May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

PUBLIC UTILITIES DEPARTMENT

Response to
631595:JHAAS
Regional Water Quality Control Board
Investigative Order No. R9-2011-0070

ENCLOSURES

City of San Diego
PUBLIC UTILITIES
Water & Wastewater

THE CITY OF SAN DIEGO

October 14, 2011

Mr. James G. Smith
Assistant Executive Officer
Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Dear Mr. Smith:

Subject: **631595:JHAAS**
Response to Investigative Order No. R9-2011-0070, Pertaining to Discharge of Untreated Sewage to Los Peñasquitos Creek on September 8, 2011, Caused by Loss of Power at Pump Station 64

This letter is in response to the subject Investigative Order received on September 28, 2011. On September 8, 2011, the City of San Diego, along with the rest of San Diego County, parts of Orange County, Arizona and Baja California suffered an unprecedented, region-wide power outage. Electrical power supplied by San Diego Gas and Electric (SDG&E) to the City's Public Utilities Department facilities was unavailable for approximately 4 to 12 hours, depending on location. According to SDG&E this event was the most widespread power outage in the company's history. Although all wastewater facilities were affected by the power outage, the City successfully treated 160 million gallons or over 97% of the sewage discharged to the system.

The City operates a large and complex wastewater system. The system is comprised of the Municipal sub-system and the Metro sub-system. The Municipal sub-system is the municipal sewer collection system for the City's residents and consists of over 3,000 miles of pipeline and 74 municipal pump stations. The Metro sub-system is a regional sewer treatment and disposal system that serves the City and 15 other cities and public agencies. The Metro sub-system consists of three wastewater treatment plants, a biosolids processing facility, eight large pump stations and two ocean outfalls. The wastewater system covers over 450 square miles and serves a regional population in excess of 2.5 million.

As a result of the power outage, power at the City's Pump Station 64 (PS 64) in Sorrento Valley was lost. PS 64 relies on redundant electrical feeds from two separate SDG&E substations. This design standard is in compliance with a Technical Bulletin titled "Design Criteria for

Mechanical, Electrical, and Fluid System and Component Reliability" published by the Office of Water Program Operations at the Environmental Protection Agency.

With all electrical power lost, including the redundant backup supply, a sanitary sewer overflow event (SSO event) occurred at three manholes, located on Sorrento Valley Road and Sorrento Valley Boulevard upstream of PS 64. The SSO event is estimated to have started at 5:50 PM and continued until 10:52 PM. During this period it was determined that 2,431,550 gallons of sewage were spilled into Los Peñasquitos Creek and ultimately Los Peñasquitos Lagoon.

The following is the Technical Report for the Spill Event including, Prevention, Response and Corrective Actions.

A. Spill Event and Prevention

1. Spill Flow Path: *Provide written descriptions of all known locations where sewage spilled out of the collection system and identify on a map the path taken by the sewage to waters of the State. Additionally, please clarify the spill locations reported in the CalEMA spill report (Cal EMA Control No. 11-5348).*

   The CalEMA report (Cal EMA Control No. 11-5348) stated three manholes as sources of the sewage spill without identifying their locations. On September 14, 2011, the City reported that City crews had performed cleanup activities related to spills from two manholes adjacent to 3848 Sorrento Valley Boulevard. On September 16, 2011, and in response to a public comment received by the San Diego Water Board, the City reported that it found evidence indicating a manhole adjacent to 10835 Sorrento Valley Road had also spilled during the blackout event, for which it would promptly begin cleanup activities.

   The exact locations of the 3 spill points, including GPS coordinates, are provided below.

Manhole #36 10801 Sorrento Valley Rd. 32° 53' 59.87" N 117° 13' 19.78" W	Manhole #20 3848 Sorrento Valley Bl. 32° 54' 07.09" N 117° 13' 20.57" W	Manhole #21 Sorrento Valley Bl. & Vista Sorrento Way 32° 54' 08.45" N 117° 13' 17.35" W

   The originally reported spill points in the referenced CalEMA report included an erroneously identified spill point that was actually a gate valve cap for a water line, not a manhole (mis-identified as Manhole #35 on the Environmental Site Observation Form). The other two spill points referenced in the CalEMA report are the manholes on Sorrento Valley Boulevard (Manholes #20 and #21). The third spill point, identified on September 16, 2011, is the manhole on Sorrento Valley Road (Manhole #36). Please see Enclosure 1 depicting the spill sites and spill flow path.

2. Spill Volume and Characterization:

a. *Provide estimates of the sewage volume and characteristics spilled during the event. Include a description of how the estimates were prepared. Provide data that was used to make the estimate.*

The initial volume of sewage spilled estimated the day after the event was approximately 1.9 million gallons. This estimate was based on visual inspection by staff in the field. A preliminary spill estimate of approximately 2.6 million gallons was included in the September 22, 2011 report to the City's Natural Resources and Culture Committee. This estimate was based on an analysis of flow metering data collected before, during, and after the power outage. This data was collected by City-owned ADS permanent flow monitors SD 29 and SD 30 and ADS temporary flow monitors SDT34-85 and SDT35-86.

The flow metering estimate was further refined by using the Infoworks Dynamic Modeling Software to develop a dynamic hydraulic model to simulate the pump station shutdown and the spill. The model simulated the pump station operations and the flow hydraulics before, during and after the power outage. The model was calibrated against the actual ADS flow monitoring data collected within the basins during the power outage. We believe the dynamic model provides the most accurate estimation of the spill volume among the three methods, because through a real time (5-minute time interval) simulation, this dynamic model took prudent hydraulic factors such as the storage effect of the sewer system and the time-varying nature of the hydraulic grade lines into consideration. These factors were not considered by either the visual or the metering method. The estimated spill volume based on the dynamic model is 2,431,550 gallons. This revised estimate was submitted in the certified CIWQS report. For detailed calculations of spill volume using both the flow metering and flow modeling methods, please see Enclosure 2.

i. *Include estimates of average dry weather flow for Pump Station 64 and, if available, the daily volumes of sewage pumped by Pump Station No. 64 for the five days prior and after the spill date.*

The average dry weather flow at PS 64 is approximately19.4 million gallons per day (MGD). This is based on a total volume of 2,965.42 million gallons (MG) between April 1, 2011 and August 31, 2011 (a period of 153 days). The table below summarizes the flow at PS 64 during the 11-day period beginning September 4, 2011 and ending September 13, 2011.

DATE	VOLUME (MG)
September 3, 2011	17.7
September 4, 2011	17.6
September 5, 2011	18.7
September 6, 2011	19.1
September 7, 2011	18.6
September 8, 2011 (spill date)	12.7
September 9, 2011	27.1
September 10, 2011	25.5
September 11, 2011	26.5
September 12, 2011	21.8
September 13, 2011	19.2

The average daily volume pumped over this 11-day period is 20.4 MG. The volume on the spill date is much lower than normal for two primary reasons: (1) the volume spilled never entered the pump station so it was not metered, and (2) the overall system flow upstream of PS 64 was depressed approximately 28% by the energy blackout (conservation calls, businesses closed, home appliances unusable). The daily volume pumped increased significantly on the day following the spill because the facility processed its normal volume plus the volume stored in the system the evening before. On September 10 and September 11, the volume pumped at PS 64 was above average because flow that could go to the Peñasquitos Pump Station was being bypassed to PS 64. PS 64 has sufficient capacity to pump the additional flow during dry weather, and the weather on September 10 and September 11 was dry. The Peñasquitos Pump Station was available on September 10 and 11 at the discretion of operations. It was bypassed to make system operation as simple as possible in the days following the blackout when staff were assessing the condition of the system. Beginning on September 12, the volume pumped at PS 64 was elevated by the volume pumped from Los Peñasquitos Creek into the system upstream of PS 64 by an average of 1.5 MG each day.

ii. *Clarify whether spillage from the manhole adjacent to 10835 Sorrento Valley Road was used to calculate the estimate provided on the CIWQS report.*

Spillage from the manhole adjacent to 10835 Sorrento Valley Road was included in the estimate in the certified CIWQS report.

iii. *Provide a characterization of the average quality of dry-weather influent to Pump Station No. 64. Include, at a minimum, total nitrogen, biological oxygen demand, total dissolved solids, selenium, and chloride.*

Pump Station 64 influent to the North City Water Reclamation Plant (NCWRP) is monitored quarterly for a full suite of NPDES parameters, including priority pollutants. Since there is no additional influent into the PS 64 line between PS 64 and the NCWRP influent sampling location, the samples are representative of the material discharged due to the SSO event. We have included a copy of the laboratory report of analysis for all the constituents determined in 2010, including the annual averages, as Enclosure 3. The report also includes the results of the most recent comprehensive monitoring in September 2011.

