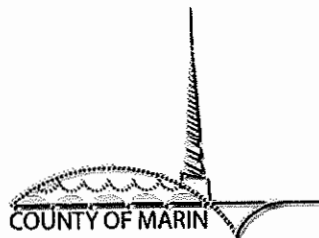


# **SEWER SYSTEM MANAGEMENT PLAN**

## **Marshall Community Wastewater System**

**March 2016**  
**Updated March 2018**  
**Updated August 2018**  
**Updated March 2020**

Prepared by Environmental Health Services Staff and  
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## TABLE OF CONTENTS

INTRODUCTION	1
I. GOALS	1
II. ORGANIZATION	1
III. LEGAL AUTHORITY	2
IV. OPERATION AND MAINTENANCE PROGRAM	3
V. DESIGN AND PERFORMANCE PROVISIONS	3
VI. OVERFLOW EMERGENCY RESPONSE PLAN	3
VII. FATS, OILS, AND GREASE CONTROL PROGRAM	4
VIII. SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN	4
IX. MONITORING, MEASUREMENT AND PROGRAM MODIFICATIONS	5
X. SSMP PROGRAM AUDITS	5
XI. COMMUNICATION PROGRAM	5

**Attachment A: Spill Prevention and Emergency Response Plan**

**Attachment B: Summary of Monitoring and Reporting Program Requirements**

# **Marshall Community Wastewater System**

## **SEWER SYSTEM MANAGEMENT PLAN**

### **INTRODUCTION**

This document constitutes the Sewer System Management Plan (SSMP) for the Marshall Community Wastewater Treatment System (Facility.) It has been prepared pursuant to State Water Resources Control Board (SWRCB) Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*, and Order No. WQ-2013-0058-EXEC, *Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*.

The Facility serves approximately 50 homes and a few commercial properties in the community of Marshall, an unincorporated area of Marin County located along the eastern shore of Tomales Bay. The Facility includes wastewater collection, treatment, and subsurface disposal of effluent. Wastewater is collected from septic tanks serving and located at individual residential and commercial properties, conveyed by approximately two miles of 2 to 3-inch pressurized pipelines to a community treatment system, and then discharged to a community leachfield. The community treatment system and leachfield are located on a 6-acre hillside site surrounded by grazing land. The wastewater service area extends along the Tomales Bay shoreline approximately one mile to the north (Phase 1 area) and one mile to the south (Phase 2 area) of the community wastewater site. The system has been designed for a wastewater flow of approximately 15,000 gallons per day.

### **I. GOALS**

The goals of this SSMP are as follows:

- Properly manage, operate, and maintain all parts of the wastewater collection system, excluding the individual homeowner and business septic tank effluent pump (STEP) units, to minimize sanitary sewer overflows (SSO)
- Provide adequate capacity to convey and treat peak flows
- Minimize the frequency of SSO
- Mitigate the impact of SSO on public health and the environment

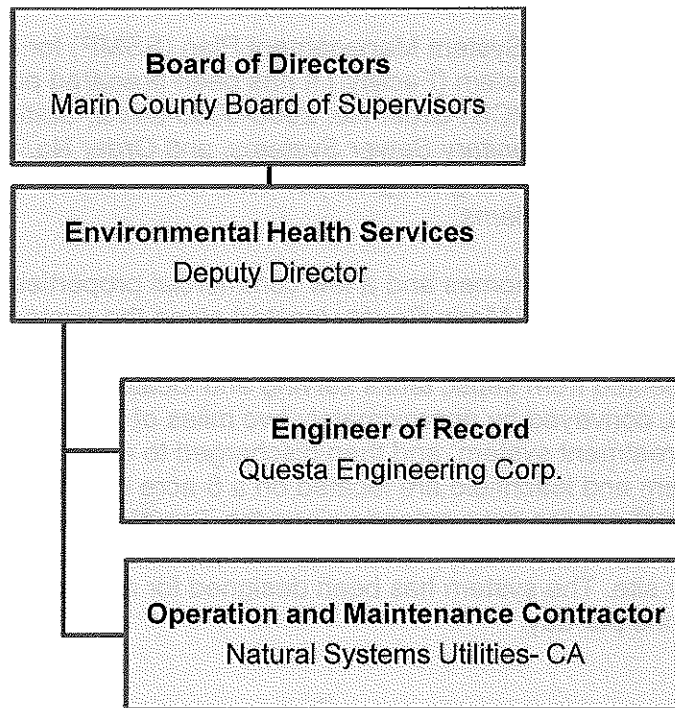
### **II. ORGANIZATION**

Marin County owns and operates the Facility under the auspices of the Marshall Onsite Wastewater Disposal Zone (Zone), which is governed by the Marin County Board of Supervisors acting as Directors.

The Marin County Community Development Agency, Division of Environmental Health Services (EHS) oversees all aspects of the Zone's finances, construction, operation, regulatory

compliance, and contractors. A qualified wastewater maintenance contractor performs actual operation and maintenance of the facilities, with as needed assistance from County staff and consultants. Questa Engineering Corp., the Engineer of Record that designed the system and managed construction, consults on an as-needed basis.

The chart below reflects the organization of the Marshall Onsite Wastewater Disposal Zone.



### III. LEGAL AUTHORITY

The arrangements under which the Zone was formed provide legal authority to:

- Prevent illegal discharges
- Require that sewers and connections be properly designed and constructed
- Ensure access for maintenance, inspection, or repairs
- Limit the discharge of materials that might cause blockages
- Enforce any violation of the sewer ordinances

#### **IV. OPERATION AND MAINTENANCE PROGRAM**

The private contract operator, Natural Systems Utilities – CA (NSU) performs the operation and maintenance of the wastewater system. The project manager is Andre Zinkevich (707-732-1013.) This contract is renewable upon mutual agreement with the County and the contract company. Additionally, Questa Engineering Corporation is retained for consultation and oversight.

