

**LEUCADIA WASTEWATER DISTRICT  
SEWER SYSTEM MANAGEMENT PLAN  
FISCAL YEAR 2018 AUDIT**

October 30, 2018



**Prepared by:  
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Job No. 103-015/8

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October 30, 2018

103-015/8

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  
2018 Audit

The Leucadia Wastewater District's Sewer System Management Plan (SSMP) was adopted by the District Board and certified by the General Manager in June 2014. The purpose of the SSMP is to memorialize and publicly present in a central document the programs and activities utilized by the Leucadia Wastewater District (District) to effectively manage its wastewater collection system. The SSMP requires audits of the SSMP at least every two years. The District has decided to conduct annual audits.

The purpose of this letter-report is to present the Fiscal Year 2018 (FY18) Audit (the fourth audit of the 2014 SSMP) in fulfillment of the District's SSMP requirements. The Audit 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 (WDR) 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 Sewer System Overflow (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 (Evaluation Checklist) is used on an annual basis to evaluate the applicability and effectiveness of the District's SSMP.

In completing the Evaluation Checklist (found in Attachment A), we find that, in general, the District's activities, programs, and efforts meet or exceed the requirements of the SSMP. Minor changes were made to the SSMP to more accurately reflect the District's procedures and customer/community outreach. However, the changes do not necessitate a re-adoption of the SSMP prior to the scheduled June 10, 2019 revision, per the required five year cycle. In completing the Evaluation Checklist, there are several items to note, as discussed in the Audit Discussion section below.

### **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, 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 requirements, including the identification of any deficiencies in the SSMP and the steps taken 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 FY18 can be found in Attachment B.

### **Audit Discussion**

The following paragraphs highlight notable elements of the Audit organized by the relevant SSMP Section. Additional notes can be found on the Evaluation Checklist in Attachment A.

**Sections I, II, and III (District Goals, Organization, and Legal Authority).** No appreciable changes have occurred to the District's Goals, Organization, or Legal Authority since the 2014 SSMP. The statewide WDR which governs the SSMP is in the process of being revised. District staff have been active in this process toward reissuance of the WDR.

There was one new employee hired in FY18.

**Section IV (Preventative Maintenance Program).** General statistics regarding the District's preventative maintenance activities are provided in Attachment C. Also in Attachment C, Exhibit C-1 graphically illustrates those areas within the District which are readily accessible for hydrocleaning and closed circuit television (CCTV) inspection and those areas which have additional needs or requirements in order to hydroclean or CCTV, such as the need for significant traffic control procedures or night work due to day time traffic volume or wastewater flows.

Exhibit C-2 tracks the general progress of CCTV inspections in the District. Per the District's 2014 SSMP, the District strives to CCTV their entire system every three years. In review of Exhibit C-2, there are areas within the District which have not been CCTV inspected in the last 3 years. These areas shall be CCTV inspected in FY19.

The District is on track to meet its SSMP goal of CCTV inspecting all 200 miles in a three year timeframe.

In FY16, the District began introducing foam treatments in pipelines and manholes for the treatment of roots. The initial results were favorable and the District has incorporated foam treatment into the regular schedule of preventative maintenance activities. Eleven additional line segments utilized foam treatment for root control in FY18.

The District's Asset Management Plan (AMP) was revised in May 2018. Progress throughout FY18 with respect to the previous AMP (and other asset planning efforts) is summarized in the Attachment I letter-report at the end of the audit. The District's revised AMP is summarized as well in Attachment I.

The FY18 and FY19 SOP training schedules can be found in Attachment D and all updated SOPs are included on a CD in Attachment E.

**Section VI (Overflow Emergency Response Plan).** A minor revision was made to the OERP. Field Services protocols were amended for SSOs that reach surface water.

**Section VII (FOG Control Program).** None of the FY18 SSOs were attributable to FOG, continuing the District's SSMP determination that a formal FOG control program is not warranted at this time. The District continues to require BMP agreements for all new food services establishments.

**Section VIII (System Evaluation and Capacity Assurance).** The District continues to monitor (and address as necessary) the presence of scale in the Alga Hills area. The area was most recently CCTV inspected in FY17 and is hydrocleaned every six months. Any defects discovered during the CCTV inspections are incorporated into the District's Repair Priority List.

Inflow domes are present in 2,268 of the District's 5,103 manholes to aid in reducing inflow. Figure 1 shows the manhole locations where inflow domes have been installed throughout the District.

Flow analyses of the District were conducted as part of the District's 2008, 2013, and 2018 AMPs. All three documents concluded that estimates of average and peak ultimate flows are within the design values of the District and less than the flows utilized in the District's detailed capacity analyses conducted as part of the 1999 Wastewater Master Plan. There are no capacity-driven replacement projects currently identified for the District. For reference, the current buildout flows for the District are projected to be 4.7 mgd in comparison to the 1999 Master Plan where buildout flow were projected at 6.5 mgd.

The District's monthly flow comparison between FY17 and FY18 can be found in Attachment F.

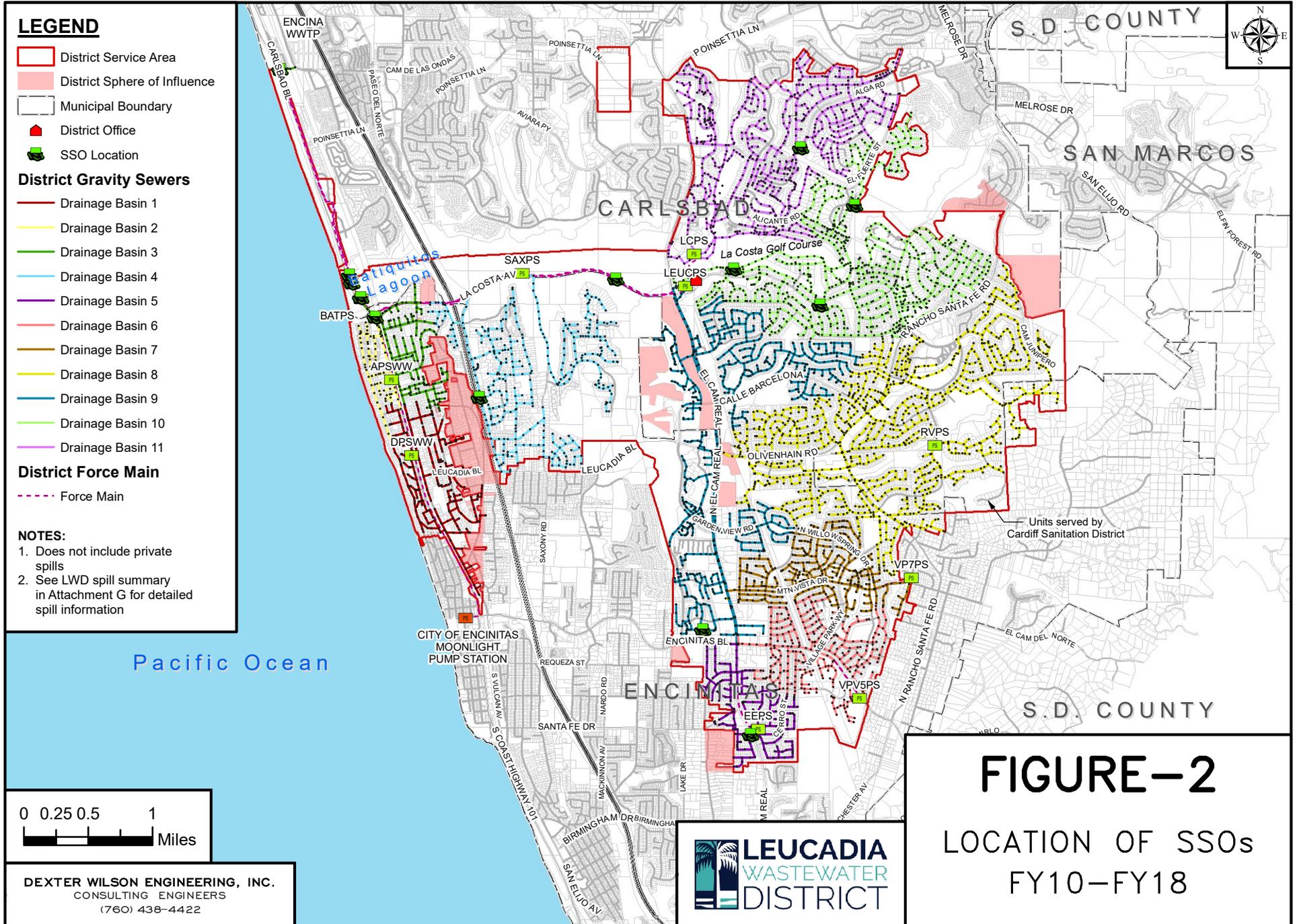
**Section IX (Monitoring, Measurement, and Program Modifications).** The District's Spill Summary through June 30, 2018 can be found in Attachment G. Four spills occurred in FY18; two were from private laterals, one was from a private grease interceptor, and one Category 2 spill from a blow off valve.

The cause of the Category 2 spill was a driver who veered off of La Costa Avenue and hit the blow off valve, damaging the protective housing and sheering off the valve. The blow off valve is on the Leucadia Pump Station force main which was not in operation at the time of the event. The 11,700 gallons that drained from the line was completely captured and returned to sewer.

Spill review checklists for each event are on file at the District office. Figure 2 identifies the location of each spill in a public line or manhole over the last nine years.

