

**LEUCADIA WASTEWATER DISTRICT  
SEWER SYSTEM MANAGEMENT PLAN  
FISCAL YEAR 2010 AUDIT**

July 7, 2010

**Prepared by:  
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Carlsbad, CA 92008**

Job No. 103-012/4

July 7, 2010

103-012/4

Leucadia Wastewater District  
1960 La Costa Avenue  
Carlsbad, CA 92009

Attention: Paul Bushee, General Manager

Subject: Leucadia Wastewater District Sewer System Management Plan Fiscal Year  
2010 Audit

In an effort to reduce the occurrences of sanitary sewer overflows (SSOs) within California, a Statewide General Waste Discharge Requirement (Statewide WDR) was adopted May 2, 2006 that imposed several new requirements on all agencies that operate sewage collection systems. The Leucadia Wastewater District has complied with all prescribed provisions, including enrolling in electronic spill reporting, and the establishing legal authority to enforce sewer ordinances. The final provision required the development and implementation of a written Sewer System Management Plan (SSMP) that is approved by the agency's governing board at a public meeting.

Within the allowable timeframe, the Leucadia Wastewater District's Sewer System Management Plan (SSMP) was adopted by the District Board and certified by the General Manager in June 2009. The purpose of the SSMP is to document and publicly present in a central document the programs and activities utilized by the Leucadia Wastewater District in effectively managing its wastewater collection system.

The purpose of this letter-report is to fulfill the District's annual SSMP requirements. This consists of completing the Section IX SSMP Evaluation Checklist and Section X SSMP Audit Checklist. These checklists are accompanied by summaries of the SSMP activities for the year.

**Section IX SSMP Evaluation Checklist**

The Statewide Waste Discharge Requirements governing sanitary sewers specify that each Wastewater Collection Agency shall:

- maintain relevant information that can be used to establish and prioritize appropriate SSMP activities,
- monitor the implementation and measure the effectiveness of each element of the SSMP,
- assess the success of the preventative maintenance program,
- update program elements, as appropriate based on monitoring or performance evaluations, and
- identify and illustrate SSO trends, including frequency, location, and volume.

Maintaining the applicability of the SSMP to District activities necessitates ongoing evaluation of the activities the District performs, their success, and improvement if necessary. The Section IX SSMP Evaluation Checklist is used on an annual basis to evaluate the applicability and effectiveness of the District's SSMP.

To complete the Section IX SSMP Evaluation Checklist, we reviewed pertinent District documents and information and interviewed several members of the District staff.

As a result of this review, one item for the District to note is the ongoing training and review of Standard Operating Procedures (SOP) for District staff. The District's weekly meetings provide the opportunity for staff to collectively review and discuss issues with SOPs on an on-going basis. The District has indicated they will further memorialize and standardize SOP review by annually requiring the appropriate staff to acknowledge and confirm that they are familiar with and follow the District's SOPs. Please be sure to keep a written record of this acknowledgement for FY11's SSMP Audit.

In completing the Section IX SSMP Evaluation Checklist, we find that the District's activities, programs, and efforts meet or exceed the requirements of the SSMP. Moreover, we do not find any changes in District organization, practices, or regulations which would necessitate a revision to the SSMP prior to the scheduled June 2014 revision per the required five year cycle. The Evaluation Checklist can be found in Attachment A.

Paul Bushee  
July 7, 2010

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### **Section X SSMP Audit Checklist**

The Statewide WDRs governing sanitary sewers specify that the District shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. These audits must occur, at a minimum, of every two years and a report must be prepared and kept on file. The audit shall focus on evaluating the effectiveness of the SSMP and the District's compliance with the SSMP requirement, including the identification of any deficiencies in the SSMP and the steps to correct them.

The District has chosen to conduct their SSMP audit on an annual basis.

In completing the Audit Checklist, we find all requirements of the checklist to be current and implemented. The completed Audit Checklist for FY10 can be found in Attachment B.

### **Next Steps**

This FY10 SSMP Audit, and subsequent annual audits, should be retained for inclusion in the next SSMP adopted by the District Board. The SSMP is to be recertified by the General Manager and adopted by the District Board on a five-year schedule, with the next recertification and adoption scheduled to occur in June 2014.

We appreciate the opportunity to have worked with the District on this project. Should you have any questions regarding this work, please do not hesitate to contact us.

Dexter Wilson Engineering, Inc.



Dexter S. Wilson

NF:ps

**ATTACHMENT A**

**SECTION IX SSMP EVALUATION CHECKLIST  
FISCAL YEAR 2010**

## **ATTACHMENT A**

### **ENCLOSURES**

1. Section IX SSMP Evaluation Checklist
2. Preventative Maintenance Work Order Statistics
3. July 7, 2010 Letter-Report to LWD General Manager Regarding AMMPI
4. Revised Video Inspection Procedure SOP
5. Revised Overflow Emergency Response Plan SOP
6. Spill Summary as of June 2010
7. FY09/FY10 Flow Comparison

**SSMP Evaluation Checklist for FY2010**

**Date Evaluation Completed: June 2010**

*Last Date Checklist Revised: June 10, 2009*

Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP?	Date	Staff Interviewed	Actions and Notes
<b>Sections I, II, III (District Goals, Organization, Legal)</b>						
1. Has there been a noticeable change in the Strategic Plan Situational Analysis?		X	No	6/24/10	LS	Not revised this year. 2007 is most recent revision.
2. Was the current organizational chart included in the annual financial plan?	X		No	6/24/10		Is included in the FY10 and FY11 budgets.
3. Were the District goals addressed in the annual Fiscal Year Tactics & Action Plan?	X		No	6/24/10	LS	District's Tactics and Action Plan to be reviewed in July.
4. Has the District's Legal Authority been reviewed considering new regulations?	X		No	6/24/10	LS	No new regulations impacting Legal Authority.
5. If appropriate for three year review cycle, has the District's Standard Spec been reviewed for necessary changes?	X		No	-	-	NA
6. Was the staff size and organizational chain of command sufficient for implementation of the preventative maintenance programs and SSO spill response?	X		No	6/22/10	LS	The District averaged over 96% completion of planned O&M work orders. Additionally, the District tested their spill response procedures in May of this year. Staff size and organizational chain of command were both found to be sufficient.
7. In review of the spill causes and environmental impacts (if any), would additional staff or a change in District organization lessened or eliminated the spill cause and environmental impact?		X	No	6/22/10	LS	-
8. In review of the spill causes and environmental impacts (if any), was their sufficient legal authority for the District to respond and take action as necessary?	X		No	6/22/10	LS	-
<b>Section IV (Preventative Maintenance Program)</b>						
1. Have all new construction or rehabilitation projects been entered into the GIS database?	X		No	6/22/10	LS	District maintains a monthly contract with IEC to update GIS based on FR's collection of updates.
2. Have the new pipelines and manholes been included in CWMS?	X		No	-	-	-

