STAFF REPORT
SAUSALITO CITY COUNCIL

AGENDA TITLE:

Utilization of Consultant Services to Respond to EPA Compliance Order – Reports Due October 15, 2008

RECOMMENDED MOTION:

Authorize the City Manager to enter into an agreement with Sausalito Marin Sanitary District to prepare a response.

SUMMARY

On April 10th, the Federal Environmental Protection Agency issued a Findings of Violation and Order for Compliance. Named in this document are the City of Sausalito (City), Sausalito Marin City Sanitary District (SMCSD), and Tamalpais Community Services District (TCSD). The order requires the preparation of numerous action plans.

Many of these plans must be developed and submitted by October 15, 2008. The plans, when implemented, require the three agencies to better coordinate and to increase service levels.

Staff believes it is prudent to enter into an agreement with SMCSD to fund work that responds to the October 15, 2008 EPA deadlines.

BACKGROUND

A copy of the EPA Order is attached. No less than 13 tasks must be started by October 15, 2008. Many tasks are significant changes in operations and are complex in nature. Full implementation is expected to take several years.

Given the mandate to coordinate, the complexity of the tasks to be completed, and limited staffing, agency staff were directed by agency sewer committees to seek proposals to assist in preparing a response to the EPA Order by October 15.

A proposal from RMC Water and Environment (RMC) was submitted is both compelling and daunting in total cost. RMC was recently retained by the group of Agencies served by the Sanitation Agency of Southern Marin (SASM) sewage treatment plant. The SASM agencies are under a similar though separate EPA Order. TCSD is named in

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both EPA Orders. RMC's July 2, 2008 Proposal is attached. Since this proposal was submitted City staff has learned of TCSD staff recommendation to not to participate in funding of this RMC proposal. A new proposal is being developed and is expected to be handed to Council Members on July 15, 2008.

OPTIONS

1. Enter into an Agreement with Sausalito Marin City Sanitary District to fund consultant costs incurred to address the City of Sausalito's Order Requirements. RMC Water and Environment is expected to be hired by Sausalito Marin City Sanitary District as the consultant.

2. Enter into an Agreement with RMC Water and Environment directly to prepare the City's Order requirements.

3. Enter into an Agreement with a consultant as yet un-named to prepare the City's Order requirements.

ISSUES

Time: Staff believes that action is required, now, on the matter of responding to the EPA Order. Waiting until September or later to work out the details may result missing deadlines. Punitive actions could be taken and increased regulation could be imposed. The Council Sewer Committee has supported the idea of a consultant working for the three named agencies to respond to the October 15, 2008 deadlines. The Sewer Committee has conceptually supported the idea of approving a simple and limited funding agreement with SMCSD for the 2008 response to the EPA order. The full details of that agreement haven't been worked out and as a result a draft agreement is not attached.

Scope: The July 2, 2008 RMC proposal is for three years of support. Staff believes that level of effort is inappropriate at this time. City staff supports a Consultant effort that gets work performed to enable timely response to the October 15, 2008 deadlines. Subsequent work will depend on decisions that will be made in the future. Staff believes it is appropriate to defer such actions until the agency committees and governing board have evaluated the matter more closely. RMC is revising their proposal to respond to recently provided guidance. This proposal is expected to be ready on July 15, 2008. It is expected to be reviewed by the Sewer Committee that day.

Consultant vs. In-House - The City, SMCSD, and TCSD are small agencies. Given current priorities, staffing levels, and work load, City staff lack the resources to directly respond to the Order. Staff believes that a consultant response serves the City's interests best at this time. If staff is to be used reprioritization of all other projects and

activities would need to occur. Such an effort is anticipated to incur many challenges including added delay in project delivery and added expense for consultant project orientation.

Funding Agreement with SMCSD or Direct Agreement with RMC - At this time, staff believes a coordinated approach is useful. It shows the EPA the City's commitment to coordination with the other named agencies to respond to the Order and to begin to solve identified sewer problems. Staff believes the plans developed by October 15, 2008 will not represent fully developed and detailed management, operational, and organization plans. Staff expects that the response will be a report that includes analyses of each agencies operations, provide an expert status report of compliance with Order elements, report on preliminary plans for operational changes, and identify recommendations or suggestions for improved coordination.

Entering into an agreement with SMCSD will enable RMC to manage the Order Response as a single project rather than as multiple projects. The conditions of a funding agreement can be crafted to address concerns about editorial tone, content and response structure. SMCSD currently is contracted with TCSD. TCSD is expected to fund costs of preparing the response through that agreement (TCSD has expressed their intent to use documents prepared under the SASM agreement for this effort. TCSD is named under two EPA Compliance Orders as a portion of their waste water is treated by SASM). The City Engineer does not believe that preparing a joint October 15, 2008 response with an Agreement between SMCSD and RMC will create any change of control of the City's Sewer Enterprise, unless the City actively agrees to such changes.

The City could elect to hire RMC separately. The City recently awarded a contract to them to do an Infiltration and Inflow study. This agreement could be amended to include preparing the EPA Compliance Order response or a separate agreement could be executed. Contracting with RMC individually could send the message to the EPA that the City's commitment to coordinate is questionable. The City Engineer doesn't believe that significant benefits will result from contracting separately. Too, there are many examples of the City delegating responsibility in other areas of services (Transportation, Richardson's Bay, Signal and Streetlight maintenance, Risk Management).

SMCSD could enter into an agreement with the City where the City contracts with RMC. SMCSD staff are full time managers of sanitary treatment plant. Several SMCSD staff have experience with both treatment plant and collection system operations. City staff are part-time managers. City staff believes that the additional experience of the SMCSD staff makes them more capable to manage this effort. Even if SMCSD were to agree to let the City contract with RMC, a funding agreement with TCSD also needs be prepared. To date, no discussions have occurred regarding such an arrangement. Staff believes that both SMCSD and TCSD would be reluctant to agree to such an arrangement. Even if these agencies agreed to City Management, valuable time would

be required to work out the details. Staff believes that the effort will require more time than is available.

RMC or another Consultant: Consultant contracts are awarded on qualifications rather than price. Nonetheless costs do factor into decisions to hire qualified consultants. SMCSD had solicited a proposal from Monica Oakley, a respected Sanitary Sewer Agency consultant experienced with Marin County agencies. Though qualified, the expensive cost estimate surprised SMCSD staff. In response SMCSD staff contacted nearby agencies to identify other firms to solicit proposals. Through that effort it was learned that SASM had hired RMC. SMCSD had previously used RMC on its wet weather conveyance analysis. There is a level of comfort and satisfaction that RMC can prepare a superior response to the EPA order.

Partnering with SASM on EPA Response: - Additional economies of scale might be expected if the City, SMCSD, and TCSD joined with SASM on preparing an EPA response. However, given the collection system layouts, topography, past efforts to coordinate, staff believes that to partnering with the SASM agencies at this time is premature. The SASM agencies have hired RMC to respond to their order. Assembly member Huffman is beginning a dialog between the lower Marin Sanitation Agencies.

Status: The City and other named agency's sewer (or EPA Order) committees have met on several occasions since April to discuss coordination and response to the EPA order. There has been agreement that some degree of coordinated response is desirable. Beyond that initial October 15 response to the EPA Order there currently isn't agreement. Discussions are continuing. Staff will provide an verbal overview of the efforts if requested. Sewer Committee members may provide additional comments.

FISCAL IMPACT

None to the General Fund.

At this time cost estimates are best guess amounts. The work will be done on a time and materials basis. Cost control can be had by setting funding limits. Staff is suggesting that that limit be set at $65,000. Funds are recommended to come from the Sewer Fund. The 2009 Budget included a Supplemental request of $100,000 to respond to the EPA Order. Staff recommends these resources be used.

RMC has indicated their ability and willingness to separately account for costs for efforts exerted on each agencies behalf. Costs to the City for its compliance effort are not expected to subsidize TCSD or SMCSD compliance efforts.

STAFF RECOMMENDATIONS

Accept the above report. Adopt a motion:

1. Authorizing the City Manager to execute on behalf of the City a limited funding agreement with Sausalito Marin City Sanitary District for a joint City/District October 15, 2008 response to the EPA Order for Compliance.
2. Authorize the appropriation of Sewer Fund resources, not to exceed $65,000.
3. Authorizing the City Attorney to review and approve to form a limited funding agreement with Sausalito Marin City Sanitary District. The agreement shall not exceed $65,000 without additional Council authorization.

Alternative actions:

1a. Authorize the City Manager to execute an agreement with RMC Water and Environment to prepare a Sausalito response to the EPA Order for Compliance.
2a. Authorize the appropriation of Sewer Fund resources, not to exceed $65,000.

1b. Authorize the City Manager to execute an agreement amendment with RMC Water and Environment to prepare a Sausalito response to the EPA Order for Compliance.
2b. Authorize the appropriation of Sewer Fund resources, not to exceed $65,000.

ATTACHMENTS

EPA Order
July 2, 2008 RMC Proposal

PREPARED BY:

Todd Teachout

Todd Teachout, City Engineer

REVIEWED BY (Department Head):

for Vacant, Director of Public Work

REVIEWED BY

Louise Ho, Finance Director

SUBMITTED BY:

Adam W. Politzer
City Manager

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX

IN THE MATTER OF:	)	Docket No.: CWA-309(a)-08-031
	)	
	)	
Sausalito-Marin City Sanitary District	)	
	)	**FINDINGS OF VIOLATION**
Tamalpais Community Services District	)	**AND**
	)	**ORDER FOR COMPLIANCE**
The City of Sausalito	)	
	)	
	)	Proceeding under Sections 308(a) and
	)	309(a) of the Clean Water Act, 33
	)	U.S.C. §§ 1318 and 1319(a)
	)	

STATUTORY AUTHORITY

The following Findings of Violation are made and Order for Compliance issued pursuant to the authority vested in the Administrator of the United States Environmental Protection Agency (EPA) under Sections 308(a) and 309(a) of the Clean Water Act (Act), as amended, 33 U.S.C. §§1318(a) and 1319(a). The Administrator has delegated these authorities to the Regional Administrator of EPA, Region IX, who has in turn delegated them to the Director of the Water Division of EPA, Region IX. Notice of this action has been given to the State of California Regional Water Quality Control Board, San Francisco Bay Region ("Regional Board").

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FINDINGS OF VIOLATION

On the basis of the following facts, the Director of the Water Division of EPA, Region IX, finds that Sausalito-Marin City Sanitary District, Tamalpais Community Services District, and the City of Sausalito are in violation of Section 301(a) of the Act, 33 U.S.C. §§ 1311(a).

1. Section 301(a) of the Act, 33 U.S.C. § 1311(a), prohibits the discharge of pollutants into navigable waters of the United States except in compliance with various sections of the Act, including section 402 of the Act, 33 U.S.C. § 1342.

2. Section 402 of the Act establishes the National Pollutant Discharge Elimination System ("NPDES"). Pursuant to Section 402 of the Act, the State of California, through its various Regional Water Quality Control Boards, may issue NPDES permits for the discharge of pollutants into navigable waters located within the State of California.

3. "Pollutants" means, among other things, "sewage". 33 U.S.C. § 1362(6). A point source means any discernable, confined and discrete conveyance, including but not limited to any pipe or other conduit, from which pollutants are or may be discharged. 33 U.S.C. § 1362(14). "Navigable waters" means the "waters of the United States," which include all waters used in interstate commerce, including tidal waters and their tributaries. 33 U.S.C. § 1362(7); 40 C.F.R. §§ 122.3, 230.3(s).

4. The Sausalito-Marin City Sanitary District ("SMCSD"), Tamalpais Community Services District ("TCSD"), and the City of Sausalito ("Sausalito") are each a person in the context of section 502(5) of the Act. See 33 U.S.C. §§ 1362(4), 1362(5).

5. Tamalpais Community Services District (TCSD) operates a separate sanitary sewage collection system that collects sewage from approximately 2,500 connections, servicing a population of approximately 5,851 in southern Marin County. TCSD's collection system includes approximately 27 miles of sewage pipes, less than one mile of force main, and 2 pump stations. Sewage collected by TCSD's collection system, except that from the area known as Kay Park, is pumped to a sewage collection system operated by SMCSD and thereafter conveyed for treatment at the SMCSD Wastewater Water Treatment Plant ("WWTP"). Sewage from about 140 Equivalent Domicile Units ("EDUs") in Kay Park flows to the sewage collection system operated by Sewerage Agency of Southern Marin and thereafter conveyed for treatment at the Sewerage Agency of Southern Marin Wastewater Treatment Plant. Discharges from the SASM wastewater treatment plant into Raccoon Strait (Central San Francisco Bay) are regulated under Order R2-2007-0056 (NPDES permit No. CA0037711).

6. The City of Sausalito operates a separate sanitary sewage collection system that collects sanitary sewage from approximately 6,200 connections servicing a population of approximately 7,454 in southern Marin County. Sewage collected by Sausalito's collection system is conveyed to the sewage collection system operated by SMCSD and thereafter conveyed to SMCSD's WWTP for treatment.

7. SMCSD operates a collection system that collects sewage from approximately 2,000 connections and services a population of approximately 18,000 in southern Marin County. SMCSD's collection system includes approximately 7.0 miles of sewage pipes and 3.8 miles of force main. SMCSD's collection system collects sewage from the City of Sausalito, a portion of Tamalpais Community Services District, and from Golden Gate National Recreation Area. SMCSD discharges treated wastewater from the SMCSD WWTP to San Francisco Bay.

8. On July 19, 2000, SFRWQCB adopted "Order 00-060, NPDES Permit No. CA0038067" ("2000 Permit"). The 2000 Permit became effective on July 19, 2000 and expired on July 19, 2005. The 2000 Permit served as an NPDES Permit issued to SMCSD, and authorized discharges only in accordance with the conditions set forth in the 2001 Permit.

9. Discharge Prohibition A.2 of the 2000 Permit states that "The bypass or overflow of untreated wastewater to waters of the State, either at the treatment plant or from the discharger's collection system or pump stations tributary to the treatment plant, is prohibited..."

10. On August 8, 2007 SFRWQCB adopted "Order R2-2007-0054, NPDES Permit No. CA0038067" ("2007 Permit"). The 2007 Permit serves as an NPDES Permit issued to SMCSD, and authorizes discharges only in accordance with the conditions set forth in the 2007 Permit.

11. Paragraph III.E. of the 2007 Permit prohibits "any sanitary sewer overflow that results in a discharge of untreated or partially treated wastewater to waters of the United States."

12. By letter dated November 15, 2004, the Regional Board notified sewer system authorities within its region of new requirements for reporting sanitary sewer overflows (SSOs), including requirements to electronically report SSOs to the Regional Board and to provide an annual report of all SSOs by a schedule set forth in the letter.

13. On May 2, 2006, the California State Water Resources Control Board adopted Order No. 2006-0003-DWQ, Statewide General Discharge Requirements for Sanitary Sewer Systems (2006 Order). The 2006 Order requires districts and other public entities that own or operate sanitary sewer systems to develop sewer system management plans, and comply with various other compliance and reporting requirements, as set forth in the 2006 Order. SMCSD, TCSD, and Sausalito are each required to comply with the 2006 Order. See, 2006 Order, p. 1.

14. By letter dated September 29, 2006, the Regional Board notified sewer system authorities within its region of changes in requirements for electronic reporting of SSOs. The letter requested sewer system authorities to electronically report SSOs to the Regional Board through May 1, 2007, and then begin reporting SSOs to the statewide system on May 2, 2007 as required in the 2006 Order. See 2006 Order, p. 17

15. Numerous SSOs have occurred from the collection systems of SMCSD, TCSD, and the City of Sausalito. EPA has reviewed the SSO eReporting Program Database Records (from December 1, 2004 to May 2, 2007) as maintained by the Regional Board; information available from the California Integrated Water Quality System's Public Reports as maintained by the State Board; and Annual Reports of SSOs submitted to the Regional Board by SMCSD, TCSD, and the City of Sausalito, as required by the Regional Board's letter dated November 15, 2004.

16. Based upon its review of those records and reports, EPA finds that sewage spills occurred from collection systems operated by SMCSD, TCSD, and the City of Sausalito as follows:

    a. Between December 2004 and February 2008, 28 sewage spills occurred from the TCSD collection system. Eight of those spills were reported as spills to either surface waters or storm drains. A summary of spills from TCSD's collection system is provided in Attachment 1.

    b. Between December 2004 and February 2008, 21 sewage spills occurred from the City of Sausalito collection system. Six of these spills were reported as spills to either surface waters or storm drains. A summary of spills from the City of Sausalito's collection system is provided in Attachment 1.

    c. Between December 2004 and February 2008, SMCSD experienced 9 spills. Five of these spills were reported as spills to either surface waters or storm drains. A summary of spills from SMCSD's collection system is provided in Attachment 1.

17. Based upon its review of those records and reports, EPA further finds that various spills from the sewage collection systems operated by SMCSD, TCSD, and the City of Sausalito have been caused, and resultant public health and environmental impacts have been exacerbated, by excessive infiltration and inflow into those collection systems and by inadequate control of blockages within those systems.

18. In a report submitted to EPA dated August 15, 2007, SMCSD indicated three SSOs occurred from its collection system during the period from December 2004 through May 2007, the causes of which were excess inflow and infiltration during periods of rainfall. The report indicates that the inflow and infiltration "originates in collection systems owned by satellite collection system agencies".

19. On January 25, 2008, SMCSD reported a spill of wastewater citing the cause as "excess wet weather flows surcharged collection system and flow exceeds capacity of system". The report indicates that 63,000 gallons of untreated wastewater was discharged from two manholes to a storm drain and entered San Francisco Bay. EPA finds that the unpermitted discharge was caused, in part, by excessive inflow and infiltration entering the collection systems owned by SMCSD, TCSD, and the City of Sausalito which contributed to peak wet weather flow conveyed through the collection system to SMCSD's WWTP.

20. In August and October 2007, EPA staff and contractors conducted inspections of the collection systems operated by SMCSD, TCSD, and the City of Sausalito. Copies of the inspection reports were provided to the agencies. Based upon the observations made in those inspections, EPA finds that various sewage spills from the collection systems operated by SMCSD, TCSD, and the City of Sausalito were caused by sewer line blockages, that the blockages were primarily caused by root intrusion and debris, and that inflow and infiltration in the member agencies' collection systems resulted in high wet weather flows to the collection system operated by SMCSD and to the SMCSD WWTP.

21. Paragraph III.C. of the 2007 Permit prohibits bypass of "untreated or partially treated wastewater to waters of the United States", except as provided for in 40 CFR 122.41(m)(4)(1). During periods of high wet weather flow, the 2007 Permit allows for blending of biologically treated wastewater with wastewater that has bypassed biological or advanced treatment units provided that the combined discharge is fully treated and partially treated wastewater complies with the effluent and receiving water limitations contained in the Permit. According to SMCSD's *Report on Sanitary Sewer Overflows, Treatment Unit Bypasses, Effluent Limit Violations, and Influent Flow Measurement* dated August 15, 2007, effluent limit violations occurred on 3 occasions during which treatment units were bypassed. (March 31, 2005 – cBOD; August 2005 & Nov. 2005 – TSS).

