

PACIFIC GROVE SEWAGE SPILL



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SUMMARY

Rarely in our everyday lives do we think about everything that goes on beneath our feet. Once in a-while events occur that remind us of the importance of what we take for granted. A sewage spill from a pump station in Pacific Grove (PG) into the Monterey Bay on May 18, 2015, was one such event. This spill led the 2015-16 Monterey County Civil Grand Jury (MCCGJ) to inquire into the details of the spill, and to question the general integrity of the sewer system in PG.

We found that accountability for the spill did not squarely fall on the City of PG. The pump station where the spill occurred was owned and operated by the Monterey Regional Water Pollution Control Agency (MRWPCA).¹ We found that MRWPCA's response in dealing with the May 18 spill was necessary given their options. We also found that the circumstances of the spill were unrelated to the condition of PG's sewer infrastructure overall.

Even though the spill was unrelated to PG's sewer infrastructure, the MCCGJ still inquired into the condition of PG's sanitary sewer system. We found that PG has kept up replacement of the worst areas identified in their 2004 Sewer System Management Plan (SSMP),² and is continuing to make improvements outlined in PG's 2014 SSMP³ as funds and opportunities become available.

This report will explain how and why the May 18 spill occurred, as well as what actions have been taken to correct the faulty equipment that caused it. It will also discuss the steps PG has taken to complete projects outlined in its 2004 SSMP. In addition, this report will discuss how PG residents can contribute to minimizing spills.

¹ Pacific Grove 2014 SSMP.

² Work orders and notices of completion submitted by City of Pacific Grove.

³ City council agenda reports and Interviews.

BACKGROUND

Monterey Bay became the 11th national marine sanctuary on September 18th 1992.⁴ For recreation, tourism and science, this ecosystem is visited annually by millions. It serves as an annual throughway for the migration of multiple species of birds, fish and mammals, some of which are protected species. The bay itself is studied for the depth of the canyon that lies just offshore. The responsibility to protect and maintain this sanctuary falls on the citizens and municipalities of this county to preserve it for many generations to come.

From the early 1990's to 2004, the city of PG had frequent problems with sewage spills.⁵ Some of these spills reached and emptied into the Monterey Bay. A consent decree from Ecological Rights Foundation v. City of Pacific Grove Case #CO3-2612 PVT⁶ prompted PG to come up with a 10 year plan for Capital Improvement Projects (CIP). This met the requirement of the 2006 State Water Resources Control Board order 2006-0003-DWQ⁷ which required all federal or state entities and municipalities that maintained a sewer system greater than 1 mile to develop a SSMP.⁸ The purpose of an SSMP is to reduce sanitary sewer overflows (SSO) or sewage spills, provide a response plan, and set maintenance guidelines.

The city of PG has 12 sewer districts consisting of 58 miles of pipe, 900 manholes and 9 pump stations. Much of this pipe is vitrified clay pipe (VCP) installed from the early 1900's to the 1960's. As the worst of the older pipes degrade in functionality, the city has replaced them with more modern pipes such as Polyvinyl chloride, better known as PVC. To date, most of the piping still functions, but is close to the end of its life expectancy or cannot keep up with the current need for flow capacity. The pump stations are maintained by MRWPCA, and two of the nine pump stations are owned by MRWPCA.

⁴ <http://montereybay.noaa.gov/intro/welcome.html>

⁵ <http://www.pacificgrove.com/sewer/spilllist.html>

⁶ Case # CO3 – 2612 PVT.

⁷ http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2006/wqo/wqo2006_0003.pdf

⁸ State Water Resources Control Board order 2006-0003-DWQ.

PG has come a long way in reducing spills over these last 10 years, but there will always be a need for regular maintenance and capital improvements to keep its sewer system functional and minimize the possibility of sewage spills.

INVESTIGATIVE METHODOLOGY

The MCCGJ's methodology involved three steps:

- Gathering information on PG's sewer infrastructure. This was done by reviewing PG's 2004 and 2014 SSMP, city council minutes, state orders, and other documents;
- Interviewing city officials and relevant persons involved with PG's sewer system and the May 18 spill;
- Verifying all collected information against incident reports and documents showing work completed.