One exception to the Order is that total nitrogen (TN) is not yet available. It is not part of routine monitoring. We have begun additional testing to characterize TN specifically in this collection stream and those results should be available by the end of October. However, total kjeldahl nitrogen (TKN) is a reasonable approximation of total nitrogen since the majority of the nitrogen in untreated wastewater exists as ammonia and other forms included in determination of TKN.

3. Emergency Power: *Provide discussion on emergency power alternatives considered by the City for Pump Station No. 64 since 2001. Identify whether permanent stationary emergency generators, lift station electrical systems upgrade for portable generator connections, or use of unconventional alternative energy sources were considered. Include the rationale for the selected course of action. Include any cost analyses or estimates that were prepared or reviewed by City staff or City contractors when determining the course of action.*

The City contracted with an engineering consulting firm in 2002 to determine the feasibility of installing onsite backup generation for several wastewater pump stations, including PS 64. The report titled, "San Diego MWWD Pump Station Standby Electrical Power Generation Systems" was delivered in December 2002. The report recommended two, permanent and stationary, 2-MW generators for PS 64.

The consultant's preliminary cost estimate was $2.8 million to $3.2 million dollars. A copy of the report is included as Enclosure 4. PS 64 is discussed in the preliminary feasibility report (briefly in the Executive Summary page ES-1, the cost estimate table on page 3, and more completely on pages 5-8). The consultant's proposed site plan is also attached.

The City chose against further study and installation of permanent and stationary generators at the time the report was issued for the following primary reasons:

- The consultant's first recommended location in the existing parking lot was deemed infeasible by the City because it would not allow for maintenance access to the units, and it would not allow safe access to the four 500-HP motors, pumps, and pump station control room. For example, the power plant at the Point Loma Wastewater Treatment has two engine-generators with a power capacity similar to the capacity that would be required at PS 64. These two engine generator sets are 38 ft. long by 18 ft. wide by 13 ft. high. Two units each with a footprint of nearly 700 ft.^{2} would require an enclosure of approximately 2,500 ft.^{2} to allow for proper maintenance access. Such space is not available at PS 64 at the ground level without generally impeding facility operation and maintenance. A proposed plan to site the units on a rooftop would require significant construction costs and would likely meet with regulatory and community resistance.

- The consultant's other recommended locations were deemed infeasible by the City because they offered even less space than the parking lot location, or they were remote from the pump station. The remote locations would have required additional cost for transmission lines. Additionally, the Department believed at the time of the report that suggestions to use the existing utility transmission line (over a distance of ~4,000 ft.) would be unreliable, and would conflict with regulations against "wheeling" - transporting via SDG&E's lines the City's electric power from the point of generation to a point of delivery at a different property.

- The cost estimate, due in part to its preliminary nature, was thought to be unrealistically low. The consultant believed that all costs associated with construction and modification of the site were included in their study. However, given the analysis of items 2 above, the City believed that the construction costs would be much greater than the consultant's estimate. Given that the first recommended location lacked sufficient space to install the generators as described in the preliminary report, the project would have required significant

building costs to relocate the generators, potentially on an existing rooftop or on a new structure over the existing parking lot. Additionally, the consultant omitted load analysis and electrical engineering which would have further added to the project cost, although not as much as the construction cost. The City considered studying these options but chose against this course.

- The existing design of PS 64 met and continues to meet, all requirements of the U.S. Environmental Protection Agency's technical bulletin titled "Design Criteria for Mechanical, Electrical, and Fluid System and Component Reliability" published by the Office of Water Program Operations at the Environmental Protection Agency, which states, *"Two separate and independent sources of electrical power shall be provided to the works from either two separate utility substations or from a single substation and a works based generator."*

- At the time of the report in 2002, the City believed that the probability of losing both electrical circuits without concurrent damage to the piping infrastructure was very low and it did not merit expending the cost to implement the consultant's recommendation. This decision was further supported by the belief, as described above, that the consultant cost estimate was unrealistically low.

- The City also reviewed priorities at the time and determined that there would be greater overall benefit to the community in focusing on reducing sewer spills that were the result of lack of maintenance and aging infrastructure which had a much higher probability of occurring, than failure of two electric circuits. Consequently, between July 2002 to June 2011, the City cleaned 18,194 miles of sewer mains, including repeat cleaning. The City spent $8 million on more powerful hydro flushers, rodding trucks, high technology cleaning nozzles, and other main cleaning equipment. Additionally, the City replaced or rehabilitated 358 miles of sewer pipeline. As a result, sewer spills were reduced from 215 per year in 2002 to 26 in 2011, through October 14, 2011.

Portable generators were considered by the City during the same time period (approximately 2002). The City chose against these generators on the assumption that the probability of losing both electrical circuits without concurrent damage to the piping infrastructure was very low, as with the decision concerning stationary generators. Such an outage, if it occurred, would be expected to be of relatively short duration (1-2 hours) and within the station's spill window. Mobile generators would take at least one hour to mobilize to the location, and 1 to 2 hours to connect to the station switchgear. In an emergency that cut power without any other infrastructure

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

damage, the City chose to rely on the utility's ability to restore power more quickly than mobile generators could be mobilized. During a localized outage, the City has some ability to redirect some of the sewage flow in other directions and extend the period of time before spilling.

The City briefly considered alternative energy sources but these were deemed infeasible. For example, to generate the required power (~4 MW) a solar array with an area roughly equal to four football fields would be required (based on a standard power capacity of 170 W/m^2). There is no such space available in the area of PS 64.

4. Overflow Storage: *Describe overflow containment available for Pump Station No. 64 and whether any sewage was contained therein during the blackout event. Although the spills reportedly occurred from manholes up-gradient of the pump station, overflow storage for the pump station may have been able to reduce the amount ultimately discharged. A press report from November 3, 1987 suggests a 350,000 gallon containment system had been recently installed. Please describe that containment system, if available, and any containment infrastructure updates since that time.*

   In 1986, the City constructed an emergency wastewater storage pipeline for PS 64. The pipeline is 84 inches or 7 feet in diameter and approximately 1,182 feet in length. The volume of the pipe is approximately 350,000 gallons. As-built drawings are included as Enclosure 5. The southernmost point in the emergency wastewater storage pipeline is approximately 250 feet north-northeast of PS 64, under Sorrento Valley Road. From there, it runs approximately 532 feet northwest under Sorrento Valley Road to the intersection of Sorrento Valley Road and Sorrento Valley Blvd. From there, it runs approximately 650 feet northeast under Sorrento Valley Blvd. to its northernmost point near the intersection of Sorrento Valley Blvd. and Vista Sorrento Parkway (labeled Sorrento Valley Court in the drawings). During the blackout period flow was backed up into this storage facility. Since its installation there have been no additional containment infrastructure upgrades.

B. Spill Response and Corrective Actions

5. Steps Taken to Contain and Mitigate the Impacts of the SSO (Provisions D.3 and D.4.): *Provide a complete description of the steps taken by the City to contain and mitigate the impacts of the discharge of sewage.*

The following is a chronology of actions taken by the City to contain and mitigate the impacts of the sewage discharge:

- September 8, 2011, 4:45 PM: City main cleaning crews with vactor trucks were sent to PS 64 to attempt to mitigate any environmental impacts. Two 10-yard City vactor trucks (864 gallon holding capacity each) were dispatched. City staff contacted the on-call contractor requesting all available tankers; however, only two were available. One 5,500-gallon and one 3,500-gallon tanker truck were dispatched to PS 64. The pump station was not actively spilling at the time of dispatch but spillage was felt to be imminent.

- September 8, 2011, 5:50 PM: Staff from Pump Station 64 report that sewage began spilling.

- September 8, 2011: The arrival of City crews and tanker trucks were severely hampered by the inordinate traffic congestion related to the power outage. Upon their arrival, crews observed manhole 20 and 21 already spilling into the storm drain channel on Sorrento Valley Boulevard leading to Los Peñasquitos Creek.

