SEWER SYSTEM MANAGEMENT PLAN

(SSMP)

August 2010
October 2016
: *June 2022*

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INTRODUCTION

This Sewer System Management Plan (SSMP) has been prepared in compliance with requirements of the State Water Resources Control Board's General Waste Discharge Requirements, Order No. 2006-0003-DWQ. The State Water Resources Control Board (SWRCB) acted at its meeting on May 2, 2006 to require all public wastewater collection system agencies in California with greater than one mile of sewers to be regulated under General Waste Discharge Requirements (WDR). The SWRCB action, which will apply to the Manila Community Services District (MCSD), also mandates the development of an SSMP and the reporting of SSOs using an electronic reporting system. The District's SSMP has been prepared and updated by the General Manager in consultation with District staff and with the help from other agencies of similar size and scope.

SYSTEM OVERVIEW

Manila Community Services District owns and operates a Septic Tank Effluent Pumping (STEP) system and has no sanitary gravity mains, laterals or manholes susceptible to inflow and infiltration. The Manila System I.D. is 1B801620HUM

As of May 2022, there were 6.3 miles of pressure mains, 350 sewer service connections, 278 septic tanks with pumping appurtenances and 67 power pedestals. Septic tank effluent is pumped to the Manila Waste Water Treatment Facility (WWTF) and includes a grit chamber, grinder chamber, metering chamber and a wet well. The wet well pumps effluent to 2 aerated lagoons, 3 constructed wetlands and 4 rapid infiltration basins. The system was designed to be operated in either series or parallel mode depending on contact time requirements for treatment.

Average Manila rainfall is approximately 38 inches, and generally occurs between October and April. The Manila WWTF is designed to treat an average dry weather flow (ADWF) of .140 million gallons per day (MGD). The current ADWF of .049 MGD consists almost exclusively of residential wastewater with 2 commercial wastewater customers that generate residential strength wastewater. All wastewater entering the WWTF is septic tank effluent (solids are removed at individual interceptor tanks).

During wet weather months, the plant receives an average daily flow of .59 to .70 MGD, and has sustained peak hourly flows up to .96 MGD during the heaviest rain events. As of 2022, the average age of the sewer treatment system is 32 years.

Treatment methodology has undergone revision to pond treatment as the original leach field disposal failed and was abandoned. In collection, miscellaneous interceptor tank appurtenances have been upgraded.

The system is predominantly made up of polyvinyl chloride (PVC) with sealed mechanical joints. The typical interceptor tank is either 750, 1,000 or 1,200 gallons (concrete or fiberglass) and effluent pumps range from ¼ HP to 1HP discharging to 1 ½" or 2" lateral to the sewer mains. The typical sewer main diameter is between 3" and 4" and all system mains culminate into four pressure mains to the Lift Station WWTF. These mains consist of (1) 4" and (3) 6" diameter pvc lines. Due to the relative youth of the system and the pressure design, overflows and blockages are almost non-existent. Individual tanks have approximately 3 days capacity in the event of a power outage or pump failure. The Manila Community Services District has on-call staff 24 hours a day with dedicated cell phone in the event of a sewer alarm. These alarms are located at individual control boxes adjacent to the interceptor tanks.

The district relies almost exclusively on system users in contacting staff to inform of alarm conditions. Tank overflows and many alarm conditions may result in backup of the customers internal plumbing through the upper lateral. Roots and grease have not cause stoppages unless they have interfered with the pump or floats as the STEP system is resilient to roots and FOG as staff is able to intercept and pump out the materials that would clog or damage a traditional gravity system.