22. According to the *Wet Weather Conveyance and Treatment Evaluation* prepared by RMC Water and Environment for SMCSD in February 2008, high rates of infiltration and inflow (I/I) during wet weather appear to be occurring at each of the pump stations studied. High rates of I/I surcharge the collection system and creates the potential for overflows from the collection system and from the WWTP.

23. According to the *Sausalito-Marin City Sanitary District Conductivity Study* prepared by E2 Consulting Engineers for SMCSD in December 2007, excessive saltwater intrusion to the collection system appears to occur in four primary areas along the Sausalito waterfront: Gate 5, Princess St., Richardson St., and Anchor St. Excess saltwater in the influent at the SMCSD WWTP has been cited as a potential cause of plant upsets and effluent limit violations.

24. The aging, deteriorated condition of many sewer pipes in the collection systems has allowed for infiltration of ground water into the sewer pipes, increasing wastewater flow to the SMCSD collection system and wastewater treatment plant. Therefore, the contributing collection system agencies contributed to the bypass and discharge on August 15, 2007.

25. Based upon the spills, unpermitted discharges, and effluent limit violations cited above, EPA finds that on various occasions SMCSD, TCSD, and the City of Sausalito have each discharged, or have caused or contributed to the discharge of, pollutants to waters of the United States in violation of section 301(a) of the Act.

Considering the foregoing Findings, and the potential environmental and human health effects of the violations, EPA has determined that compliance in accordance with the following requirements is reasonable. Pursuant to the authority of sections 308(a) and 309(a) of the Act, it is hereby ORDERED:

ORDER FOR COMPLIANCE

SMCSD, TCSD, and the City of Sausalito shall implement a Sewage Spill Reduction Action Plan (SSRAP) that includes the following components for reducing and eliminating collection system sewage spills. Each component plan of the SSRAP required in paragraphs II to VII of this Order is subject to review and approval by EPA as specified in paragraph VIII of this Order. SMCSD, TCSD, and the City of Sausalito each shall implement their current programs for controlling sewage spills and shall immediately implement improvements to their current programs that are consistent with the requirements below. A timetable for submittal of plans and reports required by this Order is included as Attachment 2. If a program currently being implemented by SMCSD, TCSD, or the City of Sausalito fails to meet the requirements of this Order, SMCSD, TCSD, or the City of Sausalito, as appropriate, must implement the improvements necessary to satisfy this Order. To the extent that an existing program satisfies the requirements of this Order, SMCSD, TCSD, or the City of Sausalito may submit a description of its program for review and approval by EPA.

I. IMMEDIATE ELIMINATION OF COLLECTION SYSTEM SPILLS

A. Beginning immediately, SMCSD, TCSD, and the City of Sausalito each shall consistently and substantially reduce the frequency and volume of sewage spills to waters of the United States. SMCSD, TCSD, and the City of Sausalito shall prevent sewage spills caused by that respective agency to waters of the United States.

B. SMCSD shall eliminate unpermitted discharges of wastewater from its wastewater treatment plant to waters of the United States, eliminate prohibited bypasses at its wastewater treatment plant and achieve consistent compliance with its 2007 Permit.

C. SMCSD, TCSD, and the City of Sausalito each shall complete improvements necessary to eliminate conditions in its collection system that cause or contribute to wastewater spills, bypasses, or effluent limit violations from SMCSD's collection system or wastewater treatment plant.

D. SMCSD, TCSD, and the City of Sausalito each shall complete the improvements necessary to eliminate conditions in its collection system that cause or contribute to prohibited wastewater bypasses at the SMCSD Wastewater Treatment Plant.

II. SPILL RESPONSE, RECORDKEEPING, NOTIFICATION, & REPORTING

A. **Sanitary Sewer Overflow Response Plan:** By October 15, 2008, SMCSD, TCSD, and the City of Sausalito each shall submit to EPA a Sanitary Sewer Overflow Response Plan that describes emergency response and contingency procedures to address SSOs from its collection system, including measures for containing and recovering spilled sewage, establishment of interim system operations, and timely repair and restoration of normal operations. Each agency shall ensure that agency staff and responders are adequately trained to perform the procedures outlined in the SSO response plan. The plan shall include:

1. Procedures to notify the responders during normal business hours and after business hours. The responders shall respond within 30 minutes after notification.

2. Procedures to ensure containment, termination, maximum recovery, and cleanup of spilled sewage. These procedures shall prevent spills from reaching storm drains and surface water and mitigate the impact of spills that reach storm drains and surface water.

3. Procedures to estimate spill volume. The procedures should include more than one estimation method that can be used in different spill scenarios.

4. Procedures to secure the area surrounding a spill and post warning signs as necessary in coordination with the County of Marin's Department of Health and Human Services.

5. Procedures to sample and monitor surface waters following spills.

6. A list of necessary spare parts and emergency equipment to ensure adequate response time and maximum recovery of spilled sewage.

7. A description of staffing needs required to respond to SSOs and whether staffing duties will be carried out by agency staff, staff from other agencies, or private contractor(s). To the extent that any SSO response duties will be carried out by private contractor(s), the plan shall describe the contractor and include copies of the contracts obligating the contractor(s) to fulfill the requirements of the SSO response plan implemented pursuant to this Order.

B. **Recordkeeping:** The response plan developed in Paragraph II.A. shall include procedures for agency staff or its contractors to maintain records of spill incidents, including field reports that provide adequate information to meet reporting requirements to regulatory agencies, and procedures to link these records to the Maintenance Management System described in Paragraph III.B.

C. **Notification:** The response plan developed in Paragraph II.A. shall include procedures for notifying the public, including schools and recreational clubs, that may be affected by the spill. The plan should include procedures for advising the public to avoid contact and steps to be taken in cases of contact with spilled sewage. For spills in homes and businesses, the plan should include procedures for cleaning the spill area. The plan shall identify the agency staff person(s) responsible for public notification.

D. **Reporting:** The response plan developed in Paragraph II.A. shall include procedures for reporting spills, as required, to the appropriate regulatory agencies, including the Regional Water Quality Control Board, the State Water Resources Control Board, the State of California's Office of Emergency Services, and County of Marin's Department of Health and Human Services. The plan shall identify the agency staff person(s) responsible for reporting sewage spills.

III. COLLECTION SYSTEM MAINTENANCE AND MANAGEMENT

A. Sewer System Cleaning and Root Control Program:

1. By October 15, 2008, SMCSD, TCSD, and the City of Sausalito shall each submit a plan to EPA a plan to implement a Sewer System Cleaning and Root Control Program to ensure regular cleaning of sewer pipes. The program shall ensure that at least 30 percent of that agency's pipe mileage is cleaned each year such that the entire collection system is cleaned within three years. The program must be sufficient to eliminate or reduce blockage-related spills and shall include the following elements:

a) A schedule for routine cleaning of the agency's entire collection system;

b) A list of locations where pipe blockages and SSOs have frequently occurred ("hot spots"), a plan to regularly monitor these areas, a hot spot cleaning schedule and procedures for adjusting the hot spot cleaning schedule based on changing conditions;

c) Written procedures for cleaning and repairing sewer pipes in easements including cleaning schedules, instructions for gaining access to sewer pipes in easements, and cleaning procedures;

d) A plan for preventing blockage of sewer pipes by roots, including a description of root control methods, such as tree maintenance plans; locations where root control methods may be used within the collection system; and a schedule for application of root control methods;

e) A plan for staffing the sewer system cleaning and root control program, indicating whether staffing duties will be carried out by agency staff, staff from other agencies, or private contractor(s). To the extent that any sewer cleaning or root control duties will be carried out by private contractor(s), the plan shall describe the contractor and provide copies of the contracts obligating the contractor(s) to fulfill the requirements of the sewer cleaning and root control program implemented pursuant to this Order.

2. By October 15 of each year, SMCSD, TCSD, and the City of Sausalito shall each submit annual reports to EPA documenting the activities of each agency's sewer cleaning and root control program during the previous annual cycle. The annual reports shall include the number of miles of pipe cleaned as part of the routine and "hot spot" cleaning programs and miles of pipe treated by each method used for controlling roots. SMCSD, TCSD, and the City of Sausalito shall include a description of the success of the sewer cleaning and root control program at preventing blockages and sewage overflows as well as any changes to be made to the program to further reduce spills.

B. **Maintenance Management System:**

1. By October 15, 2008 SMCSD, TCSD, and the City of Sausalito each shall obtain and implement a computerized sewer maintenance management system (MMS) capable of scheduling and tracking completion of sewer cleaning, maintenance, repairs, and SSOs. The MMS shall record information on sewer system inspections, condition ratings, and sewers repaired, rehabilitated and replaced. The MMS shall have the capability to be used to generate reports summarizing SSOs and to identify hot spots.

2. By April 15, 2009 the MMS shall be linked to a Geographic Information System (GIS) map of the sewage collection systems, which in turn shall be linked to an inventory of sewer system assets that includes information on asset age, material, dimensions and capacities.

C. **Pump Station Reliability Certification:**

1. By April 15, 2009 SMCSD, TCSD, and the City of Sausalito each shall submit to EPA a report describing the pump stations within its collection system, including number of primary and redundant pumps, pumping capacity, emergency generators, alarm systems, and estimated time to overflow in the event of station failure during peak dry weather flow.

2. By April 15, 2009 SMCSD, TCSD, and the City of Sausalito each shall certify to EPA that each pump station for which it is responsible is equipped for peak wet weather flows and continuous operation in the event of electrical failure, mechanical failure, or power outage.

3. If an agency is unable to certify that a pump station is adequately equipped, the agency by April 15, 2009 shall submit a plan, including a schedule and financial plan, for completing all repairs, renovations, and upgrades on each pump station and force main to ensure adequate capacity for peak wet weather flows and to ensure continuous operation.

4. By October 15 of each year, SMCSD, TCSD, and the City of Sausalito each shall submit an annual report to EPA documenting pump station and force main renovations, and upgrades during the previous year and describing projects to be completed in the coming annual cycle.

D. **Fats, Oils & Grease (FOG) Blockage Control Report:**

By October 15, 2008, SMCSD, TCSD, and the City of Sausalito shall submit a report documenting its program to control sources of FOG and the effectiveness of the program at eliminating grease blockages. The report shall include:

1. A list of locations where grease blockage spills have occurred and, if known, the sources causing the spill;

2. A summary of sewer cleaning activities aimed at sewer pipes prone to blockages by grease;

3. a description of FOG source control programs, including ordinances, treatment, best management practice requirements, source inspections and enforcement procedures, and outreach and education efforts;

4. a description of the effectiveness of the program at controlling and eliminating grease blockages; and

5. a description of any modifications needed to improve the effectiveness of the FOG control program.

IV. COLLECTION SYSTEM ASSESSMENTS

A. Sewer Pipe and Maintenance Hole Inspection and Condition Assessment:

1. By October 15, 2008 SMCSD, TCSD, and the City of Sausalito shall each submit a plan to EPA for periodic inspection and assessment of the condition of gravity sewers and maintenance holes throughout each agency's collection system. The inspection and condition assessment program shall be sufficient to evaluate the condition of pipes following blockage related spills, identify pipes in need of emergency repair, and provide a schedule for completion of a system-wide condition assessment no later than April 15, 2010. The requirements for system-wide condition assessment may be satisfied with reliable condition data obtained from an inspection and assessment conducted within the last five years. The plan shall describe:

   a) Inspection methods to be used, including direct visual inspection and CCTV inspection, and whether each agency will purchase, lease, or contract for CCTV inspection equipment;

   b) An inspection schedule including an estimation of how many maintenance holes and miles of pipe will be inspected each year for the next 2 years; and

   c) a system for timely evaluation of inspection findings and documentation of the assessed condition.

2. By October 15, 2008, SMCSD, TCSD, and the City of Sausalito shall submit a report to EPA summarizing the findings of inspections and condition assessments completed during the previous five years.

3. Beginning October 15, 2009 SMCSD, TCSD, and the City of Sausalito shall each submit an annual progress report to EPA summarizing the inspection methods and findings of the sewer pipe condition assessments conducted during the previous year and the estimated miles of sewer pipe and number of maintenance holes planned to be inspected during the current year.

4. By October 15, 2010, SMCSD, TCSD, and the City of Sausalito shall submit a final report summarizing the findings of the inspections and condition assessments required by Paragraph IV.A.1.

B. **Capacity Assessment:**

1. By October 15, 2008 SMCSD, TCSD, and the City of Sausalito each shall install flow meters to assess average and peak dry and wet weather flow rates through its collection system.

2. By October 15, 2009 and each year thereafter, SMCSD, TCSD, and the City of Sausalito each shall submit a report to EPA providing the results of collection system flow monitoring, including the average dry weather flow and peak wet weather flow from its collection system.

3. By October 15, 2010, SMCSD, TCSD, and the City of Sausalito each shall complete an assessment and submit a report to EPA on collection system flows and hydraulic capacity. The assessments shall include flow measurements, visual observations of flow levels and predictive flow modeling as needed to complete a report that:

a) identifies areas, sources and quantities of significant inflow to the sewage collection system;

b) identifies areas, sources and quantities of significant infiltration to the sewage collection system;

c) identifies any bottlenecks in the collection system which lack sufficient capacity to convey sewage flows through the collection system and to the SMCSD WWTP during wet weather; and

d) provides a discussion of the impact of wet weather flow from one agency to another as well as the impact on the SMCSD WWTP.

4. If the work described in either Paragraph IV.B.1. or Paragraph IV.B.3. has been completed within the past two years by any of the agencies, a brief summary of the work and the recommendations may be substituted for the study.

V. CAPACITY ASSURANCE

A. Short-Term Contingency Plan:

By October 15, 2008 SMCSD shall develop a short-term contingency plan for improvements necessary to eliminate bypasses or spills from its wastewater

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treatment plant to San Francisco Bay and its tributaries. The plan may include options for equalization basins or implementing other measures to eliminate overflows to San Francisco Bay.

B. **Capacity Assurance Plan:**

1. By October 15, 2009 SMCSD, TCSD, and the City of Sausalito shall propose and schedule improvements identified in the condition and capacity assessments completed in Paragraph IV. The plan(s) shall consider the effects that existing capacity limitations and future upgrades may have on the SMCSD WWTP and its other contributing collection systems. The plan(s) should be sufficient to eliminate spills from the collection systems and wastewater treatment plant during peak wet weather.

2. By October 15, 2013 SMCSD, TCSD, and the City of Sausalito shall complete the short-term improvements identified pursuant to Paragraph V.A.1. The improvements shall address preliminary I&I control, conveyance of peak flows, storage of peak flows, and improvements to treatment plant capacity.

VI. INFRASTRUCTURE RENEWAL

A. **Sewer Repair, Rehabilitation, and Replacement:** By October 15, 2010, SMCSD, TCSD, and the City of Sausalito each shall submit a plan to EPA for both short-term (repairs of acute defects to occur within one year of inspection and assessment completed) and long-term repair, rehabilitation and replacement of sewer pipes. The plan shall include a schedule and financial plan. The plan shall be sufficient to: 1) ensure timely repair of sewer pipes in imminent danger of failure or blockage; 2) ensure the long range sustainable rehabilitation or replacement of obsolete assets; 3) improve system performance and reduce spills caused by pipe defects and blockages from roots and debris; and 4) control inflow and infiltration as needed pursuant to the Capacity Assurance Plan in Paragraph V.B. The plan shall include:

1. The length of pipe repaired, rehabilitated, or replaced during the last 20 years;

2. an estimate of the miles of sewer pipe to undergo emergency repair or replacement each year;

3. An estimate of the miles of sewer pipe to be rehabilitated or replaced over the next 10 years and identification of the pipe reaches to be rehabilitated or replaced in the next 5 years;

4. A 10-year financial plan for short-term and long-term repair, rehabilitation, and replacement of sewer pipes; and

5. A plan to address private lateral repair, rehabilitation and replacement as needed pursuant to the Capacity Assurance Plan in Paragraph V.B.

B. **Annual Report:** By October 15 of each year, SMCSD, TCSD, and the City of Sausalito shall each submit an annual report to EPA documenting sewer repair, rehabilitation or replacement activities completed in the previous year; describing projects to be completed in the coming annual cycle; and providing an updated 10-year Capital Improvement Plan (CIP).

VII. IMPLEMENTATION STUDY AND REPORT

By October 15, 2008 SMCSD, TCSD, and the City of Sausalito shall complete a study and submit a report that evaluates options for collaboration between the agencies on efforts to implement and comply with the requirements of this Order. This evaluation shall consider:

1. options for deploying staff, equipment, and other resources, where possible, to minimize costs to each agency and provide for efficient implementation of collection system maintenance and spill response;

2. measures to reduce energy use within the collection systems and at the wastewater treatment plant, such as energy audits of pump stations and efforts to increase water conservation (http://www.epa.gov/waterinfrastructure/bettermanagement_energy.html);

3. coordination between the agencies on completing the condition and capacity assessments;

4. coordination between the agencies on reaching sound engineering decisions on the most cost-effective means for ensuring adequate capacity throughout the collection systems and at the SMCSD WWTP;

5. collaboration among the agencies to ensure the most cost-effective and efficient delivery of the capital improvements needed to renew the aging sewer systems and complete the capacity improvements required by this Order; and

6. collaboration between the agencies to develop financial plans and secure funding needed to complete the requirements of this Order.

VIII. PLAN REVIEW AND APPROVAL

Where this Order requires the submittal of a plan to EPA, that plan shall be subject to EPA review, comment and approval. If EPA does not approve or comment upon a plan within 60 days of receipt (or does not, in writing, extend EPA's review for an additional 30 days), the agency submitting the plan shall implement the plan as submitted. SMCSD, TCSD, and the City of Sausalito shall make any revisions requested by EPA or respond to any EPA comments by submitting a revised plan to EPA within 30 days of receipt of EPA's comments. Upon approval by EPA, the plans are automatically incorporated by reference as an enforceable part of this Order. All annual reports required by this Order are also subject to EPA review and approval in accordance with this paragraph.

IX. QUARTERLY SPILL REPORTS

On the fifteenth day of January, April, July, and October in each year in which activities are conducted pursuant to this Order, SMCSD, TCSD, and the City of Sausalito shall each submit a tabulation of all sewage spills occurring during the previous calendar quarter. The quarterly reports shall indicate, for each spill, the spill date, spill volume, volume recovered, spill location, cause, and spill destination. An agency may include certified and uncertified spill reports submitted to the State Water Resources Control Board's California Integrated Water Quality System during the previous calendar quarter.