**SSMP Evaluation Checklist for FY2010**

**Date Evaluation Completed: June 2010**

*Last Date Checklist Revised: June 10, 2009*

Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP?	Date	Staff Interviewed	Actions and Notes
3. Were all scheduled preventative maintenance activities in the CWMS completed as scheduled (e.g., hydrocleaning, video inspection, air release valve exercising, pump station inspections, etc.)?	X		No	6/22/10	LS	See listed of completed PM activities.
a. If not, determine cause and if additional staff is necessary to complete required schedule.	-	-	No	-	-	NA
4. Were the pipeline, manhole segments, and pump station integrity inspections as part of the Asset Management Master Plan implementation completed?	X		No	-	-	See June 2010 DWE Letter-report.
5. Is the Force Main Integrity inspection program on track?	X		No	-	-	See June 2010 DWE Letter-report.
6. Have the following standard operating procedures been reviewed and up-to-date?	X		No	6/22/10	LS	District staff meets weekly, providing the opportunity to recommend improvements if necessary.
a. SOP – Hydrocleaning Procedure Gravity System and Manholes	X		No	6/22/10	LS	District staff meets weekly, providing the opportunity to recommend improvements if necessary.
b. SOP – Video Inspection Procedure	X		No	6/22/10	LS	This SOP was revised slightly to add additional supervisor oversight when necessary.
c. SOP – Inaccessible Line Flushing Procedure	X		No	6/22/10	LS	District staff meets weekly, providing the opportunity to recommend improvements if necessary.
d. SOP – Pump Station Duties	X		No	6/22/10	LS	District staff meets weekly, providing the opportunity to recommend improvements if necessary.

**SSMP Evaluation Checklist for FY2010**

**Date Evaluation Completed: June 2010**

*Last Date Checklist Revised: June 10, 2009*

Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP?	Date	Staff Interviewed	Actions and Notes
7. Has the appropriate ongoing training for these SOPs been conducted and recorded?	X		No	6/22/10	LS	The District has 4 staff PACP trained for video inspection and is planning to hire a 3rd party to review a sampling of tapes collected by staff to evaluate their proficiency. Additionally, a nozzle selection (for Hydrocleaning) workshop was held for staff. Finally, District supervisors are planning an annual acknowledgement by staff that they are proficient in the District SOPs.
<b>Section V (Design and Performance Provisions)</b>						
1. Has the LWD Standard Spec been sufficient to address design and construction needs?	X		No	6/22/10	LS	District is evaluating the potential of including the plastic manhole in Standard Spec.
2. Has the LWD Standard Spec been sufficient to address inspection and testing needs?	X		No	6/22/10	LS	-
<b>Section VI (Overflow Emergency Response Plan)</b>						
1. Have the following standard operating procedures and their attachments been reviewed and up-to-date?	X		No	6/22/10	LS	District staff meets weekly, providing the opportunity to recommend improvements if necessary.
a. SOP – Overflow Emergency Response Plan	X		No	6/22/10	LS	As a result of the May 2010 leak on force main B2, this SOP was revised slightly to incorporate calling a commercial pumping contractor if the spill is due to a force main and for the DE to call in environmental resources (such as a biologist) as necessary.
b. SOP – Pump Station Alarm Response	X		No	6/22/10	LS	District staff meets weekly, providing the opportunity to recommend improvements if necessary.
c. SOP – Posting and Sampling Procedure	X		No	6/22/10	LS	District staff meets weekly, providing the opportunity to recommend improvements if necessary.
d. SOP – SCADA Alarms and Alpha Numeric Pages	X		No	6/22/10	LS	District staff meets weekly, providing the opportunity to recommend improvements if necessary.

**SSMP Evaluation Checklist for FY2010**

**Date Evaluation Completed: June 2010**

*Last Date Checklist Revised: June 10, 2009*

Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP?	Date	Staff Interviewed	Actions and Notes
e. SOP – Stand By Duty Operator (On Call)	X		No	6/22/10	LS	District staff meets weekly, providing the opportunity to recommend improvements if necessary.
2. Has the appropriate ongoing training for these SOPs been conducted?	X		No	6/22/10	LS	District supervisors are planning an annual acknowledgement by staff that they are proficient in the District SOPs
3. Have the newly hired employees been provided with these procedures and trained on these procedures, as appropriate?	-	-	No	6/22/10	LS	NA - No new hires in FY10.
<b>Section VII (FOG Control Program)</b>						
1. Were permits processed for new food establishments in the District?	-	-	No	6/28/10	FR	NA - No new food establishments in FY10.
a. If so, is there a FOG questionnaire completed and on file?	-	-	No	6/28/10	FR	All food establishments were visited in FY10 and all have FOG questionnaires on file.
2. In review of the SSO causes for the year, have any been attributable to FOG?		X	No	-	-	In review of the FY10 spill causes, none were attributable to FOG. See the attached Spill Summary.
3. In review of the SSO causes for the year, does the District need to consider implementation of a formal FOG Control Program? Based on conditions:		X	No	-	-	In review of the FY10 spill causes, none were attributable to FOG. See the attached Spill Summary.
a. If there are two occurrences of FOG related spills within a 500 foot length of gravity sewer line within 24 months, and		X	No	-	-	In review of the FY10 spill causes, none were attributable to FOG. See the attached Spill Summary.
b. If in review of the location of the 500 foot length it is reasonable that the cause is from food establishment and not a private residence, or		X	No	-	-	In review of the FY10 spill causes, none were attributable to FOG. See the attached Spill Summary.
c. CCTV inspection of an area clearly indicates that food establishments are not in compliance.		X	No	-	-	In review of the FY10 spill causes, none were attributable to FOG. See the attached Spill Summary.
<b>Section VIII (System Evaluation &amp; Capacity Assurance)</b>						
1. Did the monthly board meeting agenda packets include the appropriate flow summary?	X		No	-	-	See the attached monthly flow comparison between FY09 and FY10. Flows were less in FY10 as compared to FY09 in 9 of 11 months.

**SSMP Evaluation Checklist for FY2010**

**Date Evaluation Completed: June 2010**

*Last Date Checklist Revised: June 10, 2009*

Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP?	Date	Staff Interviewed	Actions and Notes
2. Have evaluations continued with respect to the inflow and infiltration?	X		No			In June 2010, IEC prepared a summary of flow monitoring in the westerly extension of Avenida Aragon at Rancho Santa Fe Road. The District suspected that I&I was occurring here. Results of the monitoring show no dry weather infiltration between the upstream and downstream sites. The next area slated for inspection is Alga Hills.
<b>Section IX (Monitoring, Measurement, &amp; Program</b>						
1. Has the checklist evaluation been completed for the fiscal year?	X		No	-	-	-
2. Are there changes that need to be made to the Spill Review Procedures?		X	No	-	-	-
3. Are there changes that need to be made to the evaluation checklist?	X		No	-	-	-
a. If yes, are the changes substantial enough such that the SSMP needs to be revised? SSMP revisions will typically occur on a five year basis. The following is a list of items which would trigger a revision of the SSMP prior to the standard five-year cycle update. Other minor changes within the District's organization, procedures, and activities would not necessitate an SSMP revision.		X	No	-	-	Minor changes have been made to two SOPs. Additionally, we recommended references to Calendar Year in the evaluation checklist be changed to Fiscal Year.
i. A substantial change in organization such that the chain of command for spill response or reporting		X	No	-	-	NA
ii. A substantial change in the regulations such that the District's legal authority (Standard Spec) is deemed by District counsel to provide insufficient		X	No	-	-	NA
iii. A substantial change in regional board reporting policy (or other regulatory agency) such that standard operating procedures for spill response		X	No	-	-	NA
iv. Review SSO causes deems a formal FOG Control Program must be		X	No	-	-	NA
v. The ongoing monitoring of District flow results indicates that the current conclusion that sufficient capacity exists in the District collection system to accommodate buildout flows is no longer		X	No	-	-	NA
<b>Section X Evaluation (SSMP Program Audits)</b>						