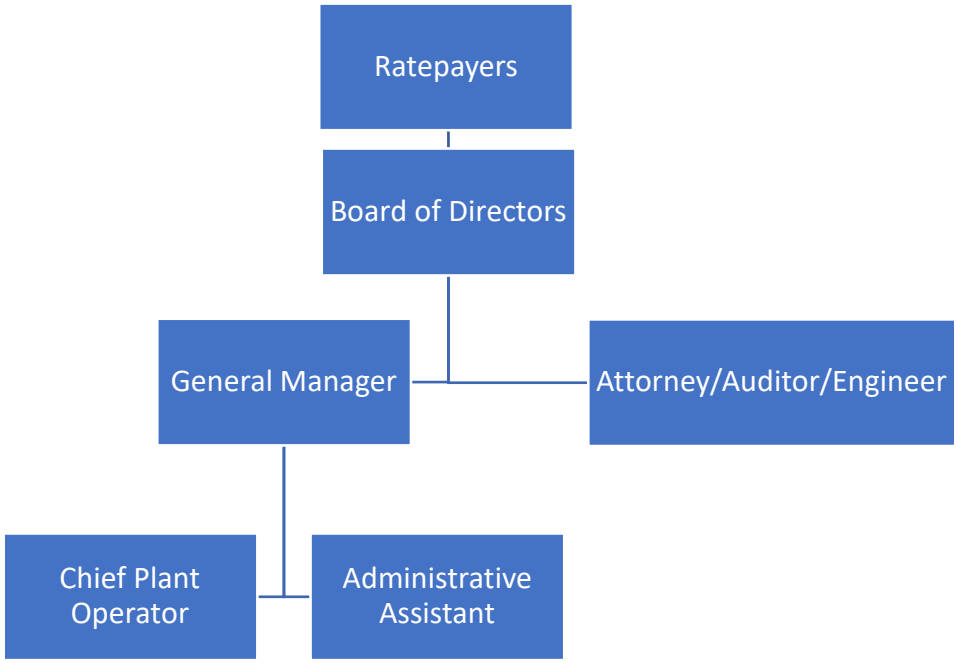
Overall, the Manila Community Services District wastewater collection system is in excellent condition and typically experiences low infiltration and inflow due to the sealed nature of the design within the conveyance system. Individual tanks, however are susceptible to inflow and infiltration as grade heights approach the tank access ports and collars, allowing surface water and runoff to enter the pumping chambers.

GOALS

The goals for the Manila Community Services District's Sewer System Management Plan are as follows:

- To professionally manage, operate and maintain all parts of the wastewater collection system and prevent overflows;
- To provide adequate capacity to convey peak flows;
- To minimize the frequency of Sanitary Sewer Overflows (SSOs);
- To mitigate the impact of SSOs; and
- To achieve the Collection Section team's annual goals.

ORGANIZATION



As of this writing, Christopher Drop is the General Manager and responsible for the day-to-day operations of the district. Ken Kittleson is the Chief Plant Operator and holds D2, T2 and WW1 licenses. The General Manager, in consultation with public works staff, has primary responsibility for the implementation, management and update of the SSMP and for conducting SSO reporting. The Chief Plant Operator is the lead worker responsible for managing field operations and maintenance of the wastewater system including SSO response and training of responding crews.

The district's engineering consultant oversees the preparation of wastewater collection system master plans, general plan documents, and the design and construction of large capital improvements projects or large-scale system rehabilitation/repairs.

The district's normal office hours are Monday through Friday 9:00 A.M. to 1:00 P.M.
All system related calls during office hours are referred to the Chief Plant Operator or General Manager (as required). Outside of normal office hours, the district maintains a licensed Operator scheduled for standby duty and provides initial response to SSOs in the system. The on-call staff has a district-owned cell phone for 24-hour emergency response.

The General Manager has overall responsibility for the reporting of SSOs to the Regional Water Board and for entering data in the Statewide SSO Database. The Chief Plant Operator will be added to the database as reporting level staff as required.