**Section XI (Communication Program).** The District has made the 2014 SSMP and subsequent audits available on its website. The District is also now actively posting to Facebook to communicate with the general public. Additionally, a formal presentation is provided to the Engineering Committee and Board of Directors and is part of those agendas and meeting packets.





### **Recommended SSMP Edits**

Two edits are recommended to the SSMP which will be documented in the SSMP Change Log (Appendix B of the SSMP). The edits consists of (1) an expansion of the District's public outreach actions including active posting to its Facebook page and (2) updating the SSMP Evaluation Checklist to better reflect District practices. Attachment H to this letter-report provides the specific edits to the SSMP. Additionally, the edits are documented in the SSMP change log (Appendix B of the SSMP). The revisions to the SSMP are not significant enough to warrant re-adoption of the District's SSMP prior to the scheduled June 10, 2019 revision.

### **Summary of Recommendations**

The following section summarizes recommended items as a result of the FY18 Audit:

- The District should consider revising the sewer sub-basin map that is included in the monthly board packet to reflect the areas that have been de-annexed.
- Ensure that those sewers which require additional measures (e.g. traffic control, easements, etc.), to maintain three year cleaning/CCTV cycles are scheduled for FY19 (See Exhibit C-1 for those locations requiring attention in FY19 to meet the three year target).
- Ensure that the planned O&M activities (e.g. hydroclean and CCTV inspect every 5 years) for the Occidental pipeline are on track (see AMPI memorandum Attachment A).
- Confirm that inflow domes are being tracked in IWater/CMMS; the reported count of inflow domes in the system for FY18 is the same as those reported in FY17.
- Complete all Scheduled SOP trainings in FY19 (see Attachment D).

Paul Bushee  
October 30, 2018

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**Next Steps**

This FY18 SSMP Audit should be retained for inclusion in the next SSMP recertification by the General Manager and adoption by the District Board scheduled to occur by June 10, 2019. Please be sure to post this FY18 Audit on the District's website and include a hardcopy in the District's 2014 SSMP counter copy. We appreciate the opportunity to have worked with the District on this project. Should you have any questions please do not hesitate to contact us.

Dexter Wilson Engineering, Inc.

A handwritten signature in blue ink, appearing to read "Natalie Fraschetti".

Natalie J. Fraschetti, P.E.

NJF:SH:sg

Attachment(s)

## **LIST OF ATTACHMENTS**

A – SSMP Evaluation Checklist

B – SSMP Audit Checklist

C – District Preventative Maintenance Statistics

D – SOP Training Schedule

E – Field Services SOPs

F – District Flow Comparison FY17 to FY18

G – LWD Spill Summary through June 30, 2018

H – SSMP Revisions

I – Letter-Report to LWD General Manager Regarding AMP Implementation

**ATTACHMENT A**

**SSMP EVALUATION CHECKLIST**

**Leucadia Wastewater District SSMP Evaluation Checklist for FY2018**

**Date Evaluation Completed:**

*Last Date Checklist Revised: October 24, 2018*

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 an appreciable change in the Strategic Plan?		✓		10/9/18	RDD	
2. Was the current organizational chart included in the annual financial plan?	✓			10/9/18	RDD	
3. Were the District goals addressed in the annual Fiscal Year Tactics & Action Plan?	✓			10/9/18	TSM	
4. Has the District's Legal Authority been reviewed considering new regulations?		✓		10/9/18	TSM	WDR revision anticipated in FY2019.
5. If appropriate for three year review cycle, has the District's Standard Spec been reviewed for necessary changes?	✓			9/28/18	DE	Revision in progress. Adoption planned for 2019.
6. Was the staff size and organizational chain of command sufficient for implementation of the preventative maintenance programs and SSO spill response?	✓			10/9/18	TSM	
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?		✓		9/28/18	DE	The only LWD SSO was caused by vehicle striking a blow off valve. There was no environmental impact.
8. In review of the spill causes and environmental impacts (if any), was the sufficient legal authority for the District to respond and take action as necessary?	✓			9/28/18	DE	LWD recovered cost of repairs for accident from individual.
<b>Section IV (Preventative Maintenance Program)</b>						
1. Have all new construction or rehabilitation projects been entered into the GIS database?	✓			10/9/18	FSP	Yes. Fair Oaks to be finalized.
2. Have the new pipelines, manholes, and updates from the field been included in CMMS?	✓			10/9/18	FSP	Yes. Fair Oaks to be finalized.

**Leucadia Wastewater District SSMP Evaluation Checklist for FY2018**

**Date Evaluation Completed:**

*Last Date Checklist Revised: October 24, 2018*

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 CMMS completed as scheduled (e.g., hydrocleaning, video inspection, a release valve exercising, pump station inspections, etc.)?	✓			10/9/18	FSS		
a. If not, determine cause and if additional staff is necessary to complete required schedule.	NA						
b. Did the lateral reimbursement program continue to be implemented as intended?	✓				FSP		
4a. Are pipeline CCTV inspections on-track for complete system inspection every three years?	✓			10/10/18	DE	CCTV inspection statistics show District is on pace to inspect entire system every 2.66 years.	
4b. Are the "special" areas as identified in Attachment C on track to be CCTV inspected every 3 years?	✓			10/30/18	FSS	Batiqitos Influent Sewer recently added to 3 yr cycle and will be done in FY19.	
5. Is the pipeline and manhole Rehab Priority List up-to-date and being addressed?	✓			10/9/18	FSS		
6. Have the annual Cathodic inspections been completed and recommendations implemented?	✓			10/9/18	RDD		
7. Has the Pump Station Condition Assessment been completed and projects scheduled?	✓			10/9/18	TSM		
8. Have the following standard operating procedures been reviewed and up-to-							
a. SOP – Collection System							
b. SOP – Video Inspection Procedure							
c. SOP – Easement Inspection Duties							
e. SOP – Pump Station Operator Duties							
f. SOP – Pump Station Odor Control	✓			9/28/18	RDD	The revised SOP book was reviewed and amended as needed with the changes from FY18.	
g. SOP – Switching Force Main Lines							
h. SOP – By-pass Pumping for Avocado							
i. SOP – District Pipeline Location and							
j. SOP – Traffic Control Procedures							
k. SOP – Emergency Procedures for							
l. SOP – Emergency By-pass Pumping							
9. Has the appropriate ongoing training for these SOPs been conducted and recorded?	✓			9/28/18	FSS		Not all of the SOP trainings were conducted in FY18, but have been completed within last 2 FYs.

**Leucadia Wastewater District SSMP Evaluation Checklist for FY2018**

**Date Evaluation Completed:**

*Last Date Checklist Revised: October 24, 2018*

Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP? *	Date	Staff Interviewed	Actions and Notes
<b>Section V (Design and Performance Provisions)</b>						
1. Has the LWD Standard Spec been sufficient to address design and construction needs?	✓			9/25/18	DE	Necessary revisions have been identified and will be captured in 2019 update.
2. Has the LWD Standard Spec been sufficient to address inspection and testing needs?	✓			10/10/18	DE	Necessary revisions have been identified and will be captured in 2019 update.
<b>Section VI (Overflow Emergency Response Plan)</b>						
1. Have the following standard operating procedures and the attachments been reviewed and up-to-date?						
a. SOP – Overflow Emergency Response Plan						
b. SOP – Pump Station Alarm Response	✓			9/28/18	RDD	The revised SOP book was reviewed and amended as needed with the changes from FY18.
c. SOP – Posting and Sampling						
d. SOP – SCADA Alarms and Alpha						
e. SOP – Standby Duty Operator (On Call)						
f. SOP – Reporting SSOs						
2. Has the appropriate ongoing training for these SOPs been conducted?	✓			9/28/18	FSS	
3. Have the newly hired employees been provided with these procedures and trained on these procedures, as appropriate?	✓			10/9/18	TSM	One new employee hired January 2018.
4. Has the LRO certified No Spill for each month (when applicable)?	✓			9/28/18	RDD	
5. Has the Collection System Questionnaire been updated in CIWQS?	✓			9/28/18	RDD	
<b>Section VII (FOG Control Program)</b>						
1. Where permits processed for new food establishments in the District?	✓			9/28/18	DE	
a. If so, is there a BMP agreement on file?	✓			9/28/18	DE	
2. In review of the SSO causes for the year, have any been attributable to FOG?		✓		9/28/18	RDD	
3. In review of the SSO causes for the past 24 months have there been three FOG-related spills? This would trigger the District to conduct a comprehensive formal evaluation of implementing a formal FOG Control Program			✓	9/28/18	RDD	