X. ANNUAL PROGRESS REPORTS

Beginning in 2008, on October 15 of each year in which activities are conducted pursuant to this Order, SMCSD, TCSD, and the City of Sausalito each shall submit a written summary progress report detailing the implementation of the requirements of this Order during the preceding annual cycle pursuant to Paragraphs III.A.2., III.C.4., IV.A.3., IV.B.2., and VI.B. The reports shall evaluate the effectiveness of the spill elimination programs, and detail all additional actions SMCSD, TCSD, and the City of Sausalito plan to take in order to eliminate spills. The annual progress reports shall also contain an updated wastewater collection system annual budget for the current year and the cost of compliance with this Order. Annual progress reports are subject to EPA review and approval in accordance with Paragraph VIII.

XI. INFORMATION SUBMITTAL

A. All submittals made pursuant to this Order shall be mailed to the following addresses:

JoAnn Cola
United States Environmental Protection Agency
Region 9
75 Hawthorne St. (WTR-7)
San Francisco, CA 94105

Michael Chee
San Francisco Bay Region
California Regional Water Quality Control Board
1515 Clay St., Suite 1400
Oakland, CA 94612

B. All reports submitted pursuant to this Order shall be signed by a principal executive officer, ranking elected official or duly authorized representative of agency [as specified by 40 CFR §122.22(b)(2)] and shall include the following statement:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

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C. The information requested herein must be provided notwithstanding its possible characterization as confidential business information or trade secrets. EPA has promulgated regulations to protect the confidentiality of the business information it receives. These regulations are set forth in part 2, subpart B of Title 40 of the Code of Federal Regulations. A claim of business confidentiality may be asserted in the manner specified by 40 C.F.R. §2.203(b) for part or all of the information requested. EPA will disclose business information covered by such a claim only as authorized under 40 C.F.R. part 2, subpart B. If no such claim accompanies the business information at the time EPA receives it, EPA may make it available to the public without further notice.

XII. GENERAL PROVISIONS

A. This Order is not a permit under the Act, and does not relieve SMCSD, TCSD, or the City of Sausalito of any obligations imposed by the Act or any other law, regulation, or permit.

B. All requirements to submit information to EPA set forth in this Order are not subject to review by the Office of Management and Budget ("OMB") under the Paperwork Reduction Act because they are not "information collection requests" within the meaning of 44 U.S.C. §§3502(3), 3507, 3512, and 3518(c)(1). See also, 5 C.F.R. §§1320.3(c), 1320.4, and 1320.6(a). Furthermore, they are exempt from OMB review under the Paperwork Reduction Act because they are directed to fewer than ten persons and are an exempt investigation. 44 U.S.C. §§3502(4), (11), and 3518(c)(1); 5 C.F.R. §§1320.4 and 1320.6(a).

C. Issuance of an Order for Compliance shall not be deemed an election by EPA to forego any administrative, civil, or criminal action to seek penalties, fines, or other appropriate relief under the Act or any other statutes.

D. Failure to comply with this order could subject SMCSD, TCSD, and the City of Sausalito each to civil action for appropriate relief, including judicial penalties under Section 309(d) of the Act. 33 USC §1319(d). Failure to submit information required under Section 308 of the Act (including information required under this Order), or to comply with the NPDES permit or other Act provisions, could subject SMCSD, TCSD, and the City of Sausalito to actions under Section 309(a) (for administrative compliance orders), Section 309(b) (for judicial injunctive relief), Section 309(d) (for civil judicial penalties), and/or Section 309(g) (for administrative penalties). 33 USC §1319(b), (d) and (g). In addition, Section 309(c) of the Act provides criminal sanctions for negligent or knowing violations of the Act, and for knowingly making false statements. 33 USC §1319(c).

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E. If any event occurs that may cause a failure to timely carry out any requirement of this Order, the agency shall notify EPA in writing within twenty-one (21) calendar days of the time the agency becomes aware of the effect the event may have on compliance. The notice shall describe in detail the precise cause of the failure and measures taken to prevent or minimize the failure. The agency shall implement reasonable measures to avoid or minimize any such failure.

F. This Order remains in effect until terminated by the Director of the Water Division, EPA, Region 9. An agency may petition the Director to terminate the Order based on the progress by the agency toward eliminating sewage spills that are a violation of the Act, and certification by the agency that they have completed each requirement of this Order and have in place programs and financial plans to assure the continued improvement of the collection system.

Dated this 10th day of April, 2008

Alexis Strauss
Director
Water Division
U.S. Environmental Protection Agency

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Region 9
ATTACHMENT 1: Finding of Violation and Order
Docket No. CWA 309(a)-08-000
Spills Reported to SFRWQCB and SWRCB

SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007
CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT _DATE	SPILL_ VOLU ME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_ LOCATION	INCIDENT _CITY	INCIDENT _COUNTY	INCIDENT _ZIP	FINAL_ SPILL_ DESTIN ATION	SPILL_CAUSE	BLOCKAGE _DESCRIPTI ON
SMCSD	12/27/2004	500	0	3250 Bridgeway at Coloma Street	Sausalito	Marin	94966	STORM DRAIN	INFLOW & INFILTRATIO N	--Select None--
SMCSD	12/31/2005	700	0	# 1 Fort Baker Road	Sausalito	Marin	94966	STORM DRAIN	INFLOW & INFILTRATIO N	--Select None--
SMCSD	5/13/2006	100	0	152 Shoreline Drive/in front of Frantoio Restaurant	Mill Valley	Marin	94941	YARD/L AND	BLOCKAGE	GREASE
SMCSD	11/14/2006	300	0	19 Park Circle Drive	Marin City	Marin	94966	STORM DRAIN	BLOCKAGE	ROOTS

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SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007
CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT_DATE	SPILL_VOLUME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_LOCATION	INCIDENT_CITY	INCIDENT_COUNTY	INCIDENT_ZIP	FINAL_SPILL_DESTINATION	SPILL_CAUSE	BLOCKAGE_DESCRIPTION
SMCSD	12/12/2006	450	0	Marinship near Harbor Drive MH 380000/377000	Sausalito	Marin	94966	STORM DRAIN	INFLOW & INFILTRATION	-- Select One --
SMCSD	3/21/2007	5	0	164 Donahue Rd adjacent to Marin city Liabrary	Marin City	Marin	94965	STREET/CURB & GUTTER	BLOCKAGE	DEBRIS
SMCSD	5/2/2007	250	0	Bay Vista Circle	Marin City	Marin	94966	STREET/CURB & GUTTER; SURFACE	BLOCKAGE	ROOTS
SMCSD	0/0/2007	BETWEEN 100 AND 1000		150 Shoreline Drive	Mill Valley	Marin			BLOCKAGE	GREASE
SMCSD	1/25/2008	63000	0	Marinship Way	Sausalito	Marin	94966	STORM DRAIN; SURFACE WATER	INFLOW & INFILTRATION	

SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007
CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT_DATE	SPILL_VOLUME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_LOCATION	INCIDENT_CITY	INCIDENT_COUNTY	INCIDENT_ZIP	FINAL_SPILL_DESTINATION	SPILL_CAUSE	BLOCKAGE_DESCRIPTION
City of Sausalito	12/6/2005	21000	0	57 Lincoln	Sausalito	Marin	94965	UNPAVED SURFACE	BLOCKAGE	GREASE
City of Sausalito	0/0/2005	>100			Sausalito	Marin	94965		BLOCKAGE	ROOTS
City of Sausalito	0/0/2005	>100			Sausalito	Marin	94965		BLOCKAGE	DEBRIS IN LATERAL
City of Sausalito	0/0/2005	>100			Sausalito	Marin	94965		BLOCKAGE	DEBRIS IN LATERAL
City of Sausalito	0/0/2006	>100			Sausalito	Marin	94965		BLOCKAGE	ROOTS
City of Sausalito	0/0/2006	BETWEEN 100 AND 1000			Sausalito	Marin	94965		BLOCKAGE	DEBRIS
City of Sausalito	1/15/2007	1126	50	317 Front	Sausalito	Marin	94965	UNPAVED SURFACE	BLOCKAGE	ROOTS

SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007

CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT _DATE	SPILL_ VOLUME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_ LOCATION	INCIDENT _CITY	INCIDENT _COUNTY	INCIDENT _ZIP	FINAL_ SPILL_ DESTINATION	SPILL_CAUSE	BLOCKAGE _DESCRIPTION
City of Sausalito	2/5/2007	3107	0	120 Cazneau	Sausalito	Marin	94965	STREET/CURB AND GUTTER	BLOCKAGE	DEBRIS
City of Sausalito	7/12/2007	600	200	24 Cable Roadway	Sausalito	Marin	94965	UNPAVED SURFACE	BLOCKAGE	ROOTS
City of Sausalito	8/25/2007	2100	40	57 Lincoln	Sausalito	Marin	94965	UNPAVED SURFACE **	BLOCKAGE	GREASE
City of Sausalito	9/10/2007	2333	0	5 Reade	Sausalito	Marin	94965	STORM DRAIN; STREET/CURB AND GUTTER	BLOCKAGE	DEBRIS
City of Sausalito	11/3/2007	1791	0	123 Glen	Sausalito	Marin	94965	STREET/CURB AND GUTTER *	BLOCKAGE	ROOTS
City of Sausalito	11/7/2007	187	0	330 Bridgeway	Sausalito	Marin	94965	UNPAVED SURFACE	BLOCKAGE	DEBRIS

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SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007
CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT_DATE	SPILL_VOLUME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_LOCATION	INCIDENT_CITY	INCIDENT_COUNTY	INCIDENT_ZIP	FINAL_SPILL_DESTINATION	SPILL_CAUSE	BLOCKAGE_DESCRIPTION
City of Sausalito	12/8/2007	1200	0	1 Laurel	Sausalito	Marin	94965	STORM DRAIN; STREET/CURB AND GUTTER	BLOCKAGE	ROOTS
City of Sausalito	12/30/2007	600	0	621 Sausalito	Sausalito	Marin	94965	UNPAVED SURFACE	INFRASTRUCTURE FAILURE	
City of Sausalito	1/14/2008	429	0	203 B West	Sausalito	Marin	94965	STORM DRAIN; STREET/CURB AND GUTTER	INFRASTRUCTURE FAILURE	
City of Sausalito	1/22/2008	456	0	203 B West	Sausalito	Marin	94965	STORM DRAIN; STREET/CURB AND GUTTER	INFRASTRUCTURE FAILURE	
City of Sausalito	1/23/2008	456	0	203 B West	Sausalito	Marin	94965	STORM DRAIN; STREET/CURB AND GUTTER	INFRASTRUCTURE FAILURE	

SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007
CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT_DATE	SPILL_VOLUME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_LOCATION	INCIDENT_CITY	INCIDENT_COUNTY	INCIDENT_ZIP	FINAL_SPILL_DESTINATION	SPILL_CAUSE	BLOCKAGE_DESCRIPTION
City of Sausalito	2/6/2008	82	0	2 09 B West	Sausalito	Marin	94965	STORM DRAIN; STREET/CURB AND GUTTER	INFRASTRUCTURE FAILURE	
City of Sausalito	1/23/2006	900	0	On beach area at intersection of Bridgeway and Valley Street	Sausalito	Marin	94965	STREET/CURB & GUTTER	BLOCKAGE	GREASE
City of Sausalito	10/24/2006	60	0	BEHIND #71 WOODWARD AVENUE IN THE WOODED AREA.	SAUSALITO	Marin	94965	YARD/LAND	BLOCKAGE	ROOTS
Tamalpais	9/4/2005	100	0	1045 Erica Rd.	Mill valley	Marin Co	94941	YARD/LAND	BLOCKAGE	ROOTS
Tamalpais	10/12/2005	30	0	296 Morning Sun Ave	Mill Valley	Marin Co	94941	STREET/CURB & GUTTER	BLOCKAGE	ROOTS

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SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007
CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT_DATE	SPILL_VOLUME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_LOCATION	INCIDENT_CITY	INCIDENT_COUNTY	INCIDENT_ZIP	FINAL_SPILL_DESTINATION	SPILL_CAUSE	BLOCKAGE_DESCRIPTION
Tamalpais	11/22/2005	3600	1500	203 Marin ave	Mill Valley	Marin co.	94941	SURFACE WATER IMPACT	INFRASTRUCTURE FAILURE	--Select None--
Tamalpais	12/2/2005	25	0	309 carrera	Mill Valley	Marin co	94941	STORM DRAIN	BLOCKAGE	ROOTS
Tamalpais	12/2/2005	0	0	W Calif & Shoreline Hwy	Mill Valley	Marin Co	94941	NO WATER INVOLVED	BLOCKAGE	ROOTS
Tamalpais	12/2/2005	200	0	388 Carrera	Mill Valley	Marin Co	94941	YARD/LAND	BLOCKAGE	ROOTS
Tamalpais	12/2/2005	100	0	Shoreline Hwy & Tenn Ave	Mill VAlley	Marin Co	94941	STORM DRAIN	BLOCKAGE	ROOTS
Tamalpais	1/17/2006	100	0	295 morning sun	mill valley	marin	94941	STREET/CURB & GUTTER	BLOCKAGE	ROOTS
Tamalpais	1/23/2006	200	0	315 carrera dr	mill valley	marin co	94941	YARD/LAND	BLOCKAGE	ROOTS

SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007

CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT_DATE	SPILL_VOLUME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_LOCATION	INCIDENT_CITY	INCIDENT_COUNTY	INCIDENT_ZIP	FINAL_SPILL_DESTINATION	SPILL_CAUSE	BLOCKAGE_DESCRIPTION
Tamalpais	2/22/2006	600	0	chamberlain ct	mill valley	marin	94941	STREET/CURB & GUTTER	BLOCKAGE	ROOTS
Tamalpais	8/13/2006	30	0	301 enterprise concour,	mill vallet	marin	94941	YARD/LAND	BLOCKAGE	DEBRIS FROM LATERALS
Tamalpais	8/14/2006	100	0	360 jean st	mill valley	marin	94941	STORM DRAIN	ELECTRICAL POWER FAILURE	GREASE
Tamalpais	8/19/2006	450	0	335 jean st	mill valley	marin	94941	STORM DRAIN	BLOCKAGE	MULTIPLE CAUSES
Tamalpais	11/20/2006	0	0	247 shoreline hwy	mill valley	marin	94941	NO WATER INVOLVED	BLOCKAGE	GREASE
Tamalpais	12/2/2006	40	0	335 s morning sun	mill valley	marin co	94941	GROUND WATER IMPACTED ?	BLOCKAGE	MULTIPLE CAUSES
Tamalpais	0/0/2006	>100							BLOCKAGE	ROOTS

SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007
CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT_DATE	SPILL_VOLUME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_LOCATION	INCIDENT_CITY	INCIDENT_COUNTY	INCIDENT_ZIP	FINAL_SPILL_DESTINATION	SPILL_CAUSE	BLOCKAGE_DESCRIPTION
Tamalpais	2/6/2007	3,300	0	Intersection of Ross St and Linda St.	Mill Valley	Marin	94941	SURFACE WATER IMPACT	INFRASTRUCTURE FAILURE	
Tamalpais	2/6/2007	1,600	0	Shoreline Highway (State Route 1) between Tennessee Valley Road and Redwood Highway (U.S. Route 101)	Mill Valley	Marin	94941	SURFACE WATER IMPACT	INFRASTRUCTURE FAILURE	
Tamalpais	2/15/2007	30	0	410 maple st	mill valley	marin	94941	YARD/LAND	BLOCKAGE	GREASE
Tamalpais	2/18/2007	100	0	558 fairview	mill valley	marin	94941	STREET/CURB & GUTTER	BLOCKAGE	ROOTS
Tamalpais	3/23/2007	100	0	806 smith rd	mill valley	marin	94941	STREET/CURB & GUTTER	BLOCKAGE	ROOTS
Tamalpais	4/20/2007	120	0	Shore Line Hwy	Mill Valley	Marin co.	94941	YARD/LAND	BLOCKAGE	ROOTS

SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007

CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT_DATE	SPILL_VOLUME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_LOCATION	INCIDENT_CITY	INCIDENT_COUNTY	INCIDENT_ZIP	FINAL_SPILL_DESTINATION	SPILL_CAUSE	BLOCKAGE_DESCRIPTION
Tamalpais	4/24/2007	50	0	1031 Erica Rd	Mill Valley	Marin Co	94941	YARD/LAND	BLOCKAGE	ROOTS
Tamalpais	4/26/2007	50	0	532 Pine Crest	Mill Valley	Marin Co	94941	BUILDING/STRUCTURE	BLOCKAGE	ROOTS
Tamalpais		100		541 Midvale	Mill Valley	Marin		CREEK	INFRASTRUCTURE FAILURE	
Tamalpais	8/16/2007	100	0	541 Midvale	Mill Valley	Marin	94941	BEACH; BUILDING OR STRUCTURE; OTHER PAVED SURFACE	INFRASTRUCTURE FAILURE	
Tamalpais	8/19/2007	25	0	309 Bristol Place	Mill Valley	Marin	94941	BEACH; BUILDING OR STRUCTURE; OTHER PAVED SURFACE	BLOCKAGE	ROOTS
	11/29/2007						94941			

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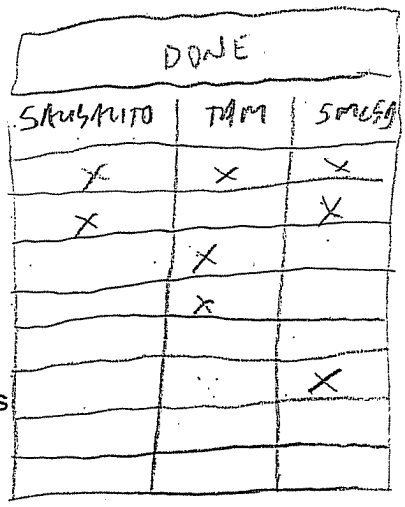
SOURCES OF DATA: San Francisco Bay Regional Water Quality Control Board - Sanitary Sewer Overflow (SSO) eReporting Program Database Records (from Dec. 1, 2004 to May 2, 2007), and Annual Reports submitted to SFRWQCB for years 2005, 2006, and 2007
CIWCS eReporting Program Database Records (from May 2007 to February 2008)

SSO AGENCY NAME	INCIDENT_DATE	SPILL_VOLUME (in gallons)	VOLUME RECOVERED (in gallons)	INCIDENT_LOCATION	INCIDENT_CITY	INCIDENT_COUNTY	INCIDENT_ZIP	FINAL_SPILL_DESTINATION	SPILL_CAUSE	BLOCKAGE_DESCRIPTION
Tamalpais	12/10/2007	100	0	371 County View	Mill Valley	Marin	94941	BEACH; BUILDING OR STRUCTURE; OTHER PAVED SURFACE	BLOCKAGE	ROOTS

* Responded "YES" to question "Did the spill discharge to a storm drainpipe that was not fully captured and returned to the sanitary sewer system?" on CIWCS form but did not select "storm drain" in the "destination of spill" drop down menu