The scope of the Operations & Maintenance (O&M) contract for the collection system includes the following:

- Conduct routine monitoring, sampling, and maintenance activities. Provide routine reports to EHS and San Francisco Bay Regional Water Quality Control Board (RWQCB) pursuant to the Monitoring and Reporting Program (MRP) issued September 8, 2015.
- Respond to telemetry alarms, sewer calls and complaints. Arrange for repairs as needed.

As-built plans of the individual STEP units, the effluent collection lines and valve, secondary treatment system, and the leachfield area are in the Facility Operation and Maintenance Manual. An operator visits the facility a minimum of once a month. Table 1 of the Facility Operation and Maintenance Manual summarizes the tasks to be performed monthly, quarterly, annually, and as needed. A computerized telemetry system allows NSU and Questa Engineering Corp. to monitor system operation remotely.

It has not been necessary to clean the small diameter effluent collection system, which generally has been the experience with similar systems elsewhere.

#### **V. DESIGN AND PERFORMANCE PROVISIONS**

Given the small size of the system, the development of Facility standards is not warranted. Regulations governing the formation of the Zone effectively limit new construction that would tie into this system. Any new and rehabilitated connections and facilities would be designed, constructed, repaired, inspected, and tested in accordance with the standard specifications for design and installation established by the Engineer of Record and contained in the construction documents for the community wastewater facilities.

#### **VI. OVERFLOW EMERGENCY RESPONSE PLAN**

The Zone maintains a Spill Prevention and Emergency Response Plan for Marshall Community Wastewater Facilities, which is included in this SSMP as Attachment A. This plan addresses overflow emergency response to protect public health and the environment. Elements of the plan include rapid detection system, response procedures, back-up capabilities, warning systems, and notification procedures, including a list of emergency telephone numbers. The plan addresses overflows at the STEP units, treatment plant, effluent lift station and sanitary sewer collection system. All overflows, backups, etc., are investigated as to the cause and corrective actions are taken to prevent future incidents.

Additionally, Section 9 of the Facility's Operation and Maintenance Manual addresses emergencies such as mechanical equipment failures, violent storms, earthquakes, or other types of disasters.

Residents or public are advised to notify the service contractor by telephone as soon as possible: **Natural Systems Utilities – CA (24 hours): 707-254-1931.**

The operations contractor, or any other personnel associated with operation of the Facility, will notify EHS whenever any untreated wastewater or other waste from the Facility is discharged to any local drainages or Tomales Bay, or discharged or deposited where it probably will be discharged to local drainages or Tomales Bay. Notification will occur as soon as the person has knowledge of the discharge or threatened discharge condition. The Deputy Director, or her designated representative, shall be responsible for notifying the RWQCB.

In the event a wastewater spill greater than 1,000 gallons is discharged into any local drainages or Tomales Bay, or to a location where it probably will be discharged to a local drainage or Tomales Bay, the spill will be also be reported to the Governor's Office of Emergency Services (Cal OES.) Upon receiving notification of the incident from the operations contractor or others, Cal OES will notify other resource and public safety agencies such as Department of Fish and Wildlife, Marin County Sheriff's Office, and Marin County Fire Department.

Additionally, as called for in Monitoring and Reporting Program (MRP) - Order No. WQ-2013-0058-EXEC, EHS is responsible for reporting SSO into the California Integrated Water Quality System (CIWQS) SSO electronic reporting database. These reporting requirements are summarized in Attachment B.

## **VII. FATS, OILS, AND GREASE CONTROL PROGRAM**

There are two food services connected to the system. The main restaurant on the system, Tony's Seafood, has a 2,000-gallon grease tank that is inspected quarterly by the operation and maintenance contractor, and pumped as needed based on these inspections. The waste discharge of a smaller deli and market, Marshall Store, is currently being re-evaluated. This will include a determination on the need for a grease trap or tank.

Otherwise, the current operations and maintenance contractors have not observed any fats, oils, and grease (FOG) occurrences. The septic tank at each residential lot effectively retains the individually generated fats, oils, and grease. The operation contractor inspects every septic tank annually; EHS then notifies property owners when pumping is required, typically every three to five years. Therefore, no additional FOG control program is needed for the residential properties and food service businesses.

## **VIII. SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN**

As detailed in the Facility's Operation and Maintenance Manual, the operation and maintenance contractor routinely inspects the collection system, Advantex treatment system, effluent lift station, and disposal area.

Regulations governing the formation of the Zone effectively limit growth within the wastewater system service area so as not to not exceed the design capacity. Average flows to the treatment

plant have been about 25 percent of the design flow during the first two years of operation. Peak flows affected by infiltration or inflow have not been a problem for the Facility's Phase 1 and is not expected to be a problem for the combined Phase 1 and 2 because of the following: 1) the collection system consists of small diameter HDPE pipe with heat-fused joints; and 2) since virtually the entire collection system is under pressure, there is very little opportunity for inflow or infiltration into the system. The capacity of the system is thus deemed to be adequate.

## **IX. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS**

As part of the Facility's General Waste Discharge Order WQ 2014-0153-DWQ issued by the RWQCB on September 8, 2015, EHS, or its' representative, will submit an annual monitoring report summarizing the data obtained during the year. The report will include a discussion of wastewater system performance and record of compliance. If non-compliance is identified, the report will discuss corrective actions taken or planned to bring the discharge into full compliance.

The Zone contract operator keeps EHS staff apprised of infrastructure improvements needed on an ongoing basis. The system is an isolated, self-contained system with no provision for additional connections beyond the properties within the boundaries of the Zone, for which the treatment system and leachfield area were designed.