**Leucadia Wastewater District SSMP Evaluation Checklist for FY2018**

**Date Evaluation Completed:**

*Last Date Checklist Revised: October 24, 2018*

Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP? *	Date	Staff Interviewed	Actions and Notes
<b>Section VIII (System Evaluation &amp; Capacity Assurance)</b>						
1. Did the monthly board meeting agenda packets include the appropriate flow summary?	✓			9/28/18	RDD	
2. Have evaluations continued with respect to the inflow and infiltration?	✓			9/28/18	DE	Smoke testing planned for FY19.
<b>Section IX (Monitoring, Measurement, &amp; Program Modifications)</b>						
1. Has the checklist evaluation been completed for the fiscal year?	✓			10/9/18	DR	
2. Are there changes that need to be made to the Spill Review Checklist?		✓		10/9/18	FSS	
3. Are there changes that need to be made to the evaluation checklist?	✓			10/9/18	DE	Revise Section IV, Question 6 to reflect force main program. Also add new Question 4B.
a. If yes, are the changes substantial enough such that the SSMP needs to be revised? SSMP revisions will typically occur on a 5-year basis. The following is a list of items which would trigger a revision of the SSMP prior to the standard 5-year cycle update. Other minor changes within the District's organization, procedures, & activities would not necessitate an SSMP revision, but would be captured in the next revision cycle.			✓	10/9/18	DE	
i. A substantial change in organization such that the chain of command for spill response or reporting are altered.			✓	10/9/18	DE	
ii. A substantial change in the regulations such that the District's legal authority (Standard Spec) is deemed by District counsel to provide insufficient authority to the District.			✓	10/9/18	DE	
iii. A substantial change in regional board reporting policy (or other regulatory agency) such that standard operating procedures for spill response must be substantially re-written.			✓	10/9/18	DE	

**Leucadia Wastewater District SSMP Evaluation Checklist for FY2018**

<b>Date Evaluation Completed:</b>						
<i>Last Date Checklist Revised: October 24, 2018</i>						
<b>Monitoring, Measurement, and Modification Question</b>	<b>Yes</b>	<b>No</b>	<b>Update Needed in SSMP? *</b>	<b>Date</b>	<b>Staff Interviewed</b>	<b>Actions and Notes</b>
iv. Review SSO causes deems a formal FOG Control Program must be implemented.		✓		10/9/18	DE	
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 valid		✓		10/9/18	DE	
<b>Section X Evaluation (SSMP Program Audits)</b>						
1. Has the SSMP Program Audit been completed for the fiscal year?	✓			10/24/18	DE	
2. Are there changes that need to be made to the Audit checklist?		✓		10/24/18	DE	
<b>Section XI Evaluation (Communication Program)</b>						
1. Is the SSMP section of the District website up-to-date? And has the SSMP status been relayed to the public?	✓			9/28/18	RDD	
2. Has the District continued to attend meetings with Encina Wastewater Authority, the City of Carlsbad, and the City of Encinitas as appropriate?	✓			9/28/18	RDD	
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?		✓		9/28/18	RDD	
<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				NA		
2. describe the update needed				NA		

NA- Not Applicable  
 DE - District Engineer  
 GM - General Manager  
 GC - General Counsel

RDD - Reviewed District Documents  
 TSM - Technical Services Manager  
 FSS - Field Services Superintendent or Supervisor  
 FSP - Field Services Specialist

**ATTACHMENT B**

**SSMP AUDIT CHECKLIST**

<b>Leucadia Wastewater District SSMP FY18 Audit Checklist</b>			
<b>Section</b>	<b>Requirement</b>	<b>SSMP Current</b>	<b>SSMP Implemented</b>
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

**ATTACHMENT C**

**DISTRICT PREVENTATIVE  
MAINTENANCE STATISTICS**

**FY-18**

	CCTV Footage	Hydro Cleaning Footage	SMA's Footage	Easements Footage	CCTV Total Mileage Monthly	Hydro Total Mileage Monthly	SMA's Total Mileage Monthly	Easement's Total Mileage Monthly	Service Calls Total Calls Monthly
July	25,097	38,555	0	41,371	4.8	7.3	0.0	7.8	0
August	31,253	73,714	0	49,881	5.9	14.0	0.0	9.4	0
September	49,409	30,376	32,436	-	9.4	11.9	6.1	0.0	1
October	32,108	99,659	2,328	-	6.1	19.3	0.4	0.0	3
November	18,451	21,363	204	-	3.5	4.1	0.0	0.0	0
December	20,383	56,531	15,695	-	3.9	13.7	3.0	0.0	0
January	67,188	130,176	136	-	12.7	24.7	0.0	0.0	0
February	75,874	87,312	278	-	14.4	16.6	0.1	0.0	0
March	47,930	71,486	34,360	202	9.1	20.0	6.5	0.0	0
April	28,788	159,029	-	165	5.5	30.1	0.0	0.0	0
May	39,404	135,151	99	-	7.5	25.6	0.0	0.0	1
June	26,772	31,372	20,428	-	5.1	9.8	3.9	0.0	0
<b>Total</b>	<b>462,657.0</b>	<b>934,724.0</b>	<b>105,964.0</b>	<b>91,619.0</b>	<b>7.3</b>	<b>16.4</b>	<b>1.7</b>	<b>1.4</b>	<b>5</b>

**Target Goal For Line Cleaning per year is 180 Miles**

**15 Miles per Month**

**Target Goal For CCTV inspection per year is 75 Miles**

**6.3 Miles per Month**

**Every 2.66 years**

Yearly Mileage

**87.6**

miles

**177.0**

miles

**20.1**

miles

Yearly Targets left

**-12.6**

miles

**3.0**

miles

Summary Chart

CCTV Inspections	<b>87.6</b>	miles
Hydro Cleaning	<b>177.0</b>	miles
SMA's	<b>20.1</b>	miles
Service Calls	<b>5</b>	calls

MONTHLY MILEAGE AND SERVICE CALLS SUMMARY (transposed data from above)

	Units	July	August	September	October	November	December	January	February	March	April	May	June
CCTV Inspections	miles	4.8	5.9	9.4	6.1	3.5	3.9	12.7	14.4	9.1	5.5	7.5	5.1
Planned Hydro	miles	7.3	14.0	11.9	19.3	4.1	13.7	24.7	16.6	20.0	30.1	25.6	9.8
SMA's	miles	0.0	0.0	6.1	0.4	0.0	3.0	0.0	0.1	6.5	0.0	0.0	3.9
Total Hydro Cleaning	miles	7.3	14.0	18.0	19.8	4.1	16.7	24.7	16.6	26.6	30.1	25.6	13.7
Service Calls	count	0	0	1	3	0	0	0	0	0	0	1	0
Percent Planned	% of cleaning	100%	100%	66%	98%	99%	82%	100%	100%	75%	100%	100%	72%
Percent SMA	% of cleaning	0%	0%	34%	2%	1%	18%	0%	0%	25%	0%	0%	28%
Percent CCTV	% of system	2%	3%	5%	3%	2%	2%	6%	7%	5%	3%	4%	3%

## CCTV INSPECTIONS WITH ADDITIONAL REQUIREMENTS

Location #	Location	Additional Requirements Needed	Status	Clean/CCTV Frequency	FY Due Date
1	RSF Road - Camino De Los Coches to Avenida Aragon	Traffic Control	CCTV'd in FY16	3	FY19
2	RSF Road - Calle Acevo to Avenida Aragon	Traffic Control	CCTV'd in FY16	3	FY19
3	La Costa Ave - Piraeus St to Saxony PS	Traffic Control	CCTV'd in FY17	3	FY20
4	ECR - Enci Blvd to Leucadia Blvd	Night Work	CCTV'd in FY18	3	FY21
5	ECR - Leucadia Blvd to Levante (Green Valley )	Easement hydro-cleaning	CCTV'd in FY18	3	FY21
6	ECR - Levante to 300' north of La Costa Ave	Traffic Control	CCTV'd in FY18	3	FY21
7A	La Costa Golf Course (North Portion)	Coordination w/ golf course	Most Lines CCTV'd in FY17	3	FY20
7B	La Costa Golf Course (East Portion)	Coordination w/ golf course	CCTV'd in FY18	3	FY21
9	Alga Road and El Camino Real	Traffic Control	CCTV'd in FY17	3	FY20
10	La Costa Ave	Traffic Control	CCTV'd in FY17	3	FY20
11	RSF Road - Paseo Lupino to La Costa Avenue	Traffic Control	CCTV'd in FY17	3	FY20
12	Scotts Valley Easement	Night Work	CCTV'd by Contractor in FY16	3	FY19
13	Influent Gravity Line to Batiquitos PS	Night Work	CCTV'd in April 2012	3	FY19

Last revised 10-30-2018



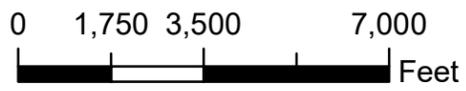
**LEGEND**

**CCTV Gravity Sewer Inspection by Date**

- 3 Years Since CCTV
- Leucadia Wastewater District Boundary



PACIFIC OCEAN



DEXTER WILSON ENGINEERING, INC.  
CONSULTING ENGINEERS  
(760) 438-4422

**EXHIBIT C-2**

GRAVITY SEWER  
CCTV COMPLETIONS  
AS OF OCTOBER 2018

**ATTACHMENT D**

**SOP TRAINING SCHEDULE**

# Leucadia Wastewater District

## Standard Operating Procedures Training Schedule FY-18

---

### Date Completed:

1. Collection System Maintenance Duties	1/11/2017*
2. Video Inspection Duties	1/18/2017*
3. Easement Inspection Duties	2/01/2017*
4. By pass pumping Avocado & Diana Response Plan	5/30/2018
5. Standby Duty Operator (On Call) Duties	3/23/2017*
6. Pump Station Operator Duties	3/21/2017*
7. Pump Station Odor Control	4/04/2017*
8. Switching Force Main Lines	4/04/2017*
9. District Pipeline Location and Mark Out	5/08/2018
10. Pump Station Alarm Response	5/03/2017*
11. SCADA Alarms	9/05/2018*
12. Overflow Emergency Response Plan	8/09/2018*
13. Reporting SSO's	8/09/2018*
14. Posting and Sampling Waters Impacted by an SSO	7/03/2018*
15. Traffic Control Procedures	5/08/2018
16. Emergency Procedures for Air Release Valves	5/02/2018
17. Rating and Repair of Manholes and Mainlines	4/24/2018
18. Emergency By-Pass Pumping for Batiquitos Pump Station	5/02/2018
19. Chemical Delivery	4/24/2018
20. Lock Out / Tag out	4/11/2018

### Additional Training:

21. Flagger Safety (Every 2 years)	1/30/2017
22. Gafner Water Reclamation Plant SWPPP	10/03/2017
23. Confined Space Training	5/30/2018
24. Active Shooter Class	5/17/2018

\* These training sessions were conducted outside FY18.