  Due to the volume of sewage observed exiting the manholes, and recognizing that available assets could do no more than recover a very small fraction of the spilled volume, these assets (vactors and tankers) were focused on efforts to redirect flow to protect adjacent properties and public health from the inundation of sewage flow. In retrospect, these efforts also prevented further contamination of the spill by industrial contaminants (fossil fuels and chemicals) presumed to be contained in one of the businesses – a vehicle repair facility. The redirection efforts successfully prevented flooding of the business, with 9,000 gallons of sewage redirected around it. These efforts did not increase the volume of sewage that ultimately reached the creek. Instead, the redirection efforts insured that the spill went from the street to the creek via the storm drain channel rather than via adjacent properties and businesses. The City considered sending the tankers to a manhole where the sewage would have been returned to the system. However, the nearest pipeline large enough to receive this flow was 14.6 miles away via what were assumed to be clogged highways. This travel time would have diverted the assets from the spill site and likely resulted in flooding adjacent properties and businesses.

- September 8, 2011 6:30 PM: Regional Water Quality Control Board and County Department of Environmental Health (CDEH) were notified of the spill to public waters. CDEH directed the City to post the beaches five miles north and south of the location where the sewage entered the beach at the Los Peñasquitos Lagoon, from Scripps Pier north to the San Dieguito River outlet in Solana Beach.

- September 9, 2011, between 2:00 AM and 5:30 AM: City staff setup containment at the storm drain gutters and washed the streets to remove debris and sewage from the spill points.

- September 9, 2011, 10:30 AM: The U.S. Army Corps of Engineers (USACE), called staff in the City Public Utilities Environmental and Canyon Access Section asking if any assistance was needed in processing a permit under their emergency authorization regulations. At 4:45 PM City staff went to the spill site at manhole 20 to investigate any possible impacts from erosion or to habitat under the purview of USACE. This initial investigation found no impacts in these regulated subject areas. See Enclosure 6, for a copy of the Site Observation Report. After the site visit (at 5:30 PM), staff called the California Department of Fish and Game, Regional Water Quality Control Board, USACE, and the City's Development Service Department to inform them that there was no direct impact from erosion or to habitat.

- September 12, 2011, 2:50 PM: Mr. Jeremy Haas, Senior Environmental Scientist of the Regional Water Quality Control Board, called City staff and reported that there was standing water in the Los Peñasquitos Creek, which Mr. Haas assumed was sewage. Staff reported this information to City Wastewater Collection Division management.

- September 12, 2011, 2:55 PM: City dispatched vactor trucks to the spill site at Los Peñasquitos Creek. See item 7 for spill recovery efforts.

Beach Posting and Water Quality Monitoring

- September 9, 2011, 6:30 AM: Consistent with the City's Sewer Overflow Response and Tracking Plan (SORTP), Contaminated Water signs were posted along the impacted beaches of San Diego. Signs were strategically placed adjacent to the public's ability to access water ways.

- September 9, 2011: The City was directed to collect samples daily at what the CDEH considered impacted beaches until two consecutive samples were below

AB411 water contact limits. City Environmental Monitoring and Technical Services (EMTS) staff began sampling at 17 ocean and lagoon stations selected by CDEH. This covered a coastal area greater than 7 km from Solana Beach south to Scripps Pier in La Jolla. See Attachments B10.1-B10.4 in Enclosure 9 for the relative locations of the beach monitoring stations.

- September 9-13, 2011: EMTS staff collected daily samples and analyzed 65 samples for Fecal Indicator Bacteria (FIB), including total coliform, fecal coliform and enterococcus. The detailed laboratory report is included as Attachment B10.7 in Enclosure 9. Staff also made and recorded visual observations (wind speed, wave height, floatables, animal activity, etc), see Attachment B10.8 in Enclosure 9.
- By September 13, all water samples contained bacteria densities below water contact limits; therefore sampling was discontinued at all but two of these stations, and beaches were reopened to the public on September 14.
- September 14, 2011, at approximately 4:00 PM: All beaches posted as a result of the sewer spill were reopened.
- September 19 – 22, 2011: Subsequent to the re-opening of the beaches, EMTS staff conducted an additional 4-days of FIB monitoring at two locations. Monitoring at the mixing zone and the mouth of the lagoon (stations LOSPENLG MZ and LOSPENPG 50FUP) remained within AB411 standards throughout that period.

6. Steps Taken to Terminate the Discharge (Provision D.7): *Provide description and summary of all steps taken to terminate the discharge once it was discovered.*

Due to the volume of sewage observed exiting the manholes, and recognizing that available assets (vactors and tankers) could do no more than recover a very small fraction of the spilled volume, the City focused on efforts to protect adjacent properties including businesses from inundation from sewage flow. Once power was restored at PS 64 at approximately 10:52 PM the spill was terminated and City crews began cleaning up the street.

Based on the low probability of a prolonged and widespread electrical outage, the City has relied upon the ability of our electrical utility provider, SDG&E, to provide appropriate electrical redundancy for the system. Given the events of September 8th, and the need to maintain critical services to protect the health and safety of the public and the environment, the City has begun a reassessment of this approach. The City will study options for providing backup onsite power generation to avoid a future spill related to a prolonged electrical power outage.

7. Steps Taken to Recover Wastewater Discharged (Provision D.7): *Provide description of all steps taken to recover the wastewater discharged to waters of the State as required by Provision D.7. Include a time line of recovery events, amounts of wastewater and other water recovered, recovery locations, and equipment used.*

   After being notified by Mr. Haas of standing water in the Los Peñasquitos Creek, which Mr. Haas assumed was sewage, the City took the following actions.

   - September 12, 2011, 2:55 PM: City dispatched vactor trucks to the spill site at Los Peñasquitos Creek. City contacted on-call contractor and requested tanker trucks.

   - September 12, 2011, 3:05 PM: City vactors and tanker trucks initiated pumping at the bridge located at 11200 Sorrento Valley Road. At 7:00 p.m., two 6-inch pumps, each capable of pumping 2,000 gpm, were added at points along the creek to remove sewage and water from the area where sewage had ponded. A third, 4-inch pump was added later in the process. Locations of the pumping sites are identified on Enclosure 1.

   - September 12-23, 2011: City continuously pumped the Los Peñasquitos Creek.

   - September 13, 2011, EMTS began monitoring at various creek stations. The number of sites surveyed each day ranged from three to seven; and six sites (Stations 1-6) were consistently surveyed from September 16 - 26; each site was sampled up to four times a day and included 222 water quality measurements (e.g., pH, dissolved oxygen, conductivity, temperature, and ammonia). Also, 131 water samples analyzed for total and fecal coliforms and enterococcus, and 209 visual observations (e.g., odor, clarity, color, floatables, and deposits) were made over the 10-days of monitoring.

   - September 16, 2011: In advance of the weekend Coastal Cleanup Day, to alert the public to the potential health risk, contaminated water signs were posted at all access points along the Los Peñasquitos Creek bed within the pumping zone. All postings were in an effort to mitigate and prevent spill impacts on public health and safety. Please see Enclosure 1 for locations of the postings.

- September 17, 2011: City crews completely cleaned the concrete storm drain channel in the spill flow path. Under supervision of Environmental staff, construction crews removed vegetation and debris from the channel. Cleaning crews power washed the channel, contained and captured the water.

- September 19, 2011, approximately 2:00 PM: The City was notified of an additional site behind the J.W. Lumber Yard, identified by the Regional Board/Department of Fish and Game that was suspected to be a site that contained sewage. Based on this information, the City immediately began pumping operations, utilizing 5,500-gallon tankers. A total volume of 159,000 gallons of creek water and sewage were removed from this specific site. After pumping this site, City crews tested the site for sewage, and all tests were negative for the presence of sewage.

- September 23, 2011, 12:00 PM: Pumping operations at the creek ceased, after a total of 260 hours of continuous pumping operations. An estimated 15,183,000 gallons of creek water mixed with sewage was removed. Within the mixture of creek water and sewage, an estimate of 931,550 gallons of sewage was recovered. See Enclosure 7 for spill recovery calculations.

- September 12-26, 2011: City staff from the Environmental and Canyon Access Section continued to monitor the pumping sites to ensure direct environmental impacts to habitat did not occur to the Los Peñasquitos Creek. The monitoring effort consisted of overseeing the pumping operation and the clearing of the concrete channel north and south of Sorrento Valley Blvd. Careful attention was paid to the pumping operation to ensure habitat was avoided by the careful placement of pumps and hoses in disturbed areas. The clearing of the channel was also extensively monitored by a consulting biologist full-time to ensure no adverse impacts occurred to the reserve. Please see Enclosure 6, Site Observation Reports.

8. <u>Overflow Emergency Response Plan (Provision D.13.vi.(f))</u>: *Provide a copy of the City's Overflow Emergency Response Plan that implements Provision D.13.vi.(f) of Order No. 2006-0003-DWQ.*

   Please see Enclosure 8, Sewer System Management Plan.