**SSMP Evaluation Checklist for FY2010**

**Date Evaluation Completed: June 2010**

*Last Date Checklist Revised: June 10, 2009*

Monitoring, Measurement, and Modification Question	Update Needed in SSMP?		Date	Staff Interviewed	Actions and Notes
	Yes	No			
1. Has the SSMP Program Audit been completed for the calendar year?	X		No	-	-
2. Are there changes that need to be made to the audit checklist?	X		No	-	-
<b>Section XI Evaluation (Communication Program)</b>					
1. Is the SSMP section of the District website up-to-date?	X		No	-	Website visited 6/25/10. Counter copy with GM's signature also available.
2. Has the District continued to attend meetings with Encina Wastewater Authority, the City of Carlsbad, and the City of Encinitas as appropriate?	X		No	-	-
3. In review of the spill causes and environmental impacts (if any), would additional ongoing communication with the Encina Wastewater Authority, the City of Carlsbad, or the City of Encinitas lessened or eliminated the spill cause and environmental impact?		X	No	-	-
<b>* If an update is needed in the SSMP,</b>					
1. determine if the update is significant enough to warrant re-development and re-adoption of the SSMP prior to the 5-year re-adoption schedule and					
2. describe the update needed below.					

LS - Leo Schempp  
 NA- Not Applicable  
 DE - District Engineer  
 GM - General Manager

FR - Frank Reynaga

# LWD Collection System Workorders

July 1, 2009 thru June 22, 2010

	TVI	HC	SMA	EI	RS	MHI	FMI	PR	Flush	total
Scheduled	511	5697	355	1053	0	88	27	0	9	7740
Completed	426	5507	351	1042	0	83	27	0	9	7445
% completion	83.4%	96.7%	98.9%	99.0%	100.0%	94.3%	100.0%	100.0%	100.0%	96.2%

Unscheduled	90	62	95	13	6	0	0	1	2	269
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## Total Workorders Completed: 7714

	TVI	HC	SMA	EI	RS	MHI	FMI	PR	Flush	
Completed	516	5569	446	1055	6	83	27	1	11	7714

TVI, Television Inspection

HC, Hydrocleaning

SMA, Special Maintenance Areas

EI, Easement Inspection

RS, Root Saw – special spinning nozzle used on vactor for line segments previously designated with root intrusion

MHI, Manhole Inspection

FMI, Force main inspection – visual inspection of the first manhole upstream of the small satellite lift stations to “verify” proper pump station operation.

PR, Power Rodding – indicates actual (albeit infrequent) requirement for the “mechanical” continuous rodding truck, where an actual tool resembling an appropriately sized spiral shaped root saw in employed.

Flush, Introduction of water upstream with use of hydrant and portable “air-gap” device, but can also refer to introducing the jetter hose from the upstream manhole (because the downstream manhole is inaccessible to vactor) there is some “power wash” of pipe wall but no “pull down” of debris toward downstream manhole like with the HV-hydroclean.

# **DEXTER WILSON ENGINEERING, INC.**

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July 30, 2010

103-012/4

Leucadia Wastewater District  
1960 La Costa Avenue  
Carlsbad, CA 92009

Attention: Paul Bushee, General Manager

Subject: Leucadia Wastewater District Fiscal Year 2010 Asset Management Master  
Plan Implementation and Capital Projects

The purpose of this letter-report is to summarize the Leucadia Wastewater District's (District) Asset Management Master Plan Implementation activities and capital projects. The compilation of these efforts summarizes the District's management of its sanitary sewer system assets for the Fiscal Year 2010.

After providing background on the Asset Management Master Plan (AMMP) and its implementation (AMMPI), this letter-report will discuss the specific AMMPI activities conducted by the District in Fiscal Year 2010 (FY10). The AMMPI section will also discuss recommended improvements to the AMMP methodology and process. The last section will summarize the capital acquisitions and capital improvement projects completed in FY10.

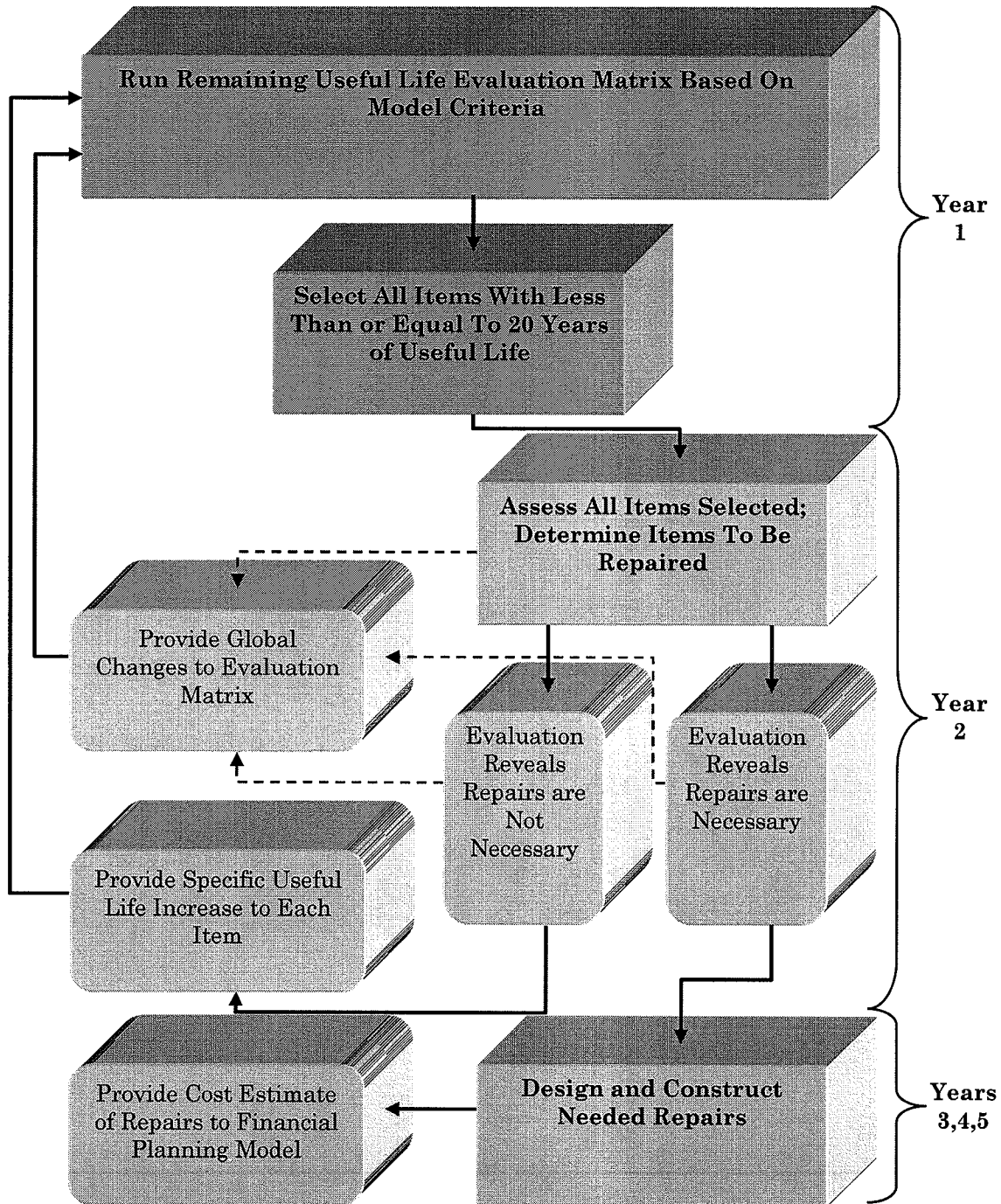
This document will assist in the District's FY10 Sanitary Sewer Management Plan Audit.