## **X. SSMP PROGRAM AUDITS**

The County must audit the SSMP every two years and keep the audit report on file. The audit shall focus on evaluating the effectiveness of the SSMP and compliance with SSMP requirements, including identification of any deficiencies and the steps to correct them. The first audit was completed March 1, 2018. The SSMP shall be updated every five years.

## **XI. COMMUNICATION PROGRAM**

EHS staff communicates routinely with the system operator and sends regular updates to the property owners within the Zone.





**ATTACHMENT A**

**Spill Prevention and Emergency Response Plan for  
Marshall Community Wastewater Facilities**

# **Spill Prevention and Emergency Response Plan for Marshall Community Wastewater Facilities**

**December 15, 2015**

**Updated March 7, 2016**

**Updated August 1, 2018**

**Updated March 26, 2020**

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## **SECTION 1. INTRODUCTION AND SYSTEM OVERVIEW**

### **INTRODUCTION AND BACKGROUND**

This document constitutes the Spill Prevention and Emergency Response Plan (Response Plan) for the Marshall Community Wastewater Treatment System (Facility). It has been prepared to be consistent with requirements of Provision E.1.a of SWRCB Water Quality Order 2014-0153-DWQ, General Waste Discharge Requirements for Small Domestic Wastewater Treatment Systems (General Order). By letter of September 8, 2015, the San Francisco Bay Regional Water Quality Control Board (RWQCB) issued a Notice of Applicability (NOA) that the General Order is applicable to the Facility. Among other items, the NOA specified that the required Response Plan for the Facility be developed and submitted to the RWQCB by December 15, 2015.

The purpose of this Response Plan is to provide procedures and guidance concerning operation and maintenance activities to aid in preventing accidental releases of wastewater and to effectively respond to any releases in order to minimize impacts to the environment. Key elements covered in this Response Plan include:

- Operation and Control of Wastewater Treatment
- Sludge Handling
- Collection System Maintenance
- Emergency Response
- Notification Procedures

### **WASTEWATER FACILITY OVERVIEW**

The Facility is owned and operated by Marin County under the auspices of an Onsite Wastewater Disposal Zone governed by the Marin County Board of Supervisors. The Facility serves approximately 50 homes and a few commercial properties in the community of Marshall, an unincorporated area of Marin County located along the eastern shore of Tomales Bay.

The Facility includes wastewater collection, treatment and subsurface disposal of effluent. Wastewater is collected from septic tanks serving and located at individual residential and commercial properties, conveyed by pressurized pipelines to a community treatment system, and then discharged to land in a subsurface discharge system (also called the community leachfield). The community treatment system and leachfield are located on a 6-acre site, bordered by (and formerly a part of) property commonly known as the Barinaga Ranch. The wastewater service area extends along the Tomales Bay shoreline approximately one mile to the north (Phase 1 area) and one mile to the south (Phase 2 area) of the community wastewater site.

The operation and maintenance of the facilities is provided by a wastewater maintenance contractor, under service agreement with the County of Marin, Marshall Onsite Wastewater Disposal Zone #1. The Operation and Maintenance (O&M) Manual for the Facility provides details on routine day-to-day operations, equipment, performance requirements, maintenance procedures, safety, utilities, personnel, emergencies, monitoring and reporting activities. This Response Plan supplements and, in some respects, overlaps information, and guidance provided in O&M Manual.

## **DESCRIPTION OF THE SYSTEM**

### ***Primary Treatment and Collection System***

Primary sewage treatment and collection is provided by individual septic tanks and a small diameter effluent sewer system, as described below.

**Septic Tanks.** Watertight septic tanks are provided for each building or property. These septic tanks provide primary sewage treatment. All tanks have watertight access risers. The septic tanks at individual residences range generally in size from 800 to 1,200 gallons; there are a few larger tanks (2,000-gallon capacity) shared by small groups of buildings and at commercial occupancies.

**STEP Units.** All properties include a Septic Tank Effluent Pump (STEP) unit. These mostly consist of an individual unit at the main residence, but in some cases two or more buildings are served by a common "cluster" STEP unit. The STEP unit includes a submersible effluent pump (in some cases a duplex arrangement) installed in a separate chamber following the septic tank or in the second compartment of the septic tank, along with associated electrical controls and float-activated switches programmed to operate on demand (i.e., in response to flow from the building). The STEP unit pumps primary treated effluent to the pressure main, via a 1.25-inch pressure lateral. The sewage solids are retained in the septic tank and require periodic pump-out and hauling of sewage solids (septage).

**STEP Force Main.** Septic tank effluent is collected in two separate small-diameter effluent sewer force mains; one serves the northerly Phase 1 area and the other serves the southerly Phase 2 area. Both force mains are approximately one-mile long and provide a continuous collection network leading from each septic tank to the community wastewater treatment-disposal site. Shutoff valves are located at various points along the force main, including crossing of highway culverts. Air release valves are located at high points along the force main.

### ***Secondary Wastewater Treatment System***

The wastewater treatment system consists of a recirculating textile-media filter system (“AdvanTex”). The treatment system consists of three filter units, a recirculation-blend tank, piping, pumps, and controls and is designed for an average daily wastewater flow of 7,500 gpd.

### ***Wastewater Discharge System***

The treated water is dispersed to a community leachfield located on the knoll and slopes uphill of the treatment plant. The wastewater discharge facilities include the following:

**Effluent Lift Station and Emergency Storage Tank.** Secondary treated effluent from the AdvanTex system collects in an Effluent Lift Station, consisting of a 5,000-gallon capacity concrete tank installed below ground on the north side of the control building. The lift station is equipped with a duplex pump system. The effluent is pumped from this point to a dosing tank located at the high point of the community wastewater site (east side) for dispersal of the effluent to the leachfield. A second 5,000-gallon holding tank is located adjacent to the main pumping tank to provide additional emergency storage.

