



SEWER SYSTEM MANAGEMENT PLAN

Richmond Municipal Sewer District
Updated May 2017

Veolia Water operates, maintains and manages the RMSD Sewer Collection, Storm Water and Wastewater Treatment systems by contract to the City of Richmond.

This document, amended in May 2017, has been assembled to present the City of Richmond's Sewer System Management Plan (SSMP), which has been prepared pursuant to the (updated) San Francisco Bay Regional Water Quality Control Board's (RWQCB) SSMP Development Guide (September 2015). All components of the management plan are currently in place in well-established programs.

The SSMP describes the City's and Veolia's goals, organizational structure, emergency overflow response plan (OERP), Fats, Oils, and Grease (FOG) control program, legal authority, measures and activities, design and construction standards, capacity management, sanitary sewer overflows (SSO) monitoring, measurement and program modifications, and audits.

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LIST OF ACRONYMS

| | |
|------------|--|
| BACWA | Bay Area Clean Water Agencies |
| BMP | Best Management Practice |
| CCCFCDD | Contra Costa County Flood Control District |
| CCTV | Closed-Circuit Television |
| CFR | Code of Federal Regulations |
| CIP | Capital Improvement Project |
| CIWQS | California Integrated Water Quality System |
| CMMS | Computerized Maintenance Management System |
| CDFW | California Department of Fish and Wildlife |
| EHS | Environmental Health Services |
| FHF | Food Handling Facility |
| FOG | Fats, Oils and Grease |
| FSE | Food Service Establishment |
| GIS | Geographical Information System |
| GPM | Gallons per Minute |
| I/I or I&I | Inflow & Infiltration |
| LRGP | Lateral Replacement Grant Program |
| LRO | Legally Responsible Official |
| MGD | Million Gallons per Day |
| MRP | Monitoring and Reporting Program |
| NASSCO | National Association of Sewer System Companies |
| NPDES | National Pollution Discharge Elimination System |
| OERP | Overflow Emergency Response Plan |
| OES | Office of Emergency Services (formerly California Emergency Management Agency) |
| PACP | Pipeline Assessment and Certification Program |
| POTW | Publicly-Owned Treatment Works |
| RMSD | Richmond Municipal Sewer District (also referenced as “City”) |
| RWQCB | Regional Water Quality Control Board |
| SSMP | Sewer System Management Plan |



| | |
|-------|--|
| SSO | Sanitary Sewer Overflow |
| SWRCB | State Water Resources Control Board |
| WDR | General Waste Discharge Requirements |
| WPCP | Water Pollution Control Plant (also known as the Wastewater Treatment Plant) |
| WWTP | Wastewater Treatment Plant |



LIST OF TERMS

Bay Area Clean Water Association (BACWA) – Association comprised of Bay Area wastewater treatment and collection system agencies. BACWA represents the interests of public wastewater agencies in regulatory matters and to support the exchange of information.

Website: <http://www.bacwa.org>

Blockage – An object that partially or fully hinders flow through a sewer pipeline. The blockage can be caused by debris in the sewer, grease buildup, root intrusion, or a partial or full collapse of the pipeline. Also known as a stoppage.

California Association of Sanitation Agencies (CASA) - A non-profit, statewide association representing public agencies that provide wastewater collection, treatment, disposal, and/or water reclamation services to California agencies. Website: <http://www.casaweb.org>

California Integrated Water Quality System (CIWQS) – A computer system used by the State and Regional Water Quality Control Boards to track information about SSOs, among other information. CIWQS is the tool used for online submittal of SSO details, which are then made available to the public. Website: <http://www.waterboards.ca.gov/ciwqs/>

California Water Environment Association (CWEA) – The statewide association of wastewater professionals that trains and certifies wastewater professionals, disseminates technical information and promotes policies to protect and enhance the environment.

Website: <http://www.cwea.org>

Enrollee – The legal public entity that owns a sanitary sewer system, as defined by the Statewide WDR. Also known as a sewer system agency or wastewater collection system agency.

FOG Control Program – Program implemented at the discretion of the agency, based on the identified causes of sewer overflows, to reduce the discharge of fats, oils and grease into the sewer system.

Geographical Information System (GIS) – A database linked with mapping that records sewer system information. The GIS database could include sewer features such as pipe location, diameter, material, condition, or last date cleaned or repaired. GIS maps also typically contain base information such as streets and parcels.

Governing Board – Richmond City Council.

Groundwater Induced Infiltration (GWI) – Infiltration attributed to groundwater entering the sewer system.



Infiltration – The seepage of groundwater into a sewer system, including service connections. Seepage frequently occurs through defective or cracked pipes, pipe joints, connections or manhole walls and joints.

Inflow – Water discharged into a sewer system from such sources as roof leaders, cellars, yard and area drains, foundation drains, through holes in manhole covers, cross connections from the storm system or street wash waters. Inflow differs from infiltration in that it is a direct discharge into the sewer rather than a leak through defects in the sewer.

Lateral or Private Lateral – The privately-owned sewer pipeline that conveys wastewater from the premises of a user to the City’s sewer system. The upper lateral extends from the building to property line (or easement line). The lower lateral extends from the property or easement line to the connection to the pipe.

Monitoring and Reporting Program - The program used by the City to monitor, maintain records, report issues and complete needed public notifications.

Overflow Emergency Response Plan (OERP) – This document identifies measures that are needed to respond to sanitary sewer overflows in a way that maximizes the protection of public health and the environment.

Preventive maintenance (PM) – Regularly scheduled servicing of machinery, infrastructure or other equipment using appropriate tools, tests, and lubricants.

R-Value – The amount of rainfall that reaches the collection system via infiltration and inflow. This value is typically expressed as a percentage of total rainfall volume that reaches the collection system.

Rainfall Dependent Infiltration and Inflow – Infiltration and Inflow that is attributed directly to rainfall R-Value.

Rehabilitation and Replacement Plan (also referred to as a Capital Improvement Plan) – Identifies and prioritizes system deficiencies and implements short-term and long-term rehabilitation actions to address each deficiency.

San Francisco Bay Regional Water Quality Control Board – Also known as Region 2 or RWQCB. This regulatory agency preserves, enhances and restores the quality of California's water resources, and ensures their proper allocation and efficient use for the benefit of present and future generations. Website: <http://www.waterboards.ca.gov/sanfranciscobay>

Sanitary Sewer Overflow (SSO) – Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system, including overflows or releases that reach



waters of the United States, overflows or releases that *do not* reach water of the United States, and backups into buildings and/or private property caused by conditions within the publicly owned portion of the sewer system.

Sanitary Sewer System – Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant head works used to collect and convey wastewater to the wastewater treatment plant.

Satellite Collection System – The portion, if any, of a sanitary sewer system that is owned or operated by a different public agency or user.

Sewer System Management Plan (SSMP) – A series of written programs that address how a collection system owner/operator conducts daily business. Each SSMP is unique for an individual discharger. The plan includes provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit.

State Water Resources Control Board – Also called the State Board. This agency developed and passed the Statewide Waste Discharge Requirements for collection systems and maintains the SSO reporting web site.

System Evaluation and Capacity Assurance Plan – A required component of an agency's SSMP that provides hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event.

Statewide Waste Discharge Requirements – The Statewide General Waste Discharge Requirements for Sanitary Sewer Systems was adopted by the SWCRB in 2006 (Order No. 2006-0003-DWQ) to provide a structure and guidance for SSMP development. It was amended in 2013 (Order No 2013-0058-EXEC).

Veolia Water – Contract operator for the RMSD sanitary sewer and stormwater collection systems and wastewater treatment plant.

Wastewater Collection System – See Sanitary Sewer System.



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ELEMENT 1 - GOALS

The purpose of this section is to identify the goals that the RMSD has established for sewer collection system maintenance and the SSMP. These goals are intended to define a program that promotes continuous improvement in RMSD and its contract operator Veolia Water's existing wastewater collection system management and maintenance processes.

1.1 RWQCB and SWRCB SSMP Requirements

Requirements for the Goals element of the SSMP are described in the RWQCB SSMP Guidelines and SWRCB Statewide WDR as follows:

1.1.1 RWQCB Requirement

The RMSD must develop goals to manage, operate, and maintain all parts of its collection system. The goals should address the provision of adequate capacity to convey peak wastewater flows, as well as a reduction in the frequency of SSOs and the mitigation of their impacts.

1.1.2 SWRCB Requirement

The RMSD must provide a plan and schedule to properly manage, operate, and maintain all parts of its wastewater collection system in order to reduce and prevent SSOs, as well as to mitigate any SSOs that occur.

1.2 Richmond Municipal Sewer District Goals

The goals of the RMSD and its contract operator, Veolia Water, are to accomplish the following:

- To properly manage, operate, and maintain all parts of the wastewater collection system, so as to preserve and protect the public's investment in that system
- To provide adequate capacity to convey peak flows to the WWTP
- To minimize the frequency and duration of SSOs, including implementing regular, proactive maintenance of the system to remove issues that may cause sewer backups or SSOs
- To mitigate the impact of SSOs on public health and the environment
- To respond quickly and respectfully to public notifications of SSOs or other collection system issues
- To collect complete and accurate information regarding SSOs for reporting to the appropriate regulatory agencies



- To uphold the City's standards and specifications on newly constructed public and private sewers
- To provide a safe working environment for City and Veolia employees
- To provide City and Veolia employees with the tools and training needed to perform their work effectively and achieve the RMSD goals



ELEMENT 2 - ORGANIZATION

The purpose of this section is to identify City and Veolia staff responsible for implementing this SSMP, responding to SSO events and meeting the SSO reporting requirements. This section also includes the designation of the Legally Responsible Official (LRO) or Authorized Representative to meet RWQCB and Statewide WDR requirements for completing and certifying spill reports.

2.1 RWQCB and SWRCB SSMP Requirements

The requirements for the Organization element of the SSMP are described in the RWQCB SSMP Guidelines and SWRCB Statewide WDR as follows:

2.1.1 RWQCB Requirement

The RMSD SSMP must identify staff, including names and phone numbers, who are responsible for implementing measures outlined in the SSMP, including management, administration, and maintenance positions. The SSMP must identify the chain of communication for reporting and responding to SSOs.

2.1.2 SWRCB Requirement

The RMSD SSMP must identify:

- The name of the legally responsible or authorized representative.
- The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. Include lines of authority as shown in an organization chart or similar document with a narrative explanation.
- The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, RWQCB, and/or California Office of Emergency Services (Cal OES)).

2.2 Organization Chart and SSMP Responsibilities

The RMSD sewer collection system is operated and maintained by contractor Veolia Water. Veolia is responsible for all sanitary sewer, storm water, and treatment plant operations, maintenance and management, and responds to sewer emergencies including SSOs. Veolia reports each SSO to the Regional Board through CIWQS, and makes all reports to the City, SWRCB, RWQCB, County, Department of Environmental Health Services (EHS), Contra Costa



County Flood Control District (CCCFCD), California Department of Fish and Wildlife (CDFW), and OES as appropriate. The City Water Resource Recovery Director is the Legally Responsible Official (LRO) for certifying SSOs. The City Senior Administrative Analyst is the “back-up” Legally Responsible Official (LRO).

Roles and responsibilities of key personnel involved in managing the wastewater collection system are as follows:

City Council. The Richmond City Council consists of six (6) Council Members who are elected at large, and a separately elected Mayor. The City Council appoints the City Manager. The current City Council Members, as of January 2017, include:

- Mr. Tom Butt – Mayor
- Ms. Jovanka Beckles – Vice Mayor
- Mr. Melvin Willis – Member
- Ms. Gayle McLaughlin – Member
- Mr. Eduardo Martinez – Member
- Mr. Jael Myrick – Member
- Mr. Ben Choi – Member

The City Council Chambers are located at: 440 Civic Center Plaza, Richmond, California. The main telephone number is: (510) 620-6581.

City Clerk. The City Clerk, Ms. Pamela Christian, supports the City Council and manages specific business functions for the City. Related to this SSMP, the City Clerk receives claims from private property owners for damage to private property that is allegedly the result of City sewer operations.

The City Clerk’s office is located at: 450 Civic Center Plaza, Richmond, California. The contact number is (510) 620-6513.

City Manager. The City Manager is responsible for implementing City Council policy, directing departments and the City’s administrative functions, and for providing day-to-day leadership in policy development and implementation.

Mr. Bill Lindsay, Richmond City Manager, has signatory and certification authority for all applications, reports, or information related to the sewer system..

The City Manager’s office is located at: 450 Civic Center Plaza, Richmond, California. The main telephone number is: (510) 620-6512.

Water Resource Recovery Director. The City’s Water Resource Recovery Director, Mr. Ryan Smith, ensures compliance with applicable federal, state and local laws and regulations,



oversees source control, provides reports on SSO events, and manages the City's contract operator, Veolia Water.

Mr. Smith is also the General Manager of the Richmond Municipal Sewer district and a Legally Responsible Official. The Director's office is located at: 450 Civic Center Plaza, Richmond, California. The main telephone number is: (510) 620-5486.

City Source Control Superintendent. The City Source Control Superintendent, Ms. Joanne Le, works directly with the Water Resource Recovery Director. This position is responsible for enforcement of the City's FOG Control Program and the environmental compliance component of the SSO WDR. Ms. Le is also a data submitter for reporting SSOs into the California Integrated Water Quality System (CIWQS).

The Source Control Superintendent's office is located at: 450 Civic Center Plaza, Richmond, California. The main telephone number is: (510) 620-6540.

Senior Administrative Analyst. The City Senior Administrative Analyst, Ms. Mary Phelps, is responsible for ensuring all data entered into CIWQS is accurate. Ms. Phelps is the primary LRO for certifying all SSOs entered into the California Integrated Water Quality System.

The Senior Administrative Analyst's office is located at: 450 Civic Center Plaza, Richmond, CA. The main telephone number is (510) 621-1269.

Project Coordinator. The City's Project Coordinator, Ms. Gina DeLaTorre, is responsible for the Lateral Inspection Program. Ms. DeLaTorre is also responsible for the public outreach to Plumbers and Contractors to ensure compliance with the Sewer System Management Plan. The Project Coordinator's office is located at 450 Civic Center Plaza, Richmond, CA. The main number is (510) 620-6594.

City Risk Manager. The City's Risk Manager, Ms. Kimberly Greer, is responsible for managing all aspects of risk for the City, including addressing claims related to SSOs.

The City Risk Manager's office is located at: 450 Civic Center Plaza, Richmond, California. The Risk Management Division's telephone number is: (510) 620-6810.

Veolia Project Manager. Veolia Water's Project Manager, Mr. Aaron Winer, is responsible for managing operations and maintenance of the WWTP and sanitary sewer and stormwater collection systems. Mr. Winer is registered as a data submitter for reporting SSO into CIWQS if necessary. He also serves as the primary contact between Veolia Water and the City's Water Resource Recovery Director.



The Project Manager is located at the WWTP at 601 Canal Blvd., Richmond, CA. The WWTP main telephone number is (510) 412-2001.

Veolia Underground Asset Management Group. Veolia Water's Underground Asset Management Group provides overall management of the collection system.

The Underground Asset Management Group is located at Veolia Headquarters at 2300 Contra Costa Blvd, Suite 350, Pleasant Hill, CA. The main office telephone number is (925) 681-2304.

Veolia Capital Program Manager. Veolia Water's Capital Program Manager, Mr. Fadi Alabbas, manages the implementation of all phases of capital improvement plans for the collection system and wastewater treatment plant.

The Capital Program Manager is located at Veolia Headquarters at 2300 Contra Costa Blvd, Suite 350, Pleasant Hill, CA. The main office telephone number is (925) 681-2304.