** Responded "YES" to question "Did the spill discharge to a drainage channel and/or surface water? On CIWCS form but did not select "storm drain" or "surface water in the "destination of spill" drop down menu

Region 9
Attachment 2: Finding of Violation and Order
Docket No. CWA-309(a)-08-000
Timetable Listing of Requirements of Administrative Order



October 15, 2008

II.A.	Submit Sanitary Sewer Overflow Response Plan
III.A.1.	Submit Sanitary Sewer Cleaning and Root Control Plan
III.B.2.	Obtain and Implement MMS
III.D.	Submit FOG Program Report
IV.A.1.	Submit Inspection and Assessment Plan
IV.A.2.	Submit Inspection Report
IV.B.1.	Submit Capacity Assessment Report and Install flow meters
V.A.	Submit and Implement Short-Term Contingency Plan
VII.	Submit Implementation Study Report

April 15, 2009

III.B.2.	Link MMS to GIS map
III.C.1.	Submit Pump Station Report
III.C.2.	Submit Pump Station Certification
III.C.3.	Submit Pump Station Upgrade Plan

October 15, 2009

IV.B.2.	Submit Flow Monitoring Report

October 15, 2010

IV.A.4.	Submit Inspection and Condition Assessment Final Report
IV.B.3.	Submit Capacity Assessment Report
V.B.1.	Implement Capacity Assurance Improvements
VI.A.1.	Submit Infrastructure Renewal Plan

October 15, 2013

V.B.2.	Complete Short-term Improvements

Quarterly Spill Reports Due Each January 15, April 15, July 15, and October 15, beginning 2008:

IX.A.	Quarterly Spill Reports

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Annual Reports Due Each October 15, beginning 2008:

III.A.2.	Sanitary Sewer Overflow Response Planning
III.C.4.	Pump Station Reliability
IV.A.3.	Inspection and Condition Assessment Progress Report
IV.B.2.	Flow Monitoring Reports
VI.	Infrastructure Renewal Program

Region 9
Attachment 2: Finding of Violation and Order
Docket No. CWA-309(a)-08-000
Timetable Listing of Requirements of Administrative Order

October 15, 2008

II.A.	Submit Sanitary Sewer Overflow Response Plan
III.A.1.	Submit Sanitary Sewer Cleaning and Root Control Plan
III.B.2.	Obtain and Implement MMS
III.D.	Submit FOG Program Report
IV.A.1.	Submit Inspection and Assessment Plan
IV.A.2.	Submit Inspection Report
IV.B.1.	Submit Capacity Assessment Report and Install flow meters
V.A.	Submit and Implement Short-Term Contingency Plan
VII.	Submit Implementation Study Report

April 15, 2009

III.B.2.	Link MMS to GIS map
III.C.1.	Submit Pump Station Report
III.C.2.	Submit Pump Station Certification
III.C.3.	Submit Pump Station Upgrade Plan

October 15, 2009

IV.B.2.	Submit Flow Monitoring Report

October 15, 2010

IV.A.4.	Submit Inspection and Condition Assessment Final Report
IV.B.3.	Submit Capacity Assessment Report
V.B.1.	Implement Capacity Assurance Improvements
VI.A.1.	Submit Infrastructure Renewal Plan

October 15, 2013

V.B.2.	Complete Short-term Improvements

Quarterly Spill Reports Due Each January 15, April 15, July 15, and beginning 2008:

IX.A.	Quarterly Spill Reports

Annual Reports Due Each October 15, beginning 2008:

III.A.2.	Sanitary Sewer Overflow Response Planning
III.C.4.	Pump Station Reliability
IV.A.3.	Inspection and Condition Assessment Progress Report
IV.B.2.	Flow Monitoring Reports
VI.	Infrastructure Renewal Program

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RMC
Water and Environment

Sacramento
San Diego
San Francisco
San Jose
Santa Monica
Walnut Creek

2 July 2008

Sausalito-Marin City Sanitary District
#1 Fort Baker Road
Sausalito, CA 94966

Attention: Mr. Robert Simmons, General Manager

Subject: Proposal for Overflow Reduction Action Plan and Response to EPA Order

Dear Mr. Simmons:

We are pleased to submit this proposed scope of work and budget for an Overflow Reduction Action Plan that would respond to the requirements of the EPA Compliance Order of April 10, 2008, issued to SMCSD, the City of Sausalito, and the Tamalpais Community Services District. The work tasks described in the scope of work would also form the basis of ongoing maintenance and management of SMCSD's and its tributary agencies' collection and treatment systems, and foster collaborative efforts to coordinate planning and operations of the systems.

We believe RMC is uniquely qualified to assist SMCSD and its tributary agencies for the following reasons:

- Our core project team consisting of Steve Clary (Project Manager), Gisa Ju, Michael Flores, and Eric Wessels (Senior Technical Advisors) each have between 15 to 30 years' experience assisting agencies in controlling wastewater overflows and meeting associated regulatory requirements. Steve and Gisa have recently completed SMCSD's Wet Weather Conveyance and Treatment Evaluation, which has received praise from Ken Greenberg of EPA Region IX. Gisa has prepared Sewer System Management Plans for eight Bay Area agencies to comply with Regional and State Water Board requirements, and Michael and Eric have extensive experience in collection system operations, maintenance and asset management, including experience assisting agencies such as the Cities of Los Angeles, San Diego, and Honolulu in meeting the requirements of similar compliance orders from EPA Region IX . Therefore, the experience of our team is very relevant to the regulatory challenges facing SMCSD and its tributary agencies.
- RMC dedicates its senior principals and staff to work directly on projects. Steve, Gisa, Michael, and Eric will spend significant time on this project and will be dedicated to the project from start to finish. We have taken this same approach on our work for Novato Sanitary District, Ross Valley Sanitary District, SFPUC, and EBMUD.
- Over the past two years, RMC has prepared (or is currently preparing) comprehensive Sewer System Management Plans for more than 12 clients. Much of the type of work encompassed in these SSMPs is required by the EPA Order issued to SMCSD and its tributary agencies. This provides RMC with directly relevant recent experience that will allow us to work efficiently and will increase the regulators' confidence in your agencies' response to the EPA Order.
- RMC has a staff of approximately 90 persons to support the project team throughout the duration of the project.

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Walnut Creek, CA 94596
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fax: 925.627.4101
www.rmcwater.com

The proposed budget may seem large at first glance; however, please keep in mind that the EPA Order mandates significant work efforts by SMCSD, Sausalito, and TCSD, including:

- Submission of 17 reports between now and October 15, 2010.
- Comprehensive documentation of the effectiveness of sewer system maintenance, management, and inspection programs.
- Certification of the capacity and reliability of up to 13 pump stations and identification of needed upgrades to those stations.
- Implementation of a flow monitoring program and development of a system-wide flow model as part of the Capacity Assessment.
- Development of Capacity Assurance and Infrastructure Renewal Plans that are essentially near-term and long-term master plans to rehabilitate the sewer systems, reduce infiltration and inflow, and eliminate overflows.

We understand that some of this work may have already been started by SMCSD and its tributary agencies. To the extent that this work is readily applicable to the EPA Order, we may be able to reduce the proposed budget accordingly. Also, to assist you in planning for this effort, we have divided the proposed budget into phases, corresponding to the tasks (submittals) required in each of the first three years of the compliance order (2008, 2009, and 2010).

Please call if you need further information, or need to discuss the proposed scope and budget. We look forward to assisting you with this project and with your response to the EPA Order.

Very truly yours,

Stephen Clary
Project Manager
Principal, RMC Water and Environment

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Exhibit A
Scope of Services

Sausalito-Marin City Sanitary District
Overflow Reduction Action Plan and Response to EPA Order

APPROACH

The Sausalito-Marin City Sanitary District (SMCSD or District) and its tributary agencies are implementing a Sewage Spill Reduction Action Plan (Plan) as stipulated in the requirements of the EPA Region IX Order for Compliance (EPA Order) dated 10 April 2008. The Plan is to:

- Develop cost effective alternatives and recommended approach to reduce the frequency and volume of sewage spills from SMCSD's and its tributary agencies' collection systems, and from SMCSD's treatment plant. Development of alternatives and recommendations is to take a system-wide approach across the all agencies' systems and SMCSD's treatment plant and outfall.

- Promote collaborative action among SMCSD and its tributary agencies, with recommendations regarding best management practices, improved system operation, and additional needed physical facilities.

- Address the requirements of paragraphs II through VII of the above referenced EPA Order.

RMC Water and Environment (RMC) has been asked by SMCSD to assist SMCSD and its tributary agencies in development and preparation of the Plan and assist with coordination and negotiation with the EPA Region IX and San Francisco Bay Regional Water Quality Control Board (RWQCB).

TEAM

Steve Clary, Gisa Ju, Michael Flores, and Eric Wessels of RMC will comprise the core team for the work described herein. Steve Clary will be the Project Manager and Principal-In Charge. These team members have between 15 and 34 years of experience in collection system evaluations and development of overflow abatement strategies that are readily accepted by regulatory agencies. They will be assisted by other RMC project engineers.

The following designations are used throughout the Scope of Work:

- SMCSD or District, which refers to the Sausalito-Marin City Sanitary District

- Agency or agencies, which refers to the City of Sausalito and/or Tamalpais Community Services District and/or Sausalito-Marin City Sanitary District

- RMC, which refers to RMC Water and Environment and incorporates the consultant team, including staff from RMC and subconsultants.

SCOPE OF WORK

This Scope of Work defines the tasks that RMC will perform in completing the Plan. The schedule for completing the scope of work is attached as Exhibit C. The schedule was developed to assist SMCSD and its tributary agencies in preparing, in a timely manner, the various reports and submissions stipulated in the EPA Order, as listed at the end of this exhibit. The schedule was developed based on the assumption that required background information and data (as listed under "Information to be Provided by SMCSD and Tributary Agencies" at the end of this Scope of Work) would be provided to RMC along with the Notice to Proceed before the end of July 2008.

RMC will prepare all plans and reports as stipulated in the Order for submittal during 2008, 2009, and 2010, except for annual progress reports (however, we will provide support for progress reporting as noted under Task 7). The agencies will be responsible for implementing the plans, including required contracting for flow monitoring, cleaning and/or inspection, purchase and implementation of maintenance management systems and GIS, and design and construction of capital improvements.

The format of the plans will consist of general language in the front end of the plan that will apply to all of the agencies, with an appendices that are specific to each agency's collection system. It is assumed that each agency will provide comments on draft documents within 10 days of submittal. If the agencies have a conflict over language, it is assumed that they will meet in a timely fashion (within approximately 5 business days) to agree on final language. RMC will facilitate these meetings, but the agencies agree to accept language that is selected by the majority (or according to another decision process developed by the agencies) to prevent the need to prepare and explain multiple plans to EPA.

The major task headings for the scope of work follow the requirements of the EPA order and are listed below:

Task 1 Spill Response, Recordkeeping, Notification, and Reporting

Task 2 Collection System Maintenance and Management
- 2.1 Sewer System Cleaning and Root Control Program
- 2.2 Maintenance Management System
- 2.3 Pump Station Reliability Certification
- 2.4 Fats, Oils, and Grease (FOG) Blockage Control Program Report

Task 3 Collection System Assessments
- 3.1 Sewer Pipe and Maintenance Hole Inspection and Condition Assessment
- 3.2 Capacity Assessment

Task 4 Capacity Assurance
- 4.1 Short-term Contingency Plan
- 4.2 Capacity Assurance Plan

Task 5 Infrastructure Renewal

Task 6 Implementation Study and Report

Task 7 Support with Reporting to EPA

Task 8 Workshops with SMCSD and Tributary Agencies

Task 9 Project Management

Task 1 Spill Response, Recordkeeping, Notification, and Reporting

RMC will review the procedures that each agency has developed in their Overflow Emergency Response Plans prepared to comply with State and RWQCB Sewer System Management Plan (SSMP) requirements. These procedures relate to the response, containment, recovery and clean up of spilled sewage. They also relate to the notification of responders, the estimation of spill volume, notification of the public, recording keeping, and reporting to regulatory agencies. Based on this review, and its experience with other similar agencies, RMC will recommend enhancements to these management practices that will maximize compliance with the EPA Order.

RMC will recommend collaborative management activities and approaches that the agencies named in the EPA Order can undertake to increase cost effectiveness, while maximizing progress toward the abatement of overflows. RMC will also make recommendations that will provide consistency in reporting of information to the regulatory agencies that will streamline information preparation and regulatory review.

RMC will coordinate with the individual agencies to implement the recommended enhancements and compile the responses of each agency into an overall report to the EPA. An overall report to EPA is recommended to further streamline EPA review. The overall report will be submitted to the EPA by 15 October 2008 as stipulated by the EPA Order.

Task 2 Collection System Maintenance and Management

2.1 Sewer System Cleaning and Root Control Program

RMC will review current activities of each agency regarding system cleaning and root control. Based on this review, RMC will make recommendations to ensure that the all collection systems are entirely cleaned within three years. RMC will also make recommendations on management practices that ensure hot spots are addressed and blockage related spills are abated and documented. RMC will review and make recommendations to enhance and document the rationale used to set priorities within the Cleaning and Root Control Program.

RMC will review the overall staffing available for the Cleaning and Root Control Program, and based on best utility practice at other agencies, make recommendations regarding the level of staffing (near term and long term), equipment to be purchased, efficient use of private service

contractors, and the degree to which the individual agencies can share staff, equipment and other resources.

The programs from the individual agencies will be aggregated into a single overall report, which will be submitted to the EPA by 15 October 2008.

2.2 Maintenance Management System

RMC will identify options and make preliminary recommendations on the computerized maintenance management system (MMS) the agencies should obtain to track and schedule completion of the sewer cleaning, maintenance, repairs, and sewer system overflows. RMC will also make recommendations on the functionality that the MMS should have and the GIS platform that should be used for location and display of collection system assets. RMC will review the ICOM MMS that is currently being used by the City of Sausalito and SMCSD, compare it with other readily available systems, and make recommendations whether this system is the most appropriate system to use in the future.

RMC will review the status and form of the current information data bases and mapping used by each of the tributary agencies and make recommendations to enhance their accuracy, ease of use, and ease of input to the MMS system.

Because the EPA Order requires that the MMS be implemented by 15 October 2008, which may be unreasonably early, RMC will assist SMCSD and its tributary agencies in coordination and negotiation with the EPA and RWQCB regarding the time frame for implementation and scope of the MMS.

2.3 Pump Station Reliability Certification

RMC will review and compile, in a consistent format, information regarding the condition, age, capacity, and location of all pump stations that convey flow the SMCSD treatment plant. Based on the information provided by the individual agencies, RMC will conduct a desk top analysis of the pump stations' hydraulic capacities, their ability to continuously convey peak wet weather flows to the treatment plant, and the adequacy of redundant pumping and power supply. Field inspection of each pump station will be conducted to assess its general condition and verify equipment installation. (Field testing of the pump stations is not included.) To the extent possible, results of previous engineering studies assessing the reliable capacity of each pump station will be used. (It is assumed that up to 13 pump stations throughout the angencies' collection systems will be assessed.)

RMC will assess whether the pump stations have adequate reliability to meet the intent of the EPA Order, and will make recommendations regarding needed improvements or replacement. RMC will develop an overall schedule for recommended improvements and will work with the individual agencies on developing a financial plan to pay for needed improvements. (It is assumed that the financial plans for each agency will be developed by the individual agency.)

RMC will develop an overall report for submission to EPA presenting the findings and recommendations for ensuring the reliable and continuous operation of the pump stations. The report will be submitted to EPA by 15 April 2009.

2.4 Fats, Oils, and Grease (FOG) Blockage Control Program Report

RMC will review the FOG control program underway at each of the tributary agencies and make recommendations to enhance the program's effectiveness in reducing overflows caused by FOG blockages. RMC will recommend the format of reporting locations and dates of FOG induced spills, as well as, the location and dates of sewer cleaning, so that data can be easily entered into the future MMS and GIS. Based on this data, the effectiveness of the sewer cleaning, source control, and public education will be assessed. Using the findings of the analysis, RMC will recommend enhancements or changes to increase the effectiveness of the FOG control program.

RMC will develop an overall report for submission to EPA documenting the FOG Control program and its effectiveness and recommended modifications. The report will be submitted to EPA by 15 October 2008.

Task 3 Collection System Assessments

3.1 Sewer Pipe and Maintenance Hole Inspection and Condition Assessment

RMC will review the existing plans and procedures each tributary agency has for the inspection, condition assessment, and maintenance of their collection systems and maintenance holes. RMC will assess the adequacy and consistency of the existing plans and procedures and previously collected inspection data to meet the EPA mandated deadline of completing a system-wide condition assessment by 15 April 2010. RMC will make recommendations on new programs, enhancements or changes needed to meet this deadline.

Using the information described above, RMC will develop the 15 October 2008 report stipulated by the EPA Order describing how all SMCSD agencies will meet the 15 April 2010 deadline for completing a system-wide condition assessment.

RMC will develop consistent condition rating codes and data format to be used in TV and maintenance hole inspections of all tributary agency collection systems so as to allow a consistent condition assessment methodology and potentially a common MMS to be shared by all tributary agencies.

RMC will develop recommendations regarding the use of service contractors vs the development of shared in-house resources and capabilities that the tributary agencies could jointly develop to meet long-term needs for sewer inspection and condition assessment.

RMC will document the results of inspections completed in the 15 October 2010 report stipulated in the EPA Order. It will be part of the Infrastructure Plan that must be submitted on the same date. (See description under Task 5.)

3.2 Capacity Assessment

RMC will review mapping of the collection systems and identify appropriate sites for temporary and potential permanent flow meters and rain gauges needed to comply with the EPA Order and provide sufficient data for performing the capacity assessment. Because the EPA Order

requires that the flow monitors be installed by 15 October 2008, which may be unreasonably early, RMC will assist SMCSD in coordination and negotiation with the EPA and RWQCB regarding the time frame for implementation of the flow monitoring program.

RMC will extend the hydraulic model it developed for SMCSD to key sewers in the tributary agencies' collection systems in order to assess the collection systems' capacities during wet weather conditions and provide an overall, integrated system model. RMC will assist SMCSD and the tributary agencies in selecting flow monitoring sites, coordination with the selected flow monitoring contractor (it is assumed that a single contractor will be retained by the agencies for the flow monitoring work), and quality review of the flow monitoring data.

RMC will compile mapping and inventory data on pipes and pump stations in order to develop a system-wide flow model of sufficient detail to identify the following:

- Areas, sources and quantities of significant inflow and infiltration to the collection systems
- Hydraulic bottlenecks that limit the overall system's ability to convey peak wet weather flows to the treatment plant
- The contributory impact of wet weather flows from each agency on the overall system's ability to convey and treat flow
- Predictive modeling of the collection system flows arising from rain events, both single event, and a series of rain events

RMC will develop a single, dynamic hydraulic model of the tributary agencies' and SMCSD trunk sewer networks. It is expected that the model will include all gravity sewers 10 inches in diameter and larger (plus some key smaller sewers) and associated pump stations and force mains. The model will be calibrated based on the flow monitoring data collected above.