9. Steps Taken to Implement Provision D.13.vi(f): *Provide a description of the steps taken to contain and prevent the discharge. Provide a description of steps taken to minimize or correct any adverse impact on the environment resulting from the discharge, including accelerated or additional monitoring conducted to determine the nature and impact of the discharge.*

   Please see responses to items 5, 7, and 10.

10. Effects of Spill: *Provide a description of the effects on public and environmental uses of affected waters of the State from the spill site to the Ocean. Include all data collected regarding water chemistry, water conditions, habitat effects, recreational effects, and effects on fish and wildlife. Include analytical results and an evaluation of the results. Include a description of the data collection methods. Include maps and GIS coordinates of data points.*

    Please see Enclosure 9, Report on the Effects of Spill from Pump Station 64 into Los Penasquitos Creek.

11. Measures of Effectiveness and Summary of Implementation of SSMP section Overflow Emergency Response Plan (Provision D.13.ix):

    a. *Provide a summary of the City's efforts to date to monitor the implementation of its SSMP section on Emergency Response Plan, including the program described in Provision D.13.vi.(f).*

       When a sewer spill occurs, City crews are directed to implement the procedures outlined in our Sewer System Management Plan. All spills are immediately reported to the Regulatory authorities pursuant to the Event Notification List contained in the SSMP and are responded to within 30 minutes of notification. Since 2003, all employees of the Public Utilities Department, Wastewater Collection Division who respond to SSO receive training in SSMP and SOP's. The City has also retained a consultant who has been providing operator training since 2003. While spill occurrences have been reduced dramatically in the past decade, the City continues to analyze each distinct incident and takes precautions to ensure that the spill does not repeat itself, and that the City does all it can to mitigate damages.

       In calendar year (CY) 2010, City forces investigated and analyzed 33 of the 41 Sanitary Sewer Overflows (SSOs) within seven days of the date of the incident.

The eight SSOs that were not analyzed within seven days were all from known causes: one was caused by a force main leak; one was caused by a contractor bypass pumping; one was in an environmentally sensitive area and was televised once the City received environmental clearance, 9 days after the SSO; and five were caused by capacity/surcharge issues during historically heavy rain storms in December and were later televised.

Proactively, the City inspected 4,293 manholes in CY 2010. The City also televised 136.40 miles of pipe. This assessment included pipe located in difficult to access canyons and other environmentally sensitive areas. From January 1, 2010 through December 31, 2010, City crews cleaned 2,123 miles of sewer pipe. This effort well exceeded the Final Consent Decree requirement of 1,500 miles annually. The City administers a robust Food Establishment Wastewater Discharge program, inspecting and permitting over 5,000 customers.

Overall, in CY 2010, the City's accelerated cleaning program has maintained the dramatic decrease in SSOs at a static, low rate in the problem areas of the wastewater collection system that can be addressed by maintenance. This is evidenced by an overall reduction of 81% in the number of SSOs from 215 in CY 2002 to 41 in CY 2010; moreover, the number of SSOs has decreased 89% from 365 in CY 2000 versus CY 2010, and the volume of sewage reaching public waters has decreased from almost 35 million gallons in CY 2000 to less than 24,000 gallons in CY 2010. The City is continually striving to reduce the number of SSOs with enhanced cleaning techniques, and implementation of an aggressive capital improvements program to replace mains that cannot be addressed by maintenance alone.

b. *Provide a summary of the City's efforts to measure the effectiveness of its SSMP section on Emergency Response Plan, including the program described in Provision D.13.vi.(f).*

The statistics cited above pertaining to spills, especially spills reaching public waters, are considered by the industry to be the best performance metrics with which to measure the effectiveness of an emergency response plan.

A more comprehensive discussion of the City's ongoing efforts to refine and improve its responsiveness to sewer spills and emergencies can be found in Enclosure 10, Annual Progress Report for Calendar Year 2010, Wastewater Collection System Plans.

Director's Certification

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, 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.

Respectfully submitted,

Roger S. Bailey
Director of Public Utilities

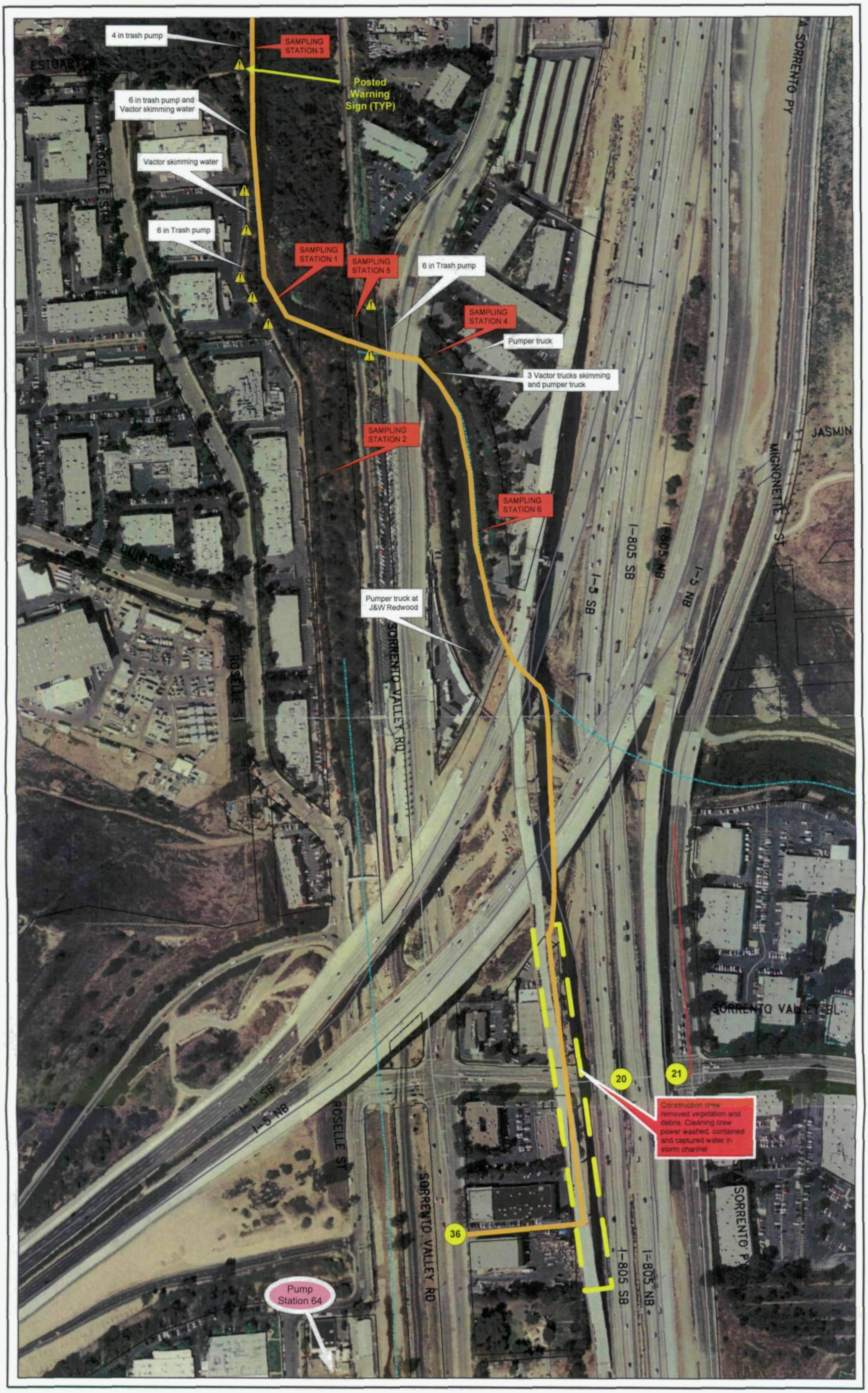
cc: Jay Goldstone, Chief Operating Officer
Ann Sasaki, Assistant Public Utilities Director – Wastewater Operations Branch
Christopher McKinney, Deputy Director, Wastewater Treatment and Disposal Division
Stan Griffith, Deputy Director, Wastewater Collection Division
Steve Meyer, Deputy Director, Environmental Monitoring and Technical Services Div.