# Leucadia Wastewater District

Standard Operating Procedures Training Schedule FY-18

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# Leucadia Wastewater District

## Standard Operating Procedures Training Schedule FY-19

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Date Completed:

1. Collection System Maintenance Duties
2. Video Inspection Duties
3. Easement Inspection Duties
4. By pass pumping Avocado & Diana Response Plan
5. Standby Duty Operator (On Call) Duties
6. Pump Station Operator Duties
7. Pump Station Odor Control
8. Switching Force Main Lines
9. District Pipeline Location and Mark Out
10. Pump Station Alarm Response
11. SCADA Alarms
12. Overflow Emergency Response Plan
13. Reporting SSO's
14. Posting and Sampling Waters Impacted by an SSO
15. Traffic Control Procedures
16. Emergency Procedures for Air Release Valves
17. Rating and Repair of Manholes and Mainlines
18. Emergency By-Pass Pumping for Batiquitos Pump Station
19. Chemical Delivery
20. Lock Out / Tag out

### Additional Training:

21. Flagger Safety (Every 2 years)
22. Gafner Water Reclamation Plant SWPPP

## ATTACHMENT E

### FIELD SERVICES SOPs

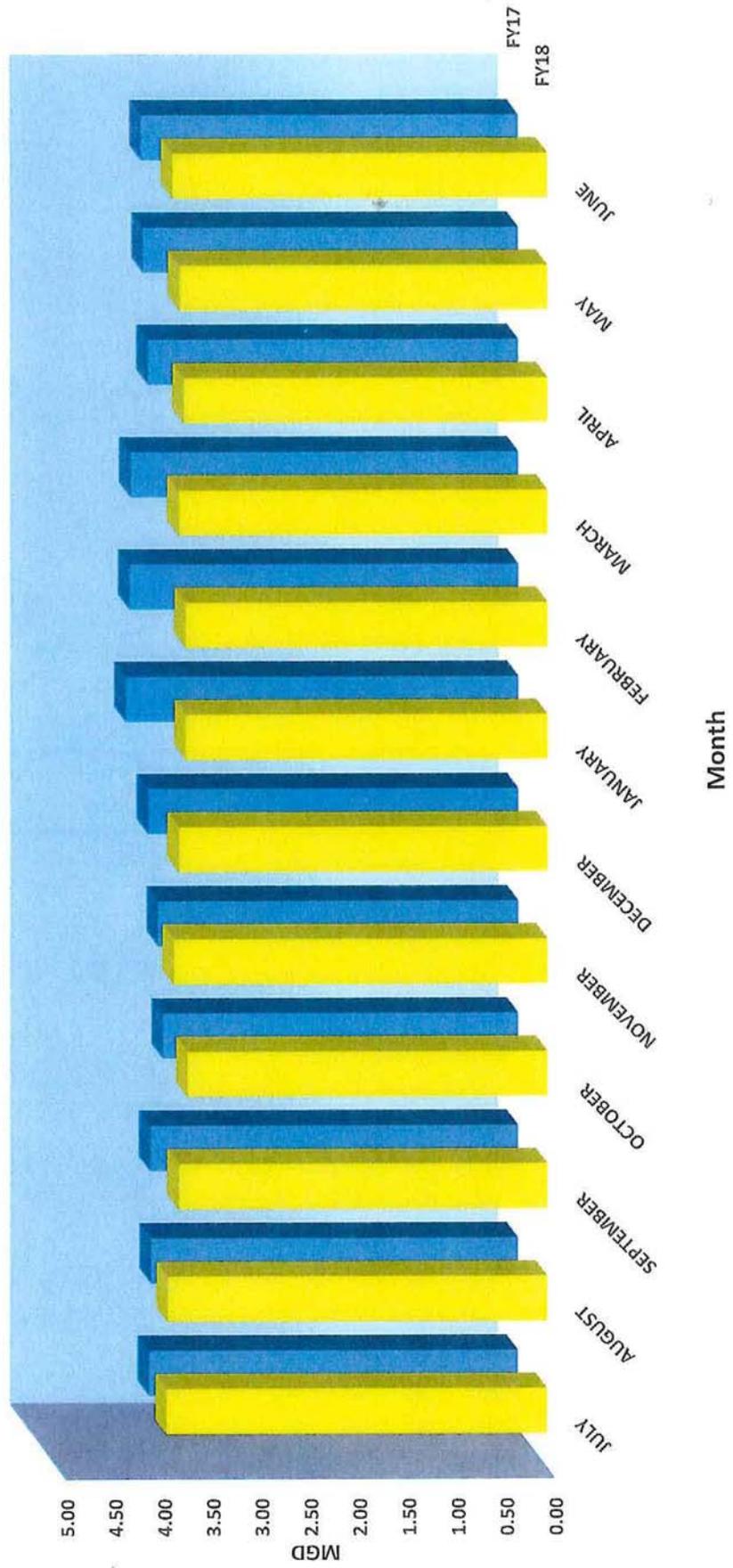
List of SOPs Available on CD:

1. Collection System Maintenance Duties
2. Video Inspection Duties
3. Easement Inspection Duties
4. Standby Duty Operator (On Call)
5. Pump Station Operator Duties
6. Pump Station Odor Control
7. Switching Force Mains
8. Pump Station Alarm Response
9. SCADA Alarms and Pages
10. Overflow Emergency Response Plan
11. Reporting SSOs
12. Posting and Sampling Waters Impacted by an SSO
13. By Pass Pumping For Avocado & Diana Pump Stations
14. Line Location
15. Traffic Control
16. Emergency Procedures for Air Release Valves For the Leucadia, Batiquitos, & Saxony Pump Station Force Mains and the Secondary Influent B1
17. Emergency Procedures for Air Release Valves For the Leucadia, Batiquitos, & Saxony Pump Station Force Mains and the Secondary Influent B1
18. Rating Repair Lines and Manholes
19. Chemical Deliveries
20. Hazardous Energy Control Lock Out / Tag out
21. Flagger Safety (Every Two Years)
22. Stormwater Pollution Prevention Plan (SWPPP) Gafner Water Reclamation Plant (Every Two Years)
23. First Aid/CPR Training and Confined Space Rescue (Every Two Years)

**ATTACHMENT F**

**DISTRICT FLOW COMPARISON FY17 TO FY18**

## Leucadia Wastewater District Flow Comparison FY 17 to FY 18



**ATTACHMENT G**

**LWD SPILL SUMMARY THROUGH JUNE 30, 2018**



**ATTACHMENT H**

**SSMP REVISIONS  
(REVISED ON OCTOBER 30, 2018)**

## Natalie Fraschetti

---

**From:** Paul Bushee <PBushee@lwwd.org>  
**Sent:** Tuesday, October 30, 2018 1:32 PM  
**To:** Natalie Fraschetti  
**Cc:** Steven Henderson  
**Subject:** RE: SSMP Edits for GM to Approve (FY18 Audit)

Natalie:

Thank you for following-up – the edits look fine. Please let this email serve as my approval.

Thanks,

Paul

### **Paul J. Bushee**

General Manager  
Leucadia Wastewater District  
1960 La Costa Avenue  
Carlsbad, CA 92009  
Ph: (760) 753-0155  
Fax: (760) 753-3094  
Email: [pbushee@lwwd.org](mailto:pbushee@lwwd.org)  
Web: [www.lwwd.org](http://www.lwwd.org)

**From:** Natalie Fraschetti <Natalie@dwilsoneng.com>  
**Sent:** Tuesday, October 30, 2018 11:04 AM  
**To:** Paul Bushee <PBushee@lwwd.org>  
**Cc:** Steven Henderson <Steven@dwilsoneng.com>  
**Subject:** SSMP Edits for GM to Approve (FY18 Audit)

Paul,

The purpose of this email is to request your approval of the following edits to the District's 2014 SSMP as a result of the FY2018 Audit process.

Edit 1 – Add the utilization of Facebook as a means of Communication with the public (SSMP Element IX).

Edit 2 – Update of the SSMP Evaluation Checklist to better reflect the District's current practices (SSMP Element XI).

Neither of these edits trigger the need for a formal re-adoption; only that you (as the LRO) approve the document changes.

Please feel free to call with any questions.

Thank you.