RMC will document these results in the 15 October 2010 report stipulated in the EPA Order. It will be part of the Capacity Assurance Plan that must be submitted on the same date. (See description in the following section.)

Task 4 Capacity Assurance

4.1 Short-term Contingency Plan

RMC will develop a short term contingency plan to eliminate overflows from the SMCSD treatment plant. Development of this plan will include assessment of various flow routing alternatives within the plant and equalization basins, and optimization of pumping and treatment capacities within the treatment plant itself. (The majority of this work has been completed as part of the Wet Weather Conveyance and Treatment Evaluation report dated February 2008. The findings and recommendations from this report will form the basis of the Short-term Contingency Plan.)

RMC will develop a report for submission to the EPA by 15 October 2008 describing the alternatives available and the recommended improvements and operational changes that would eliminate overflows at the treatment plant.

4.2 Capacity Assurance Plan

Using the results of the Wet Weather Conveyance and Treatment Evaluation report dated February 2008, the Pump Station Reliability Certification (Task 2.3), and Collection System Assessments (Task 3), RMC will develop a range of feasible alternatives to alleviate system hydraulic inadequacies and reduce wet weather overflows in the collection system and treatment plant. Based on these findings, input from the tributary agencies, and negotiations with EPA and RWQCB, a recommended alternative to abate overflows will be identified and described in a report to the EPA by 15 October 2010.

RMC will assist SMCSD and its tributary agencies in negotiations with the EPA and RWQCB regarding the basis of design for containment of wet weather flows (which will impact cost), and the time line for implementation of capital improvements.

Task 5 Infrastructure Renewal

Based on the results and recommendations of the preceding tasks, RMC will prepare a plan for submission to EPA describing SMCSD's and tributary agencies' approach to repair defects and control I/I throughout the collection systems. The report will address the inadequacies indentified in the system-wide condition assessment to be completed by 2010, as well as, how repairs and improvements will be made in a timely manner throughout the life of the system. The report will address the specific metrics stipulated in the EPA Order, and will be submitted to the EPA by 15 October 2010.

RMC will coordinate with SMCSD and its tributary agencies in the development of a 10 year financial plan to fund the recommended improvements. (However, development of the financial plan(s) will be conducted by the individual agencies.)

Task 6 Implementation Study and Report

RMC will develop a report to the EPA identifying the opportunities and options for SMCSD and its tributary agencies to collaborate on joint efforts to meet the requirements of the EPA Order. Because the individual collection systems and treatment plant function as an integrated hydraulic unit, significant opportunities will be available to lower costs, and increase effectiveness if a collaborative approach is taken.

The report will address the metrics stipulated in the EPA Order and will be submitted by 15 October 2008. It is anticipated that this report will primarily draw from, and summarize the collaborative approaches identified in, the previous tasks.

Task 7 Support with Reporting to EPA

The EPA Order stipulates quarterly reporting of overflows and annual progress reports. RMC will assist SMCSD and its tributary agencies in these reporting requirements by providing forms and templates that encompass the EPA stipulated metrics and which can be used by all tributary agencies. This approach will provide consistent reporting to EPA.

Task 8 Workshops with SMCSD and Tributary Agencies

RMC will prepare and attend up to four workshops with SMCSD, its tributary agencies, and regulators to discuss the findings, implications, and progress of the work described herein. These workshops will also be used to encourage collaborative action by all of the affected agencies and to provide a common ground for action by all the tributary agencies and SMCSD.

Task 9 Project Management

RMC will be responsible for managing the overall project to completion. The purpose of this task is to establish and maintain effective project management and communication for the project among the team and with SMCSD and the tributary agencies.

9.1 General Project Management

RMC will provide project management as required to lead and coordinate project team, communicate information, perform the work, produce deliverables, and to report and control project costs and schedule performance. Schedule, status reports, and budget updates will be provided monthly. Monthly project status reports will be used to communicate progress on the project, upcoming work activities, and to identify and resolve project issues.

9.2 Kickoff Meeting

RMC will prepare for and attend a kickoff meeting with SMCSD. The purpose of the kickoff meeting is to introduce the project team, discuss communication protocols and confirm the overall approach to the work.

Information to be Provided by SMCSD and Tributary Agencies

It is assumed that each agency will provide a liaison for the RMC team to work with to gather and review maps, files, and data. Information to be provide includes the following:

- Existing Sewer System Management Plans, including Overflow Emergency Response Plans
- Historical SSO data and SSO reports to the RWQCB and SWRCB
- Available sewer maintenance data (sewer segments cleaned, dates) and hotspot list
- Contracts with sewer maintenance companies
- Information on previous sewer, pump station, and force main repairs/rehabilitation/upgrade projects
- Pump station data (record drawings, pump specifications, pump curves, operating set points)
- Information on existing FOG source control program

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- Available historical sewer inspection data
- Available sewer system maps and GIS or CAD files
- Available sewer inventory data (pipe sizes, lengths, material, installation dates, invert elevations, manhole rims elevations)
- Available GIS or CAD base mapping (parcels and streets)
- Available historical flow monitoring data
- Previous reports or other documents related to the sanitary sewer system

Additional Services

If authorized, in writing, RMC may provide additional services under this Project. Level of effort and fee for additional services will be negotiated at the time that the services are requested.

Summary Timetable of EPA Order Requirements

Listed below is a summary timetable of the reports required by the EPA Order.

October 15, 2008

II.A.	Submit Spill Response Plan
III.A.1.	Submit Cleaning and Root Control Plan
III.B.1.	Obtain and Implement MMS
III.D.	Submit FOG Program Report
IV.A.1.	Submit Inspection and Assessment Plan
IV.A.2.	Submit Initial Assessment Report
IV.B.1.	Install Flow Meters
V.A.	Submit and Implement Short-Term Contingency Plan
VII.	Submit Implementation Study Report

April 15, 2009

III.B	Link MMS to GIS map
III.C.1.	Submit Pump Station Report
III.C.2.	Submit Pump Station Certification
III.C.3.	Submit Pump Station Upgrade Plan

October 15, 2009

IV.B.2.	Submit Flow Monitoring Report

October 15, 2010

IV.A.4.	Submit Inspection and Condition Assessment Final Report
IV.B.3.	Submit Capacity Assessment Report
V.B.1.	Submit Capacity Assurance Plan
VI.A.	Submit Infrastructure and Renewal Plan

October 15, 2013

V.B.2.	Complete Short-Term Improvements

Exhibit B - RMC Budget, Estimated by Year

Sausalito-Marin City Sanitary District

Overflow Reduction Action Plan and Response to EPA Order

Tasks		RMC Labor Costs					Totals					Estimated Expenditure by Phase (Year)		
Task	Projected Yr Task Will Be Conducted	Project Manager	Project Engineer(s)	Senior Technical Staff	CAD/ Graphics	Admin.	Total Hours	Total Labor Costs [1]	ODCs [2]	Project Tech. & Comm. Charge [3]	Total Fee	Phase I (2008)	Phase II (2009)	Phase III (2010)
	2008 rates>>	$225	$175	$215	$120	$105								
	2009 rates>>	$234	$182	$224	$125	$109								
	2010 rates>>	$243	$189	$233	$130	$114								
Task 1: Spill Response, Recordkeeping, Notification, Reporting														
1.1 Review and enhance existing procedures	2008	4	32	24			60	$11,660	$250	$350	$12,285	$12,285		
1.2 Recommend collaborative activities	2008	4	8	24			36	$7,460	$150	$224	$7,849	$7,849		
1.3 Compile overall report to EPA (15 Oct 2008)	2008	4	24	16		4	48	$8,960	$250	$269	$9,504	$9,504		
Subtotal Task 1:		12	64	64	0	4	144	$28,080	$650	$842	$29,637	$29,637	$0	$0
Task 2 Collection System Maintenance and Management														
2.1 Review and enhance cleaning + root control program, submit to EPA (15 Oct 2008)	2008	8	40	24		2	74	$14,170	$250	$425	$14,870	$14,870		
2.2 Recommend Maintenance Management System	2008	8	16	32			56	$11,480	$100	$344	$11,934	$11,934		
2.3 Pump Station Reliability Certification submitted to EPA (15 April 2009)	2009	16	120	24	24	4	188	$34,396	$400	$1,032	$35,868		$35,868	
2.4 Fats, Oils, Grease (FOG) Blockage Control Report to EPA (15 Oct 2008)	2008	4	24	24		2	54	$10,470	$150	$314	$10,949	$10,949		
Subtotal Task 2:		36	200	104	24	8	372	$70,516	$900	$2,115	$73,621	$37,754	$35,868	$0
Task 3: Collection System Assessments														
3.1 Pipe, Maintenance Hole Inspect. & Condition Assessment														
3.1a Plan for system-wide condition assessment/summarize prev. inspect'ns(15 Oct 2008)	2008	6	40	24		2	72	$13,720	$100	$412	$14,242	$14,242		
3.1b Condition assessment report (15 Oct2010)	2010	6	60	24		2	92	$18,618	$400	$559	$19,617			$19,617
Subtotal Subtask 3.1		12	100	48	0	4	164	$32,338	$500	$970	$33,858	$14,242	$0	$19,617
3.2 Capacity Assessment														
3.2a Review previous flow monitoring programs/develop monitoring plan (15 Oct2008)	2008	12	40	16	8		76	$14,100	$150	$423	$14,688	$14,688		
3.2b Extend existing hydraulic model into collection systems; calibrate model	2009	8	160	24			192	$36,368	$250	$1,091	$37,734		$37,734	
3.2c Perform model simulations	2009	12	60	24			96	$19,104	$0	$573	$19,677		$19,677	
3.2d Prepare EPA report (15 Oct 2010)	2010	32	60	24	8	4	128	$26,204	$500	$786	$27,540			$27,540
Subtotal Subtask 3.2		64	320	88	16	4	492	$95,776	$900	$2,873	$99,639	$14,688	$57,411	$27,540
Subtotal Task 3:		76	420	136	16	8	656	$128,114	$1,400	$3,843	$133,497	$28,930	$57,411	$47,157
Task 4: Capacity Assurance														
4.1 Short term Contingency Plan, with report to EPA (15 Oct 2008)	2008	24	40	12	16	4	96	$17,320	$100	$520	$17,950	$17,950		
4.2 Capacity Assurance Plan														
4.2a Analyze alternative and develop improvement recommendations	2010	40	80	40	8	2	170	$35,428	$100	$1,063	$36,601			$36,601
4.2b Prepare capacity assurance plan report to EPA (15 Oct2010)	2010	40	40	12	8	2	102	$21,344	$500	$640	$22,534			$22,534
Subtotal Subtask 4.2		80	120	52	16	4	272	$56,772	$600	$1,703	$59,135	$0	$0	$59,135
Subtotal Task 4:		104	160	64	32	8	368	$74,092	$700	$2,223	$77,085	$17,950	$0	$59,135
Task 5: Infrastructure Renewal														
5.0 Preparation of infrastructural renewal plan and submission to EPA (15 Oct 2010)	2010	12	40	32	4	2	90	$18,680	$500	$560	$19,790			$19,790
Subtotal Task 5:		12	40	32	4	2	90	$18,680	$500	$560	$19,790	$0	$0	$19,790
Task 6: Implementation Study and Report														
6.0 Prepartion of study and report, submission to EPA (15 Oct 2008)	2008	16	24	24	4	4	72	$13,860	$200	$416	$14,496	$14,496		
Subtotal Task 6:		16	24	24	4	4	72	$13,860	$200	$416	$14,496	$14,496	$0	$0
Task 7: Support with Reporting to EPA														
7.0 Misc support w progress reporting	2009	16	24	40	4	16	100	$19,316	$100	$579	$20,005	$0	$20,005	$0
Subtotal Task 7:		16	24	40	4	16	100	$19,316	$100	$579	$20,005	$0	$20,005	$0
Task 8 - Workshops w SASM and member agencies														
8.0 Workshops (based on 4 workshops)	2008/09/10	40	64	40	32	16	192	$35,712	$1,000	$1,071	$37,883	$9,471	$18,942	$9,471
Subtotal Task 8:		40	64	40	32	16	192	$35,712	$1,000	$1,071	$37,883	$9,471	$18,942	$9,471
Task 9: Project Management														
9.1 - General Project Management (thru Oct 2010)	2008/09/10	160	60			80	300	$57,080	$100	$1,712	$58,902	$23,561	$23,561	$11,780
9.2 - Kickoff Meeting	2008	6	6	12		2	26	$5,190	$100	$156	$5,456	$5,456		
Subtotal Task 9:		166	66	12	0	82	326	$62,270	$200	$1,868	$64,358	$29,017	$23,561	$11,780
TOTAL		478	1082	516	116	148	2320	$450,640	$5,650	$13,519	$470,374	$167,254	$185,737	$147,334

1. The individual hourly rates include salary, overhead, and profit. Consultant reserves the right to adjust its hourly rate at the start of the calendar year.
2. Other direct costs (ODCs) include large reproduction jobs, mileage, and travel expenses. Subconsultants will be billed at actual cost plus 10%.
3. Project Technology and Communication Charge (3% of labor cost) includes telecommunications, computer usage, and regular reproduction jobs.

Gisa M. Ju, P.E.

Title
Principal

Education
M.S., Civil (Sanitary) Engineering, University of California, Berkeley, 1978

B.S., Civil Engineering, University of California, Berkeley, 1977

B.A., Mathematics, University of California, Berkeley, 1971

Registration
Professional Civil Engineer, California, #31823, 1980

Experience
28 years

Affiliations
Water Environment Federation

California Water Environment Association

Summary

Gisa Ju specializes in civil and environmental engineering, with specific expertise in the planning and evaluation of sewer system facilities. She has conducted master planning and evaluation studies for numerous municipal sewer systems, including infiltration/inflow analyses and sewer system condition assessments. She also has extensive experience in the use of data management, analysis, and hydraulic modeling programs. Gisa is responsible for sewer evaluation, I/I analysis, master planning, and sewer system management projects, and has provided technical review and guidance for projects throughout California and the U.S.

Relevant Experience

Sewer Evaluation, Master Planning, and Asset Management

Sewer System Management Plans, Various Clients
Project Manager/Technical Director. Gisa directed the preparation of several Sewer System Management Plans (SSMPs) for Northern California agencies, including the Fairfield-Suisun Sewer District, Cities of Fairfield and Suisun City, Ross Valley Sanitary District, Dublin San Ramon Services District, City of Los Altos, and Town of Los Altos Hills. The SSMPs will meet the requirements of the San Francisco Bay Regional Water Quality Control Board and the new Statewide General Wastewater Discharge Requirements. The projects included an initial "gap analysis" to compare the agencies' existing procedures and practices to the requirements of the Regional and State regulations. Preparation of the SSMPs involved developing Overflow Emergency Response Plans; fats, oils, and grease (FOG) control programs; operation and maintenance, sewer condition assessment, and rehabilitation programs, and capacity assurance plans, as well as other related elements. Gisa has also assisted the Russian River Watershed Association in developing cooperative strategies for its 11 member agencies to use in developing their SSMPs by sharing information and implementing joint programs.

Sewer System Assessment and Capital Planning, Ross Valley Sanitary District
Deputy Project Manager. Gisa directed a comprehensive assessment of a 190-mile sewer system, including development of a condition assessment methodology and data requirements, CCTV specifications, Sewer System Management Plan, and recommended capital improvement projects. Gisa is currently assisting the District in implementing their sewer inspection and condition assessment program.

Sewer System Capacity Assessment, City of Santa Clara
Project Manager. Gisa managed a comprehensive sewer system capacity assessment to identify the long-term sewer system capacity needs for the City. The project included wet weather flow monitoring at 26 locations to obtain data to calibrate a hydraulic model of the trunk sewer system. The City is experiencing many new development and redevelopment projects and the

associated need to identify needed sewer improvements to accommodate those developments and determine funding requirements. To help the City in responding to immediate development pressures, a fast-track modeling and cost analysis for the west side of the City was completed in two months, early in the project. A comprehensive model of the entire trunk system was developed and used to identify existing and future capacity deficiencies and develop a long-term capital improvement program of sewer improvements.

Sanitary Sewer Model, City of Roseville
Technical Director. Gisa provided technical direction to the project team preparing a comprehensive hydraulic model of the City's sanitary sewer system using H20Map Sewer, which was selected to best meet the City's needs for assessing the flow impacts of new development and redevelopment in the system. The sewer model includes a GIS interface to allow the City to effectively manage the impacts of growth within its service area. The model was calibrated for dry and wet weather conditions based on flow monitoring data collected at 25 locations in the system. The model was used as part of a regional wastewater systems evaluation, and will be used in the future by City staff to track and evaluate the flow impacts from new developments.

Sewer Hydraulic Evaluation and Capacity Assurance Plan, Ross Valley Sanitary District (RVSD)
Technical Director. Gisa directed a comprehensive capacity assessment of the RVSD collection system. The study included a wet weather flow monitoring program at 20 sites in the system; development and calibration of an InfoWorks hydraulic model of the trunk sewer system, including the major pump station and force main network that conveys flows to the Central Marin Sanitation Agency's wastewater treatment plant; evaluation of the capability of the system to convey peak wet weather flows for a 5-year design rainfall event; and development of required capacity improvement projects, including relief sewers and pump station expansions.

Wastewater Collection System Master Plan Updates, Dublin-San Ramon Services District
Project Manager. Gisa completed the updates of the Dublin-San Ramon Services District's collection system master plan in 2000 and 2005. These projects included comprehensive analyses of the capacity of the District's trunk sewer system, including capacity needs for new development, development of a 5-year Capital Improvement Program, and the basis for connection fees. Gisa worked closely with the District's financial services staff and fee consultant to identify the projected growth in the service area on a year-by-year basis and the allocation of capital improvement costs to existing and new connections.

City-Wide Sewer System Study, City of San Mateo
Project Manager. Gisa managed a comprehensive study of the capacity needs of the City's of San Mateo's wastewater collection system. The study was conducted in two phases: the first phase focused on the Los Prados-South Shoreview area, and the second phase on the trunk systems serving the major part of the City located west of Highway 101. A dynamic hydraulic model of the system was developed and calibrated to flow monitoring data collected over a several year period. Population and employment projections were used to estimate wastewater flows for existing and future conditions. The model was used to identify critical capacity deficiencies and develop capacity relief projects needed to convey existing and future flows. Capital cost estimates for proposed facilities were developed to be used as the basis for the City's capital improvement budgeting.