**Control Building and Backup Generator.** A small, 6-foot by 12-foot control building is constructed between the recirculation/treatment tank and the effluent lift station. This building houses the control panel for the pump system, tools, and other equipment. There is a separate enclosure for the portable emergency back-up generator. The generator is available for manual operation of the main pumps, the emergency holding tank pump, and AdvanTex treatment system. There is also a second generator (trailer-mounted) stored at the treatment site for as needed manual operation of individual STEP pumps in the collection system.

**Pressure Line and Dosing Tank.** A 2-inch diameter pressure line runs from the Effluent Lift Station to a 2,000-gallon concrete dosing tank located (buried) on the knoll above the leachfield. The dosing tank is equipped with two automatic dosing siphons. The siphons operate alternately to deliver effluent under pressure to the leaching trenches.

**Pressure Distribution Leachfield.** The secondary-treated effluent is dispersed via soil absorption using a standard pressure distribution (PD) leachfield trench system. The system consists of 3,000 linear feet of leaching trenches, 48-inches deep by 18-inches wide, divided into eight equally-sized zones, with 375 lineal feet total per Zone. Each zone consists of four PD trenches, and one standard gravity leaching trench designed to only receive serial overflow via a “relief line” from the lowest of the four PD trenches when that trench is filled to capacity. The leachfield is designed for peak flow of approximately 15,000 gpd.

**Vehicle Access.** Vehicle access to the treatment plant and leachfield area is via an entrance gate and gravel road at the northwest corner of the site, where the STEP force main from the Phase 1 service area enters the site. The gravel entrance road is improved with additional gravel surfacing to allow all-weather surface access to the treatment plant area. There is a vegetated earthen access road from the treatment area to the dosing tank location at the top of the leachfield area for occasional or emergency use only.

## **SECTION 2. OPERATION AND CONTROL OF WASTEWATER TREATMENT**

### **PRIMARY TREATMENT – INDIVIDUAL ON-LOT SEPTIC TANKS**

Every occupied building is served by a septic tank. Septic tanks provide passive, primary treatment of the wastewater (primarily sedimentation) and have relatively minimal maintenance requirements. Septic tanks are inspected at least once a year to check for solids, scum, and grease accumulation, to observe the physical condition of the tank, and to schedule pump-out as necessary. Step-by-step procedures for conducting septic tank inspections are provided in the O&M Manual. As much as possible, the inspections should be conducted during the wet weather season to check for any infiltration of extraneous water (e.g., runoff or groundwater) into the tank.

### **SECONDARY TREATMENT**

#### *Equipment and Schematic*

The wastewater treatment system consists of a recirculating textile-media filter system (“AdvanTex”). The treatment system consists of three filter units, a recirculation-blend tank, piping, pumps, and controls. The system is designed for an average daily wastewater flow of 7,500 gpd. The filter units, also called pods, are manufacturer-supplied modular units consisting of a fiberglass tank containing textile filtration media, a pressurized influent-distribution pipe network, and an underdrain to collect treated wastewater. Multiple units are connected and dosed in alternating sequence to provide the desired total treatment capacity. The recirculation tank is sized to provide flow-equalization capacity to modulate incoming wastewater peak flow surges.

A detailed schematic (As-built drawing) of the treatment system and piping arrangements is provided in **Figure 1**. Detailed operation and maintenance instructions for the AdvanTex treatment system are provided by the manufacturer and included in Attachment E of the O&M Manual. This includes remote monitoring and control through telemetry system, and onsite inspections and maintenance at least monthly.

#### *Wastewater Flows*

Daily wastewater flows for the system are determined based on recorded pump activity at the effluent lift station. The control unit for the effluent lift station pumps records all pumping activity. The daily wastewater flow is calculated based on recorded pump operations and known pump cycle volumes for each 24-hr period. The recorded data can be downloaded remotely at any time; a regular weekly down-load is recommended. Flow data are compiled monthly for reporting purposes. Data should be reviewed for single day peak conditions or other abnormalities and investigated for any records of unusually high pump activity or other abnormalities. Pump discharge capacities (gpm) are checked annually by manual testing, and the results used to update the parameters used for flow calculations.

### **EFFLUENT LIFT STATION**

Secondary treated effluent from the AdvanTex system collects in an Effluent Lift Station, consisting of a 5,000-gallon capacity concrete tank installed below ground on the north side of the

control building. The lift station is equipped with a duplex pump system. The effluent is pumped from this point to a dosing tank located at the high point of the community wastewater site (east side), for dispersal of the effluent to the leachfield. Additionally, a second 5,000-gallon holding tank is installed alongside the main pumping tank to provide additional emergency storage capacity in times of pump or power outage. The holding tank has a submersible pump, manually operated, to return any accumulated effluent back to the effluent pump tank after the emergency situation has passed.

Monthly inspections of the effluent lift station are made to observe the operation of pumps, float controls, and liquid levels and to check the tank for infiltration or damage. The effluent lift station is equipped with an automated control system (Vericom) to minimize the amount of labor required to monitor pump operations. The control system records pump operating data used for the calculation of wastewater flow in the system, as well as notification of alarm conditions. Pump operating data is compiled for reporting purposes and as an ongoing check on system operations. Also, response is required whenever the lift station alarm is registered. Alarm messages are directed via the telemetry control system to the maintenance contractor and to the County's engineering consultant for timely notification and response to lift station problems.