Enclosures:

1. Spill Sites, Flow Path, Los Penasquitos Creek Pumping Site Locations and Location of Contaminated Water Warning Signs
2. Calculation of Spill Volume
3. Characterization of Dry-Weather Influent to PS 64
4. Report on San Diego MWWD Pump Station Standby Electrical Power Generation Systems
5. As Built drawings for Pump Station 64 Emergency Storage
6. Site Observation Reports
7. Calculation of Spill Recovery
8. Sewer System Management Plan
9. Report on the Effects of Spill from Pump Station 64 into Los Penasquitos Creek
10. Annual Progress Report for Calendar Year 2010, Wastewater Collection System Plans

Enclosure 1

Spill Sites, Flow Path, Los Penasquitos Creek Pumping Locations and Location of Contaminated Water Warning Signs



Posted Warning Sign
Line of Flow (apprx)
XX Spill Point (Manhole)
Pump Station 64 Sewer Pump Station 64
Concrete Channel

Enclosure 2

Calculation of Spill Volume

Sewer Spill Volume Calculations via Modeling Methodology for the San Diego Power Outage on September 8th, 2011

InfoWorks Dynamic Modeling Software was utilized to develop a dynamic hydraulic model for this spill volume quantification. The model simulated the pump station operations and the flow hydraulics before, during, and after the power outage.

Pump Station 64

Model Assumptions:

- The model flow was calibrated against the actual meter data which includes the data recorded during the outage (meters SD29 and SD30).
- The model calibration was based on meters SD29, SD30, SDT35-86 and PS65 & PS89 flow data located on Carroll Canyon Trunk Sewer, Penasquitos Trunk Sewer, Campus Point Trunk Sewer, Pump Station 65 force main and Pump Station 89 force main, respectively. These are the five major systems that feed the flow to PS64. The recorded flow at SD30 includes Penasquitos Pump Station's flow.
- A temporary meter SDT35-86 recorded flow in 2008 and PS89 recorded flow in April 2011. Since they are not the actual data that captured flows on the blackout day, a flow reduction of about 28% during the power outage window was applied on these two meters. The 28% factor was surveyed from meters SD29 and SD35 within the vicinity, the flow reduction was due to no electricity to run industries, manufacturing, restaurants, washing machines, etc. This percentage was also noticed in greater northern part of the metro system.
- Power outage duration from 15:40 to 22:52 was based on the Spill Report.
- Spill duration from 17:50 to 22:52 was based on field observation as recorded in the Spill Report.
- Spills occurred at manholes 20, 21, and 36.

Model Results:

- Model calculated a spill volume of 2,431,550 Gallons occurred at manholes 20, 21 and 36 on Field Book page D05S (see Location Map Figure 1).

09/30/2011

Sewer Spill Volume Calculations via Metering Methodology for the San Diego Power Outage on September 8th, 2011

Background and Assumptions:

Pump Station 64 is located in the Sorrento Valley area. It has five major pipelines that feed flows into the pump station:

- TS 48 (Penasquitos Trunk Sewer)
  - Metered by ADS permanent flow monitor SD30 recorded the flow before, during and after the power outage event.
  - Penasquitos Pump Station (PPS) was not operating during power outage that caused the flow to increase in this system.
- TS 49 (Carol Canyon Trunk Sewer)
  - Metered by SD29 that recorded the flow before, during and after the power outage event.
  - September 8th data shows 28% lower water usage during power outage.
- PS65
  - Non operational during the power outage.
- TS85 (Callan Trunk Sewer)
  - Metered by ADS temporary flow monitor SDT34-85 in 2008. The 28% flow reduction was applied during the power outage period.
- TS86 (Campus point Trunk Sewer)
  - Metered by ADS temporary flow monitor SDT35-86 in 2008. The 28% flow reduction was applied during the power outage period.
- Spill duration
  - 5:50pm - 10:50pm based on Spill Report and SD43 (2nd meter on Penasquitos Trunk Sewer at the spill location)
- Flow Reduction
  - 28% reduction in flow was based on the flow recorded on the major trunk sewers on the blackout day compared to the previous day located within the vicinity during the power outage event, meters SD35 & SD29. (28% percent reduction of flow was concluded by comparing actual metered flows from ADS meters due to no electricity to run industries, manufacturing, restaurants, washing machines, etc. this percentage was noticed in northern part of the area).

Spill Volume Calculations:

- Volume Calculated
  - Method: SD29Spill day + SD30 Spill day + ((SDT34-85 *Sept 2008 data* + SDT35-86 *Sept 2008 data*))*0.72
  - Spill Volume : 0.966 + 1.467 +0.108 + 0.078 = 2.619 mg
  - File: PowerOutagePS64-ADSmeters.xls

September 20, 2011

Enclosure 3

Characterization of Dry Weather Influent to PS 64

City of San Diego
PUBLIC UTILITIES
Water & Wastewater

City of San Diego
Wastewater Chemistry Services
Environmental Monitoring and Technical Services Division
5530 Kiowa Drive • Mail Station 85A • La Mesa, CA 91942
Tel: (619) 668-3214 • Fax: (619) 668-3284
California ELAP Certificate Nos. 1609, 2474, 2477, 2478, & 2539

Report of Analysis

Date of Report: October 11, 2011

Project: Characterization of the dry-weather influent to Pump Station No. 64

The included report of analyses was done in accordance with the methods listed by one or more of the certified laboratory certifications listed above and are subject only to the summary and limitations listed.

Reviewed and Approved: Brent G Bowman
Brent Bowman
Senior Chemist/Laboratory Director

Summary:
Attached are summaries of the analytical results of analyses performed on Influent to the North City Water Reclamation Plant (NCWRP) from Pump Station 64 (PS64). There are two data sets presented:

- September 2011 daily and monthly monitoring data
- 2010 annual averages of quarterly monitoring

The data in this report is intended to provide a characterization of the average quality of the dry-weather influent to Pump Station 64 with the September 2011 monthly monitoring data being the most contemporary to September 8, 2011.

All of the data included in this report is associated with weather condition at Lindbergh Field that showed <0.01 inches of rain for that day and the preceding 72 hours.

Notes:
The specific parameters listed in Section A.2.a.iii of Investigative Order No. R9-2011-0070, with the exception of total nitrogen, are included in this report. Total Kjeldahl Nitrogen, Ammonia-N and Nitrate were monitored for and are included in this report.

The source N01-PS_INF referenced in the data summaries is the influent to the NCWRP from PS 64.

A number of abbreviations are routinely used in reports, including the following:
NA = not analyzed; **ND** = Not detected; **NS** = not sampled;

North City Reclamation Plant Monthly Monitoring Report
(NO1-PS_INF) Pump Station 64 Influent - Daily Parameters

From 01-SEP-2011 to 30-SEP-2011

	Biochemical Oxygen Demand (mg/L)	Total Dissolved Solids (mg/L)	Total Suspended Solids (mg/L)	Volatile Suspended Solids (mg/L)	pH COMPOSITE (pH)	Turbidity (NTU)
01-SEP-2011	267	980	178	160	7.62	130
02-SEP-2011	279	960	282	252	7.60	160
03-SEP-2011	261	984	220	198	7.59	150
04-SEP-2011	244	952	251	224	7.52	160
05-SEP-2011	<40*	932	188	170	7.64	150
06-SEP-2011	246	928	242	208	7.45	150
07-SEP-2011	264	1020	226	204	7.60	120
08-SEP-2011	206	1100	216	196	7.79	110
09-SEP-2011	502	944	376	320	7.44	190
10-SEP-2011	337	932	266	240	7.43	120
11-SEP-2011	278	896	228	192	7.51	140
12-SEP-2011	224	812	252	226	7.60	130
13-SEP-2011	207	1030	258	226	7.55	130
14-SEP-2011	210	1100	192	162	7.73	120
15-SEP-2011	303	1150	380	332	7.69	230
16-SEP-2011	227	1180	210	190	7.68	140
17-SEP-2011	208	1110	208	182	7.64	130
18-SEP-2011	218	1080	178	162	7.53	120
19-SEP-2011	207	1090	174	160	7.70	110
20-SEP-2011	235	1080	232	208	7.63	150
21-SEP-2011	215	904	192	176	7.56	120
22-SEP-2011	235	1070	242	216	7.51	140
23-SEP-2011	235	1050	194	178	7.69	120
24-SEP-2011	286	1060	208	190	7.60	150
25-SEP-2011	252	988	196	176	7.62	120
26-SEP-2011	238	1010	212	192	7.72	130
27-SEP-2011	231	1010	264	244	7.66	140
28-SEP-2011	219	1030	226	208	7.71	130
29-SEP-2011	221	992	236	216	7.59	160
30-SEP-2011	269	956	244	222	7.68	160
Average:	253	1011	232	208	7.61	140
Maximum:	502	1180	380	332	7.79	230
Minimum:	206	812	174	160	7.43	110

*Batch did not meet QC criteria for external check sample recovery. The external check result for the batch was 156 mg/L. The acceptance range for external check is 167.5-228.5 mg/L with a true value of 198 mg/L. Value was not used in the average.

