	30
Maximum		34	NA	520	67	NA	770	31
Count		12	NA	1	1	NA	1	5

**Eastern Municipal Water District
Temecula Valley RWRf Influent
March 2009**

Date	Sample ID	Ammonia-N	Chloride	Iron	Manganese	Sulfate	TDS	TIN
		NH3-N mg/L	Cl mg/L	Fe ug/L	Mn ug/L	SO4 mg/L	mg/L	mg/L
03/01/09	E09030203-01	33						
03/03/09	E09030403-01	31						31
03/05/09	E09030603-01	28						
03/08/09	E09030903-01	32						
03/09/09	E09031007-03	34				750	34	
03/10/09	E09031103-01	33						33
03/12/09	E09031303-01	32						
03/15/09	E09031603-01	32						
03/17/09	E09031803-01	32						33
03/19/09	E09032003-01	32						
03/22/09	E09032303-01	37						
03/24/09	E09032503-01	34						34
03/26/09	E09032703-01	30						
03/29/09	E09033003-01	26						
03/31/09	E09040103-01	38						38
Minimum		26	NA	NA	NA	NA	750	31
Average		32	NA	NA	NA	NA	750	34
Maximum		38	NA	NA	NA	NA	750	38
Count		15	NA	NA	NA	NA	1	6

**Eastern Municipal Water District
 Temecula Valley RWRF Influent
 April 2009**

Date	Sample ID	Ammonia-N	Chloride	Iron	Manganese	Sulfate	TDS	TIN
		NH3-N mg/L	Cl mg/L	Fe ug/L	Mn ug/L	SO ₄ mg/L	mg/L	mg/L
04/02/09	E09040303-01	36						
04/05/09	E09040603-01	37						
04/07/09	E09040803-01	34						35
04/09/09	E09041003-01	34						
04/12/09	E09041303-01	34						
04/13/09	E09041407-03	30						30
04/14/09	E09041503-01	32				730		32
04/16/09	E09041703-01	36						
04/19/09	E09042003-01	35						
04/21/09	E09042203-01	31						32
04/23/09	E09042403-01	54						
04/26/09	E09042703-01	29						
04/28/09	E09042903-01	36						36
Minimum		29	NA	NA	NA	NA	730	30
Average		35	NA	NA	NA	NA	730	33
Maximum		54	NA	NA	NA	NA	730	36
Count		13	NA	NA	NA	NA	1	5

**Eastern Municipal Water District
 Temecula Valley RWRF Influent
 May 2009**

Date	Sample ID	Ammonia-N	Chloride	Iron	Manganese	Sulfate	TDS	TIN
		NH3-N mg/L	Cl mg/L	Fe ug/L	Mn ug/L	SO ₄ mg/L	mg/L	mg/L
05/06/09	E090506015	36						
05/08/09	E090508012	38						
05/11/09	E090511023	38						
05/18/09	E090518012	35						
05/19/09	E090519019	35		730	62		764	
05/20/09	E090520015	34						
05/22/09	E090522010	34						
05/27/09	E090527005	38						
05/29/09	E090529014	41						
	Minimum	34	NA	730	62	NA	764	NA
	Average	37	NA	730	62	NA	764	NA
	Maximum	41	NA	730	62	NA	764	NA
	Count	9	NA	1	1	NA	1	NA

**Eastern Municipal Water District
 Temecula Valley RWRf Influent
 June 2009**

Date	Sample ID	Ammonia-N	Chloride	Iron	Manganese	Sulfate	TDS	TIN
		NH3-N mg/L	Cl mg/L	Fe ug/L	Mn ug/L	SO ₄ mg/L	mg/L	mg/L
06/01/09	E090601028	38						
06/03/09	E090603011	33						
06/05/09	E090605012	39						
06/08/09	E090608033	41						
06/09/09	E090609018	42		1,040	51		690	42
06/10/09	E090610011	39						39
06/12/09	E090612011	41						
06/15/09	E090615014	37						
06/17/09	E090617011	37						37
06/19/09	E090619011	46						
06/22/09	E090622025	41						
06/24/09	E090624011	34						35
06/26/09	E090626011	39						
06/29/09	E090629012	43						
Minimum		33	NA	1040	51	NA	690	35
Average		39	NA	1040	51	NA	690	38
Maximum		46	NA	1040	51	NA	690	42
Count		14	NA	1	1	NA	1	4

**Eastern Municipal Water District
 Temecula Valley RWRf Influent
 July 2009**

Date	Sample ID	Ammonia-N	Chloride	Iron	Manganese	Sulfate	TDS	TIN
		NH3-N mg/L	Cl mg/L	Fe ug/L	Mn ug/L	SO4 mg/L	mg/L	mg/L
07/01/09	E090701033	42						
07/06/09	E090706038	35						
07/08/09	E090708011	28						28
07/10/09	E090710011	40						
07/13/09	E090713069	37						
07/15/09	E090715017	37	160	630	53	150	710	
07/17/09	E090717026	28						
07/20/09	E090720027	52						
07/22/09	E090722027	56						
07/24/09	E090724011	38						
07/27/09	E090727027	61						
07/29/09	E090729011	31						
07/31/09	E090731011	53						
Minimum		28	160	630	53	150	710	28
Average		41	160	630	53	150	710	28
Maximum		61	160	630	53	150	710	28
Count		13	1	1	1	1	1	1

**Eastern Municipal Water District
 Temecula Valley RWRF Influent
 August 2009**

Date	Sample ID	Ammonia-N		Chloride		Iron		Manganese		Sulfate		TDS	TIN
		NH3-N	mg/L	Cl	mg/L	Fe	ug/L	Mn	ug/L	SO ₄	mg/L		
08/03/09	E090803013		36										
08/05/09	E090805011		35										35
08/07/09	E090807011		39										
08/10/09	E090810029		37										
08/12/09	E090812011										700		
08/19/09	E090819011		26										26
08/21/09	E090821015		21										
08/26/09	E090826011		40										40
	Minimum		21		NA		NA		NA		NA	700	26
	Average		33		NA		NA		NA		NA	700	34
	Maximum		40		NA		NA		NA		NA	700	40
	Count		7		NA		NA		NA		NA	1	3

**Eastern Municipal Water District
 Temecula Valley RWRF Influent
 October 2009**

Date	Sample ID	Ammonia-N	Chloride	Iron	Manganese	Sulfate	TDS	TIN
		NH3-N mg/L	Cl mg/L	Fe ug/L	Mn ug/L	SO ₄ mg/L	mg/L	mg/L
10/02/09	E091002011	38						
10/05/09	E091005033	25						
10/07/09	E091007018	33						
10/09/09	E091009012	34						
10/14/09	E091014013	30			51		660	
10/16/09	E091016011	27						
10/21/09	E091021013	32						33
10/23/09	E091023011	30						
10/26/09	E091026031	38						
10/28/09	E091028013	31						31
	Minimum	25	NA	NA	51	NA	660	31
	Average	32	NA	NA	51	NA	660	32
	Maximum	38	NA	NA	51	NA	660	33
	Count	10	NA	NA	1	NA	1	2

**Eastern Municipal Water District
 Temecula Valley RWRf Influent
 November 2009**

Date	Sample ID	Ammonia-N	Chloride	Iron	Manganese	Sulfate	TDS	TIN
		NH3-N mg/L	Cl mg/L	Fe ug/L	Mn ug/L	SO ₄ mg/L	mg/L	mg/L
11/04/09	E091104013	40						40
11/06/09	E091106012	35						
11/13/09	E091113011	31						
11/16/09	E091116012	36						
11/17/09	E091117018			620	43			
11/18/09	E091118015	30		900	54		830	31
11/19/09	E091119010				49			
11/20/09	E091120010	36			46			
11/21/09	E091121007				46			
11/22/09	E091122007				43			
11/23/09	E091123012	35			47			
11/24/09	E091124018				45			
11/25/09	E091125014	33						33
11/30/09	E091130012	39			46			
Minimum		30	NA	620	43	NA	830	31
Average		35	NA	760	47	NA	830	35
Maximum		40	NA	900	54	NA	830	40
Count		9	NA	2	9	NA	1	3

Eastern Municipal Water District
Temecula Valley RWRf Influent
December 2009

Date	Sample ID	Ammonia-N		Chloride		Iron		Manganese		Sulfate		TDS	TIN
		NH3-N	mg/L	Cl	mg/L	Fe	ug/L	Mn	ug/L	SO4	mg/L		
12/02/09	E091202014		35										
12/04/09	E091204011		35										
12/07/09	E091207028		42										
12/08/09	E091208018							60					
12/09/09	E091209015		35			670		74			800	35	
12/10/09	E091210020					940		78			820		
12/11/09	E091211010		37			690		75			820		
12/12/09	E091212007					810		77			780		
12/14/09	E091214013		32										
12/16/09	E091216014		35			450		87			770	36	
12/18/09	E091218010		41										
12/21/09	E091221012		36										
12/23/09	E091223013		38										38
12/24/09	E091224008					1,480		95			820		
12/28/09	E091228013		40										
12/30/09	E091230015		37										37
	Minimum		32	NA	NA	450		60		NA	770	35	
	Average		37	NA	NA	840		78		NA	802	36	
	Maximum		42	NA	NA	1480		95		NA	820	38	
	Count		11	NA	NA	6		7		NA	6	3	

**Biological Resources Damage Assessment
Within Murrieta Creek in Relation to the
Temecula Valley Regional Water Reclamation Facility
December 25, 2009 Sewage Spill**

City of Temecula, Riverside County, California
USGS – Murrieta and Temecula topographic quadrangles
Township 8 South, Range 3 West

Prepared for:

Eastern Municipal Water District
Attn: Alfred Javier
P.O. Box 8300
2270 Trumble Road
Perris, California 92572-8300

Prepared by:

Tom Dodson & Associates
2150 North Arrowhead Avenue
San Bernardino, California 92405
909-882-3612

CERTIFICATION: "I hereby certify that the statements furnished herein and in the attached exhibits present the data and information required for this biological resources damage assessment, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Fieldwork conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest relative to the spill event."



Shay Lawrey
Ecologist / Regulatory Specialist
Prepared on January 05, 2010
Updated, revised and finalized on January 25, 2010

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Figure 7	Eastside Storm Drain

Site Photos (Located at the end of the document)

1. Introduction

The following biological resources damage assessment has been prepared by Tom Dodson & Associates (TDA) on behalf of Eastern Municipal Water District (EMWD or District) for potential impacts to Murrieta Creek resulting from an inadvertent sewage spill from the Temecula Valley Regional Water Reclamation Facility (TVRWRF) on December 25 and 26, 2009. This document presents background information and a basic analysis of impacts to biological resources within Murrieta Creek, from Winchester Road downstream 1,000 feet past Rancho California Road. EMWD, in coordination with the San Diego Regional Water Quality Control Board, is providing the sampling, analyses and documentation of impacts to water quality. This report only addresses potential impacts to biological resources and does not provide an analysis of impacts to surface or ground water quality.

The impact and study areas can be found on the San Bernardino and Riverside Counties Thomas Guide on page 958, grids F5, G5, G6, H6, H7 and within Township 8 South, Range 3 West, Sections 11, 12, and 2 SBBM as shown on the USGS - Murrieta and Temecula Quadrangle, 7.5 Minute Series topographic maps in the City of Temecula, Riverside County, California (Figures 1-3).

The EMWD incorporated on October 16, 1950 to secure additional water for a lightly populated area of Riverside County. On May 15, 1951, EMWD annexed into Metropolitan Water District of Southern California (MWD). In the 1960s, EMWD began to expand its responsibilities of providing freshwater to include sewage collection and treatment, and eventually water reclamation activities. Presently, EMWD provides sewage collection and treatment services to customers within its approximately 555 square mile service area. To provide this wastewater collection and treatment service, EMWD operates five regional water reclamation facilities. One of the EMWD plants, is the TVRWRF located in the City of Temecula.

The TVRWRF was constructed in the early 1970s with a treatment capacity of about one million gallons per day (MGD). To meet the growing wastewater treatment requirements of its service area, the TVRWRF has undergone several upgrades since its construction. The TVRWRF has recently undergone expansion to an 18 MGD treatment capacity. The TVRWRF is situated within the corporate limits of the City of Temecula, Riverside County, California.

At 6:30 am, on Saturday, December 26, 2009 EMWD staff discovered sewage overflowing from the influent structure at the TVRWRF. Upon discovery of the release, it was found that the release had entered into Murrieta Creek. Plant staff responded by diverting the influent flow through the by-pass screen stopping the release. Staff also blocked the flow to Murrieta Creek by sandbagging a storm channel and closed Via Montezuma Road where it crosses Murrieta Creek. Collection staff was mobilized utilizing vacuum trucks and portable pumps to recover flows in and around Murrieta Creek and return them back to the collection system. In particular, 6 inch portable pumps were placed at pooling areas in Murrieta Creek at Via Montezuma Road and Rancho California Road. An estimated volume of 966,800 gallons was successfully recovered from Murrieta Creek. Murrieta Creek had low flow conditions at this time and the release did not

flow past the pumping location at Rancho California Road. The pumper trucks were mobilized on, December 26, 2009 at 12:40pm at Via Montezuma and at 3:04pm at Rancho California Road. The EMWD staff finished pumping on December 27, 2009 at 5:19am.

The volume of the release reported to the Emergency Management Agency (EMA) on December 26, 2009 was 5 to 7 million gallons of sewage. After carefully reviewing the plant's influent and effluent flow meters and comparing the flows on the day prior to the release and the day after the release, EMWD revised their initial estimate, of 5 to 7 million gallons of sewage released from the influent structure, to approximately 2.4 million gallons of sewage. It was determined that a majority of the flow did go through the plant and only a portion of the influent was released. The initial estimated volume was erroneously based on total influent flows.

The Emergency Management Agency (EMA# 09-8567), California Department of Public Health, Riverside County Department of Environmental Health, Riverside County Flood Control, Regional Water Quality Control Board (RWQCB), Rancho California Water District, Fallbrook Public Utilities District, Marine Corps Base Camp Pendleton and California Department of Fish and Game (CDFG) were notified of this release. Following the required agency notifications, EMWD contacted TDA to conduct and prepare a biological resources damage assessment. The RWQCB provided EMWD with information that this type of assessment, in coordination with the CDFG, would be required.

2. Site Inspection

TDA Biologist, Shay Lawrey, met with Alfred Javier, Senior Environmental Analyst for the EMWD on Tuesday, December 29, 2009 at 9:30 AM. Mr. Javier provided Ms. Lawrey with a detailed orientation to the spill and remediation efforts. After gathering details of the spill, Mr. Javier and Ms. Lawrey conducted a reconnaissance level survey between the spill inlet into Murrieta Creek, downstream to its confluence with Temecula Creek and Santa Margarita River. This reconnaissance survey allowed Ms. Lawrey to visually note the extent of disturbance and develop a work plan to conduct a detailed survey the next day.

On Wednesday, December 30, 2009 Shay Lawrey and Craig Lawrey conducted an intensive visual examination of the impact area in Murrieta Creek. Weather conditions were fair with 100% cloud cover, light rain and cool temperatures ranging from 49 to 54 Fahrenheit. From Winchester Road to 1,000 feet downstream of Rancho California Road, a total of fifteen (15) 150 meter transects were set to characterize the stream morphology (Figure 4). Within each transect the following habitat characteristics were noted:

1. Gross estimation of visible pollutants
2. Vegetation
 - a. Estimated percent coverage of rooted plants
 - b. Vegetative class
 - c. Vegetative type
 - d. Species composition
3. Substrate

- a. Estimated percent composition of the submerged stream substrate type (sand, gravel, cobble)
- 4. Bank
 - a. Bank stability
- 5. Flow Habitat
 - a. Qualitative description of water flow ranging from trickle/none to fast.
 - b. Channel type
- 6. Width
 - a. Channel (bankfull) width
 - b. Wetted channel width
- 7. Depth
 - a. average stream channel depth
- 8. Human Influence
- 9. Photographs

3. Setting of Murrieta Creek

With a drainage area in excess of 220 square miles, Murrieta Creek traverses the cities of Wildomar, Murrieta, and Temecula and unincorporated County areas in the densely populated southwest region of Riverside County. At its confluence with Temecula Creek, it forms the Santa Margarita River which flows through Camp Pendleton Marine Corps Base and on to the Pacific Ocean. The ecological resources of Murrieta Creek have been identified as a resource of extremely high concern, as it is considered one of the last high quality riverine environments in Southern California. Murrieta Creek flows from the north-northwest which historically filled a large, flat alluvial valley covered with extensive riparian gallery forest. These forests were removed by agricultural practices in the early 1900s. Today, suburban development in Temecula and surrounding communities has replaced the agricultural uses. Through Temecula, Murrieta Creek is channelized and maintained for flood control purposes. Downstream of Temecula where Murrieta Creek has its confluence with Temecula Creek and forms the Santa Margarita River, the overall stream ecology is physically undisturbed and remains in natural condition. The gradient of the creek is fairly level through the Temecula Valley.

4. Description of study area

The channel gradient, elevation, width, substrate, in-stream habitat, flow habitat, and disturbance characteristics are fairly uniform between Winchester Road and Rancho California Road. Downstream of Rancho California Road, the in-stream habitat and flow habitat transitions into a dry stream with a sandy river bottom.

The study area is shallow with a substrate consisting mostly of mud, sand, and rocks. Intermediate sized substrate, namely gravel and cobble, are rare. When present this intermediate sized substrate is mixed with 20 to 80 percent finer material, usually sand. Elevations in the study area range from 996 to 1000 feet above mean sea level and the average bankfull width of the channel is 200 (ft) or 61 meters (m) wide.

The habitat types within the channel, in vicinity of the spill, include marsh/wetland, riparian, annual grassland, and sandy river wash. Riverside County Flood Control District maintains the affected reach of Murrieta Creek by mowing an approximate 150 ft or 45 m wide center-flow channel. The Creek was mowed, prior to the spill, sometime in the fall around October. As a result, the channel is devoid of any measureable canopy structure. The percent vegetative cover was calculated by using rooted vegetation that was mowed and is emergent. The vast majority of identifiable vegetation consists of sedges (*Sparganium*), tules (*Scirpus*), cattails (*Typha*), and willows (*Salix* spp.). Small patches of annual grassland habitat are interspersed among the dense stands of *Typha*. The primary plant species growing along both banks include mule fat (*Baccharis salicifolia*), willow (*Salix exigua* and *S. gooddingii*), sycamore (*Platanus occidentalis*), tamarisk (*Tamarix* sp) and arundo (*Arundo donax*).

Various isolated pockets of pooled water occur between Winchester Road and Rancho California Road. Mosquitofish were observed swimming in the pools. Crayfish and bullfrogs (*Rana catesbeiana*) were observed in transects 1-4. Pacific chorus frog (*Pseudacris regilla*) vocalizations were heard along transects 3. Aside from a pre-release, predated bullfrog carcass, no dead or dying fauna was observed in the study area. A small 20 ft or 6 m wide low-flow channel exists between Via Montezuma Road and Rancho California Road. Downstream of Rancho California Road, no surface flow is present.

The entire study area is disturbed by human influence. The surrounding land use is industrial and commercial. The center-flow channel is affected by flood control vegetation management, and additional human intrusion in the channel include Via Montezuma Road and the Rancho California Road bridge crossing and abutments. Buildings occur adjacent to both banks. The banks consist of sand, gravel, cobble and rock substrates that support riparian and grassland vegetation. From Winchester Road to Rancho California Road, the banks have an approximate 3:1 slope and are in stable condition. Downstream of Rancho California Road, the banks are steeper (2:1) and are somewhat vulnerable, with evidence of erosion. Several small drainage pipe inlets were noted on both banks along the study area.

5. Findings

5.1. Vegetation

From the TVRWRF spill inlet into Murrieta Creek, the affected area spans 1.5 miles to Rancho California Road, where the spill was considered contained by the EMWD. The locations of the relevant USGS gaging stations near the study area, and gage flow data for a period before and after the spill for these stations is provided below (Figures 4-6). This data correlates with the assertion that the spill was contained and did not flow beyond Rancho California Road.

The study area encompassed a 2-mile stretch of Murrieta Creek including additional areas up and downstream of the affected area. Approximately 300 m upstream of the spill inlet into

Murrieta Creek, visible signs of the spill were present in the form of an oily film slicking over the pooled areas and floating organic material. These visual signs were mostly concentrated in pooled areas along the west side of the channel. These signs are indicative of a backflow process during the spill event, however, another potential contributing factor to these signs may be the storm drain channel that inlets into the east side of Murrieta Creek (Figure 7). There was no visual indication of the spill downstream of Rancho California Road. The lack of visual signs of contamination in this area supports EMWD assumption that the spill was contained at the surface at Rancho California Road.

Approximately 20 acres of marsh/wetland habitat dominated by *Typha* and *Salix* absorbed the initial impact of the spill.

5.2. Special-Status Plants

According to the California Natural Diversity Data Base (CNDDDB) two (2) State-listed, federally-listed or CNPS listed plant species have a low to moderate potential to occur within the study area. These species are the thread-leaved brodiaea (*Brodiaea filifolia*) and California screw moss (*Tortula californica*). They are associated with grassland habitat and are documented in the local vicinity of the study area. These species have not been observed within the affected area however, and they are not expected to occur. Under this expectation, the spill did not result in direct impacts to sensitive plant species. No special-status plant species were observed within the study area during the site inspection. Determining the presence or absence of potentially-occurring special-status plant species would require the completion of a spring/summer focused survey timed to coincide with the respective blooming periods to maximize detectability. All of the other sensitive plant species documented in the Murrieta and Temecula USGS quadrangles are associated with habitat types not found in the study area and are therefore considered absent.

5.3. Special-Status Wildlife

According to the CNDDDB ten (10) wildlife species designated as CDFG species of Special Concern are documented within the study area. These species are Southwestern pond turtle (*Actinemys marmorata pallida*), southern rufous-crowned sparrow (*Aimophila ruficeps canescens*), tricolored blackbird (*Agelaius tricolor*) orange-throated whiptail (*Aspidoscelis hyperythra*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), coronado skink (*Eumeces skiltonianus interparietalis*), arroyo chub (*Gila orcuttii*), black-crowned night heron (*Nycticorax nycticorax*), San Diego coast horned lizard (*Phrynosoma coronatum*), and two-striped garter snake (*Thamnophis hammondi*). One listed species has been documented in the study area which is the State and federally endangered least Bell's vireo (*Vireo bellii pusillus*).

At the time of the spill no least Bell's vireo habitat was present. The least Bell's vireo (LBVI) is a small, olive-gray migratory songbird that nests and forages almost exclusively in riparian woodland habitats. LBVI nesting habitat typically consists of well developed overstory, understory, and low densities of aquatic and herbaceous cover. The understory frequently contains dense sub-shrub or shrub thickets. Although LBVI use a variety of riparian plant

species for nesting, it appears that the structure of the vegetation is more important than other factors, such as species composition or the age of the stand. As stated before, there is a 45 m wide mow-zone in the affected area and as such, vireo habitat is not currently found in the study area. Additionally, the spill occurred outside of the migratory bird nesting season and did not directly affect breeding bird nest sites.

There is marginally suitable habitat for the two-striped garter snake where permanent and semi-permanent water is present. However, it is unlikely that the garter snake would tolerate the recent mowing. Under this assumption, two-striped garter snake is not currently likely to occur within the spill vicinity.

Murrieta Creek is an intermittent creek most of the year with average flows of 2.4 cubic feet per second (cfs). Although it is an intermittent creek it supports pockets of aquatic habitat. Native fish have been found in lowermost reach of Murrieta Creek near the gorge and in a few isolated localities upstream of Temecula, near Rancho California Road. In its present state Murrieta Creek supports only one of the four freshwater fish species native to the system, namely the arroyo chub, *Gila orcutti*, a small cyprinid minnow. The other three species, the partially armored threespine stickleback (*Gasterosteus aculeatus microcephalus*), Pacific lamprey (*Lampetra tridentate*), and steelhead trout (*Oncorhynchus mykiss*) have not been recorded in Murrieta Creek in over 30 years. Given this information it is assumed that arroyo chub are present and absorbed direct impacts from the spill. The CDFG did not recommend conducting a fish survey (personal communication with Anna Milloy from CDFG on January 5, 2010).

As noted above, native and non-native frogs and crayfish were observed in the study area. In addition to fish, frogs and crayfish, it is likely that the southwestern pond turtle occurs in the affected area, as the marsh and aquatic habitat is suitable for this species. Southwestern pond turtle is found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, it prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. It is assumed that native and non-native amphibians and southwestern pond turtle are present in the affected area and that they absorbed direct impacts from the spill.

6. Discussion of Impacts

Clearly, there are concerns over the possibility of harmful effects resulting from additional nutrients, toxins and pathogens that may be present in the affected area. Although no State- or federally-listed wildlife species occur in the impact area, there are species of special concern and native wildlife species potentially impacted. Potential impacts associated with the sewage spill on avifauna, mammals, reptiles, amphibians and fish are not easily determined or mitigated. Impacts may include bacterial infection and exposure to toxins and pathogens. Raw human sewage contains a mixture of contaminants including a variety of bacteria, protozoans, viruses, and numerous toxic chemicals, as well as high concentrations of nitrogen and phosphorus (Mallin et al. 2007). Sewage-contaminated water contains viruses and bacteria that

are a potential vehicle for disease transmission to ecological receptors (Hamilton 2007). Elevated fecal coliform counts can persist for several weeks after sewage spills in the environment. Wildlife concerns from exposure and/or infection from untreated sewage also include suppression of the immune response system, alterations in the defense mechanisms, and depression of essential biological activity that can lead to susceptibility to disease and latent infections (Friend 1985). Remaining residue from the sewage spill could cause injury to wildlife, particularly amphibians and fish. Amphibians are particularly sensitive to a number of bacteria, including those found in human sewage (Taylor et al. 2001).

The sewage spill impacts on the marsh/wetland habitat may be ameliorated naturally, to some extent, in that the existing natural biological system may in fact help purify the water. Dissolved biodegradable material can be removed from the sewage spill area by decomposing microorganisms living on the exposed surfaces of the aquatic plants and soils. Decomposers such as bacteria, fungi, and actinomycetes are active in any wetland by breaking down dissolved and particulate organic material to carbon dioxide and water. Furthermore, the plants can also play an active role in taking up nitrogen, phosphorus, and other compounds from the sewage spill. This active incorporation of nitrogen and phosphorus can be one mechanism for nutrient removal.

The habitat can provide nitrogen uptake and natural filtration during the natural passive regeneration within the spill impact area in the mow-zone. It is expected that the habitat in the impact area will recover to a pre-spill condition naturally. The reason for this assumption is marsh/wetland habitat develops very fast in situations where there are appropriate levels of water, and when there is an established hydrologic regime and a static physical environment. It is well documented that marsh/wetland vegetation grows very rapidly and abundantly in moist soils. Many wetland plant associations, such as cattails, are plant pioneers that are able to live on raw new soil wherever there is water. Therefore, due to a basically unchanging flow regime, unchanging physical processes, rapid growth rate of marsh/wetland vegetation and adequate availability of water, the spill impact area has the capability to recover quickly as the vegetation regenerates following the fall 2009 mowing.

7. Recommendations

It is recommended that EMWD implement a short-term habitat monitoring program in order to identify and mitigate any residual habitat damage potentially resulting from the spill. The monitoring program should consist of two monitoring events that begin in the spring of 2010 and end in the spring of 2011. The purpose of the monitoring program is to compare and document the habitat growth response in the affected area, as well as up and downstream of the affected area. The monitoring data can be used for future reference and will help identify any short-term changes in the habitat conditions that may result from the spill.

Qualitative habitat monitoring should focus on habitat type, habitat conditions, growth rates, botanical species diversity, structure, recruitment rates, and any significant disease or pest problems. The two (2) monitoring events should be performed in the spring, between April and

July 2010 and 2011, to help record an accurate representation of perennial and annual herbaceous plants within the affected area. Specific, sampling grids and transects should be set for the monitoring. Permanent photo stations should be set within the grids and transects to provide a visual photo log to track of the changes in habitat over time. All wildlife species detected by sight, track, or sign within the monitoring areas should also be recorded. These data can also show how the habitat is functioning for the benefit of wildlife.

An effective monitoring program can provide valuable information on the effects of an action or event. Monitoring would involve the collection and interpretation of biological resource data for two growing seasons, and documentation of the effects of the spill on the biological resources of concern. Based on the monitoring results, remedial actions (vegetation removal, revegetation, translocation of faunal species, etc.) may be identified and coordinated/approved with/by CDFG. At the end of the monitoring period, a report of findings shall be submitted to the pertinent regulatory agencies (CDFG, U.S. Fish and Wildlife Service, and RWQCB) and it shall include recommendations for further actions, if any are required. If at any time during the monitoring period, that evidence of harm to flora or fauna is obvious, then a shift towards immediate remediation will be made in coordination with the appropriate agencies.

8. References

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Figure 1. Regional Location Map

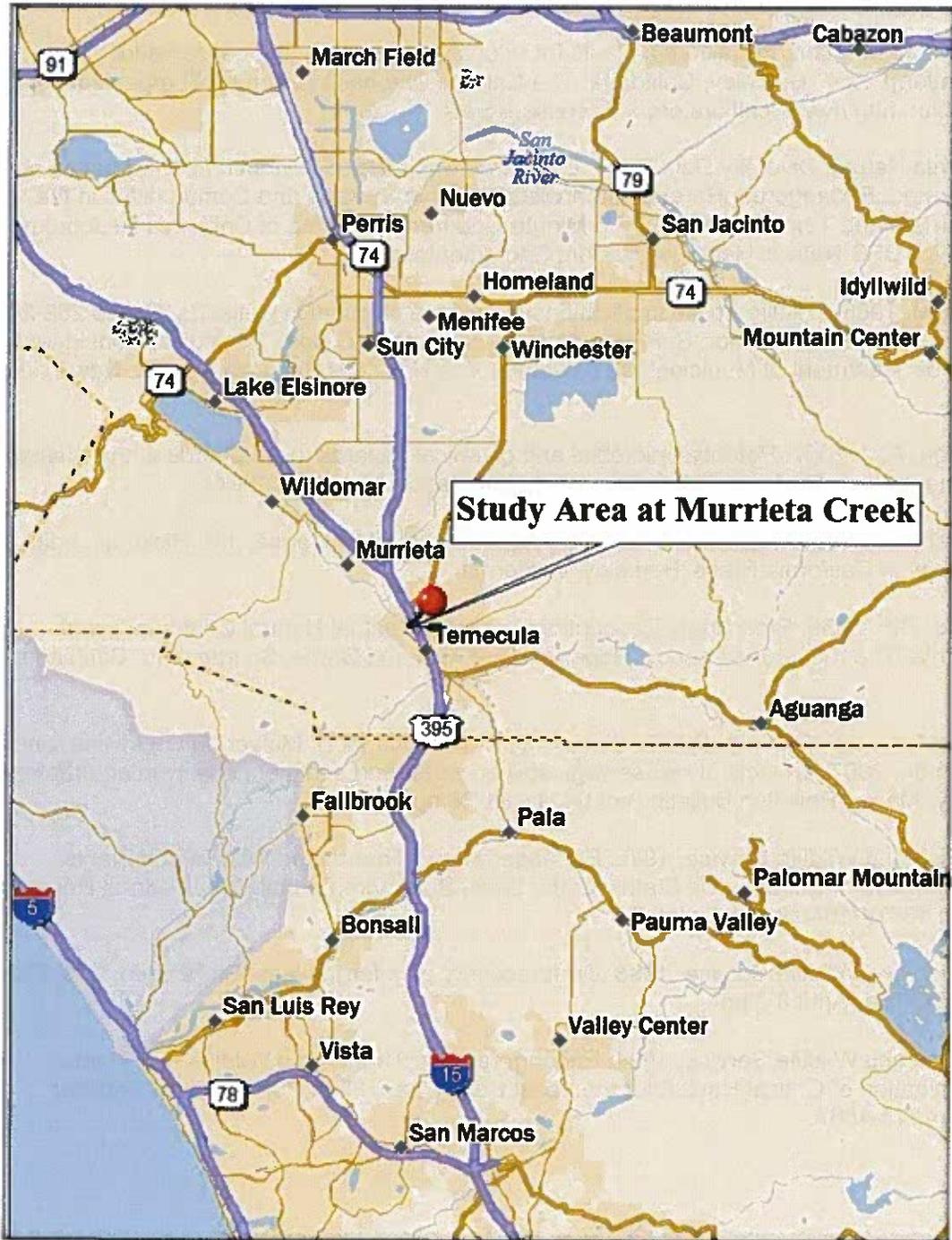


Figure 2. Site Location Map

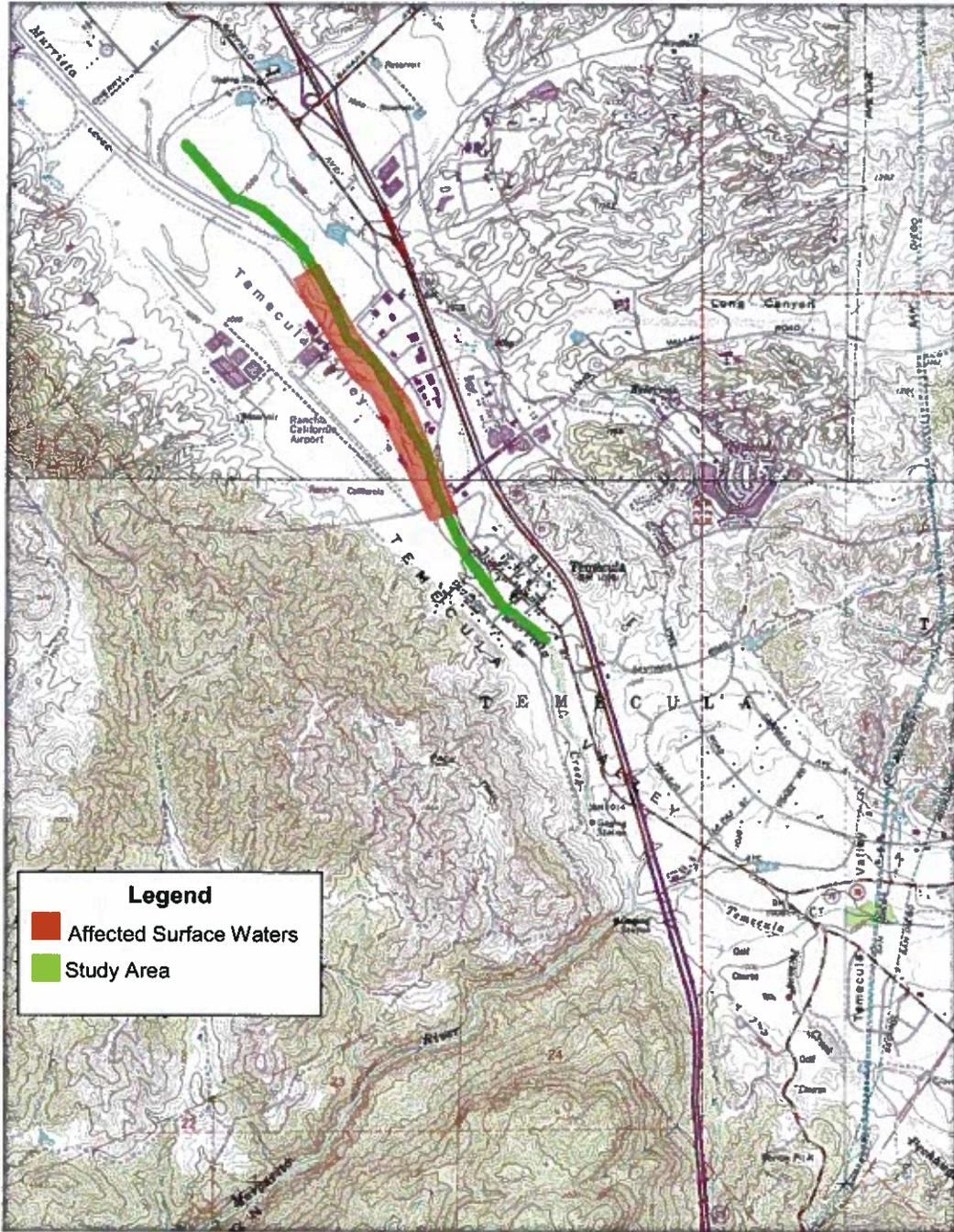


Figure 3. Aerial Map

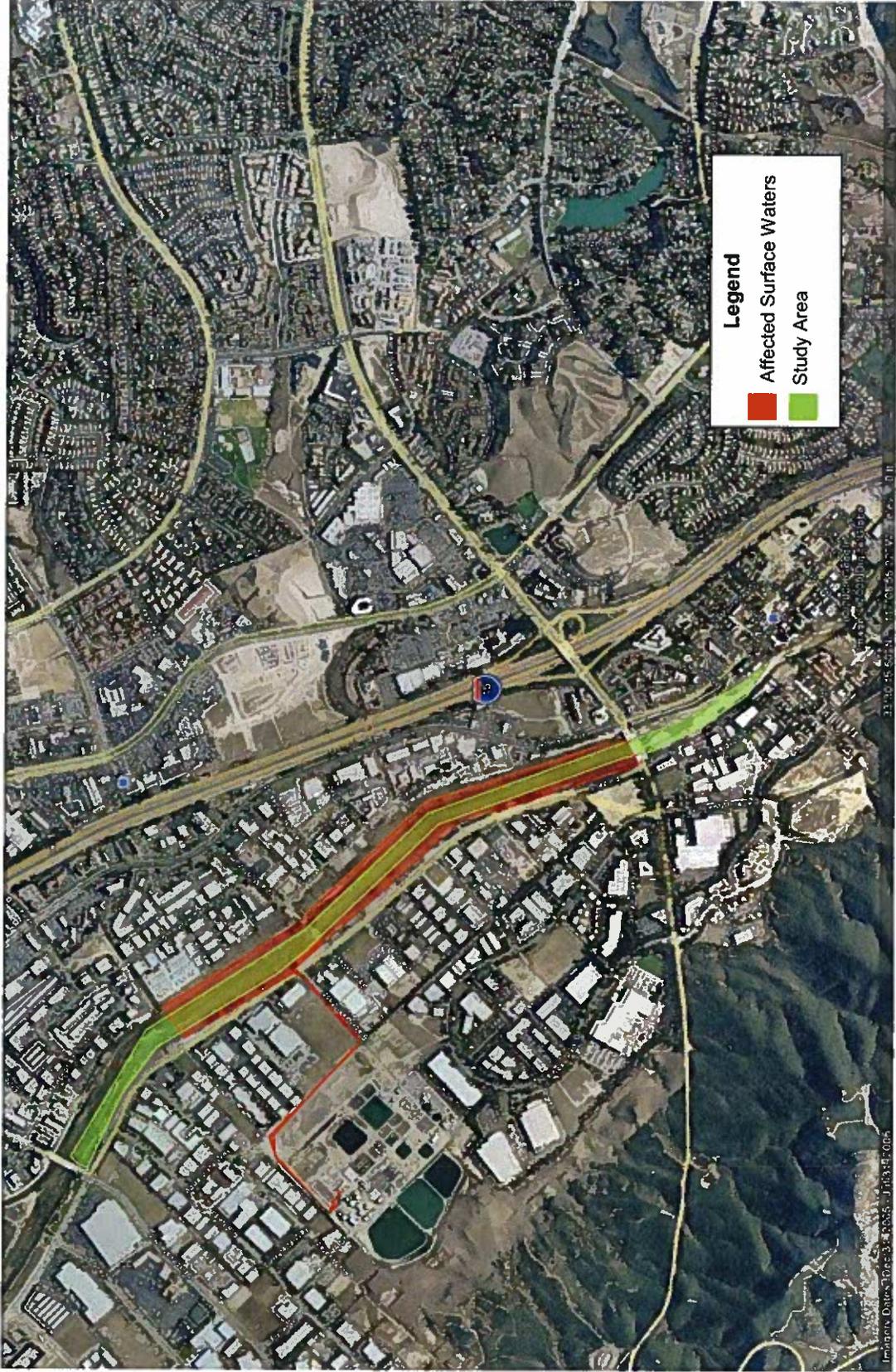


Figure 4. Locations of USGS Gaging Stations Near the Study Area

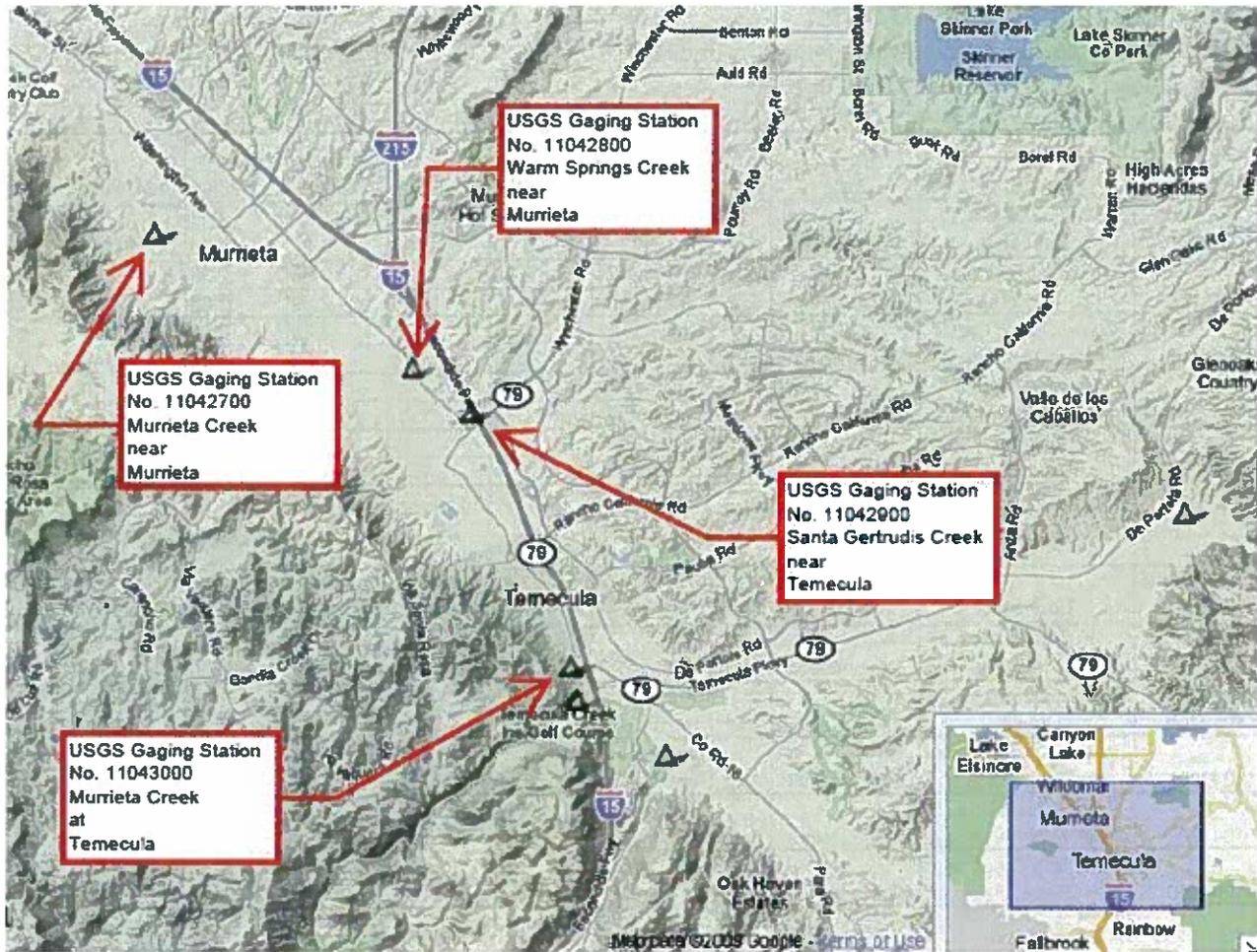
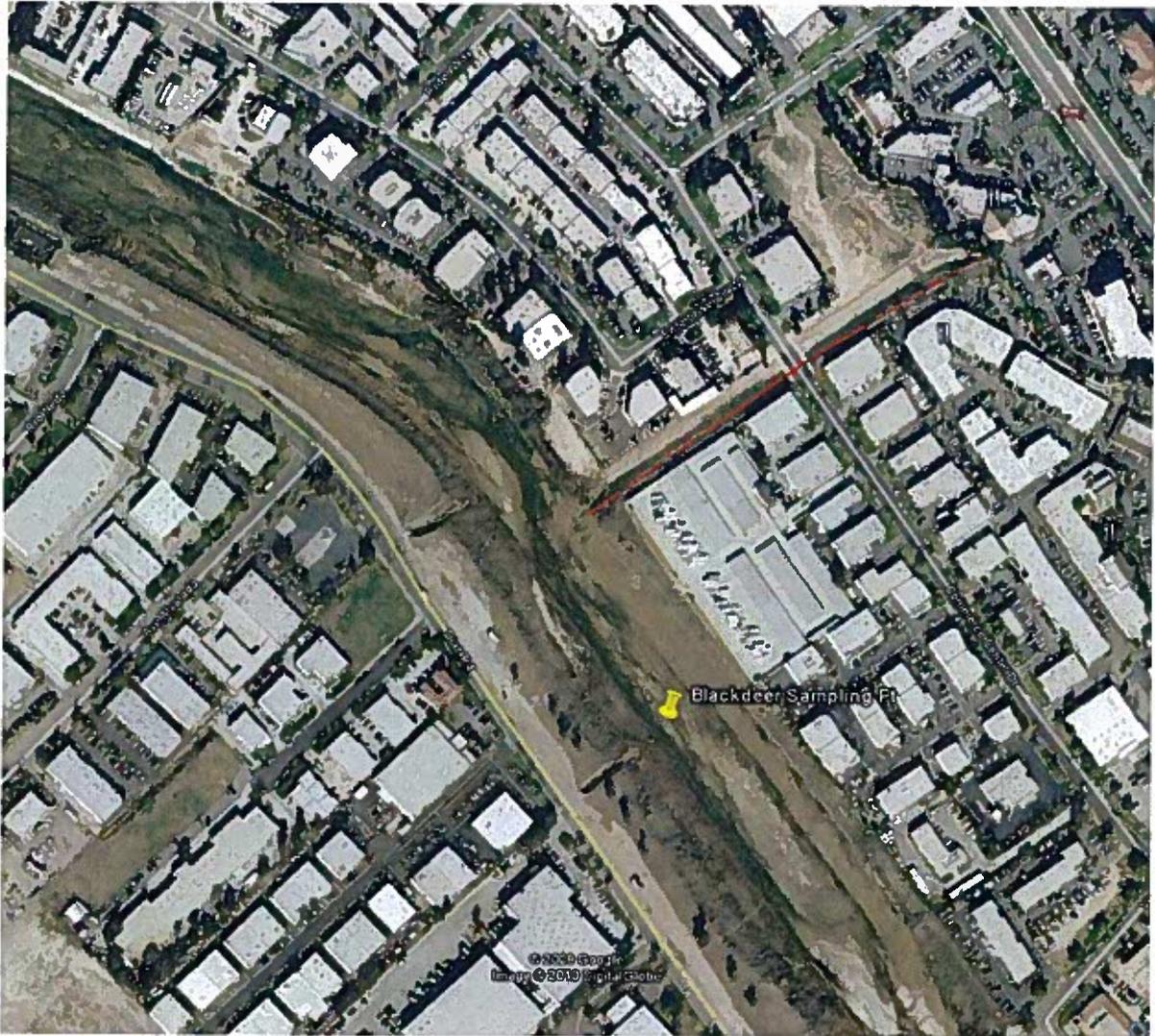


Figure 5. Gage Flow Data Between December 20, and January 31, 2009

Eastern Municipal Water District										
Temecula Valley Regional Water Reclamation Facility										
Influent Release on December 25 & 26, 2009										
USGS Gaging Station No.	Location	Title	Unit	Statistics	12/20/09	12/21/09	12/22/09	12/23/09	12/24/09	12/25/09
11042510	Vail Lake near Temecula	Precipitation	inch	total	0.00	0.00	0.07	0.00	0.00	0.00
11042700	Murrieta Creek near Murrieta	Gage Height	foot	minimum	2.38	2.38	2.38	2.38	2.38	2.38
				maximum	2.38	2.38	2.39	2.38	2.40	2.38
11042800	Warm Spring Creek near Murrieta	Gage Height	foot	minimum	3.75	3.75	3.86	3.92	3.06	3.86
				maximum	3.76	3.86	4.05	3.99	3.94	3.92
11042900	Santa Gertrudis Creek near Temecula	Gage Height	foot	minimum	1.73	1.73	1.73	1.73	1.73	1.73
				maximum	1.74	1.75	1.76	1.75	1.75	1.75
11043000	Murrieta Creek at Temecula	Gage Height	foot	minimum	1.24	1.14	1.16	1.16	1.20	1.22
				maximum	1.43	1.46	1.35	1.30	1.33	1.37
USGS Gaging Station No.	Location	Title	Unit	Statistics	12/26/09	12/27/09	12/28/09	12/29/09	12/30/09	12/31/09
11042510	Vail Lake near Temecula	Precipitation	inch	total	0.00	0.00	0.00	0.00	0.00	0.01
11042700	Murrieta Creek near Murrieta	Gage Height	foot	minimum	2.38	2.38	2.38	2.38	2.38	2.38
				maximum	2.38	2.38	2.40	2.41	2.39	2.38
11042800	Warm Spring Creek near Murrieta	Gage Height	foot	minimum	3.86	3.86	3.86	3.86	3.86	3.86
				maximum	3.86	3.86	3.86	3.86	3.86	3.86
11042900	Santa Gertrudis Creek near Temecula	Gage Height	foot	minimum	1.74	1.73	1.73	1.73	1.73	1.73
				maximum	1.75	1.75	1.74	1.75	1.74	1.74
11043000	Murrieta Creek at Temecula	Gage Height	foot	minimum	1.25	1.26	1.28	1.30	1.33	1.34
				maximum	1.40	1.42	1.43	1.45	1.47	1.40

Figure 7. Eastside Storm Drain



Site photos between Winchester Road and Via Montezuma Road



Photo 1. Standing 100 feet upstream of Via Montezuma looking upstream toward Winchester Road.



Photo 2. Standing in the mid-section of the survey area between of Via Montezuma and Winchester Road. Photo showing existing site conditions, habitat structure and disturbance from recent mowing for flood control.



Photo 3. Photo showing the oily film observed in the study area which was primarily detected on the west side of Murrieta Creek, approximately 1,200 feet up and down stream of Via Montezuma.



Photo 4. Photo showing clear aquatic conditions in the study area. Clear pooled water was mostly observed from Rancho California Road upstream to approximately 300 feet and from Winchester Road downstream to approximately 800 feet.

Site photos between Via Montezuma Road and Rancho California Road



Photo 5. Standing 100 feet downstream of Via Montezuma Road showing conditions of pooled water on the west side of Murrieta Creek.



Photo 6. Standing mid-section of the survey area between Via Montezuma Road and Rancho California Road, looking downstream towards the Rancho California bridge crossing over Murrieta Creek.



Photo 7. Standing upstream of the Rancho California bridge crossing looking upstream at Murrieta Creek.



Photo 8. Standing under the Rancho California bridge crossing looking upstream at Murrieta Creek.

Site photos between Rancho California Road and 1,000 feet downstream



Photo 9. Standing approximately 500 feet downstream of the Rancho California Road bridge crossing looking upstream towards the bridge.



Photo 10. Photo showing dry creek conditions downstream of the Rancho California Road bridge crossing looking upstream towards the bridge.

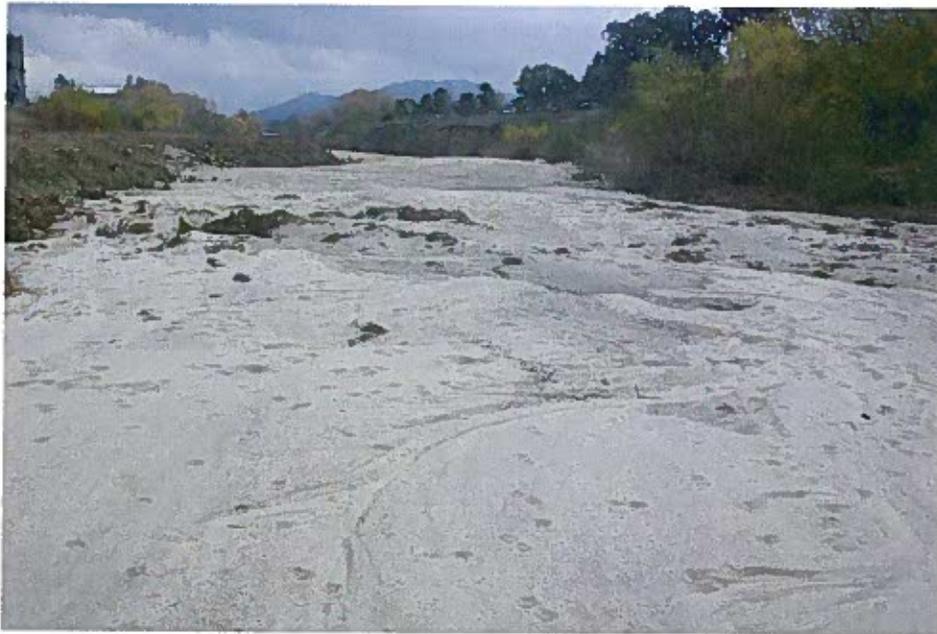


Photo 11. Standing approximately 100 feet upstream of the Rancho California Road bridge crossing, looking downstream.

RCWD Well 118

DUPLICATE
Owner's Copy

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in
No. 159122

Permit No. or Date 12417

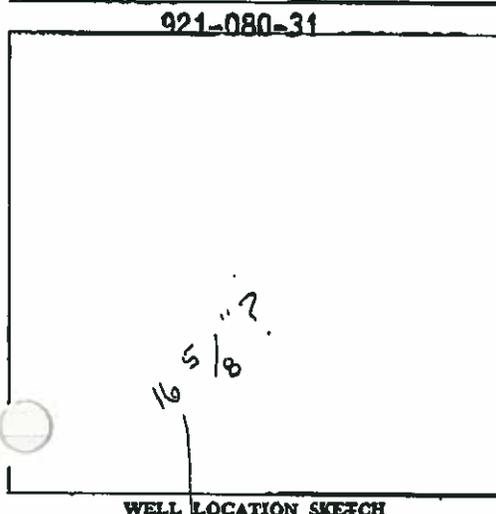
State Well No. _____
Other Well No. _____

(1) OWNER: Name Rancho California Water Dist
Address P.O. Box 174
City Temecula, CA Zip 92390
(2) LOCATION OF WELL (See instructions):
County Riverside Owner's Well Number 118
Wall address if different from above _____
Township AS Range 3W Section 2
Distance from cities, roads, railroads, fences, etc. _____

(12) WELL LOG: Total depth _____ ft. Depth of completed well _____ ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	18	Sand, silty blue & green clay
		30' per hour.
18	26	Course to fine sand with some pea gravel, 40' per hour.
26	30	Pea gravel to silty clay, 70' per hour.
30	65	Silty blue clay, 60' per hour
65	70	Pea gravel to fine sand, 100' per hour.
70	75	Silty blue clay, 30' per hour
75	135	Pea gravel to fine sand, 100' per hour.
135	145	Medium to fine sand, 100' per hour.
145	170	Sandy, silty clay, 100' per hour.
170	215	Pea gravel to fine sand, 100' per hour.
215	230	Cobbles, to fine sand, 100' per hour.
230	410	Course sand to fine sand (white & brown) 60'-80' per hour.
410	425	Brown, silty, sandy clay, 60' - 80' per hour
425	445	Course sand to fine sand, mostly brown in color, 50-70' per hour.
445	457	Course to fine sand with some sandy clay, 60' per hour.
457	505	Course to fine sand 40' per hour.
505	1015	Course to fine sand, brown in color 40' per hour with occasional boulders & cobbles

Note: Put new bit on at 730' increased penetration to 90' per hour, new bit has jets



(3) TYPE OF WORK:
New Well Deepening
Reconstruction
Reconditioning
Horizontal Well
Destruction (Describe destruction materials and procedures in Item 12)
(4) PROPOSED USE:
Domestic
Irrigation
Industrial
Test Well
Stock
Municipal
Other

(5) EQUIPMENT:

Rotary <input checked="" type="checkbox"/>	Reverse <input type="checkbox"/>	(6) GRAVEL PACK:
Cable <input type="checkbox"/>	Air <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Size <u>1/8-1/4</u>
Other <input type="checkbox"/>	Bucket <input type="checkbox"/>	Diameter of bore <u>26" 822"</u>
		Packed from <u>68'</u> to <u>330'</u>

(7) CASING INSTALLED:

Steel <input type="checkbox"/>	Plastic <input type="checkbox"/>	Concrete <input type="checkbox"/>	(8) PERFORATIONS:			
From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	320	6 5/8	5/32	320	480	3/32X2
320	960	12 3/4	"	460	1100	
1100	1110	12 3/4	"			

(9) WELL SEAL:
Was surface sanitary seal provided? Yes No If yes, to depth 68 ft.
Was strata sealed against pollution? Yes No Interval _____ ft.
Method of sealing _____

(10) WATER LEVELS:
Depth of first water, if known _____ ft.
Standing level after well completion _____ ft.