Sanitary Sewer Master Plan, City of San Jose
Project Manager. Gisa managed the preparation of the Master Plan for the South Area of San Jose, one of the three areas addressed in the City's Phase I master planning effort. As part of a master planning team of City staff and three consultants, she was responsible for development of a coordinated modeling plan for the entire master planning team, final delivery of the integrated model to the City, and providing model training and support to City staff. She managed wet weather flow monitoring, development of land use mapping and

flow projections, assessment of hydraulic capacity of the trunk sewer system, and development of recommended capacity improvement projects and a proposed Capital Improvement Program. Gisa coordinated the final Master Plan report, which incorporated the results from all master plan areas into a comprehensive document. Gisa is currently managing preparation of the Phase II Master Plan, which addresses the remaining areas of the City, as well as an update to the Phase I areas to include an expanded sewer network and more focused analysis on priority development areas.

Sewerage Facilities Expansion Master Plan, County Sanitation District 1 of Sacramento County
Project Manager. Gisa served as Project Manager for this comprehensive sewer system master plan for County Sanitation District 1, which owns and operates a 2,500-mile wastewater collection system serving a population of over 750,000 in the Sacramento urban area. The project included development of a GIS-based hydraulic model, a flow monitoring program to obtain data to quantify flows and calibrate the model; hydraulic analysis of the existing trunk system to develop solutions for alleviating wet weather capacity issues and potential overflows; development of detailed "trunk shed plans" for serving the future expansion of the service area; and development of a $517 million Capital Improvement Program of sewer improvements and expansion. The project also included an analysis of approaches for financing future trunk sewer construction, including alternative approaches for setting connection fees and reimbursing developers for the cost of constructing new trunk sewers.

Sewer Master Plans, Union Sanitary District
Project Manager. Over the past 15 years, Gisa has managed sewer master planning studies for Union Sanitary District in Fremont, California. She used the District's computer model to analyze system capacity requirements and evaluate flow routing alternatives. To analyze sewer system rehabilitation needs, a pipe condition assessment program in Microsoft Access™ was developed to use the District's maintenance history and TV inspection data to develop condition ratings of each sewer in the system and develop preliminary recommendations and budget estimates for rehabilitation. Construction projects were recommended to cost-effectively address capacity, structural, and maintenance problems.

Sewer System Master Plans and Hydraulic Modeling, Various Clients
Project Manager. Gisa managed sewer system master plans for Central Contra Costa Sanitary District, Fairfield-Suisun Sewer District, and the Cities of Palo Alto and Pittsburg. These projects involved comprehensive planning for improvements and expansion to the wastewater collection systems serving these growing communities. Land use planning information and sewer network data were developed using GIS tools (Arc/Info, ArcView, and AutoCAD) to develop integrated models of the sewer systems. Based on model results, critically needed sewer system improvements were identified and developed in sufficient detail to allow the agencies to plan for design and construction of the facilities.

Sewer Condition Assessment, County Sanitation District 1 (CSD-1) of Sacramento County
Project Manager. This condition assessment project involved inspection using CCTV and Sewer Scanner Evaluation Technology (SSET) of 250,000 feet of 6- through 60-inch sewer pipes. Gisa directed the development of new digital data standards and preparation of a comprehensive CCTV inspection manual for the District, which includes new observation codes, specifications for digital video and data delivery, and inspection procedures. The data will be linked to GIS to present condition assessment results and imported into the District's computerized maintenance management system.

Asset Management Needs Assessment, Union Sanitary District
Project Manager. Gisa managed an Asset Management (AM) Needs Assessment project that included strategic planning, asset management gap analysis and risk management evaluations, and development of an asset management implementation strategy. Major elements included interviewing key staff regarding asset management goals and practices, comparing current practices to established AM best practices, and

developing a risk-based prioritization scheme to analyze and evaluate key gaps in current AM practices. Gisa provided ongoing coordination with client staff and management, and a dedicated AM workshop with the Board of Directors.

Local Sewer Evaluations, Fairfield-Suisun Sewer District and City of Fairfield

Project Manager. Gisa directed two projects focused on the evaluation of local sewers (6 through 10-inch) in the Cities of Fairfield and Suisun City. In these projects, CCTV and manhole inspection data were analyzed to perform a condition assessment of selected older sewers and sewers with maintenance problems. A database application was used to develop condition ratings for each of the inspected sewers. Specific rehabilitation recommendations were developed based on the condition assessment results, review of the videotapes, and site visits to the project areas.

Capacity, Management, Operation and Maintenance (CMOM) Assessment, County Sanitation District 1 (CSD-1) of Sacramento County

Task Leader. Gisa participated in the first phase of this project which involved extensive interviews with District staff and review of inventory and operational performance data for the District's 2,500-mile sewer system. A comprehensive audit report was produced to document the results of the review and identify gaps in the District's current data and practices.

Engineers' Report for Bond Sale, Sacramento Regional County Sanitation District and County Sanitation District 1

Principal Author. Gisa was one of three principal authors of the engineering report to support the sale of bonds for construction of sewer system capital improvements for Sacramento Regional County Sanitation District and County Sanitation District 1. The report detailed the 20-year capital improvement requirements of the two districts, presented the justification for the capital improvement projects, and estimated the anticipated growth and revenue required to finance the construction of required capital improvements.

Wastewater Collection System Rehabilitation and Expansion Reports, International Boundary and Water Commission

Project Director. Gisa directed the preparation of a Wastewater Collection System Rehabilitation and Expansion Report for Reynosa, Mexico and assisted in a similar project for Matamoros, Mexico. These projects, administered by the International Boundary and Water Commission, included extensive field evaluation of the collection system, including manhole and CCTV inspections, flow monitoring, lift station evaluations, hydrogen sulfide sampling and corrosion survey, and ground and GPS survey of the trunk sewer systems. Hydraulic models were developed and used to analyze the capacity of the systems. The studies also developed comprehensive design standards to be used to implement the recommended 20-year capital improvement programs.

Conveyance System Master Plan, Delta Diablo Sanitation District

Project Manager. Developed design flows for the District's pump stations, interceptors, and equalization facilities. Hydraulic analysis was conducted to determine the optimum combination of pumping, transport, equalization and treatment/disposal capacity to meet existing and future requirements. A phased capital flow "trigger points" was identified for each future project.

Sewer System Facilities Plan, Central Contra Costa Sanitary District

Project Engineer. Gisa prepared a sewer system facilities plan for the Martinez portion of the Central Contra Costa Sanitary District. The system includes 40 miles of pipelines, including three pump stations. The project involved extensive field work, including flow monitoring and sewer testing and inspection. Gisa completed an I/I cost-effectiveness analysis and developed a 20-year capital improvement program to renovate the existing sewer system and provide additional trunk sewer capacity. She also directed the preparation of a manual for sewer system evaluation field work.

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Infiltration/Inflow and Wet Weather Studies

Wet Weather Infrastructure and I/I Studies, East Bay Municipal Utility District
Task Leader. Gisa is leading the evaluation of regional I/I reduction and management alternatives as part of a comprehensive study to evaluate means for reducing wet weather discharges from EBMUD's wet weather facilities. The task includes assessing the effectiveness of I/I reduction efforts by other agencies and by the EBMUD communities; analysis of flow monitoring data to quantify current peak wet weather flows compared to predicted flows; and evaluation of potential regional I/I management alternatives, including private lateral replacement programs and best practices for I/I investigation and control.

Wet Weather Conveyance and Treatment Plant Evaluation, Sausalito-Marin City Sanitary District (SMCSD)
Project Manager. Gisa is managing a study to develop a plan to provide needed peak wet weather flow capacity for the SMCSD conveyance system and treatment plant. The work includes continuous simulation of wet weather flows to determine the expected frequency, duration, and volume of peak flow events; hydraulic modeling of the conveyance system, which includes a gravity interceptor, several major pump stations and force mains, and a wet weather diversion pump station; and analysis of treatment options to minimize or eliminate blending during peak flow events. Solutions are focusing on I/I reduction, upstream storage, and consolidation of pump stations to reduce peak flows reaching the treatment plant, which is located on a very constrained site adjacent to San Francisco Bay. The project also provided information for the No Feasible Alternatives Analysis to blending required for the District's NPDES permit renewal.

Locust Street Pump Station Wet Weather Flow and Capacity Study, Sausalito-Marin City Sanitary District
Technical Director. Gisa was the technical director for a study to evaluate alternatives to handle design peak wet weather flows in the portion of the SMCSD interceptor system tributary to its Locust Street Pump Station. The study included analysis of historical flow monitoring data for the Locust Pump Station and SMCSD wastewater treatment plant to calibrate a continuous simulation model (PICS/MOST). The model was used to estimate peak flows for various recurrence frequencies and identify appropriate design rainfall events. A hydraulic model of the interceptor system was developed using EPA SWMM5 software and calibrated to flow and rainfall data collected during winter 2004/05. Based on the model results, alternatives were developed and assessed, including increasing existing gravity interceptor and pump station capacity, expansion of an existing wet weather diversion pump station, and in-line and upstream off-line storage.

Greater Houston Wastewater Program, City of Houston
Technical Director. Gisa was extensively involved in the Greater Houston Wastewater Program, where she directed the development of design flow projections for hydraulic modeling of the sewer system and system cost-effectiveness analysis. She also participated in a sewer rehabilitation demonstration project and development of a long-term sewer system maintenance program, and developed procedures for analysis of pre-and post-rehabilitation flow data and permanent monitoring data.

Rainfall-Induced Infiltration into Sanitary Sewer Systems, U.S. EPA
Project Engineer. Gisa prepared a study on Rainfall-Induced Infiltration into Sanitary Sewer Systems. She reviewed documentation from numerous systems throughout the country with rainfall-induced infiltration problems, and conducted site visits to several systems. She also evaluated methods and approaches for controlling rainfall-induced infiltration, and prepared a Report to Congress summarizing the results of the study.

Infiltration/Inflow Study, Cities of Albany, Berkeley, Emeryville, and Oakland
Project Engineer. Gisa's primary responsibility was the analysis of the cost-effectiveness of sewer system rehabilitation to reduce I/I. She completed the final Manual for Cost-Effectiveness Analysis which described the methodology used for the project. She was involved in the analysis of flow monitoring data, interpretation of field work results, capacity analyses using computer modeling, and development of the

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recommended I/I correction and capacity involvement programs. Gisa conducted a study on lateral testing and inspection methods for the City of Oakland, and evaluated policy alternatives for implementing private lateral testing and rehabilitation.

Flow Monitoring and I/I Studies, Various Clients
Project Manager or Engineer. Over the past 25 years, Gisa has been involved in flow monitoring and I/I studies for numerous agencies, including the Central Contra Costa Sanitary District, Vallejo Sanitation and Flood Control District, Fairfield-Suisun Sewer District, Delta Diablo Sanitation District, Napa Sanitation District, and the Cities of San Mateo, South San Francisco, San Jose, Petaluma, and Scotts Valley, California.

Publications/Presentations

"Approaches to Preparing an SSMP and Maximizing its Benefits," Gisa Ju and John Larson, presentation to the Northern California Pipe Users Group, June 2007.

"Implementing a Comprehensive Sewer Inspection Program in the Digital Age," Debbie Myers, John Boehm, Gisa Ju, Craig Smith, Michael Massaro, Tim Williams, Ken Holmes, Water Environment Federation Collection Systems Conference, June 2003.

"Analyses of Sanitary Sewer Flow Data and the Demonstration of I/I Reduction," Joe Samson, Gisa M. Ju, George C. Riek, William H. Sukenik, Water Environment Federation Annual Conference, October 1998.

"Sewer Monitoring as a Maintenance Tool," Yeh-Min Maa, Michael J. Bagstad, Haitham Awwad, and Gisa M. Ju, Texas Water '98 Conference, April 1998.

"Houston's Proactive Approach to System Diagnosis and Repair," by Arthur D. Kidder, Michael J. Bagstad, Haitham Awwad, and Gisa M. Ju, Water Environment Federation Annual Conference, October 22, 1997.

"The Sanitary Sewer Evaluation Study, or How to Turn Your O&M Headaches to CIP Projects," by Mike Everett, Gisa Ju, and Marc Solomon; Northern California Pipe Users Group Sharing Technologies Seminar, February 27, 1997.

"Database Facilitates Long-Term Planning for Sewer Rehabilitation," by Gisa M. Ju, David J. Hackworth, Richard B. Currie, and Richard J. Davis; Water Environment Federation Specialty Conference on Sewers of the Future, September 1995.

"Interactive Graphic Computer Model Facilitates Infrastructure Planning: Three Case Studies," by Gisa M. Ju, John M. Abrera, Martin Gonzales and C. Alan Wiley, Michael A. Maggi, and Michael J. Barnes; Water Environment Federation Specialty Conference on Computers in the Water Environment, August 9, 1993.

Stephen Clary, P.E.

Title
Principal

Education
M.S. Civil/Environmental Engineering, University of California, Davis

B.S. Civil Engineering, University of California, Davis

Registration
Professional Civil Engineer, California, #30318, 1979

Experience
30 years

Summary

Steve brings a diverse understanding of water and wastewater issues developed during his experience on projects around the world and in California.

Most recently Steve was the project manager for the study and design of Novato Sanitary District's new treatment plant, flow equalization, and transfer pump station to convey and treat flows with a 7:1 peak to average flowrates without blending.

Steve was program director for Sydney's $2 billion Clean Waterways Program. More than half of this program was devoted to the reduction of collection system overflows. Steve managed the study and design of system-wide improvements including deep tunnel storage, rehabilitation of the city's 12,000 mile collection system, and capacity improvements to 29 treatment plants and over 600 pump stations. Using the same analysis techniques that RMC will bring to the City of San Mateo's study, he was able to reduce the program cost by nearly 50% while still meeting the environmental and regulatory goals of the program.

Steve also has significant experience with wet weather overflow projects for California clients including East Bay MUD's I/I Study and Wet Weather Program, Central Contra Costa SD's Treatment Plant Master Plan, and design of Delta Diablo San District's treatment plant and flow equalization facilities.

Relevant Experience

Wastewater Treatment Facility Upgrade, Novato Sanitary District
Project Manager. Project includes constructing a new 7-mgd treatment plant consisting of flow equalization facilities, influent pump station and headworks including screening and grit removal, primary sedimentation, secondary treatment using activated sludge process, UV disinfection, solids thickening using gravity belt thickeners, anaerobic digestion, co-generation facilities, and odor control. These facilities will convey and treat flow rates with a 7:1 peak (up to 47 MGD) without blending, thus allowing the District to avoid the ambiguities of the EPA's blending policy.

Clean Waterways Program, Sydney, Australia
Program Director. Steve served on this program for over eight years, and was the program director for its final six years. He led a joint team in the developing and implementing this $2 billion program which addressed the water quality, beach quality, effluent reuse, biosolids management, financial, and political aspects of Sydney Water Corporation's service to 3.8 million persons. The program included a $300 million deep storage tunnel to alleviate overflows to Sydney

Harbour, upgrades to 19 treatment plants to prevent algae blooms on inland rivers, and upgrades to 10 coastal treatment plants to increase reliability and protection of high-value recreational beach areas. The 29 plants evaluated ranged in capacity from 1 to 150 MGD; capacity and treatment levels (ranging from primary treatment to extreme levels of nutrient removal) were optimized for each facility. He oversaw extensive collection system modeling for rehabilitation and expansion to meet explosive growth as well as wet weather performance objectives. The program, which complied with U.S.-equivalent environmental regulations for biosolids and CMOM for collection systems, also included extensive negotiations with environmental agencies, environmental activists, the government pricing tribunal, and community-based citizen groups. Program costs were reduced from $4 billion to $2 billion while maintaining original environmental and customer service goals.

Wet Weather Infrastructure Improvements Study, East Bay Municipal Utilities District *Task Manager.* Responsible for the analysis of wet weather flow storage and conveyance alternatives and main treatment plant improvements to address the EPA's changing policy on blending and use of wet weather treatment plants having less than full secondary treatment. The analysis includes the potential siting of flow storage facilities in highly urbanized areas with poor geotechnical conditions, and modifications to the main treatment plant's existing primary and secondary treatment facilities to increase plant capacity and minimize blending.

Design of Wet Weather Improvements, East Bay Municipal Utilities District *Project Manager/Engineer.* Responsible for the analysis and design of hydraulic and process improvements at the utility's main plant in Oakland, California to allow the plant to process peak wet weather flows of 425 MGD.

Infiltration/Inflow Analysis, Stege Sanitary District *Project Manager.* Directed the analysis of for this utility as part of the overall East Bay Municipal Utility District I/I Study including the hydraulic modeling and cost effective analysis of recommended overflow reduction measures.

Treatment Plant Master Plan, Central Contra Costa Sanitary District *Project Engineer.* Responsible for the master planning of treatment plant improvements with particular attention to the conveyance and treatment of peak wet weather flows. This study used the PICS/MOST analysis to simulate a 30 year continuous flow record into the treatment plant and developed the overall optimization of pumping capacity, outfall capacity, flow storage, and treatment capacity to meet RWQCB mandate performance levels.

Design of Headworks Improvements, Central Contra Costa Sanitary District *Project Manager.* Managed the design of headworks improvements to allow the treatment plant to convey up to 295 MGD to treatment and

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flow storage facilities. These improvements were identified in the Master Plan work described above.

Wastewater Treatment Facility Expansion, Yuba City
Project Manager. Managing wastewater treatment facility expansion project to address aging infrastructure, to meet regulatory requirements, and to provide capacity for the projected buildout of the service area in accordance with the City's adopted General Plan. RMC is assisting the City in implementing process improvements and capacity expansion projects to increase the firm average dry weather capacity of the wastewater treatment facility to 12.6 million gallons per day (MGD).The project includes the pre-design of treatment process upgrades to every process within the treatment plant, and final design of a new solids thickening facility.

Integrated Water Quality Management Plan Implementation, City of Malibu
Project Manager. RMC is designing a series of integrated projects in Malibu's Civic Center area to collect, treat and reuse runoff and wastewater while turning a vacant property into a community and environmental amenity. This phased program includes construction of vegetated stormwater detention basins, intermittent wetlands, and riparian habitat on 15 acres of recently acquired vacant land; development of passive recreation and educational facilities; and development of community wastewater collection, treatment, reuse, and dispersal facilities. The program addresses TMDLs for bacteria and nutrients in the watershed to provide cleaner waters and beaches. Activities include working with key local and regional stakeholders to meet regional goals for water quality and funding for project implementation.

Revised Basin Management Plan, Pajaro Valley Water Management Agency (PVWMA)
Project Manager. Managing plan that will solve the basin overdraft and resultant seawater intrusion problem of the Pajaro Valley. The plan recommendations include developing in-basin surface and recycled water supplies, importing Central Valley Project supplies, increasing levels of water conservation, and banking both in-basin and out-of-basin water. Implementation of the recommended plan was made possible, in part, by the successful Proposition 13 grant application managed and prepared by RMC. The $28.6 million in grant funds will reduce the burden of the local funds needed to implement the $150 million water supply project.