All samples are 24-hour composite.
NA= Not Analyzed
NS= Not Sampled
ND= Not Detected

Pump Station 64 Influent To NCWRP
September 2011 Metals and Anions/Cations

Source:			N01-PS_INF
Date:			7-Sep-11
Sample ID:	MDL	Units	P580848
Aluminum	47	UG/L	509
Antimony	2.9	UG/L	ND
Arsenic	0.4	UG/L	0.92
Barium	0.039	UG/L	59
Beryllium	0.022	UG/L	ND
Boron	7	UG/L	322
Cadmium	0.53	UG/L	0.63
Chromium	1.2	UG/L	2.6
Cobalt	0.85	UG/L	ND
Copper	2	UG/L	116
Iron	37	UG/L	742
Lead	2	UG/L	ND
Manganese	0.24	UG/L	120
Mercury	0.005	UG/L	0.06
Molybdenum	0.89	UG/L	11.1
Nickel	0.53	UG/L	9.1
Selenium	0.28	UG/L	0.68
Silver	0.4	UG/L	0.6
Thallium	3.9	UG/L	ND
Vanadium	0.64	UG/L	ND
Zinc	2.5	UG/L	139
Calcium Hardness	0.1	MG/L	166
Magnesium Hardness	0.4	MG/L	132
Total Hardness	0.4	MG/L	298
Calcium	0.04	MG/L	66.5
Lithium	0.002	MG/L	0.03
Magnesium	0.1	MG/L	32.2
Potassium	0.3	MG/L	20.7
Sodium	1	MG/L	201
Cyanides,Total	0.002	MG/L	ND

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

10/17/2011

Pump Station 64 Influent to NCWRP
Inorganic Chemistry (FOT 108) Parameters

Analytes	MDL	Units	N01-PS_INF 2-Feb-10	N01-PS_INF 4-May-10	N01-PS_INF 3-Aug-10	N01-PS_INF 5-Oct-10	2010 Average
Ammonia-N	0.3	MG/L	35.9	40.4	41.8	41.2	39.8
BOD (Biochemical Oxygen Demand)	2	MG/L	225	253	355	223	264
Hexane Extractable Material	1.2	MG/L	21.8	34.2	36.8	23.7	29.1
Chemical Oxygen Demand	18	MG/L	655	623	471	567	579
Conductivity	10	UMHOS/CM	2050	2030	2040	1710	1958
MBAS (Surfactants)	0.03	MG/L	8.2	7.5	6.7	6.6	7.3
pH (grab)		PH	7.4	7.3	7.3	7.3	7.3
Total Alkalinity (bicarbonate)	20	MG/L	275	283	293	283	284
Total Dissolved Solids	28	MG/L	1130	1080	1100	1060	1093
Total Suspended Solids	1.4	MG/L	274	230	288	270	266
Volatile Suspended Solids	1.6	MG/L	246	214	256	244	240
Total Kjeldahl Nitrogen	1.6	MG/L	48	54.1	55.1	56.3	53.4
Turbidity	0.13	NTU	110	120	130	120	120

10/17/2011

Pump Station 64 Influent to NCWRP
Metals

Source:			N01-PS_INF	N01-PS_INF	N01-PS_INF	N01-PS_INF	
Date:			2-Feb-10	4-May-10	3-Aug-10	5-Oct-10	2010
Sample ID:	MDL	Units	P504408	P515410	P524968	P533525	Average
Aluminum	47	UG/L	722	614	500	640	619
Antimony	2.9	UG/L	ND	ND	ND	ND	ND
Arsenic	0.4	UG/L	1.1	1.22	0.79	0.72	0.96
Barium	0.039	UG/L	108	79	88	96	93
Beryllium	0.022	UG/L	ND	ND	ND	<0.02	<0.02
Boron	7	UG/L	342	363	353	341	350
Cadmium	0.53	UG/L	ND	ND	ND	ND	ND
Chromium	1.2	UG/L	2.1	2.5	1.5	2.8	2.2
Cobalt	0.85	UG/L	ND	ND	ND	ND	ND
Copper	2	UG/L	127	120	105	156	127
Iron	37	UG/L	602	703	468	617	598
Lead	2	UG/L	ND	ND	ND	ND	ND
Manganese	0.24	UG/L	121	125	99.4	130	119
Mercury	0.09	UG/L	0.45	0.1	ND	0.05	0.15
Molybdenum	0.89	UG/L	8.3	7	9.8	10.4	8.9
Nickel	0.53	UG/L	4.8	5.3	4.4	7.8	5.6
Selenium	0.28	UG/L	2.29	2.59	1.79	1.22	1.97
Silver	0.4	UG/L	1.1	1.2	1	1.7	1.3
Thallium	3.9	UG/L	ND	ND	ND	ND	ND
Vanadium	0.64	UG/L	0.9	ND	0.9	1.2	0.8
Zinc	2.5	UG/L	147	148	121	143	140

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

10/17/2011

Pump Station 64 Influent to NCWRP
Anions and Cations

Source:			N01-PS_INF	N01-PS_INF	N01-PS_INF	N01-PS_INF	
Date:			2-Feb-10	4-May-10	3-Aug-10	5-Oct-10	2010
Sample ID:	MDL	Units	P504408	P515410	P524968	P533525	Average
Calcium	0.04	MG/L	87	84	85	85	85
Lithium	0.002	MG/L	0.05	0.04	0.054	0.045	0.047
Magnesium	0.1	MG/L	39	38	38	39	38.5
Potassium	0.3	MG/L	18	22	21	22	21
Sodium	1	MG/L	197	214	223	212	212
Calcium Hardness	0.1	MG/L	216	209	211	212	212
Magnesium Hardness	0.4	MG/L	159	158	155	159	158
Total Hardness	0.4	MG/L	376	366	366	370	370
Bromide	0.1	MG/L	0.62	0.64	0.48	0.52	0.57
Chloride	7	MG/L	311	296	299	302	302
Fluoride	0.05	MG/L	0.6	0.48	0.53	0.28	0.47
Nitrate	0.04	MG/L	0.1	0.17	0.14	ND	0.10
Ortho Phosphate	0.2	MG/L	8.82	10.2	10.2	9.29	9.6
Sulfate	9	MG/L	288	207	231	224	238
Cyanides,Total	0.002	MG/L	ND	0.002	ND	0.002	0.001
Sulfides-Total	0.18	MG/L	0.75	2.07	4.01	0.96	1.95
Ammonia-N	0.3	MG/L	35.9	40.4	41.8	41.2	39.8

Pump Station 64 Influent to NCWRP
Radiations

Source	Sample Date	Sample ID	Gross Alpha Radiation	Gross Beta Radiation	Units
N01-PS_INF	2-Feb-10	P504408	3.3±3.3	21.8±5.8	pCi/L
N01-PS_INF	4-May-10	P515410	0.8±2.1	32.7±7.5	pCi/L
N01-PS_INF	3-Aug-10	P524968	8.6±3.7	29.6±7.4	pCi/L
N01-PS_INF	5-Oct-10	P533525	1.8±7.0	30.8±18.0	pCi/L

Pump Station 64 Influent to NCWRP
Tributyl Tin

Analyte	MDL	Units	N01-PS_INF 2-Feb-10 P504408	N01-PS_INF 4-May-10 P515410	N01-PS_INF 3-Aug-10 P524968	N01-PS_INF 5-Oct-10 P533525	2010 Average
Tributyltin	2	UG/L	ND	ND	ND	ND	ND
Dibutyltin	7	UG/L	ND	ND	ND	ND	ND
Monobutyltin	16	UG/L	ND	ND	ND	ND	ND