## BACKGROUND

The District's 2008 Asset Management Master Plan (AMMP) was developed to aid the District in transitioning from a growth-based capital improvement program to a replacement-based program. The purpose of the AMMP is to establish a methodology or model to identify those existing facilities most at risk for replacement. By generating such a list, using this predictive model and correlating it with actual field observations and field experience, a more realistic shortlist can be created on a recurring basis. Then this shortlist can be used to evaluate which facilities need to be replaced and to schedule those upgrades in the District's Capital Replacement Program.

The figure below illustrates the District's AMMP Implementation (AMMPI) Process. Year 1 was completed as part of the 2008 AMMP by developing predictive failure models for the District's pipelines and manholes. The AMMP also developed facility replacement reports for each of the District pump stations to identify when capital expenditures may occur for the station's major components (e.g. electrical, structural, force main). Over FY10, Year 2 of the AMMPI, Infrastructure Engineering Corporation (IEC) was tasked with inspecting those facilities with 20 years of useful life remaining and less, as determined by the predictive failure model. For the facilities evaluated, they determined what facilities required repair.

### AMMP IMPLEMENTATION PROCESS



## AMMP IMPLEMENTATION ACTIVITIES

The following section describes the AMMPI activities which took place in FY10 and discusses the budget impacts of these activities. The recommended approach for continuing the AMMPI is described along with specific tasks to be completed in FY11. The AMMPI Activities over FY10 consisted of:

- Inspection of pipelines and manholes with remaining life of less than 20 years
- Inspection and evaluation of pump stations
- Evaluation of force mains

### **Inspection of Pipelines and Manholes with Remaining Life of Less Than 20 Years**

The pipeline and manhole inspections were completed by IEC. The statistics, recommended capital projects, and ongoing AMMPI tasks in this section have been extracted from IEC's May 2010 report to the District titled, *Asset Management Master Plan Implementation Assistance Phase I*.

The following are the highlights of what was inspected:

- Of the 158 sewer facilities identified by the 2008 AMMP as having less than 20 years of remaining useful life, inspection was completed on 16%, leaving 133 lines to be inspected.
- Of the 39 sewer facilities identified as having 0 years of remaining useful life
  - 78% (18 of 23) of pipes smaller than 18-inch have been inspected
    - 15 of these were given a NASSCO grade 1, defined as "Failure unlikely in the foreseeable future"
    - 3 of these were given a NASSCO grade 2, defined as "Pipe unlikely to fail for at least 20 years"
    - Remaining five lines require traffic control plans, submitted to City of Carlsbad.

- 0% (0 of 16) of pipes larger than 18-inch have been inspected. Six line segments were inspected by LWD staff, but these inspections were somewhat inconclusive due to high flows. These lines are scheduled to be inspected by a CCTV contractor in FY11.

More importantly, a majority of vitrified clay pipe (VCP), installed with cradles, have been discovered throughout the Collection System. Inspection of these lines has taken precedence over pipes with less remaining useful life. Repair/replacement of at least six of these defective lines is scheduled for FY11 (see below).

**Resulting Capital Projects.** As a result of these inspections, six pipe segments given a NASSCO grade 5 (Piraeus, Levante, Gibraltar, and Arenal) will be replaced. \$110,000 has been appropriated in the FY11 budget to accomplish this (Asset Management – Pipeline Repair/Replacement).

**Ongoing AMMPI.** IEC recommended the following activities to continue the AMMPI:

- CCTV those sewers larger than 18-inch with 0 years of remaining useful life (16 segments)
- All remaining VCP pipes that are installed on concrete cradles should be inspected in the near future for repair/replacement.
- Continue CCTV inspections per the table provided in the May 2010 report.
- Replacement or repair of facilities listed as having failed or as likely to fail in the next 5 years should be implemented.

**Predictive Failure Model Revisions.** In doing their work, IEC slightly revised the predictive failure model presented in the 2008 AMMP to exclude the adjustment to useful life based on the depth to diameter ratio. In making this change, the list of pipes with 0 years of remaining useful life was increased by 1 and decreased by 15. Although IEC found that 18 of the 39 pipes with 0 years of remaining useful life had a NASSCO grade of 1 or 2 (and are less than 18-inch), we would recommend abstaining from any revisions to the predictive failure model methodology until the remaining pipelines can be inspected.

An adjustment to useful life for VCP installed with cradles should be considered.

An adjustment for pipe lining could also be added once the pipelines are repaired, or the age could be adjusted.

### **Inspection and Evaluation of Pump Stations**

In March 2009, IEC and District staff along with structural, electrical, and corrosion engineers, inspected eight of the District's pump stations and provided recommendations for FY10 and beyond. The pump stations inspected were:

- Batiquitos
- Village Park No.7
- Village Park No.5
- Encinitas Estates
- La Costa
- Leucadia
- Saxony
- Rancho Verde

The District's remaining 3 pump stations (Meadows No. 3, Avocado, and Diana) were not inspected as Meadows No. 3 is in the process of being decommissioned, and Avocado and Diana were replaced in FY10.

See IEC's May 2010 report for a summary of the recommended improvements.

**Resulting Capital Projects.** Previous inspection of the Avocado and Diana PS recommended complete replacement of these stations, which occurred in FY10.

In FY10, IEC completed a Preliminary Design Report for the required improvements at Batiquitos Pump Station. The FY11 budget includes monies for design and 25% of the construction cost.

IEC's May 2010 report should be revisited in preparation of the FY12 budget to capture the recommended improvements to the remaining pump stations.

**Ongoing AMMPI.** Continuation of the recommended inspection schedule of 5 years as outlined in the AMMP should be acceptable. We would recommend revising the facility replacement reports and financial model based on the results of IEC's May 2010 study. Some coordination with the District would be required to determine when the pump station improvements shall occur.