OVERFLOW AND EMERGENCY RESPONSE PLAN

The Manila Community Services District has a basic Sewer Overflow & Backup Response Plan developed by staff as described here:

The design and placement of the interceptor tanks are almost exclusively on private property. Overflows are rare as the individual tanks and appurtenances are alarmed (both audible and visual) and provide, on average (3) days backup capacity per household. The primary cause of any overflows in the system are due to power failure. All new customers are instructed, during application for service and through other service announcements, on the importance of contacting the district in the event of an alarm and to minimize flows during power outages. Notifications are affixed to pump control panels with the cell number of on-call staff in the event of an alarm condition or other problem.

In the event of a sustained power outage (over 24 hours), a portable generator may be delivered to individual power pedestals where between 3 and 6 tanks may be temporarily powered up and brought to within pre-alarm levels. With this effort, the majority of the system can be pumped down within approximately 3 days. In addition, the district may dispatch a 2,000-gallon capacity vacuum truck, also capable of bringing tanks to within pre-alarm levels may be used to return spills to the WWTF. The district also maintains a spill kit with booms for smaller upsets.

In the event of an overflow caused by pipe/joint failure, vandalism or accidents, the affected portion of the system may be de-energized by power pedestal or individual control box. All mainline connections are expected to hold back-flows from installed check valves. Force mains or laterals may be valved off or plugged with inflatable test plugs to stop flows until repairs can be executed and the system be re-energized. The pumper truck is dispatched as required for repairs to quickly contain any spills and facilitate excavation. Recovered wastewater can be returned to the system at any district-owned interceptor tank, to the WWTF or transferred to another agency. Since the district owns, operates, pumps and maintains all interceptor tanks, the system is in a constant state of monitoring.

FATS, OILS AND GREASE (FOG) CONTROL PROGRAM

The Manila Community Services District has determined that a FOG Control Program is not required due to the nature of the Step System as the service area does not contain any customers that produce fats, oils or grease in appreciable amounts. Historically, the Manila Community Services District collection system has not been subject to stoppages or backups in the sewer main lines caused by fats, oils or grease. The district may mandate installation and maintenance of grease interceptors as needed should future commercial services be connected to the system.

LEGAL AUTHORITY

This section can be waived for collection systems that serve a population of 10,000 or less.

MEASUREMENTS AND ACTIVITIES

Collection System Maps

Maps are available in hard copy format and accessible online for the entire system and include the following:

Pipes

- ID number or other unique identifier
- Location, with reference to streets and property lines
- Size
- Direction of flow
- Length
- Material type
- Slope
- Pipe elevations
- Plan or as-built ID number

Interceptor Tanks

- ID number
- Location
- Any additional pertinent information

Resources and Budget

The district utilizes a reliable, consistent and sufficient funding source for through user fees captured in the annual operating budget. Capital replacement planning and funding has recently received state grant funding as referenced herein. Mechanisms are user-supported rate structure separate from general fund revenue sources. The operating budget is adopted by the governing board annually and reviewed for performance quarterly. Operational adjustments are made when necessary.

Prioritized Preventive Maintenance

Approximately every 5-10 years, all interceptor tanks are to be pumped using either the district's vacuum pumper truck or contracted approved septage hauler for solids removal. Scheduling is based on how many connections are to the tank and observed or estimated solids accumulation. The following hardware is checked at the time of tank servicing:

- Float Operation
- High Level Alarm
- Motor Contactor
- Effluent Pump (Check for debris in impeller and amperage)
- Hours and On/Off Counter
- Tank collar height and condition (low collars and damage could result in I&I)
- Debris around tank and control box that could prevent timely maintenance

In the event of repeat trouble calls, a tank may be pumped, inspected and serviced before schedule. By keeping up with pumping and equipment inspections, hardware failure resulting in SSOs can be reduced to a minimum. Replacement parts are stocked in both district vehicles and shop. At least one member of staff is on call at all times, accessible by the public with to the staff's cell phone. On-call personnel are to remain within 30 minutes of the district at

all times and are responsible to record all calls and conditions encountered. All calls are recorded detailing time, date, location, complaint, conditions found, etc. Trouble call logs can be used to identify problem tanks.