Pump Station 64 Influent To NCWRP
Base Neutrals

Analyte	MDL	Units	N01-PS_INF 2-Feb-10 P504408	N01-PS_INF 4-May-10 P515410	N01-PS_INF 3-Aug-10 P524968	N01-PS_INF 5-Oct-10 P533525	2010 Average
1,2,4-trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND
1,2-diphenylhydrazine	1.37	UG/L	ND	ND	ND	ND	ND
2,4-dinitrotoluene	1.36	UG/L	ND	ND	ND	ND	ND
2,6-dinitrotoluene	1.53	UG/L	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	1.01	UG/L	ND	ND	ND	ND	ND
Diethyl phthalate	3.05	UG/L	4.1	6.2	5.8	5.5	5.4
Dimethyl phthalate	1.44	UG/L	ND	ND	ND	ND	ND
Di-n-butyl phthalate	3.96	UG/L	ND	ND	ND	ND	ND
Di-n-octyl phthalate	1	UG/L	ND	ND	ND	ND	ND
2-chloronaphthalene	1.87	UG/L	ND	ND	ND	ND	ND
3,3-dichlorobenzidine	2.44	UG/L	ND	ND	ND	ND	ND
3,4-benzo(B)fluoranthene	1.35	UG/L	ND	ND	ND	ND	ND
4-bromophenyl phenyl ether	1.4	UG/L	ND	ND	ND	ND	ND
4-chlorophenyl phenyl ether	1.57	UG/L	ND	ND	ND	ND	ND
Hexachloroethane	1.32	UG/L	ND	ND	ND	ND	ND
Hexachlorobenzene	1.48	UG/L	ND	ND	ND	ND	ND
Hexachlorobutadiene	1.64	UG/L	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	1.25	UG/L	ND	ND	ND	ND	ND
Acenaphthene	1.8	UG/L	ND	ND	ND	ND	ND
Acenaphthylene	1.77	UG/L	ND	ND	ND	ND	ND
Anthracene	1.29	UG/L	ND	ND	ND	ND	ND
Bis-(2-chloroisopropyl) ether	1.16	UG/L	ND	ND	ND	ND	ND
Bis-(2-ethylhexyl) phthalate	8.96	UG/L	ND	ND	12.5	12.7	6.3
Benzidine	1.52	UG/L	ND	ND	ND	ND	ND
Benzo[A]anthracene	1.1	UG/L	ND	ND	ND	ND	ND
Benzo[A]pyrene	1.25	UG/L	ND	ND	ND	ND	ND
Benzo[G,H,I]perylene	1.09	UG/L	ND	ND	ND	ND	ND
Benzo[K]fluoranthene	1.49	UG/L	ND	ND	ND	ND	ND
bis(2-chloroethoxy)methane	1.01	UG/L	ND	ND	ND	ND	ND
bis(2-chloroethyl) ether	1.38	UG/L	ND	ND	ND	ND	ND
Butyl benzyl phthalate	2.84	UG/L	ND	ND	3.3	ND	0.8
Chrysene	1.16	UG/L	ND	ND	ND	ND	ND
Fluoranthene	1.33	UG/L	ND	ND	ND	ND	ND
Fluorene	1.61	UG/L	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	1.14	UG/L	ND	ND	ND	ND	ND
Isophorone	1.53	UG/L	ND	ND	ND	ND	ND
Naphthalene	1.65	UG/L	ND	ND	ND	ND	ND
Nitrobenzene	1.6	UG/L	ND	ND	ND	ND	ND
N-nitrosodimethylamine	1.27	UG/L	ND	ND	ND	ND	ND
N-nitrosodiphenylamine	3.48	UG/L	ND	ND	ND	ND	ND
N-nitrosodi-n-propylamine	1.16	UG/L	ND	ND	ND	ND	ND
Phenanthrene	1.34	UG/L	ND	ND	ND	ND	ND
Pyrene	1.43	UG/L	ND	ND	ND	ND	ND
Polynuc. Aromatic Hydrocarbons	1.77	UG/L	0	0	0	0	0.0
Base/Neutral Compounds	8.96	UG/L	4.1	6.2	21.6	18.2	12.5

Additional analytes determined;

Analyte	MDL	Units	N01-PS_INF 2-Feb-10 P504408	N01-PS_INF 4-May-10 P515410	N01-PS_INF 3-Aug-10 P524968	N01-PS_INF 5-Oct-10 P533525	2010 Average
1-methylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND
2-methylnaphthalene	2.14	UG/L	ND	ND	ND	ND	ND
2,6-dimethylnaphthalene	2.16	UG/L	ND	ND	ND	ND	ND
2,3,5-trimethylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND
1-methylphenanthrene	1.46	UG/L	ND	ND	ND	ND	ND
Benzo[e]pyrene	1.44	UG/L	ND	ND	ND	ND	ND
Perylene	1.41	UG/L	ND	ND	ND	ND	ND
Biphenyl	2.29	UG/L	ND	ND	ND	ND	ND
Pyridine	3.33	UG/L	ND	4.7	ND	ND	1.2

Pump Station 64 Influent To NCWRP
Purgables

Analyte	MDL	Units	N01-PS_INF 2-Feb-10 P504411	N01-PS_INF 4-May-10 P515413	N01-PS_INF 3-Aug-10 P524971	N01-PS_INF 5-Oct-10 P533528	2010 Average
Chloromethane	0.5	UG/L	ND	ND	ND	ND	ND
Bromomethane	0.7	UG/L	ND	ND	ND	ND	ND
Vinyl chloride	0.4	UG/L	ND	ND	ND	ND	ND
Chloroethane	0.9	UG/L	ND	ND	ND	ND	ND
1,1-dichloroethane	0.4	UG/L	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.3	UG/L	ND	ND	ND	ND	ND
Methylene chloride	0.3	UG/L	0.8	4.9	1.9	0.8	2.1
1,1-dichloroethene	0.4	UG/L	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	0.6	UG/L	ND	ND	ND	ND	ND
Chloroform	0.2	UG/L	1.4	1.9	3	1.9	2.1
1,2-dichloroethane	0.5	UG/L	ND	ND	ND	ND	ND
1,1,1-trichloroethane	0.4	UG/L	ND	ND	ND	ND	ND
Carbon tetrachloride	0.4	UG/L	ND	ND	ND	ND	ND
Bromodichloromethane	0.5	UG/L	ND	ND	ND	ND	ND
1,2-dichloropropane	0.3	UG/L	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	0.5	UG/L	ND	ND	ND	ND	ND
Trichloroethene	0.7	UG/L	ND	ND	ND	ND	ND
Benzene	0.4	UG/L	0.4	ND	ND	ND	0.1
Dibromochloromethane	0.6	UG/L	0.6	ND	ND	ND	0.2
1,1,2-trichloroethane	0.5	UG/L	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	0.3	UG/L	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	1.1	UG/L	ND	ND	ND	ND	ND
Bromoform	0.5	UG/L	ND	ND	ND	ND	ND
1,1,2,2-tetrachloroethane	0.5	UG/L	ND	ND	ND	ND	ND
Tetrachloroethene	1.1	UG/L	ND	ND	ND	ND	ND
Chlorobenzene	0.4	UG/L	ND	ND	ND	ND	ND
Toluene	0.4	UG/L	1.2	1.5	1.1	0.4	1.1
Ethylbenzene	0.3	UG/L	ND	ND	ND	ND	ND
Acrylonitrile	0.7	UG/L	ND	ND	ND	ND	ND
Acrolein	1.3	UG/L	ND	ND	ND	ND	ND
1,2-dichlorobenzene	0.4	UG/L	ND	ND	ND	ND	ND
1,4-dichlorobenzene	0.4	UG/L	ND	ND	ND	ND	ND
1,3-dichlorobenzene	0.5	UG/L	ND	ND	ND	ND	ND
Dichlorodifluoromethane	0.66	UG/L	ND	ND	ND	ND	ND
Halomethane Purgeable Cmpnds	0.7	UG/L	0.6	0	0	0	0.2
Purgeable Compounds	1.3	UG/L	4.4	8.3	6	3.1	5.5
Total Dichlorobenzenes	0.5	UG/L	0	0	0	0	0.0
Additional analytes determine							
Allyl chloride	0.6	UG/L	ND	ND	ND	ND	ND
4-methyl-2-pentanone	1.3	UG/L	ND	ND	ND	ND	ND
meta,para xylenes	0.6	UG/L	ND	0.8	ND	ND	0.2
Styrene	0.3	UG/L	3.1	ND	ND	ND	0.8
1,2,4-trichlorobenzene	0.7	UG/L	ND	ND	ND	ND	ND
Methyl Iodide	0.6	UG/L	ND	ND	ND	ND	ND
Chloroprene	0.4	UG/L	ND	ND	ND	ND	ND
Methyl methacrylate	0.8	UG/L	ND	ND	ND	ND	ND
2-nitropropane	12	UG/L	ND	ND	ND	ND	ND
1,2-dibromoethane	0.3	UG/L	ND	ND	ND	ND	ND
Isopropylbenzene	0.3	UG/L	ND	ND	ND	ND	ND
Benzyl chloride	1.1	UG/L	ND	ND	ND	ND	ND
ortho-xylene	0.4	UG/L	ND	ND	ND	ND	ND
Acetone	4.5	UG/L	2010	212	1950	956	1282
Carbon disulfide	0.6	UG/L	0.8	2	1.8	0.7	1.3
2-butanone	6.3	UG/L	ND	ND	ND	ND	ND
Methyl tert-butyl ether	0.4	UG/L	ND	ND	ND	ND	ND