### **Evaluation of Force Mains**

In the second half of 2006, IEC evaluated the force mains from the Avocado, Diana, Meadows No. 3, Encinitas Estates, Village Park No. 5 and Village Park No. 7 pump stations. IEC's work recommended either replacing the current force main or constructing a parallel force main for each of the pump stations. In 2008 the Village Park No. 5 force main was replaced. In 2009 and 2010, parallel force mains were installed at Avocado and Diana Pump Stations and the force mains for the Encinitas Estates and Village Park No.7 pump stations were replaced. A new force main was not installed at Meadows No. 3 Pump Station because it was designated for decommissioning in 2010.

The La Costa, Saxony, and Rancho Verde pump station force mains were installed within approximately the last ten years and were therefore not evaluated in the recent efforts.

**Evaluation of Force Mains L1, L2, B2, and B3.** In 2009, Dexter Wilson Engineering, Inc. completed the force main evaluation plan to provide a roadmap for evaluating these force mains. For external corrosion, the plan recommended conducting a detailed assessment of the existing cathodic protection on these critical pipelines. For internal corrosion, the plan recommended the CCTV inspection of L1, B2, and B3 via points presently accessible (e.g., above ground elbows and end of force mains). The plan also recommended construction of access manholes at two locations along L1 for further inspection.

Combating corrosion in these force mains with the use of an oxidizing agent has also been discussed. Bioxide is presently in use at Leucadia and is being considered for addition at Batiquitos. Staff and consultants evaluated the viability of the saturated oxygen technology ECO2 as a potential Bioxide alternative. There are no plans to change oxidizing agents at this time.

Regarding external corrosion, in May 2010, corrosion engineers from RF Yeager Engineering issued a report to the District identifying the level of cathodic protection and electrical continuity on each of these four force mains. Dexter Wilson Engineering, Inc. summarized this report in the May 7, 2010 memo to staff and discussed a proposed path forward in continuing to evaluate these critical force mains. In general, the memo recommended inspecting B2 and B3 at the force main discharge, improving cathodic protection on L2, B2, and B3, and an internal inspection of the non-cathodically protected section of L1 between I-5 and Highway 101 via the installation of an access manhole.

In the midst of these evaluations and planning efforts, force main B2 experienced a leak between the Batiquitos Pump Station and the San Marcos Creek bridge crossing. The primary cause of the leak was determined to be external corrosion caused by improper backfill material.

**Resulting Capital Projects.** In FY11, the District has appropriated \$1,262,900 to the Leucadia and Batiquitos pump station force mains. More specifically, the District has allocated \$202,000 to construction of the access manhole on L1, \$165,000 for cathodic protection, and \$800,000 for lining of sections of B2 and B3. Subsequently, the installation of the access manhole on L1 has been placed on hold during the repair or replacement of B2 and B3.

RF Yeager's May 2010 report and Dexter Wilson Engineering's May 2010 memo should be revisited in preparation of the FY12 budget to capture additional recommended capital improvements.

**Ongoing AMMPI.** Revision of the pump station facility reports and financial model should incorporate the force main improvements for the satellite pump stations.

Regarding Leucadia and Batiquitos, the District staff is still presently confirming the appropriate path forward on the internal and external inspection and protection of these four force mains, particularly in light of the recent leak in the B2 force main.

We recommend continuing the path forward on internal evaluations of L1 and the discharge ends of B2 and B3.

## CAPITAL ACQUISITION AND IMPROVEMENT PROJECTS

The purpose of this section is to summarize the District's FY10 capital acquisitions and capital improvement projects. Some of these projects were a direct result of AMMP efforts.

### FY2010 Capital Acquisition

- Replace 2 vehicles
- Inflow Domes/Riser Rings/Seals/Air Vacs
- Replace Computers
- IS Network Upgrades
- Gafner Sand Filter Replacement

### FY2010 Capital Improvement Projects

In addition to the AMMPI activities, the District also conducted several CIP projects over the course of FY10. The following highlights these activities.

- Site Improvement Program – Construction was complete in January 2010 to redevelop the District headquarters site and construct facilities to meet the District's Board and staffing needs for the next 25 to 50 years. A public dedication ceremony was held November 6, 2009 in concert with celebrating the District's 50<sup>th</sup> anniversary.
- Satellite Pump Station Force Mains and 101 Trunk Sewer Replacement – These two projects were combined into a single project to enable both to be covered by the same Coastal Development Permit for construction. The project contract was awarded to TC Construction and a Notice to Proceed filed in October 2009. Construction is estimated to be completed by October 2010.
- Batiquitos Influent Line Replacement – Construction of a replacement sewer line was completed in February 2010 to increase the capacity of this gravity sewer line.

- Force Main Corrosion Study – The District completed the study which recommended evaluating the level of cathodic protection on the District’s most critical force mains – those leaving the Leucadia (L1 and L2) and Batiquitos (B2 and B3) Pump Stations. Because most of the force mains were constructed in phases, the District also developed composite plan and profile drawings of each of the four force mains to allow easy identification of features and stationing. Features and appurtenances were then incorporated into the District GIS. The District also completed an external corrosion evaluation of the Leucadia and Batiquitos Pump Station force mains which provided cathodic protection and electrical continuity improvement recommendations.
- Meadows Number 3 Pump Station Decommissioning – The area surrounding Carrillo Village Properties, serviced by the Meadows No. 3 Pump Station, is currently being developed. The City of Carlsbad will construct a new backbone sewer line that will enable the wastewater generated by Carrillo Village Properties to be conveyed by gravity through Carlsbad’s sewer collection system. As part of Carlsbad’s sewer line construction project, the City held the project bid opening in December 2009. Construction will occur in Spring 2010.
- Batiquitos Pump Station Rehabilitation – The contract for this project was awarded to IEC in December 2009. The pump station initial assessment was completed in December 2009 as well. IEC completed their preliminary design report in Spring 2010.
- Groundwater Feasibility Study – The District awarded a contract to Dexter Wilson Engineering, Inc. to evaluate the potential use of groundwater from areas within the District boundaries. The study was completed in April 2010. Based on the initial evaluation groundwater extraction was not found to be feasible.
- Lateral Replacement/Backflow Preventer Program – This is a District subsidy/reimbursement program to eliminate I&I through repair/replacement of damaged/leaking private laterals. The District reimbursed 22 residences in FY10.
- EWA Capital Program – The District continues to fund their ownership-prorated share of the capital improvements of the EWA facilities.

Paul Bushee  
July 30, 2010

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We recommend this memo be filed with all of the District's AMMPI documents and referred to as the AMMPI activities continue.

We appreciate the opportunity to have worked with you on the District's ongoing asset management planning. Please contact us with any questions.

Dexter Wilson Engineering, Inc.