Veolia Collection System Manager. Veolia Water's Collection System Manager, Mr. Tim O'Connor, oversees field operations and maintenance activities, provides relevant information to Veolia Water's management team, prepares and implements contingency plans, leads emergency responses, investigates, and trains field crews. The Collection System Manager makes all reports to the City, SWRCB, RWQCB, County Department of Environmental Health Services (EHS), Contra Costa County Flood Control District (CCCFCDD), California Department of Fish and Wildlife (CDFW) and OES as appropriate. Mr. O'Connor is a data submitter and is the secondary person responsible for entering SSOs into CIWQS.

The Collection System Manager is located at the WWTP at 601 Canal Blvd., Richmond, CA. The WWTP main telephone number is (510) 412-2001.

Veolia Collection System Supervisor. Veolia Water's Collection System Supervisor, Mr. Wayne Madison, supervises field operations and maintenance activities, provides relevant information to Veolia Water's management team, prepares and implements contingency plans, leads emergency responses, investigates and reports SSOs to the City, and trains field crews. Mr. Madison is registered as a data submitter and is capable of reporting SSOs in CIWQS.

The Collection System Supervisor is located at the WWTP at 601 Canal Blvd., Richmond, CA. The WWTP main telephone number is (510) 412-2001.



Veolia Collection System Planner/Scheduler. Veolia Water's Collection System Planner/Scheduler, Ms. Marie Hernandez, works directly with the Underground Asset Management Group and Field Supervisor to plan, estimate, and prioritize operation and maintenance tasks and project work based on the established performance measurements and benchmarks. She also coordinates emergency response work with the Field Supervisor. Ms. Hernandez is registered as a data submitter and is the main person responsible for reporting SSOs in CIWQS.

The Collection System Planner/Scheduler is located at the WWTP at 601 Canal Blvd., Richmond, CA. The WWTP main telephone number is (510) 412-2001.

Veolia Collection System Field Crew. Veolia Water's Field Crew performs preventive maintenance activities, and mobilizes and responds to blockages and SSOs. The Field Crew operates the inspection and sewer cleaning equipment, bypass pumping equipment, portable generators, and other equipment used to maintain the collection system.

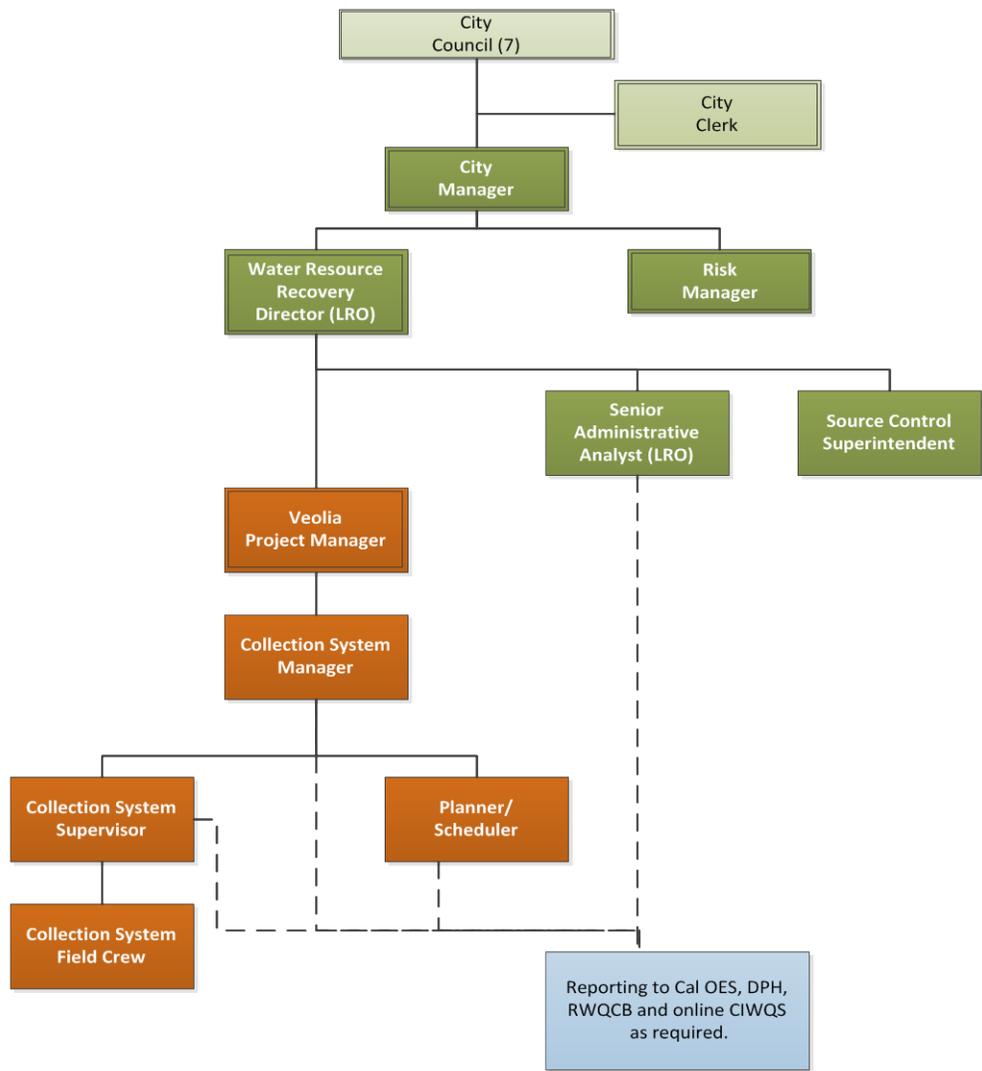
The structure of the City and Veolia Water team for RMSD is shown in Figure 2-1. This organization chart also identifies the reporting lines between Veolia and the City of Richmond, and between Veolia, the City, and regulatory agencies.



Figure 2-1. RMSD Sewer Collection System Organization Chart

Table 2-1 on the following page presents individual responsibilities for each section of the SSMP.

Figure 2-1 RMSD Sewer Collection System Organization Chart



City Staff

Veolia Staff



Table 2-1. SSMP Responsibilities

| SSMP Element | Responsible Position |
|--|--|
| 1. Goals | <ul style="list-style-type: none"> The City Manager leads staff in the implementation of the City's goals. |
| 2. Organization | <ul style="list-style-type: none"> The Water Resource Recovery Director updates the organizational structure, manages SSMP implementation assignments, and amends SSO response and reporting chains of communication, as needed. |
| 3. Legal Authority | <ul style="list-style-type: none"> The City Manager upholds the City Ordinance and drafts new ordinances as needed. |
| 4. Operations & Maintenance | <ul style="list-style-type: none"> The Water Resource Recovery Director manages the City's resources and budget. The Project Coordinator manages outreach to plumbers and building contractors. The Veolia Project Manager manages Veolia's resources and budget, preventive maintenance, contingency equipment and replacement inventories, training, collection system map, project inspections, and condition assessments. |
| 5. Design and Performance Provisions | <ul style="list-style-type: none"> The Water Resource Recovery Directors reviews design and construction documents to ensure that all construction projects meet the City's standards. The Director also updates standards for installation, rehabilitation and repair, as needed. |
| 6. Overflow Emergency Response Plan | <ul style="list-style-type: none"> The Veolia Collection System Manager implements the Overflow Emergency Response Plan, makes revisions to the plan, and conducts regular training for maintenance crew members. |
| 7. FOG Control Program | <ul style="list-style-type: none"> The Veolia Collection System Supervisor and the Collection System Planner/Scheduler identify grease hot spots and maintain an effective cleaning program for grease problem sewers. The City Source Control Superintendent inspects grease interceptors/traps that have been installed at non-residential locations and enforces discharge regulations, as needed. |
| 8. System Evaluation and Capacity Assurance | <ul style="list-style-type: none"> The Water Resource Recovery Director establishes and assesses capacity requirements for the RMSD collection system and manages implementation of the System Evaluation and Capacity Assurance Plan that was completed by Veolia. The Water Resource Recovery Director also endorses the City's long-term Capital Improvement Plan as developed by Veolia, including updating City CIP budgets and schedules. |
| 9. Monitoring, Measurement and Program Modifications | <ul style="list-style-type: none"> The Water Resource Recovery Directory and Veolia Project Manager monitor implementation and assess success of the SSMP program elements, including identifying trends in SSOs, and reporting progress to the City Manager. |
| 10. SSMP Audits | <ul style="list-style-type: none"> The Water Resource Recovery Director oversees annual SSMP audits. |
| 11. Communication Plan | <ul style="list-style-type: none"> The Water Resource Recovery Director, City Manager and Veolia Project Manager communicate with the public and nearby agencies regarding the RMSD SSMP. |



2.3 Chain of Communication for Reporting

The following chain of communication is also shown in the diagram on Figure 2-2.

2.3.1 During Normal Business Hours

- During normal business hours, telephone calls reporting SSOs are received at Veolia Water's office, either directly or via the City or 9-1-1. Calls are dispatched by the Collection System Planner/Scheduler to the Field Crew.
- The Field Crew responds to the SSO site within a target range of 30 minutes to one hour and evaluates the severity of the SSO.
- The Field Crew relays the information to the Collection System Manager and/or the Collection System Supervisor, who in turn immediately determines if OES should be notified.
- The Collection System Manager or Collection System Supervisor communicates SSO details to the Collection Planner/ Scheduler as soon as possible after arrival on site and regularly during the SSO response. Information is recorded electronically on the Veolia handheld field devices, and conveyed to the City via a combination of telephone and email communication.

2.3.2 During Non-Business Hours

- After normal business hours, the Field Crew receives SSO calls from the Veolia Water office answering service and responds to the SSO site within one hour.
- The Field Crew designee relays the information to the Collection System Manager or the Collection System Supervisor, who immediately determines if OES should be notified.
- The Collection System Manager or the Collection System Supervisor communicates SSO details to the Collection System Planner/Scheduler as described in 2.3.1, above.

2.3.3 Regulatory Reporting

The Collection System Planner/Scheduler is the primary data submitter responsible for SSO reporting.

- Within two hours of becoming aware of any Category 1 SSO 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, the Veolia Collection System Manager, Collection System Supervisor or the Collections System Planner/Scheduler will notify the California Office of Emergency Services (Cal OES) and obtain a

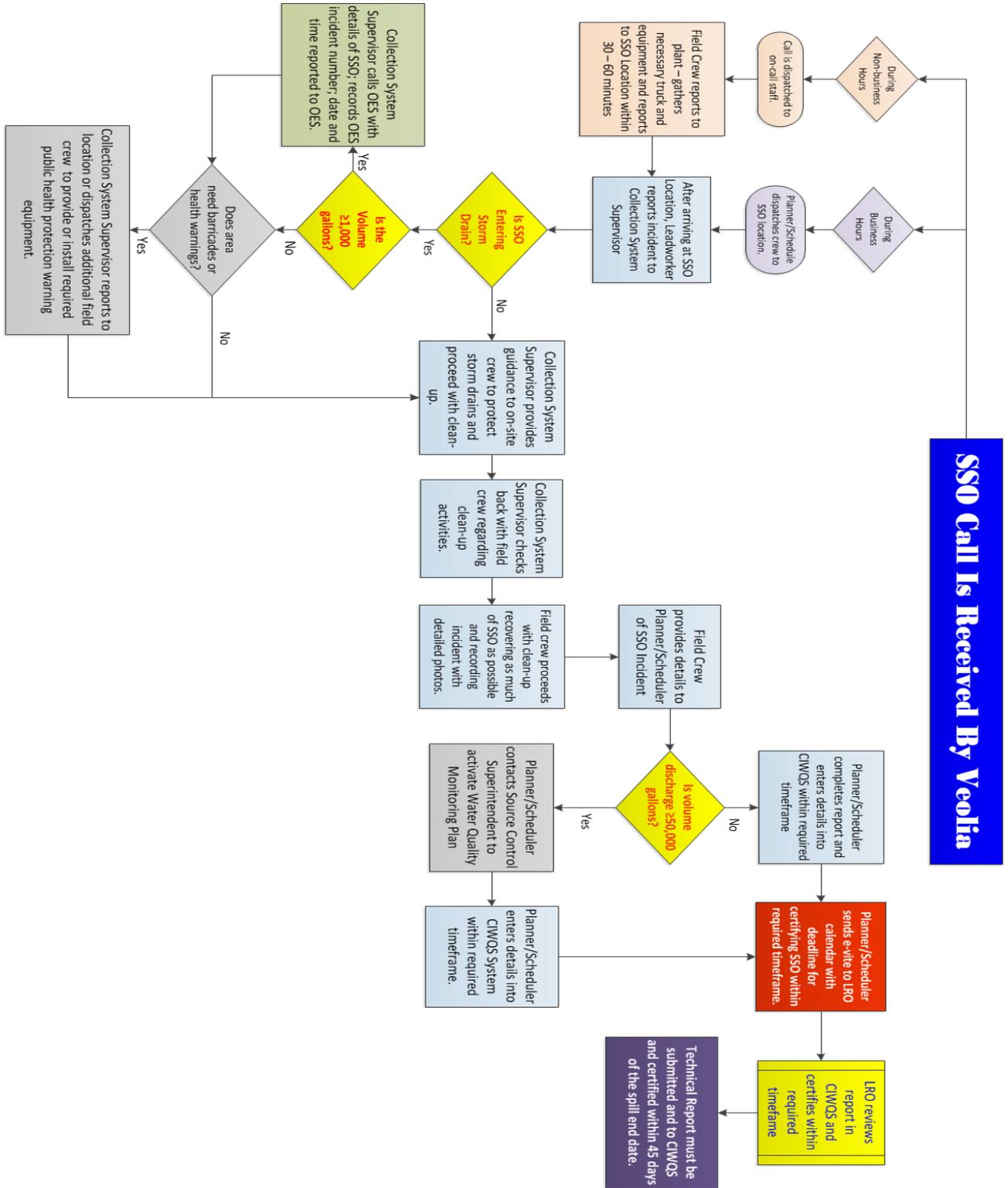


notification control number.

- Category 1 SSO: Veolia Collection System Planner/Scheduler submits draft report in CIWQS within three days of becoming aware of the SSO and Richmond’s LRO will certify within 15 calendar days of SSO end date.
- Category 2 SSO: Veolia Collection System Planner/Scheduler submits draft report within 3 business days of becoming aware of the SSO and Richmond’s LRO will certify within 15 calendar days of the SSO end date.
- Category 3 SSO: Veolia Collection System Planner/Scheduler submits report within 15 calendar days of the end of month in which SSO the occurred. Richmond LRO will certify within 30 calendar days of the end of the month in which the SSO occurred.
- SSO Technical Report: Richmond’s LRO submits certified report 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.
- “No Spill” Certification: Richmond’s LRO will 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.
- Collection System Questionnaire: Richmond’s LRO will update and certify every 12 months.

Figure 2-2 shows the Veolia and RMSD Chain of Communication for responding to and reporting overflows.

Figure 2-2. Chain of Communication





Appendix A – Element 2 Documents

Appendix A includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix A may have been superseded. Please contact the City Water Resource Recovery Director for the most recent updates to the Appendix A documents.

- City Staff First Responder and Contract Responder Names and Contact Numbers
- Emergency Contact List



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ELEMENT 3 - LEGAL AUTHORITY

This element of the SSMP discusses the City's Legal Authority provided through the Richmond Municipal Code (RMC). This section fulfills the Legal Authority requirement for the RWQCB (Element 5) and the SWRCB (Element 3).

3.1 RWQCB and SWRCB SSMP Requirements

3.1.1 RWQCB Requirement:

The RMSD must demonstrate that it has the legal authority (through ordinances, service agreements, and other binding procedures) to control infiltration and inflow (I&I) from satellite collection systems and private service laterals; require proper design, construction, installation, testing, and inspection of new and rehabilitated sewers and laterals; and enforce violation of ordinances.

The SSMP should describe specific applicable legal mechanisms, with citations of names and code numbers of ordinances. If legal authority does not currently exist for a required element, the SSMP should indicate a schedule of activities to obtain the proper legal authority.