There is a separate enclosure for the portable emergency back-up generator. The generator is available for manual operation of the effluent lift station pumps, as well as the emergency holding tank pump and the AdvanTex treatment system pumps. At least twice a year, the emergency generator should be operated for test purposes, and serviced as needed.

Specific maintenance instructions for lift station pumping equipment are provided in Attachment E of the O&M Manual, as supplied by the manufacturer.

## **EQUIPMENT MALFUNCTIONS**

Malfunction of mechanical and electrical equipment from time to time is a normal occurrence that must be anticipated with any system that relies on pumps and electrical control devices. The pump systems for the treatment system and the effluent lift station are designed with several built-in redundancies, including: (a) emergency storage capacity; (b) manual transfer switch to allow pump operation using a portable emergency generator stored on site at the Facility; (c) duplex (two) pumping units for the effluent lift station; and (d) triplex (3) pumping units for the AdvanTex treatment system. These features will provide the first line of protection against problems arising from pump failure or power outages. Additionally, the treatment plant and effluent lift station are provided with a control system that allows remote access and monitoring of the system for continuous checks on equipment status. The on-call maintenance contractor will be charged with the responsibility for monitoring the control functions and status of all equipment at the treatment plant and effluent lift station and will be expected to respond to any emergency situations. Faulty or damaged equipment will be repaired or replaced as soon as possible following the detection of problems.

## **SECTION 3. SLUDGE HANDLING**

### **PRIMARY SLUDGE**

Primary sludge is collected in septic tanks located at individual properties throughout the service area. All tanks are inspected annually by the O&M contractor, at which time the sludge and scum levels in the tanks are measured and determinations made on the need for sludge removal ("septic tank pumping"). Septic tanks are scheduled for pump-out if any of the following conditions are observed:

1. The combined thickness of the sludge and scum exceeds one-third of the tank depth of the first compartment.
2. The scum layer is within 3 inches of the outlet device.
3. The sludge layer is within 8 inches of the outlet device.
4. There is evidence of tank damage, leakage, or other unusual conditions requiring internal inspection or repair work on the tank.

Upon determining that a particular tank requires pumping, the maintenance contractor notifies the County EHS project manager who, in turn, advises the property owner of the need to have the tank pumped by a commercial septic tank pumping service. The County EHS tracks the follow-through by the property owner, and submits evidence of the septic tank pumping activity in annual reports to the RWQCB. Septic tank pumping contractors serving the Marshall area haul the septage for disposal to either the Central Marin Wastewater Treatment Plant in San Rafael, or other approved septage receiving facilities in the area. Typical frequency for pump-out of sludge from an individual septic tank is about once every 5 years, amounting to an average of roughly 10 septic tank pump-outs per year for the community wastewater system.

### **SECONDARY SLUDGE**

A small amount of secondary sludge is generated in the AdvanTex textile filter system, collecting in the 9,000-gallon recirculation-blend tank. The tank is inspected monthly by the maintenance contractor, including observation and measurement of sludge accumulation at the inlet side of the recirculation tank. Sludge removal should be scheduled when the sludge thickness reaches about 12 inches. The anticipated pump-out frequency is about once every two years. Sludge removal from the recirculation tank is performed by commercial septic tank pumping service, and similar to septic tank pump-outs. The main difference is that the operation is confined to removing the sludge from the bottom of the tank, with minimal capture of the liquid in the tank. Sludge is hauled and disposed in the same manner as septic tank pumping, at the Central Marin Wastewater Plant in San Rafael, or other approved septage receiving facilities in the area.

## **SECTION 4. COLLECTION SYSTEM MAINTENANCE**

### **INDIVIDUAL AND CLUSTER STEP PUMPS**

Annual inspections of the STEP pumps are conducted as a precautionary measure to observe the operation of pumps, float controls and alarms, and to record operational data, such as pump events, run time, and amperage. Data from the STEP units can be used to provide a measurement of wastewater flow at each connection and is compiled mainly to provide an ongoing check on system operations.

The STEP pump is a high-head turbine pump located in the second compartment of the septic tank or in a separate pump tank. It has a Biotube<sup>®</sup> screen to protect the pump from solids. The screen needs to be removed and washed clean at least annually, at which time the pump should also be removed, inspected for any damage or foreign material, and washed clean.

In addition to maintenance inspection, response and investigation is required whenever a pump system alarm is registered. Alarm conditions will register locally with an alarm light at the control panel, and an audio alarm inside the building. It is the responsibility of the property owner or neighbors to notify the maintenance contractor of alarm conditions. Instructions have been provided to all property owners regarding the basic operating features of the STEP units, and specific procedures to be followed in the event of an alarm condition.

The pump systems for the individual and cluster STEP units are designed with several built-in redundancies, including: (a) emergency storage capacity; (b) manual transfer switch to allow pump operation using a portable trailer-mounted emergency generator that will be stored on site at the community wastewater facility and available to be deployed as needed to any property in the service area; and (c) duplex (two) pumping units for the cluster STEP units.

### **STEP FORCE MAIN**

Sewer maintenance involves periodic inspection of the STEP force main, shut-off valves, and air release valves. This includes walking the entire length of the sewer line quarterly to look for any potential problems, such as erosion damage or signs of leakage. It also includes checking valve boxes and exercising shutoff valves, at least annually. Any suspicion of a leak in the sewer line requires immediate investigation and corrective action.

Routine cleaning of the effluent sewer is not normally required, because the solids are retained at the septic tanks and flows in the force main are normally at self-scouring velocities. However, should there be any long-term buildup of solids or grease, the main will be clean by inserting a high pressure "jetter" or flush the line by pumping clean water into the system through the terminal flushport or through one of the lateral connections. If this work is needed, it would be performed by a sewer cleaning service.