The Grand Jury completed the following activities to investigate the state of Pacific Grove's Sewer infrastructure:

- Reviewed Pacific Grove's Sewer Plans from 2004, 2013 and 2014.
- Reviewed Pacific Grove's 10 Year Sewer Collection System Financial Plan and Rate Study.
- Reviewed California State Water Resources Control Board order 2006-0003-DWQ and other reports.⁹
- Interviewed Pacific Grove city officials, Public Works personnel and representation from MRWPCA.
- Conducted a site visit at the pump station at Fountain Avenue.
- Reviewed documents to verify work completed:
 - Repair and replace D and F rated pipes;
 - Install Urban Diversion System;
 - Rehabilitate Pump Stations;
 - Replace or reconstruct Phase 7 sewer lines, mains and manholes.

⁹ http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2006/wqo/wqo2006_0003.pdf

DISCUSSION

This investigation focused on two major concerns: the May 18 sanitary sewer overflow, and the state of PG's sanitary sewer system and how it is currently maintained.

MAY 18 SANITARY SEWER OVERFLOW

The May 18 SSO occurred because of a false pressure reading during repairs to the pump station at Fountain Avenue in PG. MRWPCA maintenance personnel began repairs on the pump station. After pressure readings on pump #2 revealed no pressure in the system, they unbolted the plug-valve¹⁰ for that pump. This in turn released an unexpected backflow of sewage that began to flood the pump station. Following protocol, MRWPCA reacted to the fast flooding pump station. Every agency on their list was called for assistance, and Vactor trucks (each capable of pumping and holding 1 to 3 thousand gallons at a time) were dispatched to the pump station. Realizing that the use of Vactor trucks would be insufficient to stem flooding in the pump station, MRWPCA diverted sewage directly into the Monterey Bay. The alternative would have allowed overflowing from the pump station. This flow would have spilled across the recreation trail and ended up in the Monterey Bay.

The magnitude of this spill was estimated as 219,733 gallons of untreated sewage.¹¹ MRWPCA reacted appropriately calling for assistance from all local agencies that could help. Their actions lessened public exposure to raw sewage avoiding a hazardous material spill on the recreation trail and protected the pump station itself from costly damage to the electrical equipment on its second floor. MRWPCA has approved and planned the installation of a redundant valve to prevent future spills within the pump station at Fountain Ave. They have also developed protocols from this experience that could help prevent future spills of this kind.¹²

¹⁰ Refer to Appendix C.

¹¹ SSO Technical Report.

¹² Pump Station 15 Standard Operating Procedures.

THE STATE OF PG'S SANITARY SEWER SYSTEM

The second part to this investigation revealed much about PG's efforts over the years to comply with state mandates and a consent decree related to their sewer system. In 2004 PG hired HDR Engineering to develop a 10 year SSMP that would provide direction for sewer related CIP. This plan assigned an A to F grade to sewer pipes within the city. By October 16, 2015, the city completed replacement and repairs of all F and D rated pipes outlined in the 2004 SSMP. Included in the projects was the rehabilitation of two PG owned pump stations, one at Eardley, and the other at Oceanview. Additionally, on June 3, 2013, the city completed an urban runoff diversion system to collect storm water and send it to a MRWPCA treatment plant in Marina. This urban runoff diversion system is used during the first few rainfalls of the year to keep contaminants out of the bay. This practice is called the First Flush.¹³

PG has since hired another engineering firm, Wallace Group, to develop a new 10 year plan. This plan was developed in 2014, and lists CIP work for the next 10 years. The 11 projects listed in the 2014 SSMP will replace or repair approximately 25% of PG's sanitary sewer system. This includes an additional 4.6 miles of VCP that through Wallace Group's assessment received a grade of F. This newly F rated pipe was in better condition 10 years ago, but has since degraded highlighting the need to appropriately fund sewer projects on a regular basis.

Projects that are currently approved by PG's city council include sewer infrastructure under Mermaid Avenue & Ocean Boulevard, as well as 14th Street: Sinex to Pine Avenue. Each of these projects has received matching state funds.

To determine what rate increases will be necessary to pay for the projects outlined in the 2014 SSMP, Wallace group contracted with David Taussig & Associates (DTA).