3.1.2 SWRCB Requirement:

The RMSD must demonstrate, through collection system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

- Prevent illicit discharges into its wastewater collection system (examples may include infiltration and inflow (I&I), storm water, chemical dumping, unauthorized debris and cut roots, etc.)
- Require that sewers and connections be properly designed and constructed
- Limit the discharge of fats, oils, grease, and other debris that may cause blockages
- Enforce any violation of its sewer ordinances

3.2 Legal Authority to Enforce SSMP Requirements

The RMSD is regulated by several agencies of the United States Government and the State of California, pursuant to the provisions of Federal and State Law. Federal and State Laws including, but not limited to the following, grant to the City the authority to regulate and/or prohibit, by the adoption of an ordinance and by issuance of control mechanisms, the discharge of any waste, directly or indirectly, to the Richmond Municipal Sewer District sewerage facilities.



- 1) Federal Water Pollution Control Act, commonly known as the Clean Water Act (33 U.S.C. Section 1251 et seq.);
- 2) California Porter Cologne Water Quality Act (California Water Code Section 13000 et seq.);
- 3) California Health & Safety Code Sections 25100 to 25250;
- 4) Resource Conservation and Recovery Act of 1976 (42 U.S.C. Section 6901 et seq.); and
- 5) California Government Code, Sections 54739-54740.

Through the RMC, the City possesses the necessary legal authority. The relevant RMC Chapters are included in Appendix B. The City's legal authority is further described below.

3.2.1 Prevention of Illicit Discharges

The City's Sewer Use Ordinance comprises RMC Article XII, Chapter 12.18, "Discharges to the Wastewater Treatment System" and RMC Article XII, Chapter 12.17, "Sanitary Sewer Connections." RMC Chapter 12.18 establishes the City's authority related to the prevention of illicit discharges to the sewer system. Also, Article XII, Chapter 12.22, "Stormwater Management and Discharge Control" addresses stormwater discharges to the sewer system as noted below.

RMC Section 12.18.020.1 "Prohibited Discharge Standards"

- A. General Prohibitions. No user shall introduce or cause to be introduced into the WPCP any pollutant or wastewater which causes pass through or interference. These general prohibitions apply to all users of the WPCP whether or not they are subject to Categorical Pretreatment Standards or any other Federal, State, or local Pretreatment Standards or Requirements.
- B. Specific Prohibitions. No user shall introduce or cause to be introduced into the WPCP the following pollutants, substances, or wastewater:
 - (1) Pollutants which create a fire or explosive hazard in the WPCP, including, but not limited to, waste streams with a closed-cup flashpoint of less than 140 degrees F (60 degrees C) using the test methods specified in 40 CFR Part 261.21. Closed-cup flashpoint values may be found in the National Institute of Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards;



- (2) Wastewater having a pH less than 6.0 or more than 10.0, or otherwise causing corrosive structural damage to the POTW or equipment;
- (3) Solid or viscous substances, such as, but not limited to, grease, garbage with particles greater than one-half (0.5) inch in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshing, entrails, whole blood, feathers, ashes, cinders, sands, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags spent grains, spent hops, waste paper, wood, plastics, gas, tar, asphalt residues, residues from refining or processing of fuel or lubricating oil, mud, glass grindings, or polishing wastes, in amounts which will cause obstruction of the flow in the WPCP resulting in interference;
- (4) Pollutants, including oxygen-demanding pollutants (BOD, etc.), released in a discharge at a flow rate and/or pollutant concentration which, either singly or by interaction with other pollutants, will cause interference with the WPCP;
- (5) Wastewater having a temperature greater than 140 degrees F (60 degrees C), or which will inhibit biological activity in the treatment plant resulting in interference, but in no case wastewater which causes the temperature at the introduction into the treatment plant to exceed 104 degrees F (40 degrees C);
- (6) Petroleum oil, non-biodegradable cutting oil, or products of mineral origin, in amounts that will cause interference or pass through;
- (7) Pollutants which result in the presence of toxic gases, vapors, or fumes within the WPCP in a quantity that may cause acute worker health and safety problems;
- (8) Trucked or hauled pollutants, except at discharge points designated by the City Manager in accordance with Section 12.18.030.5 of this ordinance;
- (9) Noxious or malodorous liquids, gases, solids, or other wastewater which, either singly or by interaction with other wastes, are sufficient to create a public nuisance or a hazard to life, or to prevent entry into the sewers for maintenance or repair;
- (10) Pollutants that impart color, which cannot be removed by the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions.
- (11) Wastewater containing any radioactive wastes or isotopes except in compliance with applicable State or Federal regulations;
- (12) Storm water, surface water, groundwater, artesian well water, roof runoff, subsurface drainage, swimming pool drainage, condensate, deionized water, non-contact cooling



- water, and unpolluted wastewater, unless specifically authorized by the City Manager;
- (13) Sludges, screenings, or other residue from the pretreatment of industrial wastes;
 - (14) Medical wastes, except as specifically authorized by the City Manager in a wastewater discharge permit;
 - (15) Wastewater causing, alone or in conjunction with other sources, the treatment plant's effluent to fail toxicity test;
 - (16) Detergents, surface-active agents, or other substances that might cause excessive foaming in the WPCP;
 - (17) Wastewater causing two readings on an explosion hazard meter at the point of discharge into the sanitary sewer system, or at any point in the WPCP, of more than five percent (5%) as hexane or any single reading over ten percent (10%) of the Lower Explosive Limit (LEL) of the meter. LEL values may be found in the NIOSH Pocket Guide to Chemical Hazards. Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, and sulfides.

Pollutants, substances, or wastewater prohibited by this Section shall not be processed or stored in such a manner that they could be discharged to the WPCP.

RMC 12.22.060 "Prohibited Discharges".

- A. The release of non-stormwater discharges to the City stormwater system is prohibited.
- B. The discharge of stormwater from premises or an activity that causes or contributes to a violation of receiving water limitations in the City's NPDES permit is prohibited.
- C. The following discharges are exempt from the prohibition set forth in subsection (a) above:
 - (1) Any discharge in compliance with a NPDES permit issued to the discharger;
 - (2) Flows from riparian habitats and wetlands, diverted stream flows, springs, rising groundwater and uncontaminated groundwater infiltration.
- D. The following discharges are exempt from the prohibitions set forth in subsection (a) above if the Regional Water Quality Control Board approves the exempted category under Section C. 11. of the City's NPDES permit: uncontaminated pumped groundwater, foundation drains, water from crawl space pumps, footing drains, air



conditioning condensate, irrigation water, landscape irrigation, lawn or garden watering, planned and unplanned discharges from potable water sources, water line and hydrant flushing, individual residential car washing, discharges or flows from emergency fire-fighting activities, and dechlorinated swimming pool discharges.

3.2.2 Proper Design and Construction of Sewers and Connections

The following Sections of the RMC establish the requirement that sewers and connections must be properly designed and constructed.

RMC 12.16.010 "Sewer and Water Pipe Connections Required"

All property owners owning or controlling property facing upon any of the streets or avenues of the City of Richmond shall lay or cause to be laid all necessary sewer and water pipe connections with the mains before said streets or avenues are bituminized, macadamized, or otherwise permanently improved.

RMC 12.16.020 "Connections Required Every Separate Lot"

Every separate lot of twenty-five feet or more or any two lots adjoining shall be connected with the mains as provided in Section 12.16.010.

RMC 12.17.020 "Sewer Connections Required"

Property owners shall provide connections to the sanitary sewer system in accordance with Richmond Municipal Code Sections 12.16.010 and 12.16.020, as those Sections may be amended from time to time.

In addition, the City has developed standard design standards and specifications for sewer pipelines, appurtenances, connections, trenches, and other details. These standards are available on the City's website and are discussed further in Element 5 of this SSMP.

3.2.3 Responsibility for Private Laterals

RMC Chapter 12.17 establishes the property owner's responsibility for the sewer lateral, which is privately-owned up to and including the connection to the City's sewer system.



RMC 12.17.040 "Standards for Sewer Laterals and Appurtenant Facilities"

- A. Every property owner shall perform all required maintenance and keep the lateral(s) and private sewer main(s), if any, connecting the premises on his or her property to the City's sanitary sewer system in good condition.
- B. Every lateral shall meet the following minimum requirements:
 - (1) It shall be kept free from roots, grease deposits, and other solids which may impede the flow or obstruct the transmission of waste.
 - (2) All joints shall be tight and all pipes shall be sound and free from structural defects, cracks, breaks, openings, and missing portions to prevent ex-filtration by waste or infiltration by groundwater or stormwater.
 - (3) The grade of every lateral shall be uniform without sags or offsets.
 - (4) It shall have a two-way cleanout located at or near the property line or at or near the sewer main easement. All cleanouts shall be securely capped at all times.
 - (5) It shall be equipped with a backflow valve or overflow device.
 - (6) In conjunction with a lateral serving a structure in which there are plumbing fixtures at an elevation too low to permit drainage by gravity from the fixtures to the sewer main, the property owner shall install and maintain a pump or other appropriate device or devices to lift the contents of the sewer lateral to the City's sanitary sewer system. Such devices shall be installed and maintained in accordance with the Uniform Building and Plumbing Codes and all applicable provisions of the Richmond Municipal Code, and shall be subject to testing, repair and replacement under the provisions of this Section governing sewer laterals.

3.2.4 Access for Maintenance, Inspection & Repairs

The Sewer Use Ordinance establishes the City's authority to enter buildings and property for the purpose of protecting the public sewer system and enforcing provisions of the Municipal Code:

RMC 12.17.120 "Right of entry"

The City Manager, or his or her designee, may enter, inspect, collect wastewater samples, and test any buildings, structures, or premises to secure compliance or prevent a violation of any portion of this Section. Unless there is an emergency threatening the public health, safety or welfare, the City Manager shall provide at least ten (10) business days notice to the property



owner of intent to enter upon property. The City Manager may also request that a property owner provide all written records of lateral inspection, maintenance, repair and replacement at the time of inspection or within ten (10) or more business days after receipt of the request.

3.2.5 Limit Discharge of Fats, Oils & Grease and Debris

The City's authority to limit Fats, Oils and Grease (FOG) disposal to the sewer collection system is established in the Sections described above, and more specifically addressed in RMC Section 12.18.030.2, "Fats, Oils, and Grease." This Section establishes the City's FOG Program, which comprises the following:

- Requirements for fats, oils, and grease interceptors
- FOG Management Program permit which enables City staff right of entry to inspect the facility
- Parameters warranting inspection
- Responsibility for overflow

The City's FOG management program is discussed further in Section 7.

3.2.6 Enforcement Measures

The Sewer Use Ordinance describes the various enforcement measures available to the City to enforce the terms of the RMC.

RMC 12.18.100 "Administrative Enforcement Remedies" et. seq

RMC Section 12.18.100 describes the administrative enforcement remedies for non-compliance with the RMC, beginning with Section 12.18.100.1 Notification of Violation, which states:

When the City Manager finds that a user has violated, or continues to violate, any provision of this Section, a wastewater discharge permit, or order issued hereunder, or any other Pretreatment Standard or Requirement, the City Manager may serve upon that user a written Notice of Violation. Within fourteen (14) days of the receipt of such notice, an explanation of the violation and a plan for the satisfactory correction and prevention thereof, to include specific required actions, shall be submitted by the user to the City Manager. Submission of such a plan in no way relieves the user of liability for any violations occurring before or after receipt of the Notice of Violation. Nothing in this section shall limit the authority of the City Manager to take any action, including emergency actions or any other enforcement actions, without first issuing a Notice of Violation.



RMC Section 12.18.110 describes judicial enforcement remedies and RMC Section 12.18.120 describes supplemental enforcement actions such as fines and penalties.

RMC Section 12.18.030.2 “Fats, Oils & Grease, ” establishes the City’s authority to enforce the FOG program.

[RMC 12.18.030.2 “Fats, Oils & Grease ”, Section H](#)

Pursuant of this Section and/or lawful direction from the City, any user who fails to maintain a grease interceptor or grease trap shall be subject to enforcement procedures set forth in Sections 12.18.100, 12.18.110, and/or 12.18.120 of this Section. Enforcement actions may be initiated if the user fails to maintain, pump, and/or institute a proper grease or flammable substance reduction program and/or providing appropriate employee training.

This Section also provides the City with the power to disconnect the individual user from the RMSD system, and to require the user to deposit the cost of disconnection and reconnection with the City before the service is reconnected.

3.3 Interagency Agreements and Satellite Systems

The RMSD does not collect wastewater from satellite systems, and therefore does not have any agreements with satellite sewer collection agencies.

Appendix B – Element 3 Documents

Appendix B includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix B may have been superseded. Please contact the Water Resource Recovery Director for the most recent updates to the Appendix B documents.

- Richmond Municipal Code Applicable Sections from Article VI, Building Regulations and Article XII, Public Works



ELEMENT 4 - OPERATION AND MAINTENANCE PROGRAM

This section of the SSMP discusses the RMSD mapping, operations, preventive maintenance, inspection, training and outreach activities. This section fulfills the Operation and Maintenance Program SSMP requirement for the SWRCB (Element 4) and the Measures and Activities SSMP requirement for the RWQCB (Element 6).

The requirements and RMSD's plan for the Operations and Maintenance element of the SSMP are summarized in each category below. Since requirements for this SSMP element contain multiple categories, this summary is organized by category, with SWRCB and RWQCB requirements described for each category as applicable.

The categories that are addressed in Element 4 include:

- Collection System Mapping
- Resources and Budget
- Prioritized Preventive Maintenance
- Scheduled Inspections, Condition Assessments and Replacement Planning
- Critical Equipment and Spare Parts
- Training

4.1 SSMP Requirement for Collection System Maps

4.1.1 RWQCB Requirement

The RMSD must maintain current maps of its collection system facilities.

4.1.2 SWRCB Requirement

The RMSD must maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments, manholes, pumping facilities, pressure pipes, valves and applicable stormwater conveyance facilities.

4.1.3 RMSD Collection System Mapping Description

Veolia and the RMSD currently use Geographic Information System (GIS) software to create and maintain maps of the sewer collection system facilities. The GIS geodatabase includes pipe,



manhole, and pump station asset information, and records pipe length, direction of flow, manhole numbers, most pipe diameters, rim and invert elevations, and some materials.

The RMSD sewer map grid system, which accompanies the RMSD sewer map book, is included in Appendix C. The map books contain individual map sheets printed at 1"=300' scale. Maps are updated regularly within GIS by Veolia, and updates are transferred approximately monthly to the City's GIS department.

The City and Veolia are completing a project to document stormwater facilities in GIS. The known facilities are included as a separate layer in the RMSD maps described above.

4.2 SSMP Requirement for Resources and Budget

4.2.1 RWQCB Requirement

The RMSD must demonstrate that adequate resources are allocated for the operation, maintenance and repair of the RMSD collection system.

4.2.2 SWRCB Requirement

The Statewide WDR includes no requirement for resources and budget.

4.2.3 RMSD Resources and Budget for Sewer System Management

The City prepares an annual budget and CIP. The current fiscal year adopted budget for the Wastewater Enterprise is included in Appendix C. Veolia Water is required by contract to fulfill all contractual requirements for operations and maintenance, including but not limited to SSO compliance related to sewer system maintenance, using this budget.

The capital improvement budget is earmarked for sewer collection system improvements to reduce inflow and infiltration and address capacity needs. Capital improvement needs for the sewer collection system were identified and prioritized through an updated sewer collection system master plan that is discussed in Element 8.

4.3 SSMP Requirement for Prioritized Preventative Maintenance

4.3.1 RWQCB Requirement

The SSMP must demonstrate that prioritized maintenance activities are performed by the RMSD.



4.3.2 SWRCB Requirement

The SSMP must describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventive Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders.