*Steve Nielsen for*

Natalie Fraschetti

NF:ps

# Leucadia Wastewater District

## Standard Operating Procedure

PAGE: 1 of 4  
EFFECTIVE: June 25, 2010  
REVIEW: June 25, 2011

### **SUBJECT: Video Inspection Duties**

#### **1.0 PURPOSE**

The purpose of this procedure is to standardize the method used by Field Services staff when conducting CCTV (Closed Circuit Television) inspections. It is intended to ensure operation, maintenance, and data collection for the Collection System owned and operated by LWD are accomplished in a consistently safe and efficient manner.

#### **2.0 SAFETY**

All District Safety Procedures regarding Traffic Safety, Electrical Safety, Lockout/Tagout, Respiratory Protection, Confined Space, Hearing Protection, and Illness and Injury Prevention must be adhered to.

- ✓ *Hearing Protection, traffic vests, safety shoes, nitrile gloves, and leather gloves and other appropriate PPE must be used when operating the CCTV van and inspecting sanitary sewers.*
- ✓ *Arrow Lights, flashers, and traffic cones are to be used whenever CCTV van is operated in the public right-of-way.*
- ✓ *Second employee must be used whenever traffic density requires extra control.*

#### **3.0 PREPARATION**

- a. Assemble assigned work orders to be accomplished for day in order from upstream toward downstream.
- b. Ensure all required Personal Protective Equipment is available.
- c. Ensure handheld GPS, onboard computer, Thomas Brother guide, map book cell phone and manhole hook are available and in working order.
- d. Perform operation check on vehicle, camera, and onboard electronics.

#### **4.0 GENERAL PROCEDURE**

Upon arrival at each manhole:

- a. Stay in truck for about a minute to observe the traffic flow and the overall safety of the location.
- b. Position rear of van over manhole, turn off vehicle engine and roll up driver's side window.
- c. Carefully review the work order to determine if manhole and line segment listed on work order have any significant historical items.
- d. Step out of truck and make final check of traffic pattern and neighborhood.
- e. Coordinate work and safety activities with co-worker, if assigned.

# Leucadia Wastewater District

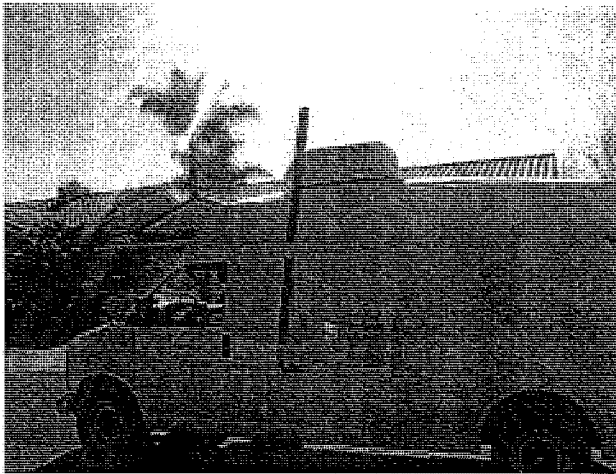
## Standard Operating Procedure

### Video Inspection Duties

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- f. Set up appropriate traffic control signs in working area. Turn on traffic control arrow board and select to desired direction. Set up traffic control cones around work area.
- g. Take atmospheric monitor (calibrated gas monitor) to fresh air and turn on. After its warm up period, place atmospheric monitor inside van on CCTV operator's desk top.
- h. Install the generator's exhaust extension device onto generator exhaust pipe; ensure locking pin is securely in place for extension device. See picture

**Safety note: Never turn generator on before attaching exhaust extender.**



- i. Start up generator and check exhaust extension device for leaks.
- j. Test installed carbon monoxide monitor, located at operator's station, by pushing red test button.
- k. Verify street address and the GPS coordinates for the work order are correct. Note line segment length.
- l. Open manhole cover carefully and observe manhole conditions. Verify presence and condition of Inflow dome and determine if manhole has been lined with SanCon. Observe condition of lining.
- m. Lower camera into manhole using proper technique.
- n. Commence CCTV Inspection.

**Safety note: Avoid prolonged staring at the computer screens by periodically looking at objects outside the CCTV van.**

- o. Record all observations in CCTV inspection report. Note observations that seem "exceptional", including odor, type and quantity of debris on work order as well. Verify that line segment length is correct based upon the footage meter.

# Leucadia Wastewater District

## Standard Operating Procedure

### Video Inspection Duties

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- p. If the inspection of the line segment cannot be completed ("Survey Abandoned") due to a defect like a severely offset joint or deformed/broken pipe, or cannot be completed satisfactorily due to the camera being submerged for lengths of pipe greater than 12 feet, **supervisor must be notified immediately.**
- q. When CCTV inspection operation is complete, wash camera and remove manhole
- r. After ensuring that no debris is left on manhole rim, return Inflow dome and replace manhole cover ensuring that it is properly seated.
- s. Turn off generator, remove locking pin and detach exhaust extension device from generator pipe.

***Safety note: Exhaust extension device may be hot, wait until cool and use special care and appropriate PPE (leather gloves) during removal.***

***Safety note: Never operate CCTV van with exhaust extension device installed.***

- s. Use extreme caution, when taking down traffic control.
- t. Report any unsafe conditions to Field Services supervisor immediately.

***Safety note: Hats, sunglasses, and sun screen should be employed when working outdoors.***

***Safety note: Always wash hands before eating and use hand disinfectant frequently.***

#### 5.0 TRAINING

##### A. LWD employees:

- 1) Will be issued a copy of this procedure and its attachments as part of their "new hire" orientation.
- 2) Will become familiar with the procedure
- 3) Will attend training as directed by the Field Services Manager.

##### B. Field Services Manager and/or Supervisor

- 1) Will provide both regular training (on-site) as well as provide the opportunity to attend outside training.
- 2) Will review procedures annually to ensure compliance with all required regulations.
- 3) Will routinely monitor and, otherwise quality assure, that staff is performing these activities properly.
- 4) Will conduct annual review of these procedures and implement any required improvements to this procedure.

# Leucadia Wastewater District

## Standard Operating Procedure

### Video Inspection Duties

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#### 6.0 PREPARATION

##### A. Field Services Supervisor

- 1) Will periodically spot check that staff has all required materials to properly carry out this procedure. This will include at a minimum:
  - a. map books, Thomas Brothers guide and laptop computer
  - b. hand-held GPS device
  - c. an operable cell phone with important phone numbers pre-programmed in memory

# Leucadia Wastewater District

## STANDARD OPERATING PROCEDURE

### OVERFLOW EMERGENCY RESPONSE PLAN

PAGE: 1 of 5  
EFFECTIVE: June 25, 2010  
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#### **SUBJECT: PROCEDURE FOR EMERGENCY RESPONSE TO SANITARY SEWAGE OVERFLOWS (SSOs)**

#### **1.0 PURPOSE**

The procedure for responding to sewage overflow was developed and instituted to:

- a. Standardize the proper method used by Field Services staff when responding to a report of a possible sewage overflow.
- b. Ensure that all safety precautions and industry practices are consistently followed to minimize the impact of a sewage spill to public health, worker safety and the environment.
- c. Provide notification to all appropriate external agencies and LWD management of the SSO in accordance with 40 CFR 122.41, State Water Resources Control Board (SWRCB) Order No. 2006-03, General Waste Discharge Requirements (GWDR), dated May 3, 2006, SWRCB Order No. WQ 2008-0002-EXEC, dated Feb 20, 2008, and San Diego Regional Water Quality Control Board (SDRWQCB) Waste Discharge Requirements Order R9-2007-005, dated Feb 14, 2007.