¹³ More information on First Flush at <http://www.cityofpacificgrove.org/living/green-pg/environmental-programs-grants>

Based on the DTA rate study,¹⁴ the city of PG utilized the proposition 218 process to increase rates to pay for CIP projects proposed in the 2014 SSMP. Proposition 218 was adopted giving PG the rate increases it needs.

Minor spills that have not reached the bay have been caused by clogging of pipes. Fats, oils, grease as well as non-flushable wipes and other non-flushable items are the largest contributors to these spills. Even though some wipes claim they are flushable on the package, the city assures us they are indeed not flushable.¹⁵ PG households and businesses have been encouraged to minimize overflows by using biodegradable toilet paper, and not pouring cooking oil down the sink. Proposition 218 also designates funds for public education on this matter.

MAINTENANCE

The MCCGJ is concerned with how PG's sewer system is being currently maintained. The 2014 SSMP noted there are few people staffed to maintain the 58 miles of sewer pipe for which PG is responsible. Interviews revealed that PG contracted with two companies to conduct sewer maintenance within the city. The first is Greenline, who is responsible for flushing out the city's 12 sewer districts over the course of a year. Greenline is also responsible for responding to small overflows when they occur. The second is Root Tamers, who specializes in dealing with root intrusion which degrades and damages pipes. These companies act under the direction of the city to perform regular maintenance.

¹⁴ *10-Year Sewer Collection System Financial Plan and Rate Study*. Prepared by David Taussig & Associates Inc. for City of Pacific Grove and Wallace Group. February 23, 2015.

¹⁵ Refer to Appendix B.

FINDINGS

- F1. MRWPCA is responsible for the May 18, 2015, sanitary sewer overflow at Fountain Avenue, Pacific Grove. They own and operate said pump station, and were making repairs there when the overflow occurred.
- F2. MRWPCA did not have a procedure to address potential false pressure readings during valve maintenance on May 18, 2015.
- F3. Diverting the SSO into the Monterey Bay prevented a costlier and hazardous uncontrolled overflow. MRWPCA's response in dealing with the May 18 SSO was appropriate given the alternative.
- F4. The condition of PG owned sewer infrastructure was unrelated to the circumstances of the SSO on May 18, 2015.
- F5. PG fulfilled its obligation in the Ecological Rights Foundation v. City of Pacific Grove Case #CO3-2612 PVT.
- F6. PG has so far only approved projects outlined in the 2014 SSMP when matching funds are available.
- F7. Due to rate increases from Proposition 218, PG will have sufficient funds to resolve the sewer infrastructure issues identified in the 2014 SSMP.
- F8. PG is sufficiently maintaining its sanitary sewer system through its contracts with Greenline and Root Tamers.

RECOMMENDATIONS

- R1. MRWPCA implement staff training to account for and manage situations of false equipment readings.
- R2. The City of Pacific Grove prioritize sewer projects based on severity of pipe degradation and public need.
- R3. The City of Pacific Grove annually budget for sewer projects using Proposition 218 funds and other funds as they become available.
- R4. The City of Pacific Grove actively seek matching funds for the sewer projects.

REQUEST FOR RESPONSES

Pursuant to Penal Code section 933.05, the grand jury requests responses as follows:

Monterey Regional Water Pollution Control Agency, Board of Directors:

Findings F1 –F4 and Recommendation R1

Pacific Grove City Council:

Findings F4 – F8 and Recommendations R2 –R4

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Agreement for Maintenance of Sewage Lift Stations. Contract between City of Pacific Grove and MRWPCA. June 23, 2008.

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Phase 7 Wastewater Collection Sewer Main Replacement Project, Notice of Completion. Monterey Peninsula Engineering. December 11, 2015.

Public Hearing, City of Pacific Grove. July 15, 2015 at 6:00 pm.

Procedure for discharge valve plug Replacement at Station #15. MRWPCA. March 29, 2016.

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Revenue Audit Trail, Audit 41. Pacific Grove. February 4 2016.

Sewer Collection System Master Plan. Prepared by Wallace Group for City of Pacific Grove. May, 2014.

Sewer System Asset Management Plan. Prepared by HDR Engineering for City of Pacific, Grove. May, 2004.

http://www.mpwmd.net/Mbay_IRWM/IRWM_library/PG_SSAMP.pdf

Sewer System Maintenance Plan- Revision 1, Introduction. 2013.