(11) WELL TESTS:
Was well test made? Yes No If yes, by whom? _____
Type of test Pump Bailor Air lift
Depth to water at start of test _____ ft. At end of test _____ ft.
Discharge _____ gal/min after _____ hours Water temperature _____
Chemical analysis made? Yes No If yes, by whom? _____
Electric log made? Yes No If yes, attach copy to this report

Work started _____ 19 _____ Completed _____ 19 _____
WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
SIGNED Norman V. Howard
(Well Driller)
NAME Howard Pump, Inc.
(Person, firm, or corporation) (Typed or printed)
Address P.O. Box 1249
City Barstow, CA Zip 92311
License No. 281814 Date of this report 4-7-86

TRIPPLICATE
Owner's Copy

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in

No. **159123**

Notice of Intent No. _____

Permit No. or Date _____

Page #2

State Well No. _____

Other Well No. _____

(1) OWNER: Name Rancho Calif. Water Dist

Address _____
City _____ Zip _____

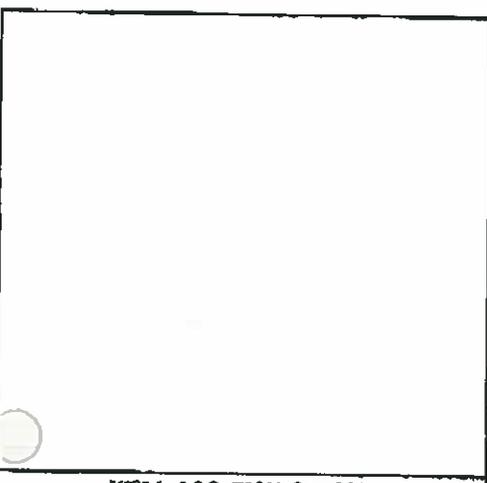
(2) LOCATION OF WELL (See instructions):
County _____ Owner's Well Number _____

Well address if different from above _____
Township _____ Range _____ Section _____

Distance from cities, roads, railroads, fences, etc. _____

(12) WELL LOG: Total depth _____ ft. Depth of completed well _____ ft.
from ft. to ft. Formation (Describe by color, character, size or material)

1015	-	1020	Medium sand with 50% brown clay
1020	-	1025	Course to fine sand
1025	-	1040	Brown sandy clay.
1040	-		Course to fine sand



(3) TYPE OF WORK:
New Well Deepening
Reconstruction
Reconditioning
Horizontal Well
Destruction (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic
Irrigation
Industrial
Test Well
Stock
Municipal
Other

WELL LOCATION SKETCH

(5) EQUIPMENT:
Rotary Reverse
Cable Air
Other Bucket

(6) GRAVEL PACK:
Yes No Size _____
Diameter of bore _____
Packed from _____ to _____ ft.

(7) CASING INSTALLED:
Steel Plastic Concrete

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size

(9) WELL SEAL:
Was surface sanitary seal provided? Yes No If yes, to depth _____ ft.
Were strata sealed against pollution? Yes No Interval _____ ft.
Method of sealing _____

(10) WATER LEVELS:
Depth of first water, if known _____ ft.
Standing level after well completion _____ ft.

(11) WELL TESTS:
Was well test made? Yes No If yes, by whom? _____
Type of test Pump Bailer Air lift
Depth to water at start of test _____ ft. At end of test _____ ft.
Discharge _____ gal/min after _____ hours Water temperature _____
Soil analysis made? Yes No If yes, by whom? _____
Electric log made? Yes No If yes, attach copy to this report

Work started _____ 19 _____ Completed _____ 19 _____

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED Norman V. Howard
(Well Driller)

NAME Howard Pump, Inc.
(Person, firm, or corporation) (Typed or printed)

Address P.O. Box 1249

City Barstow, CA Zip 92311

License No. 281814 Date of this report 4-7-86

Clinical Laboratory of San Bernardino, Inc.



Analysis Report: Lab Job M86520

Client: Rancho California Water Dist
42135 Winchester Road
Temecula, CA 92590

Project No.:
Contact: Richard Ottolini
Phone: (951) 296-6900

Project:

Date Sampled: 11/06/08
Date Received: 11/06/08
Date Started: 11/06/08
Date Completed: 11/13/08
Date Reported: 11/19/08
Client ID No.: WELL #118

Sample Schedule
Well Analysis

Lab Contact:
Job No.:
COC Log No.:
Lab ID No.: M86520-1A
Batch No.:
Matrix: WATER

Sample: WELL #118

Analyte	CAS No.	Results	DLR	Method	
Fluoride (F)	mg/L	N/A	0.28	0.10	EPA 300.0
MBAS (LAS Mole. Wt 326.5)	mg/L	N/A	ND	0.10	SM 5540-C
Magnesium (Mg)	mg/L	7439-95-4	5.8	1.0	EPA 200.7
Total Hardness (as CaCO3)	mg/L	N/A	210	5.0	SM 2340-C
Calcium (Ca)	mg/L	7440-70-2	71	1.0	SM 3500-Ca
Chloride (Cl)	mg/L	N/A	150	1.0	EPA 300.0
Sodium (Na)	mg/L	7440-23-5	150	1.0	EPA 200.7
Total Filterable Residue/TDS	mg/L	N/A	640	5.0	SM 2540-C
Nitrate (NO3)	mg/L	N/A	ND	2.0	EPA 300.0
Potassium (K)	mg/L	7440-09-7	1.9	1.0	EPA 200.7
Total Alkalinity (as CaCO3)	mg/L	N/A	210	5.0	SM 2320-B
Copper (Cu)	ug/L	7440-50-8	ND	50	EPA 200.7
Hydroxide (OH)	mg/L	N/A	ND	5.0	SM 2320-B
Sulfate (SO4)	mg/L	N/A	140	0.50	EPA 300.0
Carbonate (CO3)	mg/L	N/A	ND	5.0	SM 2320-B
Manganese (Mn)	ug/L	7439-96-5	190	20	EPA 200.7
Nitrite as N (NO2-N)	ug/L	N/A	ND	400	EPA 353.2
Bicarbonate (HCO3)	mg/L	N/A	250	5.0	SM 2320-B
Boron (B)	ug/L	7440-42-8	210	100	EPA 200.7
Nitrate + Nitrite (as N)	ug/L	N/A	ND	400	SUMMATION
Iron (Fe)	ug/L	7439-89-6	140	100	EPA 200.7
pH (Laboratory)	Std Units	N/A	8.2		EPA 150.1
Specific Conductance (E.C.)	umhos/cm	N/A	1100	2.0	SM 2510-B
Zinc (Zn)	ug/L	7440-66-6	ND	50	EPA 200.7

ND = Not detected at or above indicated DLR; Detection Limit for Reporting

Clinical Laboratory of San Bernardino, Inc.



Analysis Report: Lab Job M86520

Client: Rancho California Water Dist
42135 Winchester Road
Temacula, CA 92590

Project No.:
Contact: Richard Ottolini
Phone: (951)296-6900

Project:

Date Sampled: 11/06/08
Date Received: 11/06/08
Date Started: 11/06/08
Date Completed: 11/13/08
Date Reported: 11/19/08
Client ID No.: WELL #118

Lab Contact:
Job No.:
COC Log No.:
Lab ID No.: M86520-1A
Batch No.:
Matrix: WATER

Sample: WELL #118(cont.)

Analyte	CAS No.	Results	DLR	Method
Arsenic (As)	7440-38-2	4.3 ug/L	2.0	SM 3113-B
Cyanide (CN)	57-12-5	ND ug/L	100	SM 4500-CN
Aluminum (Al)	7429-90-5	54 ug/L	50	EPA 200.7
Chromium (Total Cr)	7440-47-3	ND ug/L	10	SM 3113-B
Mercury (Hg)	7439-97-6	ND ug/L	1.0	EPA 245.1
Silver (Ag)	7440-22-4	ND ug/L	10	SM 3113-B
Beryllium (Be)	7440-41-7	ND ug/L	1.0	SM 3113-B
Thallium (Tl)	7440-28-0	ND ug/L	1.0	EPA 200.9
Selenium (Se)	7783-00-8	ND ug/L	5.0	SM 3113-B
Barium (Ba)	7440-39-3	110 ug/L	100	EPA 200.7
Cadmium (Cd)	7440-43-9	ND ug/L	1.0	SM 3113-B
Lead (Pb)	7439-92-1	ND ug/L	5.0	SM 3113-B
Antimony (Sb)	7440-36-0	ND ug/L	6.0	SM 3113-B
Nickel (Ni)	7440-02-0	ND ug/L	10	SM 3113-B
Vanadium (V)	7440-62-2	4.9 ug/L	3.0	EPA 200.9

ND = Not detected at or above indicated DLR; Detection Limit for Reporting

Analytical Results Report



Lab ID:	E100223049
Sample ID:	Well 118
Company:	Rancho California Water Dist
Profile:	RCWD
Collect Date:	2/23/2010
Collected By:	MS-2023
Received Date:	2/23/2010

Parameter	Result	Units	Report Limit	Analyzed	By	Method
NUTRIENTS						
Ammonia (NH3-N)	<2.0	mg/L	2.0	02/23/10	MK	NH3, SM4500 NH3 C
TKN - Total Kjeldahl Nitrogen	<5.0	mg/L	5.0	02/26/10	KM	TKN, SM4500-NH3 C
Nitrite as N	0.01	mg/L	0.01	02/24/10	SD	NO2 Disc, SM 4500 NO2 B
Total Organic Nitrogen	<5	mg/L	5	02/26/10	KM	TKN, SM4500-NH3 C
CHEMISTRY						
Fluoride	0.2	mg/L	0.1	02/24/10	LP	Anions, EPA 300.0
Chloride	140	mg/L	1.0	02/24/10	LP	Anions, EPA 300.0
Sulfate	130	mg/L	1.0	02/24/10	LP	Anions, EPA 300.0
Nitrate as N	0.2	mg/L	0.1	02/24/10	LP	Anions, EPA 300.0
Nitrate-NO3	0.8	mg/L	0.40	02/24/10	LP	Anions, EPA 300.0
Total Inorganic Nitrogen	<3.0	mg/L	3.0	02/24/10	LP	Anions, EPA 300.0
BIOLOGICALS						
Q-TRAY Total Coliform	<1	MPN/100mL		02/23/10	DW	MMO SM9223/HPC SM9215
Q-TRAY E. coli	<1	MPN/100mL		02/23/10	DW	MMO SM9223/HPC SM9215
HPC Result	160	CFU/mL		02/23/10	DW	MMO SM9223/HPC SM9215
PHYSICAL PARAMS						
Total Dissolved Solids	650	mg/L	40	02/24/10	LP	TDS, SM 2540 C
EC - Specific Conductance	1100	umhos/cm	1	02/26/10	NS	EC - SM 2510B
Alkalinity, Total as CaCO3	210	mg/L	3	03/01/10	LP	Alk, Spec, SM2320B, L
Carbonate (CO3)	<3	mg/L	3	03/01/10	LP	Alk, Spec, SM2320B, L
Bicarbonate (HCO3)	250	mg/L	3	03/01/10	LP	Alk, Spec, SM2320B, L
Turbidity, Laboratory	0.9	NTU	0.1	03/01/10	CG	Turb, SM2130 B

Ken Marshall

RCWD Well 101

TRIPPLICATE
Owner's Copy

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in

No. 093790

of Interac No. 199060
Permit No. or Date 10037

State Well No. _____
Other Well No. _____

(1) OWNER: Name RANCHED CALIFORNIA WATER DIST.
Address 2806 Diaz Road,
City Tamucula, California Zip 92390

(2) LOCATION OF WELL (See instructions):
County Riverside Owner's Well Number 100-101
Well address if different from above _____
Township 7S Range 3N Section 34, SEEM
Distance from cities, roads, railroads, fences, etc.
known as the Cherry St. Well 100

(12) WELL LOG: Total depth 875 ft. Depth of completed well 840 ft.
from ft. to ft. Formation (Describe by color, character, size or material)

0-33 ft.	sand and clay
34-65 ft.	sand and decomposed granite
65-68 ft.	blue clay
68-100 ft.	soft blue clay
100-148 ft.	sand
148-151 ft.	sand and cobbles
151-155 ft.	coarse sand
155-160 ft.	sand and blue clay
160-185 ft.	coarse sand
185-205 ft.	sand and blue clay
205-219 ft.	cobbles, small
219-324 ft.	gray sand
324-340 ft.	coarse sand with some blue clay
340-360 ft.	sand and blue clay
360-365 ft.	coarse sand
365-375 ft.	sand and blue clay
375-392 ft.	clay and coarse sand
392-408 ft.	firm sand
408-413 ft.	clay and coarse sand
413-454 ft.	sand and blue clay
454-460 ft.	cobbles
460-700 ft.	clay and sand
700-762 ft.	blue clay
762-800 ft.	sand, clay
800-825 ft.	blue clay, sand
825-875 ft.	sand, clay streaks

0-400 - 1 1/2"
400-405 - 1 1/2" x 1 1/2"
reducer

(3) TYPE OF WORK:
New Well Deepening
Reconstruction
Reconditioning
Horizontal Well
Destruction (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic
Irrigation
Industrial
Test Well
Stock
Municipal
Other

WELL LOCATION SKETCH

(5) EQUIPMENT:
Rotary Reverse
Cable Air
Other Bucket

(6) GRAVEL PACK: Pharris
Yes No Size 4 & 5
Diameter of bore 24" & 28"
Packed from 0 to 875 ft.

(7) CASING INSTALLED:
Steel Plastic Concrete

(8) PERFORATIONS: Moss Louver
Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	100	30	5/16"	500	600	2-3/8"
0	840	12	3/4"	630	710	3/32"
				760	800	

(9) WELL SEAL:
Was surface sanitary seal provided? Yes No If yes, to depth 100 ft.
Were struts sealed against pollution? Yes No Interval 0-100 ft.
Method of sealing 9 sack grout mix

(10) WATER LEVELS:
Depth of first water, if known 18 ft.
Standing level after well completion 18 ft.

(11) WELL TESTS:
Was well test made? Yes No If yes, by whom? Beylik Drilling
Type of test Pump Bailer Air Lift
Depth to water at start of test 18 ft. At end of test 18 ft.
2800 gal/min after 42 hours Water temperature _____
analysis made? Yes No If yes, by whom? _____
Metric log made? Yes No If yes, attach copy to this report

Work started Feb. 23, 82

WELL DRILLER'S STATEMENT:
This well was drilled under my supervision and to the best of my knowledge and belief.
Signature John R. Beylik (Well Driller)
NAME BEYLIK DRILLING, INC.
Address 591 S. Walnut Street
City La Habra, Calif. 90631
License No. 306291-C-576SC-4 Date of this report Feb. 24, 1982



E.S. BABCOCK & Sons, Inc. Environmental Laboratories est 1906

Sample Schedule [Signature] Well Analysis [Signature]

GENERAL MINERAL & PHYSICAL & INORGANIC ANALYSIS (9/99) EDT

Date of Report: 08/08/25 Laboratory Name: E.S. Babcock & Sons, Inc. Sample ID No. A8H0889-01 Project Manager: Gail A. Traynor For Humaira Saleem Name of Sampler: Simon Cambra Date/Time Sample Collected: 08/08/11 09:35 Date/Time Sample Received @ Lab: 08/08/11 14:38 Date Analyses Completed: 08/08/21

System Name: RANCHO CALIFORNIA WATER DISTRICT Name or Number of Sample Source: WELL 101 System Number: 3310038

User ID: WAT Station Number: 3310038-009 Date/Time of Sample: 08/08/11 09:35 YY MM DD TTTT Laboratory Code: 4790 YY MM DD Date Analyses Completed: 08/08/21 Submitted by: Phone #

Table with columns: MCL, REPORTING UNITS, CHEMICAL, ENTRY #, ANALYSES RESULTS, DLR. Rows include Total Hardness, Calcium, Magnesium, Sodium, Potassium, Total Cations (Me/L Value 10.91), Total Alkalinity, Hydroxide, Carbonate, Bicarbonate, Sulfate, Chloride, Nitrate, Fluoride, Total Anions (Me/L Value 9.93), pH, Specific Conductance, Total Dissolved Solids, Color, Odor, Turbidity, MBAS.



E.S. BABCOCK & Sons, Inc. Environmental Laboratories est 1906

Page 2 of 4- Mineral, Physical and Inorganic Chemicals Form

Sample ID No. A8H0889-01

MCL	REPORTING UNITS	CHEMICAL	ENTRY #	ANALYSES RESULTS	DLR
INORGANIC CHEMICALS					
1000	ug/L	Aluminium	01105	< 50	50
6	ug/L	Antimony	01097	< 6	6.0
10	ug/L	Arsenic	01002	< 2	2.0
1000	ug/L	Barium	01007	480	100
4	ug/L	Beryllium	01012	< 1	1.0
5	ug/L	Cadmium	01027	< 1	1.0
50	ug/L	Total Chromium (also used for Cr+6 screen)	01034	6.1	1.0
1000	ug/L+	Copper	01042	< 50	50
300	ug/L+	Iron	01045	170	100
15	ug/L	Lead	01051	< 5	5.0
50	ug/L+	Manganese	01055	260	20
2	ug/L	Mercury	71900	< 1	1.0
100	ug/L	Nickel	01067	< 10	10
50	ug/L	Selenium	01147	< 5	5.0
100	ug/L+	Silver	01077	< 10	10
2	ug/L	Thallium	01059	< 1	1.0
5000	ug/L	Zinc	01092	< 50	50
ADDITIONAL ANALYSES					
	ug/L	Boron	01020	200	100
6	ug/L	Perchlorate	A-031	< 4	4.0
	ug/L	Cyanide	01291	< 100	100
1000	ug/L	Nitrite as N	00620	< 100	100

Mailing P.O. Box 432, Riverside, CA 92502-0432

Location 6100 Quail Valley Court, Riverside, CA 92507-0704

P 951 853 3251, F 951 653 1652, www.babcocklabs.com

NEIAP no. 02101 CA, CA ELAP no. 1158, EPA no. CA00102



E.S. BABCOCK & Sons, Inc.
Environmental Laboratories *est. 1906*

GENERAL MINERAL & PHYSICAL & INORGANIC ANALYSIS (9/99) EDT

Date of Report: 09/07/07 Sample ID No. A9F2396-01
 Laboratory Project
 Name: E.S. Babcock & Sons, Inc. Manager: Gail A. Traynor For Cathleen S. Iijima
 Name of Sampler: Employed By: RCWD
 Date/Time Sample Date/Time Sample Date Analyses
 Collected: 09/06/25 10:40 Received @ Lab: 09/06/25 14:50 Completed: 09/07/06

System System
 Name: RANCHO CALIFORNIA WATER DISTRICT Number: 3310038
 Name or Number of Sample Source: WELL 101

 * User ID: WAT Station Number: 3310038-009
 * Date/Time of Sample: 09/06/25 10:40 Laboratory Code: 4790
 * YY MM DD TTTT YY MM DD
 * Date Analyses Completed: 09/07/06
 * Submitted by: _____ Phone # _____

MCL	REPORTING	CHEMICAL	ENTRY #	ANALYSES RESULTS	DLR
45	mg/L	Nitrate	71850	< 2.0	2.0
****	mg/L+	Total Dissolved Solids	70300	810	
15	Units	Color	00081	10	
3	TON	Odor	00086	< 1	1.0
5	NTU	Turbidity	82079	5.6	
INORGANIC CHEMICALS					
50	ug/L+	Manganese	01055	450	20

* 250-500-600 ** 0.6-1.7 *** 900-1600-2200 **** 500-1000-1500 + Indicates Secondary Drinking Water Standards

21881 BARTON ROAD
 GRAND TERRACE, CA 92313

GENERAL MINERAL & PHYSICAL & INORGANIC ANALYSIS (9/99)

Date of Report: 09/01/23

Sample ID No. M90203-1A

Laboratory

Signature Lab

Name: CLINICAL LABORATORIES OF SAN BERNARDINO Director: _____

Name of Sampler: KENNY JIMENEZ Employed By: R.C.W.D.

Date/Time Sample Date/Time Sample Date Analyses
 Collected: 09/01/08/0845 Received @ Lab: 09/01/08/1500 Completed: 09/01/13

System

System

Name: RANCHO CALIFORNIA WATER DISTRICT

Number: 3310038

Name or Number of Sample Source: WELL 101

* User ID: WAT Station Number: 3310038-009

* Date/Time of Sample: |09|01|08|0845| Laboratory Code: 3761

* YY MM DD TTTT YY MM DD

* Date Analysis completed: |09|01|13|

* Submitted by: _____ Phone #: _____

MCL	REPORTING UNITS	CHEMICAL	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3) (mg/L)	00900		5.
	mg/L	Calcium (Ca) (mg/L)	00916		1.
	mg/L	Magnesium (Mg) (mg/L)	00927		1.
	mg/L	Sodium (Na) (mg/L) Sample Schedule <u>SC</u>	00929		1.
	mg/L	Potassium (K) (mg/L) Well Analysis <u>SC</u>	00937		1.
Total Cations		Meq/L Value: 0.00			
	mg/L	Total Alkalinity (as CaCO3) (mg/L)	00410		5.
	mg/L	Hydroxide (OH) (mg/L)	71830		5.
	mg/L	Carbonate (CO3) (mg/L)	00445		5.
	mg/L	Bicarbonate (HCO3) (mg/L)	00440		5.
*	mg/L+	Sulfate (SO4) (mg/L)	00945		0.1
*	mg/L+	Chloride (Cl) (mg/L)	00940		1
45	mg/L	Nitrate (as NO3) (mg/L)	71850		2
2.0	mg/L	Fluoride (F) (Natural-Source)	00951		0.1
Total Anions		Meq/L Value: 0.00			
	Std.Units+	PH (Laboratory) (Std.Units)	00403		
***	umho/cm+	Specific Conductance (E.C.) (umhos/cm)	00095		2
****	mg/L+	Total Filterable Residue@180C(TDS) (mg/L)	70300	840	5
15	Units	Apparent Color (Unfiltered) (Units)	00081	37.5	
3	TON	Odor Threshold at 60 C (TON)	00086	2	
5	NTU	Lab Turbidity (NTU)	82079	26.4	0
0.5	mg/L+	MBAS (mg/L)	38260		0.

* 250-500-600 ** 0.6-1.7 *** 900-1600-2200 **** 500-1000-1500

21881 BARTON ROAD

GRAND TERRACE, CA 92313

GENERAL MINERAL & PHYSICAL & INORGANIC ANALYSIS (9/99)

Date of Report: 09/01/14

Sample ID No. M90203-1A

Laboratory

Signature Lab

Name: CLINICAL LABORATORIES OF SAN BERNARDINO

Director: _____

Name of Sampler: KENNY JIMENEZ

Employed By: R.C.W.D.

Date/Time Sample

Date/Time Sample

Date Analyses

Collected: 09/01/08/0845

Received @ Lab: 09/01/08/1500

Completed: 09/01/14

System

System

Name: RANCHO CALIFORNIA WATER DISTRICT

Number: 3310038

Name or Number of Sample Source: WELL 101

* User ID: WAT

Station Number: 3310038-009

* Date/Time of Sample: |09|01|08|0845|

Laboratory Code: 3761

* YY MM DD TTTT

YY MM DD

Date Analysis completed: |09|01|13|

* Submitted by: _____

Phone #: _____

MCL	REPORTING UNITS	CHEMICAL	ENTRY #	ANALYSES RESULTS	DLR
	mg/L	Total Hardness (as CaCO3) (mg/L)	00900		5.
	mg/L	Calcium (Ca) (mg/L)	00916		1.
	mg/L	Magnesium (Mg) (mg/L)	00927		1.
	mg/L	Sodium (Na) (mg/L)	00929		1.
	mg/L	Potassium (K) (mg/L)	00937		1.
Total Cations		Meq/L Value: 0.00			
	mg/L	Total Alkalinity (as CaCO3) (mg/L)	00410		5.
	mg/L	Hydroxide (OH) (mg/L)	71830		5.
	mg/L	Carbonate (CO3) (mg/L)	00445		5.
	mg/L	Bicarbonate (HCO3) (mg/L)	00440		5.
*	mg/L+	Sulfate (SO4) (mg/L)	00945		0.5
*	mg/L+	Chloride (Cl) (mg/L)	00940		1
45	mg/L	Nitrate (as NO3) (mg/L)	71850		2
2.0	mg/L	Fluoride (F) (Natural-Source)	00951		0.5
Total Anions		Meq/L Value: 0.00			
	Std.Units+	PH (Laboratory) (Std.Units)	00403		
***	umho/cm+	Specific Conductance (E.C.) (umhos/cm)	00095		2
****	mg/L+	Total Filterable Residue@180C(TDS) (mg/L)	70300	840	5
15	Units	Apparent Color (Unfiltered) (Units)	00081		
3	TON	Odor Threshold at 60 C (TON)	00086		
5	NTU	Lab Turbidity (NTU)	82079		0
0.5	mg/L+	MBAS (mg/L)	38260		0.

* 250-500-600 ** 0.6-1.7 *** 900-1600-2200 **** 500-1000-1500

G. Priority Pollutant



Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E0900768 4116

Lab ID: **E090715017** Date Received: 7/15/2009 Matrix: Liquid
 Sample ID: **Influent - TV RWRP** Date Collected: 7/15/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Phenol	<100	ug/L	100	6.0	1			9/16/2009	CG		
Pyrene	<100	ug/L	100	3.2	1			9/16/2009	CG		
Analysis Desc: F:ISE, SM4500-F C			Analytical Method: F:ISE, SM4500-F C								
Fluoride	0.8	mg/L	0.1	0.0323	1			7/29/2009	SD		
Analysis Desc: Cyanide-EPA 335.3			Analytical Method: Cyanide-EPA 335.3								
Cyanide	<0.0050	mg/L	0.0050	0.0027	1			9/16/2009	CG		
PHYSICAL PROPERTIES											
Analysis Desc: TDS, SM 2540 C			Analytical Method: TDS, SM 2540 C								
Total Dissolved Solids	710	mg/L	40	21.3	1			8/19/2009	MS		
Analysis Desc: TSS, SM 2540 D			Analytical Method: TSS, SM 2540 D								
Total Suspend Solids	330	mg/L	3	1.3	1			7/15/2009	MS		
Analysis Desc: EC - SM 2510B			Analytical Method: EC - SM 2510B								
EC - Specific Conductance	1430	umhos/cm	1		1			7/15/2009	MK		
METALS											
Analysis Desc: ICP Metals, 200.7			Analytical Method: ICP Metals, 200.7								
Iron	630	ug/L	5	2.786	1			7/16/2009	SN		
Manganese	54	ug/L	5	0.293	1			7/16/2009	SN		
Boron	400	ug/L	25	2.8	1			7/16/2009	SN		
Calcium	62	mg/L	1	0.065	1			7/16/2009	SN		
Magnesium	21	mg/L	1	0.029	1			7/16/2009	SN		
Potassium	17	mg/L	5	1.449	1			7/16/2009	SN		
Silica mg/L	2.1	mg/L	1	0.027	1			7/16/2009	SN		
Sodium	140	mg/L	5	1.285	1			7/16/2009	SN		
Analysis Desc: ICP-MS Metals, EPA 200.8			Analytical Method: ICP-MS Metals, EPA 200.8								
Beryllium	<1.0	ug/L	1.0	0.174	1			8/7/2009	CW		
Aluminum	740	ug/L	10	2.04	1			8/25/2009	SC		
Vanadium	31	ug/L	4.0	1.26	1			8/7/2009	CW		
Chromium (Total)	27	ug/L	2.0	0.342	1			8/7/2009	CW		
Manganese	51	ug/L	3.0	1.35	1			8/7/2009	CW		
Cobalt	<2.0	ug/L	2.0	0.402	1			8/7/2009	CW		
Nickel	8.6	ug/L	5.0	0.974	1			8/7/2009	CW		
Copper	85	ug/L	1.0	0.308	1			8/7/2009	CW		
Zinc	120	ug/L	4.0	0.4785	1			8/7/2009	CW		

Report ID: 5776

DRAFT

Page 3 of 28

CERTIFICATE OF ANALYSIS

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Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E0900768 4116

Lab ID: **E090715017** Date Received: 7/15/2009 Matrix: Liquid
 Sample ID: **Influent - TV RWRF** Date Collected: 7/15/2009

Parameters	Results Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Arsenic	<2.0 ug/L	2.0	0.614	1		8/7/2009	CW		
Selenium	<2.0 ug/L	2.0	0.579	1		8/7/2009	CW		
Strontium	680 ug/L	1.0	0.572	1		8/7/2009	CW		
Molybdenum	9.4 ug/L	1.0	0.195	1		8/7/2009	CW		
Silver	2.2 ug/L	0.25	0.0633	1		8/7/2009	CW		
Cadmium	<0.50 ug/L	0.50	0.0428	1		8/7/2009	CW		
Tin	2.0 ug/L	2.0	0.139	1		8/7/2009	CW		
Antimony	<2.5 ug/L	2.5	0.48	1		8/7/2009	CW		
Barium	110 ug/L	5.0	0.905	1		8/7/2009	CW		
Thallium	<1.0 ug/L	1.0	0.179	1		8/7/2009	CW		
Lead	1.6 ug/L	1.0	0.105	1		8/7/2009	CW		
Analysis Desc: Mercury, EPA 245.1		Analytical Method: Mercury, EPA 245.1							
Mercury	<0.2 ug/L	0.2	0.0934	1		7/16/2009	SN		
NUTRIENTS									
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C							
Ammonia (NH3-N)	37 mg/L	2.0	0.708	1		7/15/2009	SD		
Analysis Desc: Anions, EPA 300.0		Analytical Method: Anions, EPA 300.0							
Nitrate-NO3	<0.4 mg/L	0.4	0.1014	1		7/15/2009	CW		
Chloride	160 mg/L	1		1		7/15/2009	CW		
Sulfate	150 mg/L	1		1		7/15/2009	CW		
Analysis Desc: NO2 Disc, SM 4500 NO2 B		Analytical Method: NO2 Disc, SM 4500 NO2 B							
Nitrite as N	0.39 mg/L	0.01	0.0100	1		7/16/2009	LP		
CHEMISTRY RESULTS									
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B							
BOD	250 mg/L	2	0	1		7/15/2009	MK		

CERTIFICATE OF ANALYSIS

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CERTIFICATE OF ANALYSIS

Client: Eastern Municipal Water District 2270 Trumble Road Perris, CA 92570	Report Date: 08/07/09 11:08
Attention: Ken Marshall	Received Date: 07/16/09 17:10
Phone: (951) 928-3777	Turn Around: Normal
Fax: (951) 928-6177	Work Order #: 9G16088
	Client Project: E090715017/018/019/022/043/044/045

NELAP #04229CA ELAP#1132 NEVADA #CA211 HAWAII LACSD #10143

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Weck Laboratories, Inc. certifies that the test results meet all NELAC requirements unless noted in the case narrative. This analytical report is confidential and is only intended for the use of Weck Laboratories, Inc. and its client. This report contains the Chain of Custody document, which is an integral part of it, and can only be reproduced in full with the authorization of Weck Laboratories, Inc.

Dear Ken Marshall :

Enclosed are the results of analyses for samples received 07/16/09 17:10 with the Chain of Custody document. The samples were received in good condition, at 2.4 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Reviewed by:

Kim G Tu
Project Manager





Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 9G16088
Project ID: E090715017/018/019/022/043/0
44/045

Date Received: 07/16/09 17:10
Date Reported: 08/07/09 11:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sampled by:	Sample Comments	Lab ID	Matrix	Date Sampled
E090715017	Client	TU JNF COMPOSITE	9G16088-01	Water	07/15/09 00:00
E090715018	Client		9G16088-02	Water	07/15/09 00:00
E090715019	Client		9G16088-03	Water	07/15/09 00:00
E090715022	Client		9G16088-04	Water	07/15/09 00:00
E090715043	Client	TU JNF GRAB	9G16088-05	Water	07/15/09 00:00
E090715044	Client		9G16088-06	Water	07/15/09 00:00
E090715045	Client		9G16088-07	Solid	07/15/09 00:00



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 9G16088
Project ID: E090715017/018/019/022/043/0
44/045

Date Received: 07/16/09 17:10
Date Reported: 08/07/09 11:08

9G16088-01 E090715017

TU INF COMPOSITE

Sampled: 07/15/09 00:00

Sampled By: Client

Matrix: Water

Acid and Base/Neutral Extractables by EPA Method 625

Method: EPA 625

Batch: W9G0677

Prepared: 07/17/09 15:20

Analyzed: 07/23/09 21:40

Analyst: lct

Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Surrogate: 2,4,6-Tribromophenol	80 %		0.1-157			
Surrogate: 2-Fluorobiphenyl	84 %		22-130			
Surrogate: 2-Fluorophenol	60 %		6-96			
Surrogate: Nitrobenzene-d5	88 %		34-139			
Surrogate: Phenol-d5	36 %		2-70			
Surrogate: Terphenyl-d14	58 %		6-145			
1,2,4-Trichlorobenzene	ND	5.2	100	ug/l	20	
1,2-Dichlorobenzene	ND	6.0	100	ug/l	20	
1,2-Diphenylhydrazine	ND	7.0	100	ug/l	20	
1,3-Dichlorobenzene	ND	7.2	100	ug/l	20	
1,4-Dichlorobenzene	ND	6.4	100	ug/l	20	
2,4,6-Trichlorophenol	ND	18	200	ug/l	20	
2,4-Dichlorophenol	ND	15	100	ug/l	20	
2,4-Dimethylphenol	ND	16	100	ug/l	20	
2,4-Dinitrophenol	ND	100	400	ug/l	20	
2,4-Dinitrotoluene	ND	8.0	100	ug/l	20	
2,6-Dinitrotoluene	ND	4.8	100	ug/l	20	
2-Chloronaphthalene	ND	5.2	100	ug/l	20	
2-Chlorophenol	ND	14	100	ug/l	20	
2-Nitrophenol	ND	17	200	ug/l	20	
3,3'-Dichlorobenzidine	ND	6.0	100	ug/l	20	
4,6-Dinitro-2-methylphenol	ND	6.6	200	ug/l	20	
4-Bromophenyl phenyl ether	ND	4.6	100	ug/l	20	
4-Chloro-3-methylphenol	ND	8.0	100	ug/l	20	
4-Chlorophenyl phenyl ether	ND	4.8	100	ug/l	20	
4-Nitrophenol	ND	130	200	ug/l	20	
Acenaphthene	ND	6.2	100	ug/l	20	
Acenaphthylene	ND	5.2	100	ug/l	20	
Anthracene	ND	5.6	100	ug/l	20	
Benzidine	ND	14	100	ug/l	20	
Benzo (a) anthracene	ND	3.8	100	ug/l	20	
Benzo (a) pyrene	ND	4.0	100	ug/l	20	
Benzo (b) fluoranthene	ND	3.2	100	ug/l	20	
Benzo (g,h,i) perylene	ND	6.2	100	ug/l	20	
Benzo (k) fluoranthene	ND	4.6	100	ug/l	20	
Bis(2-chloroethoxy)methane	ND	8.0	100	ug/l	20	
Bis(2-chloroethyl)ether	ND	9.2	100	ug/l	20	
Bis(2-chloroisopropyl)ether	ND	9.6	100	ug/l	20	
Bis(2-ethylhexyl)phthalate	ND	52	100	ug/l	20	
Butyl benzyl phthalate	ND	20	100	ug/l	20	



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 9G16088
Project ID: E090715017/018/019/022/043/044/045

Date Received: 07/16/09 17:10
Date Reported: 08/07/09 11:08

9G16088-01 E090715017

Sampled: 07/15/09 00:00

Sampled By: Client

Matrix: Water

Acid and Base/Neutral Extractables by EPA Method 625

Method: EPA 625	Batch: W9G0677	Prepared: 07/17/09 15:20	Analyzed: 07/23/09 21:40	Analyst: lct		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Chrysene	ND	5.0	100	ug/l	20	
Dibenzo (a,h) anthracene	ND	6.4	100	ug/l	20	
Diethyl phthalate	ND	41	100	ug/l	20	
Dimethyl phthalate	ND	5.2	100	ug/l	20	
Di-n-butyl phthalate	ND	11	100	ug/l	20	
Di-n-octyl phthalate	ND	5.6	100	ug/l	20	
Fluoranthene	ND	3.2	100	ug/l	20	
Fluorene	ND	5.6	100	ug/l	20	
Hexachlorobenzene	ND	3.0	100	ug/l	20	
Hexachlorobutadiene	ND	8.2	100	ug/l	20	
Hexachlorocyclopentadiene	ND	100	200	ug/l	20	
Hexachloroethane	ND	7.2	100	ug/l	20	
indeno (1,2,3-cd) pyrene	ND	6.4	100	ug/l	20	
Isophorone	ND	6.6	100	ug/l	20	
Naphthalene	ND	7.0	100	ug/l	20	
Nitrobenzene	ND	7.4	100	ug/l	20	
N-Nitrosodimethylamine	ND	7.2	100	ug/l	20	
N-Nitrosodi-n-propylamine	ND	8.2	100	ug/l	20	
N-Nitrosodiphenylamine	ND	4.6	100	ug/l	20	
Pentachlorophenol	ND	11	100	ug/l	20	
Phenanthrene	ND	5.0	100	ug/l	20	
Phenol	ND	6.0	100	ug/l	20	
Pyrene	ND	3.2	100	ug/l	20	

Chlorinated Pesticides and/or PCBs

Method: EPA 608	Batch: W9G0739	Prepared: 07/21/09 00:00	Analyzed: 07/27/09 07:26	Analyst: dav		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Surrogate: Decachlorobiphenyl	43 %		0.1-154			
Surrogate: Tetrachloro-meta-xylene	76 %		26-131			
4,4'-DDD	ND	0.0051	0.050	ug/l	1	
4,4'-DDE	ND	0.0076	0.050	ug/l	1	
4,4'-DDT	ND	0.0088	0.050	ug/l	1	
Aldrin	ND	0.012	0.050	ug/l	1	
alpha-BHC	ND	0.0075	0.050	ug/l	1	
beta-BHC	ND	0.0049	0.050	ug/l	1	
Chlordane (tech)	ND	0.37	0.50	ug/l	1	
delta-BHC	ND	0.0048	0.050	ug/l	1	
Dieldrin	ND	0.0048	0.050	ug/l	1	
Endosulfan I	ND	0.0017	0.050	ug/l	1	
Endosulfan II	ND	0.0051	0.050	ug/l	1	



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 9G16088
Project ID: E090715017/018/019/022/043/0
44/045

Date Received: 07/16/09 17:10
Date Reported: 08/07/09 11:08

9G16088-01 E090715017

Sampled: 07/15/09 00:00

Sampled By: Client

Matrix: Water

Chlorinated Pesticides and/or PCBs

Method: EPA 608	Batch: W9G0739	Prepared: 07/21/09 00:00	Analyzed: 07/27/09 07:26	Analyst: dav		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Endosulfan sulfate	ND	0.0051	0.050	ug/l	1	
Endrin	ND	0.0053	0.050	ug/l	1	
Endrin aldehyde	ND	0.0055	0.050	ug/l	1	
gamma-BHC (Lindane)	ND	0.0047	0.050	ug/l	1	
Heptachlor	ND	0.0093	0.050	ug/l	1	
Heptachlor epoxide	ND	0.0055	0.050	ug/l	1	
Methoxychlor	ND	0.0085	0.050	ug/l	1	
PCB-1016	ND	0.41	1.0	ug/l	1	
PCB-1221	ND	0.31	1.0	ug/l	1	
PCB-1232	ND	0.74	1.0	ug/l	1	
PCB-1242	ND	0.34	1.0	ug/l	1	
PCB-1248	ND	0.28	1.0	ug/l	1	
PCB-1254	ND	0.21	1.0	ug/l	1	
PCB-1260	ND	0.21	1.0	ug/l	1	
Toxaphene	ND	1.6	2.0	ug/l	1	

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: EPA 335.4	Batch: W9G0819	Prepared: 07/22/09 15:47	Analyzed: 07/24/09 17:58	Analyst: hml		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Cyanide, Total	ND	2.7	5.0	ug/l	1	



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 9G16088
Project ID: E090715017/018/019/022/043/0
44/045

Date Received: 07/16/09 17:10
Date Reported: 08/07/09 11:08

9G16088-05 E090715043

to run (copy)

Sampled: 07/15/09 00:00

Sampled By: Client

Matrix: Water

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: EPA 335.4	Batch: W9G0819	Prepared: 07/22/09 15:47	Analyzed: 07/24/09 18:03	Analyst: hml		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Cyanide, Total	ND	2.7	5.0	ug/l	1	

Volatile Organics by EPA Method 624

Method: EPA 624	Batch: W9G0984	Prepared: 07/21/09 14:15	Analyzed: 07/22/09 03:26	Analyst: mdt		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Surrogate: 1,2-Dichloroethane-d4	97 %		80-130			
Surrogate: 4-Bromofluorobenzene	96 %		87-109			
Surrogate: Toluene-d8	100 %		90-114			
1,1,1-Trichloroethane	ND	0.39	1.0	ug/l	1	
1,1,2,2-Tetrachloroethane	ND	0.34	1.0	ug/l	1	
1,1,2-Trichloroethane	ND	0.29	1.0	ug/l	1	
1,1-Dichloroethane	ND	0.32	1.0	ug/l	1	
1,1-Dichloroethene	ND	0.34	1.0	ug/l	1	
1,2-Dichlorobenzene	ND	0.33	1.0	ug/l	1	
1,2-Dichloroethane	ND	0.28	1.0	ug/l	1	
1,2-Dichloropropane	ND	0.28	1.0	ug/l	1	
1,3-Dichlorobenzene	ND	0.35	1.0	ug/l	1	
1,4-Dichlorobenzene	ND	0.37	1.0	ug/l	1	
2-Chloroethyl vinyl ether	ND	0.29	5.0	ug/l	1	
Acrolein	ND	0.44	5.0	ug/l	1	
Acrylonitrile	ND	0.27	2.0	ug/l	1	
Benzene	ND	0.30	1.0	ug/l	1	
Bromodichloromethane	1.2	0.32	1.0	ug/l	1	
Bromoform	ND	0.23	1.0	ug/l	1	
Bromomethane	ND	0.12	1.0	ug/l	1	
Carbon tetrachloride	ND	0.32	1.0	ug/l	1	
Chlorobenzene	ND	0.46	1.0	ug/l	1	
Chloroethane	ND	0.21	1.0	ug/l	1	
Chloroform	2.5	0.31	1.0	ug/l	1	
Chloromethane	ND	0.27	1.0	ug/l	1	
cis-1,3-Dichloropropene	ND	0.25	1.0	ug/l	1	
Dibromochloromethane	ND	0.29	1.0	ug/l	1	
Dichlorodifluoromethane (Freon 12)	ND	0.44	1.0	ug/l	1	
Ethylbenzene	ND	0.43	1.0	ug/l	1	
m,p-Xylene	ND	0.70	1.0	ug/l	1	
Methylene chloride	ND	0.34	1.0	ug/l	1	
o-Xylene	ND	0.32	1.0	ug/l	1	
Tetrachloroethene	ND	0.50	1.0	ug/l	1	
Toluene	1.6	0.45	1.0	ug/l	1	
trans-1,2-Dichloroethene	ND	0.32	1.0	ug/l	1	



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 9G16088
Project ID: E090715017/018/019/022/043/0
44/045

Date Received: 07/16/09 17:10
Date Reported: 08/07/09 11:08

9G16088-05 E090715043

Sampled: 07/15/09 00:00

Sampled By: Client

Matrix: Water

Volatile Organics by EPA Method 624

Method: EPA 624

Batch: W9G0984

Prepared: 07/21/09 14:15

Analyzed: 07/22/09 03:26

Analyst: mdt

Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
trans-1,3-Dichloropropene	ND	0.26	1.0	ug/l	1	
Trichloroethene	ND	0.35	1.0	ug/l	1	
Trichlorofluoromethane	ND	0.43	1.0	ug/l	1	
Vinyl chloride	ND	0.33	1.0	ug/l	1	



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 9G16088
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44/045

Date Received: 07/16/09 17:10
Date Reported: 08/07/09 11:08

Notes and Definitions

- S-GC** Surrogate recovery outside of control limits due to a possible matrix effect. The data was accepted based on valid recovery of the remaining surrogate.
- S-04** The surrogate recovery for this sample is outside of established control limits due to possible sample matrix effect.
- M-05** Due to the nature of matrix interferences, sample was diluted prior to analysis. The reporting limits were raised due to the dilution.
- M-04** Due to the nature of matrix interferences, sample extract was diluted prior to analysis. The reporting limits were raised due to the dilution.
- E** The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
- ND** NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL)
- dry** Sample results reported on a dry weight basis
- RPD** Relative Percent Difference
- % Rec** Percent Recovery
- Sub** Subcontracted analysis, original report available upon request
- MDL** Method Detection Limit
- MDA** Minimum Detectable Activity
- MRL** Method Reporting Limit

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California Department of Health Services.

The Reporting Limit (RL) is referenced as the Laboratory's Practical Quantitation Limit (PQL) or the Detection Limit for Reporting Purposes (DLR).

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.



Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000271 6918

Lab ID: **E100126040** Date Received: 1/26/2010 11:17 Matrix: Liquid
 Sample ID: **TV INFLUENT** Date Collected: 1/26/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: THM-EPA 524.2			Analytical Method: THM-EPA 524.2								
Bromodichloromethane (THM)	<0.5	ug/L	0.5	0.13	1			2/3/2010		CG	
Bromoform (THM)	1	ug/L	0.5	0.17	1			2/3/2010		CG	
Chloroform (THM)	0.85	ug/L	0.5	0.17	1			2/3/2010		CG	
Dibromochloromethane (THM)	0.61	ug/L	0.5	0.19	1			2/3/2010		CG	
Total Trihalomethanes (TTHM)	2.5	ug/L	0.5		1			2/3/2010		CG	
Analysis Desc: HAA-EPA 552.2			Analytical Method: HAA-EPA 552.2								
Dibromoacetic Acid (DBAA)	2	ug/L	1	0.13	1			1/30/2010		CG	
Dichloroacetic Acid (DCAA)	5.1	ug/L	1	0.41	1			1/30/2010		CG	
HAA5 - Haloacetic Acids (Five)	13	ug/L	1		1			1/30/2010		CG	
Monobromoacetic Acid (MBAA)	<1	ug/L	1	0.21	1			1/30/2010		CG	
Monochloroacetic Acid (MCAA)	<2	ug/L	2	0.32	1			1/30/2010		CG	
Trichloroacetic Acid	6.3	ug/L	1	0.22	1			1/30/2010		CG	
Analysis Desc: SRL 524M-TCP			Analytical Method: SRL 524M-TCP								
1,2,3-Trichloropropane (TCP)	<0.005	ug/L	0.005	0.0012	1			1/28/2010		CG	
METALS											
Analysis Desc: ICP Metals, 200.7			Analytical Method: ICP Metals, 200.7								
Calcium	78	mg/L	1.0	0.065	1			1/28/2010		SN	
Magnesium	26	mg/L	1.0	0.029	1			1/28/2010		SN	
Hardness	301	mg/L			1			1/28/2010		SN	
Analysis Desc: ICP-MS Metals, EPA 200.8			Analytical Method: ICP-MS Metals, EPA 200.8								
Aluminum	945	ug/L	10	4.391	1			2/9/2010		SC	
Chromium (Total)	3.2	ug/L	0.50	0.342	1			2/9/2010		SC	
Nickel	6.6	ug/L	1.0	0.686	1			2/9/2010		SC	
Copper	109	ug/L	0.50	0.308	1			2/9/2010		SC	
Zinc	150	ug/L	1.0	1	1			2/9/2010		SC	
Arsenic	2.6	ug/L	2.0	0.607	1			2/9/2010		SC	
Selenium	2.6	ug/L	2.0	0.425	1			2/9/2010		SC	
Silver	0.8	ug/L	0.25	0.065	1			2/9/2010		SC	
Cadmium	<0.25	ug/L	0.25	0.075	1			2/9/2010		SC	
Lead	1.2	ug/L	0.50	0.421	1			2/9/2010		SC	

Report ID: 7732

DRAFT

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Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570
Phone: (951) 928-3777, X6278
Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000271 6918

Lab ID: **E100126040**
Sample ID: **TV INFLUENT**

Date Received: 1/26/2010 11:17 Matrix: Liquid
Date Collected: 1/26/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Manganese	126	ug/L	5.0	0.583	1			2/9/2010	SC		
Analysis Desc: Mercury, EPA 245.1			Analytical Method: Mercury, EPA 245.1								
Mercury	0.2	ug/L	0.2	0.0917	1			1/29/2010	SN		

Report ID: 7732

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Page 2 of 6

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Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000271 6918

Lab ID: **E100126042** Date Received: 1/26/2010 11:17 Matrix: Liquid
 Sample ID: **TV INFLUENT GRAB** Date Collected: 1/26/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: VOC-EPA 624		Analytical Method: VOC-EPA 624									
Bromodichloromethane (THM)	<1	ug/L	1	0.32	1			1/28/2010		CG	
Bromoform (THM)	<1	ug/L	1	0.23	1			1/28/2010		CG	
Chloroform (THM)	1.5	ug/L	1	0.31	1			1/28/2010		CG	
Dibromochloromethane (THM)	<1	ug/L	1	0.29	1			1/28/2010		CG	
Toluene	<1	ug/L	1	0.45	1			1/28/2010		CG	
Total Trihalomethanes (TTHM)	3.91	ug/L	1		1			1/28/2010		CG	
Analysis Desc: Cyanide-EPA 335.3		Analytical Method: Cyanide-EPA 335.3									
Cyanide	<0.005	mg/L	0.005	0.0027	1			1/29/2010		CG	

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Eastern Municipal Water District

Contracted Laboratory Analysis Request Form



0A27084

WECK
14859 East Clark Avenue
City of Industry, CA 91745
626 336-2139

Workorder #: E1000271
Date Sampled: JAN 26, 2010
Requested By: RWRF-Temecula Valley
Prepared By: Catherine Graden

Purchase Order #: 53439

Location	EMWD Lab ID #	Analysis Requested	Account #	# Bottles
TV INFLUENT	E100126040	SRL 524M-TCP THM-EPA 524.2 HAA-EPA 552.2		3
TV PLANT EFFLUENT	E100126041	SRL 524M-TCP Phenols/Phenolics-EPA 420.1 THM-EPA 524.2 Perchlorate-EPA 314.1 HAA-EPA 552.2		5
TV INFLUENT GRAB	E100126042	Cyanide-EPA 335.3 VOC-EPA 624		2
TV PLANT EFF GRAB	E100126043	Cyanide-EPA 335.3 VOC-EPA 624		2

Remarks: Please only analyze the highlighted constituents. Please report the MDL's, the MRL's, and report the J-Flag values.
Call the Water Quality Dept., Laboratory Division, at (951) 928-3777, ext. 6278 if you have any questions regarding this request.

#1160

ANALYZED 2-11-10

QC APPROVED _____

Hand entered.

**SAMPLE
PICK-UP**

Carrier Release

Chain of Custody Attached? Yes No

RELINQUISHED BY	DATE	TIME	RECEIVED BY
<i>[Signature]</i>	1-27-10	09:55	<i>[Signature]</i>
<i>[Signature]</i>	1/27/10	355	James Graser 1/27/10 1555

Tuesday, January 26, 2010 4:26:25 PM

3.4°C

Eastern Municipal Water District

Contracted Laboratory Analysis Request Form



Test Request Details

- Cyanide-EPA 335.3
- Cyanide
- HAA-EPA 552.2
- Dibromoacetic Acid
- Dichloroacetic Acid
- HAA5 - Haloacetic
- Monobromoacetic
- Monochloroacetic Acid
- Trichloroacetic Acid
- Perchlorate-EPA
- Perchlorate
- Phenols/Phenolics-E
- Phenol
- SRL 524M-TCP
- 1,2,3-Trichloropropane
- THM-EPA 524.2
- Bromodichloromethan
- Bromoform (THM)
- Chloroform (THM)
- Dibromochloromethan
- Total Trihalomethanes
- VOC-EPA 624
- 1,1,1-Trichloroethane
- 1,1,2,2-Tetrachloroeth
- 1,1,2-Trichloroethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,2-Dichloropropane
- 1,3-Dichloropropane
- 2-Chloroethylvinyl
- Acrolein
- Acrylonitrile (Acritol)
- Benzene
- Bromodichloromethan
- Bromoform (THM)
- Bromomethane
- Carbon Tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform (THM)
- Chloromethane
- Cis 1,3-Dichloroprope
- Dibromochloromethan
- Dichlorodifluorometha
- Ethylbenzene
- M,P-Xylene
- Methyl-Tert-Butyl-Ethe
- Methylen Chloride
- O-Xylene
- Tetrachloroethene
- Toluene
- Total Trihalomethanes
- Trans-1,2-Dichloroeth
- Trans-1,3-Dichloropro
- Trichloroetherte
- Trichlorofluoromethan
- Vinyl Chloride

TV Quarterly Monitoring (4th Qtr 2009 - 3rd Qtr 2010)

TV RWRFF Effluents	Required Analyte	ML ug/L	MCL mg/L	TV RWRFF Effluent	Trigger Analyte	ML ug/L	MCL mg/L
TV RWRFF Effluents	Bicarbonate			EPA 624	Bromodichloromethane	2	
TV RWRFF Effluents	Boron		1		Bromoform	2	
TV RWRFF Effluents	Calcium				Chloroform	2	
TV RWRFF Effluents	Carbonate				Dibromochloromethane	2	
TV RWRFF Effluents	Chloride				Toluene	2	
TV RWRFF Effluents	Fluoride		2	EPA 552.2	Haloacetic acids (HAA5)		0.06
TV RWRFF Effluents	Magnesium			EPA 524.2	Total Trihalomethanes (TTHM)		0.08
TV RWRFF Effluents	Sodium			SRL-524M-TCP	1,2,3-Trichloropropane		0.000005
ICPMS	Aluminum		1	EPA 501	NDEA		0.00001
	Antimony	0.5					
	Arsenic	2					
	Barium		1				
	Cadmium	0.25					
	Chromium	0.5					
	Cobalt						
	Copper	0.5					
	Lead	0.5					
	Mercury	0.5					
	Nickel	1					
	Selenium	2					
	Silver	0.25					
	Zinc	1					
EPA 335.3	Cyanide	5					
EPA 314.0	Perchlorate		0.006				
EPA 625	Phenol	1					

TV RWRFF Influent	Required Analyte	ML ug/L	MCL mg/L	TV RWRFF Influent	Trigger Analyte	ML ug/L	MCL mg/L
TV RWRFF Influent	Hardness			EPA 624	Bromodichloromethane		
ICPMS	Arsenic				Bromoform		
	Cadmium				Chloroform		
	Chromium				Dibromochloromethane		
	Copper				Toluene		
	Lead			EPA 552.2	Haloacetic acids (HAA5)		
	Mercury			EPA 524.2	Total Trihalomethanes (TTHM)		
	Nickel			SRL-524M-TCP	1,2,3-Trichloropropane		
	Selenium						
	Silver						
	Zinc						
EPA 335.3	Cyanide						

CERTIFICATE OF ANALYSIS

Client: Eastern Municipal Water District 2270 Trumble Road Perris, CA 92570	Report Date: 02/08/10 12:01
Attention: Ken Marshall	Received Date: 01/27/10 15:55
Phone: (951) 928-3777	Turn Around: Normal
Fax: (951) 928-6177	Work Order #: 0A27084
	Client Project: E100126040-E100126043

NELAP #04229CA ELAP#1132 NEVADA #CA211 HAWAII LACSD #10143

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Weck Laboratories, Inc. certifies that the test results meet all NELAC requirements unless noted in the case narrative. This analytical report is confidential and is only intended for the use of Weck Laboratories, Inc. and its client. This report contains the Chain of Custody document, which is an integral part of it, and can only be reproduced in full with the authorization of Weck Laboratories, Inc.