#### **2.0 SAFETY**

**Nothing in these procedures supersedes, or in any other way, relaxes LWD Safety Procedures regarding Traffic Safety, Electrical Safety, Lockout/Tagout, Confined Space, Infectious Disease, or Illness and Injury Prevention.**

#### **3.0 PROCEDURE**

**A. Any LWD employee (including answering service staff)**, being notified of a "sewage spill or overflow", will carry-out the following duties:

- 1) politely interact with the caller, obtain all relevant information and fill out a "Work Order/Service Request" {Attachment (a)}. (Note time spill is reported.)
- 2) utilizing the alpha-numeric paging system immediately notify the Field Service Supervisor and/or Manager (or the on-call operator) that sewage overflow/spill has been reported. If sewer overflow is backing up into a building or residence, Administrative Services Manager must also be notified. Use LWD Emergency phone card {Attachment (b)} or Frequently Called Numbers {Attachment (c)} or the alpha paging system located in email. [Note time of notification was made.]

**B. Stand By Duty Operator (staff member responding to spill)**

- 1) Quickly but **safely** proceed to the location of the reported spill in **one of the Vectors**.

# Leucadia Wastewater District

## STANDARD OPERATING PROCEDURE

### OVERFLOW EMERGENCY RESPONSE PLAN

PAGE: 2 of 5  
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- 2) Upon arrival, immediately investigate and assess the situation, especially for any safety hazards. Determine if there is any exceptional or additional measures required to protect the public, such as traffic control or crowd control. As practical and within safety limits consider the use of barriers, taping of the area, or requesting assistance from law enforcement officials.
- 3) Determine the type of water overflowing/spilling. **Make a rapid estimate of spill flowrate or its volume, the source of the spill, and its destination.** {see photos of various spill volumes, Attachment (d)}.
- 4) Note time of arrival on Emergency Action Report {Attachment (e)}.
- 5) Immediately make all practical efforts to contain the overflowing sewage and then, as rapidly as possible, **correct the cause of the spill.** [Note times spill is contained and/or stoppage corrected on Sewer Spill Data Sheet {Attachment (f)}].

***(If spill is due to power outage at a pump station, notify Field Services Supervisor immediately. If the station has an emergency generator, confirm that it is operating. If the power outage occurs at a station without an emergency generator, request a portable emergency generator be brought to the affected pump station. See also the Standard Operating Procedure - Pump Station Emergency Response)***

***(If the source of the spill is a forcemain, notify the Field Services Supervisor immediately so that commercial pumper trucks can be dispatched without delay.)***

***(Spill Response includes deploying spill kit barriers across the entrance of nearby storm drains, verifying proper lift station operation or securing lift station operation as required, and checking manholes for stoppages caused by grease or other debris.)***

***(Note: If circumstances preclude spill containment, the responding LWD staff member will, as soon as practical, determine the ultimate destination of the spill and evaluate the feasibility of secondary containment or collection.)***

- 6) Keep Field Services Supervisor informed of all aspects of the Spill (time of arrival on scene, estimated volume or amount of spill, **all requirements for extra staff or special equipment**, with periodic updates/re-assessments, and the cause of the spill, including the determination if it is a private lateral spill and the property owner's responsibility.)
- 7) Record the various times of events and details of the spill response on Sewer Spill Data Sheet. {Attachment (f)}. Use handheld GPS device to determine latitude and longitude of spill location and spill destination, if this location is substantially different (over 1000 yards away). (New General Waste Discharge Requirements requires LWD staff to determine latitude and longitude of spill and latitude and longitude of spill's destination.)
- 8) If required, assist pumper truck operator in returning all collected wastewater to sewer collection system.

# Leucadia Wastewater District

## STANDARD OPERATING PROCEDURE

### OVERFLOW EMERGENCY RESPONSE PLAN

PAGE: 3 of 5  
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- 9) Assist with any and all repair/remediation efforts directed by Field Services Manager and/or Field Services Supervisor.
- 10) Review the Emergency Action Report sheet {Attachment (e)} and the Sewer Spill Data Sheet {Attachment (f)}, completing all sections with the required data.
- 11) Take photographs, if possible, to record spill size and spill damage
- 12) As soon as practical after the spill/overflow has been corrected/cleared, wash and/or remediate all areas affected by the spill. Wash water and other debris, as well as contaminated soil should be collected and properly disposed of.

**Note: If any aspect of the spill (e.g., spill greater than 1000 gals, spill location, spill destination, damage to private property, media interest, injury, etc.) is "exceptional" or there is any doubt regarding the spill, LWD staff member is to immediately notify the Field Services Supervisor, Field Services Manager, or General Manager at their offices or homes.**

#### **C. Field Services Supervisor and Field Services Manager**

- 1) Will dispatch additional assistance as required/requested by responding LWD Staff. Will request assistance from list of emergency contractors as necessary. {see Attachment (i)}
- 2) Will make all required telephonic notifications to the Regional Water Quality Control Board, SD County's Office of Environmental Health, and the Office of Emergency Services (OES) within two hours for any spill reaching a storm drain, drainage channel, or surface waters. {see Attachment (f), SDRWQCB Flow Chart Attachment (g), and Attachment (h)}
- 3) Based upon size and location of sewer spill, will coordinate with District Engineer, RWQCB, Environmental Health, and Fish and Game to determine number, locations, frequency, and type of analyses for the samples required to determine environmental impact of spill and prepare and carry out a written plan and protocol as soon as practical but within 1<sup>st</sup> 24 hours. District Engineer will make recommendations as soon as possible to incorporate additional resources such as an environmental scientist or biologist as necessary.
- 4) Will conduct an immediate investigation into the spill, including a review of the affected sewer line's preventative maintenance history within 24 hours using Spill Review Checklist {Attachment (j)}.
- 5) After investigation is completed and properly documented, a narrative report will be submitted to the General Manager.
- 6) Will conduct a spill response debriefing.
- 7) Will ensure completion of any requirements of regulatory agencies as soon as can be **safely** carried out (e.g., **posting** of affected areas, sampling, soil remediation or capping, environmental mitigation, etc.).

# Leucadia Wastewater District

## STANDARD OPERATING PROCEDURE

### OVERFLOW EMERGENCY RESPONSE PLAN

PAGE: 4 of 5  
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- 8) Will prepare and/or review all follow up documentation for inclusion in the GWDRs required SSO database, California Integrated Water Quality System (CIWQS) within twenty-four hours.

**Note: Procedures for Beach Posting is provided separately.**

#### 4.0 TRAINING

##### A. LWD employees:

- 1) Will be issued a copy of this procedure and its attachments as part of their "new hire" orientation.
- 2) Will become familiar with the procedure and the duties required during a Spill Response.
- 3) Will attend Spill Response Training annually as directed by the Field Services Manager.