Natalie Fraschetti, P.E.  
Dexter Wilson Engineering, Inc.  
2234 Faraday Avenue  
Carlsbad, CA 92008  
P: 760-438-4422  
C: 858-539-9081

**LEUCADIA WASTEWATER DISTRICT  
2014 SEWER SYSTEM MANAGEMENT PLAN  
CHANGE LOG**

<b>Date</b>	<b>SSMP Element/Section</b>	<b>Description of Change/Revision Made</b>	<b>Change* Authorized By:</b>
8/26/2016	Executive Summary	The Waste Discharger Identification (WDID) number added in the introduction	GM
8/26/2016	Section II	Organizational Chart Updated for FY 2017	GM
8/26/2016	Section IV	Corrective Action Section Revised	GM
8/26/2016	Appendices	Addition of Appendix A, Formal Document Adopting 2014 SSMP	GM
8/26/2016	Appendices	Addition of Appendix B, SSMP Change Log	GM
8/26/2016	Appendices	Replacement of Appendix C with 2014 SSMP Audits	GM
11/14/2017	Section IV	More detailed description of the District's lateral reimbursement program	GM
11/14/2017	OERP	Field Services protocols were amended for SSOs that reach surface water	GM
10/30/2018	Section IX	Edits to Evaluation Checklist	GM
10/30/2018	Section XI	The public outreach section was expanded to include additional measures the District has implemented.	GM

\*See attached email from District LRO/General Manager.

**SSMP Evaluation Checklist**

**Date Evaluation Completed:**

*Last Date Checklist Revised: October 24, 2018*

**Deleted:** July 31, 2014

Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP? *
<b>Sections I, II, III (District Goals, Organization, Legal Authority)</b>			
1. Has there been an appreciable change in the Strategic Plan?			
2. Was the current organizational chart included in the annual financial plan?			
3. Were the District goals addressed in the annual Fiscal Year Tactics & Action Plan?			
4. Has the District's Legal Authority been reviewed considering new regulations?			
5. If appropriate for three year review cycle, has the District's Standard Spec been reviewed for necessary changes?			
6. Was the staff size and organizational chain of command sufficient for implementation of the preventative maintenance programs and SSO spill response?			
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?			
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?			
<b>Section IV (Preventative Maintenance Program)</b>			
1. Have all new construction or rehabilitation projects been entered into the GIS database?			
2. Have the new pipelines, manholes, and updates from the field been included in CMMS?			
3. Were all scheduled preventative maintenance activities in the CMMS completed as scheduled (e.g., hydrocleaning, video inspection, air release valve exercising, pump station inspections, etc.)?			
a. If not, determine cause and if additional staff is necessary to complete required schedule.			
b. Did the lateral reimbursement program continue to be implemented as intended?			
4a. Are pipeline CCTV inspections on-track for complete system inspection every three years?			
4b. Are the "special areas as identified in Attachment C on track to be CCTV inspected every three years?"			
5. Is the pipeline and manhole Repair Priority List up-to-date and being addressed?			
6. Have the annual Cathodic inspections been completed and recommendations implemented?			
7. Has the Pump Station Condition Assessment been completed and projects scheduled?			
7. Have the following standard operating procedures been reviewed and up-to-date?			
a. SOP – Collection System Maintenance Duties			

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**Deleted:** Is the Force Main Integrity inspection program on track?

**SSMP Evaluation Checklist**

**Date Evaluation Completed:**

*Last Date Checklist Revised: October 24, 2018*

**Deleted: July 31, 2014**

Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP? *
b. SOP – Video Inspection Procedure			
c. SOP – Easement Inspection Duties			
e. SOP – Pump Station Operator Duties			
f. SOP – Pump Station Odor Control			
g. SOP – Switching Force Main Lines			
h. SOP – By-pass Pumping for Avocado and Diana Pump Stations			
i. SOP – District Pipeline Location and Markout			
j. SOP – Traffic Control Procedures			
k. SOP – Emergency Procedures for Air Release Valves			
l. SOP – Emergency By-pass Pumping for Batiquitos Pump Station			
7. Has the appropriate ongoing training for these SOPs been conducted and recorded?			
<b>Section V (Design and Performance Provisions)</b>			
1. Has the LWD Standard Spec been sufficient to address design and construction needs?			
2. Has the LWD Standard Spec been sufficient to address inspection and testing needs?			
<b>Section VI (Overflow Emergency Response Plan)</b>			
1. Have the following standard operating procedures and their attachments been reviewed and up-to-date?			
a. SOP – Overflow Emergency Response Plan			
b. SOP – Pump Station Alarm Response			
c. SOP – Posting and Sampling Procedure			
d. SOP – SCADA Alarms and Alpha Numeric Pages			
e. SOP – Standby Duty Operator (On Call)			
f. SOP – Reporting SSOs			
2. Has the appropriate ongoing training for these SOPs been conducted?			
3. Have the newly hired employees been provided with these procedures and trained on these procedures, as appropriate?			
4. Has the LRO certified No Spill for each month (when applicable)?			
5. Has the Collection System Questionnaire been updated in CIWQS?			
<b>Section VII (FOG Control Program)</b>			
1. Where permits processed for new food establishments in the District?			
a. If so, is there a BMP agreement on file?			
2. In review of the SSO causes for the year, have any been attributable to FOG?			
3. In review of the SSO causes for the past 24 months have there been three FOG-related spills? This would trigger the District to conduct a comprehensive formal evaluation of implementing a formal FOG Control Program.			
<b>Section VIII (System Evaluation &amp; Capacity Assurance Plan)</b>			
1. Did the monthly board meeting agenda packets include the appropriate flow summary?			
2. Have evaluations continued with respect to the inflow and infiltration?			

SSMP Evaluation Checklist			
<b>Date Evaluation Completed:</b>			
Last Date Checklist Revised: <u>October 24, 2018</u>			
Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP? *
<b>Section IX (Monitoring, Measurement, &amp; Program Modifications)</b>			
1. Has the checklist evaluation been completed for the fiscal year?			
2. Are there changes that need to be made to the Spill Review <a href="#">Checklist</a> ?			
3. Are there changes that need to be made to the evaluation checklist?			
a. If yes, are the changes substantial enough such that the SSMP needs to be revised? SSMP revisions will typically occur on a 5-year basis. The following is a list of items which would trigger a revision of the SSMP prior to the standard 5-year cycle update. Other minor changes within the District's organization, procedures, & activities would not necessitate an SSMP revision, but would be captured in the next revision cycle.			
i. A substantial change in organization such that the chain of command for spill response or reporting are altered.			
ii. A substantial change in the regulations such that the District's legal authority (Standard Spec) is deemed by District counsel to provide insufficient authority to the District.			
iii. A substantial change in regional board reporting policy (or other regulatory agency) such that standard operating procedures for spill response must be substantially re-written.			
iv. Review SSO causes deems a formal FOG Control Program must be implemented.			
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 valid.			
<b>Section X Evaluation (SSMP Program Audits)</b>			
1. Has the SSMP Program Audit been completed for the fiscal year?			
2. Are there changes that need to be made to the Audit checklist?			
<b>Section XI Evaluation (Communication Program)</b>			
1. Is the SSMP section of the District website up-to-date? And has the SSMP status been relayed to the public?			
2. Has the District continued to attend meetings with Encina Wastewater Authority, the City of Carlsbad, and the City of Encinitas as appropriate?			
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?			
<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.			
Sect.	Description of Update Needed for Next SSMP	Re-adopt prior to 5 year schedule?	

Deleted: July 31, 2014

Deleted: Procedures

**SSMP Evaluation Checklist**

**Date Evaluation Completed:**

*Last Date Checklist Revised:* [October 24, 2018](#)

**Deleted:** July 31, 2014

	Monitoring, Measurement, and Modification Question	Yes	No	Update Needed in SSMP? *

## **Section XI – Communication Program**

### **Background and Regulatory Requirements**

The Statewide WDRs governing sanitary sewers specify that the District shall communicate on a regular basis with the public on the development, implementation, and performance of its Sewer System Management Plan (SSMP). The communication system shall provide the public the opportunity to provide input to the District as the program is developed and implemented. The District shall also create a plan of communication with systems that are tributary or satellite to the District's sanitary sewer system.

### **Leucadia Wastewater District Actions**

The District maintains an approach of open and direct communication with its customers and community. Additionally, the District regularly interacts with the cities served by the District, namely the City of Carlsbad and the City of Encinitas. Finally, as a member agency of the Encina Wastewater Authority, which treats the wastewater generated within the District, staff of both agencies are in frequent contact. The District's communication efforts are further described below.

#### **Communication with the Community**

The District maintains two key communication tools to interact with its customers and surrounding community. These include the District's website and newsletter.

**Website.** The District's website [www.lwwd.org](http://www.lwwd.org), updated in 2014 to improve transparency, provides information on the District ranging from the organizational structure and board meeting minutes to capital improvement projects and planning documents. The District's Asset Management Plan, Financial Plan, SSMP and most recent annual SSMP Audit are posted on the website for public review. [The District also actively posts to their Facebook page to better communicate with the general public.](#)

**Newsletter.** The semi-annual newsletter that the District distributes within its service area is used to announce the completion of the annual SSMP audit and any modification to the SSMP.

#### **Communication with Surrounding Cities**

The District service area includes portions of the City of Encinitas and the City of Carlsbad, in addition to co-owning wastewater pumping and/or transmission facilities. The District maintains open communication with both cities as necessary in addition to notifying storm water officials of any SSOs.

#### **Communication with Encina Wastewater Authority**

**ATTACHMENT I**

**LETTER-REPORT TO LWD GENERAL MANAGER  
REGARDING AMP IMPLEMENTATION**

**LEUCADIA WASTEWATER DISTRICT  
FISCAL YEAR 2018  
ASSET MANAGEMENT PLAN  
IMPLEMENTATION & CAPITAL PROJECTS**

October 30, 2018



**Prepared by:  
Dexter Wilson Engineering, Inc.  
2234 Faraday Avenue  
Carlsbad, CA 92008  
760-438-4422**

Job No. 103-015/8

DEXTER S. WILSON, P.E.  
ANDREW M. OVEN, P.E.  
STEPHEN M. NIELSEN, P.E.  
NATALIE J. FRASCHETTI, P.E.  
STEVEN J. HENDERSON, P.E.