Dear Ken Marshall :

Enclosed are the results of analyses for samples received 01/27/10 15:55 with the Chain of Custody document. The samples were received in good condition, at 3.4 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Case Narrative:

Reviewed by:

Kim G Tu
Project Manager





Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 0A27084
Project ID: E100126040-E100126043

Date Received: 01/27/10 15:55
Date Reported: 02/08/10 12:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sampled by:	Sample Comments	Lab ID	Matrix	Date Sampled
E100126040	Client		0A27084-01	Water	01/26/10 00:00
E100126041	Client		0A27084-02	Water	01/26/10 00:00
E100126042	Client		0A27084-03	Water	01/26/10 00:00
E100126043	Client		0A27084-04	Water	01/26/10 00:00

TU JNK COMPOSITE
TU JNK GRAB



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 0A27084
Project ID: E100126040-E100126043

Date Received: 01/27/10 15:55
Date Reported: 02/08/10 12:01

Sampled: 01/26/10 00:00

0A27084-01 E100126040

Sampled By: Client

TU JWC
COMPOSITE

Matrix: Water

HAA5 by EPA 552.2

Method: EPA 552.2	Batch: W0A0958	Prepared: 01/29/10 08:04	Analyzed: 01/30/10 02:14	Analyst: cwn		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Surrogate: 2,3-Dibromopropionic acid	102 %		70-130			
Dibromoacetic acid (dbaa)	2.0	0.13	1.0	ug/l	1x1	
Dichloroacetic acid (dcaa)	5.1	0.41	1.0	ug/l	1x1	
HAA5, Total	13		1.0	ug/l	1x1	
Monobromoacetic acid (mbaa)	ND	0.21	1.0	ug/l	1x1	
Monochloroacetic acid (mcaa)	ND	0.32	2.0	ug/l	1x1	
Trichloroacetic acid (tcaa)	6.3	0.22	1.0	ug/l	1x1	

Low Level 1,2,3-TCP by SRL Method, P&T, GC/MS SI

Method: SRL 524M-TCP	Batch: W0A0981	Prepared: 01/28/10 08:43	Analyzed: 01/28/10 23:31	Analyst: mdt		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
1,2,3-Trichloropropane	ND	0.0012	0.0050	ug/l	1x1	

Volatile Organic Compounds by EPA Method 524.2

Method: EPA 524.2	Batch: W0B0248	Prepared: 02/03/10 08:14	Analyzed: 02/03/10 15:09	Analyst: mdt		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Surrogate: 1,2-Dichlorobenzene-d4	95 %		70-130			
Surrogate: 4-Bromofluorobenzene	89 %		70-130			
Bromodichloromethane	0.32	0.13	0.50	ug/l	1x1	J
Bromoform	1.0	0.17	0.50	ug/l	1x1	
Chloroform	0.85	0.17	0.50	ug/l	1x1	
Dibromochloromethane	0.61	0.19	0.50	ug/l	1x1	
THMs, Total	2.5		0.50	ug/l	1x1	



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 0A27084
Project ID: E100126040-E100126043

Date Received: 01/27/10 15:55
Date Reported: 02/08/10 12:01

0A27084-03 E100126042

TU INF
GKAS

Sampled: 01/26/10 00:00

Sampled By: Client

Matrix: Water

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: EPA 335.4	Batch: W0A0989	Prepared: 01/29/10 11:13	Analyzed: 01/29/10 19:36	Analyst: mbc		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Cyanide, Total	ND	2.7	5.0	ug/l	1x1	

Volatile Organics by EPA Method 624

Method: FPA 624	Batch: W0A0996	Prepared: 01/28/10 08:35	Analyzed: 01/28/10 20:31	Analyst: indl		
Analyte	Result	MDL	MRL	Units	Dilution	Qualifier
Surrogate: 1,2-Dichloroethane-d4	106 %		80-130			
Surrogate: 4-Bromofluorobenzene	97 %		87-109			
Surrogate: Toluene-d8	102 %		90-114			
Bromodichloromethane	0.67	0.32	1.0	ug/l	1x1	J
Bromoform	0.93	0.23	1.0	ug/l	1x1	J
Chloroform	1.5	0.31	1.0	ug/l	1x1	
Dibromochloromethane	0.81	0.29	1.0	ug/l	1x1	J
Toluene	0.51	0.45	1.0	ug/l	1x1	J



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 0A27084
Project ID: E100126040-E100126043

Date Received: 01/27/10 15:55
Date Reported: 02/08/10 12:01

QUALITY CONTROL SECTION



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 0A27084
Project ID: E100126040-E100126043

Date Received: 01/27/10 15:55
Date Reported: 02/08/10 12:01

Batch -

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



Eastern Municipal Water District
2270 Trumble Road
Perris CA, 92570

Report ID: 0A27084
Project ID: E100126040-E100126043

Date Received: 01/27/10 15:55
Date Reported: 02/08/10 12:01

Notes and Definitions

- M-05** Due to the nature of matrix interferences, sample was diluted prior to analysis. The reporting limits were raised due to the dilution.
- J** Detected but below the Reporting Limit; therefore, result is an estimated concentration.
- ND** NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL)
- dry** Sample results reported on a dry weight basis
- RPD** Relative Percent Difference
- % Rec** Percent Recovery
- Sub** Subcontracted analysis, original report available upon request
- MDL** Method Detection Limit
- MDA** Minimum Detectable Activity
- MRL** Method Reporting Limit
- Dilution** The total dilution factor is expressed as a multiplication between the preparation dilution factor (a) and the analysis dilution factor (b) as "a x b". (a) and (b) are indicated as whole numbers with rounding up for ≥ 0.5 and off for < 0.5

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California Department of Health Services.

The Reporting Limit (RL) is referenced as the Laboratory's Practical Quantitation Limit (PQL) or the Detection Limit for Reporting Purposes (DLR).

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.



Spill pathway along northern property line looking east within storm channel.



Spill pathway along eastern property line looking south.



Spill pathway looking north from southeast corner of the facility.



Release blocked at storm drain along Diaz Road before entering Murrieta Creek.



Release blocked at storm drain along Diaz Road before entering Murrieta Creek.



Vector truck effort results at blocked storm drain.



Farthest southern flow observed along Murrieta Creek.



Portable pump located at Via Montezuma Road.



Recovered water being feed back into the collections system.



Portable pump near Rancho California road.



Warning sign place along Murrieta Creek near Rancho California Road.



Warning sign place along spill pathway.

I. Lab Qualification

CDPH ELAP Certification



CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM BRANCH

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

EASTERN MUNICIPAL WATER DISTRICT

ENVIRONMENTAL REGULATORY COMPLIANCE

2270 TRUMBLE ROAD

PERRIS, CA 92570

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site,
proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1379**

Expiration Date: **11/30/2010**

Effective Date: **11/01/2008**

Richmond, California
subject to forfeiture or revocation

George C. Kulasingam, Ph.D., Chief
Environmental Laboratory Accreditation Program Branch

**EMWD
Water Quality Laboratory
Quality Assurance Program**



Water Quality Laboratory QUALITY ASSURANCE PROGRAM

Facility Name:	Eastern Municipal Water District
Location:	2270 Trumble Road Perris, California 92570
Phone:	951 928-3777

EFFECTIVE DATE: July 1, 2009
NEXT REVIEW DATE: June 2010
REVISION DATE: November 2, 2009

**EMWD's Quality Assurance Plan has been read, approved,
and adopted for use by:**


Kenneth Marshall
Lab Manager

Date: 12/22/09 Ext: 6334


Steven Crombie
Senior Analyst

Date: 12/22/09 Ext: 6319


Suzanne Watson
Senior Analyst

Date: 12/22/09 Ext: 4315

Preamble

Eastern Municipal Water District's (EMWD) Water Quality Laboratory has prepared this Quality Assurance Manual in accordance with the State of California & Arizona Department of Health Services Environmental Laboratory Accreditation Program (ELAP) regulations. This set of quality assurance principals was developed to provide EMWD's Laboratory staff guidance in the proper collection, analysis, and reporting of environmental samples. The guidelines in this manual are designed to help the Laboratory produce legally defensible data of known quality. The quality assurance program addresses the basic concepts of water and wastewater measurements used to determine the value of constituents in a sample. It gives required steps for the control of these factors to insure routine analyses produce credible results. While this Quality Assurance program establishes a set of operating principals, it is not meant to supersede established Standard Operating Procedures (SOPs) or safe laboratory practices. SOPs have been prepared for each analytical method performed by the Laboratory and will be strictly adhered to at all times. Electronic access to SOPs is available using the *SOP Index.doc* located in the Lab Service Pack subdirectory. The Chemical Hygiene Plan (CHP) has been developed to address the safe handling of chemicals in the lab. Job Safety Analyses (JSAs) have also been written to address hazardous operations performed in the lab and steps to prevent exposure and injury. This quality assurance program details the requirements for evaluating the acceptability of data generated by the laboratory and the steps necessary to produce credible and timely results.

A bound copy of **Title 22, Division 4, Chapter 19, Certification of Environmental Laboratories** for reference to specific enforcement code and operational requirements for this manual, necessary to maintain State certification is available to District employees. A copy of ELAPs Microbiology Checklist required for site visits is also maintained and made available to District staff (File path on District network: J:\Laboratory\share\ELAP\Micro Audit Checklist).

The Arizona Department of Health Services, Office of Laboratory Services, Environmental Laboratory Licensure Program's rules for licensing is available at: [http://www.azsos.gov/public services/Title 09/9-14.pdf](http://www.azsos.gov/public_services/Title_09/9-14.pdf)

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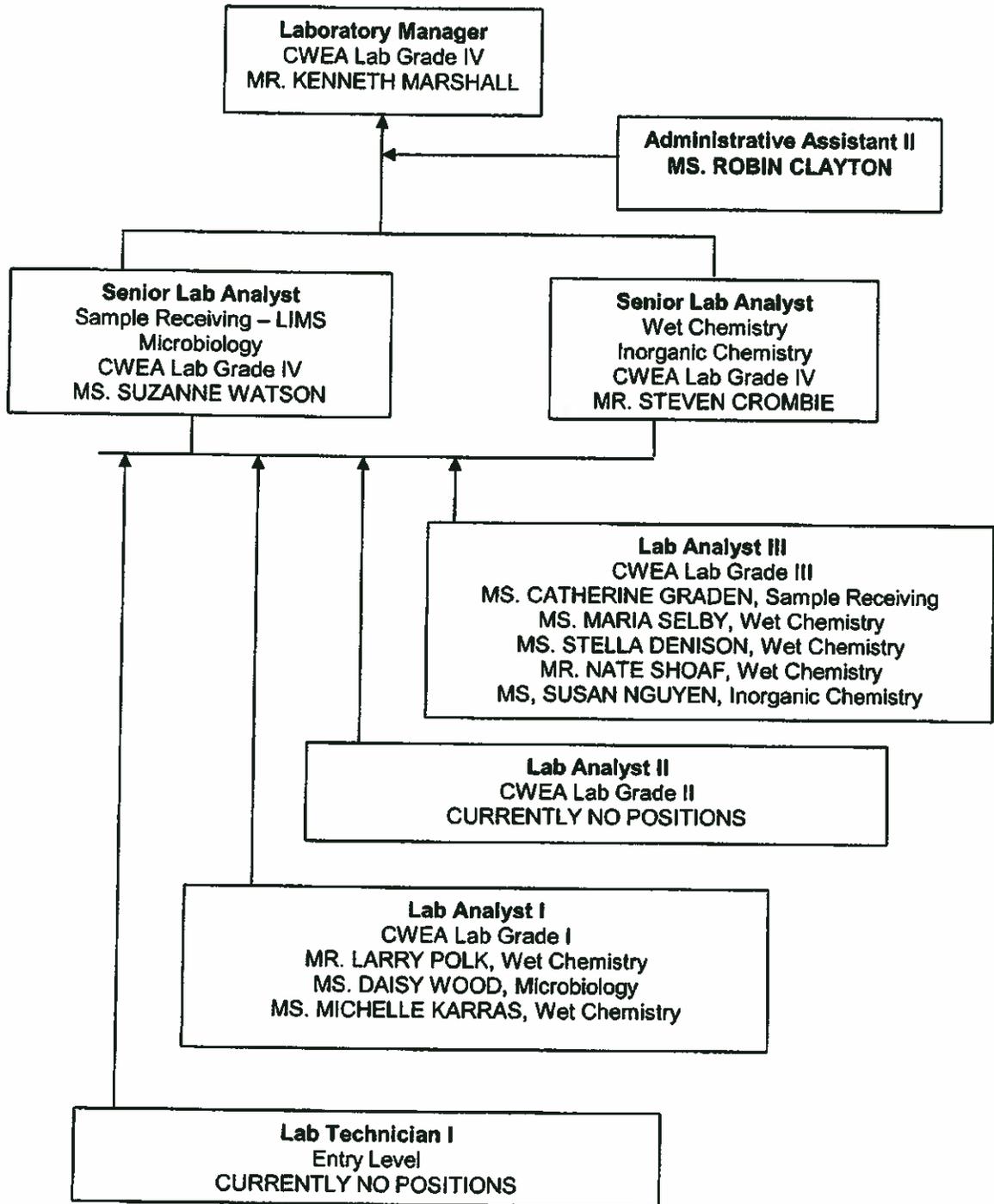
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1.0 ORGANIZATION AND PERSONNEL RESPONSIBILITY

1.1 Organizational Chart;



1.2 Principal Analysts Responsible for Ensuring Production of Valid Measurements:

1.2.1 The Laboratory employees one Manager, two Senior Analyst, eight Analyst, and one Administrative Assistant.

EMWD has established minimum qualification for employment for Laboratory Analyst, requiring a four year degree in a science discipline (Chemistry, Biology, Environmental Science, etc). Lab staff is generally hired in an entry level position (Laboratory Technician) for one year during probation. Upon passing the CWEA Laboratory Grade I exam, advancement to Analyst I position is achieved. Analyst may advance to Analyst II & Analyst III upon passing the CWEA Laboratory Grade II & III exams respectively.

The two Senior Analyst and Laboratory Manager positions is filled through a competitive interview process when openings occur.

Principal Analysts includes the Lab Manager, Senior Analyst, and Lab Analyst III. *Principal Analysts* are responsible for the operation and maintenance of sophisticated laboratory equipment (such as ICPMS, ICP, IC, & TOC). *Principal Analysts* review and release work through the LIMS application.

The Laboratory Manager or Senior Analyst may sign final laboratory reports and certificates of analysis.

1.3 Personnel Qualifications and Areas of Responsibility;

Laboratory Manager

Plan, coordinate and direct all Laboratory and Water Quality services, including water and wastewater sampling and analyses, data management, and the evaluation and incorporation of new laboratory technology and contracted laboratory services. Oversees administration of the Laboratory Information Management System and day-to-day operation of the Laboratory.

Senior Lab Analyst – Wet Chemistry, Inorganic-Metals, Microbiology, Sample Receiving

Oversees the daily operation of various sections of the laboratory. Trouble shoots equipment, provides technical supervision to lab staff. Performs daily wastewater process control, general mineral/chemistry, and metals analysis on water, wastewater, and solid samples. Reviews chemistry QA/QC, approves Lab Analyst work, prints and signs reports. Manages chemical inventory and hazardous waste disposal.

Laboratory Analyst III-

Under direction of the Senior Lab Analyst, perform inorganic metals analysis using ICP, ICP-MS, and CVAA, instrumentation. Supports general chemistry and microbiology as needed.

Laboratory Analyst I & II

Under the direction of the Senior Lab Analysts, performs testing of wastewater, potable and recycled water. Prepares media used in microbiological testing as well as chemical solutions and dilutions.

Laboratory Technician

Under direction, provides lab support and basic lab analyses.

Administrative Assistant II

Provides clerical support and document management. Manages filing and archiving of laboratory generated data and reports. Supports Sample Receiving as necessary.

1.4 Laboratory Training Program

The development of trained staff is paramount to producing timely, accurate, and defensible data. The laboratory is comprised of the Chemistry, Metals and Microbiology labs, along with the Sample Receiving area, that function together to plan, perform and coordinate all water and wastewater testing for the District. Within each of these sections, it is necessary to develop and maintain quality staff to ensure a high level of professionalism. Each area of the lab is unique, requiring different technical skills and knowledge. Career development relies upon specialized training, education, skill and experience. The laboratory's training programs build upon the skills provided by formal education, along with mentoring and close supervision from the Lab Manager and Senior Lab Analyst assigned to Chemistry and/or Microbiology.

Skill development for new employees relies on the following elements:

- Review of Standard Methods,
- Review of EPA Methods,
- Review of SOPs,
- Observation of method performed,
- Performance of method with close supervision,
- Completion and approval of Initial Demonstration of Proficiency (IDP),
- Review and approval of routine analytical work by supervisor.

Depending upon the complexity of the test and/or instrumentation, the training process may take several days to many months. The most complex instrumentation (i.e., ICP, ICP-MS, TOC, and IC) may require several years of experience and an understanding of the theory behind the test before being able to troubleshoot and understand potential interferences related to an analysis.

1.4.1 Individual Initial Demonstration of Proficiency

Before an Analyst is permitted to perform testing on reportable work, competence in performing the method must be demonstrated. At a minimum, for chemical analysis, the following is to be included in the analyst's IDP for each test:

- Blank,
- 3 to 10 point calibration curve, if applicable.
- Matrix spike, matrix spike duplicate.
- Four replicates of an RDL level standard.
- Four replicates of a single sample.

Upon review and approval of the IDP test results by the Senior Lab Analyst and Lab

Manager, a copy of the benchsheet will be placed into the Analyst's IDP file and made available for review during an employee's annual evaluation.

2.0 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT OF DATA

The laboratory's primary objective is to ensure that analytical data are scientifically valid and of known and acceptable precision and accuracy with proper documentation; and therefore legally defensible. This quality assurance program provides a written document, which presents policies and specific quality control activities designed to achieve this objective.

All analytical work will be done in accordance with *Standard Methods* or EPA approved methods. A method will not be used for compliance reporting until it is known to be applicable and competence has been demonstrated and accepted by ELAP. For each analytical method performed within the lab, Standard Operating Procedures (SOPs) have been written and approved (based upon methods, manuals, and guidelines) by a Senior Laboratory staff member. All laboratory staff will strictly adhere to the individual SOP's quality control requirements for evaluating the acceptability of generated data, as defined in this manual. If conditions exist that prevent a sample from being properly analyzed by the District's laboratory, provisions will be made for the sample to be sent to another lab for testing.

3.0 SAMPLING PROCEDURES

3.1 COLLECTION AND PRESERVATION OF SAMPLES

In most instances, samples delivered to the District's Laboratory have been collected to demonstrate compliance with regulatory requirements. As stated in 18th ed. of Standard Methods for the Examination of Water and Wastewater, (Standard Methods), "The objective of sampling is to collect a portion of material small enough in volume to be transported conveniently and handled in the laboratory while still accurately representing the material being sampled." Emphasis must always be placed on proper sample collection, preservation techniques, and meeting holding times so that no significant change in the composition of the sample occurs before tests are made. This section addresses the collection of water, wastewater, and solid samples for chemical and microbiological analysis. Specific sampling SOPs are included in the SOP Index in the Lab Service Pack.

3.1.1 Acid Preservation of Inorganic Samples

Samples requiring metals testing by ICP or ICP-MS must be preserved with metals-free nitric acid to a pH<2. Preserved samples must be checked after 16-hours to validate that the pH has remained at <2. If a sample requires additional acid, it must be validated again after 16-hours. A *Preservation Logbook* is used to record preservation details to include Lab Number, dates, chemical inventory number of the acid, initials, and 16-hour validation.

3.1.2 Collection for Organic Analysis

Composite samples for organic testing can be collected in cleaned, acid-washed pickle jars which are delivered to the lab shortly after collection. Composite samples are poured into appropriate glass containers by lab staff before being sent to a contract lab for analysis.

Samples requiring Volatile Organic Carbon analysis (VOC): Collect in duplicate 40 ml borosilicate glass vials with screw cap tops. VOC vials are pre-doped with HCl for preservation. VOC testing for drinking water is performed by EPA Method 524, and wastewater is EPA 624. The screw caps have a Teflon-faced silicon septum. The vials are slowly filled to overflowing and capped to avoid trapping air. To ensure that the sample has no air, the sample is inverted and the lid is gently tapped on a solid surface. The absence of air bubbles indicates a proper seal. If air bubbles are present, the bottle is topped off and resealed in the proper manner. Samples containing chlorine are dechlorinated with the addition of sodium thiosulfate. All samples are maintained at 4°C until they are analyzed. The holding time for wastewater (624) and drinking water (524) is 14 days.

Samples requiring Semi-Volatile Organic Carbon (SOC) testing: Collect in 1 liter amber glass bottles. (Contract labs might require duplicate 1 liter bottles). Chlorinated samples are dechlorinated with sodium thiosulfate. SOC for drinking water uses EPA Method 525, and wastewater, uses EPA 625. Drinking water samples are collected in bottles that contain HCl. Wastewater samples are also dechlorinated if needed, but do not require HCl preservation. The holding time for drinking water (525) is 14 days and wastewater (625) is 7 days.

Samples requiring Chlorinated Pesticide testing: Both drinking water and wastewater samples are collected in duplicate 1 liter amber glass bottles and dechlorinated with sodium thiosulfate if chlorine is present. Drinking water samples are testing using method EPA 508, wastewater and groundwater samples are testing with method EPA 608. The holding time for both drinking water and wastewater is 7 days.

Water samples taken for Halo Acetic Acid (HAA) analysis: Collect in 250 ml amber glass bottles with NH₄Cl added as a preservative. HAA testing is performed by EPA Method 552.2. The holding time for HAA is 14 days.

Water samples taken for Tri-Halo Methane (THM) testing: Collect in duplicate 40 ml vials with sodium thiosulfate added to neutralize any chlorine in the sample. THM testing is performed by EPA Method 524.2. The holding time for THM is 14 days.

3.2 BACTERIOLOGICAL SAMPLES

Sample points for routine compliance bacteriological samples are chosen to represent the water supply throughout the District and to meet the Sample Siting Plan requirements as stated in Title 22. A minimum of one sample is taken from each pressure zone at least once per month and includes sample sites to represent all sources and reservoirs. Sample points are dedicated sampling stations or District facilities. The District maintains all sample sites whereby inadequate sampling facilities are either repaired or replaced.

When sampling from a spigot, the water is allowed to run for at least three to four minutes before the sample is taken or until the temperature has stabilized. When collecting water from a well, the sample is taken only after the well has been pumped sufficiently to insure that the sample represents the groundwater source (minimum of 20 minutes). The sample container is not opened until the water is ready to be sampled. The water flow is adjusted such that splashing is minimized while the container is being filled. Sample container size

and preservation methods are determined using Standard Methods.

Bacteriological sample bottles are pre-sterilized, disposable 120 ml bottles containing sodium thiosulfate. Sterility for each lot of containers is checked using trypticase soy broth added to a bottle and incubated at 35°C for 24 hours. The incubated bottles are then checked for growth. One bottle from each lot of pre-sterilized bottles is checked for sterility before use. New lots of IDEXX bottles are validated to have less than 2.5 % tolerance in volume. One sample container from each lot is filled to the line with water, which is then poured into a class A graduated cylinder and measured. An alternative volume check would be to fill a tared bottle to the line with water and record the weight of the water. For physical analysis, one-liter glass jars are used. Before use, these jars are washed and rinsed with de-ionized water.

3.2.1 Potable and Recycled Water Sample Collection

All potable water samples collected throughout the distribution system and all recycled water samples collected at the five RWRF's are delivered to the lab in pre-sterilized, 120 mls disposable bottles containing sodium thiosulfate. Prior to use, microbiology staff validates sterilization of each new lot of bottles. Each bottle in the case is identified with a numbered label that is traced to the manufacturers' lot number and expiration date. Bottles are further protected in the field by placing them in zip-locked baggies during storage and transportation. Upon collection, samples are immediately refrigerated and/or placed in a cooler containing blue ice until delivery to the lab. Samples requiring longer than one-hour delivery are maintained below 10°C until they are delivered and analyzed. Potable samples delivered to the lab for Coliform testing having less than 97.5 ml volume are rejected. The sample type, location, chlorine residual, temperature, sampling time, sampler's initials, and remarks are recorded on chain-of-custody form by the person collecting the sample.

3.2.2 Raw Well Water Sample Collection

Samples collected from wells follow the same protocol as described in Section 3.2.1 above. Pre-sterilized, square Nalgene disposable bottles, containing no sodium thiosulfate may be used to collect raw well samples. Using these bottles allows samples to be checked for the presence of chlorine before analysis by the Microbiologist to verify that the samples are raw water. If the well casing has been chlorinated, another sample must be collected in bottles containing sodium thiosulfate and must not be identified as raw water.

3.2.3 Sample Holding Times

Microbiological examination of water samples should be performed promptly after collection to avoid additional bacteriological growth or changes within the sample. Ideally, water samples should be processed within one hour after collection. Unfortunately, this requirement is difficult to meet when using a centralized laboratory facility. Holding times for compliance samples must therefore meet the minimum standards summarized in the following table:

Matrix	Transport Temperature	Maximum Holding Time HPC Analysis	Maximum Holding Time Coliform Analysis
Drinking & Raw Well - Compliance	< 10 °C	8-hrs	30-hrs
Misc Potable Water – Non-compliance	< 10 °C	24-hrs	30-hrs
Recycled Water	< 10 °C	NA	6-hrs

Other Water – Non-compliance	< 10 °C	24-hrs	24-hrs
Biosolids-Sludge Cake	< 10 °C	NA	6-hrs

3.3 WASTEWATER SAMPLES

Wastewater samples are collected from various points in the treatment process from EMWD's four wastewater treatment plants. Samples may be taken for compliance, for process control or for special studies. Compliance samples may be collected daily, monthly, quarterly or annually. Samples are collected by the Treatment Plant Operators and may be 24-hour flow proportioned composite samples or grab samples. Samples are delivered to the District Laboratory by courier within three hours of collection and are accompanied with a chain of custody completed by the treatment plant operator. The sampler's initials, employee number, time sampled, flow, and refrigerator temperature of the composite sampler are recorded on the chain of custody. Samples are refrigerated after collection and kept below 10°C during transportation to the lab. Samples requiring metals analysis are preserved using nitric acid to pH <2 and recorded in the sample preservation logbook (refer to section 3.3.4 for metals preservation).

3.3.1 Daily Process Control Samples

Process control samples are collected to meet regulatory and non regulatory testing for BOD, COD, TSS, NH₄-N, etc. and are collected in reusable 1-liter Nalgene and 1-gallon plastic bottles identified with permanent labels. Each label includes the treatment plant name and stream name (I.E.: Influent, Primary, Secondary, and Plant Effluent). Samples are typically held twenty-four hours upon completion of the analysis before being discarded.

The sample containers are rinsed twice with warm water followed by a DI water rinse. The bottles are allowed to air dry prior to returning to the treatment plant for reuse.

3.3.2 Wastewater samples requiring inorganic testing

Wastewater samples are also periodically collected for general mineral, chemical and inorganic analysis. The samples are collected in the bottles described in Section 3.3.1 above with remaining samples transferred to bottles for 30-day storage within the Sample Receiving refrigerator. Bottles are identified with LIMS generated labels to include lab number and complete sample identification. Samples are discarded after 30 days. Samples requiring metals analysis are further split into 500 mls plastic bottles, labeled, preserved with nitric acid, and recorded in the preservation logbook.

3.3.3 Wastewater Samples Requiring Organic and Cyanide Analyses

These samples include Priority Pollutant Samples collected for 129-Priority Pollutants from each of the five RWRf's on a rotational basis. Samples are collected in acid washed glass pickle jars, provided to the treatment plant operators several days prior to sampling. These pickle jars are placed in the composite samplers on the day of sampling in place of the routine plastic containers. Full pickle jars are transported to the laboratory by the courier. Upon receipt, the sample is divided into proper containers for metals, organic (EPA Methods 608, 624, and 625) (see section 3.1.2 for organic testing) and cyanide analysis. Samples requiring metals analysis are further split into 500 mls plastic bottles, labeled, preserved with nitric acid to pH <2, and recorded in the preservation log book. Organic analysis is performed by a contract laboratory.

3.4 INDUSTRIAL WASTE SAMPLES

Samples collected by Industrial Waste Inspectors (Source Control) are taken in pre-cleaned plastic or glass containers depending upon the analysis requested. Sample containers and preservation methods are determined from Standard Methods or EPA Methods.

3.5 RAW WELL MONITORING

These samples are collected to meet Title 22 primary MCL standards for inorganic, organic, and radiological chemical monitoring. Samples may also be collected to monitor for special studies and determination of future regulatory changes.

Inorganic and general mineral analyses are routinely performed by the District's laboratory. Samples are collected in prewashed, 1-gallon and 500 mls plastic containers and labeled with LIMS generated labels. Samples requiring metals analysis are further split into 500 mls plastic bottles, labeled, preserved with nitric acid to pH <2, and recorded in the preservation log book.

Organic analyses are performed by contract laboratory with samples delivered by courier on the same day collected. See section 3.1.2 for organic sampling and analysis.

Holding times outlined in Standard Methods are observed with most samples delivered to the laboratory within three hours of collection.

3.6 SURFACE WATER

Sampling points are chosen either by the regulatory agency, consultants, or at the best and safest location. Samples are taken "mid-stream, mid-depth" or as close as possible to the center of the stream. During collection, the sample is taken facing upstream so as not to stir up bottom sediment. Sample containers are not opened until ready to sample. Bottles used are either pre-cleaned by EPA standards or sterilized depending upon the type of sampling required.

Sample containers and preservation methods are determined from Standard Methods or EPA methods.

Bacteriological samples are collected in pre-sterilized 120 ml bottles. For chemical analysis, the samples are taken in new ½ to 1-gallon plastic, or 500 ml to 1-L plastic or glass container. Samples requiring metals analysis are taken in 500 mls plastic containers. The pH of the sample is then adjusted to <2 with HNO₃ (refer to section 3.3.4)

VOC and SOC samples may also be collected. See section 3.1.2 for organic sampling and analysis.

Bioassay samples are collected in duplicate collapsible 1 gallon containers that are purchased pre-cleaned to EPA specifications and delivered to the District's laboratory within three hours of collection. Bioassay samples must be shipped to an appropriate contract lab in a cooler with blue ice for overnight delivery.

3.7 SOIL AND BIOSOLIDS

Samples with a solid matrix are collected in 250-500 mls wide mouth plastic containers or glass bottles with no preservative added. Biosolids requiring bacteriological testing must be collected in pre-sterilized plastic bottles. Bottles can be autoclaved with a few drops of water added and the cap set on top of the bottle.

The maximum allowable holding times for sludge is 6.0 hours.

4.0 CUSTODY, HANDLING, AND DISPOSAL OF SAMPLES

With the exception of daily wastewater samples submitted for process control analysis, all sample containers are labeled immediately upon entry into LIMS. Bottle labels are produced by the LIMS and contain the following information; Lab #, Sample ID, Collect Date, Client ID, Container #, and Bottle Type. The LIMS is a secure and protected sample management system that meets the EPA's GALP criteria for environmental database systems. All LIMS data is stored on secure servers, maintained by the Information Systems Department, and backed up nightly.

With the exception of daily wastewater samples submitted for process control analysis, all chemistry samples are stored in the walk-in refrigerator for 30-45 days. Afterward, liquid, non-hazardous samples are disposed in the sink. Solid, non-hazardous samples are disposed in the trash or returned to the RWRf for disposal. Hazardous samples are disposed of following District policy on hazardous waste disposal and the Lab's Chemical Hygiene Plan. All incubated media is autoclaved for 30 min at 121-124 °C and 15 psi before disposal.

4.1 CHAIN OF CUSTODY

The primary objective of Chain-of-Custody procedure is to create an accurate written record that can be used to trace the possession of the sample, from the moment of its collection through its introduction into evidence.

At Eastern Municipal Water District the following rules for sample collection are followed when chain-of-custody procedures are requested:

1. Only persons that are trained in sample collection and handling are involved.
2. Proper procedures for collection, preservation, and handling for each particular sample are adhered to.
3. Sample tags or labels are attached to the sample container at the time the sample is collected. The tags include the following information: the sample source, the date and time the sample was collected, the type of sample, the preservative used, the lab number, the name of the sample collector and the analyses requested.
4. The sample collector fills out the chain-of-custody record at the time the sample is taken. Tamper resistant tape is used to seal the bottle by the sample collector. The tape may not be broken until the laboratory performs analysis.
5. The sample collector is responsible for the care and custody of the samples until the samples are properly handed over to the receiving laboratory. The sample collector insures that each container is in his physical possession or in his view at all times, or stored in a locked place where no one can tamper with it.
6. If necessary, color slides or photographs of the sample locations are taken. The backs of the photos are signed and the date, time, and site location are indicated. The photos are handled according to chain-of-custody procedures

to prevent alteration.

At the time samples are submitted to the lab the sampler must sign and date the chain of custody record. The laboratory person receiving the samples acknowledges receipt by signing in the appropriate column.

All samples submitted under chain-of-custody, if not analyzed in-house, are delivered to a contract laboratory for analysis. Samples are signed and released to the contract laboratory's courier and a chain-of-custody report will be included with the final report. The Source Control Division of EMWD routinely submits samples accompanied by their "Sample Handling Record" which serves as a chain-of-custody record.

5.0 CALIBRATION PROCEDURES AND FREQUENCY

The type and frequency of calibration for each method performed is dependent on the instrument or equipment used for analysis and is detailed in the following list of equipment:

5.1 INSTRUMENT TYPE AND FREQUENCY OF CALIBRATION

5.1.1 BALANCES

Analytical balances are serviced annually. A contractor certified to calibrate balances is used. With proper care, balances rarely lose their calibration between servicing and if so, the service representative is contacted immediately. Prior to each weighing the analyst must zero the balance. Weekly checks are performed using Class S weights.

Class S weights are certified every year. Microbiology balances must detect 0.100 grams with a 150-gram load. The weighing chamber and pan are kept clean at all times.

5.1.2 DRYING OVENS

The temperature for each drying oven must be closely monitored to demonstrate conformance with Standard Methods and the SOPs. A thermometer conforming to ASTM specifications and traceable to NIST is placed inside each incubator. External digital thermometers are not accurate and may not be used to determine compliance temperatures of the ovens. Acceptable temperatures for drying ovens are:

Total Solids Drying Oven:	103-105°C
Total Dissolved Solids Drying Oven:	180 ± 2°C

The Analyst shall record the oven temperature on the Batch Report when placing samples into the oven and when removing dried samples from the oven.

5.1.3 INCUBATORS - BACTI

The incubator temperature is monitored with three thermometers traceable to NIST, and graduated in increments of $\leq 0.5^{\circ}\text{C}$. Temperature readings are recorded twice daily (seven days per week), at times at least four hours apart, to insure that the $35\pm 0.5^{\circ}\text{C}$ requirement is maintained. The temperature is recorded from the top, middle, and lower shelves of the incubator. In addition, a seven-day continuous read circular chart is also maintained.

The fecal bath incubator has a stainless steel gabled cover and is monitored with a

submersible thermometer designated in 0.1°C increments. When in use, fecal water bath temperature readings are monitored twice daily at least four hours apart. Temperature is maintained at 44.5± 0.2°C.

5.1.4 INCUBATORS - BOD

The incubator temperature is monitored by a thermometer, which has been calibrated against an NIST certified thermometer. The thermometer can be read to the nearest 0.5°C in order to maintain the 20±1°C requirement. Temperature readings are recorded every day.

5.1.5 LAMINAR FLOW HOOD

A Class II Laminar Flow Hood is utilized for setting up all potable water samples. The hood is wiped down before and after use with disinfectant and is allowed to run a minimum of 15 minutes before use. A certified technician checks the airflow once per year. Air sterility checks are performed each day that HPC's are run.

5.1.6 MUFFLE FURNACE

The furnace must be brought up to temperature of 550°C prior to ignition of samples. Temperature readings are monitored using a digital readout from the pyrometer. The pyrometer is verified monthly by measuring the oven temperature using a certified infrared thermometer. When in operation, the temperature of the muffle furnace shall be maintained at 550°C.

The Analyst shall record the oven temperature on the Batch Report when placing samples into the oven and when removing dried samples from the oven.

5.1.7 COLORIMETER

Permanent color standards are used with the instrument (Disc No. 611-10), which have been calibrated in accordance with APHA specifications. Each time the light bulb is replaced, its socket is repositioned for uniform illumination of the color fields. The instrument and accessories are covered to keep dust out. Sample tubes are rinsed with D.I. water immediately after use.

5.1.8 CONDUCTIVITY METERS

The meters are portable, battery-operated, solid-state and temperature-compensated. The EC meter is checked for accuracy using a standard in the range of the samples being analyzed. The temperature of the standards and samples are adjusted to approximately 25°C prior to reading. The EC meters are temperature compensated and no adjustment for temperature is necessary.

The conductivity cell is rinsed three times with the sample solution before readings are taken. After sample measurements, the cell is rinsed three times with deionized water.

5.1.9 DISSOLVED OXYGEN METERS

The D.O. Meter is calibrated daily using air and water calibrations. In addition, the D.O. meter is checked weekly using the Winkler method. The probe is stored in a humid environment to prevent the membrane from drying out. The membrane and electrolyte solution is replaced when the membrane becomes damaged or when the instrument shows erratic results.

Adequate stirring is assured in the BOD bottles by either a flexible stirring boot housed in the probe or by a vibrating probe.

5.1.10 INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPEC. (ICP) CALIBRATION

1. The ICP is calibrated using a 2-point calibration curve including a Blank and a high standard. The high standard and the blank are read back immediately after calibration, after every 10 samples, and at the end of analysis. The initial high standard reading must be within 5% of the true value, and subsequent readings must be within 10 % of the true value.
2. Peak intensities and % relative standard deviation should be noted and saved as a wavelength scan printout. If there is a drastic change in intensity readings, a new calibration curve should be constructed using a fresh set of standards. If the % RSD exceeds 1.1, instrument parameters should be adjusted to lower this value.
3. A Digestion Log is used to keep track of samples that are digested and also to keep track of acids and other reagents added to the samples during digestion.
4. Miscellaneous ICP Considerations
 - Perform daily wavelength calibrations.
 - Change peristaltic pump tube every eight hours of operation.
 - Clean and replace cyclone mixing chamber and nebulizer as needed.
 - Clean water chiller and power supply filters as needed.
 - Generate acceptable results in annual WS, WP and SOIL blind reference testing.

5.1.11 Inductively Coupled Plasma Mass Spectrometer (ICP-MS)

- **Daily Performance:** check with 5 replicates using instrument software. The relative standard deviation must be less than 5% and oxides must be less than 3%.
- **Mass Calibration and resolution checks** using tuning solution. Use several element masses including one high and one low mass. For good performance, adjust peak width of approx 0.7 amu at 10 % peak height (per manufacturer recommendation). Adjust mass calibration if it has shifted by more than 0.1 amu from unit mass.
- **Calibration:** Perform a 4 point calibration (3 standards and a blank) using multi-element calibration standards. Correlation coefficients must be at least 0.995.
- **Internal Standard (IS):** Monitor IS responses in samples and calibration standards. Also ratios of various internal standards (check for mass dependent drift, errors in adding IS, or sample background in certain IS components). IS intensity must be within 60-125% compared to IS in the calibration blank.
- A Digestion Log is used to keep track of samples that are digested and also to keep track of acids and other reagents added to the samples

during digestion.

- Generate acceptable results in annual WS, WP and SOIL blind reference testing.

5.1.12 COLD VAPOR ATOMIC ABSORBANCE (CVAA) MERCURY ANALYZER

The Teledyne-Leeman mercury analyzer is optimized by doing a lamp adjustment whenever sensitivity changes or when the lamp is removed. A 6 point calibration and general QC checks (Section 8.4) are performed with each run. A Digestion Log is used to keep track of samples that are digested and also to keep track of acids and other reagents added to the samples during digestion. Generate acceptable results in annual WS, WP and SOIL blind reference testing.

5.1.13 ANIONS BY ION CHROMATOGRAPHY (IC)

To assure the integrity of the IC data, all IC runs will include the following:

1. Calibration curve generated using fresh certified standards
2. Correlation coefficient - not less than 0.995
3. QC charts for independent standards and spike recoveries to comply with Standard Methods in the range of 80 to 120 percent.
4. Analysis of reagent blanks.
5. Generate acceptable results in annual WS, WP and SOIL blind reference testing.

5.1.14 pH METERS

Each day of use the pH meter shall be standardized with two or three buffer solutions, bracketing the samples' pH range. pH electrodes are cleaned weekly by soaking in either electrode cleaning solution (Orion) or 1:1 hydrochloric acid for 10 minutes then rinsed with distilled water. When not in use, the electrodes are preserved in a storage solution at pH 4 buffer, or distilled water according to manufacturers' instructions.

5.1.15 SPECIFIC ION ELECTRODE - FLUORIDE (Orion)

Fluoride is determined with the Orion 920A meter using the "direct" reading procedure. The meter is calibrated with two fluoride standards that are prepared 1:1 with Total Ionic Strength Adjustment Buffer (TISAB) each time a fluoride analysis is performed. An independent standard is analyzed along with the samples to verify the curve. After use, the electrode is rinsed, blotted dry, and the protective rubber cap is replaced to prevent accidental damage to the sensing crystal.

5.1.16 SPECTROPHOTOMETERS

HACH DR5000 and HACH DR3000 (used for COD vials only) require quarterly wavelength and linearity checks. Quartz lamps are replaced if quarterly checks are out of calibration. All other service is performed by HACH service technicians.

5.1.17 TOTAL ORGANIC CARBON ANALYZER

The TOC analyzer shall be calibrated prior to analysis using at least 3 standards and a blank at the approximate range of samples. The calibration curve must have a correlation coefficient of 0.995 or greater. After calibration is complete a blank and LCS shall be analyzed to check instrument performance.

5.1.18 AUTOCLAVES

Autoclaves are certified annually for temperature, cycle time and pressure. The required temperature of use for autoclaves must be $121^{\circ}\pm 0.5^{\circ}\text{C}$ for 15-minutes. Autoclave indicator tape is placed on all items prior to autoclaving to verify the required temperature and time has been reached with each batch. Maximum cycle temperature is recorded using the NIST certified internal thermometer. A monthly spore check is performed by autoclaving bio-indicators containing thermal resistant spores, which are then incubated and checked for growth.

A sterility check is performed on each batch of autoclaved tubes or bottles by adding Tryptic Soy Broth to one container and checking for growth after incubating 24 hours. Autoclaved media is checked for sterility by incubating one aliquot from each batch for 48 hours at 35°C and checking for growth.

5.1.19 THERMOMETERS

The Laboratory's certified thermometer is verified for accuracy using an ASTM approved vendor. The Thermometer Calibration Report is kept on file and renewed every three years (#2, Ch. V, Section 3.3.3). All working lab thermometers are purchased as NIST certified thermometers with serial number traceability. NIST thermometers are periodically checked against the lab's certified thermometer for accuracy. Inaccurate thermometers are replaced with new NIST thermometers. The accuracies of non-NIST working thermometers are checked semiannually against the certified thermometer.

5.1.20 AMMONIA AND KJELDAHL: DIGESTION AND STEAM DISTILLATION

The system is allowed to warm up for at least 5 minutes before use by turning on the steam generator. Warm up is repeated whenever the unit has been non-operational for 2-3 minutes. Blanks, standards and spikes are included with each analytical batch. Acid is standardized monthly.

5.1.21 AUTOPIPETOR – MICROBIOLOGY

Dispensing volume is measured and confirmed before each use. Hot tap water is used for cleaning after each use, followed by D.I. water rinse. The glass syringe is disassembled and cleaned with soap and water at least once a month.

5.1.22 BOD ANALYZER

Dispensing volume for seed is measured and confirmed weekly. Membranes are replaced as needed. DO readings are checked weekly. See 5.1.9 above.

5.1.23 AUTO TITRATOR

Daily pH calibrations are performed using three buffers. A pH standard is analyzed to confirm accuracy. Internal GLP 'Sensor Test' is performed monthly to confirm instrument performance. Acid used for Alkalinity test is standardized each month.

5.1.24 DIGESTION BLOCKS

The internal temperature probe is checked for accuracy using an ASTM certified thermometer.

5.1.25 POCKET CLORIMETER for FIELD CHLORINE RESIDUAL

Three standards are read daily to verify accuracy of the unit. Calibration is performed

as needed.

5.1.26 QUANTI-TRAY SEALER

Sealer is cleaned and checked monthly by adding dye to water and sealing the mixture in a Quanti-Tray. The tray is inspected to see that it was sealed properly and there is no dye between wells.

5.1.27 TURBIDIMETERS

A 5-point (0.0, 20, 200, 2000, 7500 NTU) turbidity curve is run once every three months with primary standards. Six Gelex secondary standards (0, 2, 20, 200, 4000, 10000 NTU) are then read immediately after the primary standards. The Gelex secondary standards are then used to check the calibration every month. If the results of the secondary standards vary more than 5%, then the nephelometer is recalibrated with the primary standards. Another secondary standard is used daily as an LCS (1.0 NTU) to check the calibration before each use. If the daily 1.0 NTU standard is off by more than 5%, then the secondary standards (Gelex) are checked. If the secondary standards are off by more than 5%, then the nephelometer is recalibrated with the primary standards. A stray light standard is checked monthly with the secondary standards.

5.1.28 DISCREET ANALYZER

The Discreet Analyzer is currently used for nitrite and reactive silica. Using the software, run "Auto-Zero Filters" daily. Run check standards outlined in section 8.4 with each run.

5.2 TYPE AND CALIBRATION USED FOR EACH METHOD

The following table summarizes the concentration of standards used for preparing the analytical curve. The following table includes a list of constituents analyzed by the District's laboratory with calibration frequency information.

Parameter	Typical Calibration Curve*	Frequency of Calibration
Nitrite Nitrogen (NO ₂ N) spectrometer or discreet analyzer	Blank, 0.01, 0.1, 0.5 mg/l	With each run daily
Total Phosphorus	Blank, 0.1, 0.5, 1.0 mg/l	With each run daily
IC - F - Cl - NO ₃ -N - SO ₄	Blank, 0.1, 0.2, 1.0, 2.0 mg/ blank, 50, 100, 500, 1000 mg/L Blank, 2.0, 4.0, 20, 40 mg/L blank, 25, 50, 250, 500 mg/L	With each run daily
ICP	blank, 1000 µg/L	With each run daily
TOC	blank, 1.0, 5.0, 10, 20 mg/L	At least once per month
COD - High Range	blank, 100, 500, 1000 mg/L	With each lot of tubes
BOD	Winkler Method	At least 1 time per week
ICP-MS - Silver (Ag) - Other trace metals	Blank, 0.25, 25, 50 µg/L Blank, (low varies), 50, 100 µg/L	With each run daily
ICP-AES - Na - Mg - Ca - SiO - B - Cu - Zn - Fe - Mn	Blank, 1000 mg/l Blank, 200 mg/l Blank, 500 mg/l Blank, 107 mg/l Blank, 5.0 mg/l Blank, 1000 µg/l Blank, 1000 µg/l Blank, 10000 µg/l Blank, 1000 µg/l	With each run daily
Mercury	Blank, 0.2, 0.5, 1.0, 2.0	With each run daily
Reactive Silica	Blank, 10, 20, 40, 60 mg/l	With each run daily

*Calibration curve standards may depend on samples being analyzed.

5.3 STANDARDS SOURCE, AGE, STORAGE, AND LABELING

Accurate tracking of chemical inventory and supplies used throughout the laboratory is paramount in producing defensible data. All chemicals purchased for laboratory use are GR/ACS Reagent Grade or better, manufactured using NIST traceable materials and have minimal lot-to-lot variability. Chemicals are purchased in quantities to reduce waste, inventory investment, and storage space.

Every chemical purchased is tracked using the laboratory's CisPro chemical inventory database system. Each purchased chemical container is assigned a unique Log #, with the number printed and placed on the sample container before use. In addition, the following information is recorded in the database:

- Chemical name,
- Received date, quantity (mls),
- Manufacturer,
- Expiration date,
- Vendor name,
- Catalog number,
- Lot number,
- Date opened, and

- Disposal date.

All standards, titrants, solutions, and diluted chemicals are traced using the Log # of the chemical they were made from. These solutions are assigned a unique identifier and recorded in the chem log book at the time they are prepared, along with the following information:

- Solution name,
- Preparation reference (i.e. Standard Methods),
- Weight/volume,
- Chemical Log # used,
- Date prepared, and
- Preparer's initials.

Workgroups and benchsheets include all chemical Log #'s and solution numbers used in the analysis. Solution numbers are also recorded in LIMS within the QC-Module. Every analysis is therefore traceable to the chemicals used in that particular test.

5.3.1 REAGENTS - NON-STANDARDIZED

Most general reagents are contained in polyethylene bottles with the exception of concentrated acids and solvents. Containers are marked stating the following: name and concentration of reagent, date of preparation, analysts' initials, name of the manufacturer, precautionary statements/color coding.

5.3.2 REAGENTS - STANDARDIZED

Reagents to be standardized are prepared from analytical reagent-grade chemicals. Primary standard solutions (e.g., potassium dichromate, sodium chloride) are prepared from primary standard-grade chemicals.

Containers are marked with the following: name and normality of the reagent, dates of standardization, titrimetric factor (where applicable), and analysts' initials.

Solutions are standardized at least once each calendar month and more often if the change in solution concentration per month exceeds the standard deviation of the analysis in question.

6.0 ANALYTICAL METHODS AND PROCEDURES

6.1 ANALYTICAL METHODS

All analytical methods performed by the District's Laboratory for compliance are approved methods by EPA, HACH, or Standard Methods, 20th edition and have been endorsed by regulatory agencies. The methods employed are suitable for most water, wastewater, biosolids, and soil samples having a wide range of quality. Samples with extreme concentrations or matrices, or otherwise unusual composition or characteristics, are diluted or otherwise treated in order to minimize matrix interference.

Currently, analytical methods performed by the District's Laboratory are limited to bacteriological, general mineral & chemical, nutrient, demand, and inorganic tests.

6.2 STANDARD OPERATING PROCEDURES

Standard Operating Procedures (SOPs) are written test procedures outlining steps required for measuring an unknown amount of a constituent in various matrices. SOPs are developed to ensure that quality test results can routinely be generated and they play an integral role in the daily operation of the laboratory. SOPs provide step-by-step procedures that are performed in each test process that if followed by trained individuals, will result in data of high precision and accuracy at or above the established Reporting Level (RL). While Standard Methods provides greater scope and detail for analytical testing, SOPs are written to include laboratory specific details for the instrumentation, equipment, reagents, and calculations used in the procedure. Current SOPs are stored on the District's computer directory.. Electronic, read-only, SOPs files are available for printing by individual staff members. Electronic files are stored on the District's computer network and are backed up daily. The *SOP Index.doc* is located in the Lab Service Pack subdirectory.

SOPs are written, revised, and updated at least annually. All SOPs are dated and signed by the Laboratory Manager upon approval. The format for all written SOPs includes the following sections:

- Scope and Application
- Discussion
- Reagents and Apparatus
- Procedure
- Quality Assurance / Quality Control requirements
- Calculations
- Safety, Hazard, Waste Disposal
- References

7.0 ACQUISITION, VALIDATION, AND REPORTING OF DATA

7.1 LABORATORY INFORMATION MANAGEMENT SYSTEM (LIMS)

Every sample received by the lab is logged into the LIMS and assigned a unique lab number beginning with the letter "E." The number portion of the lab number is based upon the date (I.E. the lab number "E090721001" would represent the first sample received on 7/21/2009. All samples received as a batch are logged in with the same prefix, with each ending in a different suffix). All samples received must include the following minimum information recorded in LIMS:

- Sample name,
- Location,
- Date & time collected,
- Date & time received,
- Samplers' name
- Name of person transporting sample (if different than sampler)
- Name of person receiving the sample.

The receiving temperature of the sample is recorded in LIMS and on the accompanied benchsheet. The LIMS is GALP compliant and meets the ELAP's acceptability criteria for documentation of samples received.

Tests to be performed on the sample are logged into LIMS and bottle labels are printed

using the LIMS report function. Bacteriological samples are submitted to the lab with the appropriate form containing documentation of sample site/location, collection date and time, sampler, and reason for the sample.

Labeled samples requiring chemical analyses are submitted to the chemistry lab. The analyst groups samples requiring similar tests together and generates a LIMS batch report (I.E. BOD, pH, Cations, NH₃-N). The bench sheet report is used by the analyst to record calculations, notes, solutions used and final results. This data is entered into LIMS for reporting. The analyst's name and the date of the analysis are printed on the bench sheet report and stored in the LIMS. Where appropriate, chemical solution numbers and dilution information are noted and recorded in LIMS.

7.2 VALIDATION OF DATA

7.2.1 ACCEPTANCE OF ANALYSIS

To determine the acceptance of analysis, five procedures are used:

1. At a minimum, 10 percent of samples will include quality control samples. Each test run will include one or more QC samples discussed in Section 8.4. Each quality control sample (duplicates, matrix spikes, matrix spike duplicate, laboratory control sample, or blanks) must meet the acceptance criteria outlined in Standard Methods, Section 1020 "Quality Assurance."
2. All quality control data points must be charted and meet the control chart acceptance criteria outlined in Standard Methods, Section 1020-B. Any quality control data point falling outside the control limit (± 3 standard deviations) will invalidate the entire analysis. Standard Operating Procedure #428 further details the District Laboratory's QC policy and charting interpretation. See Section 6.2 for SOP's.
3. The sum of the anions, expressed in me/L, should in theory equal the sum of the me/L for the cations. In practice, the sums vary slightly and the inequality increases as the ionic strength increases. Anion-Cation acceptance criteria outlined in Standard Methods are adhered to:

<u>Anion sum (me/L)</u>	<u>acceptable % difference</u>
0-3.0	± 0.2 me/L
3.0-10.0	$\pm 2\%$ me/L
10.0-800	$\pm 5\%$ me/L

4. Measured TDS to calculated TDS, measured EC to calculated EC, measured EC and ion sums, calculated TDS to measured EC, and measured TDS to measured EC ratios must meet the acceptance criteria outlined in Section 1030-F of Standard Methods. A spreadsheet has been developed to calculate these parameters. The spreadsheet report is printed, reviewed and attached to the final report demonstrating the correctness of analysis based on these criteria.

5. The acceptability of microbiology testing results shall conform to Standard Methods, 20th Edition, section 9020. Additionally, each MTF, MMO-MUG, and/or HPC report shall include the following: setup date, time, & initials; 24-hr read date, time, & initials; 48-96-hr. read date, time, & initials; media & buffer lot and expiration

information; initials for LIMS data entry and final approver.

Each MTF & MMO-MUG analysis is reviewed by a Senior Analyst or Analyst III for completion.

7.2.2 SIGNIFICANT FIGURES

When expressing results, the recommendations of Standard Methods, Section 1050-B for significant figures is followed. The Lab keeps current MDL and RDL values in a spreadsheet on the computer network in the following location:

J:\Laboratory\share\Spreadsheets\excel\MDLs\2009 MDL

7.2.3 APPROVAL VERIFICATION

The final approval process and release of data for reporting will be performed by the Lab Analyst III, Senior Lab Analyst or Lab Manager and includes the following verification:

- Accurate data entry into LIMS with correct significant figures.
- Correct math calculations
- Acceptable QC
- Holding times are met
- Values are appropriate and within an acceptable range
- Analysis is signed and dated
- Analysis is correct
- At least two cross checks
- Anything unusual is noted
- All other necessary documentation is included

Data not meeting the above criteria are rejected and the test run must be reviewed, brought to a supervisor for investigation, and/or invalidation. All signatures on the bench sheets insure responsibility for the correctness of the analysis.

The LIMS is EPA GALP compliant and incorporates an audit trail for all corrections and changes made to the data after entry. Data may not be modified after approval by staff. The Lab Analyst III, Senior Lab Analyst, and Lab Manager are granted permission to update approved data. All corrections are detailed with GALP explanations recorded in LIMS.

7.3 FINAL REPORTS

The test results are entered into LIMS either from direct instrument upload or manual data entry. After data entry, the work is reviewed and approved by the Lab Analyst III, Senior Lab Analyst, or Lab Manager, based upon the criteria outlined above. When all tests assigned to the sample are completed and approved, a final report can be printed, reviewed and signed. For bacteriological analyses, the printed report is checked against the benchsheet for accuracy and signed by the Senior Lab Analyst or Lab Manager. Chemistry reports are reviewed for additional analytical errors such as BOD to COD and NH₃-N to KJ-N discrepancies, reporting units, significant figures, and other sample identity errors.

All reports mailed to outside agencies are printed on letterhead and include the reporting limit (RL), date of analyses, test method used in the analysis, and the

analyst's initial/employee number performing the test.

8.0 INTERNAL QUALITY CONTROL PROCEDURES

8.1 QUALITY CONTROL CHECKS

Sample analysis is controlled by running quality control check (QC) samples with each analytical run. QC samples are run exactly like normal samples and each QC check controls for a slightly different quality issue. Matrix spikes are samples that are spiked with a known amount of analyte and analyzed along with the unspiked sample. The matrix spike result is compared to the unspiked sample in order to measure the effect of sample matrix on a method.

The results of QC checks are plotted on a control chart (see section 8.2 below) showing the dispersion of results around the mean. If a MS result (as percent recovery) falls outside of the control limits, the spiked sample must be re-run. If a second set of MS results fall outside of the control limits, then steps are taken to determine why. These steps may include the following:

- Checking the validity of the standards, reagents, and solutions,
- Evaluating the analyst's technique
- Check matrix interferences
- Check for instrument malfunction.

When the problem has been found, the spiked sample is retested along with another spiked sample. All spiked sample values, including values for the rejected analysis, are plotted on a control chart.

An Independent Standard, or Quality Control Sample (QCS) is run on a quarterly basis or when applicable. Independent standards are not available for some tests such as TSS. Independent standards are prepared using a concentration that falls within the calibration curve. Control standards are derived from a different lot and, when possible, a different manufacturer than those standards used for the calibration curve. The analytical result of an Independent Standard should be within 10% of the true value.