Servicing of the air release valves involves checking for leaks and exercising the shutoff valves to flush the line. The air release valves are installed in shallow manhole risers at locations shown on the As-built drawings for the Facility.



## **INTERRUPTION OF EFFLUENT FORCE MAIN**

The force mains from the Phase 1 (north) area and Phase 2 (south) area that convey septic tank effluent from the individual STEP units to the community wastewater treatment plant are both about one-mile long and have many joints and valves that could develop leaks. During construction, the entire length of the force mains were pressure-tested to detect and correct any installation problems; but leaks could still develop in the future. There is also the possibility that damage could occur to the force main from excavation work or earth movement.

The potential for leaks or breaks in the lines is greatly minimized by the use of high-density polyethylene (HDPE) pipe, which is extremely durable, flexible, and has heat-fused joints, rather than slip fittings as is used for PVC pipe.

Additionally, the design of the force mains include numerous shut-off valves at culvert and drainage crossings to minimize the accidental discharge from leaks or breaks at these locations; these are potentially the most critical locations along the force main route.

The force mains have been installed in a very accessible location along the shoulder of Highway 1, directly in front of most of the homes served by the system and where there is considerable foot traffic. Consequently, should a pipeline leak develop, it would likely be readily apparent to the residents. Additionally, the operation and maintenance plan calls for routine walk-through inspection of the entire length of the force main by the system operation contractor every few months. Any obvious damage, erosion concerns or break in the line will be obvious from these first-hand inspections. Additionally, monitoring of flow at the treatment plant through the telemetry control panel will provide another means of detecting any obvious changes in wastewater flow patterns that could be indicative of a force main problem. If a leak in the force main is observed or suspected, the problem will be investigated immediately and appropriate corrective measures taken depending on the nature of the problem.

If either force mains should develop a problem that requires it to be shut down for repair, this would require disabling the STEP pumps connected to the force main section of concern; i.e., switch individual STEPs to manual "Off". The wastewater would be contained in the respective tanks while the repairs are made. This would be coordinated with all affected property owners to advise them of the temporary shutdown. When the emergency has passed, each pump system would be brought back one at a time. The switching of all pump systems back to "Auto" at the same time would be avoided to minimize the surge in inflow to the treatment plant.

If an emergency condition and force main shutdown continues for more than a day or two, it may be necessary to take steps to curtail water use/wastewater generating activities and/or to haul (by pumper truck) septic tank effluent from the individual STEP tanks to the treatment plant. This would be arranged by the operation contractor.

## **SECTION 5. EMERGENCY RESPONSE**

### **INTRODUCTION**

The normal operation of the Marshall Community Wastewater Facilities may be disrupted from time to time by occurrences such as mechanical equipment failures, violent storms, earthquakes or other types of disasters. In these situations, it will be necessary for the operator to perform a series of evaluations and actions, which will ultimately lead to correction of the problem encountered, while enabling the facility to continue its job of collecting, treating, and disposing of wastewater. If the problem is sufficiently severe, the normal pattern of wastewater flow through the facility may have to be altered; e.g., by sewage pumping and hauling. The purpose of this section is to provide general guidance that can help in identifying and correcting various abnormal situations. Emphasis is placed on the adjustment of facility operation to maintain satisfactory waste disposal during the time when normal procedures are not possible.

Emergency readiness involves planning for the unknown or unpredictable. This requires periodic review and assessment of the system vulnerabilities and any deficiencies. Deficiencies should be corrected upon discovery and an annual follow-up analysis conducted to show improvements. Identifying and maintaining emergency equipment is also part of good readiness. Additionally, if any Mutual Aid Agreements with other agencies can be arranged (e.g., State Parks, Marconi Center), a summary sheet should be conspicuously located in the control building at the treatment plant, as well as at the offices of the County and wastewater maintenance contractor.

A response plan to any emergency is necessary to ensure effective continued operation of the wastewater facility. The four basic elements to any sound emergency response plan are:

1. Rapid and positive detection system
2. Response procedure with predetermined patterns of action
3. Back-up capability in the event the local response capability proves insufficient
4. Warning system to alert the higher levels of responsibility that an emergency condition exists

Since emergencies cannot be predicted, the operator should always be prepared for the unexpected. Emergency situations cannot be avoided; but, how successfully they are handled will be determined by the level of preparedness.

### **CLASSIFICATION OF ABNORMAL CONDITIONS THAT CAN OCCUR**

The following is a review of the three main types of problems that may occur. This is helpful because the appropriate courses of corrective actions are specific to the types of problems encountered.

### ***Abnormal Sewage Flow Rate***

The flow rate into the treatment plant and leachfield should remain relatively constant. Should flows increase during the winter, it is a sign that either infiltration (i.e., of groundwater) or inflow (i.e., of surface water) is occurring. This should be addressed by inspecting all septic tanks and pump units, identifying where the additional flow is coming from, and correcting any problems. Infiltration/inflow problems should be addressed as soon as the operation contractor is aware of a problem.

### ***Equipment Failures and STEP System Alarm Conditions***

The mechanical equipment subjected to corrosive wastewater at the treatment plant and the individual STEP units face such severe operating requirements and conditions that deterioration and subsequent failure are inevitable if conscientious maintenance is not provided. Even with adequate care, failures are not uncommon. In many cases failure-producing conditions will exist long before the operator is aware of them. These conditions eventually produce large troubles which then become immediate and obvious. For example, unattended equipment may have breakdowns which go unnoticed and further operation may then lead to complete destruction of the equipment.

The maintenance contractor will be responsible for responding to STEP system alarm and emergency conditions at individual properties in the service area. The O&M Manual for the Facility provides guidance prepared specifically educating individual property owners regarding STEP system operation and alarm conditions, including instructions on reporting of conditions to the operation contractor.