##### B. Field Services Manager and/or Supervisor

- 1) Will provide both regular training (on-site) and drills (simulated and "Hands On") on spill response annually as well as provide the opportunity to attend outside training.
- 2) Will review procedures annually to ensure compliance with all required regulations.
- 3) Will routinely monitor and, otherwise quality assure, that emergency response equipment and supplies are maintained in a high degree of readiness.
- 4) Will conduct annual review of these procedures as well as LWD's collection system and the storm drain system within LWD service area to determine in advance any probable locations for sewage spills and the deployment of secondary containment. These locations will be included in Emergency Overflow Response Plan Training.
- 5) Will review spill investigation and implement any required improvements to this procedure.

#### 5.0 PREPARATION

##### A. Field Services Supervisor

- 1) Will periodically spot check that Vactors and OnCall Vehicle have all required materials to properly respond to and contain a sanitary sewer overflow. This will include at a minimum:
  - a. map books, Thomas Brothers guide and laptop computer
  - b. tarps
  - c. shovel
  - d. disposable camera
  - e. hand-held GPS device

# Leucadia Wastewater District

## STANDARD OPERATING PROCEDURE

### OVERFLOW EMERGENCY RESPONSE PLAN

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- f. applicable forms and copies of Ordinance 119 {Attachment (h)}
- g. an operable cell phone with important phone numbers pre-programmed in memory
- h. materials and supplies required to properly post signs warning of water contamination
- i. sample bottles and chain of custody forms to conduct water sampling

#### **B. Stand By Duty Operator**

Preparation for Sanitary Sewer Overflows is part of the Standard Operating Procedure for Stand By Duty Operators. See the SOP for specific requirements.

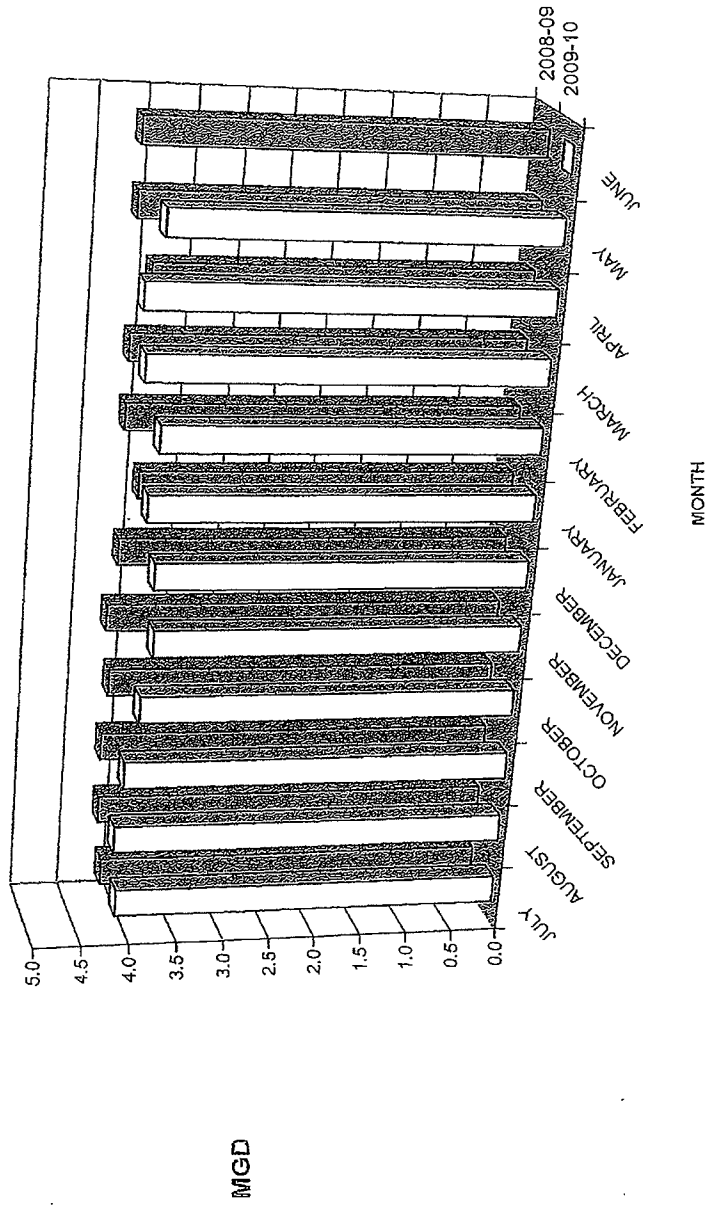
#### **ATTACHMENTS**

The list of attachments to this plan are as follows:

- a. Work Order/Service Request
- b. Employee Phone Card
- c. List of Frequently Called Numbers
- d. Spill Volume Photos
- e. Emergency Action Report
- f. Sewer Spill Data Sheet
- g. SDRWQCB Flow Chart
- h. SOP – Reporting Sanitary Sewer Overflows
- i. Emergency Contractors Contact List
- j. Spill Review Checklist



LEUCADIA WASTEWATER DISTRICT  
 FLOW COMPARISON FY 09 to FY10



**ATTACHMENT B**

**SECTION X SSMP AUDIT CHECKLIST, FY10**

SSMP Audit Checklist			
Section	Requirement	SSMP Current	SSMP Implemented
I - Goals	Reduce, prevent, and mitigate SSOs	X	X
II - Organization	Designate Legal Responsible Oversight	X	X
	Organizational Chart	X	X
	Contact info for SSMP implementation	X	X
III - Legal Authority	Prevent illicit discharges	X	X
	Require proper design and construction	X	X
	Ensure access to facilities	X	X
	Limit FOG	X	X
	Enforce violations	X	X
IV - O&M Program	Up to date mapping	X	X
	Describe routine PM program	X	X
	Rehabilitation and replacement plan	X	X
	Proper training	X	X
	Equipment and replacement part inventories	X	X
V - Design and Performance Provisions	Design and construction standards for new facilities	X	X
	Design and construction standards for rehab and replacement facilities	X	X
	Procedures and standards for inspection and testing of new facilities	X	X
	Procedures and standards for inspection and testing of rehab facilities	X	X
VI - Overflow Emergency Response Plan	Notification procedures	X	X
	Response plan	X	X
	Appropriate training	X	X
	Procedures for emergency operations	X	X
	Program to contain and prevent SSOs from reaching waters	X	X
VII - FOG Control Program	Determine if applicable	X	X
VIII - System Capacity Assurance	Capacity evaluation up to date	X	X
	Design criteria in place	X	X
	Capacity enhancement measures	X	X
	Schedule	X	X
IX - MMM	Maintain relevant info	X	X
	Monitor implementation	X	X
	Assess success of PM program	X	X
	Update program elements	X	X
	Identify and illustrate SSO trends	X	X
X - SSMP Audits	Conduct annual audit	X	X
	Prepare audit report	X	X
	Record changes made/corrective action taken	X	X
XI - Communication Program	Communicate regarding preparation	X	X
	Communicate regarding performance	X	X
	Communicate with surrounding agencies	X	X