October 30, 2018

103-015/8

Leucadia Wastewater District  
1960 La Costa Avenue  
Carlsbad, CA 92009

Attention: Paul Bushee, General Manager

Subject: Leucadia Wastewater District Fiscal Year 2017 Asset Management Plan  
Implementation and Capital Projects

The purpose of this letter-report is to summarize the Leucadia Wastewater District's (District) Asset Management 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 2018 (FY18).

This document will assist in the District's FY18 Sewer System Management Plan (SSMP) Audit.

## **BACKGROUND**

With no substantial changes to the service area and an estimation that the District is presently at 95 percent of buildout, the focus of the District's 2018 Asset Management Plan (AMP) remained on the repair, rehabilitation, and replacement of existing assets as compared to funding of growth-related projects.

The AMP provided recommended inspection schedules for each asset class as well as general recommendations for asset management plan implementation (AMPI).

### AMP IMPLEMENTATION ACTIVITIES

The following section discusses the AMPI Activities which took place over FY18.

#### January 2013 Asset Management Plan Recommendations

Within the AMP, recommendations were made within each asset category with respect to operation and maintenance activities (as appropriate) and CIP projects. The following section seeks to track the status of each operation and maintenance recommendation provided in the AMP. The order presented below generally follows the order in which the recommendation occurred within the AMP. Those completed in FY17 (or prior), as documented in the FY17 Audit, have been removed from the list.

<b>Summary of LWD AMP Implementation Activities (Revised June 30, 2017)</b>	
Remaining January 2013 Asset Management Plan Recommendations	
<b>Recommendation</b>	<b>FY18 Status</b>
Continue to monitor scale-impacted Alga Hills area.	Six month schedule for hydrocleaning and regular (3 year) CCTV inspections. The District continues to monitor (and address as necessary) the presence of scale in the Alga Hills area. The area was most recently CCTV inspected in FY17. Results of CCTV inspections are incorporated into the District's Repair Priority List.
Hydroclean and CCTV of difficult to access areas.	Exhibit C-1 in the Audit has been updated.

<b>Summary of LWD            AMP Implementation Activities            (Revised June 30, 2017)</b>	
Remaining January 2013 Asset Management Plan Recommendations	
<b>Recommendation</b>	<b>FY18 Status</b>
Develop CCTV progress figure after completion of each zone.	Exhibit C-2 in the Audit has been updated.
Continue with Leucadia and Batiquitos Force Main cathodic protection improvements.	Inspections of L1, L2, and B3 were performed. No remedial measures were required or recommended during the FY18 survey.
Per IEC's 2011 evaluations, plan for B3 replacement in FY2025.	To be planned as necessary.
Annual cathodic protection testing on L1, L2, B2, and B3.	Cathodic testing was performed on the L1, L2, and B3 force mains in FY18 and is planned to continue on an annual basis.
FY18 ultrasonic inspection of L1, B2, and B3.	Done. Inspections or replacements have occurred as necessary or are planned.
Generate work order every five years for hydrocleaning and CCTV inspection of Lanikai Gravity Sewer per Attachment C in this memo.	Lanikai and Occidental were hydrocleaned in the fall of 2016. Occidental is due for CCTV inspection; staff to coordinate with Carlsbad.

**May 2018 Asset Management Plan Recommendations**

As mentioned previously in this memorandum, the AMP was updated in May 2018. The following section seeks to track the status of each operation and maintenance recommendation provided in the May 2018 AMP. The order presented below generally follows the order in which the recommendation occurred within the AMP. This table is provided in addition to the table above and will serve as a reference point into the future as

a means of AMP implementation tracking until the AMP is updated once again in the 2023 timeframe.

<b>Summary of LWD            2018 AMP Implementation Activities            (Revised June 30, 2018)</b>	
May 2018 Asset Management Plan Recommendations	
<b>Recommendation</b>	<b>FY18 Status</b>
Track areas, frequency, and cost of where root foam is used as part of the SSMP process (treatments to date are \$4,959 in December 2015 and \$3,791 in March 2017). Conduct financial evaluation comparing the cost of root foam treatment against lining these areas with top hats. Confirm if root foam areas are on Repair Priority List.	Financial evaluation will be conducted as additional data is gathered.
Consider submetering of Drainage Basin 2 to continue identifying the source of inflow and infiltration.	Will be evaluated.
Improve accessibility of prior CCTV inspections on a particular line segment to aid in planning and understanding of the individual asset. This could be done when placing a segment on the Repair Priority List for review.	Done. A specific folder on the District server is utilized to store CCTV inspections. All staff has access to this folder for review.
Add pipeline Install Date and Age columns to Repair Priority List.	In process of being incorporated.
Add step to Rating Repair Lines/Manholes SOP to review previous repairs in the pipeline or manhole which is being added to Repair Priority List. Add "Yes/No" column to indicate whether the line has previously been repaired.	Will be incorporated. If yes, the details of repair(s) can be elaborated in the comments column.
Track Repair Priority List Completions, Miscellaneous Line Repairs, and Capital Improvement Projects in GIS/Inframap to aid in decision making as to how best repair/replace an asset. This will provide field services staff with knowledge of linings, top hats, etc., to exercise caution when hydrocleaning. Additionally, it will provide staff with the ability to view previous repairs within a line segment to decide whether spot repairs should continue or a pipeline/manhole should be replaced.	In process of being incorporated.
Export CMMS repair data from Repair Priority List Completions and Miscellaneous Line Repairs to GIS.	In process of being incorporated.
When lining a pipeline in an area with chronic root issues, the lateral joints should be addressed, via either a top hat, T-liner, or other means.	Is being considered on a case by case basis.

<b>Summary of LWD            2018 AMP Implementation Activities            (Revised June 30, 2018)</b>	
May 2018 Asset Management Plan Recommendations	
<b>Recommendation</b>	<b>FY18 Status</b>
When possible, spot repairs of pipelines should be addressed by lining the entire pipe segment, particularly on pipes greater than 40 years in age.	IEC is tasked to evaluate whether a segment requires spot repair prior to lining the segment. If only a spot repair is necessary then the segment is not CIPP lined to reduce cost.
Consider repair of all Grade 2 and Grade 1 defects and/or programmatic VCP replacement in Drainage Basins 1, 2, 3, and 11. Repair/replacement of Grade 3 and Grade 4 defects discovered within the 5-year time frame would take precedence.	On a case by case basis, and if funding is available, Grade 1 and 2 defects will be repaired after other priority CIP work is completed.
Procure mylar and electronic (PDF and DWG) record drawings for all CIP projects. AMP process identified the need for electronic record drawings for the FY16 Gravity Rehabilitation Project.	Will implement during FY 19 CIP Projects.
Historical bid results indicate significant unit cost savings when CIP projects include several thousand feet of lining.	Staff is alternating fiscal year gravity pipeline rehabilitation projects between open trench and trenchless technology to make project size bigger to take advantage of economy of scale.
Transfer manhole lining data from Sussex to Inframap.	Done. The presence of manhole lining is being populated during routine inspections utilizing Inframap (rather than a transfer from Sussex).
Consider revising the CCTV and/or Hydrocleaning SOPs to include notations as to whether a manhole is lined or not.	In process of being incorporated.
Add the installation date and age to the Repair Priority List for each manhole to aid in facility planning.	In process of being incorporated.
Consider an additional column on the Repair Priority List to note whether repairs have occurred previously within the manhole. Alternatively, revise the CMMS form to require completion of the lining field prior to closing the work order.	In process of being incorporated. If yes, the details of repair(s) can be elaborated in the comments column.
Consider revising the CCTV and/or Hydrocleaning SOPs to include notations as to whether an inflow dome is present on a manhole. Alternatively, revise the CMMS form to require	SOPs-will be revised. CMMS-Done. Forms have been updated to track inflow domes.

<b>Summary of LWD            2018 AMP Implementation Activities            (Revised June 30, 2018)</b>	
May 2018 Asset Management Plan Recommendations	
<b>Recommendation</b>	<b>FY18 Status</b>
completion of the inflow dome field prior to closing the work order.	
Consider increasing the quality of manhole inspections by maximizing the use of their camera equipment to photograph and videotape manholes. As with the gravity sewer pipelines, photos and videos taken during manhole condition evaluations could be organized with a GIS-centric software system. This would allow quick access to prior inspections of the manhole for comparison of condition degradation.	Done. Manholes are visually inspected when crews perform any maintenance work. Any manhole that is of concern is brought to the attention of the supervisor.
Reevaluate pump size at each station based on actual flow generation rates and anticipated peak buildout flows.	Will occur as design project approaches for pump station. Completed for Leucadia P.S.
Consider bypassing the Batiquitos Pump Station (for a portion of the District's flow) by pumping directly from the Leucadia Pump Station into one of the Batiquitos force mains.	Will evaluate in future.
For pump stations, stagger future inspection efforts be based on the previous inspection, age of the asset, needs identified by the District, and the projected date of project implementation.	The FY19 Budget includes an appropriation to inspect Avocado, Diana and Rancho Verde Pump Stations as the next pump stations to be rehabilitated in the next 5 years.
The District should consider the preparation of a detailed checklist of component inspection for each station. The basis for this would be prior inspection reports by Infrastructure Engineering Corporation (IEC), and others, with additions by staff as appropriate.	Intend to implement during next cycle of pump station inspections.
The District should also consider the maintenance of a pump station component tracking database. This would be used to track improvements and associated costs to better project future spending.	Will investigate adding this to CMMS.
The following replacement-based capital improvement projects are recommended or are planned by the District and are included in the District's 5-Year CIP: <ul style="list-style-type: none"> <li>○ Force Main Corrosion Control</li> <li>○ Batiquitos (B3) Rehab/Replacement Project – Phase 1</li> <li>○ Leucadia (L1) West Section Replacement (completed)</li> <li>○ Leucadia (L1) Final Replacement</li> </ul>	No plans to replace entire L1 Force Main. Considering replacing high spots as the most likely sections to have internal corrosion.