4.3.3 Prioritized Preventive Maintenance Activities

The City's contract with Veolia requires cleaning all parts of the sewer collection system on a four-year cycle. Veolia must also develop and maintain a Hot Spots list for areas requiring more frequent maintenance. Pipeline maintenance is planned according to this schedule, and prioritized through field experience. The City's contract with Veolia requires the development of a System Cleaning Plan. This plan must be updated every three years in order to incorporate new information. Veolia maintains internal documentation on maintenance activities and prioritization plans, and is developing a formal summary document for presentation to the City in 2017.

Veolia uses hydro-cleaning and other methods to clean the sanitary sewer system, and herbicide chemical treatment application (via contract) and cutting to manage root intrusions. Pipes with known SSOs are placed on a one-year hot spot list. If recurring SSOs occur, this segment is elevated to a more frequent cleaning schedule (1-, 3-, 6- or 9-month schedule). Appendix C includes a map showing Veolia's cleaning schedule and a second map showing the segments on the current Hot Spot list.

Veolia conducts emergency repairs to the sewer system when failure appears imminent, in situations that may involve public and employee health and/or safety issues, and in situations that may involve property or liability damages. These repairs are discussed with the City in advance of completing the work. All other repairs must be prioritized by Veolia and pre-authorized by the City. Veolia is also required to inspect manholes and include the inspection results as an integral part of the system documentation.

Veolia currently inspects manholes as part of the CCTV inspection process. Photo and video documentation are taken from the street level into the manhole, and from the pipeline up and out of the manhole. Structural defects are noted during the visual inspection. Veolia documents manhole inspections using an electronic form on their field tablet. This form is included in Appendix C.

To supplement pipeline assessment, repair and replacement, Veolia's maintenance program includes hydrogen sulfide monitoring and control, easement maintenance at lift stations, and



electronic monitoring of lift stations through the use of the plant SCADA. Weekly lift station checks are conducted to determine the physical condition of equipment. If authorized, Veolia also provides temporary repairs to landscaping, driveways, and final roads including grading, seeding, and sod replacement after pipe repairs.

Gravity pipeline maintenance assets and activities are included in Veolia's computerized maintenance management system (CMMS), which uses Innovyze® InfoNet™ CMMS software. Pump station data is maintained in a separate CMMS system named Oracle Work and Asset Management (OWAM). InfoNet™ and OWAM generate work orders for sewer system and pump station preventive maintenance, respectively, and store the resulting findings and recommendations.

4.4 SSMP Requirements for Inspections, Condition Assessment and Rehabilitation

4.4.1 RWQCB Requirement

The RMSD must identify and prioritize structural deficiencies and implement a program of prioritized short-term and long-term actions to address them.

4.4.2 SWRCB Requirement

The RMSD must develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan (CIP) that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short and long-term plans plus a schedule for developing the funds needed for the capital improvement plan.

4.4.3 CCTV Inspection Program

Veolia conducts all CCTV inspections for the RMSD system. CCTV data is collected in digital format with fully equipped CCTV vehicles, using pan-and-tilt cameras. Veolia's inspection program uses the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) defect rating systems. In addition to evaluating each defect, the program assigns a PACP "Quick Rating" for each pipe segment. The quick rating indicates the number of occurrences for the two highest severity grades for each pipe segment for either maintenance or structural defects.



The contract with Veolia requires the completion of CCTV inspection every ten years, and the development of a plan to identify areas requiring CCTV inspection on a more frequent basis. The inspection results must be fully documented so that they support the development of a prioritized CIP. Veolia must then work with the City to prepare annual budgets for repairing the Collection System.

CCTV inspection activities are prioritized through field experience and recorded in InfoNet. Veolia is currently developing a formal summary document for presentation to the City in 2014.

Appendix C includes a map showing Veolia's 10-year CCTV inspection schedule. This map also delineates segments to have been inspected in 2013.

4.5 SSMP Requirement for Training

4.5.1 RWQCB Requirement

The RMSD must provide training on a regular basis for its collection system operations, maintenance, and monitoring staff.

4.5.2 SWRCB Requirement

The RMSD must provide training on a regular basis for staff in sanitary sewer system operations, maintenance, and require contractors to be appropriately trained.

4.5.3 Training of City Personnel and Contractors

Veolia provides sewer maintenance and customer service training to its employees, through either classroom or on-the-job exercises. Veolia also provides monthly safety training based on an established schedule.

The City and Veolia has recently (2017) expanded this training to include the contents of the SSMP and the Overflow Emergency Response Plan. Recipients also include City employees that are responsible for implementing the various elements of this SSMP.

Records are kept of all training that is provided by Veolia in support of the SSMP. The records include the date, time, place, content, name of trainer(s) and names of attendees.



4.6 SSMP Requirement for Contingency Equipment

4.6.1 RWQCB Requirement

The RMSD must demonstrate that contingency equipment is provided to handle emergencies, and that spare parts are available to minimize equipment/facility downtime during emergencies.

4.6.2 SWRCB Requirement

The RMSD must provide equipment and replacement part inventories, including identification of critical replacement parts.

4.7 Contingency Equipment and Replacement Inventories

The current collection systems equipment inventory, as maintained by Veolia, is listed below.

- Three (3) Vacuum and Jetter Trucks; two of these trucks are provided by the City as part of the contract between the City and Veolia.
- One (1) Rodder Truck
- Three (3) Video Trucks
- Two (2) Traffic Utility Trucks
- One (1) Small Gas Generator
- One (1) 6" Portable Bypass Pump
- One (1) 3" Honda Portable Pump

4.8 Critical Replacement Parts

The inventory of critical replacement parts is stored in a CMMS named Oracle Work and Asset Management (OWAM) and is published as a component of Appendix C.

Appendix C – Element 4 Documents

Appendix C includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix C may have been superseded. Please contact the Water Resource Recovery Director for the most recent updates to the Appendix C documents.



Sewer System Management Plan OPERATION AND MAINTENANCE PROGRAM

- Richmond Municipal Sewer District Sewer Map Grid
- Current Fiscal Year Sewer Related Budget
- Maps Showing Cleaning Schedule, Hot Spot Preventive Maintenance Program, and CCTV Inspection Plan
- Manhole Inspection Form



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ELEMENT 5 - DESIGN AND PERFORMANCE PROVISIONS

This section of the SSMP discusses the City's design and construction standards.

5.1 RWQCB and SWRCB SSMP Requirements

5.1.1 RWQCB Requirement

RMSD shall demonstrate that minimum design and construction standards and specifications are in place for the installation of new sewer systems and for the rehabilitation and repair of existing sewer systems.

5.1.2 SWRCB Requirement

RMSD must have design and construction standards and specifications for the installation of new sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sewer systems.

RMSD must have procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

5.2 Design and Construction Standards for Installation, Rehabilitation and Repair

The City of Richmond standards for the design and construction for the installation of sewer system components and for rehabilitation and repair of existing are specified in part in the Richmond Municipal Code, Article VI Building Regulations Chapters 6.02, 6.04, 6.20 and 6.28 reference the appropriate electrical, mechanical, building and other adopted codes and standards that apply to City construction. RMC Chapters 12.24, 12.28, 12.30, 12.32, 12.36, 12.44 and 12.48 describe standards for public works construction including roads, sidewalks, utilities, pipes, earthwork and other related construction. Legal authority for enforcing the design and construction standards is provided by City Chapter 1.04 Adoption of Code – Construction of Provisions – Enforcement.

In addition to the RMC requirements, the City Engineering Services Division is developing standalone design and construction standards for pipeline projects. The design criteria includes pipe materials, minimum sizes, minimum cover, strength, minimum slope, trench and backfill requirements, structure standards and other factors

The Municipal Code Sections are included as part of Element 3, in Appendix B. The City's design and construction standards are included in Appendix D.



5.3 Procedures and Standards for Inspection, Testing, Rehabilitation and Repair

City of Richmond design standards will establish the standards that the City follows when inspecting and testing new or rehabilitated sewers, pump stations, and other appurtenances. For small maintenance projects, inspections are provided by Veolia staff. For larger projects, inspection services may be provided through a joint effort from the City's engineering consultant and Veolia or by other persons(s) appointed by the City. Testing is normally conducted by the contractor, with the inspector observing to verify that all requirements are met.

Appendix D – Element 5 Documents

Appendix D includes the City of Richmond Design and Construction Standards. The information in this document will change from time to time, and the document in Appendix D may have been superseded. If the information in this section has been updated, it will be noted in the beginning pages of the SSMP under "Changes to SSMP".



ELEMENT 6 - OVERFLOW EMERGENCY RESPONSE PLAN

This section of the SSMP provides a summary of the Overflow Emergency Response Plan that was developed and is maintained by Veolia, and fulfills the Overflow Emergency Response Plan requirements for both the RWQCB and the SWRCB. The OERP that is included in Appendix E is also maintained by Veolia as a stand-alone document as required by the RWQCB. This document will be updated as necessary.

6.1 RWQCB and SWRCB SSMP Requirement

The summarized requirements for the Overflow Emergency Response Plan element of the SSMP are as follows:

6.1.1 RWQCB Requirement:

The RMSD must develop an overflow emergency response plan that provides procedures for SSO notification, response, reporting, and impact mitigation. The response plan should be developed as a stand-alone document and summarized in the SSMP.

6.1.2 SWRCB Requirement:

The RMSD shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

- Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner
- A program to ensure appropriate response to all overflows
- Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, regional water boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the Statewide Monitoring and Reporting Program (MRP). All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDR or NPDES permit requirements. The SSMP should identify the officials who will receive immediate notification
- Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the emergency response plan and are appropriately trained
- Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities



- A program to ensure that all reasonable steps are taken to contain and prevent discharge of untreated and partially treated wastewater to waters of the United States and minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

6.2 OERP Goals

The purpose of the Overflow Emergency Response Plan (OERP) is to support an orderly and effective response to Sanitary Sewer Overflows (SSOs). The OERP provides guidelines for City staff to follow in responding to, cleaning up, and reporting SSOs that may occur within the City's service area.

The City's goals with respect to responding to SSOs are:

- Respond quickly to minimize the volume of the SSO
- Eliminate the cause of the SSO
- Contain the spilled wastewater to the extent feasible
- Minimize public contact with the spilled wastewater
- Mitigate the impact of the SSO
- Meet regulatory reporting requirements

6.3 SSO Categories

The responsibilities of the SSO Response Team depend on the volume and location of an incident. Three categories of SSOs are defined by the SWRCB:

- Category 1 SSO: Discharges of untreated or partially treated wastewater of any volume resulting from the RMSD's sanitary sewer system failure or flow condition that:
 - Reach surface water and/or reach a drainage channel tributary to a surface water; or
 - Reach a municipal separate storm sewer system 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 municipal separate storm sewer system is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or ground water infiltration basin (e.g., infiltration pit, percolation pond).
- Category 2 SSO: Discharges of untreated or partially treated wastewater of 1,000 gallons or greater resulting from the RMSD's sanitary sewer system failure or flow condition that do not reach surface water, a drainage channel, or a municipal separate storm sewer system unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.
- Category 3 SSO: All other discharges of untreated or partially treated wastewater resulting from the RMSD's sanitary sewer system failure or flow condition.



6.4 SSO Notification Procedures

The City is most often notified of an SSO by Veolia staff. However, on occasion, SSOs are called into a particular City department in which case Veolia staff is contacted to execute a response. Veolia learns of the SSO through its crews, contractors, or a member of the public. When a member of the public notices an overflow or blockage, they report this occurrence to the Veolia SSO hotline. The hotline is answered by Veolia staff at the WWTP (601 Canal Boulevard, Richmond, CA). The Veolia number for reporting SSOs is (510) 412-2001.

The Veolia hotline is included in the telephone book and on the City's website, which can be accessed through the url: <http://www.ci.richmond.ca.us> under the "Wastewater" tab.

Figure 6-1 on the following page provides a notification and response flow chart procedure for an SSO occurrence. This is the same chart that is provided in Section 2, Organization.

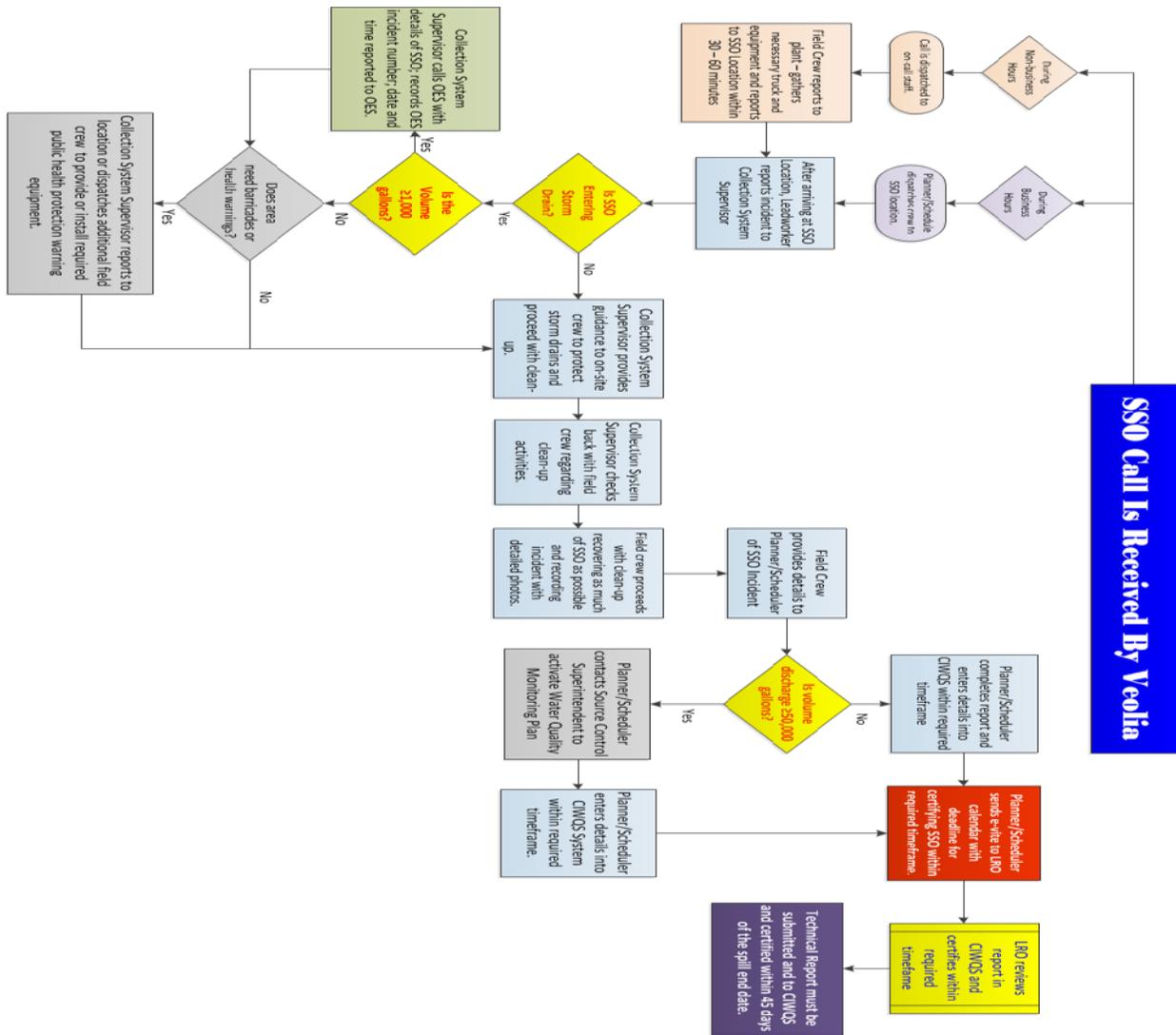
The Veolia Field Crew, which includes the First Responder, arrives at the spill site within 30 minutes to one hour to perform an initial evaluation of the impact of the overflow. The First Responder selects an approach that will result in the least environmental damage – deciding between clearing the blockage first or initiating spill containment measures. The First Responder reports the severity of the overflow to both the Veolia Collection System Manager, Field Supervisor and Veolia Underground Asset Management Group.