### ***Natural Disasters***

Severe wind storms, earthquakes, and landslides are examples of disasters that could damage individual on-lot facilities, portions of the collection system, treatment facilities, main pump station, force main, and/or the community leachfield. Even if all facilities remain intact it is possible that electrical power would be cut off, inactivating all electrically powered equipment. In general, if a natural disaster should occur the operator should immediately take an inventory of the entire facility to determine what components are operable and to ascertain the damage and determine a course of action.

**Seismic Events.** Due to the proximity of the San Andreas Fault and the potential damage that can be inflicted on utility systems without warning, a seismic event is considered to be the most significant potential natural disaster that could affect the wastewater system. The appropriate response to a significant earthquake in the area is to conduct a thorough post-seismic event inspection and assessment of the wastewater facilities for damage. The inspection should include a walk-through of the entire service area to check for earth movement, possible pipeline damage and leaks, and overall functionality of the system. A post-seismic event inspection would be warranted in the event of a strong earthquake registering locally in the Tomales Bay area.

**Power Outages.** Power outages resulting from storms and other causes can interfere with system operations, and are probably the most common type of emergency that will arise. The built-in provisions to deal with power outages include the following:

- Duplex, alternating pump system for the effluent lift station, Marshall Boatworks and Tony's Seafood cluster STEP tanks; triplex (3) alternative pumps for the AdvanTex treatment system; spare replacement lift station and individual STEP pumps on hand for use at individual or cluster STEP units;
- Local audio and visual alarm for high water conditions at all STEP units, treatment plant and effluent lift station;
- Telemetry alarm system with daily web-based reporting of operational conditions, and additional reporting of any alarm conditions at the treatment plant, effluent lift station, and Tony's Seafood cluster STEP unit;
- 24-hour reserve storage capacity (collective) included in: (a) individual and cluster STEP tanks; (b) effluent lift station tank; and (c) dedicated 5,000-gallon emergency storage tank.
- Emergency transfer switch at all STEP units, treatment plant, and the effluent lift station to allow for system operation using a portable generator. One generator is located permanently onsite at the treatment plant control building. The second generator is a portable unit, stored at the treatment plant, but available for transport to STEP tank locations in the service area. Both generators are periodically started and operated for testing.

## **RESPONSE PATTERN TO ABNORMAL CONDITIONS**

It is advantageous for the operator to follow a logical sequence of steps in assessing and correcting an abnormal condition. This sequence involves identifying the problem upon its discovery, investigating its extent and severity, deciding on the proper initial course of action in consultation with the Design Engineer and Marin County Environmental Health Services, taking corrective action to rectify the problem, and finally investigating the causes of the problem. These steps will help insure that corrective actions are well thought out before they are initiated and that preventable problems do not reoccur. In the event of an emergency, the operator's concerns should be first for his/her safety and the safety of personnel in the immediate area; secondly, for the safety of equipment within the facility area; and finally, for continued operation of the facility in a satisfactory manner.

The recommended series of steps that should be undertaken following the discovery of a problem are discussed below.

### ***Problem Identification***

In most cases, this step is obvious. Essentially, it consists of becoming aware that a problem exists. Equipment breakdowns, power failures, and natural disasters are usually rather dramatic and will

capture the operator's immediate attention. The onset of other problems may be more subtle so that recognition of such a problem situation may substantially lag behind its initiation.

### ***Initial Investigation***

Once the operator is aware of the existence of a problem situation, an immediate investigation should be made. This step is undertaken to assess the severity of the situation and to collect enough information to make an initial action decision. Notation should be made as to the general type of problem (equipment failure, natural disaster, etc.), resulting damage to physical facilities and possible impending damage that could occur if corrective action is not taken immediately. An assessment of the type and extent of resources required to correct the situation should be made also.

### ***Initial Action***

Once the nature and extent of the problems are known the operator should make an immediate decision as to what steps should be taken to correct the situation. These immediate steps, in the case of large-scale problems, usually consist of notifying responsible authorities or calling for assistance.

After making the appropriate telephone or radio calls the operator should begin action on his/her own to remedy matters, but within certain limitations. The operator should not attempt tasks for which he/she is not trained, for which the proper tools are not available, or which are dangerous to life and limb, such as malfunctions of electrical equipment. Generally speaking, it is forbidden to enter septic tanks, pump basins, or other confined spaces without a lifeline and responsible standby assistant who can react to emergencies.

### ***Corrective Action***

When help arrives, the operator should carefully describe the problem and relate the corrective actions he/she feels are necessary. Corrective actions should continue until the problem is rectified. Extensive abnormalities may require long-term corrective measures; they should be planned in cooperation with the County EHS and Design Engineer.

### ***Follow Through***

After the situation is corrected the operator should try to determine why the problem occurred, review the corrective action taken, and then take preventive actions (where called for) to minimize the chance of recurrence.

### ***Emergency Telephone Numbers***

A list of emergency telephone numbers is provided in the **Section 6 – Notification Procedures**, and should be posted in a conspicuous location at the treatment plant. This list should be checked for accuracy several times a year.

**SECTION 6.**  
**NOTIFICATION PROCEDURES**

**REGULATORY REQUIREMENTS**

Pursuant to requirements of Health and Safety Code section 5411.5, the operations contractor, or any other personnel associated with operation of the Facility, will notify **Marin County Environmental Health Services** whenever any untreated wastewater or other waste from the Marshall Community Wastewater Facility is found to have been

- discharged to any local drainages or Tomales Bay, or
- discharged or deposited in a manner where it probably will be discharged to local drainages or Tomales Bay.