Local Water Supply Program, PVWMA
Program Manager. This $80 million project is focused on developing supplemental water supplies for the Pajaro Valley area adjacent to Watsonville, California. The project has evaluated alternative water supplies including the use of recycled water. The project includes evaluating impacts to in-stream beneficial uses, including migration and spawning grounds for steel-head fisheries. The primary objective of the

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program is to develop an alternative water supply to offset groundwater pumping and prevent seawater intrusion.

Wastewater Management/Reuse Study, Los Osos Community Services District (LOCSD)
Program Manager. Steve managed a study to investigate alternative ways to manage the treated wastewater effluent from the proposed treatment facility so at a minimum, disposal was achieved, and optimally, the local water supply would also be enhanced. Several strategies to achieve these goals were investigated including, delivering recycled water to customers for landscape and agricultural irrigation, using existing or new leach fields to dispose of a portion of the effluent, introducing recycled water into the domestic supply groundwater basin, and discharging the treated effluent to Los Osos Creek. Authored the Master Plan/Facility Plan that broke the 17-year stalemate between the Central Coast Regional Water Quality Control Board (RWQCB) and the local populace through practical collection system design and innovative achieve defacto indirect potable reuse acceptable to the community and the California Department of Health Services (DHS). Conducted extensive negotiations with the California Coastal Commission, the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and the Central Coast RWQCB.

Wastewater Program, Greater Cairo, Egypt
Project Manager/Engineer. Responsible for the analysis and design for total rehabilitation/replacement of over 100 pump stations and force mains serving more than 12 million people.

Liquid Process Design, Water and Wastewater Utility of Bogotá, Colombia
Project Manager/Engineer. Responsible for the design of liquid processes for wastewater treatment plant serving more than 5 million people. Treatment plant included pumping, preliminary treatment, primary treatment and secondary treatment for peak flows of 1,300 MGD.

Site Utilities Design, Marine World/Africa USA
Project Manager. Design of site utilities (gas, electric power, water) for new $40 million Marine World/Africa USA wildlife and entertainment park in Vallejo, California. Project included extensive coordination with the City of Vallejo.

Wastewater Treatment Plant Improvements, City of Richmond
Project Manager. Design of wet weather flow modification (40 MGD) to wastewater treatment plant at Richmond, California

Wastewater Outfall, Sewerage Agency of Southern Marin
Resident Engineer. Resident engineer for the construction of a sub-marine wastewater outfall at Tiburon, California.

Michael A. Flores

Title
Senior Project Manager

Education
Master of Science, Engineering, Harvey Mudd College, 1993

Bachelor of Science, Engineering, Harvey Mudd, 1992

Experience
14 years

Affiliations
Water Environment Federation, Collection System Committee

Water Environment Federation, Government Affairs Committee Liaison Project

Water Environment Federation, Member

Summary

Michael Flores has over 14 years of experience in the water and wastewater field with a primary focus on infrastructure management, operations, maintenance, and capital program planning. Michael has managed or served a senior technical resource on several large and complex consulting engagements including clients such as the City of San Diego, Clark County Water Reclamation District, and the City of Los Angeles focused on planning and implementing business process changes and information management solutions. He has also supported several of the largest cities in the United States with regulatory and litigation support for their wastewater collection system programs.

Relevant Experience

Bingham McCutchen, EPA Baykeeper Litigation Support, City of Los Angeles
Senior Consultant. Served as a senior consultant on the litigation support team for the City of Los Angeles during their EPA/Baykeeper lawsuit. He assessed wastewater collection system operations, capital program planning, and capital improvements program and provided technical support and analysis to the litigation team.

Sewer Renewal and Odor Control Support Services, City of Los Angeles
Project Manager. Managed a project to provide wastewater collection support services to the Bureau of Sanitation. This included the development of the Rehabilitation and Replacement Report and Plan, a required deliverable of the EPA/Baykeeper Settlement Agreement that estimates the rehabilitation and replacement needs for the seven-year Settlement Agreement.

Metropolitan Wastewater Department (MWWD), Business Process Reengineering Support Services, City of San Diego
Senior Project Manager. Responsible for supporting City staff through a City reengineering program. He managed the preparation of a Statement of Work identifying the activities that the Wastewater Collection Division performs and developed a Private Market Proposal for performing those services. Michael was also responsible for working with City staff to develop a Competitive Employee Bid. The final deliverable was a Reengineering Report documenting all previous deliverables and assumptions as well as a set of recommendations for initiatives that will enable the City to compete with private operations contractors.

System Optimization and Support Services, City of San Diego, Metropolitan Wastewater Department
Project Manager. Managed $1.4 million in consulting support services that resulted in the development of maintenance access plans, the implementation of business process improvements, and the planning, development, and implementation of several custom information systems to support wastewater collection operations. Maintenance Access Plans

were developed for environmentally sensitive canyon areas. Business processes improvement were implemented for sewer cleaning planning and QA/QC, CCTV and construction planning, and Fats, Oils, and Grease Program planning, scheduling, and inspection.

Sanitary Sewer Management Plan (SSMP) Implementation Support Services, City of Folsom
Project Manager. Managed a contract to support the City of Folsom with implementation of their Sanitary Sewer Management Plan. Activities completed to date include an Odor Control Assessment Report analyzing odor hot spots and development of a set of recommendations to minimize odor complaints in hot spot areas. Support has also included a review of their Fats, Oils, and Grease Ordinance and the development of a draft revision to the ordinance.

Force Main Assessment and Contingency Plan and Sewer Overflow Response Plan, City of Lathrop
Project Manager. Managed and performed an evaluation of a failure of a 12-inch diameter PVC force main. The Force Main Evaluation Technical Report included an analysis of available operating data, failure modes, and resulted in a set of recommendations to minimize the risk of future failures. The project also included the development of a Sewer Overflow Response Plan that detailed specific procedures for the City to follow in the event of a sewer overflow.

Managed Competition of Water and Wastewater Systems, Sewerage & Water Board of New Orleans, New Orleans, Louisiana
Technical Consultant. Served as a project consultant supporting the City of New Orleans staff in analyzing the readiness of City staff to compete with private operations firms and with developing a bid to compete with private wastewater operations firms for providing wastewater services to the City of New Orleans.

Task Order 19 - Regulatory Compliance and Optimization Support - Wastewater Collection Division, City of San Diego
Project Manager and Construction Task Lead. Led organizational change management services and operations support that included several multi-disciplinary tasks. The tasks included environmental access documentation, regulatory reporting, performance agreement reporting, organizational change implementation, environmental management system consulting, and the development of pump station emergency response plans.

Program Management/Construction Management Program, Task Order 15 - EPA Administrative Order Planning, Organizational Restructuring, and Optimization Recommendation Implementation Support Services - Wastewater Collection Division, City of San Diego, Metropolitan Wastewater Department
Senior Project Manager. Responsible for managing $2.8 million of consulting support services provided to the Wastewater Collection Division. Support included the development of Wastewater Collection System Plans in response to an EPA Administrative Order as well as implementation of key initiatives to meet the requirements of the plans that were delivered to the EPA. Implementation services included business process modifications, including modifications to policies and procedures, introduction of centralized planning support, modifications to and rapid deployment of information systems, implementation of Environmental Management Systems, and the development of Sewer Overflow Response and Tracking Plans.

Program Management/Construction Management Program, Task Order 1 - Organizational Restructuring and Optimization Support Services for the Wastewater Collection Division, City of San Diego Metropolitan Wastewater Department
Project Manager, Implementation Support Services. Managed a $1.8-million management consulting project with the City of San Diego Wastewater Collection Division to implement key optimization initiatives focused on improving operational planning and scheduling, training operations personnel in industry best practices in cleaning, construction, and closed circuit television, supporting the rollout of a new computerized maintenance management system for field operations and creating an environmental

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management system. Key services provided include support in the use of database mining techniques and Geographical Information Systems (GIS) including training and GIS toolkit design. Other key services include meeting design, facilitation support services, training design and support, design of computerized maintenance management system requirements and procurement support, development of standardized maintenance and standardized operating procedures, and implementation of performance management systems.

Operational Assessment and Optimization Plan. Wastewater Collection Division Operational Assessment, and Optimization Plan, City of San Diego

Assistant Project Manager. Worked closely with City staff to assess the operations of the City of San Diego Wastewater Collection Division and to determine the key areas where performance and service level could be improved. Operational groups were studied from the managerial level to the line staff level. These groups include sewer cleaning and repair groups, pump station operation and maintenance groups, television inspection crews, grease control inspectors as well as administration and engineering support groups. Michael performed studies and authored reports detailing best practices in the wastewater collection industry including a comprehensive Operational Assessment for the division, and Optimization Plan. Other notable work products resulting from this project include the creation of a sewer overflow reduction goal, a preliminary estimate of capital needs, a capital support plan, business plan, public contract operations agreement, and a Memorandum of Understanding.

Capacity, Management, Operations and Maintenance (CMOM) Assessment, Clark County Water Reclamation District (CCWRD)

O&M Services Task Leader - Optimization. Performed CMOM assessment for the 2,100-mile Las Vegas, Nevada, collection system, 24 pumping stations, and 22 odor control sites. Assessment focused on the adequacy of O&M department, and assisting staff in the development of programs and procedures needed to meet CMOM requirements. Interviewed management and staff, reviewed documents, toured facilities, analyzed data, and prepared a written report. Identified gaps between the current CCWRD collection system programs and the proposed EPA CMOM requirements.

NDOT Sign Inspection, Nevada Department of Transportation

Project Engineer. Provided inspection and inventory services for overhead sign support structures, high mast lighting structures and traffic signal structures for the NVDOT across the state of Nevada.

North City and San Pasqual WRP Optimization Recommendations, City of San Diego

Project Engineer. Participated in a detailed energy audit, process audit, and staffing level evaluations of the North City Plant, the San Pasqual plant. Reviewed staffing levels of all of these facilities with respect to typical staffing levels at municipal wastewater facilities. Provided recommendations for optimizing the use of energy, chemicals, and staffing at the facilities. Prepared benchmarks to incorporate into Bid and Goal Agreement.

Competitive Business Plan, King County, Washington

Project Engineer. Reviewed operational change strategies produced by employees and provided private sector strategies in the creation of a competitive business plan for King County, which includes the City of Seattle. Included was an assessment of the organizational structure of the operations groups, a staffing evaluation, optimization recommendations, and identification of issues that could potentially result from staff recommendations.

Operational Assessment and Optimization Recommendations, County of Spokane, Washington

Project Engineer. Assessed the operational activities of the County of Spokane wastewater collections operations. Operational groups assessed included cleaning, CCTV, construction, and package treatment plant operations. The assessment report and recommendations resulted in the clarification of a growth strategy for the operation and was extremely well received by the client.

Operational Assessment, Optimization Recommendations, and Mock Bid, City of Fresno
Project Engineer. Performed an operational assessment of the City of Fresno and created an optimized employee bid as part of a mock managed competition process. Michael assessed cleaning, construction, CCTV, and pump stations activities and estimated competitive staffing levels and costs for each activity. He also advised the city on potential private bid outcomes based on variations in service level and costs and counseled the city in a strategy to produce a bid that was fair to employees and competitive.

Water Rate Study and Infrastructure Valuation, City of San Diego
Project Engineer. Project engineer for a detailed rate study for a large municipality. The rate study investigated the cost of the service that the municipality provides to a private water supplier. Issues included allocation of costs related to capital assets, capital improvements projects, and operations and maintenance of treatment and distribution facilities. Determined joint-specific cost allocations and allocations of base-extra capacity to determine cost of service. Michael also performed a system valuation of a portion of the water distribution infrastructure.

MWD Diemer Plant Energy Audit, Orange County
Project Engineer. Project engineer for a detailed energy audit of the Metropolitan Water District's Diemer Filtration Plant and OC-88 Pumping Station. In addition, recommendations were provided to optimize the use of energy, chemicals, and staffing at the facility.

SERRA-Regional Treatment Plant Modifications Design Project, City of Dana Point
Project Engineer. Optimization study of two 13-mgd plants. The team found wastewater energy savings (15 energy conservation measures [ECMs]), process improvements, and labor savings of $941,500 per year for the SERRA plant, and $730,500 per year for the AWMA plant. Michael conducted interviews with staff groups at both plants to get feedback on plant management and operation and maintenance group interactions. Performing staff level evaluations for both WWTPs.

SOCWA, SCADA Improvements for AWMA RTP, Aliso Water Management Agency
Project Engineer. Predesign and design of SCADA improvements for AWMA RTP to automate the 13-mgd activated sludge plant to allow unattended operation during swing and grave shifts.

City of Las Vegas, Treatment Plant Chlorination System Design. Las Vegas, Nevada
Project Engineer. Designed the layout of the chlorination building chemical storage tanks, metering pumps, piping, and roadway access. Produced design drawings for the chlorination building and specifications for chemical storage tanks and equipment.

San Clemente Main and Frontera Pump Station Design, City of San Clemente
Project Engineer. Assisted in the design of improvements to two sewage pump stations. Design included the addition of new pumps, motors, VFD's, electrical panels, odor control equipment, improved ventilation, and corrosion protection of the existing wet wells. Produced Frontera Pump Station piping layout from pumps to existing force main. Also determined electrical loading and sized and produced equipment and piping layout for the ventilation system in Main and Frontera Pump Station.

EPA Simultaneous Compliance Guidance Manual
Developed an EPA Simultaneous Compliance Guidance Manual for utilities that will need to simultaneously comply with upcoming regulations such as the Interim Enhanced Surface Water Treatment Rule, the Stage 1 Disinfectants Byproducts Rule, and the Lead and Copper Rule. Wrote a chapter that reviews the compliance issues of the Interim Enhanced Surface Water Treatment Rule and the Stage 1 Disinfectants Byproducts Rule.

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Surface Water Treatment Rule Compliance, EPA Guidance Manual
Project Engineer. Developed an EPA Guidance Manual for utilities with uncovered finished water reservoirs. Reviewed latest developments and authored several chapters. The manual provided guidance for utilities that must comply with the Interim Enhanced Surface Water Treatment Rule and the Stage 1 Disinfectants Byproducts Rule. Manual included policies and regulations, sources of contamination, mitigation of water quality degradation, monitoring, and flexible membrane covers and liners for reservoirs.

Aquarium Life Support System Design, Moody Gardens Aquarium, Galveston, Texas
Project Engineer. Supported the design of the life support system for five aquarium exhibits with tank sizes ranging from 100K to 1M gallons. The life support system included sand filtration, ozone treatment, and protein foam skimming. Responsibilities included pipe sizing, layout, hydraulic calculations, pump sizing, ozone system feed calculations and eductor sizing, ventilation duct and fan sizing, specifications and drawings.

Odor Control System Design and Investigation, City of Houston, Texas
Project Engineer. Supported the design of a system for the St. George Odor Control project that eliminated ammonia and hydrogen sulfide from a wastewater treatment plant process air ventilation stream using an acid scrubber and soil compost bed. Sized air piping a scrubber, calculated head losses, sized blowers, designed piping layout for air piping and soil compost bed drainage, performed cost analysis, and produced project specifications.

Blackhawk Odor Control Investigation, City of Houston, Texas
Project Engineer. Performed an odor control investigation at pump station and 2.1-mile long 12-inch force main. Investigation studied the effects of using chlorine dioxide to control odors. Large doses of chlorine dioxide were fed into the pump station wet well. Sulfide concentrations in the wastewater were measured at the pump station and at the force main outlet. Hydrogen sulfide gas concentrations were also measured at the outlet. Performed investigation and produced report.

Construction Inspection, City of Houston, Texas
Inspector. Michael was a construction inspector for the City of Houston East Water Treatment Plant No. 2 Filter Rehabilitation project. Rehabilitation was to increase settling efficiency in sedimentation basins, decrease loading on sand filters, and upgrade related equipment and controls. Responsible for identifying any discrepancies between contract documents and construction activities, as well as daily reporting of construction activities.

Sewer Inspection and Condition Assessment. Sewer Inspection and Condition Assessment, City of Houston, Texas
Project Lead. As a member of the Odor and Corrosion Control Technology Center, Michael played a key role in developing a plan to investigate the condition of the City of Houston's large diameter sewers and associated manholes. Michael also actively participated in the large diameter sewer inspection and has conducted manned-entry inspection of 30 miles of large diameter sewer ranging in diameter from 54 inches to 144 inches. He trained and worked side by side with City of Houston wastewater maintenance personnel to perform confined space entry operations and inspections. Documented sewer inspections with video and collected information on concrete protective liner condition, concrete deterioration, sewer defects, maintenance issues, and manhole condition. Assessed the interior condition of the sewers based on concrete deterioration, determined severity of condition, and developed a methodology to prioritize repair activities. Identified and recommended viable rehabilitation alternatives. Wrote a handbook that documents and standardizes inspection activities. Trained inspection activities and responsibilities to five inspectors, including two City of Houston personnel. Performed core sampling of Holcombe Branch sewer with City personnel.

Program Management. Program Management, Greater Houston Wastewater Program, Houston, Texas
Project Engineer. Michael performed a variety of tasks as a member of the $1.4 billion Greater Houston Wastewater Program. Most noteworthy was the creation of a 22-page monthly Management Report tracking the progress of the 22 GHWP tasks in the modeling, design, and construction groups. The report was reviewed monthly by Houston's City Council and the Mayor. Other assignments included acting as liaison between the cost-effectiveness analysis, modeling support, and CADD support teams.

Air Emissions Compliance. Air Emissions Investigation and Compliance, City of Pasadena
Intern. Michael estimated air emissions from Southern California wastewater treatment plant processes to satisfy air toxics regulations (AB2588). Conducted on-site evaluations and produced reports.

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Eric Wessels, P.E.

Title
Project Manager

Education
B.S., Civil Engineering, University of Texas, Austin, 1987

Registration
Professional Civil Engineer, CA #C54722, 1995

Experience
21 years

Summary

Eric Wessels is a Senior Project Manager and registered civil engineer with experience in utility management, master planning, capital improvement program management, and the development and implementation of asset management strategies and systems for public agencies and private corporations.

Relevant Experience

System Performance Management Assessment and Recommendations, Seattle Public Utilities, Seattle, Washington

Steering Committee Member and Task Leader. For the assessment of several of Seattle Public Utilities's (SPU's) maintenance, inspection, condition assessment, and renewal decision processes, Eric was responsible for identifying current practices, assessing practices against industry standards and best practices, and for the preparation of recommendations and cost estimates for changing specific processes, practices and information systems to improve SPU's performance on CSOs and SSOs. Also task leader for a team that is preparing SPU for an upcoming EPA audit regarding SPU's combined sewer and separated sewer systems.

Collection System Consulting Services, Clark County Water Reclamation District, Clark County, Nevada

Chapter Author. Eric was the chapter author for the asset management portion of an Assessment Report for the Clark County Water Reclamation District in Clark County, Nevada. This ongoing project assesses the District's asset management processes and policies related to the District's wastewater collection system against asset management best practices. Key areas included in the assessment include: asset databases; sewer and lift station inspection and condition assessment programs; sewer and lift station renewal programs; data collection, management and analysis; and maintenance program planning and implementation.