Duplicate analysis is performed by running a sample twice, under the same conditions. Duplicates measure the precision or reproducibility of an analysis. Duplicate analysis is usually performed on a matrix spike, in order to assure getting a measurable result. Duplicate samples should have a concentration above the reporting level (RL) of the measured constituent. The percent difference between the two samples is calculated and charted using a control chart.

Lab Reagent Blanks (LRB) or Blanks are prepared from Type-I reagent grade water, free of the analyte being tested, and carried through the entire test process in the same manner as regular samples. Detection of the analyte in the blank suggests error or contamination in the analytical procedure. Blank results should be less than the MDL (See section 8.4).

8.2 USE OF CONTROL CHARTS

To construct a control graph, the current quality control results for a constituent, along with the previous 19 determinations are used. No more than five results may be obtained on the

same day. The mean and standard deviations of these results are determined and a control chart is constructed. The upper and lower control limits (UCL and LCL) are drawn at ± 3 standard deviations from the mean, respectively. The upper and lower warning limits are at ± 2 standard deviations. Control Chart software is used by the District's lab to quickly and accurately produce QC charts. All quality control data points are entered into LIMS and immediately charted to provide a "visual" acceptance of the data. Quality control data exceeding chart limits, or failing other charting acceptance criteria, are printed by the Chemist and reviewed with the Lab Manager. Charts from analytical test results rejected because of poor quality control are saved for future reference. Any corrective action taken to improve the quality of the analysis is written on the printed chart. Standard Operating Procedure #428, further details the District Laboratory's QC policy and chart interpretation (see Section 6.2, for SOP information).

8.3 METHOD DETECTION LIMIT (MDL) / PRACTICAL QUANTITATION LIMIT (PQL)

Method detection limits must be determined annually for each constituent analyzed by the District's lab, following the guidelines established in Standard Methods, Section 1030-E. MDLs must be prepared two times per year for the Dionix IC. Practical Quantitation Limits (PQL), or Reporting Limits (RL), are established at one to ten times the MDL. The PQL/RL represents a confidence level by which the analyte can be routinely measured with relatively good certainty that the reported value is reliable. The RL is reported with each set of sample data for all reports leaving the District. The Laboratory's current list of MDL/PQLs is kept on a spreadsheet on the District's network at the following file path: J:\Laboratory\share\Spreadsheets\excel\MDLs\2009 MDL

8.4 General Instrument QC Checks

Lab reagent blank (LRB) or Blank:

Definition: Aliquot of reagent water treated exactly like a sample.

Frequency: One with each batch of 20 samples.

If exceeds MDL, suspect that contamination is present. If LRB value is 10% or more of sample result, or is 2.2 times the MDL (whichever is greater), fresh aliquots of the samples must be prepared and analyzed again for affected analytes.

Lab fortified blank (LFB) or Lab control sample (LCS):

Definition: LRB with a known amount of analyte added, treated exactly like a sample.

Frequency: One with each batch of 20 samples.

Calculation: $\% \text{ Recovery} = (\text{LFB} - \text{LRB}) / S * 100$

S = true concentration of LFB

Recovery should be between 85-115%, or within control chart limits, whichever is more stringent.

Lab fortified Matrix (LFM) or Matrix spike (MS):

Definition: Aliquot of Sample with a known amount of analyte added.

Run on 10% of routine samples.

Calculation: $\% \text{ recovery} = (\text{LFM} - \text{Sample}) / \text{Amt added} * 100$

Recovery should be: 70-130% or within control chart limits, whichever is more stringent. Calculation is usually not required if the analyte added is less than 30% of the sample background concentration. If matrix spikes are not within the control limits, and the laboratory performance is in control, the result for that sample must be qualified to inform the data user that the results are suspect due to matrix effects.

Quality Control Sample (QCS) or Independent Standard: When beginning a method and on a quarterly basis. Analyze 3 times. Mean must be within 10% of stated value.

Instrument Performance:

To verify calibration, run blank and calibration std immediately after calibration, after every 10 samples, and at the end of the sample run. Must be within 10% of calibration. If not, recalibrate. If calibration check is not within 15%, the previous 10 samples must be reanalyzed. If matrix is causing drift, analyze 5 samples between calibration checks.

8.5 INTRALABORATORY QUALITY ASSURANCE GUIDELINES

8.5.1 DEIONIZED WATER

Laboratory tap water is demineralized to a specific conductance (EC) of less than one micromhos/cm using four mixed-bed deionizing units connected in series. The quality of demineralized water is monitored continuously using resistance-activated lights, or an EC meter, connected to the effluent of the deionized unit. The "on" light indicates that the conductivity of the water is less than five micromhos/cm. The deionizing units are inspected daily and the flow is recorded along with confirmation that the conductivity light is on. When the light is out, the vendor is notified to replace the deionizing tanks. A log sheet is maintained to record daily DI tank usage. The Quality Control Log sheets can be found on the District computer network

8.5.2 TYPE I - REAGENT GRADE WATER

Deionized water is further treated within each lab using standalone ultra pure water systems. Reagent-grade water is used for all dilution of reagents and blank analysis. QA checks for the proper operation of each unit are made daily. The megohm-cm reading is recorded daily and/or included in the Solution logbook when new standards or reagents are made.

8.5.3 TEMPERATURE READINGS

Temperature readings are recorded daily for ambient, incubators, refrigerators, ovens, and furnaces. The bacteriological incubator and fecal coliform incubator bath are checked twice daily at times that are at least 4 hours apart and the temperature is recorded. All sample and laboratory refrigerators are monitored daily for temperature and are kept at 1 to 5 °C. For calibrated thermometers with a correction factor, only the corrected temperature is recorded. Log sheets for recording daily temperatures can be found on the District Network at: J:\Laboratory\share\Forms\QC Logs and Forms

All thermometers are purchased as NIST certified thermometers. All incubator, refrigerator and ambient thermometers are immersed in liquid.

8.5.4 GLASSWARE AND PLASTICWARE

Culture tubes are clean borosilicate glass - size 16x150mm and 20x150mm. Inner vials are chemically clean borosilicate glass size 12x75mm and flint glass size

6x50mm.

Serological, sterile, polystyrene or borosilicate pipets with 1 ml, 2 ml, 5 ml and 10 ml capacity with variances of $\pm 2.5\%$ are used in bacteriological work. Pre-sterilized disposable petri dishes are also used. Sterile 10 μL disposable inoculating loops are used to transfer growth from positive LTB tubes into BGB and EC media. Pre-sterilized disposable sampling bottles are used for MMO-MUG. All pre-sterilized, wrapped, glassware and plasticware is inspected for intact packaging to insure sterility.

Plasticware is made of polyethylene, polystyrene or polypropylene and is disposed of after use.

8.5.4.1 GLASSWARE

All glassware used is Kimax, Pyrex, or equivalent brand and is relatively inert, all-purpose borosilicate glass. Class-A glassware is used when necessary. Glassware is inspected for chips, cracks and flaws and replaced when necessary.

8.5.4.2 **CLEANING:** A plastic tub is filled with tap water and a small amount (2-3 mls. per gallon) of detergent is added. Dishes are placed in the washtub immediately after use. Dishes are removed from the tub, rinsed three times with tap and once with DI water respectively. Washed glassware is placed on the drying bench until dry.

Volumetric flasks, BOD bottles, and many beakers are routinely washed using laboratory grade flask and dishwasher. *Detergent 8*, a laboratory dishwasher detergent is used during the wash cycle. The rinse cycle uses deionized water only.

“Alcojet” detergent used in cleaning microbiological dishes must pass the inhibitory residue test before use. BTB indicator is used to check the pH of each batch of washed glassware in microbiology. The acceptable pH color shall be in the blue-green range indicating a pH in the neutral range. All test results are recorded in the “Dishwasher Residual pH Log Book” stored in the Microbiology section.

8.6 ADDITIONAL QUALITY ASSURANCE (QA)

As defined in Standard Methods, Quality Assurance (QA) is “a set of operating principals that, if strictly followed during sample collection and analysis, will produce data of known and defensible quality.” The following steps are taken to maintain good QA within the District’s laboratory.

8.6.1 BACTERIOLOGICAL QA

Before any bacteriological work is initiated, the counter tops are wiped with an

appropriate disinfectant and allowed to sit for 5 minutes. A Class II laminar flow hood is used when potable water is tested, and when control organisms are prepared.

8.6.2 BACTERIOLOGICAL MEDIA

Media must be used before the Manufacturer's expiration date. All opened bottles of dry media are stored in a desiccator until used.

For each batch of media prepared, the following information is recorded:

- Date prepared,
- Control number of media,
- Media type,
- pH after sterilization,
- Date media was opened,
- Date media expires,
- Times in and out of autoclave,
- Sterility control results,
- Negative and positive control results, if appropriate,
- Grams of media/liter reagent water,
- And the preparing analyst's initials.

Each batch of media is tested for PH and with a positive, negative and sterility controls test. The accuracy of the media dispensing apparatus is checked with a graduated cylinder before dispensing.

8.6.3 HPC TESTING

Every HPC batch is accompanied by sterility blank and ran in duplicate. An air blank is also performed daily. All HPCs are performed in the laminar flow hood whenever possible.

8.6.4 CONTROL ORGANISMS

Bacterial stock cultures are purchased from American Types Culture Collection or other reputable company and transferred to fresh media (sub-cultured) every 2 months. Bacteria are maintained on agar slants and in broth tubes. Broth cultures are used to check each batch of media for performance. To avoid contamination of cultures, one slant is wrapped with parafilm and used only to inoculate the next set of cultures. Sub-cultured bacterial stocks are checked once each quarter with the Analytical Profile Index bacterial identification system.

8.6.5 COMPLETED TEST

In the Multiple Tube Fermentation (MTF) analysis, there are two variations of the Completed Test.

For reclaimed/wastewater samples, the completed test is performed on every 10th confirmed (BGB positive) total coliform positive sample. The completed test consists of streaking growth from a positive BGB tube onto MacConkey agar. One or more red or pink (typical coliform) colonies are checked for morphology and inoculated back into LTB, which is incubated and checked after 24 and 48 hours. The sample passes the completed test if red or pink colonies seen on MacConkey agar produce a subsequent positive LTB reaction. If the completed test fails, then the BGB result is

changed from positive for coliforms to negative.

For MTF performed on drinking water, all positive LTB medium is transferred to both BGB and EC Medium. In this case the EC Medium serves as the completed test for the analysis and no other completed test is necessary. All EC runs must be accompanied by a spiked positive and negative control EC tube.

Routine potable samples which are total coliform positive or E. coli positive using MMO-MUG are isolated on MacConkey's Agar and identified using Analytical Profile Index (API).

8.6.6 PIPETS, TEST TUBES, AND GLASSWARE

Disposable, wrapped and pre-sterilized pipets and loops are inspected for flaws in packaging. All test tubes are inspected for flaws before use. Contaminated disposable pipets and loops are placed in disposable pipette boxes and autoclaved. All spent media are sterilized in the autoclave at 121°C for at least 30 minutes before disposal. Test tube caps are washed, rinsed in D.I. water and reused. Glassware inhibitory residue test is performed upon initial use of a detergent, when there is a change in the formulation used, or a change in the method of washing reusable glassware.

8.6.7 REAGENT WATER

Purified water is used to make media and is tested according to Table 9020:1 of Standard Methods. The reagent water suitability test (Standard Methods section 9020 B3.c.1) is performed at least annually as per Standard Methods 9020. This test is required to demonstrate that treated laboratory grade water is suitable for media preparation.

8.6.8 DILUTION BUFFER WATER

Each lot of dilution buffer water used for bacteriological dilutions is checked for sterility by adding 50 ml of buffer to 50 ml of 2X TSB, and incubating at 35 degrees for 48 hours. The PH is also checked for each lot of buffer.

9.0 PERFORMANCE AND SYSTEM AUDITS

9.1 Initial Demonstration of Proficiency (IDP) – New Analytical Method

Initial Demonstration of Proficiency is required for all methods for which first time ELAP accreditation is sought. The IDP demonstrates to ELAP that the laboratory has sufficient skills and experience to obtain precision and accuracy in performing the method. Instrument IDPs also demonstrate the lab's competency by demonstrating that:

- The appropriate instrumentation and reagents used to perform the analysis,
- A written SOP has been developed,
- Proper quality control analyses are applied to the method,
- Proper calibration is performed for the procedure,
- Properly documented MDL's and RL's have been established,
- Each analyst has demonstrated their ability to generate data of acceptable accuracy and precision (see 1.4.1 Individual Demonstration of Proficiency).

The components of an instrument's IDP are:

- The written SOP with QC guidelines,
- The MDL study with reporting limits,
- The calibration curve (if applicable)
- Four replicates of control sample (between 5 and 50 times the MDL),
- Four replicates (duplicates) from a suitable sample,
- Matrix spikes and matrix spike duplicates,
- Results from a recent performance evaluation sample.

An IDP data package must be submitted to ELAP for approval prior to reporting regulatory compliance samples. The information and data must be assembled following ELAP's Data Package Guidelines. A copy of the instrument's IDP must be kept on file for review by ELAP upon request.

9.2 EXTERNAL QUALITY CONTROL CHECKS

9.2.1 INTER-LABORATORY (ROUND ROBIN) SAMPLES

Approximately once per year, reference samples are purchased from certified vendors (such as ERA) and submitted to the lab as single blind samples. The test results are compared to the true value of the analyte and a report of accuracy is prepared. This report is filed for future reference. Any analyte reported outside the approved range is investigated to determine the contributing cause of the error.

These steps may include the following:

- Checking the validity of the standards,
- Reagents, and solutions,
- Evaluating the analyst's technique,
- Checking for the possibility of matrix interferences and
- Checking for instrument malfunction.

If a sufficient amount of the sample remains, the analysis is repeated. Any remaining ERA samples may be used as an independent standard for routine testing.

9.2.2 QC AND PERFORMANCE EVALUATION SAMPLES

Under the guidelines of the California Environmental Laboratory Accreditation Program (ELAP), proficiency samples are purchased from certified vendors once per year for each approved Field of Testing. To maintain laboratory certification, the reported test result for each analyte must be within the acceptance range established by the vendor. Analytes reported outside the acceptable range must be retested from another set of certified standards. If the second result(s) falls outside of the acceptable range, the Laboratory's certification for that analyte may be revoked by the State. Analytical results from ELAP tests are kept on file for reference.

10.0 PREVENTIVE MAINTENANCE

Section 64813 of Title 22, Certification of Environmental Laboratories, states, "Each piece of laboratory equipment will be maintained as required by the manufacture's maintenance instructions for the equipment." Furthermore, "records will be kept of all operational and maintenance activities associated with the operation of the laboratory equipment." To meet this standard, the lab provides the following instrument preventive maintenance program:

- New instruments are installed and verified to be operational by the manufacturer at the time of purchase.
- Instrument training is provided to the primary analyst by the manufacturer at their facility. Additional on-site training may be provided to staff on an "as needed" basis by the vendor.
- Instrument manuals are read and made available to all staff. Manuals are stored in instrument file folders located in a secure file cabinet or near the instrument.
- Service contracts may be renewed annually on all major instruments (i.e., IC, ICP, TOC and BOD Analyzer) as part of the lab's annual budget process.
- Preventive maintenance is performed annually on all instruments. Records of routine or non-routine maintenance are kept on file. Dates and service performed can be documented in the Instrument Maintenance & Calibration Pro (IMCS) software or on a paper or other electronic log.
- Defective equipment is repaired by the manufacturer as needed. Receipts detailing parts and repairs are maintained in the instrument file. Dates and service performed are documented in the IMCS software or other appropriate means.
- Remedial cleaning and parts replacement are performed by the principal analyst and documented.
- Spare "consumable" parts are ordered and inventoried by the principal analyst. Parts are ordered through the manufacturer or meet their specification.

11.0 ASSESSMENT OF PRECISION AND ACCURACY

Assessment of precision and accuracy of analytical work in chemistry must be reviewed prior to approval of data in LIMS. Validation of chemistry data is detailed in Section 7.2 above. In addition, the assessment of precision and accuracy in the Microbiology section of the lab will meet the following minimum guidelines:

11.1 ANALYST PARALLEL TESTING FOR POSITIVE MPN

Standard Methods 9020 B (4)(a), requires laboratories with more than one analyst run parallel analyses on at least one positive sample monthly. Parallel tests between the Microbiologist and each analyst working in the Microbiology section will be performed using the multiple tube fermentation method. Parallel and sample results should fall inside upper and lower MPN limits for MTF results (according to MPN table 9221.IV Standard Methods). If parallel and sample results fall outside limits, the analytical problem is identified and corrected.

11.2 BACTIOLOGICAL DUPLICATE ANALYSIS

Perform duplicate analysis on 5% of samples and at least one sample per test run. Duplicate samples will be collected from the following sources:

- Daily Potable Route MMO-MUG

11.3 QUALITY CONTROL ON MULTIPLE-TUBE DILUTION TESTS

Completed phase testing (SM 9221B) will be performed on 10% of the positive total coliform samples. Tracking of positive coliform (BGB positive) samples is accomplished using a form listing the LIMS lab number of each BGB positive sample. Each tenth sample is isolated onto coliform-selective agar. Upon incubation, a colony is selected from the plate and inoculated into ssLTB broth and observed for gas production after incubation. All test records, are filed for documentation purposes.

12.0 CORRECTIVE ACTION

12.1 INTERNAL QC DATA

The validation of internal quality control data is detailed in Section 7.2 above. QC data exceeding the acceptance criteria detailed above, is reviewed by the Lab Analyst III, Senior Lab Analyst, or Lab Manager for: evidence of possible sample interferences, analyst error, improper solution and standard preparation, equipment failures, or other factors that could result in poor analytical test results. Analytical data is rejected and must be rerun if any of the following conditions occur:

- LFB, LFM, LFMD or Blank test results fall outside three standard deviations (the control limits) of the control chart.
- MS test results falling outside the control limits may be reanalyzed (along with the sample) to determine if matrix interference is responsible for poor recovery of the spike. If analyst error is determined from the sample and spike rerun, then the entire analysis must be rerun.
- If the LCS percent accuracy falls outside the 80-120 range, the entire analysis must be repeated.
- Matrix Spike recovery should generally be 70 to 130 percent, depending on the method.
- If both BOD blanks and LCS recovery are unacceptable, the data must be rejected and recorded in LIMS as "QC-Failed." The Senior Lab Analyst or Lab Manager will determine the acceptance of BOD results having either poor LCS or poor blanks on a case-by-case basis. Data determined "acceptable" by the approver require a LIMS *Report Remarks* to include information regarding poor QC results.

Control charts must be printed whenever QC data falls outside the control limits. The corrective action taken is written on the printed QC chart by the Chemist and reviewed with the Lab Manager. Printed QC charts are filed by test type for documentation.

12.2 UNACCEPTABLE ELAP PE RESULTS

The analysis of annual ELAP PE samples is detailed in Section 9.2.2 above. The District's lab must successfully analyze one set of blind samples each year, supplied by approved ELAP vendors, for each approved constituent. One repeat analysis is acceptable each year for any constituent that does not pass the first round of testing. New standards must be purchased for the second analysis. PE testing is performed in the first half of the year to allow for retesting if necessary. The Lab Analyst III, Senior Lab Analyst, or Lab Manager review analytical reports, issued by the standards vendor. Test results reported as "Unacceptable" is closely scrutinized for equipment failure and analytical errors. If retesting is permitted by ELAP, the analysis must be completed within the same year. If the lab should obtain two unacceptable test results in a single year, analysis of that constituent must cease until the problem has been identified, corrected, and successful retesting has been completed. A corrective action letter must be submitted to ELAP explaining the steps taken to correct the problem.

13.0 QUALITY ASSURANCE REPORTS AND FORMS

Control charts and quality control reports are available upon demand. All QC data are stored in LIMS and may be retrieved at anytime. Quality assurance reports are prepared for the Regional Water Quality Control Board as part of the annual RWRP report prepared by the Source Control department.

Numerous forms are used to monitor quality assurance in the laboratory. These forms are developed and modified as new equipment and procedures are developed. QA forms used in Sample Receiving are found in the following directory:

J:\Laboratory\share\Forms\QC Logs and Forms\Sample Receiving QC Forms

Chemistry QA forms are found in:

J:\Laboratory\share\Forms\QC Logs and Forms\Chemistry QC Forms

QA forms used throughout the Microbiology lab are found in.

J:\Laboratory\share\Forms\QC Logs and Forms\Microbiology QC Forms

14.0 CONTRACT LABORATORY

In addition to routine quality assurance/quality control measures, which the Contract Lab performs, the District sends blind quality control/quality assurance samples according to the following schedule:

1. Annual samples to be analyzed for hardness, minerals, oil and grease, oxygen demand, nutrients, cyanide and phenol, trace metals and total residual chlorine.
2. Annual samples to be analyzed for organics (Regulated Volatiles, EDB, DBCP, Halomethanes, Pesticides/Herbicides, Toxaphene, Chlordane, and Carbamate):
3. Inorganic low detection limits metals (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Thallium, Zinc, and Hardness);
4. Total petroleum hydrocarbons (TPH);
5. Metals in solid waste are sent at random throughout the year.

These samples are obtained from certified vendors (such as ERA) and are NIST traceable. True values, as established by Environmental Resource Associates, are sent to the Contract Lab with an evaluation of their performance. The Contract Lab must respond to any deficiencies with written explanations and/or corrective actions and appropriate backup data within 30 days.

On a routine basis, a sample will be split and submitted to the Contract Lab in duplicate. Samples may also occasionally be split between the Contract Lab and an additional outside lab for comparison of results.

15.0 CALCULATIONS AND DILUTIONS

15.1 MTF Dilution Calculations

Estimation of bacterial density shall conform to Standard Methods, 20th Edition, section 9221 B,C. The District typically uses 3-dilutions at 5-tubes per dilution (10 ml. 1.0 ml. 0.1 ml). Table 9221-IV is used to determine final MPN values. The MPN value for samples that have been further diluted is determined by adding the dilution factor to the value in Table 9221-IV.

In the event a tube(s) is damaged or disqualified in the MTF analysis, the final MPN is determined using the Thomas' simple formula found in SM 9221 C.

The determination of coliform density in biosolid samples shall be expressed as "MPN/g dry". The calculation requires additional total solids analysis to determine the moisture content of the sample. The calculation for final coliform density is included in SOP #302.

16.0 BIBLIOGRAPHY

- 1) American Public Health Association, Standard Methods for the Examination of Water and Wastewater, 20th ed., 1998.
- 2) United States Environmental Protection Agency, Office of Ground Water and Drinking Water. EPA Manual for the Certification of Laboratories Analyzing Drinking Water. 5th Ed. March 1997. EPA 815-B-97-001

J:\Laboratory\share\ELAP\QA Manuals\2009 QA Manual.doc

CDPH ELAP Application

Application for Certification Environmental Laboratory Accreditation Program

This application is for laboratories seeking certification under the California Environmental Laboratory Improvement Act (Chapter 4 commencing with Section 100825, Part 1, Division 101, of the California Health And Safety Code).

PART A LABORATORY INFORMATION

1. Type of Application: New Renewal Amendment
Certificate No. 1379 Expiration Date: 30 NOV 2008
2. Name of Laboratory: EASTERN MUNICIPAL WATER DISTRICT
3. Division: ENVIRONMENTAL REGULATORY COMPLIANCE
4. Laboratory Location / Address: (Actual Location)
Street: 2270 TRUMBLE ROAD
City: PERRIS State: CA Zip: 92572
5. Laboratory Mailing Address: (For mail delivery)
Street: PO BOX 8300
City: PERRIS State: CA Zip: 92572
6. Laboratory Shipping Address: (For sample delivery)
Street: 2270 TRUMBLE ROAD
City: PERRIS State: CA Zip: 92572
7. Telephone #: (951) 928-3777 Ext 6334 8. FAX #: (951) 928-6143
9. E-Mail Address: MARSHALLK@EMWD.ORG 10. Web Site: EMWD.ORG
11. County (CA only): RIVERSIDE 12. Water Quality Control Board Region #: 8 & 9
13. Description of Laboratory Type: (Check one)
 Commercial City Academic Institute
 Federal Public water system Hospital or health care
 State Public wastewater system Industrial (an industry with discharge permit)
 County Recycling Facility Other (describe) _____
14. Laboratory Director: KENNETH L. MARSHALL Telephone #: (951) 928-3777 Ext 6334
15. Contact Person: KENNETH L. MARSHALL Telephone #: (951) 928-3777 Ext 6334
16. Mail Recipient Name: KENNETH L. MARSHALL
17. Owner / Agents Name: TONY PACK, GENERAL MANAGER, EASTERN MUNICIPAL WATER DISTRICT
18. For Mobile Laboratories:
Vehicle Make: _____ Model: _____ Vehicle ID #: _____
Vehicle License No.: _____ State of Registration: _____

(for ELAP office use only)

Application Number: _____ Amount Received: _____ Date Received: _____

PRIVACY NOTIFICATION

The information in Part B (Personnel Qualifications) of this application is requested by the State Department of Public Health in compliance with the Information Practices Act of 1977. The authority for maintaining the requested information is the California Code of Regulations, Title 22, Sections 64485 and 67605. This information is mandatory. Failure to provide all the necessary information may result in denial of the application for certification. The purpose of the personnel information is to verify the personnel qualifications required for the laboratory director and principal analyst(s). This information will not be disclosed outside the Department of Public Health except as in accordance with the Information Practices Act of 1977. For more information or access to your records, contact ELAP.

**PART B
PERSONNEL QUALIFICATIONS
LABORATORY DIRECTOR**

1. Name (Last, First, Middle Initial): MARSHALL, KENNETH L.

2. Title: MANAGER OF LABORATOY AND WATER QUALITY SERVICES

3. Education:

Month/Year From - To	College/University	Major	Degree	Year Completed
1978-1979	CAL STATE NORTHRIDGE	ENVIR/OCCUP HEALTH	POST GRAD STUDY	NA
1976-1978	UC RIVERSIDE	BIOLOGY	BS	1978
1975-1976	MT. SAN JACINTO JC	BIOLOGY	AS	1976

4. Technical Training:

Month/Year From - To	Technical Trade or Service School	Subject Certificate	Year Completed

5. Relevant Experience: (Last 5 years)

Month/Year From - To	Name and Address of Employer	Job Title
2000-2006	EASTERN MUNICIPAL WATER DISTRICT	LABORATORY MANAGER
2006-PRESENT	EASTERN MUNICIPAL WATER DISTRICT	MANAGER OF LAB AND WATER QUALITY

6. Briefly describe your experience relevant to this employment on a separate sheet of paper. Be sure to identify the laboratory, person's name and position.

7. Certificate(s): (Analyst)
 CAL Nevada Section American Water Works Association

Grade: _____ Expiration date: _____

California Water Pollution Control Association (CWPCA)

Grade: IV Certificate #990764 Expiration date: JULY 2008

**PART B
PERSONNEL QUALIFICATIONS
PRINCIPAL ANALYST**

Please make photocopies of this form and provide the information for additional personnel.

1. Name (Last, First, Middle Initial): WATSON, SUZANNE M

2. Title: SENIOR LABORATORY ANALYST

Supervisor of Section MICROBIOLOGY, METALS, RECEIVING Operates Device LIMS ADMINSTRATOR

3. Education:

Month/Year From - To	College/University	Major	Degree	Year Completed
AUG 1997-MAY 1999	UNIVERSITY OF ARIZONA	ENVIRONMENTAL SCIENCE	MS	1999
AUG 1994-MAY 1997	UNIVERSITY OF ARIZONA	BIOCHEMISTRY	BS	1997

4. Technical Training:

Month/Year From - To	Technical Trade or Service School	Subject Certificate	Year Completed
	Perkin Elmer	ICP-MS	2006

5. Relevant Experience: (Last 5 years)

Month/Year From - To	Name and Address of Employer	Job Title
2006-PRESENT	EASTERN MUNICIPAL WATER DISTRICT	SENIOR LABORATORY ANALYST
2002-2006	EASTERN MUNICIPAL WATER DISTRICT	MICROBIOLOGIST
MAY 1999-MAY 2002	MWH LABS, MONROVIA, CA	MICROBIOLOGIST

6. Briefly describe your experience relevant to this employment on a separate sheet of paper. Be sure to identify the laboratory, person's name and position.

7. Certificate(s): (Analyst)

CAL Nevada Section American Water Works Association

Grade: _____ Expiration date: _____

California Water Pollution Control Association (CWPCA)

Grade: GRADE IV, CERT #040734 Expiration date: JULY 2008

**PART B
PERSONNEL QUALIFICATIONS
PRINCIPAL ANALYST**

Please make photocopies of this form and provide the information for additional personnel.

1. Name (Last, First, Middle Initial): CROMBIE, STEVEN

2. Title: SENIOR LABORATORY ANALYST

Supervisor of Section WET CHEMISTRY, METALS Operates Device ICP-AES, ICP-MS, HG, IC, TOC

3. Education:

Month/Year From - To	College/University	Major	Degree	Year Completed
1984 - 1987	Mt. San Jacinto JC	Science/Engineering/Math	AS	1987
1994 - 1999	University of Redlands	Environmental Studies		Pending

4. Technical Training:

Month/Year From - To	Technical Trade or Service School	Subject Certificate	Year Completed
Oct 2003	Thermo Electron Corp	Atomic Absorption	Oct 2003
Jun 2005	Perkin Elmer	ICP-MS	June 2005

5. Relevant Experience: (Last 5 years)

Month/Year From - To	Name and Address of Employer	Job Title
2006-PRESENT	EASTERN MUNICIPAL WATER DISTRICT	SENIOR LABORATORY ANALYST
1996-2006	EASTERN MUNICIPAL WATER DISTRICT	LAB TECH, ASSOC CHEMIST, CHEMIST

6. Briefly describe your experience relevant to this employment on a separate sheet of paper. Be sure to identify the laboratory, person's name and position.

7. Certificate(s): (Analyst)

CAL Nevada Section American Water Works Association

Grade: _____ Expiration date: _____

California Water Pollution Control Association (CWPCA)

Grade: GRADE IV, CERT # 06073400 Expiration date: JULY 2008

PART C FIELDS OF TESTING

Check the appropriate box(es) for the Fields of Testing (FoTs) for which your laboratory requests certification.

<input checked="" type="checkbox"/>	E101	Microbiology of Drinking Water
<input checked="" type="checkbox"/>	E102	Inorganic Chemistry of Drinking Water
<input checked="" type="checkbox"/>	E103	Toxic Chemical Elements of Drinking Water
<input type="checkbox"/>	E104	Volatile Organic Chemistry of Drinking Water
<input type="checkbox"/>	E105	Semi-volatile Organic Chemistry of Drinking Water
<input type="checkbox"/>	E106	Radiochemistry of Drinking Water
<input checked="" type="checkbox"/>	E107	Microbiology of Wastewater
<input checked="" type="checkbox"/>	E108	Inorganic Chemistry of Wastewater
<input checked="" type="checkbox"/>	E109	Toxic Chemical Elements of Wastewater
<input type="checkbox"/>	E110	Volatile Organic Chemistry of Wastewater
<input type="checkbox"/>	E111	Semi-volatile Organic Chemistry of Wastewater
<input type="checkbox"/>	E112	Radiochemistry of Wastewater
<input type="checkbox"/>	E113	Whole Effluent Toxicity of Wastewater
<input checked="" type="checkbox"/>	E114	Inorganic Chemistry & Toxic Chemical Elements of Hazardous Waste
<input type="checkbox"/>	E115	Extraction Test of Hazardous Waste
<input type="checkbox"/>	E116	Volatile Organic Chemistry of Hazardous Waste
<input type="checkbox"/>	E117	Semi-volatile Organic Chemistry of Hazardous Waste
<input type="checkbox"/>	E118	Radiochemistry of Hazardous Waste
<input type="checkbox"/>	E119	Toxicity Bioassay of Hazardous Waste
<input type="checkbox"/>	E120	Physical Properties of Hazardous Waste
<input type="checkbox"/>	E121	Bulk Asbestos Analysis of Hazardous Waste
	E122*	Microbiology of Food
	E123*	Inorganic Chemistry and Toxic Chemical Elements of Pesticide Residues in Food
<input type="checkbox"/>	E124	Organic Chemistry of Pesticide Residues in Food (measurements by MS techniques)
<input type="checkbox"/>	E125	Organic Chemistry of Pesticide Residues in Food (excluding measurements by MS techniques)
<input type="checkbox"/>	E126	Microbiology of Recreational Water
<input type="checkbox"/>	E127	Shellfish Sanitation
	E128*	Air Quality Monitoring

* The FoTs are under development.

**PART D
INVOICE FOR FEES**

- Claim of Exemption from Fees: (attach written evidence for claim of exemption)
 California County or City Public Health Laboratory established under, Health and Safety Code Section 101150
 Government Reference Laboratory as defined in, Health and Safety Code Section 100860 (e) & (g)
- Not Exempt From Fees

The Basic Fee is \$1003.00, and the Field of Testing Fee is \$452.00.

Basic Fee + Number of Fields of Testing Requested times the Field of Testing Fee = Total Fee

$$\frac{\$1003 + 7 \times (452)}{\text{Base Fee} + (\text{Number of FoTs} \times \$452)} = \$ \frac{\$4167.00}{\text{Total Fee Amount}}$$

Enclose a check for the total fee, payable to "CDPH Environmental Laboratory Accreditation Program."

NOTE: Out of state laboratories - the cost of travel to visit a laboratory located outside the State of California will be determined and billed after completion of the site visit, Section 100860(b), Health and Safety Code.

**PART E
QUALITY ASSURANCE MANUAL**

Please submit two copies of your laboratory's manual for the in-house quality assurance program with this application.

**PART F
FIELD OF TESTING FORM**

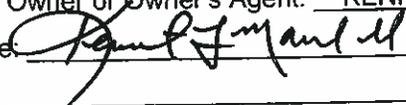
Field of Testing (FoT) forms can be downloaded from <http://www.dhs.ca.gov/ps/ls/elap/html/Forms.htm>. Please submit a **completed hard copy and an electronic copy** of the form for each FoT the laboratory is seeking or amending accreditation. Submit completed electronic forms via email (elapca@cdph.ca.gov) or by mail (diskette, CD, DVD) along with the hard copy to 850 Marina Bay Parkway, Building P, 1st Floor, Richmond, CA 94804.

**PART G
OTHER PERTINENT INFORMATION (OPTIONAL)**

Use a separate sheet of paper to provide any additional information about your laboratory that you feel may demonstrate laboratory competency, such as other certifications and proficiency testing programs in which your laboratory participates.

**PART H
APPROVAL FOR SUBMISSION**

(This Section must be completed and signed before the application will be accepted.)

TYPE OR PRINT: Name of Laboratory: EASTERN MUNICIPAL WATER DISTRICT
Name of Owner or Owner's Agent: KENNETH MARSHALL, MANAGER OF LABORATORY AND WATER QUALITY
Signature:  Date: JULY 18, 2008

Return the completed application, quality assurance manual, and the appropriate fee to:

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM (ELAP)
850 Marina Bay Parkway, Building P, 1st Floor
Richmond, CA 94804

TOM DODSON & ASSOCIATES
2150 N. ARROWHEAD AVENUE
SAN BERNARDINO, CA 92405
TEL (909) 882-3612 • FAX (909) 882-7015
E-MAIL tda@tdaenv.com



STATEMENT OF QUALIFICATIONS

Overview

Tom Dodson & Associates (TDA), incorporated in 1983, is a small environmental consulting and regulatory compliance firm. Tom Dodson (President) is involved in day-to-day operation of the firm and is also involved in each project undertaken by TDA. This approach provides the company owner with knowledge and input into each project, thus ensuring that each project receives the firm's high standard for product quality.

A common theme of all TDA projects is compliance with environmental requirements while meeting project schedules. TDA works with clients to meet schedules and identify reasonable and ethical environmental requirements. For every project, TDA has found there is a mutually acceptable balance between development goals and the need to protect the environment. TDA strives to define this balance for clients and regulators and present workable solutions that both parties can accept as the basis for implementation of projects. With over 40 years of collective experience in environmental problem-solving, TDA has been remarkably successful in meeting client and environmental objectives.

TDA is capable of providing a full range of environmental and regulatory compliance services. This includes an in-house biological staff capable of providing biological resources evaluations, as well as, revegetation and habitat restoration capabilities. TDA professionals bring more than 40 years of environmental and regulatory compliance experience to each assignment. TDA conducts environmental and regulatory compliance work for more than 100 firms and agencies with a single goal which is to make each project succeed for both the client and the environment.

TDA has provided planning and environmental consulting services for various water, hazardous waste management, biological evaluations, and base reuse projects. TDA has also prepared the environmental compliance documents needed for such projects. These documents have ranged from Initial Studies and Negative Declarations to full Environmental Impact Reports (EIRs) that meet California Environmental Quality Act (CEQA) requirements. In addition, TDA has prepared environmental documents for projects on federal land that meet the requirements of the National Environmental Policy Act (NEPA).

This experience has provided TDA with a thorough knowledge and understanding of the many issues which confront these types of projects. TDA's involvement of these projects has necessitated that we work closely with the various regulatory agencies involved. Such agencies include but are not limited to the regional water quality control boards, the air quality management districts, the Integrated Waste Management Board, and the local enforcement agencies.

TDA also understands that while technical issues such as the protection of surface and groundwater quality, air quality, etc. are critical, not all the issues are of a technical nature. TDA works closely with the other team members to resolve or lessen, to the greatest extent feasible, the project-related concerns of individuals and groups.

SHAY LAWREY

Ecologist and Regulatory Specialist

Education

- M.A., Biology, Occidental College, Los Angeles, California, 1997
- B.A., Environmental Studies, University of California Santa Cruz, 1993

Permits and Licenses

- U.S. Fish and Wildlife Service Federal 10(a) Recovery Permit (TE-094308-0) to survey for San Bernardino kangaroo rat (*Dipodomys merriami parvus*) and Southwestern willow flycatcher (*Empidonax traillii extimus*)
- California Department of Fish and Game Scientific Collecting Permit (SC-007256)

Continued Professional Education and Training

- » Association of Environmental Planners, Workshop on Regulatory Permitting, City of Corona Planning Department, October 4, 2006
- » Western Riverside County Conservation Authority, Multi Species Habitat Conservation Plan Implementation Update, March 2006
- » Wetlands Training Institute, Federal Wetlands/Waters Regulatory Policy, regulatory policies and guidance, current legal interpretations, and court decisions, February 2006
- » Victorville Valley College, Mojave Desert Revegetation Workshop, January 2006
- » California Legal Extension (CLE) International, Endangered Species Case Law and Policies, Costa Mesa, 2005
- » Southwestern willow flycatcher survey training workshop, Kern River, California, April 2005
- » University of California (U.C.) Los Angeles Extension, California Environmental Quality Act and National Environmental Policy Act Policies, 2004
- » CLE International, Water Law, 401 and 404 policy and permitting, San Diego, 2003
- » 12th Annual Desert Tortoise Handling Workshop, training for desert tortoise survey, monitor and handling, Ridgecrest, California, November 2003
- » California Legal Extension (CLE) International Endangered Species Act and the Integration of Law and Science, San Diego, 2002
- » CLE International California Wetland Policy, San Diego, 2002
- » U.C. Riverside Extension, Endangered Species Law and Permitting, 2002
- » 11th Annual Desert Tortoise Handling Workshop, training for desert tortoise survey, monitor and handling, Ridgecrest, California, November 2002

Professional Experience

Ecologist/Regulatory Specialist, Tom Dodson & Associates. Conduct due diligence, habitat assessments, biological surveys and inventory, mitigation monitoring, environmental awareness training, onsite compliance monitoring, and public hearings. Specialize in protocol surveys for burrowing owl, San Bernardino kangaroo rat, L.A. pocket mouse, southern rubber boa, desert tortoise, least Bell's vireo, and southwest willow flycatcher. Provide consulting services to private and public clients to ensure their compliance with permit requirements and local, state and federal environmental regulations pertaining to the federal and state Endangered Species Acts, California Environmental Quality Act (CEQA), and National Environmental Policy Act (NEPA). Obtain all required environmental permits for clients that have proposed infrastructure, development and emergency projects. Prepare CEQA and NEPA documents and place them for public comment. (10/04 to present)

Senior Associate Planner, San Bernardino County Department of Public Works. Monitor and ensure that county and private operations within San Bernardino County comply with local, state and federal

Curriculum Vitae - SHAY LAWREY

environmental regulations pertaining to the federal and state Endangered Species Acts, California Environmental Quality Act (CEQA), and National Environmental Policy Act (NEPA). Obtain all required environmental permits for county maintenance and operations, and for new flood control, transportation projects and emergency. Prepare CEQA and NEPA documents for Public Works projects. Manage and attend public hearings. (10/02 to 10/04)

Ecologist, San Bernardino County Department of Public Works. Conduct focused and/or protocol level surveys for sensitive species for data collection, permit acquisition, and maintenance clearances. Conduct field reviews and environmental assessments, develop revegetation plans, and prepare mitigation proposals. Develop a strong understanding of the biology, ecology, status, conservation, management, and specific habitat requirements of each protected species within the county. Prepare programmatic maintenance agreements for all County facilities. Represent the County of San Bernardino Department of Public Works in implementing an agreement with the U.S. Fish and Wildlife Service (USFWS) and other interested agencies for the Santa Ana Sucker Conservation Program. Provide professional guidance to flood control and transportation operations on how to work toward conserving protected species occurring with the Department's work area through avoidance and minimization of the impacts related to the operation. (11/01 to 10/02)

Field Biologist, San Bernardino County Museum. Conduct focused surveys for sensitive plants, reptiles, birds, and mammals for data collection. Map endangered species habitat and localities. Determine the springtime presence/absence of the endangered southwestern willow flycatcher, and least Bell's vireo via focused avian surveys along the Mojave and Santa Ana rivers. Evaluated pair bond formation, territorial behavior, nesting, incubation, and fledging of young. As a listed biologist on the museum's 10-A permits, conducted numerous surveys for Santa Ana woolly star, slender spine-flower, southwestern willow flycatcher, least Bell's vireo, San Bernardino kangaroo rat, Los Angeles pocket mouse, and desert tortoise. (4/00 to 11/01)

Relevant Experience

burrowing owl: >2,000 survey hours in occupied and unoccupied areas throughout San Bernardino and Riverside counties, 2000 to present. California Department of Fish and Game (CDFG) approved passive relocation techniques including scoping and collapsing of burrows and construction of artificial burrows.

bald eagle: 1000+ hours of survey and nest monitoring in San Bernardino, San Luis Obispo, Santa Barbara and Monterey counties; 1997-present.

Peregrine falcon: 500+ hours of reintroduction, nest monitoring, and survey in San Bernardino, Santa Barbara, Los Angeles, Monterey counties, and throughout the State of Arizona; 1993-present.

southwestern willow flycatcher: USFWS Permit TE-094308-0; >250 hours surveying occupied habitat using call back recordings. Surveyed 18 sites in San Bernardino and Riverside counties between 2000 and 2006 using protocols established by the USFWS.

least Bell's vireo: >600 hours surveying occupied habitat. Surveyed 20 sites in San Bernardino and Riverside counties between 2000 and 2006 using protocols established by the USFWS.

coastal California gnatcatcher (CAGN): USFWS Permit #787392; >50 hours surveying occupied habitat.

Western yellow-billed cuckoo: ~20 hours observation of species on the Mojave River and San Timoteo Creek, San Bernardino County, in 2000 and 2003, respectively.

San Bernardino kangaroo rat: USFWS Permit TE-094308-0; over 40,000 survey hours total (counted as trap nights), 10,000+ survey hours in occupied habitat in San Bernardino County; 2000-present.

Curriculum Vitae - SHAY LAWREY

Los Angeles pocket mouse: 100+ survey hours in occupied habitat in San Bernardino and Riverside counties; 2000-present.

Mohave ground squirrel: >400 hours of visual surveying in occupied and unoccupied areas; 2001-present.

Mohave river vole: Conducted trapping and relocation in the Mojave River at the I-15 bridge, under the direction of CDFG; 2002-2004.

Southwestern Arroyo toad: 80 + survey hours and direct observation. Conducted surveys according to the protocols issued by the USFWS along Grass valley Creek and Cajon Creek in 2005. Both areas had not been surveyed before and both areas are occupied.

San Diego horned-lizard: >500 hours surveying in occupied areas. Conducted relocation and monitoring under the direction of CDFG for the San Sevaine Basin No. 5 Project, San Bernardino County.

desert tortoise: >1,500 hours surveying in occupied and unoccupied areas. Participated in 2002 and 2003 desert tortoise surveying, handling, and monitoring techniques workshop.

Santa Ana woolly Star: more than 300 hours surveying in occupied areas in the San Bernardino County Flood Control District facilities.

slender-horned spine flower: more than 150 hours surveying in occupied areas in the San Bernardino County Flood Control District fee owned land and facilities.

speckled dace: more than 80 hours of electroshock surveying with CDFG and U.S. Forest Service fisheries biologists in occupied areas in the San Bernardino County Flood Control District facilities.

arroyo chub: more than 40 hours of electroshock surveying with CDFG and U.S. Forest Service fisheries biologists in occupied areas in the San Bernardino County Flood Control District facilities.

Santa Ana Sucker: 15+ hours seine/electroshock surveying with permitted biologists, USFWS biologists, and CDFG fisheries biologists in occupied areas in the Santa Ana River, Bernardino County; 2003-2004.

Relevant Projects

- Lake Arrowhead Community Services District Grass Valley Treatment Plant Emergency Discharge Permit
- Environmental Permitting and Compliance for the City of Rancho Cucamonga Wilson Avenue Extension Project.
- Regulatory Support to Holiday Rock Irwindale Plant
- Cucamonga Valley Water District various infrastructure projects
- Burlington Northern Santa Fe Third Main Track Keenbrook to Cajon Summit
- San Bernardino International Airport Authority Terminal Modifications
- Wyle Laboratories 5-Year Mitigation Monitoring Program
- **San Bernardino County Department of Public Works**
 - Countywide emergency post 2003 Old and Grand Prix fire regulatory permits
 - San Sevaine/Etiwanda Flood Control Project
 - Cypress Sultana Storm Drain Project
 - Wright Mountain Road Construction Project

Curriculum Vitae - SHAY LAWREY

Skills and Specialties

- Avian (Bird) surveys and monitoring
- Small mammal trapping
- Fish electro-shocking surveys
- Habitat and wildlife inventory, and mapping
- Extensive academic background includes ecology, local flora and fauna, biology of ecosystems, conservation of natural resources, politics and planning
- Extensive experience with ecological field studies, including experimental design and the collection and interpretation of data
- 15 years of experience with Federal, State, and International Endangered/Threatened species

**Sampling
Laboratory Reports**

December 26, 2009



CERTIFICATE OF ANALYSIS

Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 08, 2010 Receive Date: December 26, 2009
Client Project: TV-RWRF SSO	
Chain ID: 6451	Lab Number(s): E091226015 E091226016 E091226017
Sampler: Robert Cash - 868	

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Case Narrative: "SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.

Kenneth Marshall
Manager of Laboratory & Water Quality Services
Eastern Municipal Water District

Chain of Custody

Received By / Temp: 9/9°C
 Received Date / Time: 12/26 1430
 Delivered By: AMS-1001



6451



Complaints / Shutdowns

Company: RWRF-Temeucula Valley Name: _____ Inspections

Profile: SATURDAY-TV Address: _____ SPORT #:

Chain ID #: -6602-6451 City, State, Zip: _____ Tract #:

Collected By: ROBERT CASIA Maximo #: _____ Acct #: () - - 15163() - -

Collect Seq: 1st Day / 2nd Day / Resample

Sample ID	Bottle #	Grab / Composite	Collection		Field Tests				Containers												
			(Grab) Start Date	End Time	Temp	PH	EC	DO	Depth	1 LAG	250 mL AG	500 mL RL	1 G Plast	0.5 G Plast	1 L Plast	40 ml Vial	500 NaOH	120 Sterile	Other		
Influent - TV RWRF		C																			
Tertiary - TV RWRF		C																			
TV OUTFALL - BACTI		G																			
① DIAZ (WEST)		G	12/26	800																	
② VIA MONTREUIL		G		825																	
③ AIRPORT FIELD		G		850																	

Transfers

Relinquished By	Date/Time	Received By	Date/Time
<u>Robert Casia #2018</u>	<u>12/26/09 1330</u>	<u>[Signature]</u>	<u>12/26/09 1330</u>
<u>[Signature]</u>	<u>12/26/09 1430</u>	<u>[Signature]</u>	<u>12/26/09 1430</u>

Print Name / Date: [Signature] 12/26
 Signature: [Signature]

Sample Attestation: I certify that the sample identification and collection information contained in this chain of custody is correct and accurate and that samples were collected in accordance with EPA sampling protocol.

* BOD, COD, NH3



ANALYTICAL RESULTS

Workorder E0902405 6451

Lab ID: **E091226015** Date Received: 12/26/2009 Matrix: Liquid
Sample ID: **DIAZ (WEST)** Date Collected: 12/26/2009

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	290	mg/L	20	15	1		12/28/2009	MK		
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	37	mg/L	2.0	0.708	1		12/30/2009	NS		
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	140	mg/L	2	0	1		12/27/2009	MK		

Report ID: 7413

Page 1 of 3

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Eastern Municipal Water District.



ANALYTICAL RESULTS

Workorder E0902405 6451

Lab ID: **E091226016** Date Received: 12/26/2009 Matrix: Liquid
 Sample ID: **VIA MONTAZUMA** Date Collected: 12/26/2009

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	220	mg/L	20	15	1		12/28/2009	MK		
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	18	mg/L	2.0	0.708	1		12/30/2009	NS		
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	92	mg/L	2	0	1		12/27/2009	MK		

CERTIFICATE OF ANALYSIS

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ANALYTICAL RESULTS

Workorder E0902405 6451

Lab ID: **E091226017**

Date Received: 12/26/2009

Matrix: Liquid

Sample ID: **AIRPORT FIELD**

Date Collected: 12/26/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	450	mg/L	20	15	1			12/28/2009		MK	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	35	mg/L	2.0	0.708	1			12/30/2009		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	200	mg/L	2	0	1			12/27/2009		MK	

CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Eastern Municipal Water District.



Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 08, 2010
		Receive Date:	December 26, 2009
Client Project:	TV-RWRF SSO		
Chain ID:	6451	Lab Number(s):	E091226015 E091226016 E091226017
Sampler:	Robert Cash - 868		

QUALITY CONTROL SECTION

Quality Control Review



Batch CHM/3007 **HBN** 5204
File BOD **Status** RE
Create Date 12/27/2009 **Analyst** MK

DATA SCANNED

1 34448-LFB for HBN 5204 [CHM/3007]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure BOD	Instru BOD-01	Run Date 12/27/2009 10:15	Dilution 1
Method BOD, SM 5210B	Col ID	Hold Date 1/5/2010 09:01	Analyst MK
Schedule 167198	File		CC OK

Prep Information

Procedure BOD	Batch CHM/3007	Prep Date 12/27/2009 10:15	Dilution 1
Method BOD, SM 5210B	HBN 5204	Hold Date 1/5/2010 09:01	Analyst MK
Schedule 167198	Instru BOD-01		CC OK

Initial Volume	300 mL	Default	300 mL
Final Volume	300 mL	Default	300 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
CHEMISTRY RESULTS							
BOD	1	189 mg/L	0	2	mg/L	200 mg/L	95.5

Quality Control Review



Batch CHM/3021 **HBN** 5234
Rule COD **Status** RE
Create Date 12/28/2009 **Analyst** MK

SCAN MISSING

1 34762-LFB for HBN 5234 [CHM/3021]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 168444	Instru HACH Col ID File	Run Date 12/28/2009 10:19 Hold Date 1/2/2010 10:14	Dilution 1 Analyst MK CC CA
Initial Volume Final Volume	Default Default		

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec Limits
Chemical Oxygen Demand	112.5	mg/L				

Quality Control Review



Batch CHM/3021 **HBN** 5234
File COD **Status** RE
Create Date 12/28/2009 **Analyst** MK

SCAN MISSING

2 34576-LFB for HBN 5234 [CHM/3021]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 167725	Instru HACH Col ID File	Run Date 12/28/2009 14:33 Hold Date 12/30/2009 16:01	Dilution 1 Analyst MK CC OK
--	--	---	---

Prep Information

Procedure COD Method COD, HACH 8000 Schedule 167725	Batch CHM/3021 HBN 5234 Instru HACH	Prep Date 12/28/2009 14:33 Hold Date 12/30/2009 16:01	Dilution 1 Analyst MK CC OK
--	--	--	---

Initial Volume 2 mL Default 2 mL
 Final Volume 2 mL Default 2 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
Chemical Oxygen Demand	420	mg/L 420	15	20	mg/L 400	106	

Quality Control Review



Batch CHM/3036 **HBN** 5264
le AMMONIA **Status** RE
Create Date 12/30/2009 **Analyst** NS

SCAN MISSING

1 34713-LRB for HBN 5264 [CHM/3036]

Type LRB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 168300	Instru FOSS Col ID File	Run Date 12/30/2009 13:28 Hold Date 1/4/2010 10:22	Dilution Analyst NS CC OK
--	--	---	---

Prep Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 168300	Batch CHM/3036 HBN 5264 Instru FOSS	Prep Date 12/30/2009 13:28 Hold Date 1/4/2010 10:22	Dilution Analyst NS CC OK
--	--	--	---

Initial Volume 100 mL Default 100 mL
 Final Volume 100 mL Default 100 mL

Analyte	Posted Result	Result	MDL	RDL
NUTRIENTS	1			
Ammonia (NH3-N)	0	mg/L	<2.0	0.708 2.0 mg/L
Total Organic Nitrogen		mg/L		
Total Inorganic Nitrogen		mg/L		

Quality Control Review



Batch CHM/3036 **HBN** 5264
le AMMONIA **Status** RE
Create Date 12/30/2009 **Analyst** NS

SCAN MISSING

2 34714-LFB for HBN 5264 [CHM/3036]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 168301	Instru FOSS Col ID File	Run Date 12/30/2009 13:28 Hold Date 1/4/2010 10:22	Dilution Analyst NS CC OK
--	--	---	---

Prep Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 168301	Batch CHM/3036 HBN 5264 Instru FOSS	Prep Date 12/30/2009 13:28 Hold Date 1/4/2010 10:22	Dilution Analyst NS CC OK
--	--	--	---

Initial Volume 100 mL Default 100 mL
 Final Volume 100 mL Default 100 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
NUTRIENTS	1						
Ammonia (NH3-N)	41	mg/L 41	0.708	2.0	mg/L 40 mg/L	101	80-120
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3036 **HBN** 5264
File AMMONIA **Status** RE
Create Date 12/30/2009 **Analyst** NS

SCAN MISSING

3 E091230004-Secondary - SJV RWRP

Type COMP **Matrix** Liquid **Collected** 12/30/2009 07:30 **% Moisture**
Client RWRP-SJV **WO** E0902440 **Work ID** 6508 **Original HSN**

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168165 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3036 **Prep Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5264 **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168165 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
NUTRIENTS	1						
Ammonia (NH3-N)	13	mg/L	13	0.708	2.0	mg/L	14, 13, 16
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3036 **HBN** 5264
File AMMONIA **Status** RE
Create Date 12/30/2009 **Analyst** NS

SCAN MISSING

4 34715-Secondary - SJV RWRf(34679LFM)

Type LFM **Matrix** Liquid **Collected** 12/30/2009 07:30 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 34679

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168302 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3036 **Prep Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5264 **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168302 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
NUTRIENTS	1							
Ammonia (NH3-N)	34	mg/L 34	0.708	2.0	mg/L 13	20 mg/L	107	80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3036 **HBN** 5264
File AMMONIA **Status** RE
Create Date 12/30/2009 **Analyst** NS

SCAN MISSING

5 34716-Secondary - SJV ...(34679LFMD)

Type LFMD **Matrix** Liquid **Collected** 12/30/2009 07:30 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 34679

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168303 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3036 **Prep Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5264 **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168303 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Max RPD
NUTRIENTS	1										
Ammonia (NH3-N)	34	mg/L	34	0.708	2.0	mg/L		107		0	10
Total Organic Nitrogen		mg/L									
Total Inorganic Nitrogen		mg/L									



CERTIFICATE OF ANALYSIS

Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 08, 2010
Client Project:	TV-RWRF SSO	Receive Date:	December 26, 2009
Chain ID:	6452	Lab Number(s):	E091226018 E091226019 E091226020
Sampler:	Alfred Javier-1001		

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Case Narrative: "SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.