The Field Crew takes and sends pictures to the Manager, Field Supervisor and Underground Asset Management Group. The Field Crew is responsible for calling for back-up support if a large volume of spill has the potential to reach the storm drain system and/or the San Francisco Bay.

The Veolia Manager or Field Supervisor records the overflow start time, and provides update as soon as flow is restored and the clean-up procedure begins. Immediate notification is a priority if the spill appears to be over 1,000 gallons, in a sensitive area, may imminently and substantially endanger human health, results in fish kills, if there is doubt regarding the extent, impact, or how to proceed, or if additional help is needed for line cleaning or repair, containment, recovery, lab analysis, and/or site cleanup.

Veolia staff makes all reports to the regulatory agencies.

Figure 6-1. SSO Notification Process



6.4.1 Normal Working Hours

Normal business hours are Monday through Friday from 7:00 AM to 4:00 PM. Service calls received during normal business hours are taken immediately by the Veolia Collection System Planner/Scheduler who fills out the service call report form and then dispatches the call to the Veolia Field Crew who will respond within 30 minutes to one hour of an SSO event.

Upon arrival, the crew makes assessment, mitigates exposure and notifies the field supervisor of all facts related to the SSO. The Field Crew remains in close communication with the Veolia Collection System Manager and/or Field Supervisor



6.4.2 After Normal Working Hours

After normal business hours, service calls are taken by the Veolia Water Answering Service Center which relays the information to the Veolia Field Crew on-call representative, who responds within a one hour time frame. The Veolia operator completes a standardized form available through the Infonet® mobile tablet that records start time of the incident and other information related to the SSO.

All other communications procedures are similar to that of an SSO during normal working hours.

6.4.3 Notification from Pump Station SCADA Alarms

Any overflows associated with a lift station are detected and reported through the SCADA remote monitoring and Mission alarm system to the Veolia Field on call staff. Pump or equipment failure and high wet well levels produce alarms which may require a response depending on the circumstances. The on-call person would initiate a support response by the field crew as necessary. A lift station overflow may also be relayed by the public to Veolia and addressed as described above.

In a non-emergency response situation, a Work Order to address the issue is provided through the plant CMMS program.

6.5 Staff and Contractor Training

All Veolia personnel and contractor employees who may have a role in responding to, reporting and/or mitigating a sewer system overflow receive training on the contents of the OERP. All new employees receive training before they are placed in a position where they may have to respond. Current employees receive annual refresher training on this plan and the procedures to be followed.

Records are kept of all training that is provided in support of this plan. The records for all scheduled training courses and for each overflow emergency response training event include date, time, place, content, name of trainer(s) and names of attendees.

6.6 Response Program

Names and contact information for the Veolia SSO responders are as listed below, or as otherwise updated in the OERP:

- Veolia Hotline: (510) 412-2001
- Veolia Project Manager - Aaron Winer Cell: (510) 385-6482



- Veolia Underground Asset Management Group - (925) 681-2304
- Veolia Collection System Manager – Tim O’Connor Cell: (510) 426-0008
- Veolia Sewer Crew Supervisor - Wayne Madison Cell: (510) 542-3247
- Veolia Field Crew Cell Numbers:
 - Armstrong, Ronnie (510) 812-2776
 - Roos, Jason (510) 812-1173
 - Wallis, David (510) 447-0220
 - Lewis, Kenny (510) 932-1242
 - Madison, Wayne (510)542-3247
 - Hill, Arlee (510) 829-2108
 - Hendricks, Mitchell (510) 660-7942
 - Mendoza, Rafael (510) 334-4924
- In Case of Emergency: 911
- City Police Dispatch: (510) 233-1214
- Office of Emergency Services: (800) 852-7550
- City Manager: (510) 620-6512
- City Water Resource Recovery Director Cell: (510) 932-5014
- City Source Control Superintendent Cell: (510) 290-9149
- City Senior Administrative Analyst Cell: (510) 685-0820
- Contractors:
 - BayHawk, Inc.: (510) 776-5886
 - Ghilloti Brothers: (415) 454-7011
 - W.R. Forde : (510) 215-9338
 - TMB, LLC: (707) 252-5480



- Sierra Pacific Loss Management (Bruce Burnett – Interior Cleaning): (707) 479-1375
- Rain for Rent (bypass pumping): (925) 679-2803
- DW Pumps: (510) 633-2040
 - Regulatory Agencies:
- California Regional Water Quality Control Board: (510) 622-2369
- California Department of Fish and Games - Bay Delta Region : (707) 944-5500
- East Bay Regional Park District: (510) 633-0460
- Contra Costa County Health Services: (925) 692-2500
- California Office of Emergency Services : (916) 845-8506 / (800) 852-7550
 - U.S. Coast Guard : (510) 437-3073

6.6.1 First Responder Priorities

The First Responder's priorities are as follows:

- To follow safe work practices, including those related to traffic control, confined space, and employee and public safety.
- To respond promptly with the appropriate equipment.
- To evaluate the cause of spill and determine responsibility.
- To restore the flow as soon as possible.
- To contain the spill whenever feasible.
- To minimize public access to and/or contact with the spilled sewage.

6.6.2 Initial Response

The First Responder must report to the SSO location within 30 minutes to one hour of the initial SSO report during business hours, and within one hour during non-business hours. The objective of the response is to minimize and/or eliminate the overflow. The appropriate response measure will vary based on the circumstances and nature of the SSO and the information provided by the caller. Actions related to external and internal SSOs are summarized below.



Veolia uses a computerized form to document the contact and response for each SSO that occurs. Separate forms are used for SSO response and customer issues. These forms are included in Appendix E.

Veolia has a variety of equipment available for clearing blockages and impact mitigation and cleanup activities, including the following:

- Three (3) Combination Sewer Cleaning Trucks (vacuum and jetter/hydroflush); two of these trucks are provided by the City as part of the contract between the City and Veolia.
- One (1) Rodder Truck
- Two (2) CCTV Trucks
- Two (2) Traffic Utility Trucks
- One (1) 3” Honda Portable Pump
- One (1) 6” Portable by-pass pump, trailer mounted

6.6.3 External SSO Response

Upon arrival at the site, the First Responder should complete the following:

- Note notification time, crew arrival time, SSO start time and SSO end time and cleaning completion time; Crew completes the report through the use of Infonet® mobile tablet.
- Verify the existence of the SSO
- Field verify the address and nearest cross street, and confirm that the SSO is part of the RMSD sewer/conveyance system
- Conduct visual monitoring to determine immediate actions, starting with documentation of SSO volume using the methods included in the OERP
- Identify and clearly assess the affected area and extent of spill, including possible impacts on surface water. Where it is safe and practical, visually inspect surface water in the vicinity of the SSO and record observations on the Infonet mobile tablet. Signs of receiving water impacts include clear signs of sewage (solids, grease, and paper), abnormal color, fish kills, etc.
- Estimate spill volume using SSO reporting guidelines in Appendix E.



- Contain, mitigate, and minimize impacts from the SSO. If the SSO is the result of a blockage, and the blockage cannot be cleared expeditiously via hydro-cleaning from the downstream manhole, then clearing and vacuuming the blockage from the pipe, containment and/or bypass pumping must be initiated.
- If several efforts to clear blockage have failed, the Manager or Field Supervisor must be immediately informed, who will in turn call up other employees and local contractors to initiate emergency repair to restore flow and also provide assistance to initiate spill containment or bypass pumping.
- In the event the SSO should exceed 50,000, text and e-mail the City Source Control Superintendent, so the City can activate their Water Quality Monitoring Plan. Comply with all safety precautions (traffic, confined space, etc.).
- Contact caller. Identify SSO cause, including conducting CCTV inspection as appropriate.
- Document all activities through photos and written documentation.

6.6.4 Internal SSO Response (Residential Sewage Backup)

Upon arrival at the location of a spill into a house or a building, the First Responder should evaluate and determine if the spill was caused by a blockage in the lateral or in the RMSD-owned sewer main. If a blockage is found in a property owner's lateral, it should be clearly communicated to the homeowner that response and repair of private laterals is not the City's responsibility. Additionally, Veolia's Collection System Manager, Collection System Supervisor and the Veolia Richmond Project Manager are notified immediately if a sewage back up impacts a home or business owner within the dwelling. The homeowner is responsible for clearing any blockage or addressing a failure in the home's plumbing system or private lateral and for any resulting flood damage to the structure.

As a courtesy, Veolia crews will assist the homeowner in coordinating for the repair. However, Veolia and/or the City are not authorized to repair the private lateral at the City's cost.

If a backup in the main line is found to have caused the SSO in a house or building, the First Responder should take steps to address the issue as described above. An independent contractor hired by the City follows the steps below:

- Keep all family members and pets away from the affected area.
- Place towels, rags, blankets, etc. between areas that have been affected and areas that have not been affected, and move any uncontaminated property away from the overflow area.



- Move any uncontaminated property away from the overflow area. Do not remove any contaminated items.
- Turn off the HVAC system.

The First Responder should follow the following steps to assist the homeowner:

- Gather information and fill out the electronic form on the Infonet® mobile tablets. A hard copy is included in the OERP
- Call a restoration company as described below (contact numbers are included in the emergency response list), and wait for the restoration firm to arrive
- Forward incident reports and related documents to Collection System Supervisor

6.6.5 Pump Station SSO Response

The First Responder to a potential pump station or force main failure should determine whether flow can be restored within a reasonable time. If it appears that flow cannot be restored within a reasonable time or if the conveyance system facility requires construction and/or repairs, then the First Responder should employ a plan covering containment, bypass pumping and contractor assistance. Veolia uses DW Pumps for bypass pumping services. The pump stations in the service area will be evaluated in 2017. A formalized emergency contingency plan for each pump station will be developed. The individual plans will become an integral part of the OERP and incorporated into a master pump station emergency contingency plan by July 2018.

In addition, response activities discussed above should be implemented where applicable.

6.6.6 Recovery and Cleanup

The recovery and clean up phase must begin when the flow has been restored and the spilled sewage has been contained to the extent possible. Spilled sewage shall be vacuumed or pumped and discharged to the extent possible back into the sanitary sewer system.

Estimate and Recover the Volume of Spilled Sewage

Use the methods outlined in the OERP in Appendix E to estimate the volume of the spilled sewage. Wherever possible, document the estimate using photos of the SSO site before and during the recovery operation.

Spilled sewage shall be vacuumed or pumped and discharged to the extent possible back into the sanitary sewer system.



Clean Up and Disinfection

Clean up and disinfection procedures must be implemented to reduce the potential for human health issues and adverse environmental impacts that are associated with an SSO event. The procedures described are for dry weather conditions and should be modified as required for wet weather conditions. Clean up should proceed quickly in order to minimize negative impact. Any water that is used in the cleanup process should be de-chlorinated prior to use.

Where cleanup is beyond the capabilities of Veolia staff, Veolia contacts a cleanup contractor to complete the work. Phone numbers are provided in the emergency response list.

Spills inside houses or buildings should be cleaned by a professional cleaning company as discussed above. Contact information for professional cleaning companies can be found in the “Water Damage Restoration” section of the Yellow Pages and is also provided in the OERP. Claims by homeowners should be forwarded to the City Risk Manager.

In the event of an SSO occurrence during night time hours, the incident must be re-inspected as soon as possible the following day. The site shall be inspected for any signs of sewer related debris/material that may warrant additional cleanup activities.

Guidelines for Cleanup

On **hard surface areas**, collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms. Take reasonable steps to contain and vacuum up the wastewater.. Repeat the process if additional cleaning is required.

On **landscaped or unpaved areas**, collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms. Allow the area to dry. Repeat the process if additional cleaning is required.

If the SSO has reached the **storm drain system**, the combination sewer cleaning truck should be used to vacuum/pump out the catch basin and any other portion of the storm drain that may contain sewage. In the event that an overflow occurs at night, the location should be re-inspected as soon as possible the following day. The operator should look for any signs of sewage solids and sewage-related material that may warrant additional cleanup activities.

6.7 Impact to Waters of the United States



If an SSO is confirmed to have entered waters of the United States¹, the Sewer System Coordinator is immediately notified. The response team then proceeds with the following additional activities:

- Determine the extent of the SSO by investigating downstream until there is no evidence of sewage or debris along the creek or water body
- If the SSO is 50,000 gallons or greater, e-mail and text the Source Control Superintendent so the City may activate their Water Quality Monitoring Plan (see Appendix D).
- Immediately post contaminated water sign(s) and protect the waterbody from public access on all sides.
- Photograph sign placement and evidence of the overflow in and around the waterbody to the farthest point reached by the sewage
- If feasible, block the waterbody downstream of the affected area in a location that is safe to enter and is accessible to set up a pump or utilize other sewer cleaning equipment
- To the extent feasible, recover and return contaminated water to the collection system

6.7.1 Water Quality Sampling

Water quality sampling and testing is required only when the spilled sewage enters a water body is greater than or equal to 50,000 gallons. The purpose of testing is to determine the extent and impact of the SSO. The City Source Control Superintendent will activate their Water Quality Monitoring Plan for any spills that are greater than or equal to 50,000 gallons (see Appendix D).

6.7.2 Water Quality Monitoring Plan

A Water Quality Monitoring Plan must be implemented immediately upon discovery of any Category 1 SSO of 50,000 gallons or more in order to assess impacts from SSOs to surface waters. Water quality testing must be completed within 48 hours of the City becoming aware of the SSO.

The City's SSO Water Quality Monitoring Program is included in Appendix D, and includes the following:

- Protocols for water quality monitoring
- Account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, access restrictions, etc.)

¹ **40 CFR 230.3(s)** defines the term "waters of the United States." This term includes all lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, or natural ponds, or waters that could be used for recreational or other purposes.



- Requirement for water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory
- Requirement for monitoring instruments and devices used to implement the SSO Water Quality Monitoring Program to be properly maintained and calibrated, including any records to document maintenance and calibration, as necessary, to ensure their continued accuracy

6.7.3 SSO Technical Report

If 50,000 gallons or greater from an SSO reaches surface waters, an SSO Technical Report must be prepared and submitted to the CIWQS online SSO database and certified within 45 calendar days of the SSO end date. The SSO Technical Report must include, at a minimum, the following:

1. Causes and Circumstances of the SSOs
2. Complete and detailed explanation of how and when the SSO was discovered
3. Diagram showing the SSO failure point, appearance point(s), and final destination(s)
4. Detailed description of the cause(s) of the SSO
5. Copies of the original field crew records used to document the SSO
6. Historical maintenance records for the failure location
7. Response to SSO:
8. Chronological narrative description of all actions taken to terminate the SSO
9. Explanation of how the OERP was implemented to respond to and mitigate the SSO
10. Final corrective action(s) completed and/or planned to be completed, including a schedule or actions not yet completed
11. Water Quality Monitoring:
12. Description of all water quality sampling activities conducted including analytical results and evaluation of the results
13. Detailed location map illustrating all water quality sampling points

The Water Resource Recovery Director, in conjunction with Veolia, are responsible for the development and certification of the SSO Technical Report.

6.8 Containment or Bypass

The first responder should attempt to contain as much of the spilled sewage as possible using the following steps:

- Determine the immediate destination of the overflowing sewage.
- Plug storm drain manholes, catch basins, inlets and culverts using available equipment and materials, including sandbags, air plugs and plastic mats to contain the spill, where feasible. If spilled sewage has made contact with the storm drainage system, attempt to contain the spilled sewage by plugging downstream storm drainage facilities.