Notification will occur as soon as the person has knowledge of the discharge or threatened discharge condition. Notification of the above will also be made to the **RWQCB** by telephone as soon as the EHS or their contractor has knowledge of the incident. Written notification will be submitted within two weeks of the date of the incident, unless directed otherwise by the RWQCB staff. The written notification shall include pertinent information explaining reasons for the non-compliance and shall indicate what steps were taken to correct the problem and the dates thereof, and what steps are being taken to prevent the problem from recurring.

**RWQCB:** Phone number: (510) 622-2300  
Email: [wdr.monitoring@waterboards.ca.gov](mailto:wdr.monitoring@waterboards.ca.gov)  
Staff case manager email: [margaret.monahan@waterboards.ca.gov](mailto:margaret.monahan@waterboards.ca.gov)

Additionally, in the event of a spill of effluent from the wastewater system greater than 1,000 gallons is discharged into any local drainages or Tomales Bay, or to a location where it probably will be discharged to a local drainage or Tomales Bay, then the spill will be also be reported to the **Governor's Office of Emergency Services (CalOES)** pursuant to California Water Code Section 13271. As the responsible owner of the Facility ("Discharger"), notification to OES will be made by Marin County EHS, upon receiving notification of the incident from the operations contractor or others. CalOES will notify other resource and public safety agencies such as Department of Fish and Wildlife, Marin County Sheriff's Office, Marin County Fire Department.

**Cal OES phone number: 1-800-852-7550**

**OTHER NOTIFICATIONS AND CONTACT INFORMATION**

Other parties to be notified in the event of a wastewater system spill or emergency may include the following:

***Utilities***

Electrical - Pacific Gas & Electric Company; Contact: Kevin Bryan, (415) 257-3292  
PG&E Customer Service: 1-800-652-4712 Account: 8273338380  
Reference Address: 19180 Hwy 1, Marshall

Telephone - AT&T – Account is for 415-663-9479 (Landline to control building)  
Call (800) 303-0103 for Maintenance and Repair Department or call 611,  
follow prompts. Hit “x8” for repairs of line. This is a Calnet 3 account;  
requires phone number only

***Operations, Engineering and Construction***

**Operation and Maintenance:**

Natural Systems Utilities – CA (NSU)

*For immediate response (24 hours), call NSU: 707-254-1931*

**Engineer of Record – Questa Engineering**

Norm Hantzche (office) 510-236-6114 x214

Matt Woll (cell) 510-815-0250

**Equipment Supplier:**

Orenco (800-348-9843)

**Marin County Environmental Health Services:**

Arti Kundu (office) 415- 473-7146; (cell) 415 902-5695

Rebecca Ng (office) 415 473-6919

**Adjacent Ranch Owner:**

Marcia Barinaga: Barn/creamery: 415-663-8638; Home: 415-663-8870





## **ATTACHMENT B**

### **Summary of Monitoring and Reporting Program Requirements**

(Tables 1 and 2 from Order No. WQ-2013-0058-EXEC – Attachment A)

**Table 1. Spill Categories and Definitions**

CATEGORIES	DEFINITIONS (Section A on page 5 of Order 2006-0003-DWQ)
CATEGORY 1	<p>Discharges of untreated or partially treated wastewater of <b>any volume</b> resulting from an enrollee's sanitary sewer system failure or flow condition that:</p> <ul style="list-style-type: none"> <li>• Reach surface water and/or reach a drainage channel tributary to a surface water; or</li> <li>• Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).</li> </ul>
CATEGORY 2	<p>Discharges of untreated or partially treated wastewater of <b>1,000 gallons or greater</b> resulting from an enrollee's sanitary sewer system failure or flow condition that <b>do not</b> reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.</p>
CATEGORY 3	<p>All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.</p>
PRIVATE LATERAL SEWAGE DISCHARGE (PLSD)	<p>Discharges of untreated or partially treated wastewater resulting from blockages or other problems <b>within a privately owned sewer lateral</b> connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be <u>voluntarily</u> reported to the California Integrated Water Quality System</p>

**Table 2 – Notification, Reporting, Monitoring, and Record Keeping Requirements**

ELEMENT	REQUIREMENT	METHOD
<b>NOTIFICATION</b> (see section B of MRP)	<ul style="list-style-type: none"> <li>• Within two hours of becoming aware of any Category 1 SSO <b>greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water</b>, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.</li> </ul>	Call Cal OES at (800) 852-7550
<b>REPORTING</b> (see section C of MRP)	<ul style="list-style-type: none"> <li>• Category 1 SSO: Submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date.</li> <li>• Category 2 SSO: Submit draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date.</li> <li>• Category 3 SSO: Submit certified report within 30 calendar days of the end of month in which SSO the occurred.</li> <li>• SSO Technical Report: Submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters.</li> <li>• "No Spill" Certification: Certify that no SSOs occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no SSOs occurred.</li> <li>• Collection System Questionnaire: Update and certify every 12 months.</li> </ul>	Enter data into the CIWQS Online SSO Database ( <a href="http://ciwqs.waterboards.ca.gov/">http://ciwqs.waterboards.ca.gov/</a> ), certified by enrollee's Legally Responsible Official(s).
<b>WATER QUALITY MONITORING</b> (see section D of MRP)	<ul style="list-style-type: none"> <li>• Conduct water quality sampling <b>within 48 hours</b> after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.</li> </ul>	Water quality results are required to be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.
<b>RECORD KEEPING</b> (see section E of MRP)	<ul style="list-style-type: none"> <li>• SSO event records.</li> <li>• Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP.</li> <li>• Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters.</li> <li>• Collection system telemetry records if relied upon to document and/or estimate SSO Volume.</li> </ul>	Self-maintained records shall be available during inspections or upon request.