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Statewide General Waste Discharge Requirements for Sanitary Sewer Systems. State Water Resources Control Board. Order no. 2006-0003-DWQ. May 2, 2006.

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2006/wqo/wqo2006_0003.pdf

Statewide Sanitary Sewer Overflow Reduction Program Annual Compliance Report. State Water Resources Control Board. 2014.

http://www.waterboards.ca.gov/water_issues/programs/ssso/docs/compliance_report_fy1213.pdf

GLOSSARY:

PG- CITY OF PACIFIC GROVE

MCCGJ – MONTEREY COUNTY CIVIL GRAND JURY.

MRWPCA – MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY.

CIP - CAPITAL IMPROVEMENT PROJECTS.

SSO – SANITARY SEWER OVERFLOWS.

PVC – POLYVINYL CHLORIDE.

VACTOR TRUCKS - Clean and maintain sewer lines, catch basin and storm drain systems with expertise application of pneumatics and high pressure water for safe and productive non-destructive excavation of natural or man-made restrictions within the system.

FIRST FLUSH – The city of PG with MRWPCA has incorporated lift stations to pump the annual first storm water run-off into MRWPCA sewer system for collection and treatment.

APPENDIX A: LIST OF CIP PROJECTS OUTLINED IN PACIFIC GROVES 2014 SSMP

Table 6-2. City of Pacific Grove Near Term Capital Improvement Program

Project #	Title	Description	Length (ft)	Old Diameter (in)	New Diameter (in)	Street	Location	Upstream Manhole Number	Downstream Manhole Number	Upgrade to Meet Future Needs*	Traffic Control	Construction Cost (\$)	Subtotal (\$)	Total Project Cost (\$)**
1	17 Mile	Upgrade sewer main due to capacity deficiency	2,900	8	12	17 Mile Drive	Maile Road from Treasure Road to 17-Mile Drive and 17-Mile Drive from Maile Road to Sunset Drive	510	501	No	Heavy	\$400	\$1,160,000	\$1,624,000
2	Oceanview & Mermaid	Replace sewer mains due to age & condition	1,850 150 100 2,250	6 6 8 8	8 8 8 12	Mermaid Mermaid Chile Oceanview	Oceanview Blvd to Sea Palm Ave Mermaid to Oceanview Blvd Mermaid to Oceanview Blvd Mermaid Street to Balboa Ave	E749 749 750 748	744 748 7747 741	No No No No	Moderate Moderate Moderate Heavy	\$480 \$480 \$720 \$505	\$906,000 \$85,000 \$72,000 \$1,137,000	\$1,289,000 \$116,000 \$101,000 \$1,982,000
Total Length 6,300														
3	Aellonar	Upgrade sewer main due to capacity deficiency (Increase Slope)	2,150	15	15	Aellonar Avenue	Lighthouse Ave to Del Monte Blvd	808	801	Yes	Heavy	\$498	\$1,071,000	\$1,500,000
4	Crocker & Aellonar	Replace or rehabilitate manholes due to hydrogen sulfide deterioration	10 Manholes	—	—	Crocker	Sinax to easement to Aellonar	819	811	No	Moderate	\$37,480	\$374,800	\$525,000
Total Length 23														
5	14th: Sinax to Pine	Consolidate multiple sewer mains Consolidate multiple sewer mains Abandon existing sewer main and tie-over to new sewer main	850 750 350	6 & 8 6 8	8 8 —	14th Easement 14th	Sinax Street to Junipero Ave Junipero Ave to Pine Ave Gibson Street to Junipero Ave	284 253 256	253 251 242	No No No	Moderate Moderate Moderate	\$441 \$437 —	\$375,000 \$328,000 \$30,000	\$525,000 \$460,000 \$42,000
Total Length 1,950														
6	Hillcrest	Replace sewer mains due to root intrusion	2,950 1,300	6 6	8 8	Multiple	Hillcrest Avenue to Sunset Avenue from Forest Ave to Congress Ave Sunset & Forest Ave to 19th Street & Marino Pines Road	377 & S965 372	642 366	No No	Moderate Moderate	\$412 \$462	\$1,216,000 \$587,000	\$1,703,000 \$682,000
Total Length 4,250														
7	14th: Lighthouse to Central	Consolidate multiple sewer mains	600	6 & 10	12	14th	Lighthouse Ave to Central Ave	239	1,058	No	Heavy	\$533	\$320,000	\$448,000
8	Carmel	Replace sewer main to eliminate sag	1,900	6 & 8	8	Camel	Junipero Ave to Ricketts Row	E219	214	No	Heavy	\$415	\$788,000	\$1,104,000
9	Hwy 68	Protect exposed pipe from damage	400	6	—	Hwy 68	Between Audubon Lane & Bishop Ave	1830	629	No	Heavy	—	\$42,000	\$59,000
													TOTAL NEAR TERM PROJECT COSTS	
													\$13,937,000	