Kenneth Marshall
Manager of Laboratory & Water Quality Services
Eastern Municipal Water District



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ANALYTICAL RESULTS

Workorder: E0902406 6452

Lab ID: **E091226018** Date Received: 12/26/2009 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ MONTAZUMA** Date Collected: 12/26/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	220	mg/L	20	15	1			12/28/2009	MK		
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	>160000	MPN/100 mL	2		1			12/26/2009	SW		
Fecal Coliform by MTF	>160000	MPN/100 mL			1			12/26/2009	SW		
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	14	mg/L	2.0	0.708	1			12/30/2009	NS		
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	90	mg/L	2	0	1			12/27/2009	MK		

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ANALYTICAL RESULTS

Workorder: E0902406 6452

Lab ID: **E091226019** Date Received: 12/26/2009 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO CAL RD** Date Collected: 12/26/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
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Analysis Desc: COD, HACH 8000			Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	79	mg/L	20	15	1			12/28/2009		MK	

BIOLOGICALS

Analysis Desc: MTF			Analytical Method: MTF								
Total Coliform by MTF	3000	MPN/100 mL	2		1			12/26/2009		SW	
Fecal Coliform by MTF	40	MPN/100 mL			1			12/26/2009		SW	

NUTRIENTS

Analysis Desc: NH3, SM4500 NH3 C			Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			12/30/2009		NS	

CHEMISTRY RESULTS

Analysis Desc: BOD, SM 5210B			Analytical Method: BOD, SM 5210B								
BOD	<50	mg/L	50	0	1			1/1/2010		MS	

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ANALYTICAL RESULTS

Workorder: E0902406 6452

Lab ID: **E091226020** Date Received: 12/26/2009 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ BLACK DEER** Date Collected: 12/26/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	230	mg/L	20	15	1			12/28/2009		MK	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	>160000	MPN/100 mL	2		1			12/26/2009		SW	
Fecal Coliform by MTF	>160000	MPN/100 mL			1			12/26/2009		SW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	26	mg/L	2.0	0.708	1			12/30/2009		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	96	mg/L	2	0	1			12/27/2009		MK	

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Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 08, 2010
		Receive Date:	December 26, 2009
Client Project:	TV-RWRF SSO		
Chain ID:	6452	Lab	E091226018
		Number(s):	E091226019
			E091226020
Sampler:	Alfred Javier-1001		

QUALITY CONTROL SECTION

See BOD, COD & NH3-N QC on Chain 6451



Multiple Tube Fermentation

Lab ID:	E091226018	Bottle #:	133
Line Item (Samp ID)	MURRIETA CREEK @ MONTAZUMA	Collect Date/Time:	12/26/2009 11:20:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr					

Dilution

1.0

TP MPN/100 ml
> 160,000

FC MPN/100 ml
> 160,000

TC+

FC+

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution

0.1

Media Lot./Exp. Date	
BUFFER	963001 11-10-10
SSTLB	12-31-09 11/5/10
DSLTB	
BGB	X 1-5-10
EC	X 7-26-10

TC+

FC+

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution

0.1

LTB 24 hr

LTB 48 hr

BGB 24 hr

BGB 48 hr

EC 24 hr

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution

0.01

TC+

FC+

	SETUP	24-hr	48hr	72hr	96hr
Initials:	oj	WJK	sm	sm	
Date	12-26-09	12-27-09	12/28/09	12/29/09	
Time	14:49	1320	0840	0945	

INITIALS
INPUT: sm
APPROVED:

EC QC: E. aerogenes +/-	-	12/29/09
E. coli +/-	+	12/29/09

Analyst Comments: BGB positives were transferred to EC 12/28/09 - sm

Grammed



Multiple Tube Fermentation

Lab ID:	E091226019	Bottle #:	1383
Line Item (Samp ID)	MURRIETA CREEK @ R CAL	Collect Date/Time:	12/26/2009 12:00:00 PM

Rancho Calif. Rd -

1	2	3	4	5
+	+	+	+	+
+	+	+	+	+
+	-	-	+	-

Dilution
10
1.0

TC+	5
FC+	2

TP MPN/100 ml
30000 3000
Sum 12/29/09

5-1-0 = 3
5-5-1 = 300
Sum 12/27

FC MPN/100 ml
400 40
Sum 12/29/09

200

1	2	3	4	5
-	+	-	+	-
+		+		+
	+		+	
+		+		+

Dilution
10
0.1

TC+	5
FC+	0

Media Lot/ Exp. Date
BUFFER 963001 11-10-10
SSTLB 12-31-09 = 1/5/10
DSLTB
BGB X 1-5-10
EC

1	2	3	4	5
+				
+				

Dilution
10
0.01

TC+	1
FC+	0

1	2	3	4	5

Dilution
10
0.001

TC+	0
FC+	

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	aj	MUK	sum	sum		INPUT: sum
Date	12-26-09	12-27-09	12/28/09	12/29/09		APPROVED:
Time	14:49	1325	0905	0945		

EC QC: E. aerogenes +/-	- 12/29/09
E. coli +/-	+ 12/29/09

Analyst Comments: BGB tubes that went positive on 12/28/09 were transferred to EC on 12/28/09 - sum





Multiple Tube Fermentation

2152

Lab ID:	E091226020	Bottle #:	1354
Line Item (Samp ID)	MURRIETA CREEK @ BLACK DEER	Collect Date/Time:	12/26/2009 12:38:00 PM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution

40
10

TP MPN/100 ml
> 160,000 <i>sum</i> 12/28/09

FC MPN/100 ml
> 160,000

TC +

FC +

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution

40
0.1

BUFFER

Media Lot / Exp. Date	
963001	11-10-10
SSTLB	12-31-09 = 1/5/10
DSLTB	
BGB	X 1-5-10
EC	

TC +

FC +

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution

0.6
0.01

LTB 24 hr

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution

0.01
0.001

TC +

FC +

TC +

FC +

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	<i>aj</i>	<i>MLK</i>	<i>sum</i>	<i>sum</i>		INPUT: <i>sum</i>
Date	12-26-09	12-27-09	12/28/09	12/29/09		APPROVED: <i>aj</i>
Time	14:49	1771	0850	0945		

EC QC: E. aerogenes +/-	-	12/29/09
E. coli +/-	+	12/29/09

Analyst Comments: BGB positives were transferred to EC 12/28/09 - sum

**Sampling
Laboratory Reports**

December 28, 2009



CERTIFICATE OF ANALYSIS

Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 08, 2010
		Receive Date:	December 28, 2009
Client Project:	TV-RWRF SSO	Lab	E091228092
Chain ID:	6524	Number(s):	E091228093
Sampler:	Alfred Javier - 1001		E091228094
			E091228095
			E091228096
			E091228097

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

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ANALYTICAL RESULTS

Workorder: E0902430 6524

Lab ID: **E091228092** Date Received: 12/28/2009 Matrix: Liquid
 Sample ID: **Murrieta Creek @ Winchester** Date Collected: 12/28/2009

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	99	mg/L	20	15	1		12/28/2009	MK		
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	5000	MPN/100 mL	2		1		12/28/2009	SW		
Fecal Coliform by MTF	<20	MPN/100 mL			1		12/28/2009	SW		
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		12/30/2009	NS		
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	19	mg/L	2	0	1		12/29/2009	SD		

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ANALYTICAL RESULTS

Workorder: E0902430 6524

Lab ID: **E091228093** Date Received: 12/28/2009 Matrix: Liquid
 Sample ID: **Murrieta Creek @ Montazuma** Date Collected: 12/28/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	120	mg/L	20	15	1			12/28/2009	MK		
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	900000	MPN/100 mL	2		1			12/28/2009	SW		
Fecal Coliform by MTF	240000	MPN/100 mL			1			12/28/2009	SW		
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			12/30/2009	NS		
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	20	mg/L	2	0	1			12/29/2009	SD		

Report ID: 7438 - 167688

DRAFT

Page 2 of 6

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ANALYTICAL RESULTS

Workorder: E0902430 6524

Lab ID: **E091228094** Date Received: 12/28/2009 Matrix: Liquid
 Sample ID: **confluence** Date Collected: 12/28/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	50	mg/L	20	15	1			12/28/2009		MK	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	340	MPN/100 mL	2		1			12/28/2009		SW	
Fecal Coliform by MTF	<20	MPN/100 mL			1			12/28/2009		SW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			12/30/2009		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	18	mg/L	2	0	1			12/29/2009		SD	

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 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E0902430 6524

Lab ID: **E091228095** Date Received: 12/28/2009 Matrix: Liquid
 Sample ID: **Temecula Creek** Date Collected: 12/28/2009

Parameters	Results Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
------------	---------------	--------------	-----	-------------	----	----------	----	------	--------

Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000							
Chemical Oxygen Demand	52 mg/L	20	15	1		12/28/2009	MK		

BIOLOGICALS

Analysis Desc: MTF		Analytical Method: MTF							
Total Coliform by MTF	110 MPN/100 mL	2		1		12/28/2009	SW		
Fecal Coliform by MTF	20 MPN/100 mL			1		12/28/2009	SW		

NUTRIENTS

Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C							
Ammonia (NH3-N)	<2.0 mg/L	2.0	0.708	1		12/30/2009	NS		

CHEMISTRY RESULTS

Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B							
BOD	14 mg/L	2	0	1		12/29/2009	SD		

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ANALYTICAL RESULTS

Workorder: E0902430 6524

Lab ID: **E091228096** Date Received: 12/28/2009 Matrix: Liquid
 Sample ID: **Murrieta creek rancho Cal** Date Collected: 12/28/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	81	mg/L	20	15	1			12/28/2009		MK	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	5000	MPN/100 mL	2		1			12/28/2009		SW	
Fecal Coliform by MTF	230	MPN/100 mL			1			12/28/2009		SW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			12/30/2009		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	18	mg/L	2	0	1			12/29/2009		SD	

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ANALYTICAL RESULTS

Workorder: E0902430 6524

Lab ID: **E091228097** Date Received: 12/28/2009 Matrix: Liquid
 Sample ID: **Murrieta creek Rancho Way** Date Collected: 12/28/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	84	mg/L	20	15	1			12/28/2009	MK		
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	220000	MPN/100 mL	2		1			12/28/2009	SW		
Fecal Coliform by MTF	110000	MPN/100 mL			1			12/28/2009	SW		
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			12/30/2009	NS		
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	22	mg/L	2	0	1			12/29/2009	SD		

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Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 08, 2010
		Receive Date:	December 28, 2009
Client Project:	TV-RWRF SSO	Lab	E091228092
Chain ID:	6524	Number(s):	E091228093
			E091228094
Sampler:	Alfred Javier - 1001		E091228095
			E091228096
			E091228097

QUALITY CONTROL SECTION

Case Narrative: *"SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.*

Quality Control Review



Batch CHM/3026 **HBN** 5239
Title BOD **Status** RE
Create Date 12/29/2009 **Analyst** MK

DATA SCANNED

1 34617-LFB for HBN 5239 [CHM/3026]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure BOD	Instru BOD-01	Run Date 12/29/2009 11:41	Dilution 1
Method BOD, SM 5210B	Col ID	Hold Date 1/7/2010 10:07	Analyst MK
Schedule 167834	File		CC OK

Prep Information

Procedure BOD	Batch CHM/3026	Prep Date 12/29/2009 11:41	Dilution 1
Method BOD, SM 5210B	HBN 5239	Hold Date 1/7/2010 10:07	Analyst MK
Schedule 167834	Instru BOD-01		CC OK

Initial Volume 300 mL **Default** 300 mL
Final Volume 300 mL **Default** 300 mL

Analyte	Posted		Result	MDL	RDL	Spike Amt	%
	Result	Limits					
CHEMISTRY RESULTS							
BOD	203	mg/L	203	0	2	mg/L	103

Quality Control Review



Batch CHM/3021 **HBN** 5234
File COD **Status** RE
Create Date 12/28/2009 **Analyst** MK

SCAN MISSING

2 34576-LFB for HBN 5234 [CHM/3021]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 167725	Instru HACH Col ID File	Run Date 12/28/2009 14:33 Hold Date 12/30/2009 16:01	Dilution 1 Analyst MK CC OK
--	--	---	---

Prep Information

Procedure COD Method COD, HACH 8000 Schedule 167725	Batch CHM/3021 HBN 5234 Instru HACH	Prep Date 12/28/2009 14:33 Hold Date 12/30/2009 16:01	Dilution 1 Analyst MK CC OK
--	--	--	---

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted		Result			Spike		% Rec Limits	
	Result		Result	MDL	RDL	Amt		Rec	Limits
Chemical Oxygen Demand	420	mg/L	420	15	20	mg/L	400 mg/L	106	

Quality Control Review



Batch CHM/3036 **HBN** 5264
Title AMMONIA **Status** RE
Create Date 12/30/2009 **Analyst** NS

SCAN MISSING

1 34713-LRB for HBN 5264 [CHM/3036]

Type LRB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 168300	Instru FOSS Col ID File	Run Date 12/30/2009 13:28 Hold Date 1/4/2010 10:22	Dilution Analyst NS CC OK
--	--	---	---

Prep Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 168300	Batch CHM/3036 HBN 5264 Instru FOSS	Prep Date 12/30/2009 13:28 Hold Date 1/4/2010 10:22	Dilution Analyst NS CC OK
--	--	--	---

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL
NUTRIENTS	1			
Ammonia (NH3-N)	0	mg/L <2.0	0.708	2.0 mg/L
Total Organic Nitrogen		mg/L		
Total Inorganic Nitrogen		mg/L		

Quality Control Review



Batch CHM/3036 **HBN** 5264
Title AMMONIA **Status** RE
Create Date 12/30/2009 **Analyst** NS

SCAN MISSING

2 34714-LFB for HBN 5264 [CHM/3036]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 168301	Instru FOSS Col ID File	Run Date 12/30/2009 13:28 Hold Date 1/4/2010 10:22	Dilution Analyst NS CC OK
--	--	---	---

Prep Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 168301	Batch CHM/3036 HBN 5264 Instru FOSS	Prep Date 12/30/2009 13:28 Hold Date 1/4/2010 10:22	Dilution Analyst NS CC OK
--	--	--	---

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec Limits		
						Rec	Limits	
NUTRIENTS	1							
Ammonia (NH3-N)	41	mg/L	41	0.708	2.0	mg/L	40 mg/L	101 80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3036 **HBN** 5264
Title AMMONIA **Status** RE
Create Date 12/30/2009 **Analyst** NS

SCAN MISSING

3 E091230004-Secondary - SJV RWRF

Type COMP **Matrix** Liquid **Collected** 12/30/2009 07:30 **% Moisture**
Client RWRF-SJV **WO** E0902440 **Work ID** 6508 **Original** HSN

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168165 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3036 **Prep Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5264 **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168165 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
NUTRIENTS	1						
Ammonia (NH3-N)	13	mg/L 13	0.708	2.0	mg/L		14, 13, 16
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3036 **HBN** 5264
Title AMMONIA **Status** RE
Create Date 12/30/2009 **Analyst** NS

SCAN MISSING

4 34715-Secondary - SJV RWRf(34679LFM)

Type LFM **Matrix** Liquid **Collected** 12/30/2009 07:30 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original** HSN 34679

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168302 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3036 **Prep Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5264 **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168302 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits		
NUTRIENTS	1									
Ammonia (NH3-N)	34	mg/L	34	0.708	2.0	mg/L	13	20 mg/L	107	80-120
Total Organic Nitrogen		mg/L								
Total Inorganic Nitrogen		mg/L								

Quality Control Review



Batch CHM/3036 **HBN** 5264
Title AMMONIA **Status** RE
Create Date 12/30/2009 **Analyst** NS

SCAN MISSING

5 34716-Secondary - SJV ...(34679LFMD)

Type LFMD **Matrix** Liquid **Collected** 12/30/2009 07:30 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original** HSN 34679

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168303 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3036 **Prep Date** 12/30/2009 13:28 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5264 **Hold Date** 1/4/2010 07:30 **Analyst** NS
Schedule 168303 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	MS			Max RPD
							% Rec	% Rec	Limits	
NUTRIENTS	1									
Ammonia (NH3-N)	34	mg/L 34	0.708	2.0	mg/L			107	0	10
Total Organic Nitrogen		mg/L								
Total Inorganic Nitrogen		mg/L								

**Sampling
Laboratory Reports**

December 31, 2009



CERTIFICATE OF ANALYSIS

Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 08, 2010 Receive Date: December 31, 2009
Client Project: TV-RWRF SSO	
Chain ID: 6545	Lab Number(s): E091231020 E091231021 E091231022 E091231023
Sampler: Doug Edwards - 2118	

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Case Narrative: "SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.

Kenneth Marshall
Manager of Laboratory & Water Quality Services
Eastern Municipal Water District



Eastern Municipal Water District
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 Phone: (951) 928-3777, X6278
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ANALYTICAL RESULTS

Workorder: E0902453 6545

Lab ID: **E091231020** Date Received: 12/31/2009 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ WINCHESTER** Date Collected: 12/31/2009

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	100	mg/L	20	15	1		12/31/2009	MK		
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	5000	MPN/100 mL	2		1		12/31/2009	CG		
Fecal Coliform by MTF	200	MPN/100 mL			1		12/31/2009	CG		
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/7/2010	NS		
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	5.2	mg/L	2	0	1		1/5/2010	KM		

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ANALYTICAL RESULTS

Workorder: E0902453 6545

Lab ID: **E091231021** Date Received: 12/31/2009 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ MONTEZUMA** Date Collected: 12/31/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	100	mg/L	20	15	1			12/31/2009		MK	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	3000	MPN/100 mL	2		1			1/2/2010		NS	
Fecal Coliform by MTF	1300	MPN/100 mL			1			1/2/2010		NS	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/7/2010		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	6.2	mg/L	2	0	1			1/5/2010		MS	

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ANALYTICAL RESULTS

Workorder: E0902453 6545

Lab ID: **E091231022** Date Received: 12/31/2009 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO CA RD** Date Collected: 12/31/2009

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	38	mg/L	20	15	1		12/31/2009	MK		
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	5000	MPN/100 mL	2		1		1/2/2010	NS		
Fecal Coliform by MTF	1700	MPN/100 mL			1		1/2/2010	NS		
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/7/2010	NS		
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	5.5	mg/L	2	0	1		1/5/2010	MS		

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ANALYTICAL RESULTS

Workorder: E0902453 6545

Lab ID: **E091231023** Date Received: 12/31/2009 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO WAY** Date Collected: 12/31/2009

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	77	mg/L	20	15	1			12/31/2009		MK	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	3400	MPN/100 mL	2		1			12/31/2009		CG	
Fecal Coliform by MTF	<200	MPN/100 mL			1			12/31/2009		CG	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/7/2010		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	11	mg/L	2	0	1			1/5/2010		MS	

Report ID: 7461

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Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 08, 2010 Receive Date: December 31, 2009
Client Project: TV-RWRF SSO	
Chain ID: 6545	Lab Number(s): E091231020 E091231021 E091231022 E091231023
Sampler: Doug Edwards - 2118	

QUALITY CONTROL SECTION



Multiple Tube Fermentation

2172

Lab ID:	E091231020	Bottle #:	0025
Line Item (Samp ID)	MURRIETA CREEK @ WINCHESTER	Collect Date/Time:	12/31/2009 9:20:00 AM

	1	2	3	4	5
LTB 24 hr	G	+	G	G	G
LTB 48 hr	+		+	+	+
BGB 24 hr		+			
BGB 48 hr	+		+	+	+
EC 24 hr	-	+	-	-	-

Dilution

~~10~~ 0.1

TP MPN/100 ml
5000

S-1-1

FC MPN/100 ml
200

1-0-0

TC+	5	presumptive only 12/2/10
FC+	1	

	1	2	3	4	5
LTB 24 hr	-	G	G	-	-
LTB 48 hr	-	-	-	+	-
BGB 24 hr				+	
BGB 48 hr					
EC 24 hr				-	

Dilution

~~10~~ 0.01

Media Lot / Exp. Date	963001
SSTLB	X 1/12/10
DSLTB	
BGB	X 1/5/10
EC	X 3/26/10

TC+	1
FC+	0

	1	2	3	4	5
LTB 24 hr	G	-	-	-	-
LTB 48 hr	-	-	-	-	-
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.1~~ 0.001

	1	2	3	4	5
LTB 24 hr	-	-	-	-	-
LTB 48 hr	-	-	-	-	-
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.1~~ 0.0001

TC+	1
FC+	0

TC+	
FC+	

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	SM/09	SM	MS	MS		INPUT: SM
Date	12/31/09	1/1/10	1/2/10	3/01/2010		APPROVED: (SM)
Time	11:03	11:30	8:45 AM BGB EC 12:07	10:00		

EC QC: E. aerogenes +/-	(-)	1/2/10	MS 1/2/10 12:07	3 Jan 10 10:00 AM	-
E. coli +/-	(+)	1/2/10	MS 1/2/10 12:07		+

Analyst Comments:



Multiple Tube Fermentation

* 2166

Lab ID:	E091231021	Bottle #:	0163
Line Item (Samp ID)	MURRIETA CREEK @ MONTEZUMA	Collect Date/Time:	12/31/2009 9:40:00 AM

1	2	3	4	5
LTB 24 hr	+	+	+	+
LTB 48 hr				
BGB 24 hr	+	+	+	+
BGB 48 hr				
EC 24 hr	+	+	+	-

Dilution
10^{-0.1}

TP MPN/100 ml
3,000

TC +	5
FC +	4

FC MPN/100 ml
1,300

1	2	3	4	5
LTB 24 hr	G	+	G	-
LTB 48 hr	-		-	-
BGB 24 hr		+		
BGB 48 hr				
EC 24 hr		-		

Dilution
10^{-0.01}

Media Lot / Exp. Date
963001
SSTLB X 1/12/10
DSLTB
BGB X 1/13/10
EC X 3/26/10

TC +	1
FC +	0

1	2	3	4	5
LTB 24 hr	-	G	-	-
LTB 48 hr	G	G	-	-
BGB 24 hr				
BGB 48 hr				
EC 24 hr				

Dilution
0.1
0.001

1	2	3	4	5
LTB 24 hr				
LTB 48 hr				
BGB 24 hr				
BGB 48 hr				
EC 24 hr				

Dilution
0.01
0.0001

TC +	0
FC +	0

TC +	0
FC +	0

Set up by Sam 1703 12/31/09

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	Sam	Sam	M			INPUT: MS 1/2/10
Date	12/31/09	1/1/10	1/2/10			APPROVED: [Signature]
Time	11:08	11:30	0859			

EC QC: E. aerogenes +/-	- MS 12.07.12.10
E. coli +/-	+ MS 12.07.12.10

Analyst Comments:



*2166

Multiple Tube Fermentation

Lab ID:	E091231022	Bottle #:	0032
Line Item (Samp ID)	MURRIETA CREEK @ RANCHO CARD	Collect Date/Time:	12/31/2009 9:50:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	-	+

Dilution

~~40~~ 0.1

TP MPN/100 ml
5,000

TC +

5
4

FC +

FC MPN/100 ml
1,700

	1	2	3	4	5
LTB 24 hr	+	G	+	-	-
LTB 48 hr		-		-	-
BGB 24 hr	+	X	+		
BGB 48 hr					
EC 24 hr	-		+		

Dilution

~~10~~ 0.01

BUFFER

Media Lot / Exp. Date	963001
SSTLB	X 1/12/10
DSLTB	
BGB	X 1/13/10
EC	X 3/26/10

TC +

2
1

FC +

	1	2	3	4	5
LTB 24 hr	-	-	-	-	-
LTB 48 hr	-	-	-	-	-
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.1~~ 0.001

LTB 24 hr

	1	2	3	4	5
LTB 24 hr	-	-	-	-	-
LTB 48 hr	-	-	-	-	-
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.01~~ 0.0001

TC +

0
0

FC +

TC +

0
0

FC +

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	aw	aw	aw			INPUT: MS 1/2/10
Date	12/31/09	1/1/10	1/2/10			APPROVED: [Signature]
Time	11:08	11:30	09:09			

EC QC: E. aerogenes +/-	- MS12.07/12/10
E. coli +/-	+ MS12.07/12/10

Analyst Comments:



Multiple Tube Fermentation

2172

Lab ID:	E091231023	Bottle #:	003
Line Item (Samp ID)	MURRIETA CREEK @ RANCHO WAY	Collect Date/Time:	12/31/2009 10:15:00 AM

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	+	+	+	+
BGB 24 hr	+	+	+	+	-
BGB 48 hr	_____				
EC 24 hr	_____				

Dilution
10⁻¹ 0.1

TP MPN/100 ml
3400

FC MPN/100 ml
2200

TC + 4
FC + ϕ

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	-	+	+	+
BGB 24 hr	+		+	+	+
BGB 48 hr	-		_____		
EC 24 hr	-		_____		

Dilution
10⁻¹ 0.101

Media Lot / Exp. Date	963001
BUFFER	K 1/12/10
SSTLB	
DSLTB	
BGB	X 1/13/09-10 ^{corrected} us 1/2/10
EC	X 3/26/10

TC + 4
FC + ϕ

	1	2	3	4	5
LTB 24 hr	_____				
LTB 48 hr	_____				
BGB 24 hr	_____				
BGB 48 hr	_____				
EC 24 hr	_____				

Dilution
0.1
0.001

	1	2	3	4	5
LTB 24 hr	_____				
LTB 48 hr	_____				
BGB 24 hr	_____				
BGB 48 hr	_____				
EC 24 hr	_____				

Dilution
0.01
0.0001

TC + ϕ
FC + _____

TC + _____
FC + _____

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	ox	sw	sw	sw		INPUT
Date	12/31/09	1/1/10	1/2/10	3 Jan 10		APPROVED:
Time	11:13	1630	0904	1000		(sw)

EC QC: E. aerogenes +/- (-) 3 Jan 10 ad
E. coli +/- (+) 3 Jan 10 ad

Analyst Comments:

Quality Control Review



Batch CHM/3042 **HBN** 5278
File BOD **Status** RE
Create Date 12/31/2009 **Analyst** MK

DATA SCANNED

1 34761-LFB for HBN 5278 [CHM/3042]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure BOD	Instru BOD-01	Run Date 1/5/2010 10:43	Dilution 1
Method BOD, SM 5210B	Col ID	Hold Date 1/9/2010 09:36	Analyst MS
Schedule 168407	File		CC OK

Prep Information

Procedure BOD	Batch CHM/3042	Prep Date 1/5/2010 10:43	Dilution 1
Method BOD, SM 5210B	HBN 5278	Hold Date 1/9/2010 09:36	Analyst MS
Schedule 168407	Instru BOD-01		CC OK

Initial Volume 300 mL Default 300 mL
 Final Volume 300 mL Default 300 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
CHEMISTRY RESULTS							
BOD	204	mg/L 204	0	2	mg/L 200 mg/L	103	

Quality Control Review



Batch CHM/3044 **HBN** 5281
le COD **Status** RE
Create Date 12/31/2009 **Analyst** MK

SCAN MISSING

1 34771-LFB for HBN 5281 [CHM/3044]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
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Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 168532	Instru HACH Col ID File	Run Date 12/31/2009 13:51 Hold Date 1/2/2010 11:44	Dilution 1 Analyst MK CC OK
--	--	---	---

Prep Information

Procedure COD Method COD, HACH 8000 Schedule 168532	Batch CHM/3044 HBN 5281 Instru HACH	Prep Date 12/31/2009 13:51 Hold Date 1/2/2010 11:44	Dilution 1 Analyst MK CC OK
--	--	--	---

Initial Volume 2 mL Default 2 mL
 Final Volume 2 mL Default 2 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
Chemical Oxygen Demand	430	430	15	20	400 mg/L	107	

Quality Control Review



Batch CHM/3082 **HBN** 5385
le AMMONIA **Status** RE
Create Date 1/7/2010 **Analyst** NS

SCAN MISSING

1 35150-LRB for HBN 5385 [CHM/3082]

Type LRB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure	Instru	Run Date	Dilution
NH3-4500-L	FOSS	1/7/2010 12:57	
Method NH3, SM4500 NH3 C	Col ID	Hold Date 1/12/2010 08:55	Analyst NS
Schedule 170319	File		CC OK

Prep Information

Procedure	Batch	Prep Date	Dilution
NH3-4500-L	CHM/3082	1/7/2010 12:57	
Method NH3, SM4500 NH3 C	HBN 5385	Hold Date 1/12/2010 08:55	Analyst NS
Schedule 170319	Instru FOSS		CC OK

Initial Volume 100 mL Default 100 mL
 Final Volume 100 mL Default 100 mL

Analyte	Posted		Result	MDL	RDL
	Result				
NUTRIENTS	1				
Ammonia (NH3-N)	0	mg/L	<2.0	0.708	2.0 mg/L
Total Organic Nitrogen		mg/L			
Total Inorganic Nitrogen		mg/L			

Quality Control Review



Batch CHM/3082 **HBN** 5385
File AMMONIA **Status** RE
Create Date 1/7/2010 **Analyst** NS

SCAN MISSING

2 35151-LFB for HBN 5385 [CHM/3082]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
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Analytical Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 170320	Instru FOSS Col ID File	Run Date 1/7/2010 12:57 Hold Date 1/12/2010 08:55	Dilution Analyst NS CC OK
--	--	--	---

Prep Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 170320	Batch CHM/3082 HBN 5385 Instru FOSS	Prep Date 1/7/2010 12:57 Hold Date 1/12/2010 08:55	Dilution Analyst NS CC OK
--	--	---	---

Initial Volume 100 mL Default 100 mL
 Final Volume 100 mL Default 100 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
NUTRIENTS	1						
Ammonia (NH3-N)	20	mg/L	20	0.708	2.0	mg/L	20 mg/L 102 80-120
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3082 **HBN** 5385
le AMMONIA **Status** RE
Create Date 1/7/2010 **Analyst** NS

SCAN MISSING

3 E100107006-Secondary - MV RWRF

Type COMP **Matrix** Liquid **Collected** 1/7/2010 07:25 **% Moisture**
Client RWRF-MV **WO** E1000061 **Work ID** 6670 **Original HSN**

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 1/7/2010 12:57 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 1/12/2010 07:25 **Analyst** NS
Schedule 170365 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3082 **Prep Date** 1/7/2010 12:57 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5385 **Hold Date** 1/12/2010 07:25 **Analyst** NS
Schedule 170365 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted		Result	MDL	RDL	Low	High	Hist
	Result							
NUTRIENTS	1							
Ammonia (NH3-N)	13	mg/L	13	0.708	2.0	mg/L		4.6, 4.9, 5.6
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3082 HBN 5385
 le AMMONIA Status RE
 Create Date 1/7/2010 Analyst NS

SCAN MISSING

4 35152-Secondary - MV RWRF(35188LFM)

Type LFM Matrix Liquid Collected 12/31/2009 09:20 % Moisture
 Client QCACCOUNT WO Work ID Original HSN 35188

Analytical Information

Procedure NH3-4500-L Instru FOSS Run Date 1/7/2010 12:57** Dilution
 Method NH3, SM4500 NH3 C Col ID Hold Date 1/5/2010 09:20 Analyst NS
 Schedule 170321 File CC OK

Prep Information

Procedure NH3-4500-L Batch CHM/3082 Prep Date 1/7/2010 12:57** Dilution
 Method NH3, SM4500 NH3 C HBN 5385 Hold Date 1/5/2010 09:20 Analyst NS
 Schedule 170321 Instru FOSS CC OK

Initial Volume 100 mL Default 100 mL
 Final Volume 100 mL Default 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
NUTRIENTS	1							
Ammonia (NH3-N)	33	mg/L	33	0.708	2.0	mg/L	13	20 mg/L 96.3 80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3082 **HBN** 5385
le AMMONIA **Status** RE
Create Date 1/7/2010 **Analyst** NS

SCAN MISSING

5 35153-Secondary - MV RWRF(35188LFMD)

Type LFMD **Matrix** Liquid **Collected** 12/31/2009 09:20 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original** HSN 35188

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 1/7/2010 12:57** **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 1/5/2010 09:20 **Analyst** NS
Schedule 170322 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3082 **Prep Date** 1/7/2010 12:57** **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5385 **Hold Date** 1/5/2010 09:20 **Analyst** NS
Schedule 170322 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Max RPD
NUTRIENTS	1										
Ammonia (NH3-N)	33	mg/L	33	0.708	2.0	mg/L		96.3		0	10
Total Organic Nitrogen		mg/L									
Total Inorganic Nitrogen		mg/L									

**Sampling
Laboratory Reports**

January 6, 2010



CERTIFICATE OF ANALYSIS

Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 08, 2010 Receive Date: January 06, 2010
Client Project: TV-RWRF SSO	
Chain ID: 6556	Lab Number(s): E100106062 E100106063 E100106064 E100106065 E100106066 E100106067
Sampler: Alfred Javier - 1001	

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Case Narrative: "SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.

Kenneth Marshall
Manager of Laboratory & Water Quality Services
Eastern Municipal Water District

Received By / Temp: 02/14°C
 Received Date / Time: 1/6/10 1530
 Delivered By: ANAS-1001

Chain of Custody



6556



Complaints / Shutoffs _____

Company: ERC Name: _____

Profile: GSD Address: _____

Chain ID #: 6556 City, State, Zip: _____

Collected By: AJ-1001 Maximo #: _____

Inspections _____

SPORT #: _____

Tract #: _____

Acct #: () - - - - 151631 - - - -

Collect Seq: 1st Day / 2nd Day / Resample

Sample ID	Bottle #	Grab / Composite	Collection		Field Tests						Containers									
			(Grab)	End	CLR	Temp	pH	EC	DO	Depth	1 LAG	250 mL AG	500 mL RL	1 G Plast.	0.5 G Plast.	1 L Plast	40 ml Vial	500 NaOH	120 Sterile	Other
TEST CUR	0052	G	1/6/10	1410															X	
CONFLUENCE	0122			1410																
Mix, Env. @ RANCHO CA	0016			1425																
" @ RANCHO WAY	0072			1435																
" @ MONTAZUMA	0099			1445																
" @ WINCATERIA	0138			1450																
Transfers	Relinquished By	Date/Time	Received By	Date/Time																
1	<u>AKX</u>	<u>1/6/10 1530</u>	<u>[Signature]</u>	<u>1/6/10 1530</u>																
2																				
3																				
4																				

Sample Attestation: I certify that the sample identification and collection information contained in this chain of custody is correct and accurate and that samples were collected in accordance with EPA sampling protocol.

Print Name / Date: AJ TRAVER
 Signature: [Signature]



Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000059 6556

Lab ID: **E100106062** Date Received: 1/6/2010 15:33 Matrix: Liquid
 Sample ID: **TEMECULA CREEK** Date Collected: 1/6/2010 14:10

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	38	mg/L	20	15	1			1/13/2010		SD	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	300	MPN/100 mL	2		1			1/6/2010		DW	
Fecal Coliform by MTF	<20	MPN/100 mL			1			1/6/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/9/2010		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	28	mg/L	2	0	1			1/12/2010		MK	

CERTIFICATE OF ANALYSIS

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ANALYTICAL RESULTS

Workorder: E1000059 6556

Lab ID: **E100106063**
 Sample ID: **CONFLUENCE**

Date Received: 1/6/2010 15:33 Matrix: Liquid
 Date Collected: 1/6/2010 14:10

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	31	mg/L	20	15	1		1/13/2010		SD	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	300	MPN/100 mL	2		1		1/6/2010		DW	
Fecal Coliform by MTF	<20	MPN/100 mL			1		1/6/2010		DW	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/9/2010		NS	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	30	mg/L	2	0	1		1/7/2010		MK	

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 Perris, CA 92570
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ANALYTICAL RESULTS

Workorder: E1000059 6556

Lab ID: **E100106064** Date Received: 1/6/2010 15:33 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO CAL RD** Date Collected: 1/6/2010 14:25

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	36	mg/L	20	15	1		1/13/2010		SD	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	3000	MPN/100 mL	2		1		1/6/2010		DW	
Fecal Coliform by MTF	<20	MPN/100 mL			1		1/6/2010		DW	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/9/2010		NS	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	33	mg/L	2	0	1		1/12/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000059 6556

Lab ID: **E100106065** Date Received: 1/6/2010 15:33 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO WAY** Date Collected: 1/6/2010 14:35

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	80	mg/L	20	15	1		1/13/2010		SD	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	1300	MPN/100 mL	2		1		1/6/2010		DW	
Fecal Coliform by MTF	800	MPN/100 mL			1		1/6/2010		DW	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/9/2010		NS	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	31	mg/L	2	0	1		1/12/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000059 6556

Lab ID: **E100106066** Date Received: 1/6/2010 15:33 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ MONTAZUMA** Date Collected: 1/6/2010 14:45

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	110	mg/L	20	15	1			1/13/2010		SD	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	1300	MPN/100 mL	2		1			1/6/2010		DW	
Fecal Coliform by MTF	230	MPN/100 mL			1			1/6/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/9/2010		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	27	mg/L	2	0	1			1/12/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000059 6556

Lab ID: **E100106067** Date Received: 1/6/2010 15:33 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ WINCHESTER** Date Collected: 1/6/2010 14:50

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
------------	---------	-------	--------------	-----	-------------	----	----------	----	------	--------

Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	92	mg/L	20	15	1		1/13/2010		SD	

BIOLOGICALS

Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	210	MPN/100 mL	2		1		1/6/2010		DW	
Fecal Coliform by MTF	<20	MPN/100 mL			1		1/6/2010		DW	

NUTRIENTS

Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/9/2010		NS	

CHEMISTRY RESULTS

Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	27	mg/L	2	0	1		1/12/2010		MK	

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Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 08, 2010 Receive Date: January 06, 2010
Client Project: TV-RWRF SSO	
Chain ID: 6556	Lab Number(s): E100106062 E100106063 E100106064 E100106065 E100106066 E100106067
Sampler: Alfred Javier - 1001	

QUALITY CONTROL SECTION

Quality Control Review



Batch CHM/3087 **HBN** 5392
File BOD **Status** RE
Create Date 1/7/2010 **Analyst** MK

DATA SCANNED

1 35210-LFB for HBN 5392 [CHM/3087]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
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Analytical Information

Procedure BOD Method BOD, SM 5210B Schedule 170426	Instru BOD-01 Col ID File	Run Date 1/7/2010 12:17 Hold Date 1/16/2010 09:58	Dilution 1 Analyst MK CC OK
---	--	--	---

Prep Information

Procedure BOD Method BOD, SM 5210B Schedule 170426	Batch CHM/3087 HBN 5392 Instru BOD-01	Prep Date 1/7/2010 12:17 Hold Date 1/16/2010 09:58	Dilution 1 Analyst MK CC OK
---	--	---	---

Initial Volume 300 mL **Default** 300 mL
Final Volume 300 mL **Default** 300 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
CHEMISTRY RESULTS							
BOD	236	mg/L 236	0	2	mg/L 200 mg/L	119	

Quality Control Review



Batch CHM/3090 **HBN** 5395
File COD **Status** RE
Create Date 1/7/2010 **Analyst** SD

SCAN MISSING

1 35213-LRB for HBN 5395 [CHM/3090]

Type LRB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
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Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 170429	Instru HACH Col ID File	Run Date 1/13/2010 15:43* Hold Date 1/9/2010 10:12	Dilution 1 Analyst SD CC OK
--	---	---	---

Prep Information

Procedure COD Method COD, HACH 8000 Schedule 170429	Batch CHM/3090 HBN 5395 Instru HACH	Prep Date 1/13/2010 15:43* Hold Date 1/9/2010 10:12	Dilution 1 Analyst SD CC OK
--	--	--	---

Initial Volume 2 mL Default 2 mL
 Final Volume 2 mL Default 2 mL

Analyte	Posted		Result	MDL	RDL	
	Result					
Chemical Oxygen Demand	19	mg/L	<20	15	20	mg/L

Quality Control Review



Batch CHM/3090 **HBN** 5395
File COD **Status** RE
Create Date 1/7/2010 **Analyst** SD

SCAN MISSING

2 35214-LFB for HBN 5395 [CHM/3090]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
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Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 170430	Instru HACH Col ID File	Run Date 1/13/2010 15:43* Hold Date 1/9/2010 10:12	Dilution 1 Analyst SD CC OK
--	--	---	---

Prep Information

Procedure COD Method COD, HACH 8000 Schedule 170430	Batch CHM/3090 HBN 5395 Instru HACH	Prep Date 1/13/2010 15:43* Hold Date 1/9/2010 10:12	Dilution 1 Analyst SD CC OK
--	--	--	---

Initial Volume 100 mL	Default 2 mL
Final Volume 100 mL	Default 2 mL

Analyte	Posted		MDL	RDL	Spike	% Rec	Limits
	Result	Result					
Chemical Oxygen Demand	110	mg/L 110	15	20	mg/L 100 mg/L	106	

Quality Control Review



Batch CHM/3090 **HBN** 5395
Title COD **Status** RE
Create Date 1/7/2010 **Analyst** SD

SCAN MISSING

3 E100106062-TEMECULA CREEK

Type GRAB **Matrix** Liquid **Collected** 1/6/2010 14:10 **% Moisture**
Client ERC **WO** E1000059 **Work ID** 6556 **Original** HSN

Analytical Information

Procedure COD **Instru** HACH **Run Date** 1/13/2010 15:43* **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 1/8/2010 14:10 **Analyst** SD
Schedule 170233 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3090 **Prep Date** 1/13/2010 15:43* **Dilution** 1
Method COD, HACH 8000 **HBN** 5395 **Hold Date** 1/8/2010 14:10 **Analyst** SD
Schedule 170233 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted		Result	MDL	RDL	Low	High	Hist
	Result	mg/L						
Chemical Oxygen Demand	38	mg/L	38	15	20	mg/L		38, 100, 100

Quality Control Review



Batch CHM/3090 **HBN** 5395
File COD **Status** RE
Create Date 1/7/2010 **Analyst** SD

SCAN MISSING

4 35215-TEMECULA CREEK(35132LFM)

Type LFM **Matrix** Liquid **Collected** 1/6/2010 14:10 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original** HSN 35132

Analytical Information

Procedure COD **Instru** HACH **Run Date** 1/13/2010 15:43* **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 1/8/2010 14:10 **Analyst** SD
Schedule 170431 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3090 **Prep Date** 1/13/2010 15:43* **Dilution** 1
Method COD, HACH 8000 **HBN** 5395 **Hold Date** 1/8/2010 14:10 **Analyst** SD
Schedule 170431 **Instru** HACH **CC** OK

Initial Volume 100 mL **Default** 2 mL
Final Volume 100 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
Chemical Oxygen Demand	120	120	15	20	38	80 mg/L	105	

Quality Control Review



Batch CHM/3090 HBN 5395
 File COD Status RE
 Create Date 1/7/2010 Analyst SD

SCAN MISSING

5 35216-TEMECULA CREEK(35132LFMD)

Type LFMD Matrix Liquid Collected 1/6/2010 14:10 % Moisture
 Client QC ACCOUNT WO Work ID Original HSN 35132

Analytical Information

Procedure COD Instru HACH Run Date 1/13/2010 15:43* Dilution 1
 Method COD, HACH 8000 Col ID Hold Date 1/8/2010 14:10 Analyst SD
 Schedule 170432 File CC OK

Prep Information

Procedure COD Batch CHM/3090 Prep Date 1/13/2010 15:43* Dilution 1
 Method COD, HACH 8000 HBN 5395 Hold Date 1/8/2010 14:10 Analyst SD
 Schedule 170432 Instru HACH CC OK

Initial Volume 2 mL Default 2 mL
 Final Volume 2 mL Default 2 mL

Analyte	Posted		MDL	RDL	Original	Spike	MS	Max
	Result	Result						
Chemical Oxygen Demand	120	mg/L	120	15	20	mg/L	105	0

Quality Control Review



Batch CHM/3106 **HBN** 5427
Title AMMONIA **Status** RE
Create Date 1/9/2010 **Analyst** NS

SCAN MISSING

1 35326-LRB for HBN 5427 [CHM/3106]

Type LRB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure NH3-4500-L	Instru FOSS	Run Date 1/9/2010 14:54	Dilution
Method NH3, SM4500 NH3 C	Col ID	Hold Date 2/6/2010 10:04	Analyst NS
Schedule 171035	File		CC OK

Prep Information

Procedure NH3-4500-L	Batch CHM/3106	Prep Date 1/9/2010 14:54	Dilution
Method NH3, SM4500 NH3 C	HBN 5427	Hold Date 2/6/2010 10:04	Analyst NS
Schedule 171035	Instru FOSS		CC OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted		Result	MDL	RDL
	Result				
NUTRIENTS	1				
Ammonia (NH3-N)	0	mg/L	<2.0	0.708	2.0 mg/L
Total Organic Nitrogen		mg/L			
Total Inorganic Nitrogen		mg/L			

Quality Control Review



Batch CHM/3106 **HBN** 5427
Title AMMONIA **Status** RE
Create Date 1/9/2010 **Analyst** NS

SCAN MISSING

2 35327-LFB for HBN 5427 [CHM/3106]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure NH3-4500-L	Instru FOSS	Run Date 1/9/2010 14:54	Dilution
Method NH3, SM4500 NH3 C	Col ID	Hold Date 2/6/2010 10:04	Analyst NS
Schedule 171036	File		CC OK

Prep Information

Procedure NH3-4500-L	Batch CHM/3106	Prep Date 1/9/2010 14:54	Dilution
Method NH3, SM4500 NH3 C	HBN 5427	Hold Date 2/6/2010 10:04	Analyst NS
Schedule 171036	Instru FOSS		CC OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted		Result			Spike Amt	% Rec	Limits
	Result		Result	MDL	RDL			
NUTRIENTS	1							
Ammonia (NH3-N)	21	mg/L	21	0.708	2.0	mg/L	20 mg/L	103 80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3106 **HBN** 5427
File AMMONIA **Status** RE
Create Date 1/9/2010 **Analyst** NS

SCAN MISSING

3 E100106065-MURRIETA CREEK @ RANCHO WAY

Type GRAB **Matrix** Liquid **Collected** 1/6/2010 14:35 **% Moisture**
Client ERC **WO** E1000059 **Work ID** 6556 **Original** HSN

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 1/9/2010 14:54 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 1/11/2010 14:35 **Analyst** NS
Schedule 170259 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3106 **Prep Date** 1/9/2010 14:54 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5427 **Hold Date** 1/11/2010 14:35 **Analyst** NS
Schedule 170259 **Instru** FOSS **CC** OK

Initial Volume 50 mL **Default** 100 mL
Final Volume 50 mL **Default** 100 mL

Analyte	Posted		Result	MDL	RDL	Low	High	Hist
	Result							
NUTRIENTS		1						
Ammonia (NH3-N)	0		mg/L	<2.0	0.708	2.0	mg/L	<2.0, <2.0, <2.0
Total Organic Nitrogen			mg/L					
Total Inorganic Nitrogen			mg/L					

Quality Control Review



Batch CHM/3106 **HBN** 5427
Rule AMMONIA **Status** RE
Create Date 1/9/2010 **Analyst** NS

SCAN MISSING

4 35328-MURRIETA CREEK @...(35135LFM)

Type LFM **Matrix** Liquid **Collected** 1/6/2010 06:55 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 35135

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 1/9/2010 14:54 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 2/3/2010 06:55 **Analyst** NS
Schedule 171037 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3106 **Prep Date** 1/9/2010 14:54 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5427 **Hold Date** 2/3/2010 06:55 **Analyst** NS
Schedule 171037 **Instru** FOSS **CC** OK

Initial Volume 50 mL **Default** 100 mL
Final Volume 50 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
NUTRIENTS	1							
Ammonia (NH3-N)	36	mg/L 36	0.708	2.0	mg/L	0 40 mg/L	89.4	80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3106 **HBN** 5427
Title AMMONIA **Status** RE
Create Date 1/9/2010 **Analyst** NS

SCAN MISSING

5 35329-MURRIETA CREEK @...(35135LFMD)

Type LFMD **Matrix** Liquid **Collected** 1/6/2010 06:55 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original** HSN 35135

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 1/9/2010 14:54 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 2/3/2010 06:55 **Analyst** NS
Schedule 171038 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3106 **Prep Date** 1/9/2010 14:54 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5427 **Hold Date** 2/3/2010 06:55 **Analyst** NS
Schedule 171038 **Instru** FOSS **CC** OK

Initial Volume 50 mL **Default** 100 mL
Final Volume 50 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Max RPD
NUTRIENTS	1										
Ammonia (NH3-N)	37	mg/L	37	0.708	2.0	mg/L		89.4		2.74	10
Total Organic Nitrogen		mg/L									
Total Inorganic Nitrogen		mg/L									

2206



Multiple Tube Fermentation

Lab ID:	E100106067	Bottle #:	0138
Line Item (Samp ID)	MURRIETA CREEK @ WINCHESTER	Collect Date/Time:	1/6/2010 2:50:00 PM

	1	2	3	4	5	
LTB 24 hr	a	a	a	a	a	Dilution 1/10/10 1/10/10
LTB 48 hr	+	+	+	a	+	
BGB 24 hr	+	-	-	-	-	
BGB 48 hr		+	+		+	
EC 24 hr	-	-	-	-	-	
						TC +
						4
						FC +
						0

TP MPN/100 ml	210
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FC MPN/100 ml	220
---------------	-----

	1	2	3	4	5	
LTB 24 hr	a	a	a	a	a	Dilution 1/10/10 1/10/10
LTB 48 hr	a	+	a	+	a	
BGB 24 hr		+		-		
BGB 48 hr				-		
EC 24 hr		-		-		
						TC +
						1
						FC +
						0

	Media Lot / Exp. Date
BUFFER	96300-1 1/10/10
SSTLB	x - 1/18/10
DSLTB	x - 1/18/10 1/8/10
BGB	x - 1/13/10
EC	x - 3/30/10

	1	2	3	4	5	
LTB 24 hr				a	-	Dilution 1/10/10 1/10/10
LTB 48 hr	a	a	a	+	-	
BGB 24 hr				+		
BGB 48 hr						
EC 24 hr				-		
						TC +
						1
						FC +
						0

	1	2	3	4	5	
LTB 24 hr						Dilution 1/10/10 1/10/10
LTB 48 hr						
BGB 24 hr						
BGB 48 hr						
EC 24 hr						
						TC +
						0
						FC +
						0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	ASW	ASW	ASW	ms	al + 1/14/10	INPUT ASW
Date	1/6/10	1/7/10	1/8/10	1/9/10	10 Jan 10	APPROVED: [Signature]
Time	1608	1619	1555	1358 (1368)	1200	

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

ms 1/9/10
1558

Analyst Comments:

2206



Multiple Tube Fermentation

Lab ID:	E100106066	Bottle #:	0099
Line Item (Samp ID)	MURRIETA CREEK @ MONTAZUMA	Collect Date/Time:	1/6/2010 2:45:00 PM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
 $\frac{10}{100} \rightarrow 1.0$
 TC+ 5
 FC+ 5

TP MPN/100 ml
1300
FC MPN/100 ml
230

	1	2	3	4	5
LTB 24 hr	G	+	G	G	+
LTB 48 hr	+		+	G	
BGB 24 hr	+	+	+		+
BGB 48 hr					
EC 24 hr	-	G	-	G	-

Dilution
 $\frac{10}{100} \rightarrow 0.1$
 TC+ 4
 FC+ 0

Media Lot / Exp. Date	
BUFFER	96300-1 1/10/10
SSTLB	X - 1/18/10
DSLTB	
BGB	X - 1/13/10
EC	X - 3/30/10

	1	2	3	4	5
LTB 24 hr	G	G	G	G	-
LTB 48 hr	G	G	G	G	G
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
 $\frac{10}{100} \rightarrow 0.01$
 TC+ 0
 FC+ 0

	1	2	3	4	5
LTB 24 hr	-	-	G	-	G
LTB 48 hr	-	-	G	-	G
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
 $\frac{10}{100} \rightarrow 0.001$
 TC+ 0
 FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	AM	AM	AM	M	
Date	1/6/10	1/7/10	1/8/10	1/9/10	
Time	1608	1619	1545	1357 (166)	

INITIALS
INPUT <u>AM</u>
APPROVED: <u>[Signature]</u>

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

M 1/9/10
1535

Analyst Comments:

2206



Multiple Tube Fermentation

Lab ID:	E100106065	Bottle #:	0072
Line Item (Samp ID)	MURRIETA CREEK @ RANCHO WAY	Collect Date/Time:	1/6/2010 2:35:00 PM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
~~10~~ ¹⁰⁰ 1/16/10
 1.0
 TC + 5
 FC + 5

TP MPN/100 ml
 1300

FC MPN/100 ml
 800

	1	2	3	4	5
LTB 24 hr	+	+	G	G	+
LTB 48 hr	+	+	+	G	+
BGB 24 hr	+	+	+		+
BGB 48 hr					
EC 24 hr	+	+	-		+

Dilution 1/16/10
 1/8/10 7.0 0.001
 0.1
 TC + 4
 FC + 3

Media Lot / Exp. Date	96300-1 11/10/10
SSTLB	X 1/18/10
DSLTB	
BGB	X- 1/13/10
EC	X- 3/30/10

	1	2	3	4	5
LTB 24 hr	G	-	G	-	
LTB 48 hr	G	G	-	G	G
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
 1/16/10 0.1 0.01
 TC + 0
 FC + 0

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
 1/16/10 0.01 0.001
 TC + 0
 FC + 0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	MSW	MSW	MSW	MS	
Date	1/6/10	1/7/10	1/8/10	1/9/10	
Time	1608	1619	1530	1355 (PGB)	

INITIALS	
INPUT	MSW
APPROVED:	MSW

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

MS 1/9/10
 1531

Analyst Comments:

2206



Multiple Tube Fermentation

Lab ID:	E100106064	Bottle #:	0016
Line Item (Samp ID)	MURRIETA CREEK @ RANCHO CAL RD	Collect Date/Time:	1/6/2010 2:25:00 PM

	1	2	3	4	5
LTB 24 hr	u	u	u	u	u
LTB 48 hr	+	+	+	+	0
BGB 24 hr	+	+	+	+	
BGB 48 hr					
EC 24 hr	-	-	-	-	

Dilution
~~1/10~~ 1-0
 1/1610
 TC+ 4
 FC+ 0

TP MPN/100 ml
 3000

FC MPN/100 ml
 220

	1	2	3	4	5
LTB 24 hr	u	u	u	u	u
LTB 48 hr	+	+	+	+	+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	-	-	-	-

Dilution
~~1/10~~ 1-0
 1/1610
 TC+ 5
 FC+ 0

	Media Lot / Exp. Date
BUFFER	96300-1 1/10/10
SSTLB	x 1/18/10
DSLTB	
BGB	x 1/13/10
EC	x 3/30/10

	1	2	3	4	5
LTB 24 hr	u u u u u				
LTB 48 hr	-	u	u	+	-
BGB 24 hr				+	
BGB 48 hr					
EC 24 hr				-	

Dilution
~~1/10~~ 1-0
 1/1610
 TC+ 1
 FC+ 0

	1	2	3	4	5
LTB 24 hr	u u u u u				
LTB 48 hr	u u u u u				
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
~~1/10~~ 1-0
 1/1610
 TC+ 0
 FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	AW	AW	AW	M	
Date	1/6/10	1/7/10	1/8/10	1/9/10	
Time	1608	1619	1500	1355 (BUR)	

INITIALS
INPLX
APPROVED:

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

M 1/9/10
 1526

Analyst Comments:

AW ✓



2206



Multiple Tube Fermentation

Lab ID:	E100106063	Bottle #:	0122
Line Item (Samp ID)	CONFLUENCE	Collect Date/Time:	1/6/2010 2:10:00 PM

	1	2	3	4	5
LTB 24 hr	G	G	+	G	G
LTB 48 hr	+	+		+	+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	-	G	-	-

Dilution
1/10 to 1.0

TC +	5
FC +	0

TP MPN/100 ml
300

FC MPN/100 ml
420

	1	2	3	4	5
LTB 24 hr	-	G	-	G	
LTB 48 hr	-	G	+	-	G
BGB 24 hr			-		
BGB 24 hr			+		
EC 24 hr			-		

Dilution
1/10 to 0.1

TC +	1
FC +	0

	Media Lot / Exp. Date
BUFFER	96300-1 11/10/10
SSTLB	X - 1/18/10
DSLTB	
BGB	X - 1/13/10
EC	X - 3/30/10

	1	2	3	4	5
LTB 24 hr	_____				
LTB 48 hr	_____				
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
1/10 to 0.01

TC +	0
FC +	0

	1	2	3	4	5
LTB 24 hr	_____				
LTB 48 hr	_____				
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
1/10 to 0.001

TC +	0
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	ASW	ASW	ASW	NS	AS	INPUT ASW
Date	1/6/10	1/7/10	1/8/10	1/9/10	10 Jan 10	APPROVED: AS
Time	1608	1619	1520	1353 (AUG)	1200	

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

NS 1/4/10
1526

Analyst Comments:

2206



Multiple Tube Fermentation

Lab ID:	E100106062	Bottle #:	0052
Line Item (Samp ID)	TEMECULA CREEK	Collect Date/Time:	1/6/2010 2:10:00 PM

	1	2	3	4	5
LTB 24 hr	a	a	a	a	+
LTB 48 hr	+	+	+	+	
BGB 24 hr	+	+	-	-	+
BGB 48 hr			+	+	
EC 24 hr	-	-	-	-	G

Dilution
1/6/10
101.0

TP MPN/100 ml
300

FC MPN/100 ml
420

TC +	5
FC +	0

	1	2	3	4	5
LTB 24 hr	a	a	a	a	a
LTB 48 hr	+	a	a	a	a
BGB 24 hr	+				
BGB 48 hr					
EC 24 hr	-				

Dilution
1/6/10
100.1

	Media Lot / Exp. Date
BUFFER	963001 - 1/10/10
SSTLB	X - 1/8/10
DSLTB	
BGB	X - 1/13/10
EC	X - 3/30/10

TC +	1
FC +	0

	1	2	3	4	5
LTB 24 hr	-	-	a	-	a
LTB 48 hr	-	+	G	-	a
BGB 24 hr		-			
BGB 48 hr					
EC 24 hr		-			

Dilution
1/6/10
10.01

	1	2	3	4	5
LTB 24 hr	-	-	-	-	-
LTB 48 hr	-	-	-	-	-
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
1/6/10
0.001

TC +	0
FC +	0

TC +	0
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	WAW	WAW	WAW	WAW	WAW
Date	1/6/10	1/7/10	1/8/10	1/9/10	10 Jan 10
Time	1608	1619	1517	1352 (BGB)	1200

INITIALS	WAW
INPUT	WAW
APPROVED:	WAW

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

WAW 1/9/10
1526

Analyst Comments:

**Sampling
Laboratory Reports**

January 14, 2010



CERTIFICATE OF ANALYSIS

Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 08, 2010 Receive Date: January 14, 2010
Client Project: TV-RWRF SSO	Lab Number(s): E100114024 E100114025 E100114026 E100114027 E100114028 E100114029
Chain ID: 6735	
Sampler: Doug Edwards - 2118	

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Case Narrative: "SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.