Root Control
Root Control is handled on a tank-by-tank basis. If the customer has planted trees around the tank, it is the responsibility of the customer to have a licensed contractor enter the tank to correct problems. The district will work with the customer if the root intrusion is caused by the placement of the tank near existing trees or if the damage is within the means of the district using its equipment to make the repairs.

Odor Control
Odor control at the WWTF Lift Station is controlled by minimizing turbulence. Air may be pulled via vacuum from the wells via manifold with fan, to the dedicated odor control room and trickled through a chlorine and caustic soda contact chamber as required. This portion of the system has not been required as odors from the plant receive no complaints.

Capital Improvement
The District Capital Improvement Plan has been moved and referenced herein to the Fiscal Sustainability Plan.

Training
Wastewater operations require a Grade 1 Wastewater Treatment license. This licensing, as well as other required licenses require continuing education points. Employees are provided the resources through funding or accommodation for classes to acquire continuing education points as well as improve job performance. Safety meetings are monthly at a minimum.

Outreach to Plumbers and Building Contractors
This section can be waived for collection systems serving a population of 10,000 or less.

CONTINGENCY EQUIPMENT AND REPLACEMENT INVENTORIES

This section can be waived for collection systems serving a population of 10,000 or less.

DESIGN AND CONSTRUCTION STANDARDS

The Manila Community Services District maintains standards for installation, rehabilitation and repair of all sewer apparatus. Due to the STEP system's unique design, specifications for installation are stringent. All components for the system are specified and ordered by District staff (except for the interceptor tank that may be ordered and installed to our specifications).

All repairs to the system are performed by staff with the occasional aid of a licensed contractor (depending the size and scope of the repair/installation). Specifications are contained on the system maps and in the sewer system Maintenance Manual. As with the District's Standards for Installation, Rehabilitation and Repair, the District also performs specific testing procedures for all types of construction, installation, rehabilitation and repair type activities.

CAPACITY ASSESSMENT

This section can be waived for collection systems serving a population of 10,000 or less.

MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

State Water Resources Control Board Order No. 2006-003 includes a variety of required monitoring activities. A review of each activity and an example of how staff will implement each activity is discussed below.

- Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities

- Maintain records on all activities, including overflows, maintenance and inspections and trouble spots. This data will be used to evaluate the progress and effectiveness of the SSMP.

- Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP

- Collect sufficient information to document and characterize the district's implementation of the SSMP. This information will be used in conjunction with information from other agencies obtained from the State-wide SSO database to evaluate the effectiveness.

- Assess the success of the preventative maintenance program. Staff will evaluate the number of blockages, overflows and pump failures, the amount of material removed from interceptor tanks and the effectiveness of the preventative maintenance program.

- Update program elements, as appropriate, based on monitoring or performance evaluations. Staff will use the results of the program assessment activities to determine if updates or improvements to programs elements are warranted.

- Identify and illustrate SSO trends, including; frequency, location, and volume. Staff will compare trends in SSOs over time and against the SSO records and trends of similar agencies (if available) to ensure continued performance of the district's SSMP. Monthly reporting of SSO's and the review of SSO causes will be key identifiers used by staff to assess the effectiveness of the SSMP. Over the past few years, the number of SSO events for the district have been extremely low to non-existent.

SSMP AUDITS

This section can be waived for collection systems serving a population of 10,000 or less.

COMMUNICATIONS PLAN

District staff reports on the progress of SSMP development and implementation at District Board Meetings, which are held on the third Tuesday of each month and open to the public. Minutes from the meetings are available at the district office located at 1901 Park Street, Arcata, CA. 95521. The district maintains a web presence at www.manilacsd.com where meeting access can be found as well as archives of previous meetings video recordings, board packets and other records.

The district is part of the county alert notification systems for myriad events and also maintains an internal Emergency Alert System populated by the user/customer database and optional opt-in for all users. Other communications through social media are utilized as needed.

FISCAL SUSTAINABLITY PLAN

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