Collection System Management Plan Development and Consent Decree Support Services, Confidential Client

Project Manager. Eric managed this project which created comprehensive wastewater collection system management plans for a major metropolitan area in the USA. These plans were prepared to support negotiations with the US EPA regarding sanitary sewer overflows (SSOs) and other collection system operational issues. The plans included asset inspection and condition assessment, rehabilitation and replacement plans, capacity assessment and capacity assurance plans, and sewer cleaning and repair strategies.

Program Management Services, City of San Diego Metropolitan Wastewater Department (MWWD)

Program Management Services Director. Eric directed program

management services for the planning phase of a $900 Million Wastewater Capital Improvement Program. Responsible for the supporting MWWD with development of asset management strategies and business systems required to support the program management team. This effort included development and implementation of a detailed asset inspection and condition assessment process, development and implementation of project identification and prioritization procedures, development of long-term cost forecasts for the sewer rehabilitation and replacement program to support rate case development, and the development and implementation of information systems to support these strategies and processes.

Sewer Rehabilitation and Replacement Plan, City of Los Angeles Bureau of Sanitation
Co-author. Co-author of a 7-year Sewer Rehabilitation and Replacement Plan for the City of Los Angeles Bureau of Sanitation. This plan used an analysis of 3000 miles of CCTV sewer inspection data to forecast the rehabilitation and replacement requirements for the City of Los Angeles's 6000+ mile wastewater collection system. This plan met the requirements established in a Settlement Agreement between the City of Los Angeles and the US EPA.

Metropolitan Wastewater Department Management Consulting Services, City of San Diego
Project Manager. Eric served as project manager for the creation of an Optimization Report and a 6-year Comprehensive Business Plan for the City of San Diego Metropolitan Wastewater Department Wastewater Collection Division. This effort culminated in a Public Contract Operations Agreement (in the form of a Memorandum of Understanding) between the City of San Diego City Council, City Manager, the Metropolitan Wastewater Department Management and all involved Labor Organizations. The Agreement set aggressive sanitary sewer overflow (SSO) reduction targets and cost savings goals, but also allowed for gainsharing incentives if City staff could meet their level of service and cost savings goals, once the Agreement was in place, acted as project manager to assist City staff with implementation of the key recommendations in the Optimization Report. The key organizational change initiatives included improved work planning and scheduling systems, computerized maintenance management systems, best practices for maintenance and construction crews, evaluation and implementation of new technologies, and training programs for City staff.

Cave Creek Water Reclamation Plant Asset Management Study, City of Phoenix, Arizona
Technical Lead. Eric served as technical lead for the development of a 20-year asset management plan for the City of Phoenix Cave Creek Water Reclamation Plant. This project included completing the asset register using the City's asset naming conventions and asset hierarchy, collecting key asset attributes for qualifying assets to complete the City's asset database, performing a condition assessment on all qualifying assets. This data will be used by the City to develop a 20-year rehabilitation and replacement program.

Asset Management Research Roadmap for Water and Wastewater Utilities, American Water Works Research Foundation (AwwaRF)
Technical Lead. Technical leader for the development of the American Water Works Research Foundation's Asset Management Research Needs Roadmap for Water and Wastewater Utilities. The objective of this AwwaRF Project was to develop a strategic plan for conducting future research on Asset Management for infrastructure owned and operated by drinking water and wastewater utilities. The approach included conducting a comprehensive review of pertinent literature and ongoing research, with documentation in a White paper; conducting a workshop attended by 30 utility Asset Management practitioners along with other industry experts from academia, consulting and software development to discuss research needs; and ultimately, developing a multi-year Research Roadmap that included specific research projects, a schedule and budgets.

Strategic Business Plan Review and Asset Management Workplan, Tacoma Water Department, Tacoma, Washington

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Technical Lead. Technical lead for the development of an Asset Management Workplan for the Tacoma Water Department. This Workplan included a recommended asset hierarchy for Tacoma Water's SAP work management system, recommendations for criticality ratings for potable water system assets, an asset inspection program and condition assessment program schedule, a schedule for implementation of asset maintenance workplans, and asset data collection guidelines for maintenance crews.

Asset Management Readiness Review, Tacoma Water Department, Tacoma, Washington
Team Leader and Lead Author. Assessment team leader and lead author for an assessment of Tacoma Water's asset management strategies and practices. The Readiness Review evaluated the status of all major asset management programs including inspection, condition assessment, maintenance management, asset renewal, financial planning, information systems to support asset management practices, and various other functions. The assessment identified specific recommendations on how the authority could improve their asset management strategies, practices and information systems. The findings were presented in a concise report that offered a conceptual implementation plan with recommendations on how to increase the effectiveness of the Department's asset management program.

Asset Management Readiness Review, Denver Water Authority, Denver, Colorado
Team Leader and Lead Author. Assessment team leader and lead author for an assessment of the Authority's asset management strategies and practices. The Readiness Reviews evaluated the status of all major asset management programs including inspection, condition assessment, maintenance management, asset renewal, financial planning, information systems to support asset management practices, and various other functions. The assessment identified specific recommendations on how the authority could improve their asset management strategies, practices and information systems. The findings were presented in a concise report that offered a conceptual implementation plan with recommendations on how to increase the effectiveness of the Authority's asset management program.

Asset Management and Maintenance Study, Exxon Co.
Technical Lead. Prepared an asset management and maintenance cost study for over 10,000 Exxon Co., USA facilities located in the continental United States. This study focused on periodic asset inspections, condition assessment programs, life cycle cost analysis, and equipment failure curve analysis to identify the life expectancy of several classes of assets. This analysis was used to upgrade Exxon's design guidelines and to budget future asset rehabilitation and replacement projects. By optimizing the timing for asset replacement, Eric was able to significantly reduce Exxon's long-term cost of asset ownership.

Asset Management Readiness Review, Cleveland Water Department, Cleveland, Ohio
Team Co-leader. Assessment team co-leader for an assessment of Cleveland Water's asset management strategies and practices. The Readiness Review evaluated the status of all major asset management programs including inspection, condition assessment, maintenance management, asset renewal, financial planning, information systems to support asset management practices, and various other functions. The assessment identified specific recommendations on how the authority could improve their asset management strategies, practices and information systems. The findings were presented in a concise report that offered a conceptual implementation plan with recommendations on how to increase the effectiveness of Cleveland Water's asset management program.

Water Reclamation Plant No. 10 Operation and Maintenance Manuals, Coachella Valley Water District
Project Manager. Managed the preparation of a detailed operation and maintenance manual for an 18-MGD water reclamation plant. This manual included consolidated piping, valve, and equipment process flow diagrams that incorporated a series of 14 expansion projects into one comprehensive document. The manual specified procedures for the startup, normal operation, abnormal operation, and shutdown for every process unit of the plant (screenings, grit removal, aeration, clarification, waste and return sludge pumping, biosolids thickening, biosolids dewatering, tertiary filtration, and disinfection systems). The

manual also included a process control program to assist the operators with their daily process control calculations.

Competitive Business Plan Preparation, City of Kansas City, Missouri
Project Manager. The City of Kansas City Water Services Division was under threat of managed competition for the operation for the City's water, wastewater and stormwater utilities. Eric assisted City staff with the preparation of a competitive business plan for the water and wastewater utilities. Each plan establishes a schedule for implementation of specific changes in the City's infrastructure and business practices and the resulting budget reductions that will be realized as each change is implemented. The goal was to downsize staff through attrition or reallocation and to reduce other operating costs to a level that is competitive with private operations contractors.

Potable Water, Wastewater and Drainage Master Plans, City of Sugar Land, Texas
Project Manager. Eric developed a regional Water, Wastewater and Drainage Plan for the City of Sugar Land, Texas. These master plans merged water, wastewater and drainage plans for several smaller areas into one comprehensive document. The Plan identified facilities that required expansion and areas that required additional study due to inadequate information. This Plan included a comprehensive 5-year capital improvement program to mitigate capacity issues.

Capacity, Management, Operations and Maintenance (CMOM) Assessment for Clark County Water Reclamation District (CCWRD), Las Vegas, Nevada
Task Leader. Eric was the task leader for the asset management portion of a CMOM assessment for CCWRD's 2,100-mile collection system, 24 pumping stations, and 22 odor control sites. The assessment focused on the adequacy of the O&M department's practices. The project also included assisting staff in the development of programs and procedures needed to meet CMOM requirements. He interviewed management and staff, reviewed documents, toured facilities, analyzed data, and prepared a written report. Identified gaps between the current CCWRD collection system programs and the proposed EPA CMOM requirements and offered recommendations to eliminate these gaps.

Public-Public Partnership Proposal Support Services, City of San Diego
Technical Lead. Eric assisted the City of San Diego staff with the preparation of a competitive proposal to operate and maintain the International Boundary and Water Commission's South Bay International Wastewater Treatment Plant in San Ysidro, California. The final public-public partnership proposal included a thorough review of the City's Operation and Maintenance Division qualifications to operate this facility and a comprehensive operation and maintenance plan. The proposal also included a comprehensive 5-year zero-based budget and cost proposal for all labor, materials, chemicals, energy, and equipment required to operate this 25 MGD wastewater treatment plant.

Indian Ridge Country Club Recycled Water Pumping System and Recycled Water Force Main, Coachella Valley Water District
Project Manager and Construction Manager. Eric served as project manager and construction manager for a recycled water pump station with a peak capacity of 10,000 gpm and for a 2-mile, 24-inch diameter recycled water force main. This project provided country clubs and homeowner's associations with recycled water pressurized to 95 psi for direct application to fairways, greens, and common areas. The existing irrigation systems were incorporated as automated backup systems to prevent unscheduled irrigation system shutdowns.

Jefferson Street Lift Station, Coachella Valley Water District
Design Project Manager. Eric managed the design of a 1,000-gpm regional wastewater lift station and approximately 5,000 lf of 12-inch-diameter polyvinyl chloride (PVC) force main. The project also included the design of an 18-inch vitrified clay pipe regional gravity sewer to collect flow from developments in the region.

S-4 Wastewater Treatment Plant Improvements, Lakeway Municipal Utility District, Austin, Texas
Lead Designer. Eric served as lead designer for the conversion of a coarse-bubble activated sludge secondary wastewater treatment plant into a fine-bubble activated sludge plant with circular secondary clarifiers, tertiary filtration, and chlorine effluent disinfection systems. This project included addition of wastewater screening equipment, effluent chlorination equipment and recycled water pumping facilities.

Lift Station Odor Control Facilities, Coachella Valley Water District
Project Manager. Eric served a project manager for several wastewater lift station odor control facilities. Development had encroached on these regional lift stations and the District was receiving foul odor complaints from neighboring businesses and residents. He evaluated several odor control systems, including the addition of nitrate, hydrogen peroxide, and ferric/ferrous chloride. Eric also evaluated packed-tower scrubbers with caustic soda and/or sodium hypochlorite and soil bed odor scrubbers. Depending on site size and minimum equivalent annual cost, he selected an appropriate solution for each site to eliminate the foul odors.

North Panorama Transmission Main, Coachella Valley Water District
Project Manager and Construction Manager. Eric served as the project manager and construction manager for an 18-inch domestic water transmission main that serves the northern and western portions of Cathedral City, California. The project included the design and installation of approximately 12,000 lf of ductile iron water main through arterial roadways and residential neighborhoods to provide additional water supply to new developments in the region.

Recycled Water Delivery Pipeline, Coachella Valley Water District
Project Manager. Eric managed a recycled water transmission and storage project for the Palm Desert Municipal Golf Course. The project mainly comprised 24-inch and 18-inch recycled water force mains and an in-ground storage reservoir for recycled water that is HDPE-lined and Hypalon-covered. The project also included a level monitoring system and an automated influent valve that automatically fills the recycled water reservoir during off-peak hours. This project was based on an engineering and economic feasibility study previously prepared by Eric.

Retail Fueling Station Projects, Exxon Co.
Project Manager and Construction Manager. Eric was the project manager and construction manager for several fueling station projects. Projects included retrofits to existing facilities, construction of new facilities, and demolition and reconstruction of existing facilities. He was responsible for environmental remediation of sites when hydrocarbon contamination was detected during construction.

Water and Energy Program, San Diego Regional Energy Office
Principal-in-Charge. Eric was the principal-in-charge who assisted the San Diego Regional Energy Office with the Water and Energy Program that involves developing and conducting energy conservation workshops to provide water and wastewater municipalities with information on energy saving procedures and potential process and mechanical modifications to reduce electricity consumption. This Program also provides technical assistance to water and wastewater users through detailed energy audits and advanced strategic economic feasibility studies.

University Boulevard Extension Project, City of Sugar Land, Texas
Project Manager. Eric was the project manager for a $10-million primary arterial roadway, which included approximately two miles of reinforced concrete paving, storm sewer for the ultimate roadway section, and a 500-lf bridge spanning a regional drainage channel. This project used 80% federal funds and 20% local funds provided by the City and Fort Bend County. The project also included the preparation of an environmental assessment document.

Water Main Replacements, Coachella Valley Water District
Eric served as the project manager and construction manager for the replacement of approximately 14,000 lf of 8-inch and 12-inch domestic water mains in the City of Thousand Palms, California.

Water Reclamation Plant No. 10 and Cook Street Lift Station Improvements, Coachella Valley Water District
Project Manager and Construction Manager. Eric was the project manager for the preparation of drawings and specifications for the retrofit of two regional wastewater pumping stations. Project included new pumps, valves, and piping, wet well rehabilitation, pump motor replacements, control system and SCADA system upgrades, motor control center replacement, switch gear installation, standby power generation equipment, and addition of variable frequency drives for all pumps. The Cook Street Lift Station has a 5,000-gpm firm capacity and the WRP 10 pump station has a 20,000-gpm firm capacity.

Water Reclamation Plant No. 10 Automation and Process Optimization, Coachella Valley Water District
Task Lead. Eric performed time-and-motion studies for the operations staff at an 18-MGD wastewater treatment and 10 MGD water recycling plant. Based on the results of these studies, areas that required an inordinate amount of effort to monitor or operate were identified. When practical, Eric designed alarms and/or PLC-based automated controls to eliminate the need to frequently monitor and manually adjust these process units. The project also identified several areas where significant energy savings could be realized by reducing on-peak power usage, upgrading aeration systems and modifying biosolids handling procedures.

Water Reclamation Plant No. 10 Effluent Percolation Basins, Coachella Valley Water District
Project Manager. Eric managed the design of seven new effluent infiltration basins. The project consisted of a series of terraced earthen percolation basins with passive overflow protection structures, including balanced earthwork, site grading, access roadways, and effluent distribution piping and valves.

Water Reclamation Plant No. 10 Headworks Expansion, Coachella Valley Water District
Project Manager and Construction Manager. Eric served as the project manager and construction manager for the $3 million retrofit of the headworks area for a 18 MGD wastewater treatment plant. The project included the retrofit of the screenings facility, the upgrade of a 15,000-gpm capacity influent pump station, installation of a vortex grit removal basin and appurtenances, electrical retrofit of the headworks area of the plant, and the addition of odor control facilities. This project also included the retrofit of the 5,000-gpm capacity Cook Street Regional Wastewater Lift Station and the installation of a 24-inch regional force main from the Cook Street Lift Station to the plant.

Water Reclamation Plant No. 7 Process Control, Coachella Valley Water District
Project Manager. Eric designed a program so that plant operations staff can input laboratory analysis results and plant flowmeter readings into a database. The program then reads the data input by operations staff and calculates all operational parameters for the plant, and the operators can use these results to verify their process control calculations.

Water Reclamation Plant No. 7, Coachella Valley Water District
Project Engineer. Eric served as project engineer for the preliminary engineering, equipment selection, and design and construction phases of this $14-million wastewater treatment plant project. The project was the first 2.5-MGD phase of a 20-MGD wastewater treatment plant. The plant's process units are influent screening, fine bubble aeration with de-nitrification of effluent through the use of an anoxic zone, secondary clarifiers, return and waste-activated sludge pumping systems, biosolids thickening and dewatering facilities, flow equalization facilities, tertiary dual-media filters, chlorine disinfection systems, a recycled water storage reservoir, recycled water pumping systems, and a recycled water distribution force main.

EXHIBIT E

Transportation Authority of Marin
Measure A – Transportation Sales Tax

Allocation Request Form

Fiscal Year of Allocation: 2007-08

Expenditure Plan: Strategy 3 – Local Transportation Infrastructure
Sub-strategy 3.2 - Local Infrastructure for all Modes

Project Name: Local Infrastructure for All Modes

Implementing Agency: City of Sausalito

Scope of Work: As defined by the Expenditure Plan, eligible projects include street and road projects, local transit projects, and bicycle and pedestrian projects. Where feasible, locally defined bicycle and pedestrian projects will be implemented in conjunction with a related roadway improvement. This could include safety improvements, pedestrian facilities including disabled access, or bicycle facilities such as bike lanes or signage.

The City of Sausalito has identified the following local infrastructure projects for implementation during fiscal year 2007-08:

- Local Street Repair Program Reserves - Base Repairs, seal coat, crack seal, overlay along Sausalito Streets.

- Bridgeway to Ferry NMTPPP Improvements - Install improvements to improve access for non-motorized travel modes between Bridgeway and the Sausalito Ferry Landing. Match funds for Environmental and PE.

The City of Sausalito will provide a Project Report for project(s) upon which TAM funds are expended within 60 working days of the end of fiscal year 2007-08. The Project Report will include a brief description of the project and describe the benefits realized from the project. The report will identify the amount spent during the reporting year, including the total estimated project costs, the sources of project funding, and total expenditures to date.

Cost of Scope: $275,274

- Local Street Repair Program Reserves - $60,274
- Bridgeway to Ferry NMTPPP Improvements - $215,000

Measure A Strategic Plan Programmed: $75,274

Measure A Requested Amounts: $75,274 ($60,274 for Local Street Repair Program Reserves and $15,000 for Bridgeway to Ferry Improvements)

Other Funding:

- Local Street Repair Program Reserves - Gas Tax, Impact Fees, Other revenues
- Bridgeway to Ferry NMTPPP Improvements - NMTPP $200,000

Measure A Cashflow Availability: 100% in FY 2007-08

Project Delivery Schedule:

- Local Street Repair Program Reserves
  - Request fund from TAM, Winter 2008/09
  - Deposit funds in City Reserve Account - Spring 2008

- Bridgeway to Ferry NMTPPP Improvements
  - Agreement with County – 6/30/07
  - STIP Amendment 9/30/07
  - RFQ Consulants – Design/Environmental Fall 2007
  - Design/Environmental Clearance 2008 first half
  - Funding Authorization Caltrans Fall 2008
  - Advertise Winter 2008/09
  - Construction 2009
  - Completion Winter 2009/10

Environmental Clearance: Environmental documentation has been secured for each project.