* If noted "Yes", then the proposed project has existing deficiencies. In addition, upgrades are necessary for future development. The proposed pipe diameter noted in this Table is to meet the capacity needs of future development.

**Total includes construction cost plus preliminary engineering, design engineering, administration construction management and inspection costs. Construction costs were developed based on engineering judgment, confirmed bid prices for similar work in the Central Coast area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources.

APPENDIX B: PACIFIC GROVE PUBLIC EDUCATION ADVERTISEMENTS



Don't Flush Trouble!

Disposable wipes and other products are clogging our sewer lines and damaging pumps and other equipment.



Not only are these problems expensive to fix, they can also cause raw sewage overflows into homes, businesses and the Monterey Bay National Marine Sanctuary.

So, think trash, not toilets!

These belong in the TRASH:

- Cleaning Wipes • Grease • Condoms • Disposable Diapers
- Nursing Pads & Baby Wipes • Hair Facial Wipes
- Tampons & Pads • Dental Floss

To learn more, visit ClogBusters.org or call 831-648-5722
Funded by the City of Pacific Grove





*Cleaning Towelettes
Personal Care Wipes
Baby Wipes*

Protect The Monterey Bay

Wipes are now the leading cause of sewage line blockages in the City of Pacific Grove. Even "flushable" wipes do not dissolve readily. They collect in the lines, which leads to sewage overflows into the Monterey Bay National Marine Sanctuary.

"WIPES" are Not Flushable



Please discard wipes in the trash to avoid sewage overflows.

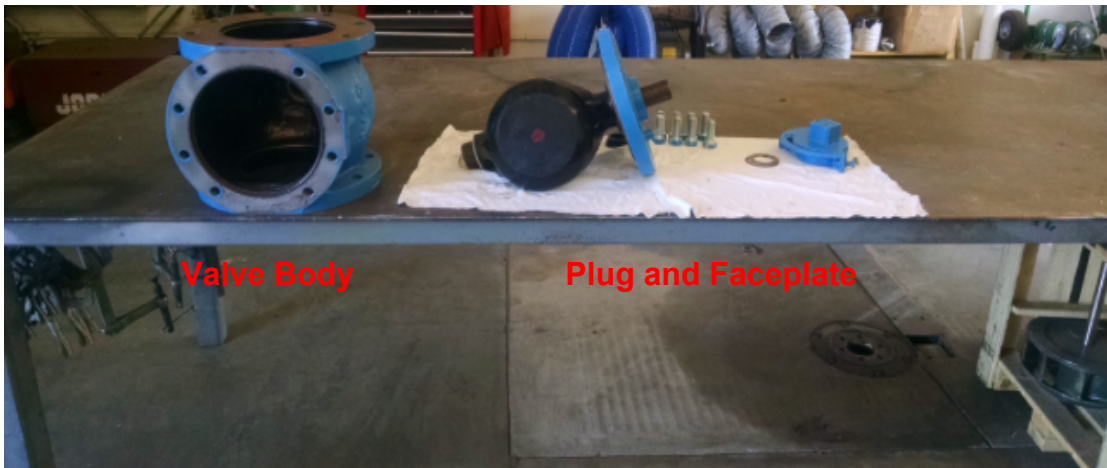
Wipes are a drain on our city's valuable resources.

Funded by the City of Pacific Grove • Information, call 831-648-5722

Appendix C: Pictures of Pump Station 13 on Fountain Ave







Valve Body

Plug and Faceplate



Valve Body

Face Plate



Valve Body

Valve Plug

Face Plate