- Contain/direct the spilled sewage using dike/dam or sandbags.
- Pump around the blockage or pipe failure, or vacuum up flow from upstream of the blockage and dispose of downstream of the blockage to prevent further overflow.
- If an SSO reaches a water body, follow the requirements below for posting and SSO notification signage. Also conduct water quality sampling if the spill is greater than or equal to 50,000 gallons.

6.9 SSO Notification Signage

Veolia supplies notification signage, which is posted by Veolia staff and the Source Control Superintendent and/or other City staff. Barriers are installed where required to prevent the public from having contact with the sewage. Signs are posted along with barricades with yellow flashing lights to keep vehicles and pedestrians away from contact with spilled sewage. “Closed” signs should be posted at the outfall of streams and a minimum of 100 feet upstream and 100 feet downstream of the discharge. If there is a large volume of sewage, more signs must be posted downstream.

Signs must remain in place until the risk of contamination has subsided to acceptable levels. Warning signs should be checked every day in order to ensure that they are still in place.

A sample warning sign is included in the OERP.

6.10 Traffic and Crowd Control

Traffic and crowd control measures vary based on the size and potential impact of the overflow event. When appropriate, local police, fire department, and City contacts must be notified to aide in addressing traffic and crowd control issues.

General steps in implementing traffic and crowd control include the following:

- Contact impacted agencies, local law enforcement and fire/sheriff as needed
- Set up barriers and delineation directing human and vehicular traffic around spill area, including closing any entrances or exits from adjacent facilities
- Establish signage including signs protecting public health and safety
- Use staff personnel to control traffic and pedestrians

6.11 SSO Failure Analysis



For each SSO event greater than 250 gallons, all participants involved in the response – from the person who received the call to the last person to leave the site – should meet, as soon as feasible, after the event to review and evaluate the incident and the City response procedures. The objective of the Post-SSO Debrief is to determine actions necessary, if any, to reduce the recurrence and better mitigate the effects of SSOs.

It is the responsibility of the Veolia Collection System Manager to investigate an SSO and to ensure that the procedures in the OERP are followed or modified as a result of the incident failure analysis. The failure analysis is intended to determine if additional maintenance, repair/replacement or other follow-up actions or response procedures changes are needed to reduce or eliminate the likelihood of future SSOs. The procedures for investigating an SSO are as follows:

- Reviewing and completing the Sewer Overflow Report
- Reviewing the incident timeline and other documentation regarding the incident
- Review actions by all persons involved in the response, including the initial recipient of the complaint
- Reviewing communications with the all reporting parties, and witnesses
- Review volume estimate, volume recovered estimate, volume estimation assumptions and associated drawings
- Reviewing available photographs
- Interviewing staff that responded to the spill
- Reviewing past maintenance records of all affected manholes and pipe segments
- Reviewing past CCTV records
- Conducting a CCTV inspection to determine the condition of the line segment immediately following the SSO and reviewing the video and logs
- Reviewing any FOG related information or results
- Identify any changes or additions needed to the OERP and SSMP following the event

The product of the failure analysis investigation should be the determination of the root cause and identification of the corrective actions. The Collection System Failure Analysis Form in Appendix E should be used to document the investigation.

6.12 SSO Documentation and Reporting

In accordance with the WDR, the City maintains records for each sanitary sewer overflow. Records include:

- Documentation of response steps and/or remedial actions
- Photographic evidence to document the extent of the SSO, field crew response operations
- Site conditions after field crew SSO response operations have been completed
- The date, time, location, and direction of photographs taken will be documented
- Documentation of how any estimations of the volume of discharged and/or recovered overflow were calculated



The records are maintained at the Wastewater Treatment Plant office and are also entered into Veolia's CMMS system.

Veolia also maintains records of complaints received, even if the complaint does not relate to a City SSO.

6.12.1 Regulatory Reporting

Table 6-1 summarizes the regulatory reporting requirements that are also described in the paragraphs following the table.

Multiple Appearance Points – Single SSO

For reporting purposes, if one SSO event of whatever category results in multiple appearance points in a sewer system, a single SSO report is required in CIWQS which includes the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that caused the SSO, and descriptions of the locations of all other discharge points associated with the single SSO event.

2-Hour Notification to Regulatory Agencies of SSOs

Cal OES is only to be notified of a Category 1 SSO 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. The First Responder is responsible for reviewing field data for reporting to regulatory agencies. If it is determined that the criteria for OES notification was met, then the First Responder must notify OES of the event no later than two (2) hours after:

1. Veolia has knowledge of the SSO;
2. Notification is possible; and
3. Notification can be provided without substantially impeding cleanup or other emergency measures.

The OES phone number is (800) 852-7550. The First Responder is responsible for obtaining an OES Control number, call time, and the name of the OES operator taking the call. Following the initial notification to OES and until the SSO report is certified in the SWRCB online SSO Database, the LRO will provide updates (or provide direction for updates to be provided) to OES regarding substantial changes to estimated volume of untreated or partially treated sewage discharged and any substantial changes to known impact(s).

Detailed Reporting Requirements

Table 6-1 provides detail on the City's regulatory reporting process, which is also described below.



SSO Reporting for Category 1 SSOs

Cal OES shall receive notification of Category 1 SSOs greater than or equal to 1,000 gallons, as stated earlier in this Section.

The Data Submitter must then submit the initial draft report to the SWRCB's CIWQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs> within 3 business days of becoming aware of the SSO.

An e-vite is sent to the City's LRO's calendar inviting them to certify the Category 1 SSO thirteen (13) days after the date of the SSO. This is to prevent any Category 1 SSO from being delayed in certifying within the fifteen (15) day requirement.

Within 15 calendar days of the SSO end date, the LRO must review and certify the report in the CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>

SSO Reporting for Category 2 SSOs

Within 3 business days of becoming aware of the SSO, the Collection System Planner/Scheduler shall submit the initial report to the SWRCB's CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>.

An e-vite is sent to the City's LRO's calendar inviting them to certify the Category 2 SSO thirteen (13) days after the date of the SSO. This is to prevent any Category 2 SSO from being delayed in certifying within the fifteen (15) day requirement.

Within 15 calendar days of the SSO end date, the LRO must review and certify the report in the CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>.

SSO Reporting for Category 3 SSOs

Within 30 calendar days of the end of the calendar month in which the SSO occurred, the LRO must submit and certify a report to the SWRCB's CWIQS Online SSO database @ <http://ciwqs.waterboards.ca.gov/ciwqs>.

Every LRO has an "event" on their calendar on the 28th and 30th day of each month to check the CIWQS system for any Category 3 SSO events that need to be certified. This will help prevent any Category 3 SSO from being certified past the due date.



No Spill Certification (Monthly)

Within 30 calendar days of the end of a calendar month that there are no SSO's, the LRO must submit and certify a "No Spill" certification to the CIWQS online SSO database.

Every LRO has an "event" on their calendar on the 1st and 3rd day of each month to check the CIWQS system for any SSOs that occurred the previous month. If there are no SSOs, they are to submit a "No Spill" certification to the CIWQS online SSO database at that time.

CIWQS Not Available

In the event that the CIWQS online SSO database is not available, the LRO will fax or all required information to the RWQCB office at (510) 622-2460 in accordance with the time schedules identified above. In such an event, the City will submit the appropriate reports using the CIWQS online SSO database when the database becomes available. A copy of all documents that certify the submittal in fulfillment of this section shall be retained in the SSO document file.

Amending SSO Reports

The LRO is responsible for amending SSO reports. Certified SSO reports may be updated by amending the report or adding an attachment to the SSO report within 120 calendar days after the SSO end date. After 120 days, the City must contact the State SSO Program Manager to request to amend an SSO report along with a justification for why the additional information was not available prior to the end of the 120 days. The SWRCB SSO Program Manager contact information is as follows:

Russell Norman, P.E.
State Water Resources Control Board
Division of Water Quality
1001 I Street 15th Floor
Sacramento, CA 95814
E-mail: Russell.norman@waterboards.ca.gov
Phone: (916) 323-5598

6.12.2 Technical Report

If 50,000 gallons or greater from an SSO reaches surface waters, an SSO Technical Report must be prepared and submitted to the CIWQS online SSO database within 45 calendar days of the SSO end date. The LRO is response for submitting the Technical Report, which is described in further detail earlier in this Section.



Table 6.1. Regulatory Reporting Requirements

| Element | Requirement | Method |
|---------------------------------|---|---|
| NOTIFICATION | <p>Within two hours of becoming aware of any Category 1 SSO 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, the City will notify the California Office of Emergency Services (CalOES) and obtain a notification control number.</p> | <p>Call Cal OES at: (800) 852-7550</p> |
| REPORTING | <ul style="list-style-type: none"> • Category 1 SSO: Veolia will submit draft report within three business days of becoming aware of the SSO and the City certify within 15 calendar days of SSO end date. • Category 2 SSO: Veolia will submit draft report within 3 business days of becoming aware of the SSO and the City certify within 15 calendar days of the SSO end date. • Category 3 SSO: Veolia will submit the report and the City will certify the report within 30 calendar days of the end of month in which SSO the occurred. • SSO Technical Report: The City will 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. • “No Spill” Certification: The City will 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. • Collection System Questionnaire: The City will update and certify every 12 months | <ul style="list-style-type: none"> • Enter data into the CIWQS Online SSO Database (http://ciwqs.waterboards.ca.gov/), certified by the Legally Responsible Official(s). • All information required by CIWQS will be captured in the Sanitary Sewer Overflow Report. • Certified SSO reports may be updated by amending the report or adding an attachment to the SSO report within 120 calendar days after the SSO end date. After 120 days, the State SSO Program Manager must be contacted to request to amend an SSO report along with a justification for why the additional information was not available prior to the end of the 120 days. |
| WATER QUALITY MONITORING | <ul style="list-style-type: none"> • The City will conduct water quality sampling within 48 hours after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters. | <p>Water quality results will be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.</p> |
| RECORD KEEPING | <p>Veolia will maintain the following records on behalf of the City:</p> <ul style="list-style-type: none"> • SSO event records. • Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP. • Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters. • Collection system telemetry records if relied upon to document and/or estimate SSO Volume. | <p>Self-maintained records shall be available during inspections or upon request.</p> |



6.13 Equipment

This section provides a list of specialized equipment that is required to support this Overflow Emergency Response Plan.

Closed Circuit Television (CCTV) Inspection Unit – A CCTV Inspection Unit is required to determine the root cause for all SSOs from gravity sewers.

Camera – A digital or disposable camera is required to record the conditions upon arrival, during clean up, and upon departure.

Emergency Response Trucks -- A utility body pickup truck, or open bed is required to store and transport the equipment needed to effectively respond to sewer emergencies. The equipment and tools should include containment and clean up materials.

Portable Generators, Portable Pumps, Piping, and Hoses – Equipment used to bypass pump, divert, or power equipment to mitigate an SSO.

Combination Sewer Cleaning Trucks -- Combination high velocity sewer cleaning trucks with vacuum tanks are required to clear blockages in gravity sewers, vacuum spilled sewage, and wash down the impacted area following the SSO event.

6.14 Contractors Working On City Sewer Facilities

All contractors working on City sewer facilities will be trained in the City's OERP and will be required to follow the OERP in the event that they cause or observe an SSO.

6.15 Training

This section provides information on the training that is required to support this Overflow Emergency Response Plan.

6.15.1 Initial and Annual Refresher Training

All City personnel who may have a role in responding to, reporting, and/or mitigating a sewer system overflow should receive training on the contents of this OERP. All new employees should receive training before they are placed in a position where they may have to respond. Current employees should receive annual refresher training on this plan and the procedures to be followed. Affected employees will receive annual training on the following topics, at a minimum, by knowledgeable trainers:

- The City's Overflow Emergency Response Plan
- SSO Volume Estimation Techniques



- Impacted Surface Waters: Response Procedures

The City will verify that annual safety training requirements are current for each employee, and that employees are competent in the performance of all core competencies. The City will address, through additional training/instruction, any identified gaps in required core competencies.

6.15.2 SSO Response Drills

Periodic training drills should be held to ensure that employees are up to date on these procedures, equipment is in working order, and the required materials are readily available. The training drills will cover scenarios typically observed during sewer related emergencies (e.g. mainline blockage, mainline failure, force main failure, pump station failure, and lateral blockage). The results and the observations during the drills will be recorded and action items should be tracked to ensure completion.

6.15.3 SSO Training Record Keeping

Records should be kept of all training that is provided in support of this plan. The records for all scheduled training courses and for each overflow emergency response training event and will include date, time, place, content, name of trainer(s), and names of attendees.

Appendix E – Overflow Emergency Response Plan Documents

Appendix E includes a full copy of the Veolia Emergency Overflow Response Plan. The information in this document will change from time to time, and the OERP may have been superseded. Please contact the Water Resource Recovery Director for the most recent updates to the OERP.

- Veolia Emergency Overflow Response Plan
- Hard Copies of Veolia Field Forms



ELEMENT 7 - FOG CONTROL PROGRAM

The purpose of this section is to evaluate the extent and nature of SSOs related to Fats, Oils and Grease (FOG), to determine the need for a FOG Control Program, and to outline the elements of the RMSD FOG Control Program.

The City of Richmond's FOG Control Plan was initiated in 2003. A field survey identified all food service facilities with and without grease control devices. Periodic inspection of food service facilities began in 2004.

In 2006, the City of Richmond Municipal Code was revised to require that new Food Handling Facilities (FHF) install grease pretreatment devices that conform to the current version of the Uniform Plumbing Code (UPC). Additionally, one component of the 2006 settlement agreement between the City and San Francisco Baykeeper required the City to increase the inspection frequency of FHF, and improve the public education and outreach program.

The RMC provides legal authority to prevent the introduction of FOG into the Sanitary Sewer System. In addition, the City's FOG Control Plan has developed tools for tracking, inspecting, and grading FOG dischargers, as well as developed documents for education and outreach on FOG disposal.

7.1 RWQCB and SWRCB SSMP Requirements

7.1.1 RWQCB Requirement:

The RMSD must evaluate its service area to determine whether a FOG control program is needed. If needed, a FOG control program shall be developed as part of the SSMP. If the RMSD determines that a FOG program is unnecessary, proper justification must be provided.

7.1.2 SWRCB Requirement:

The RMSD shall evaluate its service area to determine whether a FOG control program is needed. If the RMSD determines that a FOG program is not needed, justification must be provided for why it is not needed. If FOG is found to be a problem, the RMSD must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The FOG source control program shall include the following as appropriate:

- An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG.
- A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional



facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area.

- The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG.
- Requirements to install grease removal devices (such as traps or interceptors), design standards for the grease removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements
- Authority to inspect grease producing facilities, enforce requirements, and determine whether the RMSD has sufficient staff to inspect and enforce the FOG ordinance.
- An identification of sewer system sections subject to FOG blockages and the establishment of a cleaning maintenance schedule for each section.
- Development and implementation of source control measures, for all sources of FOG discharged to the sewer system, for each sewer system section identified as subject to blockages.

7.2 Public Education Outreach Plan

The City has developed a public outreach program to inform residents about the impacts of FOG waste on the sewer system. The program begins with information provided on the City website, which discusses the sources of FOG and the impact of FOG on the sewer system, and provides links to fact sheets for grease traps, grease interceptors, and mechanical grease removal devices. These fact sheets are also included in Appendix F.

When a residential FOG-related SSO occurs, the City's source control staff distribute brochures, door hangers, and educational pot scrapers to the residents upstream of the SSO location to inform these residents of proper FOG control. This program may be updated/modified annually by the Source Control Superintendent based on departmental staffing. A copy of this program and example handout materials are included in Appendix F.

The City has approximately 115 food service establishments (FSE). The outreach program includes a component designed to educate the City's FSE owners and employees about minimizing FOG disposal into the sewer system, including information about best management practices for minimizing FOG. The City's program was based on materials developed by the Tri-TAC CalFOG workgroup. Program information is included in Appendix F.