Kenneth Marshall
Manager of Laboratory & Water Quality Services
Eastern Municipal Water District



Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000146 6735

Lab ID: **E100114024** Date Received: 1/14/2010 11:36 Matrix: Liquid
 Sample ID: **TEMECULA CREEK** Date Collected: 1/14/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	61	mg/L	20	15	1			1/14/2010		SD	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	500	MPN/100 mL	2		1			1/14/2010		DW	
Fecal Coliform by MTF	<20	MPN/100 mL			1			1/14/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/14/2010		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	6.2	mg/L	2	0	1			1/19/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000146 6735

Lab ID: **E100114025** Date Received: 1/14/2010 11:36 Matrix: Liquid
 Sample ID: **CONFLUENCE** Date Collected: 1/14/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	45	mg/L	20	15	1			1/14/2010		SD	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	270	MPN/100 mL	2		1			1/14/2010		DW	
Fecal Coliform by MTF	<20	MPN/100 mL			1			1/14/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/14/2010		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	4.4	mg/L	2	0	1			1/19/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000146 6735

Lab ID: **E100114026** Date Received: 1/14/2010 11:36 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO WAY** Date Collected: 1/14/2010

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	89	mg/L	20	15	1		1/14/2010		SD	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	210	MPN/100 mL	2		1		1/14/2010		DW	
Fecal Coliform by MTF	40	MPN/100 mL			1		1/14/2010		DW	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/14/2010		NS	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	4.6	mg/L	2	0	1		1/19/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000146 6735

Lab ID: **E100114027** Date Received: 1/14/2010 11:36 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO CA RD** Date Collected: 1/14/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	73	mg/L	20	15	1			1/14/2010		SD	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	500	MPN/100 mL	2		1			1/14/2010		DW	
Fecal Coliform by MTF	<20	MPN/100 mL			1			1/14/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/14/2010		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	3.7	mg/L	2	0	1			1/19/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000146 6735

Lab ID: **E100114028** Date Received: 1/14/2010 11:36 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ MONTAZUMA** Date Collected: 1/14/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	120	mg/L	20	15	1			1/14/2010		SD	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	800	MPN/100 mL	2		1			1/14/2010		DW	
Fecal Coliform by MTF	70	MPN/100 mL			1			1/14/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/14/2010		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	7.2	mg/L	2	0	1			1/14/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000146 6735

Lab ID: **E100114029** Date Received: 1/14/2010 11:36 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ WINCHESTER** Date Collected: 1/14/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	94	mg/L	20	15	1			1/14/2010		SD	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	2800	MPN/100 mL	2		1			1/14/2010		DW	
Fecal Coliform by MTF	300	MPN/100 mL			1			1/14/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/14/2010		NS	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	5.0	mg/L	2	0	1			1/19/2010		MK	

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Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 08, 2010 Receive Date: January 14, 2010
Client Project: TV-RWRF SSO	Lab E100114024
Chain ID: 6735	Number(s): E100114025 E100114026 E100114027 E100114028 E100114029
Sampler: Doug Edwards - 2118	

QUALITY CONTROL SECTION

2249



Multiple Tube Fermentation

Lab ID:	E100114029	Bottle #:	0152
Line Item (Samp ID)	MURRIETA CREEK @ WINCHESTER	Collect Date/Time:	1/14/2010 10:45:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
10^{-1.0}

TP MPN/100 ml
2800

TC+	5
FC+	5

FC MPN/100 ml
300

	1	2	3	4	5
LTB 24 hr	a	a	a	a	+
LTB 48 hr	-	+	+	+	
BGB 24 hr					+
BGB 24 hr		+	+	+	
EC 24 hr		-	-	g	+

Dilution
~~1000+~~
0.1

TC+	4
FC+	1

	Media Lot / Exp. Date
BUFFER	96300-1 1/10/10
SSTLB	x- 1/22/10
DSLTB	
BGB	x- 1/22/10
EC	x 3/30/10

	1	2	3	4	5
LTB 24 hr	a	a	a	a	a
LTB 48 hr	+	-	+	-	+
BGB 24 hr	+		-		+
BGB 48 hr			+		
EC 24 hr	-		-		-

Dilution
~~0+~~
0.01

TC+	3
FC+	0

	1	2	3	4	5
LTB 24 hr	a	-	-	-	-
LTB 48 hr	+	+	-	-	-
BGB 24 hr					
BGB 48 hr	+	+			
EC 24 hr	-	-			

Dilution
0.01
0.001

TC+	2
FC+	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	WAW	WAW	WS	al	WAW	WAW
Date	1/14/10	1/15/10	1/16/10	12 Jan 10	1/18/10	WAW
Time	1212	1020	1050	0930	1400	WAW

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

WAW

2249



Multiple Tube Fermentation

Lab ID:	E100114028	Bottle #:	0108
Line Item (Samp ID)	MURRIETA CREEK @ MONTAZUMA	Collect Date/Time:	1/14/2010 10:30:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	G	+	+
LTB 48 hr			+		
BGB 24 hr	+	+		+	+
BGB 48 hr			+		
EC 24 hr	-	-	-	+	+

Dilution
10/100

TP MPN/100 ml
800

TC +	5
FC +	2

FC MPN/100 ml
70

	1	2	3	4	5
LTB 24 hr	G	G	G	+	+
LTB 48 hr	-	+	-		
BGB 24 hr		-		+	+
BGB 48 hr		+			
EC 24 hr		-		+	-

Dilution
10/0.1

	Media Lot / Exp. Date
BUFFER	96300-1 1/10/10
SSTLB	X- 1/22/10
DSLTB	
BGB	X- 1/27/10
EC	X- 3/30/10

TC +	3
FC +	1

	1	2	3	4	5
LTB 24 hr	G	_____			
LTB 48 hr	_____				
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
0.1/0.01

	1	2	3	4	5
LTB 24 hr	-	G	_____		
LTB 48 hr	_____				
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
0.01/0.001

TC +	0
FC +	0

TC +	0
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	AM	AM	MS	SL	AM	INPUT AM
Date	1/14/10	1/15/10	1/16/10	17 Jan 10	1/18/10	APPROVED: [Signature]
Time	1212	1020	1050	0930	1400	

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

[Signature]



2249



Multiple Tube Fermentation

Lab ID:	E100114027	Bottle #:	0168
Line Item (Samp ID):	MURRIETA CREEK @ RANCHO CARD	Collect Date/Time:	1/14/2010 10:00:00 AM

	1	2	3	4	5	
LTB 24 hr	a	a	a	a	a	Dilution
LTB 48 hr	+	+	+	+	+	10 10
BGB 24 hr	+	+	+	-	+	TC + 5
BGB 48 hr				+		
EC 24 hr	-	-	-	-	-	

TP MPN/100 ml
500

FC MPN/100 ml
720

	1	2	3	4	5	
LTB 24 hr	a	a	a	a	a	Dilution
LTB 48 hr	+	-	+	-	-	10 6.1
BGB 24 hr	+		+			TC + 2
BGB 48 hr						
EC 24 hr	-		-			

	Media Lot / Exp. Date
BUFFER	963001 1/10/10
SSTLB	X- 1/22/10
DSLTB	
BGB	X 1/27/10
EC	X 3/30/10

	1	2	3	4	5	
LTB 24 hr	-	a	-	-	-	Dilution
LTB 48 hr	-	-	-	-	-	0.1 0.01
BGB 24 hr						TC + 0
BGB 48 hr						
EC 24 hr						

	1	2	3	4	5	
LTB 24 hr	-	-	-	-	-	Dilution
LTB 48 hr	-	-	-	-	-	0.01 0.001
BGB 24 hr						TC + 0
BGB 48 hr						
EC 24 hr						

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	WJW	WJW	MS	el	WJW	INITIALS: WJW
Date	1/14/10	1/15/10	1/16/10	17 Jan 10	1/18/10	APPROVED: [Signature]
Time	1212	1020	1050	0930	1400	

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

[Signature]



2249



Multiple Tube Fermentation

Lab ID:	E100114026	Bottle #:	0104
Line Item (Samp ID)	MURRIETA CREEK @ RANCHO WAY	Collect Date/Time:	1/14/2010 10:20:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	aa	aa	aa
LTB 48 hr			+	-	+
BGB 24 hr	+	+			
BGB 48 hr			+		+
EC 24 hr	+	+	-		-

Dilution

~~10~~ 1.0

TP MPN/100 ml
210

FC MPN/100 ml
40

TC +	4
FC +	2

	1	2	3	4	5
LTB 24 hr	aa	aa	aa	aa	aa
LTB 48 hr	+	+	-	-	+
BGB 24 hr	G	G			G
⁴⁸ BGB 24 hr	GC				+
EC 24 hr	-	-			-

Dilution

~~10~~ 0.1

	Media Lot / Exp. Date
BUFFER	963001 1/10/10
SSTLB	X 1/22/10
DSLTLB	
BGB	X 1/27/10
EC	X 3/30/10

TC +	1
FC +	0

	1	2	3	4	5
LTB 24 hr	—	—	aa	—	—
LTB 48 hr	+	—	—	—	—
BGB 24 hr	-				
BGB 48 hr	+				
EC 24 hr	-				

Dilution

~~10~~ 0.01

	1	2	3	4	5
LTB 24 hr	—	—	—	—	—
LTB 48 hr	—	—	—	—	—
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.01~~
0.001

TC +	1
FC +	0

TC +	0
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	Wm	Wm	ms	Wm	Wm	Wm
Date	1/14/10	1/15/10	1/16/10	17 Jan 10	1/18/10	Wm
Time	1212	1020	1050	0930	1400	Wm

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

Wm

2249



Multiple Tube Fermentation

Lab ID:	E100114025	Bottle #:	0145
Line Item (Samp ID)	CONFLUENCE	Collect Date/Time:	1/14/2010 9:55:00 AM

	1	2	3	4	5
LTB 24 hr	a	a	a	a	a
LTB 48 hr	+	+	+	+	-
BGB 24 hr					
BGB 48 hr	+	+	+	+	
EC 24 hr	-	-	-	-	

Dilution
10^{-1.0}

TC + 4
FC + 0

TP MPN/100 ml
270

FC MPN/100 ml
270

	1	2	3	4	5
LTB 24 hr	a	a	a	a	a
LTB 48 hr	+	+	+	-	-
BGB 24 hr					
BGB 48 hr	+	+	+		
EC 24 hr	-	-	-	-	

Dilution
10^{-0.1}

TC + 3
FC + 0

Media Lot / Exp. Date	
BUFFER	96300-1 1/10/10
SSTLB	X 1/22/10
DSLTB	
BGB	X 1/27/10
EC	X 3/30/10

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr	-	-	-	+	-
BGB 24 hr				-	
BGB 48 hr				G	
EC 24 hr				-	

Dilution
0.1 0.01

TC + 0
FC + 0

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
0.01 0.001

TC + 0
FC + 0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	WBN	WBN	WBN	WBN	WBN	INPUT: WBN
Date	1/14/10	1/15/10	1/16/10	1/17/10	1/18/10	APPROVED: WBN
Time	1212	1020	1050	0930	1400	

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

WBN

2249



Multiple Tube Fermentation

Lab ID:	E100114024	Bottle #:	0148
Line Item (Samp ID)	TEMECULA CREEK	Collect Date/Time:	1/14/2010 9:50:00 AM

	1	2	3	4	5
LTB 24 hr	G	+	G	G	G
LTB 48 hr	+		+	+	+
BGB 24 hr		+	-		
BGB 48 hr	+		+	+	+
EC 24 hr	-	-	-	-	-

Dilution
10^{-1.0}

TP MPN/100 ml
500

TC +	25
FC +	0

FC MPN/100 ml
420

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	-	+	+	-	+
BGB 24 hr	G	-	-		-
BGB 48 hr	G	+	+	G	+
EC 24 hr	-	-			-

Dilution
10^{-0.1}

Media Lot / Exp. Date	
BUFFER	96300-1 1/10/10
SSTLB	X - 1/22/10
DSLTB	
BGB	X - 1/22/10
EC	X - 3/30/10

TC +	2
FC +	0

	1	2	3	4	5
LTB 24 hr			G	G	-
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
10^{-0.01}

TC +	0
FC +	0

	1	2	3	4	5
LTB 24 hr	G				
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
10^{-0.001}

TC +	0
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	WAW	WAW	M	A	WAW
Date	1/14/10	1/15/10	1/16/10	1/17/10	1/18/10
Time	1212	1020	1050	0930	1400

INITIALS
INPL
APPROVED:

EC QC: E. aerogenes +/-	- (P)	1/16/10 10:50
E. coli +/-	+ (P)	1/16/10 10:50

-(P) 17 January 0950
+(P) 17 January 0950

Analyst Comments:

WAW

Quality Control Review



Batch CHM/3149 **HBN** 5517
File BOD **Status** RE
Create Date 1/14/2010 **Analyst** MK

DATA SCANNED

1 35702-LFB for HBN 5517 [CHM/3149]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure BOD Method BOD, SM 5210B Schedule 172442	Instru BOD-01 Col ID File	Run Date 1/14/2010 11:41 Hold Date 1/23/2010 10:12	Dilution 1 Analyst MK CC OK
---	---	---	---

Prep Information

Procedure BOD Method BOD, SM 5210B Schedule 172442	Batch CHM/3149 HBN 5517 Instru BOD-01	Prep Date 1/14/2010 11:41 Hold Date 1/23/2010 10:12	Dilution 1 Analyst MK CC OK
---	--	--	---

Initial Volume 300 mL **Default** 300 mL
Final Volume 300 mL **Default** 300 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
CHEMISTRY RESULTS							
BOD	1	209 mg/L	0	2	198 mg/L	106	

Quality Control Review



Batch CHM/3152 **HBN** 5520
File COD **Status** RE
Create Date 1/14/2010 **Analyst** SD

SCAN MISSING

1 35722-LRB for HBN 5520 [CHM/3152]

Type LRB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure COD	Instru HACH	Run Date 1/14/2010 15:17	Dilution 1
Method COD, HACH 8000	Col ID	Hold Date 1/16/2010 11:55	Analyst SD
Schedule 172528	File		CC OK

Prep Information

Procedure COD	Batch CHM/3152	Prep Date 1/14/2010 15:17	Dilution 1
Method COD, HACH 8000	HBN 5520	Hold Date 1/16/2010 11:55	Analyst SD
Schedule 172528	Instru HACH		CC OK

Initial Volume	2 mL	Default	2 mL
Final Volume	2 mL	Default	2 mL

Analyte	Posted		Result	MDL	RDL	mg/L
	Result	mg/L				
Chemical Oxygen Demand	19	mg/L	<20	15	20	mg/L

Quality Control Review



Batch CHM/3152 **HBN** 5520
Rule COD **Status** WP
Create Date 1/14/2010 **Analyst** SD

SCAN MISSING

1 35722-LRB for HBN 5520 [CHM/3152]

Type LRB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 172528	Instru HACH Col ID File	Run Date 1/14/2010 15:17 Hold Date 1/16/2010 11:55	Dilution 1 Analyst SD CC OK
--	---	---	---

Prep Information

Procedure COD Method COD, HACH 8000 Schedule 172528	Batch CHM/3152 HBN 5520 Instru HACH	Prep Date 1/14/2010 15:17 Hold Date 1/16/2010 11:55	Dilution 1 Analyst SD CC OK
--	--	--	---

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL
Chemical Oxygen Demand	19 mg/L	<20	15	20 mg/L

Quality Control Review



Batch CHM/3152 **HBN** 5520
Title COD **Status** WP
Create Date 1/14/2010 **Analyst** SD

SCAN MISSING

2 35723-LFB for HBN 5520 [CHM/3152]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure COD	Instru HACH	Run Date 1/14/2010 15:17	Dilution 1
Method COD, HACH 8000	Col ID	Hold Date 1/16/2010 11:55	Analyst SD
Schedule 172529	File		CC OK

Prep Information

Procedure COD	Batch CHM/3152	Prep Date 1/14/2010 15:17	Dilution 1
Method COD, HACH 8000	HBN 5520	Hold Date 1/16/2010 11:55	Analyst SD
Schedule 172529	Instru HACH		CC OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted		Spike				% Rec	
	Result	mg/L	Result	MDL	RDL	Amt	Limits	
Chemical Oxygen Demand	120	mg/L	120	15	75	mg/L	115	

Quality Control Review



Batch CHM/3152 **HBN** 5520
File COD **Status** WP
Create Date 1/14/2010 **Analyst** SD

SCAN MISSING

3 E100114024-TEMECULA CREEK

Type GRAB **Matrix** Liquid **Collected** 1/14/2010 09:50 **% Moisture**
Client ERC **WO** E1000146 **Work ID** 6735 **Original** HSN

Analytical Information

Procedure COD **Instru** HACH **Run Date** 1/14/2010 15:17 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 1/16/2010 09:50 **Analyst** SD
Schedule 172493 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3152 **Prep Date** 1/14/2010 15:17 **Dilution** 1
Method COD, HACH 8000 **HBN** 5520 **Hold Date** 1/16/2010 09:50 **Analyst** SD
Schedule 172493 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
Chemical Oxygen Demand	61 mg/L	61	15	20 mg/L			110, 80, 36

Quality Control Review



Batch CHM/3152 **HBN** 5520
Title COD **Status** WP
Create Date 1/14/2010 **Analyst** SD

SCAN MISSING

4 35724-TEMECULA CREEK(35715LFM)

Type LFM **Matrix** Liquid **Collected** 1/14/2010 09:50 **% Moisture**
Client QCACCOUNT **WO** **Work ID** **Original HSN** 35715

Analytical Information

Procedure COD **Instru** HACH **Run Date** 1/14/2010 15:17 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 1/16/2010 09:50 **Analyst** SD
Schedule 172530 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3152 **Prep Date** 1/14/2010 15:17 **Dilution** 1
Method COD, HACH 8000 **HBN** 5520 **Hold Date** 1/16/2010 09:50 **Analyst** SD
Schedule 172530 **Instru** HACH **CC** OK

Initial Volume 50 mL **Default** 2 mL
Final Volume 50 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
Chemical Oxygen Demand	160	mg/L 160	15	75	mg/L 61	100 mg/L	101	

Quality Control Review



Batch CHM/3148 **HBN** 5514
File AMMONIA **Status** RE
Create Date 1/14/2010 **Analyst** NS

SCAN MISSING

1 35679-LRB for HBN 5514 [CHM/3148]

Type LRB	Matrix	Liquid	Collected	% Moisture
Client QC ACCOUNT	WO		Work ID	Original HSN
Analytical Information				
Procedure NH3-4500-L	Instru FOSS		Run Date 1/14/2010 11:27	Dilution
Method NH3, SM4500 NH3 C	Col ID		Hold Date 2/11/2010 08:25	Analyst NS
Schedule 172352	File			CC OK
Prep Information				
Procedure NH3-4500-L	Batch CHM/3148		Prep Date 1/14/2010 11:27	Dilution
Method NH3, SM4500 NH3 C	HBN 5514		Hold Date 2/11/2010 08:25	Analyst NS
Schedule 172352	Instru FOSS			CC OK
Initial Volume 100 mL	Default 100 mL			
Final Volume 100 mL	Default 100 mL			

Analyte	Posted Result	Result	MDL	RDL
NUTRIENTS	1			
Ammonia (NH3-N)	0	mg/L <2.0	0.708	2.0 mg/L
Total Organic Nitrogen		mg/L		
Total Inorganic Nitrogen		mg/L		

Quality Control Review



Batch CHM/3148 **HBN** 5514
le AMMONIA **Status** RE
Create Date 1/14/2010 **Analyst** NS

SCAN MISSING

2 35680-LFB for HBN 5514 [CHM/3148]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
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Analytical Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 172353	Instru FOSS Col ID File	Run Date 1/14/2010 11:27 Hold Date 2/11/2010 08:25	Dilution Analyst NS CC OK
--	--	---	---

Prep Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 172353	Batch CHM/3148 HBN 5514 Instru FOSS	Prep Date 1/14/2010 11:27 Hold Date 2/11/2010 08:25	Dilution Analyst NS CC OK
--	--	--	---

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted		Result	MDL	RDL	Spike	%	Limits
	Result	Amt						
NUTRIENTS	1							
Ammonia (NH3-N)	21	mg/L	21	0.708	2.0	mg/L	20 mg/L	103 80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3148 **HBN** 5514
le AMMONIA **Status** RE
Create Date 1/14/2010 **Analyst** NS

SCAN MISSING

3 E100113014-Influent - TV RWRF

Type COMP **Matrix Liquid** **Collected** 1/13/2010 06:28 **% Moisture**
Client RWRF-TV **WO E1000130** **Work ID 6751** **Original HSN**

Analytical Information

Procedure NH3-4500-L **Instru FOSS** **Run Date** 1/14/2010 11:27 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 2/10/2010 06:28 **Analyst NS**
Schedule 171979 **File** **CC OK**

Prep Information

Procedure NH3-4500-L **Batch CHM/3148** **Prep Date** 1/14/2010 11:27 **Dilution**
Method NH3, SM4500 NH3 C **HBN 5514** **Hold Date** 2/10/2010 06:28 **Analyst NS**
Schedule 171979 **Instru FOSS** **CC OK**

Initial Volume 50 mL **Default** 100 mL
Final Volume 50 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
NUTRIENTS	1						
Ammonia (NH3-N)	37	mg/L 37	0.708	2.0	mg/L		40, 38, 37
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3148 **HBN** 5514
File AMMONIA **Status** RE
Create Date 1/14/2010 **Analyst** NS

SCAN MISSING

4 35681-Influent - TV RWRF(35599LFM)

Type LFM **Matrix** Liquid **Collected** 1/13/2010 06:28 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 35599

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 1/14/2010 11:27 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 2/10/2010 06:28 **Analyst** NS
Schedule 172354 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3148 **Prep Date** 1/14/2010 11:27 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5514 **Hold Date** 2/10/2010 06:28 **Analyst** NS
Schedule 172354 **Instru** FOSS **CC** OK

Initial Volume 50 mL **Default** 100 mL
Final Volume 50 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
NUTRIENTS	1							
Ammonia (NH3-N)	78	mg/L 78	0.708	2.0	mg/L 37	40 mg/L	102	80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3148 HBN 5514
 File AMMONIA Status RE
 Create Date 1/14/2010 Analyst NS

SCAN MISSING

5 35682-Influent - TV RWRF(35599LFMD)

Type LFMD Matrix Liquid Collected 1/13/2010 06:28 % Moisture
 Client QC ACCOUNT WO Work ID Original HSN 35599

Analytical Information

Procedure NH3-4500-L Instru FOSS Run Date 1/14/2010 11:27 Dilution
 Method NH3, SM4500 NH3 C Col ID Hold Date 2/10/2010 06:28 Analyst NS
 Schedule 172355 File CC OK

Prep Information

Procedure NH3-4500-L Batch CHM/3148 Prep Date 1/14/2010 11:27 Dilution
 Method NH3, SM4500 NH3 C HBN 5514 Hold Date 2/10/2010 06:28 Analyst NS
 Schedule 172355 Instru FOSS CC OK

Initial Volume 50 mL Default 100 mL
 Final Volume 50 mL Default 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Max RPD
NUTRIENTS	1										
Ammonia (NH3-N)	78	mg/L 78	0.708	2.0	mg/L			102		0	10
Total Organic Nitrogen		mg/L									
Total Inorganic Nitrogen		mg/L									

**Sampling
Laboratory Reports**

January 19, 2010



CERTIFICATE OF ANALYSIS

Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 08, 2010 Receive Date: January 19, 2010
Client Project: TV-RWRF SSO	Lab Number(s): E100119033 E100119034 E100119035 E100119036 E100119037 E100119038
Chain ID: 6746	
Sampler: Alfred Javier - 1001	

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Kenneth Marshall
Manager of Laboratory & Water Quality Services
Eastern Municipal Water District



Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000194 6746

Lab ID: **E100119033** Date Received: 1/19/2010 Matrix: Liquid
 Sample ID: **TEMECULA CREEK** Date Collected: 1/19/2010

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	100	mg/L	20	15	1		1/19/2010		SD	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	28000	MPN/100 mL	2		1		1/19/2010		NS	
Fecal Coliform by MTF	5000	MPN/100 mL			1		1/19/2010		NS	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/19/2010		SD	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	2.8	mg/L	2	0	1		1/19/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000194 6746

Lab ID: **E100119034** Date Received: 1/19/2010 Matrix: Liquid
 Sample ID: **CONFLUENCE** Date Collected: 1/19/2010

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	99	mg/L	20	15	1		1/19/2010		SD	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	>16000	MPN/100 mL	2		1		1/19/2010		NS	
Fecal Coliform by MTF	1100	MPN/100 mL			1		1/19/2010		NS	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/19/2010		SD	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	6.9	mg/L	2	0	1		1/19/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000194 6746

Lab ID: **E100119035** Date Received: 1/19/2010 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO CA RD** Date Collected: 1/19/2010

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
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Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	92	mg/L	20	15	1		1/19/2010		SD	

BIOLOGICALS

Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	16000	MPN/100 mL	2		1		1/19/2010		DW	
Fecal Coliform by MTF	1100	MPN/100 mL			1		1/19/2010		DW	

NUTRIENTS

Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/19/2010		SD	

CHEMISTRY RESULTS

Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	5.4	mg/L	2	0	1		1/19/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000194 6746

Lab ID: **E100119036** Date Received: 1/19/2010 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO WAY** Date Collected: 1/19/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	120	mg/L	20	15	1			1/19/2010		SD	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	3000	MPN/100 mL	2		1			1/19/2010		DW	
Fecal Coliform by MTF	1100	MPN/100 mL			1			1/19/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/19/2010		SD	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	5.8	mg/L	2	0	1			1/19/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000194 6746

Lab ID: **E100119037** Date Received: 1/19/2010 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ MONTAZUMA** Date Collected: 1/19/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	97	mg/L	20	15	1			1/19/2010		SD	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	16000	MPN/100 mL	2		1			1/19/2010		NS	
Fecal Coliform by MTF	800	MPN/100 mL			1			1/19/2010		NS	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/19/2010		SD	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	4.8	mg/L	2	0	1			1/19/2010		MK	

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ANALYTICAL RESULTS

Workorder: E1000194 6746

Lab ID: **E100119038** Date Received: 1/19/2010 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ WINCHESTER** Date Collected: 1/19/2010

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	97	mg/L	20	15	1		1/19/2010		SD	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	5000	MPN/100 mL	2		1		1/19/2010		DW	
Fecal Coliform by MTF	1100	MPN/100 mL			1		1/19/2010		DW	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/19/2010		SD	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	3.4	mg/L	2	0	1		1/19/2010		MK	

Report ID: 7655

Page 6 of 6

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Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 08, 2010
		Receive Date:	January 19, 2010
Client Project:	TV-RWRF SSO	Lab	E100119033
Chain ID:	6746	Number(s):	E100119034
			E100119035
Sampler:	Alfred Javier - 1001		E100119036
			E100119037
			E100119038

QUALITY CONTROL SECTION

Case Narrative: *"SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.*

Spike recovery on COD sample was low at 54%.

Quality Control Review



Batch CHM/3184 **HBN** 5588
File BOD **Status** RE
Create Date 1/19/2010 **Analyst** MK

DATA SCANNED

1 36017-LFB for HBN 5588 [CHM/3184]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure BOD	Instru BOD-01	Run Date 1/19/2010 12:56	Dilution 1
Method BOD, SM 5210B	Col ID	Hold Date 1/28/2010 10:06	Analyst MK
Schedule 173748	File		CC OK

Prep Information

Procedure BOD	Batch CHM/3184	Prep Date 1/19/2010 12:56	Dilution 1
Method BOD, SM 5210B	HBN 5588	Hold Date 1/28/2010 10:06	Analyst MK
Schedule 173748	Instru BOD-01		CC OK

Initial Volume 300 mL **Default** 300 mL
Final Volume 300 mL **Default** 300 mL

Analyte	Posted		Result	MDL	RDL	Spike Amt	%
	Result	Rec					
CHEMISTRY RESULTS							
BOD	188	mg/L	188	0	2	mg/L	198 mg/L 94.9

Quality Control Review



Batch CHM/3185 **HBN** 5590
File COD **Status** RE
Create Date 1/19/2010 **Analyst** SD

SCAN MISSING

2 36026-LFB for HBN 5590 [CHM/3185]

Type LFB Client QCACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
-------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 173789	Instru HACH Col ID File	Run Date 1/19/2010 09:30 Hold Date 1/21/2010 11:31	Dilution 1 Analyst SD CC OK
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Prep Information

Procedure COD Method COD, HACH 8000 Schedule 173789	Batch CHM/3185 HBN 5590 Instru HACH	Prep Date 1/19/2010 09:30 Hold Date 1/21/2010 11:31	Dilution 1 Analyst SD CC OK
--	--	--	---

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
Chemical Oxygen Demand	110	mg/L 110	15	20	mg/L 100	113	

Quality Control Review



Batch CHM/3185 **HBN** 5590
File COD **Status** RE
Create Date 1/19/2010 **Analyst** SD

SCAN MISSING

3 E100119033-TEMECULA CREEK

Type GRAB **Matrix** Liquid **Collected** 1/19/2010 09:10 **% Moisture**
Client ERC **WO** E1000194 **Work ID** 6746 **Original** HSN

Analytical Information

Procedure COD **Instru** HACH **Run Date** 1/19/2010 09:30 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 1/21/2010 09:10 **Analyst** SD
Schedule 173753 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3185 **Prep Date** 1/19/2010 09:30 **Dilution** 1
Method COD, HACH 8000 **HBN** 5590 **Hold Date** 1/21/2010 09:10 **Analyst** SD
Schedule 173753 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
Chemical Oxygen Demand	100 mg/L	100	15	20	mg/L		120, 73, 89

Quality Control Review



Batch CHM/3185 **HBN** 5590
File COD **Status** RE
Create Date 1/19/2010 **Analyst** SD

SCAN MISSING

4 36027-TEMECULA CREEK(36018LFM)

Type LFM **Matrix** Liquid **Collected** 1/19/2010 09:10 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original** HSN 36018

Analytical Information

Procedure COD **Instru** HACH **Run Date** 1/19/2010 09:30 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 1/21/2010 09:10 **Analyst** SD
Schedule 173790 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3185 **Prep Date** 1/19/2010 09:30 **Dilution** 1
Method COD, HACH 8000 **HBN** 5590 **Hold Date** 1/21/2010 09:10 **Analyst** SD
Schedule 173790 **Instru** HACH **CC** OK

Initial Volume 50 mL **Default** 2 mL
Final Volume 50 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
Chemical Oxygen Demand	130	130 mg/L	15	20	100 mg/L	48 mg/L	53.8	

Quality Control Review



Batch CHM/3185 **HBN** 5590
Title COD **Status** RE
Create Date 1/19/2010 **Analyst** SD

SCAN MISSING

5 36028-TEMECULA CREEK(36018LFMD)

Type LFMD **Matrix** Liquid **Collected** 1/19/2010 09:10 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 36018

Analytical Information

Procedure COD **Instru** HACH **Run Date** 1/19/2010 09:30 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 1/21/2010 09:10 **Analyst** SD
Schedule 173791 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3185 **Prep Date** 1/19/2010 09:30 **Dilution** 1
Method COD, HACH 8000 **HBN** 5590 **Hold Date** 1/21/2010 09:10 **Analyst** SD
Schedule 173791 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Max RPD
Chemical Oxygen Demand	130	130	15	20	mg/L			53.8			0

Quality Control Review



Batch CHM/3187 **HBN** 5593
File AMMONIA **Status** RE
Create Date 1/19/2010 **Analyst** SD

SCAN MISSING

1 36033-LRB for HBN 5593 [CHM/3187]

Type LRB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 173814	Instru FOSS Col ID File	Run Date 1/19/2010 10:23 Hold Date 2/16/2010 12:27	Dilution Analyst SD CC OK
--	--	---	---

Prep Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 173814	Batch CHM/3187 HBN 5593 Instru FOSS	Prep Date 1/19/2010 10:23 Hold Date 2/16/2010 12:27	Dilution Analyst SD CC OK
--	--	--	---

Initial Volume 100 mL Default 100 mL
 Final Volume 100 mL Default 100 mL

Analyte	Posted Result	Result	MDL	RDL
NUTRIENTS	1			
Ammonia (NH3-N)	0	mg/L <2.0	0.708	2.0 mg/L
Total Organic Nitrogen		mg/L		
Total Inorganic Nitrogen		mg/L		

Quality Control Review



Batch CHM/3187 **HBN** 5593
le AMMONIA **Status** RE
Create Date 1/19/2010 **Analyst** SD

SCAN MISSING

2 36034-LFB for HBN 5593 [CHM/3187]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QCACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure NH3-4500-L	Instru FOSS	Run Date 1/19/2010 10:23	Dilution
Method NH3, SM4500 NH3 C	Col ID	Hold Date 2/16/2010 12:27	Analyst SD
Schedule 173815	File		CC OK

Prep Information

Procedure NH3-4500-L	Batch CHM/3187	Prep Date 1/19/2010 10:23	Dilution
Method NH3, SM4500 NH3 C	HBN 5593	Hold Date 2/16/2010 12:27	Analyst SD
Schedule 173815	Instru FOSS		CC OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted		Result	MDL	RDL	Spike Amt	% Rec Limits	
	Result	1					Rec	Limits
NUTRIENTS	9.6	1	9.6	0.708	2.0	mg/L	10 mg/L	95.7 80-120
Ammonia (NH3-N)								
Total Organic Nitrogen								
Total Inorganic Nitrogen								

Quality Control Review



Batch CHM/3187 **HBN** 5593
File AMMONIA **Status** RE
Create Date 1/19/2010 **Analyst** SD

SCAN MISSING

3 E100119033-TEMECULA CREEK

Type GRAB **Matrix** Liquid **Collected** 1/19/2010 09:10 **% Moisture**
Client ERC **WO** E1000194 **Work ID** 6746 **Original** HSN

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 1/19/2010 10:23 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 2/16/2010 09:10 **Analyst** SD
Schedule 173754 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3187 **Prep Date** 1/19/2010 10:23 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5593 **Hold Date** 2/16/2010 09:10 **Analyst** SD
Schedule 173754 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
NUTRIENTS	1						
Ammonia (NH3-N)	0	mg/L	<2.0	0.708	2.0	mg/L	<2.0, <2.0, <2.0
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3187 **HBN** 5593
File AMMONIA **Status** RE
Create Date 1/19/2010 **Analyst** SD

SCAN MISSING

4 36035-TEMECULA CREEK(36018LFM)

Type LFM **Matrix** Liquid **Collected** 1/19/2010 09:10 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original** HSN 36018

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 1/19/2010 10:23 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 2/16/2010 09:10 **Analyst** SD
Schedule 173816 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3187 **Prep Date** 1/19/2010 10:23 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5593 **Hold Date** 2/16/2010 09:10 **Analyst** SD
Schedule 173816 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
NUTRIENTS	1							
Ammonia (NH3-N)	9.4	mg/L 9.4	0.708	2.0	mg/L	0 10 mg/L	94.5	80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						



2295



Multiple Tube Fermentation

Lab ID:	E100119033	Bottle #:	0002
Line Item (Samp ID)	TEMECULA CREEK	Collect Date/Time:	1/19/2010 9:10:00 AM

1	2	3	4	5
+	+	+	+	+
+	+	+	+	+
+	+	+	+	+

Dilution
-10-1-0

TP MPN/100 ml
28,000
21,800 Corrected as 1-27-10

FC MPN/100 ml
5,000

TC+ 5
FC+ 5

1	2	3	4	5
+	+	+	+	+
+	+	+	+	+
+	+	+	+	+

Dilution
-10-0-1

Media Lot / Exp. Date
BUFFER 96300-1 1/16/10
SSTLB X 1/26/10
DSLTB
BGB X 1/27/10
EC X 3/30/10

TC+ 5
FC+ 5

1	2	3	4	5
+	G	G	+	+
	+	+		
+	+	+	G	+
			G	
+	-	-	G	G

Dilution
-10-0-0-1

TC+ 4
FC+ 1

1	2	3	4	5
G	G	G	G	+
G	+	+	+	
	+	+	G	+
			-	
G	-	-	-	+

Dilution
-10-0-0-0-1

TC+ 3
FC+ 1

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	MS	MS	MS	MS	MS
Date	1/19/10	1/20/10	1/21/10	1/22/10	1/23/10
Time	1219	1250	1546	155	1630

INITIALS
INPUT: MS
APPROVED:

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

✓ MS



2295



Multiple Tube Fermentation

Lab ID:	E100119034	Bottle #:	011
Line Item (Samp ID)	CONFLUENCE	Collect Date/Time:	1/19/2010 9:10:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
10

TP MPN/100 ml
>16,000

TC +	5
FC +	5

FC MPN/100 ml
1,100

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
1.0

	Media Lot / Exp. Date
BUFFER	96300-1 1/10/10
SSTLB	X- 1/26/10
DSLTB	
BGB	X 1/27/10
EC	X 3/30/10

TC +	5
FC +	5

	1	2	3	4	5
LTB 24 hr	G	+	+	+	+
LTB 48 hr	+				
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	+	+	+	G

Dilution
0.1

	1	2	3	4	5
LTB 24 hr	+	+	G	G	G
LTB 48 hr			+	+	+
BGB 24 hr	+	+	+	G	G
BGB 48 hr				+	+
EC 24 hr	G	+	-	-	-

Dilution
0.01

TC +	5
FC +	3

TC +	5
FC +	1

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	AM	AM	AM	AM	MS	INPUT: MS
Date	1/19/10	1/20/10	1/21/10	1/22/10	1/23/10	APPROVED: MS
Time	950	1250	1550	1555	1630	

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

2273



Multiple Tube Fermentation

Lab ID:	E100119035	Bottle #:	031
Line Item (Samp ID)	MURRIETA CREEK @ RANCHO CA RD	Collect Date/Time:	1/19/2010 9:30:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
10

TP MPN/100 ml
16000

TC+ 5
FC+ 5

FC MPN/100 ml
1100

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
1.0

Media Lot / Exp. Date	
BUFFER	96300-1 1/10/10
SSTLB	X- 1/26/10
DSLTB	
BGB	X 1/27/10
EC	X 3/30/10

TC+ 5
FC+ 5

	1	2	3	4	5
LTB 24 hr	+	+	+	G	+
LTB 48 hr				+	
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	-	G

Dilution
0.1

	1	2	3	4	5
LTB 24 hr	G	G	G	G	+
LTB 48 hr	+	+	G	+	
BGB 24 hr	+	+		+	+
BGB 48 hr					
EC 24 hr	-	-		-	+

Dilution
0.01

TC+ 5
FC+ 3

TC+ 4
FC+ 1

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	AM	AM	AM	AM		AM
Date	1/19/10	1/20/10	1/21/10	1/22/10		AM
Time	950	1250	1550	1555		

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:





2273

Multiple Tube Fermentation

Lab ID:	E100119036	Bottle #:	0162
Line Item (Samp ID)	MURRIETA CREEK @ RANCHO WAY	Collect Date/Time:	1/19/2010 9:35:00 AM

	1	2	3	4	5	
LTB 24 hr	+	+	+	+	+	Dilution 10
LTB 48 hr						
BGB 24 hr	+	+	+	+	+	TC+ 5
BGB 48 hr						
EC 24 hr	+	+	+	+	+	FC+ 5

TP MPN/100 ml
3000

FC MPN/100 ml
1100

	1	2	3	4	5	
LTB 24 hr	+	+	+	+	+	Dilution 1.0
LTB 48 hr						
BGB 24 hr	+	+	+	+	+	TC+ 5
BGB 48 hr						
EC 24 hr	+	+	+	+	+	FC+ 5

	Media Lot / Exp. Date
BUFFER	96300-1 1/10/10
SSTLB	X- 1/26/10
DSLTB	
BGB	X 1/27/10
EC	X 3/30/10

	1	2	3	4	5	
LTB 24 hr	+	+	+	+	+	Dilution 0.1
LTB 48 hr						
BGB 24 hr	+	+	+	+	+	TC+ 5
BGB 48 hr						
EC 24 hr	G	G	+	+	+	FC+ 3

	1	2	3	4	5	
LTB 24 hr	G	G	G	+	G	Dilution 0.01
LTB 48 hr	G	G	G			
BGB 24 hr				+	G	TC+ 1
BGB 48 hr						
EC 24 hr				+		FC+ 1

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	VJW	VJW	VJW			VJW
Date	1/19/10	1/20/10	1/21/10			
Time	950	1250	1550			

EC QC: E. aerogenes +/-	-
E. coli +/-	+

Analyst Comments:

1



2295



Multiple Tube Fermentation

Lab ID:	E100119037	Bottle #:	0142
Line Item (Samp ID)	MURRIETA CREEK @ MONTAZUMA	Collect Date/Time:	1/19/2010 9:40:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution

10

TP MPN/100 ml
16,000

FC MPN/100 ml
800

TC +	5
FC +	5

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution

1.0

Media Lot / Exp. Date
BUFFER 96300-1 11/10/10
SSTLB x- 1/26/10
DSLTB
BGB x 1/27/10
EC x 3/30/10

TC +	5
FC +	5

	1	2	3	4	5
LTB 24 hr	+	+	+	+	G
LTB 48 hr					+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	G	+	G

Dilution

0.1

	1	2	3	4	5
LTB 24 hr	G	G	G	+	G
LTB 48 hr	+	+	+		+
BGB 24 hr	G	G	+	+	G
BGB 48 hr	-	+			+
EC 24 hr	-	-	-	G	-

Dilution

0.01

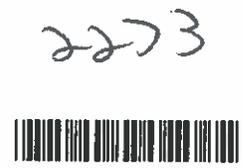
TC +	5
FC +	3

TC +	4
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	MSW	MSW	MSW	MSW	MS	INPUT: MS
Date	1/19/10	1/20/10	1/21/10	1/22/10	1/23/10	APPROVED: MS
Time	950	1250	1550	1555	1630	

EC QC: E. aerogenes +/-	-	-
E. coli +/-	-	-

Analyst Comments:



Multiple Tube Fermentation

Lab ID:	E100119038	Bottle #:	0191
Line Item (Samp ID)	MURRIETA CREEK @ WINCHESTER	Collect Date/Time:	1/19/2010 9:50:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
10

TP MPN/100 ml
5000

TC+ 5
FC+ 5

FC MPN/100 ml
1100

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 24 hr					
EC 24 hr	+	+	+	+	+

Dilution
1.0

	Media Lot / Exp. Date
BUFFER	96300-1 1/10/10
SSTLB	X- 1/26/10
DSLTLB	
BGB	X 1/27/10
EC	X 3/30/10

TC+ 5
FC+ 5

	1	2	3	4	5
LTB 24 hr	+	+	G	+	G
LTB 48 hr			+		+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	-	+	-

Dilution
0.1

	1	2	3	4	5
LTB 24 hr	+	+	G	G	G
LTB 48 hr			G	G	G
BGB 24 hr	+	+			
BGB 48 hr					
EC 24 hr	+	G			

Dilution
0.01

TC+ 5
FC+ 3

TC+ 2
FC+ 1

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	WAW	WAW	WAW	WAW		WAW
Date	1/19/10	1/20/10	1/21/10	1/22/10		WAW
Time	9:50	12:50	1:55	1:55		WAW

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:



**Sampling
Laboratory Reports**

January 25, 2010



CERTIFICATE OF ANALYSIS

Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 08, 2010
		Receive Date:	January 25, 2010
Client Project:	TV-RWRF SSO	Lab	E100125057
Chain ID:	6855	Number(s):	E100125058
			E100125059
			E100125060
Sampler:	Alfred Javier - 1001		E100125061
			E100125062
			E100125063

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "*Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification*" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Kenneth Marshall
 Manager of Laboratory & Water Quality Services
 Eastern Municipal Water District



Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000259 6855

Lab ID: **E100125057** Date Received: 1/25/2010 Matrix: Liquid
 Sample ID: **Murrieta Crk @ 79** Date Collected: 1/25/2010

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	39	mg/L	20	15	1		1/25/2010	MK		
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	30000	MPN/100 mL	2		1		1/25/2010	DW		
Fecal Coliform by MTF	800	MPN/100 mL			1		1/25/2010	DW		
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1		1/26/2010	SD		
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	4.8	mg/L	2	0	1		1/25/2010	NS		

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ANALYTICAL RESULTS

Workorder: E1000259 6855

Lab ID: **E100125058** Date Received: 1/25/2010 Matrix: Liquid
 Sample ID: **Temecula Crk** Date Collected: 1/25/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	45	mg/L	20	15	1			1/25/2010		MK	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	2800	MPN/100 mL	2		1			1/25/2010		DW	
Fecal Coliform by MTF	140	MPN/100 mL			1			1/25/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/26/2010		SD	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	3.5	mg/L	2	0	1			1/25/2010		NS	

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ANALYTICAL RESULTS

Workorder: E1000259 6855

Lab ID: **E100125059** Date Received: 1/25/2010 Matrix: Liquid
 Sample ID: **Confluence** Date Collected: 1/25/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	36	mg/L	20	15	1			1/25/2010		MK	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	11000	MPN/100 mL	2		1			1/25/2010		DW	
Fecal Coliform by MTF	500	MPN/100 mL			1			1/25/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/26/2010		SD	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	3.4	mg/L	2	0	1			1/25/2010		NS	

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 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000259 6855

Lab ID: **E100125060** Date Received: 1/25/2010 Matrix: Liquid
 Sample ID: **Murrieta Crk @ Rancho Calif** Date Collected: 1/25/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
------------	---------	-------	--------------	-----	----	----------	----	----------	----	------	--------

Analysis Desc: COD, HACH 8000	Analytical Method: COD, HACH 8000										
-------------------------------	-----------------------------------	--	--	--	--	--	--	--	--	--	--

Chemical Oxygen Demand	36	mg/L	20	15	1			1/25/2010	MK		
------------------------	----	------	----	----	---	--	--	-----------	----	--	--

BIOLOGICALS

Analysis Desc: MTF	Analytical Method: MTF										
--------------------	------------------------	--	--	--	--	--	--	--	--	--	--

Total Coliform by MTF	13000	MPN/100 mL	2		1			1/25/2010	DW		
-----------------------	-------	------------	---	--	---	--	--	-----------	----	--	--

Fecal Coliform by MTF	80	MPN/100 mL			1			1/25/2010	DW		
-----------------------	----	------------	--	--	---	--	--	-----------	----	--	--

NUTRIENTS

Analysis Desc: NH3, SM4500 NH3 C	Analytical Method: NH3, SM4500 NH3 C										
----------------------------------	--------------------------------------	--	--	--	--	--	--	--	--	--	--

Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/26/2010	SD		
-----------------	------	------	-----	-------	---	--	--	-----------	----	--	--

CHEMISTRY RESULTS

Analysis Desc: BOD, SM 5210B	Analytical Method: BOD, SM 5210B										
------------------------------	----------------------------------	--	--	--	--	--	--	--	--	--	--

BOD	3.6	mg/L	2	0	1			1/25/2010	NS		
-----	-----	------	---	---	---	--	--	-----------	----	--	--

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Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000259 6855

Lab ID: **E100125061** Date Received: 1/25/2010 Matrix: Liquid
 Sample ID: **Murrieta Crk @ Rancho Way** Date Collected: 1/25/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
------------	---------	-------	--------------	-----	----	----------	----	----------	----	------	--------

Analysis Desc: COD, HACH 8000 Analytical Method: COD, HACH 8000

Chemical Oxygen Demand	34 mg/L		20	15	1			1/25/2010		MK	
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BIOLOGICALS

Analysis Desc: MTF Analytical Method: MTF

Total Coliform by MTF	3000 MPN/100 mL		2		1			1/25/2010		DW	
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Fecal Coliform by MTF	230 MPN/100 mL				1			1/25/2010		DW	
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NUTRIENTS

Analysis Desc: NH3, SM4500 NH3 C Analytical Method: NH3, SM4500 NH3 C

Ammonia (NH3-N)	<2.0 mg/L		2.0	0.708	1			1/26/2010		SD	
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CHEMISTRY RESULTS

Analysis Desc: BOD, SM 5210B Analytical Method: BOD, SM 5210B

BOD	3.5 mg/L		2	0	1			1/25/2010		NS	
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ANALYTICAL RESULTS

Workorder: E1000259 6855

Lab ID: **E100125062** Date Received: 1/25/2010 Matrix: Liquid
 Sample ID: **Murrieta Crk @ Montazuma** Date Collected: 1/25/2010 11:00

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	41	mg/L	20	15	1			1/25/2010		MK	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	1700	MPN/100 mL	2		1			1/25/2010		DW	
Fecal Coliform by MTF	220	MPN/100 mL			1			1/25/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/26/2010		SD	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	3.1	mg/L	2	0	1			1/25/2010		NS	

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ANALYTICAL RESULTS

Workorder: E1000259 6855

Lab ID: **E100125063** Date Received: 1/25/2010 Matrix: Liquid
 Sample ID: **Murrieta Crk @ Winchester** Date Collected: 1/25/2010 11:10

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
------------	---------	-------	--------------	-----	----	----------	----	----------	----	------	--------

Analysis Desc: COD, HACH 8000			Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	45	mg/L	20	15	1			1/25/2010		MK	

BIOLOGICALS

Analysis Desc: MTF			Analytical Method: MTF								
Total Coliform by MTF	5000	MPN/100 mL	2		1			1/25/2010		DW	
Fecal Coliform by MTF	170	MPN/100 mL			1			1/25/2010		DW	

NUTRIENTS

Analysis Desc: NH3, SM4500 NH3 C			Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.708	1			1/26/2010		SD	

CHEMISTRY RESULTS

Analysis Desc: BOD, SM 5210B			Analytical Method: BOD, SM 5210B								
BOD	3.4	mg/L	2	0	1			1/25/2010		NS	

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Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 08, 2010
		Receive Date:	January 25, 2010
Client Project:	TV-RWRF SSO	Lab	E100125057
Chain ID:	6855	Number(s):	E100125058
			E100125059
Sampler:	Alfred Javier - 1001		E100125060
			E100125061
			E100125062
			E100125063

QUALITY CONTROL SECTION

Case Narrative: *"SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.*



2315

Multiple Tube Fermentation

Lab ID:	E100125063	Bottle #:	1760
Line Item (Samp ID)	Murrieta Crk @ Winchester	Collect Date/Time:	1/25/2010 11:10:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	-

Dilution
1.0

TP MPN/100 ml
5000

TC+ 5
FC+ 4

FC MPN/100 ml
170

	1	2	3	4	5
LTB 24 hr	G	+	G	G	G
LTB 48 hr	+		+	+	+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	+	-	-	-

Dilution
0.1

	Media Lot / Exp. Date
BUFFER	96300-1 4/10/10
SSTLB	2/4/10 + 2/8/10
DSLTLB	
BGB	1/27/10
EC	4/22/10

TC+ 5
FC+ 1

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	+	G	G	G
BGB 24 hr	+	G			
BGB 48 hr		+			
EC 24 hr	-	-			

Dilution
0.1

	1	2	3	4	5
LTB 24 hr	-		G	-	
LTB 48 hr	G	-	G	-	
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
0.01

TC+ 2
FC+ 0

TC+ 0
FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	ASW	ASW	ASW	ASW	ASW	ASW
Date	1/25/10	1/26/10	1/27/10	1/28/10	1/29/10	ASW
Time	1250	1043	1209	1210	1300	ASW

ASW 1/25/10

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

	1	2	3	4	5
LTB24					
LTB48	-	-	-	-	-
BGB24					
BGB48					
EC					

TC=0
FC=0

✓

2315



Multiple Tube Fermentation

Lab ID:	E100125062	Bottle #:	1649
Line Item (Samp ID)	Murrieta Crk @ Montazuma	Collect Date/Time:	1/25/2010 11:00:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	
BGB 48 hr					
EC 24 hr	+	+	+	+	-

Dilution 10^{-1.0}

TP MPN/100 ml
1700

FC MPN/100 ml
220

TC+ 5
FC+ 4

	1	2	3	4	5
LTB 24 hr	G	G	+	+	G
LTB 48 hr	+	+			G
BGB 24 hr	G	+	+	+	
BGB 24 hr	+				
EC 24 hr	-	-	+	+	

Dilution 10^{-0.1}

Media Lot / Exp. Date
BUFFER 96300-1 1/10/10
SSTLB 2/4/10
DSLTB
BGB 1/27/10
EC 4/22/10

TC+ 4
FC+ 2

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	G	G	+	G	G
BGB 24 hr			+		
BGB 48 hr					
EC 24 hr			-		

Dilution 10^{-1.01}

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution 10^{-0.01}
TC+ 0
FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	ASW	ASW	ASW	ASW	ASW
Date	1/25/10	1/26/10	1/27/10	1/28/10	1/29/10
Time	1250	1038	1203	1210	1300

INITIALS
INPUT ASW
APPROVED: [Signature]

EC QC: E. aerogenes +/-	-	-
E. coli +/-	F	F

Analyst Comments:

LTB 24					
LTB 48	-	-	-	-	-
BGB 24					
BGB 48					
EC					

10001
TC=0
FC=0



2309



Multiple Tube Fermentation

Lab ID:	E100125061	Bottle #:	1794
Line Item (Samp ID)	Murrieta Crk @ Rancho Way	Collect Date/Time:	1/25/2010 10:50:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
10^{-1.0}

TP MPN/100 ml
~~230~~ 3000

TC+ 5
FC+ 5

FC MPN/100 ml
230

1/28/10

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	+	+	+	+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	-	-	-	-

Dilution
10^{-1.1}

Media Lot / Exp. Date	
BUFFER	96300-1 1/10/10
SSTLB	2/4/10
DSLTB	
BGB	1/27/10
EC	4/22/10

TC+ 5
FC+ 0

	1	2	3	4	5
LTB 24 hr	G	G	G	G	-
LTB 48 hr	G	G	G	G	-
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
0.1
10⁻¹

	1	2	3	4	5
LTB 24 hr	-	-	-	G	-
LTB 48 hr	G	G	-	+	G
BGB 24 hr				+	
BGB 48 hr					
EC 24 hr				-	

Dilution
0.01
100
TC+ 1
FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	RAW	RAW	RAW	RAW	
Date	1/25/10	1/26/10	1/27/10	1/28/10	
Time	1250	1032	1157	1252	

INITIALS	
INPUT	RAW
APPROVED	[Signature]

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

LTB24					
LTB48	-	-	-	-	-
BGB24					
BGB48					
EC					

1000
TC=0
FC=0



2315



Multiple Tube Fermentation

Lab ID:	E100125060	Bottle #:	1751
Line Item (Samp ID)	Murrieta Crk @ Rancho Calif	Collect Date/Time:	1/25/2010 10:45:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	-	+	+	-

Dilution
~~10~~ 1.0

TP MPN/100 ml
13000

TC +	5
FC +	3

FC MPN/100 ml
80

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	+	+	+	+
BGB 24 hr	+	+	+	G	+
BGB 48 hr				+	
EC 24 hr	-	-	-		-

Dilution
~~10~~ 0.1

TC +	5
FC +	0

Media Lot / Exp. Date
BUFFER 96300-1 1/10/10
SSTLB x 2/4/10
DSLTB
BGB 1/27/10
EC 4/22/10

	1	2	3	4	5
LTB 24 hr	+	-	G	-	G
LTB 48 hr		+	+	-	+
BGB 24 hr	+	+	G		+
BGB 48 hr			+		
EC 24 hr	-	-			-

Dilution
~~0.1~~ 0.01

TC +	4
FC +	0

	1	2	3	4	5
LTB 24 hr	G	-	-	-	-
LTB 48 hr	G	-	-	-	G
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
~~0.01~~ 0.001

TC +	0
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	ASW	ASW	ASW	ASW	ASW
Date	1/25/10	1/26/10	1/27/10	1/28/10	1/29/10
Time	1250	1026	1151	1210	1300

INITIALS
INPUT ASW
APPROVED: [Signature]

EC QC: E. aerogenes +/-	-
E. coli +/-	+

Analyst Comments:

	1	2	3	4	5
LTB 24					
LTB 48	-	-	-	-	-
BGB 24					
BGB 48					
EC					

10001
FC=0
FC=C



2315



Multiple Tube Fermentation

Lab ID:	E100125059	Bottle #:	1734
Line Item (Samp ID)	Confluence	Collect Date/Time:	1/25/2010 10:25:00 AM

1	2	3	4	5
LTB 24 hr	+	+	+	+
LTB 48 hr				
BGB 24 hr	+	+	+	+
BGB 48 hr				
EC 24 hr	+	+	+	+

Dilution
~~1.0~~ 0.4/1.0
 TC+ 5
 FC+ 5
 1/25/10

TP MPN/100 ml	11000
FC MPN/100 ml	500

1	2	3	4	5
LTB 24 hr	G	+	G	+
LTB 48 hr	+		+	+
BGB 24 hr	+	+	+	+
BGB 48 hr				
EC 24 hr	-	+	-	+

Dilution BUFFER
~~1.0~~ 0.1
 TC+ 5
 FC+ 2

Media Lot / Exp. Date	
96300-1	1/10/10
SSTLB	2/4/10
DSLTB	
BGB	1/27/10
EC	4/22/10

1	2	3	4	5
LTB 24 hr	G	G	G	G
LTB 48 hr	+	+	G	+
BGB 24 hr	+	+		G
BGB 48 hr				G
EC 24 hr	-	-	-	

Dilution
~~0.1~~ 1.01
 TC+ 3
 FC+ 0

1	2	3	4	5
LTB 24 hr	G	-	-	+
LTB 48 hr	G	-	-	-
BGB 24 hr				+
BGB 48 hr				
EC 24 hr				-

Dilution
 0.01
 TC+ 1
 FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	VBW	VBW	VBW	VBW	VBW
Date	1/25/10	1/26/10	1/27/10	1/28/10	1/29/10
Time	1250	1020	1139	1140	1300

INITIALS	
INPUT	VBW
APPROVED:	[Signature]

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

LTB24				
LTB48	-	-	-	-
BGB24				
BGB48				
EC				

0001
TC=C
FC=C



2315



Multiple Tube Fermentation

Lab ID:	E100125058	Bottle #:	1786
Line Item (Samp ID)	Temecula Crk	Collect Date/Time:	1/25/2010 10:25:00 AM

1	2	3	4	5
LTB 24 hr	G	+	+	+
LTB 48 hr	+			
BGB 24 hr	+	+	+	+
BGB 48 hr				
EC 24 hr	-	+	+	-

Dilution
~~10~~ 1.0

TP MPN/100 ml
2800

TC + 5
FC + 3

FC MPN/100 ml
140

1	2	3	4	5
LTB 24 hr	+	G	G	+
LTB 48 hr		+	+	+
BGB 24 hr	+	+	+	+
BGB 48 hr				
EC 24 hr	-	-	-	+

Dilution
~~10~~ 0.1

Media Lot / Exp. Date	
BUFFER	963001 1/10/10
SSTLB	x 2/4/10
DSLTB	
BGB	1/27/10
EC	4/22/10

TC + 4
FC + 1

1	2	3	4	5
LTB 24 hr	G	+	G	G
LTB 48 hr	G		+	+
BGB 24 hr		+	+	G
BGB 48 hr				+
EC 24 hr		+	-	-

Dilution
0.1 0.01

1	2	3	4	5
LTB 24 hr	-	G	-	-
LTB 48 hr	-	G	-	-
BGB 24 hr				
BGB 48 hr				
EC 24 hr				

Dilution
0.01 1.00

TC + 3
FC + 1

TC + 0
FC + 0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	ASW	ASW	ASW	ASW	ASW
Date	1/25/10	1/26/10	1/27/10	1/28/10	1/29/10
Time	1250	1013	1135	1134	1300

INITIALS	
INITIALS	ASW
APPROVED:	ASW

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

	1	2	3	4	5
LTB 24					
LTB 48	G	-	-	-	-
BGB 24					
BGB 48					
EC					

1.0001
TC = 0
FC = 0

✓



2309



Multiple Tube Fermentation

Lab ID:	E100125057	Bottle #:	1756
Line Item (Samp ID)	Murrieta Crk @ 79	Collect Date/Time:	1/25/2010 10:15:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
40 1,0

TP MPN/100 ml
30000

TC+ 5
FC+ 5

FC MPN/100 ml
800

	1	2	3	4	5
LTB 24 hr	+	G	+	+	+
LTB 48 hr		+			
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	+	+	+	+

Dilution
40 0.1

Media Lot / Exp. Date	
BUFFER	96300-1 1/10/10
SSTLB	2/4/10
DSLTB	
BGB	1/27/10
EC	4/22/10

TC+ 5
FC+ 3

RAW 1/25/10

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	+	+	+	+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	-	-	-	-

Dilution
0.1

TC+ 5
FC+ 0

	1	2	3	4	5
LTB 24 hr	G	G	-	G	-
LTB 48 hr	G	G	G	G	+
BGB 24 hr					+
BGB 48 hr					
EC 24 hr					-

Dilution
0.01
100

TC+ 1
FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	RAW	RAW	RAW	RAW	
Date	1/25/10	1/26/10	1/27/10	1/28/10	
Time	1250	1006	1122	1130	

INITIALS	
INDENT	RAW
APPROVED:	[Signature]

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

LTB 24	G	-	-	-	-	1,000
LTB 48	G	-	-	-	-	
BGB 24						
BGB 48						
EC 24						

TC = C
EC = C



Quality Control Review



Batch CHM/3231 **HBN** 5686
File BOD **Status** RE
Create Date 1/25/2010 **Analyst** MK

DATA SCANNED

1 36389-LFB for HBN 5686 [CHM/3231]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure BOD	Instru BOD-01	Run Date 1/25/2010 14:26	Dilution 1
Method BOD, SM 5210B	Col ID	Hold Date 1/26/2010 10:23	Analyst NS
Schedule 174975	File		CC OK

Prep Information

Procedure BOD	Batch CHM/3231	Prep Date 1/25/2010 14:26	Dilution 1
Method BOD, SM 5210B	HBN 5686	Hold Date 1/26/2010 10:23	Analyst NS
Schedule 174975	Instru BOD-01		CC OK

Initial Volume 300 mL **Default** 300 mL
Final Volume 300 mL **Default** 300 mL

Analyte	Posted		Result	MDL	RDL	Spike Amt	% Rec	
	Result						Limits	
CHEMISTRY RESULTS								
BOD	217	mg/L	217	0	2	mg/L	198	110

Quality Control Review



Batch CHM/3240 **HBN** 5707
File COD **Status** RE
Create Date 1/25/2010 **Analyst** MK

SCAN MISSING

1 36470-LFB for HBN 5707 [CHM/3240]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 175263	Instru HACH Col ID File	Run Date 1/25/2010 09:48 Hold Date 2/22/2010 14:07	Dilution 1 Analyst MK CC OK
--	--	---	---

Prep Information

Procedure COD Method COD, HACH 8000 Schedule 175263	Batch CHM/3240 HBN 5707 Instru HACH	Prep Date 1/25/2010 09:48 Hold Date 2/22/2010 14:07	Dilution 1 Analyst MK CC OK
--	--	--	---

Initial Volume 2 mL	Default 2 mL
Final Volume 2 mL	Default 2 mL

Analyte	Posted		Spike				% Rec	
	Result	mg/L	Result	MDL	RDL	Armt	mg/L	Limits
Chemical Oxygen Demand	420	mg/L	420	15	20	mg/L	400 mg/L	104

Quality Control Review



Batch CHM/3240 **HBN** 5707
File COD **Status** RE
Create Date 1/25/2010 **Analyst** MK

SCAN MISSING

2 E100125057-Murrieta Crk @ 79

Type GRAB **Matrix** Liquid **Collected** 1/25/2010 10:15 **% Moisture**
Client ERC **WO** E1000259 **Work ID** 6855 **Original** HSN

Analytical Information

Procedure COD **Instru** HACH **Run Date** 1/25/2010 09:48 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 2/22/2010 10:15 **Analyst** MK
Schedule 175181 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3240 **Prep Date** 1/25/2010 09:48 **Dilution** 1
Method COD, HACH 8000 **HBN** 5707 **Hold Date** 2/22/2010 10:15 **Analyst** MK
Schedule 175181 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted		Result	MDL	RDL	Low	High	Hist
	Result							
Chemical Oxygen Demand	39	mg/L	39	15	20	mg/L		97, 100, 99

Quality Control Review



Batch CHM/3240 **HBN** 5707
File COD **Status** RE
Create Date 1/25/2010 **Analyst** MK

SCAN MISSING

3 36471-Murrieta Crk @ 79(36442LFM)

Type LFM **Matrix** Liquid **Collected** 1/25/2010 10:15 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original** HSN 36442

Analytical Information

Procedure COD **Instru** HACH **Run Date** 1/25/2010 09:48 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 2/22/2010 10:15 **Analyst** MK
Schedule 175264 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3240 **Prep Date** 1/25/2010 09:48 **Dilution** 1
Method COD, HACH 8000 **HBN** 5707 **Hold Date** 2/22/2010 10:15 **Analyst** MK
Schedule 175264 **Instru** HACH **CC** OK

Initial Volume 50 mL **Default** 2 mL
Final Volume 50 mL **Default** 2 mL

Analyte	Posted		Result	MDL	RDL	Original	Spike	% Rec	Limits
	Result								
Chemical Oxygen Demand	99	mg/L	99	15	20	mg/L	39	60 mg/L	101

Quality Control Review



Batch CHM/3245 **HBN** 5720
File AMMONIA **Status** RE
Create Date 1/26/2010 **Analyst** SD

SCAN MISSING

1 36525-LRB for HBN 5720 [CHM/3245]

Type LRB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure NH3-4500-L	Instru FOSS	Run Date 1/26/2010 12:30	Dilution
Method NH3, SM4500 NH3 C	Col ID	Hold Date 2/23/2010 10:50	Analyst SD
Schedule 175891	File		CC OK
HDM http://LIMSSDMS/servlet/WebVisionServlet/%3cV%3e/SDMS71/40/2B274567-23A3-4a93-BD71-53FA113A3039/index.html?singleid=11			

Prep Information

Procedure NH3-4500-L	Batch CHM/3245	Prep Date 1/26/2010 12:30	Dilution
Method NH3, SM4500 NH3 C	HBN 5720	Hold Date 2/23/2010 10:50	Analyst SD
Schedule 175891	Instru FOSS		CC OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL
NUTRIENTS	1			
Ammonia (NH3-N)	0	mg/L	<2.0	0.708 2.0 mg/L
Total Organic Nitrogen		mg/L		
Total Inorganic Nitrogen		mg/L		



Quality Control Review



Batch CHM/3245 **HBN** 5720
File AMMONIA **Status** RE
Create Date 1/26/2010 **Analyst** SD

SCAN MISSING

2 36526-LFB for HBN 5720 [CHM/3245]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure NH3-4500-L	Instru FOSS	Run Date 1/26/2010 12:30	Dilution
Method NH3, SM4500 NH3 C	Col ID	Hold Date 2/23/2010 10:50	Analyst SD
Schedule 175892	File		CC OK
HDM http://LIMSSDMS/servlet/WebVisionServlet/%3cV2%3e/SDMS71/40/2B27456-23A3-4a93-BD71-53FA113A3039/index.html?singleid=11			

Prep Information

Procedure NH3-4500-L	Batch CHM/3245	Prep Date 1/26/2010 12:30	Dilution
Method NH3, SM4500 NH3 C	HBN 5720	Hold Date 2/23/2010 10:50	Analyst SD
Schedule 175892	Instru FOSS		CC OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
NUTRIENTS	1						
Ammonia (NH3-N)	9.8	mg/L 9.8	0.708	2.0	mg/L 10	98	80-120
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					



Quality Control Review



Batch CHM/3245 **HBN** 5720
File AMMONIA **Status** RE
Create Date 1/26/2010 **Analyst** SD

SCAN MISSING

3 E100125057-Murrieta Crk @ 79

Type GRAB **Matrix** Liquid **Collected** 1/25/2010 10:15 **% Moisture**
Client ERC **WO** E1000259 **Work ID** 6855 **Original** HSN

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 1/26/2010 12:30 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 2/22/2010 10:15 **Analyst** SD
Schedule 175180 **File** **CC** OK
HDM <http://LIMSSDMS/servlet/WebVisionServlet/%3cV2%3e/SDMS71/40/2B274567-23A3-4a93-BD71-53FA113A3039/index.html?singleid=11>

Prep Information

Procedure NH3-4500-L **Batch** CHM/3245 **Prep Date** 1/26/2010 12:30 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5720 **Hold Date** 2/22/2010 10:15 **Analyst** SD
Schedule 175180 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
NUTRIENTS	1						
Ammonia (NH3-N)	0	mg/L	<2.0	0.708	2.0	mg/L	<2.0, <2.0, <2.0
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3245 HBN 5720
 le AMMONIA Status RE
 Create Date 1/26/2010 Analyst SD

SCAN MISSING

4 36527-Secondary - MV RWRF(36484LFM)

Type LFM Matrix Liquid Collected 1/26/2010 07:00 % Moisture
 Client QC ACCOUNT WO Work ID Original HSN 36484

Analytical Information

Procedure NH3-4500-L Instru FOSS Run Date 1/26/2010 12:30 Dilution
 Method NH3, SM4500 NH3 C Col ID Hold Date 2/23/2010 07:00 Analyst SD
 Schedule 175893 File CC OK
 HDM <http://LIMSSDMS/servlet/WebVisionServlet%3cv2%3e/SDMS71/40/2B274567-23A3-4a93-BD71-53FA113A3039/index.html?singleid=11>

Prep Information

Procedure NH3-4500-L Batch CHM/3245 Prep Date 1/26/2010 12:30 Dilution
 Method NH3, SM4500 NH3 C HBN 5720 Hold Date 2/23/2010 07:00 Analyst SD
 Schedule 175893 Instru FOSS CC OK

Initial Volume 100 mL Default 100 mL
 Final Volume 100 mL Default 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
NUTRIENTS	1							
Ammonia (NH3-N)	18	mg/L	18	0.708	2.0	mg/L	7.5	10 mg/L 106 80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3245 **HBN** 5720
File AMMONIA **Status** RE
Create Date 1/26/2010 **Analyst** SD

SCAN MISSING

5 36528-Secondary - MV RWRF(36484LFMD)

Type LFMD **Matrix** Liquid **Collected** 1/26/2010 07:00 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original** HSN 36484

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 1/26/2010 12:30 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 2/23/2010 07:00 **Analyst** SD
Schedule 175894 **File** **CC** OK
HDM <http://LIMSSDMS/servlet/WebVisionServlet/%3cV2%3e/SDMS71/40/2B274567-23A3-4a93-BD71-53FA113A3039/index.html?singleid=11>

Prep Information

Procedure NH3-4500-L **Batch** CHM/3245 **Prep Date** 1/26/2010 12:30 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5720 **Hold Date** 2/23/2010 07:00 **Analyst** SD
Schedule 175894 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Max RPD
NUTRIENTS	1										
Ammonia (NH3-N)	18	mg/L	18	0.708	2.0	mg/L		106		0	10
Total Organic Nitrogen		mg/L									
Total Inorganic Nitrogen		mg/L									

**Sampling
Laboratory Reports**

February 2, 2010



CERTIFICATE OF ANALYSIS

Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 18, 2010 Receive Date: February 02, 2010
Client Project: TV-RWRF SSO	Lab Number(s): E100202078 E100202079 E100202080 E100202081 E100202082 E100202083 E100202084
Work Order: E1000376 Chain ID: 6981	
Sampler: Alfred Javier - 1001	

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Kenneth Marshall
Manager of Laboratory & Water Quality Services
Eastern Municipal Water District



6981

Chain of Custody

Received By / Temp: OG / 9.0°C
 Received Date / Time: 2/2/2010 1545
 Delivered By: MS 2022 / 1545

Temescal Creek at Murietta

Complaints / Shutdowns: _____ Inspections: _____
 Name: _____ SPORT #: _____
 Address: _____ Tract #: _____
 City, State, Zip: _____ Acct #: () - - - 15163() - - -
 Maximo #: _____ Collect Seq: 1st Day / 2nd Day / Resample

Collected By: MS-20830 DE-2118

Sample ID	Bottle #	Grab / Composite	Collection		Field Tests				Containers												
			(Grab)	End	C-R	Temp	pH	EC	DO	Depth	1 LAG	250 mL AG	500 mL RL	1 G Plast.	0.5 G Plast.	1 L Plast.	40 mL Vial	500 NaOH	120 Sterile	Other	
																					Start
Temescal Creek	2	6	2/2/10	1330																	1746
Murietta @ First	2	6	2/2/10	1430																	0191
Murietta @ Rancho	2	6		1405																	169
Murietta @ Rancho	2	6		1410																	1791
Murietta @ Via Murietta	2	6		145																	1792
Murietta @ Winchester	2	6		1430																	165
Murietta @ Conjunction (Confluence)	2	6		1330																	178

Sample Attestation: I certify that the sample identification and collection information contained in this chain of custody is correct and accurate and that samples were collected in accordance with EPA sampling protocol.

Transfers	Relinquished By	Date/Time	Received By	Date/Time
1	<u>[Signature]</u>	<u>2/2/10 1555</u>	<u>[Signature]</u>	<u>2-2-10 1555</u>
2				
3				
4				

Print Name / Date: Mark Smith 2/2/10
 Signature: [Signature]

NA3 / Bod / Cod / MVF



Eastern Municipal Water District
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 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000376 6981

Lab ID: **E100202078** Date Received: 2/2/2010 15:57 Matrix: Liquid
 Sample ID: **TEMECULA CREEK** Date Collected: 2/2/2010 13:30

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	43	mg/L	20	15	1		2/3/2010		NS	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	1700	MPN/100 mL	2		1		2/2/2010		CG	
Fecal Coliform by MTF	20	MPN/100 mL			1		2/2/2010		CG	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.7	1		2/3/2010		SD	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	<2	mg/L	2	0	1		2/3/2010		SD	

Report ID: 7837

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ANALYTICAL RESULTS

Workorder: E1000376 6981

Lab ID: **E100202079** Date Received: 2/2/2010 15:57 Matrix: Liquid
 Sample ID: **MURRIETA @ FIRST** Date Collected: 2/2/2010 14:30

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	63	mg/L	20	15	1			2/3/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	1100	MPN/100 mL	2		1			2/2/2010		CG	
Fecal Coliform by MTF	<20	MPN/100 mL			1			2/2/2010		CG	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.7	1			2/3/2010		SD	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	14	mg/L	2	0	1			2/3/2010		NS	

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ANALYTICAL RESULTS

Workorder: E1000376 6981

Lab ID: **E100202080** Date Received: 2/2/2010 15:57 Matrix: Liquid
 Sample ID: **MURRIETA @ RANCHO CALIF RD** Date Collected: 2/2/2010 14:05

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	50	mg/L	20	15	1		2/3/2010		NS	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	3000	MPN/100 mL	2		1		2/2/2010		CG	
Fecal Coliform by MTF	140	MPN/100 mL			1		2/2/2010		CG	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.7	1		2/3/2010		SD	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	3.5	mg/L	2	0	1		2/3/2010		SD	

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ANALYTICAL RESULTS

Workorder: E1000376 6981

Lab ID: **E100202081** Date Received: 2/2/2010 15:57 Matrix: Liquid
 Sample ID: **MURRIETA @ RANCHO WAY** Date Collected: 2/2/2010 14:10

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	52	mg/L	20	15	1			2/3/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	1700	MPN/100 mL	2		1			2/2/2010		CG	
Fecal Coliform by MTF	110	MPN/100 mL			1			2/2/2010		CG	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.7	1			2/3/2010		SD	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	2.6	mg/L	2	0	1			2/3/2010		SD	

Report ID: 7837

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ANALYTICAL RESULTS

Workorder: E1000376 6981

Lab ID: **E100202082** Date Received: 2/2/2010 15:57 Matrix: Liquid
 Sample ID: **MURRIETA @ VIA MONTEZUMA** Date Collected: 2/2/2010 14:15

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	52	mg/L	20	15	1		2/3/2010		NS	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	2800	MPN/100 mL	2		1		2/2/2010		CG	
Fecal Coliform by MTF	20	MPN/100 mL			1		2/2/2010		CG	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.7	1		2/3/2010		SD	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	2.9	mg/L	2	0	1		2/3/2010		SD	

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ANALYTICAL RESULTS

Workorder: E1000376 6981

Lab ID: **E100202083** Date Received: 2/2/2010 15:57 Matrix: Liquid
 Sample ID: **MURRIETA @ WINCHESTER** Date Collected: 2/2/2010 14:30

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	45	mg/L	20	15	1		2/3/2010		NS	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	2200	MPN/100 mL	2		1		2/2/2010		CG	
Fecal Coliform by MTF	40	MPN/100 mL			1		2/2/2010		CG	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.7	1		2/3/2010		SD	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	2.8	mg/L	2	0	1		2/3/2010		SD	

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ANALYTICAL RESULTS

Workorder: E1000376 6981

Lab ID: **E100202084** Date Received: 2/2/2010 15:57 Matrix: Liquid
 Sample ID: **CONFLUENCE** Date Collected: 2/2/2010 13:30

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	48	mg/L	20	15	1		2/3/2010		NS	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	500	MPN/100 mL	2		1		2/2/2010		CG	
Fecal Coliform by MTF	20	MPN/100 mL			1		2/2/2010		CG	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.7	1		2/3/2010		SD	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	3.3	mg/L	2	0	1		2/3/2010		SD	

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Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 18, 2010
		Receive Date:	February 02, 2010
Client Project:	TV-RWRF SSO	Lab	E100202078
Work Order:	E1000376	Number(s):	E100202079
Chain ID:	6981		E100202080
			E100202081
Sampler:	Alfred Javier - 1001		E100202082
			E100202083
			E100202084

QUALITY CONTROL SECTION

Case Narrative: *"SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.*

Quality Control Review



Batch CHM/3319 **HBN** 5894
Title COD **Status** RE
Create Date 2/3/2010 **Analyst** NS

SCAN MISSING

1 37208-LFB for HBN 5894 [CHM/3319]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 179241	Instru HACH Col ID File	Run Date 2/3/2010 16:12 Hold Date 3/3/2010 10:17	Dilution 0.1 Analyst NS CC OK
--	---	---	---

Prep Information

Procedure COD Method COD, HACH 8000 Schedule 179241	Batch CHM/3319 HBN 5894 Instru HACH	Prep Date 2/3/2010 16:12 Hold Date 3/3/2010 10:17	Dilution 0.1 Analyst NS CC OK
--	--	--	---

Initial Volume 2 mL Default 2 mL
 Final Volume 2 mL Default 2 mL

Analyte	Posted Result		Result	MDL	RDL		Spike Amt	% Rec	Limits
Chemical Oxygen Demand	43	mg/L	43	1.5	2.0	mg/L	40 mg/L	108	

Quality Control Review



Batch CHM/3319 **HBN** 5894
Title COD **Status** RE
Create Date 2/3/2010 **Analyst** NS

SCAN MISSING

2 37251-LFB for HBN 5894 [CHM/3319]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure COD	Instru HACH	Run Date 2/3/2010 16:12	Dilution 1
Method COD, HACH 8000	Col ID	Hold Date 3/3/2010 16:05	Analyst NS
Schedule 179375	File		CC OK

Prep Information

Procedure COD	Batch CHM/3319	Prep Date 2/3/2010 16:12	Dilution 1
Method COD, HACH 8000	HBN 5894	Hold Date 3/3/2010 16:05	Analyst NS
Schedule 179375	Instru HACH		CC OK

Initial Volume	2 mL	Default	2 mL
Final Volume	2 mL	Default	2 mL

Analyte	Posted		MDL	RDL	Spike	% Rec	Limits
	Result	Result					
Chemical Oxygen Demand	400	mg/L 400	15	20	mg/L 400	100	

Quality Control Review



Batch CHM/3319 **HBN** 5894
File COD **Status** RE
Create Date 2/3/2010 **Analyst** NS

SCAN MISSING

3 E100202078-TEMECULA CREEK

Type GRAB **Matrix** Liquid **Collected** 2/2/2010 13:30 **% Moisture**
Client ERC **WO** E1000376 **Work ID** 6981 **Original** HSN

Analytical Information

Procedure COD **Instru** HACH **Run Date** 2/3/2010 16:12 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 3/2/2010 13:30 **Analyst** NS
Schedule 178843 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3319 **Prep Date** 2/3/2010 16:12 **Dilution** 1
Method COD, HACH 8000 **HBN** 5894 **Hold Date** 3/2/2010 13:30 **Analyst** NS
Schedule 178843 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	mg/L	Result	MDL	RDL	mg/L	Low	High	Hist
Chemical Oxygen Demand	43	mg/L	43	15	20	mg/L			41, 39, 45

Quality Control Review



Batch CHM/3319 **HBN** 5894
File COD **Status** RE
Create Date 2/3/2010 **Analyst** NS

SCAN MISSING

4 37209-TEMECULA CREEK(37139LFM)

Type LFM **Matrix Liquid** **Collected** 2/2/2010 13:30 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 37139

Analytical Information

Procedure COD **Instru** HACH **Run Date** 2/3/2010 16:12 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 3/2/2010 13:30 **Analyst** NS
Schedule 179242 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3319 **Prep Date** 2/3/2010 16:12 **Dilution** 1
Method COD, HACH 8000 **HBN** 5894 **Hold Date** 3/2/2010 13:30 **Analyst** NS
Schedule 179242 **Instru** HACH **CC** OK

Initial Volume 48 mL **Default** 2 mL
Final Volume 50 mL **Default** 2 mL

Analyte	Posted		Result	MDL	RDL	Original	Spike	% Rec	Limits
	Result	mg/L							
Chemical Oxygen Demand	54	mg/L	54	16	21	mg/L	43	13 mg/L	88

Quality Control Review



Batch CHM/3319 **HBN** 5894
Title COD **Status** RE
Create Date 2/3/2010 **Analyst** NS

SCAN MISSING

5 37210-TEMECULA CREEK(37139LFMD)

Type LFMD **Matrix** Liquid **Collected** 2/2/2010 13:30 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 37139

Analytical Information

Procedure COD **Instru** HACH **Run Date** 2/3/2010 16:12 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 3/2/2010 13:30 **Analyst** NS
Schedule 179243 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3319 **Prep Date** 2/3/2010 16:12 **Dilution** 1
Method COD, HACH 8000 **HBN** 5894 **Hold Date** 3/2/2010 13:30 **Analyst** NS
Schedule 179243 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Max RPD
Chemical Oxygen Demand	56	56 mg/L	15	20	mg/L			88		3.64	

Quality Control Review



Batch CHM/3324 **HBN** 5910
Title AMMONIA **Status** RE
Create Date 2/3/2010 **Analyst** SD

SCAN MISSING

1 37242-LRB for HBN 5910 [CHM/3324]

Type LRB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure	Instru	Run Date	Dilution
NH3-4500-L	FOSS	2/3/2010 16:07	
Method NH3, SM4500 NH3 C	Col ID	Hold Date 3/3/2010 14:48	Analyst SD
Schedule 179334	File		CC OK
HDM http://LIMSSDMS/servlet/WebVisionServlet/%3cV2%3e/SDMS71/40/202AF7A8-AF8A-482a-ADCF-5980436C60BD/index.html?singleid=20			

Prep Information

Procedure	Batch	Prep Date	Dilution
NH3-4500-L	CHM/3324	2/3/2010 16:07	
Method NH3, SM4500 NH3 C	HBN 5910	Hold Date 3/3/2010 14:48	Analyst SD
Schedule 179334	Instru FOSS		CC OK
Initial Volume 100 mL	Default 100 mL		
Final Volume 100 mL	Default 100 mL		

Analyte	Posted Result	Result	MDL	RDL
NUTRIENTS	1			
Ammonia (NH3-N)	0	mg/L	<2.0	0.7 2.0 mg/L
Total Organic Nitrogen		mg/L		
Total Inorganic Nitrogen		mg/L		

Quality Control Review



Batch CHM/3324 **HBN** 5910
File AMMONIA **Status** RE
Create Date 2/3/2010 **Analyst** SD

SCAN MISSING

2 37243-LFB for HBN 5910 [CHM/3324]

Type LFB **Matrix** Liquid **Collected** **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN**

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/3/2010 16:07 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/3/2010 14:48 **Analyst** SD
Schedule 179335 **File** **CC** OK
HDM <http://LIMSSDMS/servletWebVisionServlet/%3cV2%3e/SDMS71/40/202AF7A8-AF8A-482a-ADCF-5980436C60BD/index.html?singleid=20>

Prep Information

Procedure NH3-4500-L **Batch** CHM/3324 **Prep Date** 2/3/2010 16:07 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5910 **Hold Date** 3/3/2010 14:48 **Analyst** SD
Schedule 179335 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted		Result	MDL	RDL	Spike Amt	% Rec Limits	
	Result	1					Rec	Limits
NUTRIENTS		1						
Ammonia (NH3-N)	9.9	mg/L	9.9	0.7	2.0	mg/L	10 mg/L	98.7 80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3324 **HBN** 5910
File AMMONIA **Status** RE
Create Date 2/3/2010 **Analyst** SD

SCAN MISSING

3 E100202077-DIAMOND VALLEY E. REC

Type GRAB **Matrix Liquid** **Collected** 2/2/2010 00:00 **% Moisture**
Client RES DEV HSJ **WO** E1000375 **Work ID** 6980 **Original HSN**

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/3/2010 16:07 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/2/2010 00:00 **Analyst** SD
Schedule 178823 **File** **CC** OK
HDM <http://LIMS.DMS/servlet/WebVisionServlet?%3cV2%3e/SDMS71/40/202AF7A8-AF8A-482a-ADCF-5980436C60BD/index.html?singleid=20>

Prep Information

Procedure NH3-4500-L **Batch** CHM/3324 **Prep Date** 2/3/2010 16:07 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5910 **Hold Date** 3/2/2010 00:00 **Analyst** SD
Schedule 178823 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
NUTRIENTS	-3						
Ammonia (NH3-N)	0	mg/L	2.0 U	0.7	2.0	mg/L	
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3324 **HBN** 5910
Title AMMONIA **Status** RE
Create Date 2/3/2010 **Analyst** SD

SCAN MISSING

4 37244-Secondary - PV2 RWRF(37192LFM)

Type LFM **Matrix** Liquid **Collected** 2/3/2010 07:10 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 37192

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/3/2010 16:07 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/3/2010 07:10 **Analyst** SD
Schedule 179336 **File** **CC** OK
HDM <http://LIMSSDMS/servletWebVisionServlet?%3cV2%3e/SDMS71/40/202AF7A8-F8A-482a-ADCF-5980436C60BD/index.html?singleid=20>

Prep Information

Procedure NH3-4500-L **Batch** CHM/3324 **Prep Date** 2/3/2010 16:07 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 5910 **Hold Date** 3/3/2010 07:10 **Analyst** SD
Schedule 179336 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
NUTRIENTS	1							
Ammonia (NH3-N)	9.7	mg/L 9.7	0.7	2.0	mg/L	0 10 mg/L	97.2	80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3324 **HBN** 5910
Title AMMONIA **Status** RE
Create Date 2/3/2010 **Analyst** SD

SCAN MISSING

5 37245-Secondary - PV2 ...(37192LFMD)

Type LFMD	Matrix Liquid	Collected 2/3/2010 07:10	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN 37192

Analytical Information

Procedure NH3-4500-L	Instru FOSS	Run Date 2/3/2010 16:07	Dilution
Method NH3, SM4500 NH3 C	Col ID	Hold Date 3/3/2010 07:10	Analyst SD
Schedule 179337	File		CC OK
HDM http://LIMSSDMS/servlet/WebVisionServlet/%3cV2%3e/SDMS71/40/202AF7A8-AF8A-482a-ADCF-5980436C60BD/index.html?singleid=20			

Prep Information

Procedure NH3-4500-L	Batch CHM/3324	Prep Date 2/3/2010 16:07	Dilution
Method NH3, SM4500 NH3 C	HBN 5910	Hold Date 3/3/2010 07:10	Analyst SD
Schedule 179337	Instru FOSS		CC OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	MS			Max RPD	
							% Rec	% Rec	Limits		
NUTRIENTS	1										
Ammonia (NH3-N)	9.8	mg/L	9.8	0.7	2.0	mg/L		97.2		1.03	10
Total Organic Nitrogen		mg/L									
Total Inorganic Nitrogen		mg/L									

Quality Control Review



Batch CHM/3318 **HBN** 5893
File BOD **Status** RE
Create Date 2/3/2010 **Analyst** NS

DATA SCANNED

1 37206-LFB for HBN 5893 [CHM/3318]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure BOD	Instru BOD-01	Run Date 2/3/2010 12:19	Dilution 1
Method BOD, SM 5210B	Col ID	Hold Date 2/4/2010 10:15	Analyst NS
Schedule 179239	File		CC OK

Prep Information

Procedure BOD	Batch CHM/3318	Prep Date 2/3/2010 12:19	Dilution 1
Method BOD, SM 5210B	HBN 5893	Hold Date 2/4/2010 10:15	Analyst NS
Schedule 179239	Instru BOD-01		CC OK

Initial Volume 300 mL **Default** 300 mL
Final Volume 300 mL **Default** 300 mL

Analyte	Posted	Result	MDL	RDL	Spike	% Rec	Limits
	Result						
CHEMISTRY RESULTS	1						
BOD	220	mg/L 220	0	2	mg/L 198 mg/L	114	<



Multiple Tube Fermentation

*2360

Lab ID:	E100202078	Bottle #:	1740
Line Item (Samp ID)	TEMECULA CREEK	Collect Date/Time:	2/2/2010 1:30:00 PM

	1	2	3	4	5
LTB 24 hr	+	G	+	G	+
LTB 48 hr		+		+	
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	-	-	-	-

Dilution
~~1.0~~

TP MPN/100 ml
1,700

TC+ 5
FC+ 1

FC MPN/100 ml
20

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	+	+	+	G
BGB 24 hr	+	+	+	+	
BGB 48 hr					
EC 24 hr	-	-	-	-	

Dilution
~~1.0~~ 0.1

Media/Lot / Exp. Date	96300-1 1/10/10
BUFFER	
SSTLB	λ-2/15/10
DSLTB	
BGB	2/10/10
EC	4/22/10

TC+ 4
FC+ φ

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					+
BGB 24 hr					+
BGB 48 hr					
EC 24 hr					-

Dilution
~~0.1~~ 0.01

TC+ 1
FC+ φ

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
~~0.01~~
0.001

TC+ 0
FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	Wm	Wm	Wm	Wm	
Date	2/2/10	2/3/10	2/4/10	2-5-10	
Time	1620	1422	1445	1442	

INITIALS	
INPUT	Wm
APPROVED	Wm

EC QC: E. aerogenes +/-	-
E. coli +/-	+

Analyst Comments:



Multiple Tube Fermentation

* 2360

Lab ID:	E100202079	Bottle #:	0194
Line Item (Samp ID)	MURRIETA @ FIRST	Collect Date/Time:	2/2/2010 2:30:00 PM

	1	2	3	4	5
LTB 24 hr	a	+	a	a	+
LTB 48 hr	+		+	+	
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	a	a	-	-	-

Dilution
10^{-1.0}

TP MPN/100 ml
1,100

FC MPN/100 ml
220

TC+ 5
FC+ ϕ

new 2/2/10

	1	2	3	4	5
LTB 24 hr	a	a	a	a	a
LTB 48 hr	+	a	a	+	+
BGB 24 hr	+			+	+
BGB 48 hr					
EC 24 hr	-			-	-

Dilution
10^{-0.1}

	Media Lot / Exp. Date
BUFFER	96300-1 4/10/10
SSTLB	2/15/10
DSLTB	
BGB	2/10/10
EC	4/22/10

TC+ 3
FC+ ϕ

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr	a	a	a	a	+
BGB 24 hr					+
BGB 48 hr					
EC 24 hr					-

Dilution
10^{-0.1}

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
10^{-0.01}

TC+ 1
FC+ ϕ

TC+ 0
FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	AMW	AMW	AMW	AMW		INPUT: <i>[Signature]</i>
Date	2/2/10	2/3/10	2/11/10	2-5-10		APPROVED: <i>[Signature]</i>
Time	1620	1422	1445	1443		

EC QC: E. aerogenes +/-	-	
E. coli +/-	+	

Analyst Comments:



Multiple Tube Fermentation

* 2360

Lab ID:	E100202080	Bottle #:	1697
Line Item (Samp ID)	MURRIETA @ RANCHO CALIF RD	Collect Date/Time:	2/2/2010 2:05:00 PM

	1	2	3	4	5
LTB 24 hr	G	+	+	+	+
LTB 48 hr	+				
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	+	+	-	+

Dilution

~~10~~
100

TP MPN/100 ml
3000

FC MPN/100 ml
140

TC+	5
FC+	3

	1	2	3	4	5
LTB 24 hr	+	+	G	G	G
LTB 48 hr			+	+	+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	-	-	-

Dilution

~~10~~
0.1

Media Lot / Exp. Date
BUFFER 96300-1 11/10/10
SSTLB 2/15/10
DSLTB
BGB 2/10/10
EC 4/22/10

TC+	5
FC+	2

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr	G	G	G	G	+
BGB 24 hr					+
BGB 48 hr					
EC 24 hr					-

Dilution

~~0.1~~
0.01

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.01~~
0.001

TC+	1
FC+	φ

TC+	0
FC+	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	ASW	ASW	ASW	ASW		INPUT: [Signature]
Date	2/2/10	2/3/10	2/4/10	2-5-10		APPROVED: [Signature]
Time	1020	1422	1445	1444		

EC QC: E. aerogenes +/-	-
E. coli +/-	+

Analyst Comments:



Multiple Tube Fermentation

9360

Lab ID:	E100202081	Bottle #:	1790
Line Item (Samp ID)	MURRIETA @ RANCHO WAY	Collect Date/Time:	2/2/2010 2:10:00 PM

	1	2	3	4	5
LTB 24 hr	+	+	G	G	+
LTB 48 hr			+	+	
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	-	-	+

Dilution

~~10~~
1:0

TP MPN/100 ml
1,700

FC MPN/100 ml
110

TC +

5

FC +

3

	1	2	3	4	5
LTB 24 hr	G	+	G	G	G
LTB 48 hr	+		+	+	G
BGB 24 hr	+	+	+	+	
BGB 48 hr					
EC 24 hr	-	+	-	-	

Dilution

~~10~~
0:1

Media Lot / Exp. Date	
BUFFER	96300-1 11/01/10
SSTLB	2/15/10
DSLTB	
BGB	2/10/10
EC	4/22/10

TC +

4

FC +

1

	1	2	3	4	5
LTB 24 hr	G	-	+	G	-
LTB 48 hr	G	G		G	-
BGB 24 hr			+		
BGB 48 hr					
EC 24 hr			-		

Dilution

~~10~~
0:01

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~10~~
6:001

TC +

1

FC +

0

TC +

0

FC +

0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	AW	AW	AW	G		AW
Date	2/2/10	2/3/10	2/4/10	2-5-10		AW
Time	10:00	14:22	14:45	14:45		AW

EC QC: E. aerogenes +/-	-	
E. coli +/-	+	

Analyst Comments:



Multiple Tube Fermentation

2360

Lab ID:	E100202082	Bottle #:	1792
Line Item (Samp ID)	MURRIETA @ VIA MONTEZUMA	Collect Date/Time:	2/2/2010 2:15:00 PM

	1	2	3	4	5
LTB 24 hr	G	+	G	G	G
LTB 48 hr	+		+	+	+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	+	-	-	-

Dilution
10
1.0

TP MPN/100 ml
2800

TC+ 5
FC+ 1

FC MPN/100 ml
20

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	+	+	G	+
BGB 24 hr	+	+	+		+
BGB 24 hr					
EC 24 hr	-	-	-		-

Dilution
10
0.1

	Media Lot / Exp. Date
BUFFER	96300-1 11/10/10
SSTLB	2/15/10
DSLTB	
BGB	2/10/10
EC	4/22/10

TC+ 4
FC+ ϕ

	1	2	3	4	5
LTB 24 hr			G		
LTB 48 hr	+	+	G	+	G
BGB 24 hr	+	+		+	
BGB 48 hr					
EC 24 hr	-	-		-	

Dilution
0.1
0.01

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
0.01
0.001

TC+ 3
FC+ ϕ

TC+ 0
FC+ 0

	SETUP	24 hr.	48 hr.	72hr	96hr	INITIALS
Initials:	ASW	ASW	ASW	ASW		INPUT: [Signature]
Date	2/2/10	2/3/10	2/4/10	2-5-10		APPROVED: [Signature]
Time	1620	1422	1445	1446		[Signature]

EC QC: E. aerogenes +/-	-	
E. coli +/-	+	

Analyst Comments:



Multiple Tube Fermentation

2360

Lab ID:	E100202083	Bottle #:	165
Line Item (Samp ID)	MURRIETA @ WINCHESTER	Collect Date/Time:	2/2/2010 2:30:00 PM

	1	2	3	4	5
LTB 24 hr	G	G	+	+	G
LTB 48 hr	+	+			+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	-	-	+	+

Dilution

~~1.0~~
1.0

2-8-10
0

TP MPN/100 ml
1,700 2,200

FC MPN/100 ml
40

TC+

5
2

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	+	+	+	G
BGB 24 hr	+	+	+	+	
BGB 48 hr					
EC 24 hr	-	-	-	-	

Dilution

~~1.0~~
0.1

BUFFER

Media Lot / Exp. Date
96300-1 1/6/10
SSTLB
2/15/10
DSLTB
BGB
2/10/10
EC
4/22/10

TC+

4
φ

BGB

EC

	1	2	3	4	5
LTB 24 hr	-	-	G	G	-
LTB 48 hr	+	-	G	G	-
BGB 24 hr	+				
BGB 48 hr					
EC 24 hr	-				

Dilution

~~0.1~~
0.01

LTB 24 hr

LTB 48 hr

BGB 24 hr

BGB 48 hr

EC 24 hr

	1	2	3	4	5
LTB 24 hr	-	-	-	-	-
LTB 48 hr	G	+	-	-	-
BGB 24 hr	+				
BGB 48 hr					
EC 24 hr	-				

Dilution

~~0.1~~
0.001

TC+

FC+

TC+

FC+

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	WJM	WJM	WJM	WJM		INPUT: WJM
Date	2/2/10	2/3/10	2/4/10	2-5-10		APPROVED: WJM
Time	1020	1422	1445	14:47		

EC QC: E. aerogenes +/-	+	
E. coli +/-	+	

Analyst Comments:



Multiple Tube Fermentation

2360

Lab ID:	E100202084	Bottle #:	178A
Line Item (Samp ID)	CONFLUENCE	Collect Date/Time:	2/2/2010 1:30:00 PM

1	2	3	4	5
+	a	a	a	+
	+	+	+	
+	+	+	+	+
-	-	-	-	+

Dilution

10
1.0

TP MPN/100 ml
500

TC+	5
FC+	1

FC MPN/100 ml
20

1	2	3	4	5
a	a	a	a	a
+	+	a	a	a
+	+			
-	-			

Dilution

10
0.1

Media Lot/ Exp. Date
BUFFER 96300+ 11/10/10
SSTLB 2/15/10
DSLTB
BGB 2/10/10
EC 4/22/10

TC+	2
FC+	φ

1	2	3	4	5
a	a	-	a	-
a	a	a	-	-

Dilution

10
0.01

TC+	0
FC+	0

1	2	3	4	5
a	a	-	-	-

Dilution

10
0.001

TC+	0
FC+	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	VSR	VSR	VSR	ag		INPUT: [Signature]
Date	2/2/10	2/3/10	2/4/10	2-5-10		APPROVED: [Signature]
Time	1620	1422	1445	1448		

EC QC: E. aerogenes +/-	-	
E. coli +/-	+	

Analyst Comments:

**Sampling
Laboratory Reports**

February 9, 2010



CERTIFICATE OF ANALYSIS

Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 18, 2010 Receive Date: February 09, 2010
Client Project: TV-RWRF SSO	Lab Number(s): E100209053 E100209054 E100209055 E100209056 E100209057 E100209058 E100209059
Work Order: E1000453 Chain ID: 7059	
Sampler: Alfred Javier - 1001	

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Kenneth Marshall
Manager of Laboratory & Water Quality Services
Eastern Municipal Water District



7059

Chain of Custody

Received By / Temp: OS / 11.2°C
 Received Date / Time: 2/9/10 (1300)
 Delivered By: MS 2023



Complaints / Shutdowns
 Name: _____
 Address: _____
 City, State, Zip: _____
 Maximo #: _____

Inspections
 SPORT #: _____
 Tract #: _____
 Acct #: () _ _ _ _ 15163(_) _ _ _ _
 Collect Seq: 1st Day / 2nd Day / Resample

Sample ID	Bottle #	Grab / Composite	Collection		Field Tests				Containers												
			(Grab) Start Date	End Time	CR	Temp	PH	EC	D	Depth	1 LAG	250 mL AG	500 mL RL	1 G Plast.	0.5 G Plast.	1 L Plast	40 ml Vial	500 NaOH	120 Sterile	Other	
DonFivence	1341	G	2/9/10 9:50	---																	
Terracota Creek	1266	G	2/9/10 9:55	---																	
Near 1st	1333	G	2/9/10 10:15	---																	
Rancho California	1320	G	2/9/10 10:30	---																	
Rancho Way	1461	G	2/9/10 10:35	---																	
Via Monte Zuma	1516	G	2/9/10 10:45	---																	
Winchester	1520	G	2/9/10 11:00	---																	

Transfers	Relinquished By	Date/Time	Received By	Date/Time
1	<u>Jan F...</u>	<u>2/9/10 13:00</u>	<u>[Signature]</u>	<u>2/9/10 13:10</u>
2				
3				
4				

Sample Attestation: I certify that the sample identification and collection information contained in this chain of custody is correct and accurate and that samples were collected in accordance with EPA sampling protocol.

Print Name / Date: Mark Smith 2/09/10
 Signature: [Signature]



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ANALYTICAL RESULTS

Workorder: E1000453 7059

Lab ID: **E100209053** Date Received: 2/9/2010 13:10 Matrix: Liquid
 Sample ID: **CONFLUENCE** Date Collected: 2/9/2010 09:50

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/11/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	8000	MPN/100 mL	2		1			2/9/2010		SW	
Fecal Coliform by MTF	300	MPN/100 mL			1			2/9/2010		SW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/9/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	<2	mg/L	2	0	1			2/10/2010		DW	

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ANALYTICAL RESULTS

Workorder: E1000453 7059

Lab ID: **E100209054** Date Received: 2/9/2010 13:10 Matrix: Liquid
 Sample ID: **TEMECULA CREEK** Date Collected: 2/9/2010 09:55

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/11/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	1400	MPN/100 mL	2		1			2/9/2010		SW	
Fecal Coliform by MTF	230	MPN/100 mL			1			2/9/2010		SW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/9/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	<2	mg/L	2	0	1			2/15/2010		DW	

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ANALYTICAL RESULTS

Workorder: E1000453 7059

Lab ID: **E100209055**
 Sample ID: **NEAR 1ST**

Date Received: 2/9/2010 13:10 Matrix: Liquid
 Date Collected: 2/9/2010 10:15

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/11/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	5000	MPN/100 mL	2		1			2/9/2010		SW	
Fecal Coliform by MTF	300	MPN/100 mL			1			2/9/2010		SW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/9/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	<2	mg/L	2	0	1			2/10/2010		DW	

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ANALYTICAL RESULTS

Workorder: E1000453 7059

Lab ID: **E100209056** Date Received: 2/9/2010 13:10 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO CA RD** Date Collected: 2/9/2010 10:30

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/11/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	3000	MPN/100 mL	2		1			2/9/2010		NS	
Fecal Coliform by MTF	800	MPN/100 mL			1			2/9/2010		NS	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/9/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	<2	mg/L	2	0	1			2/10/2010		DW	

Report ID: 7914

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ANALYTICAL RESULTS

Workorder: E1000453 7059

Lab ID: **E100209057** Date Received: 2/9/2010 13:10 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO WAY** Date Collected: 2/9/2010 10:35

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	<75	mg/L	75	15	1		2/11/2010		NS	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	3000	MPN/100 mL	2		1		2/9/2010		SW	
Fecal Coliform by MTF	270	MPN/100 mL			1		2/9/2010		SW	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1		2/9/2010		MK	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	<2	mg/L	2	0	1		2/10/2010		DW	

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ANALYTICAL RESULTS

Workorder: E1000453 7059

Lab ID: **E100209058** Date Received: 2/9/2010 13:10 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ VIA MONTAZUMA** Date Collected: 2/9/2010 10:45

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/11/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	3000	MPN/100 mL	2		1			2/9/2010		SW	
Fecal Coliform by MTF	220	MPN/100 mL			1			2/9/2010		SW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/9/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	<2	mg/L	2	0	1			2/10/2010		DW	

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ANALYTICAL RESULTS

Workorder: E1000453 7059

Lab ID: **E100209059** Date Received: 2/9/2010 13:10 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ WINCHESTER** Date Collected: 2/9/2010 11:00

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	<75	mg/L	75	15	1		2/11/2010		NS	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	3000	MPN/100 mL	2		1		2/9/2010		SW	
Fecal Coliform by MTF	230	MPN/100 mL			1		2/9/2010		SW	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1		2/9/2010		MK	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	<2	mg/L	2	0	1		2/10/2010		DW	

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Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 18, 2010
		Receive Date:	February 09, 2010
Client Project:	TV-RWRF SSO	Lab	E100209053
Work Order:	E1000453	Number(s):	E100209054
Chain ID:	7059		E100209055
			E100209056
Sampler:	Alfred Javier - 1001		E100209057
			E100209058
			E100209059

QUALITY CONTROL SECTION

Case Narrative: *"SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.*

Quality Control Review



Batch CHM/3366 **HBN** 6013
File BOD **Status** RE
Create Date 2/10/2010 **Analyst** NS

DATA SCANNED

1 37704-LFB for HBN 6013 [CHM/3366]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure BOD	Instru BOD-01	Run Date 2/10/2010 12:56	Dilution 1
Method BOD, SM 5210B	Col ID	Hold Date 2/11/2010 10:28	Analyst NS
Schedule 181543	File		CC OK

Prep Information

Procedure BOD	Batch CHM/3366	Prep Date 2/10/2010 12:56	Dilution 1
Method BOD, SM 5210B	HBN 6013	Hold Date 2/11/2010 10:28	Analyst NS
Schedule 181543	Instru BOD-01		CC OK

Initial Volume 300 mL **Default** 300 mL
Final Volume 300 mL **Default** 300 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
CHEMISTRY RESULTS							
BOD	1	230 mg/L	0	2	198 mg/L	116	

Quality Control Review



Batch CHM/3360 **HBN** 6001
Title AMMONIA **Status** RE
Create Date 2/9/2010 **Analyst** MK

SCAN MISSING

1 37648-LRB for HBN 6001 [CHM/3360]

Type LRB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 181135	Instru FOSS Col ID File	Run Date 2/9/2010 16:26 Hold Date 3/9/2010 14:05	Dilution Analyst MK CC OK
--	--	---	---

Prep Information

Procedure NH3-4500-L Method NH3, SM4500 NH3 C Schedule 181135	Batch CHM/3360 HBN 6001 Instru FOSS	Prep Date 2/9/2010 16:26 Hold Date 3/9/2010 14:05	Dilution Analyst MK CC OK
--	--	--	---

Initial Volume 100 mL Default 100 mL
 Final Volume 100 mL Default 100 mL

Analyte	Posted Result	Result	MDL	RDL
NUTRIENTS	1			
Ammonia (NH3-N)	0	mg/L <2.0	0.9	2.0 mg/L
Total Organic Nitrogen		mg/L		
Total Inorganic Nitrogen		mg/L		

Quality Control Review



Batch CHM/3360 **HBN** 6001
Rule AMMONIA **Status** RE
Create Date 2/9/2010 **Analyst** MK

SCAN MISSING

2 37649-LFB for HBN 6001 [CHM/3360]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure NH3-4500-L	Instru FOSS	Run Date 2/9/2010 16:26	Dilution
Method NH3, SM4500 NH3 C	Col ID	Hold Date 3/9/2010 14:05	Analyst MK
Schedule 181136	File		CC OK

Prep Information

Procedure NH3-4500-L	Batch CHM/3360	Prep Date 2/9/2010 16:26	Dilution
Method NH3, SM4500 NH3 C	HBN 6001	Hold Date 3/9/2010 14:05	Analyst MK
Schedule 181136	Instru FOSS		CC OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted		Result	MDL	RDL	Spike Amt	% Rec		Limits	
	Result	1					Rec	Limits		
NUTRIENTS		1								
Ammonia (NH3-N)	10		mg/L	10	0.9	2.0	mg/L	10 mg/L	100	80-120
Total Organic Nitrogen			mg/L							
Total Inorganic Nitrogen			mg/L							

Quality Control Review



Batch CHM/3360 **HBN** 6001
File AMMONIA **Status** RE
Create Date 2/9/2010 **Analyst** MK

SCAN MISSING

3 E100209053-CONFLUENCE

Type GRAB **Matrix** Liquid **Collected** 2/9/2010 09:50 **% Moisture**
Client ERC **WO** E1000453 **Work ID** 7059 **Original HSN**

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/9/2010 16:26 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/9/2010 09:50 **Analyst** MK
Schedule 181063 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3360 **Prep Date** 2/9/2010 16:26 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 6001 **Hold Date** 3/9/2010 09:50 **Analyst** MK
Schedule 181063 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
NUTRIENTS	1						
Ammonia (NH3-N)	0	mg/L	<2.0	0.9	2.0	mg/L	<2.0, <2.0, <2.0
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3360 **HBN** 6001
Title AMMONIA **Status** RE
Create Date 2/9/2010 **Analyst** MK

SCAN MISSING

4 37650-CONFLUENCE(37636LFM)

Type LFM **Matrix** Liquid **Collected** 2/9/2010 09:50 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 37636

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/9/2010 16:26 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/9/2010 09:50 **Analyst** MK
Schedule 181137 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3360 **Prep Date** 2/9/2010 16:26 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 6001 **Hold Date** 3/9/2010 09:50 **Analyst** MK
Schedule 181137 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
NUTRIENTS	1							
Ammonia (NH3-N)	9.6	mg/L 9.6	0.9	2.0	mg/L	0	10 mg/L	96.1 80-120
Total Organic Nitrogen		mg/L						
Total Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3360 **HBN** 6001
File AMMONIA **Status** RE
Create Date 2/9/2010 **Analyst** MK

SCAN MISSING

5 37651-CONFLUENCE(37636LFMD)

Type LFMD **Matrix** Liquid **Collected** 2/9/2010 09:50 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 37636

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/9/2010 16:26 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/9/2010 09:50 **Analyst** MK
Schedule 181138 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3360 **Prep Date** 2/9/2010 16:26 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 6001 **Hold Date** 3/9/2010 09:50 **Analyst** MK
Schedule 181138 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Max RPD
NUTRIENTS											
	1										
Ammonia (NH3-N)	9.6	mg/L	9.6	0.9	2.0	mg/L		96.1		0	10
Total Organic Nitrogen		mg/L									
Total Inorganic Nitrogen		mg/L									

Quality Control Review



Batch CHM/3363 **HBN** 6010
Rule COD **Status** RE
Create Date 2/10/2010 **Analyst** NS

SCAN MISSING

1 37693-LFB for HBN 6010 [CHM/3363]

Type LFB Client QC ACCOUNT	Matrix Liquid WO	Collected Work ID	% Moisture Original HSN
--------------------------------------	----------------------------	-----------------------------	-----------------------------------

Analytical Information

Procedure COD Method COD, HACH 8000 Schedule 181529	Instru HACH Col ID File	Run Date 2/11/2010 10:23 Hold Date 3/10/2010 10:08	Dilution 1 Analyst NS CC OK
--	---	---	---

Prep Information

Procedure COD Method COD, HACH 8000 Schedule 181529	Batch CHM/3363 HBN 6010 Instru HACH	Prep Date 2/11/2010 10:23 Hold Date 3/10/2010 10:08	Dilution 1 Analyst NS CC OK
--	--	--	---

Initial Volume	2 mL	Default	2 mL
Final Volume	2 mL	Default	2 mL

Analyte	Posted		Result	MDL	RDL	Spike	% Rec	Limits
	Result							
Chemical Oxygen Demand	62	mg/L	<75	15	75	mg/L	60 mg/L	104

Quality Control Review



Batch CHM/3363 **HBN** 6010
Rule COD **Status** RE
Create Date 2/10/2010 **Analyst** NS

SCAN MISSING

2 E100209053-CONFLUENCE

Type GRAB **Matrix** Liquid **Collected** 2/9/2010 09:50 **% Moisture**
Client ERC **WO** E1000453 **Work ID** 7059 **Original HSN**

Analytical Information

Procedure COD **Instru** HACH **Run Date** 2/11/2010 10:23 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 3/9/2010 09:50 **Analyst** NS
Schedule 181064 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3363 **Prep Date** 2/11/2010 10:23 **Dilution** 1
Method COD, HACH 8000 **HBN** 6010 **Hold Date** 3/9/2010 09:50 **Analyst** NS
Schedule 181064 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
Chemical Oxygen Demand	32	mg/L	<75	15	75	mg/L	48, 43, 52