<b>Summary of LWD            2018 AMP Implementation Activities            (Revised June 30, 2018)</b>	
May 2018 Asset Management Plan Recommendations	
<b>Recommendation</b>	<b>FY18 Status</b>
Recommendations regarding the Batiquitos Influent Sewer: <ul style="list-style-type: none"> <li>○ Ensure that maintenance work orders are generated at the frequency that is necessary for this particular asset</li> </ul>	To be completed in FY19.
Recommendations regarding the Lanikai Gravity Sewer <ul style="list-style-type: none"> <li>○ Ensure that maintenance work orders are generated at the frequency that is necessary for the particular asset (in this case once every five years).</li> <li>○ Continue to maintain a chronological summary of operation/maintenance and repair/replacement tasks associated with this line as part of the District's annual SSMP audit.</li> <li>○ The following capital improvement projects are included in the District's 5-Year CIP (District's share of cost only): Poinsettia Station Gravity Pipeline</li> </ul>	Done.  Done.  Project has been completed.
Recommendations regarding the Occidental Sewer <ul style="list-style-type: none"> <li>○ Continue to maintain a chronological summary of operation/maintenance and repair/replacement tasks associated with this line and should confirm that Carlsbad is executing their maintenance schedule as planned</li> </ul>	District maintains contact with Carlsbad.
The District should inspect portions of the Encina Secondary Effluent Pump Station as part of the overall FY19 pump station condition assessment to confirm the project scope.	Noted.
Continue coordinating with other North County agencies on the North San Diego Water Reuse Coalition (NSDWRC) Regional Recycled Water Project.	Work continued on this project.
The following capital improvement projects are included in the District's 5-Year CIP. <ul style="list-style-type: none"> <li>○ General Secondary Effluent Pump Station and Force Main Improvements</li> <li>○ Relocation of the portion of B1 within the Encina WPCF</li> <li>○ FY18 Gafner AWT Improvement Project (completed)</li> </ul>	Noted.

**FY18 Capital Improvements**

<b>Summary of LWWD            AMP Implementation Activities            (Revised June 30, 2018)</b>	
<b>Capital Improvements</b>	
<b>Project</b>	<b>FY18 Status</b>
North SD County Regional Recycled Water Project	The District continued to participate in the regional project to increase recycled water use. District received a reimbursement of \$338,000 in State Prop 84 funding for the replacement of a section of the B1 Secondary Effluent Force Main in Highway 101. District completed the Preliminary Design for an Onsite Recycled Water Pump Station for distribution of recycled water to Olivenhain Municipal Water District – submitted for \$66,540 of State Prop 84 grant funding.
Gravity Pipeline Rehabilitation	District to rehabilitate deficient segments of ACP and VCP gravity pipelines. The District has implemented its Repair Priority List procedure to perform its gravity pipeline rehabilitation/replacement program.
Poinsettia Station	The major construction, installation of the new parallel gravity line & associated manholes and extension of the Secondary Effluent Force Main and Lanikai Gravity Line casings are complete. Both gravity lines are in operation. Only minor grading and manhole concrete pad installation is left.
Leucadia Pump Station Rehabilitation	In FY18 Staff, District Engineer, and IEC collaborated to develop and finalize the additional project objectives to be incorporated into the original project scope as a result to reduce H2S levels. The project has transitioned into the design phase and the engineering design services have been authorized. It is anticipated that construction will commence in FY20.
La Costa Golf Course Gravity Line Improvements	During the design phase for the 2016 Gravity Pipeline Rehabilitation Project, it was noted that a section of the La Costa Golf Course gravity line that was designated for repair was exposed where it crossed San Marcos Creek. Emergency Cured-In-Place Pipe (CIPP) lining of the exposed section was completed in November 2015 as a temporary structural reinforcement of the pipeline in anticipation of the predicted El Nino weather pattern. Due to the complexity involved with the permanent repair of the San Marcos Creek crossing and the remaining section of the gravity line in the golf course, other repair or pipeline realignment options were evaluated, and it was decided to separate the rehabilitation of this line into its own project. Project design is complete and a new easement has been obtained from Omni La Costa Resort & Spa for new gravity line. The project bid in July 2017. Only 1 bid received and bid price was significantly higher than estimated cost thus the bid was rejected.

<b>Summary of LWWD            AMP Implementation Activities            (Revised June 30, 2018)</b>	
<b>Capital Improvements</b>	
<b>Project</b>	<b>FY18 Status</b>
	<p>Based on this experience, staff decided to separate the CIPP work from the La Costa Golf Course Alteration open trench work and rebid the project. The project was bid on 18 JUN 18. Bids were due on 19 JUL 18. The NTP was issued on 06 SEP 18 with a projected completion date of 08 JAN 19. Construction is in progress. The Quebrada Line replacement was removed from the project due to the high cost for that work. The replacement of the Quebrada Line will be redesigned and bid at a later date.</p>
<p>Orchard Wood Road Line Repair Project</p>	<p>The gravity pipeline in an easement at the end of Orchard Wood Road in the City of Encinitas has a major sag which causes a significant amount of grit and grease to accumulate in the line. This project was separated out of the FY18 Gravity Pipeline Rehabilitation project as its own separate project. The environmental assessment for the project is in progress.</p>
<p>Headquarters Building Metering Switchboard Installation</p>	<p>The procurement, installation, and connection of a new metering switchboard at the District's campus was completed in FY18. Shifting the electric rate for Leucadia Pump Station and Gafner Advanced Water Treatment Facility to an agricultural pumping rate (ag rate) will result in a significant reduction in electric costs to operate those facilities.</p>
<p>Gafner Advanced Water Treatment (AWT) Improvements</p>	<p>Construction was completed on the recommended improvements for the Gafner AWT which included handrails, replacing fail safe valve and actuator, replacing the rapid, coagulation and chlorine mixers, replacing the turbidity and conductivity meters, and rehabilitating the influent well.</p>
<p>Secondary Effluent Force Main (B1) – North Section Replacement</p>	<p>The design has been completed and the project is being submitted for grant funding as part of the North San Diego Water Reuse Coalition project. This project has been delayed due to the uncertainty of a longer term recycled water contract.</p>
<p>Leucadia Force Main (L1) West Section Replacement</p>	<p>Construction was completed in July 2017.</p>
<p>Encinitas Estates Pump Station Replacement</p>	<p>The design for this project will start after the design phase of the Leucadia Pump Station Rehab Project is complete and the project is put out for bid.</p>

### **Leucadia and Batiquitos Pump Station Force Main Work**

The evaluation of the Leucadia and Batiquitos Pump Station Force Mains has been ongoing since 2009 with Dexter Wilson Engineering, Inc.'s development of a formal evaluation plan.

In FY11, the following tasks were completed regarding these force mains as a result of the 2009 plan, subsequent evaluations, and the May 2010 break in B2 near the bridge crossing.

- In early 2011, the IEC "Batiquitos Force Main Repair Project" replaced, in place, approximately 1,100 feet each of B1(failsafe), B2, and B3 from the Batiquitos Pump Station to the San Marcos Creek Bridge and approximately 400 feet each of B1, B2, and B3 from the northern end of the San Marcos Creek Bridge to the north. B1 was replaced with 14-inch PVC. B2 and B3, both 24-inch ductile iron pipe, were replaced with 24-inch DR18 C905 PVC.
- Sections of B2, B3, and the Fail Safe line (B1) were inspected.
- The estimated remaining useful life of B2 is 12 years and B3 is 14 years.
- The cathodic protection improvements identified in RF Yeager's May 2010 report were recommended to be implemented. Ultrasonic testing was recommended to be conducted in the future.

In FY12, a contract was executed with RFYeager for the design of the force main cathodic protection project. The project was bid in August 2012 and completed on February 12, 2013.

In FY13, the 2010 RFYeager recommendations were implemented. Specifically, cathodic test stations were repaired and/or replaced on L2, B2, and B3 (the L1 test stations were located subsequent to the initial inspection). With these improvements, the District has the ability to conduct cathodic protection surveys of the four force mains on an annual basis (August or September) as recommended by RFYeager.

In FY13, the discharge end of B2 failed when it was connected to the B1 (failsafe) to bypass the Lanikai Gravity Sewer. The bypass was required to CIPP line the Lanikai pipeline. The B2 Force Main Replacement Project commenced on October 20, 2014 and included the CIPP lining of the Lanikai Line. The project was completed on November 3, 2015. Also in FY13, the District completed the coupon testing of L1. The final recommendations from IEC and

RFYeager as a result of this testing were received in FY14. This will drive future integrity testing as well as scheduling the replacement of L1.