7.3 FOG Disposal Plan

The requirement for proper FOG disposal is provided in RMC Section 12.18.030.2.



RMC 12.18.030.2 "Fats, Oils & Grease"

D. Best Management Practices.

- (1) Drain Screen. After March 1, 2006, drain screens shall be installed on all drainage pipes for all new food services establishments deemed by the City Manager to generate FOG.
- (2) Waste FOG:
 - (a) All waste FOG shall be collected and stored properly in recycling barrels, drums, or bins.
 - (b) Such recycling barrels, drums, or bins shall be maintained appropriately to ensure they do not leak or enter the City's stormwater collection system by direct discharge or by commingling with stormwater.
 - (c) A licensed collection service must be used to dispose of waste FOG.

Currently, grease haulers dispose of grease pumped from interceptors at a grease collection facility outside of the RMSD service area. At this time, there does not appear to be a need for additional grease disposal facilities to collect grease from the City's service area. However, the City may choose to evaluate this need further, should the need for additional grease disposal facilities become an issue in the future.

7.4 Legal Authority to Prohibit SSOs and Blockages Caused by FOG Discharge

Section 3, Legal Authority, discusses the City's authority to enforce sewer-related issues. Specifically, Richmond Municipal Code Section 12.18.020.1. B prohibits the discharge of fats, oils and grease. Only the specific subsections relevant to this requirement are listed.

RMC Section 12.18.020.1 "Prohibited Discharge Standards"

B. Specific Prohibitions. No User shall introduce or cause to be introduced into the WPCP the following pollutants, substances, or wastewater:

- (3) Solid or viscous substances, such as, but not limited to, grease, garbage with particles greater than one-half (0.5) inch in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshing, entrails, whole blood, feathers, ashes, cinders, sands, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags spent grains, spent hops, waste paper, wood, plastics, gas, tar, asphalt residues, residues from refining or processing of fuel or lubricating oil, mud, glass grindings, or



- polishing wastes, in amounts which will cause obstruction of the flow in the WPCP resulting in interference.
- (6) Petroleum oil, non-biodegradable cutting oil, or products of mineral origin, in amounts that will cause interference or pass through.

7.5 Requirements and Design Standards for Installation of Grease Removal Devices

RMC Section 12.18.030.02 includes requirements for the installation of grease removal devices, including design standards and approvals. Specific subsections are called out below.

RMC 12.18.030.2 "Fats, Oils & Grease"

A. Fats, Oils, and Grease Program.

- (1) Fats, oils, and grease interceptors:
- (a) FOG separators and grease interceptors shall be provided, at the user's expense, where, in the opinion of the City Manager, they are necessary for proper handling of wastes containing these substances in excessive amounts, or any flammable wastes or harmful ingredients. All grease interceptors shall be of a type and capacity approved by the City Manager, and shall be located so it is readily and easily accessible for inspection and cleaning.
- (5) A grease collection service shall be required for all facilities that generate FOG.

- B. Administration of FOG Program. The City shall administer a FOG program, which is intended to prevent fats, oils, and grease, and other substances that are likely to block or create a hazard within the sewer system from entering the system through use of grease interceptors or grease traps. The City may require any non-domestic user to install a grease interceptor or grease trap according to the guidelines set for in the City's Standard Specifications or other program prior to or at any time after connection to the WPCP if the City discovers or determines subsequent to the connection of the facility, the user produces a waste with characteristics that would require installation of a grease interceptor or grease trap pursuant of this chapter.

The installation of a proper grease interceptor or grease trap device shall be the responsibility of the user that applies for the connection or wastewater discharge permit. The City shall determine whether a grease interceptor, grease trap, or other interceptor is required on a case-by-case basis based on an evaluation of the following criteria including, but not limited to:



- (1) The type of facility (restaurant, bakery, cheese factory, yogurt shop, gas station, lube facility, etc.);
- (2) The volume of the user's business or operation (number of meals served, number of seats, hours of operation, etc.);
- (3) Size and nature of facilities (including kitchen facilities) based on size, type, number of fixtures, and types of processing and/or cooking equipment used;
- (4) The type of service provided or operation undertaken (such as dine-in meal service versus carry-out meal service);
- (5) The type of foods and other materials used in the cooking, processing, or manufacturing operations carried on within the user's facility;
- (6) The overall potential for grease-laden, flammable, or sand-laden discharges; and
- (7) The existence of devices, procedures, or processes which are designed to minimize the amount of grease, sand, oil, or other flammable liquids from entering the sewer system.

The design, location, and procedures for operation of a required grease interceptor or grease trap shall be approved by the City. Such approval shall be obtained prior to the user's connection of the facility to the WPCP, in the event of new construction or remodeling. In instances where a user has already connected and the City determines that a grease interceptor or grease trap must be installed, the user shall promptly provide for the installation of the device, including providing such design and operational plans as may be required. The installation of a grease interceptor or grease trap as required by this chapter on an existing user facility shall occur within a reasonable time not to exceed one hundred (100) days after the user has been provided notice that a grease interceptor or grease trap must be installed. This time limit may only be extended by the City in a written agreement.

E. Grease Separators (Traps) for Treating FOG Wastes.

- (1) Facilities that have FOG, but are not required to have a grease interceptor, must have an adequate-sized grease trap as determined by the City Manager.
- (2) Required connections to grease traps: all three compartment sinks, scullery (preparation) sinks, and pre-wash sinks at dishwashing stations.
- (3) Prohibited connections or additives to grease traps:



- (a) Final rinse discharge from automatic dishwashers/sanitizers shall not be connected to the grease trap.
- (b) Chemical additives, such as chlorinated solvents, or any other additives that causes the emulsification of grease, are strictly prohibited from use in any grease trap.

F. Grease Interceptors for Treating FOG Wastes.

- (1) Grease interceptors shall be required for new food handling facilities constructed after March 1, 2006.
- (2) Grease interceptors are required for food handling facilities that generate FOG when there is remodeling, additions, alterations, or repairs valued at or greater than what is specified in the City's fee schedule.
- (3) Effective March 1, 2006, those food handling facilities operating without a grease interceptor shall, within six (6) months of written notification by the City Manager, be required to install a grease interceptor if the City Manager determines that the food service establishment is not adhering to the BMPS set forth in Section 12.18.030.2(D) of this chapter, or that the food service establishment has caused or contributed to a sewer system blockage resulting in maintenance requirements and/or sewage spills.
- (4) All new grease interceptors shall be designed, constructed, and installed in accordance with the current City of Richmond Building and Plumbing Codes, and shall be subject to approval by the Building Regulations Department.
- (5) All submitted drawings shall be prepared by a licensed and registered professional engineer. Any false information or misleading calculations submitted shall be the responsibility of the user.
- (6) All grease interceptors shall be located such that they are readily and easily accessible for cleaning, inspection, and removal of intercepted waste.
- (7) A common grease interceptor shared by multiple businesses can be utilized if specifically authorized by the City Manager upon evidence of legal operating and maintenance agreements between the involved users.
- (8) All grease interceptors shall include an effluent sample box and a sanitary tee located on the discharge side of the sample box of a type and size approved by the City.



- (9) Inspection by the City of installed grease interceptors and piping prior to backfilling is required. Piping shall meet the requirements of the City of Richmond Building and Plumbing Code.
- (10) Grease interceptors shall have a clean-out installed after the sample box on the private lateral as required by the City of Richmond Building and Plumbing Code.
- (11) Required connections to grease interceptors: all three compartment sinks, scullery (preparation) sinks, floor drains and mop sinks along the cook line, pre-wash sinks at dishwashing stations, and all other fixtures that contribute grease into the sewer system.
- (12) No food service establishment or other identified user shall construct, remodel, or convert a grease interceptor without approval by the City.
- (13) Prohibited connections or additives to grease interceptors:
 - (a) Final rinse discharge from automatic dishwashers/sanitizers shall not be connected to the grease interceptor.
 - (b) The use of any additive such as surfactants or chemicals shall not be connected to any type of grease interceptor. Chemical additives, such as chlorinated solvents, or another other additives that cause the emulsification of grease, are strictly prohibited from use in any type of grease interceptor.

G. Waivers for Treating FOG Wastes.

- (3) A grease interceptor or grease trap may not be required for business types listed below:
 - (a) Facilities only serving beverages;
 - (b) Facilities serving beverages and/or ready-to-eat, packaged, or unpackaged items;
 - (c) Ice cream parlors without any baking or other food preparation;
 - (d) Snack bars with no food preparation other than food warming;
 - (e) Bakeries with no food preparation other than food warming; or
 - (f) Other facilities serving only ready-to-eat foods with or without food warming.



7.6 Device Maintenance Requirements

RMC Section 12.18.030.02 includes requirements for the maintenance of grease removal devices. Only the specific subsections relevant to this requirement are listed.

RMC 12.18.030.2 "Fats, Oils & Grease"

A. Fats, Oils, and Grease Program.

(1) Fats, oils, and grease interceptors:

(c) Where installed, all FOG separators or grease interceptors shall be maintained and in continuous efficient operation at all times.

(6) If significant grease accumulation (e.g., a partial blockage) is found downstream or if significant grease wicking is found upstream of the process of concern, an Authorized Inspector and/or the City Manager may inspect the facility. The inspection will include a review of the grease management program, treatment system, waste storage area, and drains not flowing to the treatment system. BMPs not in place, hauler receipts for the prior three (3) years not available, and/or training documents not current may result in future inspections with an assessed fee as published in the City's fee schedule (see Section 12.18.140).

(7) If a business is shown to be the cause of a grease-related sewer overflow, the user will be responsible for the cost of clean-up as set forth in Section 12.18.140

C. Grease Interceptor Maintenance Procedures and Program. Any user, required by the City and/or this chapter to install and/or operate a grease interceptor or grease trap, shall adequately maintain the device so that the device is in proper working order at all times. Grease and oil interceptors shall be cleaned by a licensed and permitted waste hauler on a periodic basis to assure that the grease interceptor will operated as designed at all times. Any user, required to install or have in operation a grease interceptor or grease trap pursuant of this chapter, shall have a plan of operation or program for their facility that is intended to ensure that the grease interceptor or grease trap operates as designed to prevent grease, oil, sand, or other harmful constituents from entering the sewer system. These procedures may be include adoption of kitchen practices to minimize grease-laden garbage, which may ultimately enter the facility's drains and floor traps and/or other such procedures as may be required for proper operation of the grease interceptors.

(1) Grease interceptors shall be cleaned out completely by a FOG collection service as necessary to assure that the grease interceptor will operate as designed at all times or as otherwise specified by the City.



- (2) Decanting or discharging of removed waste back into the grease interceptor, for the purpose of reducing the volume to be hauled, is prohibited.
- (3) The use of additives, directly or indirectly to the plumbing or sewer system, to emulsify grease and/or oil, is specifically prohibited.
- (4) The use of biological additives as a supplement to grease interceptor maintenance, including the addition of microorganisms, may be authorized by the City Manager. Approval shall be obtained (in writing) prior to use of such additives.
- (5) Maintenance records indicating date of service, volume pumped, name of waste hauler, and waste disposal location for each pumping of the grease interceptor must be kept for a minimum of three (3) years. The records must be provided to the City Manager when requested during normal business hours.
- (6) All waste removed from a grease interceptor must be disposed of at a facility permitted by Contra Costa County or other applicable regulatory agencies to receive such waste. Pumped out FOG shall not be returned to the sewer system, nor any private wastewater system, nor storm drains.
- (7) Any fixture connected to a grease interceptor shall have a non-removable, secured food strainer of such integrity so as to withstand daily operational usage.

E. Grease Separators (Traps) for Treating FOG Wastes.

- (6) A maintenance log for the grease trap must be kept for a minimum of three (3) years and must be provided at the request of the City.

F. Grease Interceptors for Treating FOG Wastes.

- (6) All grease interceptors shall be located such that they are readily and easily accessible for cleaning, inspection, and removal of intercepted waste.

7.7 BMP Requirements, Recordkeeping and Reporting

BMP requirements are included in the following section of the RMC:

RMC 12.18.030.2 D "Best Management Practices"

- (1) Drain Screen. After March 1, 2006, drain screens shall be installed on all drainage pipes for all new food services establishments deemed by the City Manager to generate FOG.
- (2) Waste FOG:



- (a) All waste FOG shall be collected and stored properly in recycling barrels, drums, or bins.
 - (b) Such recycling barrels, drums, or bins shall be maintained appropriately to ensure they do not leak or enter the City's stormwater collection system by direct discharge or by commingling with stormwater.
 - (c) A licensed collection service must be used to dispose of waste FOG.
- (3) Food Waste. All food waste shall be disposed of directly into the trash or garbage and not in sinks.
- (4) Employee Training:
- (a) Employees of food service establishments shall be trained within three (3) months after the effective date of this chapter, and two (2) times each calendar year thereafter, on the following subjects:
 - (i) How to "dry wipe" pots, pans, dishware, and work areas before washing to remove FOG.
 - (ii) How to properly dispose of food waste and solids in enclosed plastic bags prior to disposal in trash bins or containers to prevent leaking and odors.
 - (iii) The location and use of absorption products to clean under fryers and other locations where grease may be spilled or dripped.
 - (b) Training shall be documented and employee signatures retained, indicating each employee's attendance and understanding of the practices.
 - (c) Training records shall be available for review at any reasonable time by an Authorized Inspector and/or the City Manager.
- (5) Kitchen exhaust filters shall be cleaned as frequently as necessary in order to maintain good operating condition.
- (6) All BMPs shall be posted conspicuously in the food preparation and dishwashing areas and process areas at all times.

7.8 Authority to Inspect Grease Producing Facilities and Enforce Requirements

The following sections of the RMC provide authority to inspect facilities and enforce requirements. Only the specific subsections relevant to this requirement are listed.



RMC 12.18.030.2 "Fats, Oils & Grease"

A. Fats, Oils, and Grease Program.

- (2) These facilities must have a FOG Management Program Permit. An Authorized Inspector and/or the City Manager shall have right of entry as described in Section 12.18.070.1 of this chapter.
- (3) Fees, charges, and penalties are pursuant of Section 12.18.140 of this chapter.
- (6) If significant grease accumulation (e.g., a partial blockage) is found downstream, or if significant grease wicking is found upstream of the process of concern, an Authorized Inspector and/or the City Manager may inspect the facility. The inspection will include a review of the grease management program, treatment system, waste storage area, and drains not flowing to the treatment system. BMPs not in place, hauler receipts for the prior three (3) years not available, and/or training documents not current may result in future inspections with an assessed fee as published in the City's fee schedule (see Section 12.18.140).

E. Grease Separators (Traps) for Treating FOG Wastes.

- (6) A maintenance log for the grease trap must be kept for a minimum of three (3) years and must be provided at the request of the City.

F. Grease Interceptors for Treating FOG Wastes.

- (4) All new grease interceptors shall be designed, constructed, and installed in accordance with the current City of Richmond Building and Plumbing Codes, and shall be subject to approval by the Building Regulations Department.
- (9) Inspection by the City of installed grease interceptors and piping prior to backfilling is required. Piping shall meet the requirements of the City of Richmond Building and Plumbing Code.
- (12) No food service establishment or other identified user shall construct, remodel, or convert a grease interceptor without approval by the City.

7.9 Sewer Sections Subject to FOG Blockages

SSOs due to FOG are reported in CIWQS. Appendix F contains a table with locations of FOG-related SSOs from 2014 to present.



The City's Source Control Superintendent manages response, outreach activities, and maintains records of the response activities for FOG-related SSOs. This information is updated annually.

Appendix F – Element 7 Documents

Appendix F includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix F may have been superseded. Please contact the Water Resource Recovery Director for the most recent updates to the Appendix F documents.