Quality Control Review



Batch CHM/3363 **HBN** 6010
Rule COD **Status** RE
Create Date 2/10/2010 **Analyst** NS

SCAN MISSING

3 37694-CONFLUENCE(37636LFM)

Type LFM **Matrix** Liquid **Collected** 2/9/2010 09:50 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 37636

Analytical Information

Procedure COD **Instru** HACH **Run Date** 2/11/2010 10:23 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 3/9/2010 09:50 **Analyst** NS
Schedule 181530 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3363 **Prep Date** 2/11/2010 10:23 **Dilution** 1
Method COD, HACH 8000 **HBN** 6010 **Hold Date** 3/9/2010 09:50 **Analyst** NS
Schedule 181530 **Instru** HACH **CC** OK

Initial Volume 100 mL **Default** 2 mL
Final Volume 100 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits	
Chemical Oxygen Demand	58	mg/L	<75	15	75	mg/L	32	24 mg/L	106

Quality Control Review



Batch CHM/3363 **HBN** 6010
Rule COD **Status** RE
Create Date 2/10/2010 **Analyst** NS

SCAN MISSING

4 37695-CONFLUENCE(37636LFMD)

Type LFMD **Matrix** Liquid **Collected** 2/9/2010 09:50 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 37636

Analytical Information

Procedure COD **Instru** HACH **Run Date** 2/11/2010 10:23 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 3/9/2010 09:50 **Analyst** NS
Schedule 181531 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3363 **Prep Date** 2/11/2010 10:23 **Dilution** 1
Method COD, HACH 8000 **HBN** 6010 **Hold Date** 3/9/2010 09:50 **Analyst** NS
Schedule 181531 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Max RPD
Chemical Oxygen Demand	56	mg/L	<75	15	75	mg/L		106		3.51	



Multiple Tube Fermentation

2384

Lab ID:	E100209053	Bottle #:	134
Line Item (Samp ID)	CONFLUENCE	Collect Date/Time:	2/9/2010 9:50:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
10
1.0

TRJMPN/100 ml
9000 8000

5-3-0
5-5-3
5m 2/16/10

TC+	5
FC+	5

FC MPN/100 ml
300

5-1-0

	1	2	3	4	5
LTB 24 hr	G	G	G	+	+
LTB 48 hr	+	+	+		
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	-	-	G	+

Dilution
10
0.1

	Media Lot / Exp. Date
BUFFER	963001 11/10/10
SSTLB	2/4/10 / x 2/18/10
DSLTB	2/4/10 / x 2/18/10
BGB 24hr	2/3/10 / x 2/10/10
EC	1/22/10 / x 4/22/10

2/11/10

TC+	5
FC+	1

	1	2	3	4	5
LTB 24 hr	G	G	G	G	-
LTB 48 hr	+	G	+	G	+
BGB 24 hr	+		+		+
BGB 48 hr					
EC 24 hr	-		-		-

Dilution
10
0.01

	1	2	3	4	5
LTB 24 hr					G
LTB 48 hr					G
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
-0.01
0.001

TC+	3
FC+	0

TC+	0
FC+	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	WAW	WAW	WAW	SW		INPUT: WAW
Date	2/9/10	2/10/10	2/11/10	2/12/10		APPROVED: [Signature]
Time	1500	1527	1530	1444		

EC QC: E. aerogenes +/-	-
E. coli +/-	+

Analyst Comments: 48 hr BGB - 2/9/10 x 2/23/10



Multiple Tube Fermentation

2384

Lab ID:	E100209054	Bottle #:	1260
Line Item (Samp ID)	TEMECULA CREEK	Collect Date/Time:	2/9/2010 9:55:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
10
1.0

TP MPN/100 ml
1400

S-3-2

FC MPN/100 ml
230

S-0-0

TC+	5
FC+	5

	1	2	3	4	5
LTB 24 hr	a	a	a	a	a
LTB 48 hr	+	+	+	a	a
BGB 24 hr	+	+	+		
BGB 48 hr					
EC 24 hr	—				

Dilution
10
0.1

	Media Lot / Exp. Date
BUFFER	96300-1 11/10/10
SSTLB	2/4/10 / x 2/18/10
DSLTB	2/4/10 / x 2/18/10
BGB 24hr	2/3/10 / x 2/10/10
EC	1/22/10 / x 4/22/10

AW 2/9/10

TC+	3
FC+	0

	1	2	3	4	5
LTB 24 hr	a	a	a	a	a
LTB 48 hr	a	+	+	a	a
BGB 24 hr		+	+		
BGB 48 hr					
EC 24 hr	—				

Dilution
10
0.01

	1	2	3	4	5
LTB 24 hr	—	a	—	—	—
LTB 48 hr	—	a	—	—	—
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
10
0.001

TC+	2
FC+	0

TC+	0
FC+	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	AW	AW	AW	AW		INPUT: AW
Date	2/9/10	2/10/10	2/11/10	2/12/10		APPROVED: AW
Time	1500	1527	1530	1454		

EC QC: E. aerogenes +/-	—
E. coli +/-	+

Analyst Comments: 48hr BGB - 2/9/10 x - 2/23/10



Multiple Tube Fermentation

9304

Lab ID:	E100209055	Bottle #:	1333
Line Item (Samp ID)	NEAR 1ST	Collect Date/Time:	2/9/2010 10:15:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	+

Dilution
10
1.0

TP MPN/100 ml
5000

S-S-Z
5-2-0
Smw 2/16/10

FC MPN/100 ml
300

5-1-0

TC+	5
FC+	5

	1	2	3	4	5
LTB 24 hr	+	A	A	+	+
LTB 48 hr		+	+		
BGB 24 hr	+	+	+	+	+
BGB 24 hr					
EC 24 hr	+	-	-	-	-

Dilution
1.0
0.1

	Media Lot / Exp. Date
BUFFER	96306-1 4/10/10
SSTLB	2/4/10 / 2/18/10
DSLTB	2/4/10 / 2/18/10
BGB 24hr	2/3/10 / x-2/10/10
EC	1/22/10 / x 4/22/10

ASW
2/9/10

TC+	5
FC+	1

	1	2	3	4	5
LTB 24 hr	A	+	A	A	A
LTB 48 hr	A		A	+	A
BGB 24 hr	A	+		+	
BGB 48 hr					
EC 24 hr		-		-	

Dilution
0.1
0.01

	1	2	3	4	5
LTB 24 hr	A				
LTB 48 hr	A				
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
0.01
0.001

TC+	2
FC+	0

TC+	0
FC+	0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	ASW	ASW	ASW	SM	
Date	2/9/10	2/10/10	2/11/10	2/12/10	
Time	1500	1527	1530	1455	

INITIALS
INPUT: SM
APPROVED: [Signature]

EC QC: E. aerogenes +/-	-
E. coli +/-	+

Analyst Comments: 48hr BGB - 2/9/10 x-2/23/10



2382



Multiple Tube Fermentation

Lab ID:	E100209056	Bottle #:	1320
Line Item (Samp ID)	MURRIETA CREEK @ RANCHO CARD	Collect Date/Time:	2/9/2010 10:30:00 AM

1	2	3	4	5
+	+	+	+	+
+	+	+	+	+
+	+	+	+	+

Dilution
40 1.0

TP/MPN/100 ml
3000

S-1-0

FC MPN/100 ml
800

S-3-0

TC+ 5
FC+ 5

1	2	3	4	5
+	+	G	+	G
		+		+
+	+	+	+	+
+	+	-	+	-

Dilution
40 0.1

Media Lot/ Exp. Date
BUFFER 96300-1 11/10/10
SSTLB 2/4/10 / 2/18/10
DSLTLB 2/4/10 / 2/18/10
BGB 2/3/10 / x 2/10/10
EC 1/22/10 / x 4/22/10

BSW 2/9/10

TC+ 5
FC+ 3

1	2	3	4	5
-	-	-	G	G
+	G	+	G	G
+				
		-		
-				

Dilution
40 0.01

1	2	3	4	5

Dilution
0.01 0.001

TC+ 1
FC+ 0

TC+ 0
FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	BSW	BSW	BSW	SW	ms	INPUT: M
Date	2/9/10	2/10/10	2/11/10	2/12/10	2/13/10	APPROVED:
Time	1500	1500	1530	1456	1308	SW

EC QC: E. aerogenes +/-	-
E. coli +/-	+

Analyst Comments: 48hr BGB - 2/9/10 x 2/23/10



Multiple Tube Fermentation

2384

Lab ID:	E100209057	Bottle #:	146
Line Item (Samp ID)	MURRIETA CREEK @ RANCHO WAY	Collect Date/Time:	2/9/2010 10:35:00 AM

1	2	3	4	5
LTB 24 hr	+	+	+	+
LTB 48 hr				
BGB 24 hr	+	+	+	+
BGB 48 hr				
EC 24 hr	+	+	+	+

Dilution

~~10~~
1.0

TP MPN/100 ml
3000

5-5-+
5-1-0

TC+

5

FC+

4

FC MPN/100 ml
270

4-3-0

1	2	3	4	5
LTB 24 hr	a	a	+	+
LTB 48 hr	+	+		
BGB 24 hr	+	+	+	+
BGB 48 hr				
EC 24 hr	-	+	+	+

Dilution

~~1.0~~
0.1

TC+

5

FC+

3

Media Lot / Exp. Date
BUFFER 96300-1 11/10/10
SSTLB 2/4/10 / x 2/18/10
DSLTB 2/4/10 / x 2/18/10
BGB 2/3/10 / x 2/10/10
EC 1/22/10 / x 4/22/10

2/9/10

1	2	3	4	5
LTB 24 hr	a	a	a	a
LTB 48 hr	a	a	+	a
BGB 24 hr			+	
BGB 48 hr				
EC 24 hr			-	

Dilution

~~0.1~~
0.01

TC+

1

FC+

0

1	2	3	4	5
LTB 24 hr				
LTB 48 hr				
BGB 24 hr				
BGB 48 hr				
EC 24 hr				

Dilution

~~0.01~~
0.001

TC+

0

FC+

0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	VAN	VAN	VAN	SM		INPUT <i>SM</i>
Date	2/9/10	2/10/10	2/11/10	2/12/10		APPROVED <i>SM</i>
Time	1500	1527	1530	1457		

EC QC: E. aerogenes +/-	-
E. coli +/-	+

Analyst Comments: 48hr BGB - 2/9/10 x 2/23/10



Multiple Tube Fermentation

2384

Lab ID:	E100209058	Bottle #:	1516
Line Item (Samp ID)	MURRIETA CREEK @ VIA MONTAZUMA	Collect Date/Time:	2/9/2010 10:45:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	a	+	+	+

Dilution
~~10~~
 10

TP MPN/100 ml
3000

5-5-1
 5-1-0

TC+	5
FC+	4

FC MPN/100 ml
220

4-2-1

	1	2	3	4	5
LTB 24 hr	+	+	+	6	6
LTB 48 hr				+	+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	-	-	-

Dilution
~~10~~
 0.1

	Media Lot / Exp. Date
BUFFER	96300-1 11/10/10
SSTLB	2/4/10 / x 2/18/10
DSLTB	2/4/10 / x 2/18/10
BGB 24hr	2/3/10 / x 2/10/10
EC	1/22/10 / x 4/22/10

2/9/10

TC+	5
FC+	2

	1	2	3	4	5
LTB 24 hr	a	+	-	-	-
LTB 48 hr	a		a	-	-
BGB 24 hr		+			
BGB 48 hr					
EC 24 hr		+			

Dilution
~~0.1~~
 0.01

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
~~0.01~~
 0.001

TC+	1
FC+	1

TC+	0
FC+	0

	SETUP	24 hr	48hr	72hr	96hr	INITIALS
Initials:	WAW	WAW	WAW	SW		INPUT: WAW
Date	2/9/10	2/10/10	2/11/10	2/12/10		APPROVED: [Signature]
Time	1500	1527	1530	1458		

EC QC: E. aerogenes +/-	-
E. coli +/-	+

Analyst Comments: 48hr BGB - 2/9/10 x-2/23/10



Multiple Tube Fermentation

2384

Lab ID:	E100209059	Bottle #:	1520
Line Item (Samp ID)	MURRIETA CREEK @ WINCHESTER	Collect Date/Time:	2/9/2010 11:00:00 AM

1	2	3	4	5
LTB 24 hr	+	+	+	+
LTB 48 hr				
BGB 24 hr	+	+	+	+
BGB 48 hr				
EC 24 hr	+	+	+	+

Dilution

40
1:0

TP MPN/100 ml
3000

5-5-+
5-1-0

TC+	5
FC+	5

EC MPN/100 ml
230

5-0-0

1	2	3	4	5
LTB 24 hr	+	+	+	+
LTB 48 hr				
BGB 24 hr	+	+	+	+
BGB 24 hr				
EC 24 hr				

Dilution

1:0
0.1

Media Lot/ Exp. Date
BUFFER 96300-1 11/10/10
SSTLB 2/4/10 / x 2/18/10
DSLTB 2/4/10 / x 2/18/10
BGB 2/3/10 / x 2/10/10
EC 1/22/10 / x 4/22/10

WAW
2/9/10

TC+	5
FC+	0

1	2	3	4	5
LTB 24 hr	a	a	a	a
LTB 48 hr	a	a	a	+
BGB 24 hr			+	
BGB 48 hr				
EC 24 hr			-	

Dilution

0.1
0.01

1	2	3	4	5
LTB 24 hr				
LTB 48 hr				
BGB 24 hr				
BGB 48 hr				
EC 24 hr				

Dilution

0.01
0.001

TC+	1
FC+	0

TC+	0
FC+	0

	SETUP	24 hr.	48 hr	72hr	96hr
Initials:	WAW	WAW	WAW	sm	
Date	2/9/10	2/10/10	2/11/10	2/12/10	
Time	1500	1600	1600	1500	

INITIALS
INPUT: WAW
APPROVED: [Signature]

EC QC: E. aerogenes +/-	-
E. coli +/-	+

Analyst Comments: 48hr BGB - 2/9/10 x 2/23/10

**Sampling
Laboratory Reports**

February 16, 2010



CERTIFICATE OF ANALYSIS

Client: Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date: February 24, 2010 Receive Date: February 16, 2010
Client Project: TV-RWRF SSO	Lab Number(s): E100216059 E100216060 E100216061 E100216062 E100216063 E100216064 E100216065
Work Order: E1000511 Chain ID: 7090	
Sampler: Mark Smith - 2023	

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Kenneth Marshall
Manager of Laboratory & Water Quality Services
Eastern Municipal Water District

Received By / Temp: 91.0°C

Chain of Custody



Received Date / Time: 2/15/10 (11:30)

7090



Delivered By: MS 2025

Complaints / Shutdowns

Inspections

Company: EPC

Name:

SPORT #:

Profile: SSO

Address:

Tract #:

Chain ID #: 7090

City, State, Zip:

Acct #: () - - - - 15163() - - - -

Collected By: MC-2025

Maximo #:

Collect Seq: 1st Day / 2nd Day / Resample

Sample ID	Bottle #	Grab / Composite	Collection		Field Tests						Containers									
			(Grab)	End	CI-R	Temp	pH	EC	DO	Depth	1 LAG	250 mL AG	500 mL RL	1 G Plast.	0.5 G Plast.	1 L Plast	40 ml Vial	500 NaOH	120 Sterile	Other
Tommed Creek	1595	G	2/15/10	10:00																
Conjunctive	1559	G	2/15/10	10:00																
First Street	1419	G	2/15/10	10:10																
Rancho Calid	1465	G	2/15/10	10:26																
Rancho Wong	1459	G	2/15/10	10:25																
Via Norte	1540	G	2/15/10	10:45																
W inclusion	1531	G	2/15/10	11:00																
Transfers	Relinquished By	Date/Time	Received By	Date/Time																
1	<u>[Signature]</u>	<u>2/15/10 09:30</u>	<u>[Signature]</u>	<u>0-15-09:30</u>																
2																				
3																				
4																				

Sample Attestation: I certify that the sample identification and collection information contained in this chain of custody is correct and accurate and that samples were collected in accordance with EPA sampling protocol.

Print Name / Date: Mark Smith 2/15/10

Signature: [Signature]



Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000511 7090

Lab ID: **E100216059** Date Received: 2/16/2010 11:43 Matrix: Liquid
 Sample ID: **TEMECULA CREEK** Date Collected: 2/16/2010

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	<75	mg/L	75	15	1		2/16/2010	MS		
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	8000	MPN/100 mL	2		1		2/16/2010	NS		
Fecal Coliform by MTF	80	MPN/100 mL			1		2/16/2010	NS		
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1		2/16/2010	MK		
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	5.6	mg/L	2	0	1		2/16/2010	SD		

Report ID: 7972

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ANALYTICAL RESULTS

Workorder: E1000511 7090

Lab ID: **E100216060** Date Received: 2/16/2010 11:43 Matrix: Liquid
 Sample ID: **CONFLUENCE** Date Collected: 2/16/2010

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	<75	mg/L	75	15	1		2/16/2010	MS		
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	1400	MPN/100 mL	2		1		2/16/2010	DW		
Fecal Coliform by MTF	70	MPN/100 mL			1		2/16/2010	DW		
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1		2/16/2010	MK		
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	2.5	mg/L	2	0	1		2/16/2010	SD		

Report ID: 7972

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ANALYTICAL RESULTS

Workorder: E1000511 7090

Lab ID: **E100216061** Date Received: 2/16/2010 11:43 Matrix: Liquid
 Sample ID: **FIRST STREET** Date Collected: 2/16/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/16/2010		MS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	1700	MPN/100 mL	2		1			2/16/2010		DW	
Fecal Coliform by MTF	40	MPN/100 mL			1			2/16/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/16/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	3.7	mg/L	2	0	1			2/16/2010		SD	

Report ID: 7972

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ANALYTICAL RESULTS

Workorder: E1000511 7090

Lab ID: **E100216062** Date Received: 2/16/2010 11:43 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO CA RD** Date Collected: 2/16/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/16/2010		MS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	270	MPN/100 mL	2		1			2/16/2010		NS	
Fecal Coliform by MTF	40	MPN/100 mL			1			2/16/2010		NS	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/16/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	3.7	mg/L	2	0	1			2/16/2010		SD	

Report ID: 7972

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ANALYTICAL RESULTS

Workorder: E1000511 7090

Lab ID: **E100216063** Date Received: 2/16/2010 11:43 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ RANCHO WAY** Date Collected: 2/16/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/16/2010		MS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	7000	MPN/100 mL	2		1			2/16/2010		NS	
Fecal Coliform by MTF	270	MPN/100 mL			1			2/16/2010		NS	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/16/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	3.3	mg/L	2	0	1			2/16/2010		SD	

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ANALYTICAL RESULTS

Workorder: E1000511 7090

Lab ID: **E100216064** Date Received: 2/16/2010 11:43 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ VIA MONTAZUMA** Date Collected: 2/16/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/16/2010		MS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	1100	MPN/100 mL	2		1			2/16/2010		NS	
Fecal Coliform by MTF	40	MPN/100 mL			1			2/16/2010		NS	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/16/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	2.2	mg/L	2	0	1			2/16/2010		SD	

Report ID: 7972

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CERTIFICATE OF ANALYSIS

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Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000511 7090

Lab ID: **E100216065** Date Received: 2/16/2010 11:43 Matrix: Liquid
 Sample ID: **MURRIETA CREEK @ WINCHESTER** Date Collected: 2/16/2010 11:00

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/16/2010		MS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	1100	MPN/100 mL	2		1			2/16/2010		DW	
Fecal Coliform by MTF	20	MPN/100 mL			1			2/16/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/16/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	2.2	mg/L	2	0	1			2/16/2010		SD	

Report ID: 7972

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CERTIFICATE OF ANALYSIS

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Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 24, 2010
		Receive Date:	February 16, 2010
Client Project:	TV-RWRF SSO	Lab	E100216059
Work Order:	E1000511	Number(s):	E100216060
Chain ID:	7090		E100216061
			E100216062
Sampler:	Mark Smith - 2023		E100216063
			E100216064
			E100216065

QUALITY CONTROL SECTION

Case Narrative: *"SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.*

Quality Control Review



Patch CHM/3405 **HBN** 6087
AMMONIA **Status** RE
Create Date 2/16/2010 **Analyst** MK

SCAN MISSING

1 38015-LRB for HBN 6087 [CHM/3405]

Type LRB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure NH3-4500-L	Instru FOSS	Run Date 2/16/2010 14:17	Dilution
Method NH3, SM4500 NH3 C	Col ID	Hold Date 3/16/2010 12:29	Analyst MK
Schedule 182861	File		CC OK

Prep Information

Procedure NH3-4500-L	Batch CHM/3405	Prep Date 2/16/2010 14:17	Dilution
Method NH3, SM4500 NH3 C	HBN 6087	Hold Date 3/16/2010 12:29	Analyst MK
Schedule 182861	Instru FOSS		CC OK

Initial Volume 100 mL Default 100 mL
 Final Volume 100 mL Default 100 mL

Analyte	Posted Result	Result	MDL	RDL
NUTRIENTS	1			
Ammonia (NH3-N)	0	mg/L <2.0	0.9	2.0 mg/L
Total Organic Nitrogen		mg/L		
Total Inorganic Nitrogen		mg/L		

Quality Control Review



Batch CHM/3405 **HBN** 6087
Sample AMMONIA **Status** RE
Create Date 2/16/2010 **Analyst** MK

SCAN MISSING

2 38016-LFB for HBN 6087 [CHM/3405]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure NH3-4500-L	Instru FOSS	Run Date 2/16/2010 14:17	Dilution
Method NH3, SM4500 NH3 C	Col ID	Hold Date 3/16/2010 12:29	Analyst MK
Schedule 182862	File		CC OK

Prep information

Procedure NH3-4500-L	Batch CHM/3405	Prep Date 2/16/2010 14:17	Dilution
Method NH3, SM4500 NH3 C	HBN 6087	Hold Date 3/16/2010 12:29	Analyst MK
Schedule 182862	Instru FOSS		CC OK

Initial Volume 100 mL Default 100 mL
 Final Volume 100 mL Default 100 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
NUTRIENTS	1						
Ammonia (NH3-N)	9.9	mg/L 9.9	0.9	2.0	mg/L 10	99	80-120
Total Organic Nitrogen		mg/L					
Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3405 **HBN** 6087
AMMONIA **Status** RE
Create Date 2/16/2010 **Analyst** MK

SCAN MISSING

3 E100216059-TEMECULA CREEK

Type GRAB **Matrix** Liquid **Collected** 2/16/2010 10:00 **% Moisture**
Client ERC **WO** E1000511 **Work ID** 7090 **Original HSN**

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/16/2010 14:17 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/16/2010 10:00 **Analyst** MK
Schedule 182790 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3405 **Prep Date** 2/16/2010 14:17 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 6087 **Hold Date** 3/16/2010 10:00 **Analyst** MK
Schedule 182790 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
NUTRIENTS	1						
Ammonia (NH3-N)	0	mg/L <2.0	0.9	2.0	mg/L		<2.0, <2.0, <2.0
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3405 **HBN** 6087
Name AMMONIA **Status** RE
Create Date 2/16/2010 **Analyst** MK

SCAN MISSING

4 38017-TEMECULA CREEK(38008LFM)

Type LFM **Matrix** Liquid **Collected** 2/16/2010 10:00 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 38008

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/16/2010 14:17 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/16/2010 10:00 **Analyst** MK
Schedule 182863 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3405 **Prep Date** 2/16/2010 14:17 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 6087 **Hold Date** 3/16/2010 10:00 **Analyst** MK
Schedule 182863 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
NUTRIENTS	1							
Ammonia (NH3-N)	9.3	mg/L 9.3	0.9	2.0	mg/L 0	10 mg/L	93.1	80-120
Total Organic Nitrogen		mg/L						
Inorganic Nitrogen		mg/L						

Quality Control Review



Batch CHM/3405 **HBN** 6087
Client AMMONIA **Status** RE
Create Date 2/16/2010 **Analyst** MK

SCAN MISSING

5 38018-TEMECULA CREEK(38008LFMD)

Type LFMD **Matrix** Liquid **Collected** 2/16/2010 10:00 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 38008

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/16/2010 14:17 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/16/2010 10:00 **Analyst** MK
Schedule 182864 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3405 **Prep Date** 2/16/2010 14:17 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 6087 **Hold Date** 3/16/2010 10:00 **Analyst** MK
Schedule 182864 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	MS			Ma RPI
							% Rec	% Rec	Limits	
NUTRIENTS	1									
Ammonia (NH3-N)	9.8	mg/L	9.8	0.9	2.0	mg/L		93.1		5.24
Total Organic Nitrogen		mg/L								
Total Inorganic Nitrogen		mg/L								

Quality Control Review



Batch CHM/3404 **HBN** 6082
BOD **Status** RE
Create Date 2/16/2010 **Analyst** SD

DATA SCANNED

1 38007-LFB for HBN 6082 [CHM/3404]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure BOD	Instru BOD-01	Run Date 2/16/2010 13:50	Dilution 1
Method BOD, SM 5210B	Col ID	Hold Date 2/17/2010 11:06	Analyst SD
Schedule 182775	File		CC OK

Prep Information

Procedure BOD	Batch CHM/3404	Prep Date 2/16/2010 13:50	Dilution 1
Method BOD, SM 5210B	HBN 6082	Hold Date 2/17/2010 11:06	Analyst SD
Schedule 182775	Instru BOD-01		CC OK

Initial Volume 300 mL **Default** 300 mL
Final Volume 300 mL **Default** 300 mL

Analyte	Posted		Result	MDL	RDL	Spike	%	Rec	Limits
	Result								
CHEMISTRY RESULTS	1								
BOD	230	mg/L	230	0	2	mg/L	200 mg/L	117	



Quality Control Review



Batch CHM/3406 **HBN** 6093
Method COD **Status** RE
Create Date 2/16/2010 **Analyst** MS

SCAN MISSING

1 38041-LRB for HBN 6093 [CHM/3406]

Type LRB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure COD	Instru HACH	Run Date 2/16/2010 16:00	Dilution 1
Method COD, HACH 8000	Col ID	Hold Date 3/16/2010 13:35	Analyst MS
Schedule 182921	File		CC OK

Prep Information

Procedure COD	Batch CHM/3406	Prep Date 2/16/2010 16:00	Dilution 1
Method COD, HACH 8000	HBN 6093	Hold Date 3/16/2010 13:35	Analyst MS
Schedule 182921	Instru HACH		CC OK

Initial Volume	2 mL	Default	2 mL
Final Volume	2 mL	Default	2 mL

Analyte	Posted Result	Result	MDL	RDL
Chemical Oxygen Demand	3.7 mg/L	<75	15	75 mg/L

Quality Control Review



Batch CHM/3406 **HBN** 6093
File COD **Status** RE
Create Date 2/16/2010 **Analyst** MS

SCAN MISSING

2 38042-LFB for HBN 6093 [CHM/3406]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure COD	Instru HACH	Run Date 2/16/2010 16:00	Dilution 1
Method COD, HACH 8000	Col ID	Hold Date 3/16/2010 13:35	Analyst MS
Schedule 182922	File		CC OK

Prep Information

Procedure COD	Batch CHM/3406	Prep Date 2/16/2010 16:00	Dilution 1
Method COD, HACH 8000	HBN 6093	Hold Date 3/16/2010 13:35	Analyst MS
Schedule 182922	Instru HACH		CC OK

Initial Volume	2 mL	Default	2 mL
Final Volume	2 mL	Default	2 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
Chemical Oxygen Demand	80	80 mg/L	15	75	80 mg/L	99.4	

Quality Control Review



Batch CHM/3406 **HBN** 6093
File COD **Status** RE
Create Date 2/16/2010 **Analyst** MS

SCAN MISSING

3 E100216059-TEMECULA CREEK

Type GRAB **Matrix** Liquid **Collected** 2/16/2010 10:00 **% Moisture**
Client ERC **WO** E1000511 **Work ID** 7090 **Original HSN**

Analytical Information

Procedure COD **Instru** HACH **Run Date** 2/16/2010 16:00 **Dilution** 1
Method COD, HACH 8000 **Col ID** **Hold Date** 3/16/2010 10:00 **Analyst** MS
Schedule 182791 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3406 **Prep Date** 2/16/2010 16:00 **Dilution** 1
Method COD, HACH 8000 **HBN** 6093 **Hold Date** 3/16/2010 10:00 **Analyst** MS
Schedule 182791 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted		Result	MDL	RDL	Low	High	Hist
	Result							
Chemical Oxygen Demand	52	mg/L	<75	15	75	mg/L		<75, <75, <75

Quality Control Review



Batch CHM/3406 **HBN** 6093
Client QC ACCOUNT **Status** RE
Create Date 2/16/2010 **Analyst** MS

SCAN MISSING

4 38043-TEMECULA CREEK(38008LFM)

Type LFM **Matrix** Liquid **Collected** 2/16/2010 10:00 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 38008

Analytical Information

Procedure COD **Instru** HACH **Run Date** 2/16/2010 16:00 **Dilution**
Method COD, HACH 8000 **CoI ID** **Hold Date** 3/16/2010 10:00 **Analyst** MS
Schedule 182923 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3406 **Prep Date** 2/16/2010 16:00 **Dilution**
Method COD, HACH 8000 **HBN** 6093 **Hold Date** 3/16/2010 10:00 **Analyst** MS
Schedule 182923 **Instru** HACH **CC** OK

Initial Volume 50 mL **Default** 2 mL
Final Volume 50 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits
Chemical Oxygen Demand	120	mg/L 120	15	75	mg/L 52	80 mg/L	84.3	

Quality Control Review



Batch CHM/3406 **HBN** 6093
Status RE
Create Date 2/16/2010 **Analyst** MS

SCAN MISSING

5 38044-TEMECULA CREEK(38008LFMD)

Type LFMD **Matrix** Liquid **Collected** 2/16/2010 10:00 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 38008

Analytical Information

Procedure COD **Instru** HACH **Run Date** 2/16/2010 16:00 **Dilution** 1
Method COD, HACH 8000 **Co ID** **Hold Date** 3/16/2010 10:00 **Analyst** MS
Schedule 182924 **File** **CC** OK

Prep Information

Procedure COD **Batch** CHM/3406 **Prep Date** 2/16/2010 16:00 **Dilution** 1
Method COD, HACH 8000 **HBN** 6093 **Hold Date** 3/16/2010 10:00 **Analyst** MS
Schedule 182924 **Instru** HACH **CC** OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Ma. RPI
Chemical Oxygen Demand	110	mg/L 110	15	75	mg/L			84.3		8.7	

**Sampling
Laboratory Reports**

February 23, 2010



CERTIFICATE OF ANALYSIS

Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 26, 2010
		Receive Date:	February 23, 2010
Client Project:	TV-RWRF SSO	Lab	E100223064
Work Order:	E1000597	Number(s):	E100223065
Chain ID:	7286		E100223066
			E100223067
Sampler:	Mark Smith - 2023		E100223068
			E100223069
			E100223070

CA-ELAP #1379

The results in this report apply to the samples analyzed in accordance with the Chain-of-Custody document attached. Eastern Municipal Water District's Laboratory certifies that the tests results meet all State of California-ELAP requirements. All analyses were conducted by this laboratory certified for such analysis by the California Department of Public Health, Environmental Laboratory Accreditation Program, CA-ELAP Certification #1379. Current United States Environmental Protection Agency (USEPA) procedures included in the most current version of 40 CFR Part 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification" were used in these analyses.

All analyses, along with all quality assurance and quality control testing were conducted under supervision of Mr. Kenneth Marshall, Laboratory Director.

Kenneth Marshall
Manager of Laboratory & Water Quality Services
Eastern Municipal Water District

Received By / Temp: PL 14123 C.O

Chain of Custody



7286



Received Date / Time: 2/23/10 (1343)
 Delivered By: M/S 2023

Manuelita Creek

Complaints / Shutdowns

Inspections

Company: EMWD

Name:

SPORT #:

Profile:

Address:

Tract #:

Chain ID #: 7286

City, State, Zip:

Acct #: () - - - - 15163() - - - -

Collected By:

Maximo #:

Collect Seq: 1st Day / 2nd Day / Resample

Sample ID	Bottle #	Grab / Composite	Collection		Field Tests							Containers								
			(Grab)	End	Cl-R	Temp	pH	EC	DO	Depth	1 LAG	250 mL AG	500 mL RL	1 G Plast.	0.5 G Plast.	1 L Plast	40 ml Vial	500 NaOH	120 Sterile	Other
<u>Manuelita Creek</u>																				
<u>Terrebonne Creek</u>	<u>1500</u>	<u>G</u>	<u>2/23/10</u>	<u>(1020)</u>																
<u>Conjunction</u>	<u>1506</u>	<u>G</u>	<u>2/23/10</u>	<u>1025</u>																
<u>Frost Street</u>	<u>1534</u>	<u>G</u>	<u>2/23/10</u>	<u>1040</u>																
<u>Rancho Lohmeyer</u>	<u>1033</u>	<u>G</u>	<u>2/23/10</u>	<u>1055</u>																
<u>Rancho Way</u>	<u>1436</u>	<u>G</u>	<u>2/23/10</u>	<u>1100</u>																
<u>Via Monte Lane</u>	<u>1535</u>	<u>G</u>	<u>2/23/10</u>	<u>1100</u>																
<u>Winchester</u>	<u>1495</u>	<u>G</u>	<u>2/23/10</u>	<u>(1115)</u>																

Transfers	Relinquished By	Date/Time	Received By	Date/Time
1	<u>[Signature]</u>	<u>2/23/10 (1343)</u>	<u>[Signature]</u>	<u>2/23/10 1345</u>
2				
3				
4				

Sample Attestation: I certify that the sample identification and collection information contained in this chain of custody is correct and accurate and that samples were collected in accordance with EPA sampling protocol.

Print Name / Date: Mark Smith 2/23/10
 Signature: [Signature]



Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000597 7286

Lab ID: **E100223064** Date Received: 2/23/2010 Matrix: Liquid
 Sample ID: **Temescal Creek** Date Collected: 2/23/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/24/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	500	MPN/100 mL	2		1			2/23/2010		DW	
Fecal Coliform by MTF	20	MPN/100 mL			1			2/23/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/23/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	<2	mg/L	2	0	1			2/23/2010		NS	

Report ID: 8058

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ANALYTICAL RESULTS

Workorder: E1000597 7286

Lab ID: **E100223065** Date Received: 2/23/2010 Matrix: Liquid
 Sample ID: **Conjunction** Date Collected: 2/23/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/24/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	170	MPN/100 mL	2		1			2/23/2010		NS	
Fecal Coliform by MTF	17	MPN/100 mL			1			2/23/2010		NS	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/23/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	<2	mg/L	2	0	1			2/23/2010		NS	

Report ID: 8058

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 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000597 7286

Lab ID: **E100223066** Date Received: 2/23/2010 Matrix: Liquid
 Sample ID: **First Street** Date Collected: 2/23/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/24/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	1300	MPN/100 mL	2		1			2/23/2010		DW	
Fecal Coliform by MTF	40	MPN/100 mL			1			2/23/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/23/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	3.3	mg/L	2	0	1			2/23/2010		NS	

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ANALYTICAL RESULTS

Workorder: E1000597 7286

Lab ID: **E100223067** Date Received: 2/23/2010 Matrix: Liquid
 Sample ID: **Rancho California** Date Collected: 2/23/2010

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000									
Chemical Oxygen Demand	<75	mg/L	75	15	1			2/24/2010		NS	
BIOLOGICALS											
Analysis Desc: MTF		Analytical Method: MTF									
Total Coliform by MTF	1100	MPN/100 mL	2		1			2/23/2010		DW	
Fecal Coliform by MTF	130	MPN/100 mL			1			2/23/2010		DW	
NUTRIENTS											
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C									
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1			2/23/2010		MK	
CHEMISTRY RESULTS											
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B									
BOD	3.1	mg/L	2	0	1			2/23/2010		NS	

Report ID: 8058

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 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000597 7286

Lab ID: **E100223068** Date Received: 2/23/2010 Matrix: Liquid
 Sample ID: **Rancho Way** Date Collected: 2/23/2010

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	<75	mg/L	75	15	1		2/24/2010	NS		
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	344	MPN/100 mL	2		1		2/23/2010	DW		
Fecal Coliform by MTF	210	MPN/100 mL			1		2/23/2010	DW		
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1		2/23/2010	MK		
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	3.9	mg/L	2	0	1		2/23/2010	NS		

Report ID: 8058

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CERTIFICATE OF ANALYSIS

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Eastern Municipal Water District
 2270 Trumble Road
 Perris, CA 92570
 Phone: (951) 928-3777, X6278
 Fax: (951) 928-6143

ANALYTICAL RESULTS

Workorder: E1000597 7286

Lab ID: **E100223069** Date Received: 2/23/2010 Matrix: Liquid
 Sample ID: **Via Montezuma** Date Collected: 2/23/2010 11:00

Parameters	Results	Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000								
Chemical Oxygen Demand	<75	mg/L	75	15	1		2/24/2010		NS	
BIOLOGICALS										
Analysis Desc: MTF		Analytical Method: MTF								
Total Coliform by MTF	300	MPN/100 mL	2		1		2/23/2010		DW	
Fecal Coliform by MTF	<20	MPN/100 mL			1		2/23/2010		DW	
NUTRIENTS										
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C								
Ammonia (NH3-N)	<2.0	mg/L	2.0	0.9	1		2/23/2010		MK	
CHEMISTRY RESULTS										
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B								
BOD	<2	mg/L	2	0	1		2/23/2010		NS	

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ANALYTICAL RESULTS

Workorder: E1000597 7286

Lab ID: **E100223070**
 Sample ID: **Winchester**

Date Received: 2/23/2010 Matrix: Liquid
 Date Collected: 2/23/2010 11:15

Parameters	Results Units	Report Limit	MDL	DF Prepared	By	Analyzed	By	Qual	RegLmt
Analysis Desc: COD, HACH 8000		Analytical Method: COD, HACH 8000							
Chemical Oxygen Demand	<75 mg/L	75	15	1		2/24/2010		NS	
BIOLOGICALS									
Analysis Desc: MTF		Analytical Method: MTF							
Total Coliform by MTF	220 MPN/100 mL	2		1		2/23/2010		DW	
Fecal Coliform by MTF	20 MPN/100 mL			1		2/23/2010		DW	
NUTRIENTS									
Analysis Desc: NH3, SM4500 NH3 C		Analytical Method: NH3, SM4500 NH3 C							
Ammonia (NH3-N)	<2.0 mg/L	2.0	0.9	1		2/23/2010		MK	
CHEMISTRY RESULTS									
Analysis Desc: BOD, SM 5210B		Analytical Method: BOD, SM 5210B							
BOD	11 mg/L	2	0	1		2/23/2010		NS	

Report ID: 8058

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CERTIFICATE OF ANALYSIS

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Client:	Environmental Regulatory Compliance Eastern Municipal Water District 2270 Trumble Road Perris, California 92570	Report Date:	February 26, 2010
		Receive Date:	February 23, 2010
Client Project:	TV-RWRF SSO	Lab	E100223064
Work Order:	E1000597	Number(s):	E100223065
Chain ID:	7286		E100223066
			E100223067
Sampler:	Mark Smith - 2023		E100223068
			E100223069
			E100223070

QUALITY CONTROL SECTION

Case Narrative: *"SCAN MISSING" statements on QC reports imply that lab instrument reports were not scanned into the LIMS database.*

Quality Control Review



Batch CHM/3444 **HBN** 6208
File BOD **Status** RE
Create Date 2/23/2010 **Analyst** NS

DATA SCANNED

1 38490-LFB for HBN 6208 [CHM/3444]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure BOD	Instru BOD-01	Run Date 2/23/2010 12:55	Dilution 1
Method BOD, SM 5210B	Col ID	Hold Date 2/24/2010 10:50	Analyst NS
Schedule 184516	File		CC OK

Prep Information

Procedure BOD	Batch CHM/3444	Prep Date 2/23/2010 12:55	Dilution 1
Method BOD, SM 5210B	HBN 6208	Hold Date 2/24/2010 10:50	Analyst NS
Schedule 184516	Instru BOD-01		CC OK

Initial Volume 300 mL **Default** 300 mL
Final Volume 300 mL **Default** 300 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
CHEMISTRY RESULTS							
BOD	210	210 mg/L	0	2	200 mg/L	106	

Quality Control Review



Batch CHM/3449 **HBN** 6223
Rule COD **Status** WP
Create Date 2/23/2010 **Analyst** NS

SCAN MISSING

1 38554-LFB for HBN 6223 [CHM/3449]

Type LFB	Matrix Liquid	Collected	% Moisture
Client QC ACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure COD	Instru HACH	Run Date 2/24/2010 10:53	Dilution 1
Method COD, HACH 8000	Col ID	Hold Date 3/23/2010 16:02	Analyst NS
Schedule 184768	File		CC OK

Prep Information

Procedure COD	Batch CHM/3449	Prep Date 2/24/2010 10:53	Dilution 1
Method COD, HACH 8000	HBN 6223	Hold Date 3/23/2010 16:02	Analyst NS
Schedule 184768	Instru HACH		CC OK

Initial Volume 2 mL **Default** 2 mL
Final Volume 2 mL **Default** 2 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec	Limits
Chemical Oxygen Demand	63 mg/L	<75	15	75 mg/L	60 mg/L	104	

Quality Control Review



Batch CHM/3447 **HBN** 6216
Title AMMONIA **Status** RE
Create Date 2/23/2010 **Analyst** MK

SCAN MISSING

1 38529-LRB for HBN 6216 [CHM/3447]

Type LRB	Matrix Liquid	Collected	% Moisture
Client QCACCOUNT	WO	Work ID	Original HSN

Analytical Information

Procedure NH3-4500-L	Instru FOSS	Run Date 2/23/2010 09:40	Dilution
Method NH3, SM4500 NH3 C	Col ID	Hold Date 3/23/2010 15:03	Analyst MK
Schedule 184715	File		CC OK

Prep Information

Procedure NH3-4500-L	Batch CHM/3447	Prep Date 2/23/2010 09:40	Dilution
Method NH3, SM4500 NH3 C	HBN 6216	Hold Date 3/23/2010 15:03	Analyst MK
Schedule 184715	Instru FOSS		CC OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted	Result	MDL	RDL
NUTRIENTS	1			
Ammonia (NH3-N)	0	mg/L <2.0	0.9	2.0 mg/L
Total Organic Nitrogen		mg/L		
Total Inorganic Nitrogen		mg/L		

Quality Control Review



Batch CHM/3447 **HBN** 6216
Title AMMONIA **Status** RE
Create Date 2/23/2010 **Analyst** MK

SCAN MISSING

2 38530-LFB for HBN 6216 [CHM/3447]

Type LFB **Matrix** Liquid **Collected** **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN**

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/23/2010 09:40 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/23/2010 15:03 **Analyst** MK
Schedule 184716 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3447 **Prep Date** 2/23/2010 09:40 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 6216 **Hold Date** 3/23/2010 15:03 **Analyst** MK
Schedule 184716 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Spike Amt	% Rec Limits	
						Rec	Limits
NUTRIENTS	1						
Ammonia (NH3-N)	10	mg/L	10	0.9	2.0	mg/L	102 80-120
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3447 **HBN** 6216
File AMMONIA **Status** RE
Create Date 2/23/2010 **Analyst** MK

SCAN MISSING

3 E100223001-REACH 4 Dissipater COMP

Type COMP **Matrix** Liquid **Collected** 2/23/2010 06:10 **% Moisture**
Client RECLAMATION **WO** E1000585 **Work ID** 7254 **Original HSN**

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/23/2010 09:40 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/23/2010 06:10 **Analyst** MK
Schedule 184706 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3447 **Prep Date** 2/23/2010 09:40 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 6216 **Hold Date** 3/23/2010 06:10 **Analyst** MK
Schedule 184706 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Low	High	Hist
NUTRIENTS	-4						
Ammonia (NH3-N)	0	mg/L	<2.0	0.9	2.0	mg/L	
Total Organic Nitrogen		mg/L					
Total Inorganic Nitrogen		mg/L					

Quality Control Review



Batch CHM/3447 **HBN** 6216
Title AMMONIA **Status** RE
Create Date 2/23/2010 **Analyst** MK

SCAN MISSING

4 38531-REACH 4 Dissipate...(38446LFM)

Type LFM **Matrix** Liquid **Collected** 2/23/2010 06:10 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 38446

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/23/2010 09:40 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/23/2010 06:10 **Analyst** MK
Schedule 184717 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3447 **Prep Date** 2/23/2010 09:40 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 6216 **Hold Date** 3/23/2010 06:10 **Analyst** MK
Schedule 184717 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted Result	Result	MDL	RDL	Original Result	Spike Amt	% Rec	Limits		
NUTRIENTS	1									
Ammonia (NH3-N)	10	mg/L	10	0.9	2.0	mg/L	0	10 mg/L	102	80-120
Total Organic Nitrogen		mg/L								
Total Inorganic Nitrogen		mg/L								

Quality Control Review



Batch CHM/3447 **HBN** 6216
Title AMMONIA **Status** RE
Create Date 2/23/2010 **Analyst** MK

SCAN MISSING

5 38532-REACH 4 Dissipat...(38446LFMD)

Type LFMD **Matrix** Liquid **Collected** 2/23/2010 06:10 **% Moisture**
Client QC ACCOUNT **WO** **Work ID** **Original HSN** 38446

Analytical Information

Procedure NH3-4500-L **Instru** FOSS **Run Date** 2/23/2010 09:40 **Dilution**
Method NH3, SM4500 NH3 C **Col ID** **Hold Date** 3/23/2010 06:10 **Analyst** MK
Schedule 184718 **File** **CC** OK

Prep Information

Procedure NH3-4500-L **Batch** CHM/3447 **Prep Date** 2/23/2010 09:40 **Dilution**
Method NH3, SM4500 NH3 C **HBN** 6216 **Hold Date** 3/23/2010 06:10 **Analyst** MK
Schedule 184718 **Instru** FOSS **CC** OK

Initial Volume 100 mL **Default** 100 mL
Final Volume 100 mL **Default** 100 mL

Analyte	Posted		Result	MDL	RDL	Original Result	Spike Amt	% Rec	MS % Rec	Limits	RPD	Max RPD
	Result	1										
NUTRIENTS	10	1	mg/L	0.9	2.0	mg/L			102		0	10
Ammonia (NH3-N)			mg/L									
Total Organic Nitrogen			mg/L									
Total Inorganic Nitrogen			mg/L									

2446



Multiple Tube Fermentation

Lab ID:	E100223065	Bottle #:	1566
Line Item (Samp ID)	Conjunction	Collect Date/Time:	2/23/2010 10:20:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	+	+	-

Dilution

~~10~~
1.0

TP MPN/100 ml
1700

IC +

5

FC +

4

FC MPN/100 ml
170

	1	2	3	4	5
LTB 24 hr	+	G	+	G	+
LTB 48 hr		+		+	
BGB 24 hr	+	+	+	G	+
BGB 24 hr				-	
EC 24 hr	+	-	-	-	-

Dilution

~~10~~
0.1

BUFFER

Media Lot / Exp. Date
96300-1 11/10/10
SSTLB
2/18/10
DSLTB
BGB
2/23/10
EC
2/11/10

TC +

4

FC +

1

SSTLB

DSLTB

BGB

EC

	1	2	3	4	5
LTB 24 hr	-	G	G	G	+
LTB 48 hr	-	G	G	G	
BGB 24 hr					+
BGB 48 hr					
EC 24 hr					-

Dilution

~~0.1~~
0.01

LTB 24 hr

LTB 48 hr

BGB 24 hr

BGB 48 hr

EC 24 hr

	1	2	3	4	5
LTB 24 hr	-	-	-	G	-
LTB 48 hr	-	-	-	G	-
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.01~~
0.001

TC +

0

FC +

0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	AW	AW	AW	AW	M	INPUT: WJ
Date	2/23/10	2/24/10	2/25/10	2/26/10	2/27/10	APPROVED:
Time	1519	1530	1550	1420	1340	

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:



2448



Multiple Tube Fermentation

Lab ID:	E100223064	Bottle #:	1560
Line Item (Samp ID)	Temescal Creek	Collect Date/Time:	2/23/2010 10:20:00 AM

	1	2	3	4	5
LTB 24 hr	+	G	G	+	+
LTB 48 hr	+	+	+		
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	-	-	+	-

Dilution

~~10.0~~
1:5

TP MPN/100 ml
500

FC MPN/100 ml
20

TC +	5
FC +	1

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	G	+	+	G	G
BGB 24 hr		+	+		
BGB 48 hr					
EC 24 hr		-	-		

Dilution

~~10.0~~
0.1

	Media Lot / Exp. Date
BUFFER	96300-1 11/6/10
SSTLB	2/18/10
DSLTB	
BGB	2/23/10
EC	2/11/10

TC +	2
FC +	0

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	G	G	G	G	G
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.1~~
0.01

TC +	0
FC +	0

	1	2	3	4	5
LTB 24 hr	G	-	-	G	G
LTB 48 hr	G	-	-	G	G
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.01~~
0.001

TC +	0
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	WAW	WAW	WAW	WAW		INPUT WAW
Date	2/23/10	2/24/10	2/25/10	2/26/10		APPROVED:
Time	1519	1530	1550	1420		

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

✓
WAW

2448



Multiple Tube Fermentation

Lab ID:	E100223066	Bottle #:	1534
Line Item (Samp ID)	First Street	Collect Date/Time:	2/23/2010 10:40:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	-	-	+	+

Dilution

~~10~~
1:0

TP MPN/100 ml
1300

TC +	5
FC +	2

FC MPN/100 ml
40

	1	2	3	4	5
LTB 24 hr	a	a	+	a	a
LTB 48 hr	a	+		+	+
BGB 24 hr		+	+	+	+
BGB 48 hr					
EC 24 hr		-	-	-	-

Dilution

~~10~~
0:1

TC +	4
FC +	0

Media Lot / Exp. Date	
BUFFER	96300-1 11/10/10
SSTLB	2/18/10
DSLTB	
BGB	2/23/10
EC	2/11/10

	1	2	3	4	5
LTB 24 hr	a	-	a	-	-
LTB 48 hr	a	a	a	a	-
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.1~~
0:0.1

TC +	0
FC +	0

	1	2	3	4	5
LTB 24 hr	-	-	a	-	-
LTB 48 hr	-	-	+	a	-
BGB 24 hr			+		
BGB 48 hr					
EC 24 hr			-		

Dilution

~~0.01~~
0:0.001

TC +	1
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr
Initials:	WAW	WAW	WAW	WAW	
Date	2/23/10	2/24/10	2/25/10	2/26/10	
Time	1519	1530	1550	1420	

INITIALS	
INPUT	WAW
APPROVED:	

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

WAW

2448



Multiple Tube Fermentation

Lab ID:	E100223067	Bottle #:	0033
Line Item (Samp ID)	Rancho California	Collect Date/Time:	2/23/2010 10:40:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	a	+	+
LTB 48 hr			+		
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	+	+	a	+	+

Dilution

10
1.0

TP MPN/100 ml
1100

FC MPN/100 ml
130

TC +	5
FC +	4

	1	2	3	4	5
LTB 24 hr	a	a	a	a	a
LTB 48 hr	+	+	a	+	a
BGB 24 hr	+	+		+	
BGB 48 hr					
EC 24 hr	-	-		-	

Dilution

10
0.1

	Media Lot / Exp. Date
BUFFER	96300-1 11/10/10
SSTLB	2/18/10
DSLTLB	
BGB	2/23/10
EC	2/11/10

TC +	3
FC +	0

	1	2	3	4	5
LTB 24 hr	a	a	a	-	-
LTB 48 hr	a	+	a	-	-
BGB 24 hr		+			
BGB 48 hr					
EC 24 hr		-			

Dilution

0.1
0.01

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

0.01
0.001

TC +	1
FC +	0

TC +	0
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	WAW	WAW	WAW	WAW		INPUT WAW
Date	2/23/10	2/24/10	2/25/10	2/26/10		APPROVED:
Time	1519	1530	1550	1430		

EC QC: E. aerogenes +/-	-	-
E. coli +/-	F	F

Analyst Comments:

WAW

2448



Multiple Tube Fermentation

Lab ID:	E100223068	Bottle #:	1436
Line Item (Samp ID)	Rancho Way	Collect Date/Time:	2/23/2010 10:40:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr					
BGB 24 hr	+	a	+	+	+
BGB 48 hr		a			
EC 24 hr	+	a	+	+	+

Dilution
~~10~~
 1.0

TP MPN/100 ml
 344

IC+ 4
 FC+ 4

FC MPN/100 ml
 210

	1	2	3	4	5
LTB 24 hr	+	a	a	a	+
LTB 48 hr		a	a	+	
BGB 24 hr	+			+	+
BGB 24 hr					
EC 24 hr	+			-	-

Dilution
~~10~~
 0.1

	Media Lot / Exp. Date
BUFFER	96300-1 11/10/10
SSTLB	2/18/10
DSLTB	
BGB	2/23/10
EC	2/11/10

TC+ 3
 FC+ 1

	1	2	3	4	5
LTB 24 hr	a	a	a	+	a
LTB 48 hr	a	a	a		+
BGB 24 hr				+	+
BGB 48 hr					
EC 24 hr				+	-

Dilution
~~0.1~~
 0.01

	1	2	3	4	5
LTB 24 hr	a	---	---	---	---
LTB 48 hr	a	---	---	a	a
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution
~~0.01~~
 0.001

TC+ 2
 FC+ 1

TC+ 0
 FC+ 0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	VPW	VPW	VPW	VPW		VPW
Date	2/23/10	2/24/10	2/25/10	2/26/10		
Time	1519	1530	1550	1450		
						APPROVED:

EC QC: E. aerogenes +/-	---	---
E. coli +/-	+	+

Analyst Comments:

$$\frac{9 \times 100}{\sqrt{1.235 \times 5.555}} = \frac{900}{2.6192413} = 344$$

2001.3.1102.0
 VPW



2448



Multiple Tube Fermentation

Lab ID:	E100223069	Bottle #:	1535
Line Item (Samp ID)	Via Montezuma	Collect Date/Time:	2/23/2010 11:00:00 AM

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	+	+	+	+
BGB 24 hr	+	+	+	+	+
BGB 48 hr					
EC 24 hr	-	-	-	-	-

Dilution

~~10~~
1.0

TP MPN/100 ml
300

FC MPN/100 ml
220

TC +	5
FC +	0

	1	2	3	4	5
LTB 24 hr	G	G	G	G	G
LTB 48 hr	+	G	G	G	G
BGB 24 hr	+				
BGB 48 hr					
EC 24 hr	-				

Dilution

~~10~~
0.1

BUFFER

Media Lot / Exp. Date
96300-1 11/10/10
SSTLB
2/18/10
DSLTB
BGB
EC

TC +	1
FC +	0

	1	2	3	4	5
LTB 24 hr	[Horizontal line across all tubes]				
LTB 48 hr	G	[Horizontal line across tubes 2-5]			
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.1~~
0.01

LTB 24 hr

	1	2	3	4	5
LTB 24 hr	[Horizontal line across all tubes]				
LTB 48 hr	[Horizontal line across all tubes]				
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

~~0.01~~
0.001

TC +	0
FC +	0

TC +	0
FC +	0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	VSW	VSW	VSW	VSW		INPUT VSW
Date	2/23/10	2/24/10	2/25/10	2/26/10		APPROVED:
Time	1519	1530	1550	1420		

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

VSW

2448



Multiple Tube Fermentation

Lab ID:	E100223070	Bottle #:	1495
Line Item (Samp ID)	Winchester	Collect Date/Time:	2/23/2010 11:15:00 AM

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr				+	
BGB 24 hr	+	+	+		+
BGB 48 hr					
EC 24 hr	-	+	-		-

Dilution

10
1:5

TP MPN/100 ml
220

TC +

4

FC +

1

FC MPN/100 ml
20

	1	2	3	4	5
LTB 24 hr	+	+	+	+	+
LTB 48 hr	+	+	+	+	+
BGB 24 hr	+		+		
BGB 48 hr					
EC 24 hr	-		-		

Dilution

1.0
0.1

TC +

2

FC +

0

	Media Lot / Exp. Date
BUFFER	96300-1 11/00/10
SSTLB	2/18/10
DSLTLB	2/18/10
BGB	2/11/23/10
EC	2/11/10

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr			+		
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

0.1
0.01

TC +

0

FC +

0

	1	2	3	4	5
LTB 24 hr					
LTB 48 hr					
BGB 24 hr					
BGB 48 hr					
EC 24 hr					

Dilution

0.01
0.001

TC +

0

FC +

0

	SETUP	24 hr	48 hr	72hr	96hr	INITIALS
Initials:	WAW	WAW	WAW	WAW		INPUT: WAW
Date	2/23/10	2/24/10	2/25/10	2/26/10		APPROVED:
Time	1519	1530	1550	1420		

EC QC: E. aerogenes +/-	-	-
E. coli +/-	+	+

Analyst Comments:

WAW