Future Cathodic Protection improvements with respect to these force mains as described in IEC's May 2011 technical memo are summarized in Table 1.

TABLE 1 CATHODIC PROTECTION IMPROVEMENTS ( <i>status</i> )			
Year	Phase	Activity	Estimated Cost
2011	1	Ultrasonic Testing of L1 to establish baseline corrosion ( <i>pending results of FY13 coupon testing</i> )	\$27,000
		Locate and/or repair missing and damaged test stations on L1, L2, B2, and B3 ( <i>complete FY13</i> )	\$16,500
		L2 supplemental cathodic protection ( <i>complete</i> )	\$30,000
		B2 cathodic protection ( <i>complete</i> )	\$40,000
		B3 cathodic protection ( <i>complete</i> )	\$40,000
		TOTAL	\$153,500
2015	2	Ultrasonic Testing of L1, B2, and B3 ( <i>complete</i> )	\$90,000
2015	3	Replacement of B2 (8,463 ft) ( <i>complete</i> )	\$2,700,000
2017	3	Replacement of L1 West Section ( <i>complete</i> )	\$1,700,000
2025	4	Replacement of B3 (8,332 ft)	\$2,600,000
Ongoing (post Ph. 1)		Annual Cathodic Protection Surveys (to begin after Phase 1 is complete)	\$500 per year

In FY14, the L1 Force Main was sampled and evaluated for internal and external corrosion. The field survey data for L1 was indicative of a DIP without cathodic protection. Design of the B1 and B2 replacement was completed.

In FY15, design activities on L1 began to replace only the section west of Interstate 5 not including the railroad bridge. L1 will return to standby status with L2 being primary. L2 due to its construction of high quality PVC and excellent current condition, was not slated for any repairs or replacement.

Also in FY15, due to the ongoing project of replacing B2, the District began design and construction of the replacement of B1 (failsafe). This was understood to be a unique opportunity for the replacement due to the fact that B1 can be placed in the same trench as B2, significantly reducing construction costs compared to replacing B1 as a separate project. The replacement of B1 (failsafe) and B2 was completed in June 2015.

In FY16, the design of the replacement for the western segment of L1 was completed. For the eastern portion of L1 (El Camino Real to I-5), based on review of the pipeline profile, the District has reasonable assurance that the section remains full when not in use (thus preventing internal corrosion from air pockets). Additionally, when destructive testing was conducted on the western portion of L1 for corrosion evaluation by removing a coupon, the wrapping of L1 was intact (thus protecting it from external corrosion). Removal of the wrapping confirmed that the external portion of the force main showed no visible signs of external corrosion. Work commenced on the L1 western portion on March 3, 2017 and was completed on August 8, 2017

In FY17, during construction of the western section of L1, a leak was found in the above-grade railroad bridge. A change order was issued to CIPP line the railroad bridge section and construction is nearing completion.

Closeout of the L1 western section replacement and repair projects in FY17 and FY18 completed the near-term CIP projects related to the Leucadia and Batiquitos Pump Station force mains.

The next planned CIP project related to these force mains shall be replacement of B3 in the 2025 timeframe.

## MISCELLANEOUS COLLECTION SYSTEM IMPROVEMENTS

The list of collection system improvements (outside of CIP projects) for FY18 are provided in Attachment B.

## PUMP STATION IMPROVEMENTS

Pump station improvements at all District pump stations are tracked in Attachment C in this letter-report.

## CAPITAL ACQUISITIONS

The purpose of this section is to summarize the District's FY18 capital acquisitions as related to operation and maintenance.

### FY18 Capital Acquisitions

- Large Truck
- Confined Space Entry Equipment Trailer
- Vactor Nozzle Kit
- Replace CCTV Equipment
- Critical Inventory (Domes/Rings/Couplings)
- Replace Gas Monitors (2)
- Replace Computer Work Stations
- Replace Telephone System
- Backup SCADA Server
- Installed Outside Light at RVPS
- Vaughan Chopper Pump at Batiquitos PS
- Spare Main Breaker at Batiquitos PS
- Refrigerated Sampler at Gafner AWT
- Replace Irrigation Pumps at Gafner AWT

Paul Bushee  
October 30, 2018

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We recommend this letter-report be filed with all of the District's AMPI documents and referred to as the AMPI 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.



Natalie J. Fraschetti, P.E.

NJF:SH:sg

Attachment(s)

A – Lanikai and Occidental O&M Tracking

B – Miscellaneous Sewer Line and Manhole Repairs

C – Pump Station Tracking

**ATTACHMENT A**

**LANIKAI AND OCCIDENTAL O&M TRACKING**

LANIKAI GRAVITY SEWER ASSET TRACKING (District is Lead Agency)		
Date	Activity Type	Description
Dec-10	O&M	Hydroclean and CCTV Inspection by Affordable Pipeline Services. Resulted in recommendation to CIPP line eastern portion from Franciscan Rd to Occidental Line.
		Design Complete
		Contract Issued
		Construction Begins
		Abandoned due to B2 break
FY13		CIPP Project still on hold due to B2 break
		Metallic manhole rings and cover were replaced with composite rings and covers
FY14/15		The portion from Franciscan to the Occidental manhole was lined as part of the B2 Replacement (approx. 385 ft).
2015	O&M	Hydrocleaned and CCTV Inspected
FY17	O&M	Hydrocleaned in Fall of 2016
<i>2020/2021</i>	<i>O&amp;M</i>	<i>Planned Hydrocleaning and CCTV Inspection (every 5 years)</i>

*Items in Italics are Planned*

Updated: September 2017

OCCIDENTAL SEWER ASSET TRACKING (Carlsbad is Lead Agency)		
Date	Activity Type	Description
Dec-10	O&M	Hydroclean and CCTV Inspection (as possible) by Affordable Pipeline Services and confined space entry MH inspection by V&A. Resulted in rehab recommendations. Also, V&A recommended 5 year inspection.
Nov-11	Repair	Carlsbad bid and subsequent award to Charles King Company.
Dec-12	Repair	7 of the 8 manholes were rehabilitated by the Charles King Company. Section CIPP lined.
	Repair	8th manhole (at Lanikai) to be rehabilitated when Lanikai Lining Project resumes
FY14	Repair	The junction manhole was lined by Carlsbad
FY17	O&M	Hydrocleaned in Fall of 2016 by Carlsbad
<i>FY18-</i>	<i>O&amp;M</i>	<i>Planned Hydroclean and CCTV Inspection every 5 years</i>

*Items in Italics are Planned*

Updated: November 2017

**ATTACHMENT B**

**MISCELLANEOUS SEWER LINE AND MANHOLE REPAIRS**

Misc. Sewer Line and Manhole Repairs  
FY 2018

Line Segment/ Manhole	Completion Date	Location	Comments	Completed By
08-0810_08-0800	Oct-17	Los Pinos Circle	Liner installed	Pacific Drain
04-1525_04-1520	Oct-17	Caudor Street	Liner installed	Pacific Drain
08-102171_08-102151	Oct-17	Vista Nuez	Liner installed	Pacific Drain
10-9241_10-9240	Oct-17	Corinita Street	Liner installed	Pacific Drain
MH 11-11310	Aug-17	Estrella Del Mar Easement	New composite MH frame/cover	Ayala Engineering
MH 11-11300	Aug-17	Estrella Del Mar Easement	New composite MH frame/cover	Ayala Engineering
MH 11-11290	Aug-17	Estrella Del Mar Easement	New composite MH frame/cover	Ayala Engineering
MH 10-0010	Aug-17	La Costa Avenue	New composite MH frame/cover	Ayala Engineering
MH 10-0097	Aug-17	Leucadia Pump Station	New composite MH frame/cover	Ayala Engineering
MH 10-0134	Aug-17	LWD - front near Gelson's	New composite MH frame/cover	Ayala Engineering
MH 01-0190	Nov-17	Vulcan Avenue	New composite MH frame/cover	Ayala Engineering
MH 01-1860	Nov-17	Jason Street Alley	New composite MH frame/cover	Ayala Engineering

Duke's Root Control Line Segments  
FY 2018

Line Segment	Completion Date	Location	Comments	Length in Feet	Completed By
01-0930 to 01-0920	January 2018	Jupiter Street	Major roots	221	Duke's Root Control
01-0950 to 01-0970	January 2018	East Glaucus Street	Major roots	350	Duke's Root Control
01-0950 to 01-0920	January 2018	Coop Street	Major roots	270	Duke's Root Control
01-1050 to 01-0740	January 2018	East Jason Street	Major roots	200	Duke's Root Control
04-2480 to 04-2495	January 2018	Sidonia Street	Major roots	398	Duke's Root Control
05-0540 to 05-0490	January 2018	Encinitas Boulevard	Major roots	167	Duke's Root Control
05-0620 to 05-0610	January 2018	Ahlich Avenue	Major roots	296	Duke's Root Control
05-0650 to 05-0660	January 2018	Doris Drive	Major roots	340	Duke's Root Control
06-1840 to 06-1830	January 2018	Village Green Run	Major roots	257	Duke's Root Control
08-10960 to 08-10950	January 2018	Quebrada Circle	Major roots	335	Duke's Root Control
11-1140 to 11-1135	January 2018	Altisma Way	Major roots	314	Duke's Root Control

**ATTACHMENT C**

**PUMP STATION TRACKING**

**DWEI TO PROVIDE IN FOLLOW-UP MEMO TO DISTRICT**