- Fats, Oils and Grease Policy (RMC §12.18.020.2)
- FOG Control Program Including City Handouts and Public Outreach Materials
- FOG Related SSOs reported in CIWQS and Source Control Activities tables 2014 – Present.



ELEMENT 8 - SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

This section of the SSMP discusses the RMSD's activities related to capacity management. This section fulfills the Capacity Management requirements for the RWQCB and the SWRCB elements.

8.1 RWQCB and SWRCB SSMP Requirements

8.1.1 RWQCB Requirement

The RMSD must prepare a CIP to provide hydraulic capacity of key collection system elements under peak flow conditions.

8.1.2 SWRCB Requirement

The RMSD must prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements from dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. At a minimum, the plan must include:

- **Evaluation:** Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events;
- **Design Criteria:** Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria; and
- **Capacity Enhancement Measures:** The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.
- **Schedule:** The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the Sewer System Management Plan (SSMP) review and update requirements as described in Section D. 14.

8.2 System Evaluation and Capacity Assurance Plan



8.2.1 Pipeline Capacity Assessment and Capital Improvement Plan

The contract between the City and Veolia required Veolia to complete a capacity assurance plan and establish a prioritized CIP to address capacity needs in the sewer collection system. In 2010, Veolia Water completed an updated Sewer Collection System Master Plan (Master Plan) that addressed pipeline capacity issues. The Master Plan was adopted by City Council in 2011, and used a calibrated fully dynamic hydraulic model developed in Innovyze® Infoworks™ CS. The hydraulic model can be used to evaluate future pipeline capacity issues, and to further evaluate collection system pump station performance.

The hydraulic model was used to predict sewer system pipelines that would have capacity constraints leading to SSOs during a 10-year, 24-hour design storm. The model also predicts peak hourly system flow that would be conveyed by the system during the design storm, provided the predicted SSOs are addressed.

The predicted SSO locations are in areas of the system that have known SSOs. However, because recorded SSO data is related to storm events that are not identical to the theoretical design storm event in magnitude, intensity, and rainfall distribution, there is some difference between predicted and actual system behavior.

The Master Plan includes a description of the RMSD 2009/10 flow monitoring program and two subsequent flow monitoring projects that were conducted by Veolia for the City. The results from these projects were collectively used to estimate the proportion of inflow and infiltration (I&I) that enters the sewer system during a wet weather event. The flow monitoring program identified various sources of I&I, including groundwater, tidal influence, and permitted dry weather industrial stormwater discharges (this program is being discontinued by the City). The Master Plan also establishes design criteria for use in evaluating system capacity, and for sizing new pipelines.

The Master Plan includes a short- (one to five year) and long-term (10 year) capital improvement plan (CIP) to address predicted pipeline hydraulic deficiencies under the design storm event. The CIP evaluates, assigns costs, and prioritizes recommended projects. The CIP implementation schedule is focused on maximizing the success in achieving the capacity-related SSO reduction requirements of the settlement agreement between the City and San Francisco Baykeeper.

The CIP includes recommended capacity increases, pipeline rehabilitation and replacement to reduce system-wide I&I, and wet weather relief and storage. The CIP is used to help provide justification for, and subsequently receive funding from the City's bond funds and sewer service charges.



Figure 8-1 is found at the end of this section. This figure reproduces the CIP presented in Table 9-1 of the Master Plan. The CIP is in the process of being updated as part of the City’s annual budgeting process.

8.2.2 Pump Station Capacity Assessment and Capital Improvement Plan

Flows generated by the system hydraulic model were compared to firm pump station capacity (i.e., with the largest pump out of service) as listed in the City’s 2006 master plan report and confirmed by Veolia. Based on this information, all of the modeled pump stations have sufficient capacity to convey flows from the 10-year, 24-hour design storm, as shown in Table 8-1.

| Table 8-1. RMSD Pump Station Capacities | | |
|---|---|-------------------------|
| Pump Station | Firm Capacity from 2006 Master Plan (gpm) | Design Storm Flow (gpm) |
| Keller Beach | 780 | 174 |
| Ferry Point | 450 | 331 |
| ICI | 440 | 245 |
| Marina Bay Cove | 440 | 46 |
| Marina Bay Parkway | 4200 | 2646 |

8.3 Design Criteria

The City uses a 10-year, 24-hour design storm, using National Oceanographic and Atmospheric Administration (NOAA) precipitation data and a SCS-1A rainfall distribution curve. Pipes were considered under-capacity if the hydraulic model predicted an SSO under this design storm. Pump stations were considered under-capacity if they were unable to convey peak flows from this storm with the largest pump out of service.

8.4 Capacity Enhancement Measures

The recommended capacity improvement projects are included in the previously described CIP. These improvements include specific projects to upsize pipelines and the addition of wet weather storage.

8.5 Capital Improvement Program Budget and Schedule

The City’s fiscal year 2017/18 budget and schedule are included in the City’s annual budget, the relevant pages of which are provided in Appendix G.



Appendix G – Element 8 Documents

Appendix G includes the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix G may have been superseded. Please contact the Water Resource Recovery Director for the most recent updates to the Appendix G documents.

- Master Plan Executive Summary



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Figure 8-1. Capital Improvement Program
(From Sewer Collection System Master Plan Table 9-1)

| Table 9-1. City of Richmond Sewer Collection System Capital Improvement Program | | | | | | | | | | | | |
|---|---|---------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Project Name | Estimated Cost | Fiscal Year | | | | | | | | | | |
| | | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | |
| R&R Priority | | | | | | | | | | | | |
| 1 | Stormwater Inflow Abatement | \$10,600,000 | 1,060,000 | 1,060,000 | 1,060,000 | 1,060,000 | 1,060,000 | 1,060,000 | 1,060,000 | 1,060,000 | 1,060,000 | 1,060,000 |
| 2 | Cypress Point Sewer Replacement | \$ 300,000 | 300,000 | | | | | | | | | |
| 3 | Keller Beach Interceptor Replacement | \$ 5,670,000 | 567,000 | 1,000,000 | 1,367,667 | 1,367,667 | 1,367,667 | | | | | |
| 4 | Ongoing R&R Projects | \$ 7,000,000 | | | | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 |
| 5 | Inaccessible R&R Projects | \$ 4,750,000 | 2,375,000 | 1,187,500 | 1,187,500 | | | | | | | |
| | Subtotal R&R | \$28,320,000 | \$4,302,000 | \$3,247,500 | \$3,615,167 | \$3,427,667 | \$3,427,667 | \$2,060,000 | \$2,060,000 | \$2,060,000 | \$2,060,000 | \$2,060,000 |
| Capacity Project | | | | | | | | | | | | |
| 1 | Hensley Street Pipelines | \$16,117,000 | 1,611,700 | 7,252,650 | 7,252,650 | | | | | | | |
| 2 | Hensley Street Storage | \$24,544,000 | 2,454,400 | 11,044,800 | 11,044,800 | | | | | | | |
| 3 | Cutting and Hoffman Boulevard Capacity Improvements | \$7,639,000 | 763,900 | 3,437,550 | 3,437,550 | | | | | | | |
| 4 | First Street, MacDonald and Virginia Avenue Capacity Improvements | \$7,691,000 | | | 769,100 | 6,921,900 | | | | | | |
| 5 | San Pablo and Carlson Capacity Improvements | \$4,236,000 | | | | 423,600 | 3,812,400 | | | | | |
| n/a | Emergency Projects ^(a) | \$10,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 |
| | Subtotal Capacity | \$70,227,000 | 5,830,000 | 22,735,000 | 23,504,100 | 8,345,500 | 4,812,400 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 |
| | Total CIP | \$98,547,000 | 10,132,000 | 25,982,500 | 27,119,267 | 11,773,167 | 8,240,067 | 3,060,000 | 3,060,000 | 3,060,000 | 3,060,000 | 3,060,000 |
| ^(a) Includes South Harbour Overflow Mitigation Project | | | | | | | | | | | | |





ELEMENT 9 - MONITORING, MEASUREMENT AND PROGRAM MODIFICATIONS

This section of the SSMP discusses the RMSD Monitoring, Measurement, and Program Modifications. This section fulfills the Monitoring, Measurement, and Program Modifications requirements for the RWQCB and the SWRCB elements.

9.1 RWQCB and SWRCB SSMP Requirements

The requirements for the Monitoring, Measurement, and Program Modifications element of the SSMP are summarized below.

9.1.1 RWQCB Requirement

The RMSD must monitor the effectiveness of each SSMP element and update and modify SSMP elements to keep them current, accurate, and available for audit as appropriate.

9.1.2 SWRCB Requirement

The RMSD shall:

- Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities.
- Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP.
- Assess the success of the preventative maintenance program.
- Update program elements, as appropriate, based on monitoring or performance evaluations.
- Identify and illustrate SSO trends, including SSO frequency, location, and volume.

9.2 Maintenance of Relevant Data

The RMSD maintains complaint and blockage records in electronic format, maintains electronic logs of cleaning, repairs, other preventive maintenance activities, and records problems (e.g., excessive debris, observed manhole defects) identified through regular sewer maintenance activities on special report forms within the CMMS. This information is used to establish and prioritize appropriate SSMP activities.

9.3 Monitoring and Assessment

The RMSD tracks the following parameters with which to measure the effectiveness of the SSMP and its effectiveness in reducing SSOs:



- Number of SSOs per year
- Volume of SSOs per year
- Number of SSOs per year by cause
- Number of dry weather SSOs per year
- Response time to SSOs and other service calls (time from call received to time First Responder arrived on site)
- Length of gravity sewers cleaned annually (at least one time and in total)
- Length of gravity sewers CCTV inspected annually (at least one time and in total)
- Record of pump station maintenance work orders completed annually
- Footage of sewer mainlines rehabilitation

The SSMP will be audited as described in Element 10 SSMP Audits, based on this performance data.

9.4 Utility Metrics to Measure Progress and Prioritize Activities

The RMSD has established the preventive maintenance sewer metrics that are shown in Table 9-1 for the City and Veolia's use in monitoring, measuring and adjusting sewer maintenance activities. The City's responsibilities pertain to source control and claims, and Veolia is responsible for monitoring and measuring progress in sewer system performance.



Table 9-1. Success Factors and Metrics

| Sewer Maintenance Success Factor | Metric |
|-------------------------------------|---|
| • System Pipes | • Miles |
| • Sewer Maintenance Field Staff | • Full Time Equivalentents (FTE) |
| • Pipes Initially Cleaned | • Miles/Year |
| • Pipes Re-cleaned | • Miles/Year |
| • Pipe Inspected (CCTV) | • Miles/Year |
| • Manholes Inspected | • Miles/Year |
| • Hot Spots Cleaned | • Number by Underlying Cause (Roots, Debris, FOG, Structural) |
| • SSOs | • Number by Underlying Cause per 100 Miles |
| • Repeat SSOs | • Number by Address |
| • Response Time | • Minutes per SSO after Notification |
| • Pump Station Overflows | • Number by Cause |
| • Odor Complaints | • Number |
| • FSE Inspections | • #/Year |
| • Laterals Replaced (LRGP) | • #/Year |
| • Pipe Replaced | • Miles/Year |
| • Claims | • #/Year and \$/Year/Incident |

9.5 Performance Monitoring and Program and Modifications

The City will evaluate the performance of its SSMP on a biennial basis using the performance indicators noted in Section 9.3. Any operational changes that are made to improve specific performance indicators will be documented in the SSMP Audit and reflected in the revised language of the SSMP. Element 10 discusses the SSMP Audit process in detail.

9.6 SSO Trends – Frequency, Location and Volume

Table 9-2 summarizes the nature of reported SSOs from 2011 – 2016. Between 2011 and 2012, SSOs decreased in number and volume. Most of the volume reported was discharged through the City’s two engineered overflow structures. The City completed construction of a five (5) million gallon wet weather storage facility in October 2015. This was to in order to cease the use of the overflow structures (weirs) during wet weather events with a magnitude less than the design



storm. The wet weather facility went on line early 2016. The overflow weirs were not used in 2016.

Table 9-2. Summary of SSOs from 2011 through 2017

| Year | Roots | FOG | Debris | Structural & Other | Capacity | Total (#) | Recovered Vol (gal) | Lost Volume (gal) | Total Volume (gal) |
|------|-------|-----|--------|--------------------|----------|-----------|---------------------|-------------------|--------------------|
| 2011 | 3 | 7 | 7 | 5 | 27 | 49 | 1911 | 14,644,544 | 14,657,455 |
| 2012 | 8 | 6 | 7 | 5 | 20 | 46 | 4,844 | 7,425,826 | 7,430,670 |
| 2013 | 4 | 7 | 9 | 9 | 0 | 29 | 28,975 | 68,755 | 97,730 |
| 2014 | 5 | 10 | 9 | 2 | 8 | 34 | 16,095 | 2,827,137 | 2,843,359 |
| 2015 | 6 | 8 | 3 | 4 | 0 | 21 | 5,684 | 3,405 | 9,142 |
| 2016 | 6 | 6 | 5 | 3 | 26 | 46 | 2,382 | 644,632 | 647,654 |



Appendix H – Element 9 Documents

There are no Appendix documents to accompany Section IX. However, this Appendix H is included as a placeholder for future documents.



ELEMENT 10 - SSMP PROGRAM AUDITS

This section of the SSMP discusses plans for required self-audits of the SSMP. This section fulfills the SSMP Audit requirement for the RWQCB and the SWRCB elements.

10.1 RWQCB and SWRCB SSMP Requirements

The requirements for the SSMP Audits element of the SSMP are summarized below:

10.1.1 RWQCB Requirement

The RMSD must conduct a biannual audit of the SSMP that includes any deficiencies and steps to correct them that are appropriate to the size of the RMSD system and the number of overflows. The RMSD must submit a report of its biannual audit, as described in the updated SSMP audit requirements issued in October 2012.

10.1.2 SWRCB Requirement

The RMSD shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the RMSD's compliance with the SSMP requirements, including identification of any deficiencies in the SSMP and steps to correct them.

10.2 Audit Procedures, Roles and Responsibilities

The RMSD will prepare a biannual SSMP audit to keep on file. The proposed audit format is included in Appendix I.

10.3 SSMP Program Modification/Update Process

If the biannual audit identifies significant changes to be made to the SSMP, then the SSMP will be updated by September 30th. However, it is anticipated that the main SSMP document will remain generally unchanged, and that any changes will be recorded in the SSMP Change Log, which is included in Appendix I.

Appendix I – SSMP Program Audit Documents

Appendix I include the following documents related to this section. The information in these documents will change from time to time, and the documents in Appendix I may have been superseded. Please contact the Water Resource Recovery Director for the most recent updates to the Appendix I documents.

- Audit Form



- SSMP Change Log
- Completed audits



ELEMENT 11 - COMMUNICATION PLAN

This section of the SSMP discusses the City's Communication plan. This section fulfills the Communication Plan requirements for the SWRCB element. There is no requirement in the RWQCB guidelines.

11.1 RWQCB and SWRCB SSMP Requirements

The requirements for the Communication Plan element of the SSMP are summarized below:

11.1.1 RWQCB Requirement

No requirement.

11.1.2 SWRCB Requirement

The City shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the City as the program is developed and implemented. The City shall also create a plan of communication with systems that are tributary and/or satellite to the sanitary sewer system.

11.2 Communication Plan

The City does not currently have a formal communication plan in place for the communication of SSMP elements, performance, or updates. However, the City has a comprehensive library of documents that are available to the public through the "Wastewater" page of the City website. The SSMP will be added to this library for access by the public, and a clear link to the document will be provided on the website to facilitate access to the document. The public has the opportunity to comment on the SSMP at Council meetings, which are open to the public and held at least twice per month.

Appendix J – Communication Plan Documents

There are no Appendix documents to accompany Section IX. However, this Appendix J is included as a placeholder for future documents.