10/17/2011

Pump Station 64 Influent To NCWRP
Phenols

Analyte	MDL	Units	N01-PS_INF 2-Feb-10 P504408	N01-PS_INF 4-May-10 P515410	N01-PS_INF 3-Aug-10 P524968	N01-PS_INF 5-Oct-10 P533525	2010 Average
2,4,6-trichlorophenol	1.65	UG/L	ND	ND	ND	ND	ND
2,4-dichlorophenol	1.01	UG/L	ND	ND	ND	ND	ND
2,4-dimethylphenol	2.01	UG/L	ND	ND	ND	ND	ND
2,4-dinitrophenol	2.16	UG/L	ND	ND	ND	ND	ND
2-methyl-4,6-dinitrophenol	1.52	UG/L	ND	ND	ND	ND	ND
2-chlorophenol	1.32	UG/L	ND	ND	ND	ND	ND
2-nitrophenol	1.55	UG/L	ND	ND	ND	ND	ND
4-chloro-3-methylphenol	1.67	UG/L	ND	ND	ND	ND	ND
4-nitrophenol	1.14	UG/L	ND	ND	ND	ND	ND
Pentachlorophenol	1.12	UG/L	ND	ND	ND	ND	ND
Phenol	1.76	UG/L	22.7	27.9	28.2	25.3	26.0
Total Non-Chlorinated Phenols	2.16	UG/L	22.7	27.9	28.2	25.3	26.0
Total Chlorinated Phenols	1.67	UG/L	0	0	0	0	0.0
Phenols	2.16	UG/L	22.7	27.9	28.2	25.3	26.0
Additional analytes determined;							
2-methylphenol	2.15	UG/L	ND	ND	ND	ND	ND
3-methylphenol(4-MP is unresolved)		UG/L	NA	NA	NA	NA	NA
4-methylphenol(3-MP is unresolved)	2.11	UG/L	69.4	50.9	50	36.9	51.8
2,4,5-trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND

Pump Station 64 Influent To NCWRP
Chlorinated Pesticides

Analyte	MDL	Units	N01-PS_INF 2-Feb-10 P504408	N01-PS_INF 4-May-10 P515410	N01-PS_INF 3-Aug-10 P524968	N01-PS_INF 5-Oct-10 P533525	2010 Average
Aldrin	7	NG/L	ND	ND	ND	ND	ND
BHC, Alpha isomer	7	NG/L	ND	ND	ND	ND	ND
BHC, Beta isomer	3	NG/L	ND	ND	ND	ND	ND
BHC, Delta isomer	3	NG/L	ND	ND	ND	ND	ND
BHC, Gamma isomer	5	NG/L	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	3	NG/L	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	4	NG/L	ND	ND	ND	ND	ND
Cis Nonachlor	3	NG/L	ND	ND	ND	ND	ND
Dieldrin	3	NG/L	ND	ND	ND	ND	ND
Endosulfan Sulfate	6	NG/L	ND	ND	ND	ND	ND
Alpha Endosulfan	4	NG/L	ND	ND	ND	ND	ND
Beta Endosulfan	2	NG/L	ND	ND	ND	ND	ND
Endrin	2	NG/L	ND	ND	ND	ND	ND
Endrin aldehyde	9	NG/L	ND	ND	ND	ND	ND
Heptachlor	8	NG/L	ND	ND	ND	ND	ND
Heptachlor epoxide	4	NG/L	ND	ND	ND	ND	ND
Methoxychlor	10	NG/L	ND	ND	ND	ND	ND
Mirex	10	NG/L	ND	ND	ND	ND	ND
o,p-DDD	4	NG/L	ND	ND	ND	ND	ND
o,p-DDE	5	NG/L	ND	ND	ND	ND	ND
o,p-DDT	3	NG/L	ND	ND	ND	ND	ND
Oxychlordane	6	NG/L	ND	ND	ND	ND	ND
PCB 1016	4000	NG/L	ND	ND	ND	ND	ND
PCB 1221	4000	NG/L	ND	ND	ND	ND	ND
PCB 1232	360	NG/L	ND	ND	ND	ND	ND
PCB 1242	4000	NG/L	ND	ND	ND	ND	ND
PCB 1248	2000	NG/L	ND	ND	ND	ND	ND
PCB 1254	2000	NG/L	ND	ND	ND	ND	ND
PCB 1260	2000	NG/L	ND	ND	ND	ND	ND
PCB 1262	930	NG/L	ND	ND	ND	ND	ND
p,p-DDD	3	NG/L	ND	ND	ND	ND	ND
p,p-DDE	4	NG/L	ND	ND	ND	ND	ND
p,p-DDT	8	NG/L	ND	ND	ND	ND	ND
Toxaphene	330	NG/L	ND	ND	ND	ND	ND
Trans Nonachlor	5	NG/L	ND	ND	ND	ND	ND
Heptachlors	8	NG/L	0	0	0	0	0
Endosulfans	6	NG/L	0	0	0	0	0
Polychlorinated biphenyls	4000	NG/L	0	0	0	0	0
Chlordane + related cmpds.	6	NG/L	0	0	0	0	0
DDT and derivatives	8	NG/L	0	0	0	0	0
Hexachlorocyclohexanes	7	NG/L	0	0	0	0	0
Aldrin + Dieldrin	7	NG/L	0	0	0	0	0
Chlorinated Hydrocarbons	4000	NG/L	0	0	0	0	0

Pump Station 64 Influent To NCWRP
Organophosphorus Pesticides

Analyte	MDL	Units	N01-PS_INF 4-May-10 P515410	N01-PS_INF 5-Oct-10 P533525	2010 average
================================	===	=====	==============	==============	==============
Demeton O	0.15	UG/L	ND	ND	ND
Demeton S	0.08	UG/L	ND	ND	ND
Diazinon	0.03	UG/L	ND	ND	ND
Guthion	0.15	UG/L	ND	ND	ND
Malathion	0.03	UG/L	ND	ND	ND
Parathion	0.03	UG/L	ND	ND	ND
================================	===	=====	==============	==============	==============
Thiophosphorus Pesticides	0.15	UG/L	0	0	0
Demeton -O, -S	0.15	UG/L	0	0	0
================================	===	=====	==============	==============	==============
Total Organophosphorus Pesticides	0.3	UG/L	0	0	0
================================	===	=====	==============	==============	==============
Dichlorvos	0.05	UG/L	ND	ND	ND
Dibrom	0.2	UG/L	ND	NA	NA
Ethoprop	0.04	UG/L	ND	NA	NA
Phorate	0.04	UG/L	ND	NA	NA
Sulfotepp	0.04	UG/L	ND	NA	NA
Disulfoton	0.02	UG/L	ND	ND	ND
Dimethoate	0.04	UG/L	ND	ND	ND
Ronnel	0.03	UG/L	ND	NA	NA
Trichloronate	0.04	UG/L	ND	NA	NA
Merphos	0.09	UG/L	ND	NA	NA
Dichlofenthion	0.03	UG/L	ND	NA	NA
Tokuthion	0.06	UG/L	ND	NA	NA
Stirophos	0.03	UG/L	ND	ND	ND
Bolstar	0.07	UG/L	ND	NA	NA
Fensulfothion	0.07	UG/L	ND	NA	NA
EPN	0.09	UG/L	ND	NA	NA
Coumaphos	0.15	UG/L	ND	ND	ND
Mevinphos, e isomer	0.05	UG/L	ND	NA	NA
Mevinphos, z isomer	0.3	UG/L	ND	NA	NA
Chlorpyrifos	0.03	UG/L	ND	ND	ND

Enclosure 4

Report on "San Diego MWWD Pump Station Standby Electrical Power Generation Systems"

HDR Engineering, Inc.

San Diego MWWD Pump Station Standby Electrical Power Generation Systems

Document Number 10.002

Feasibility Study for Pump Station 2, 64, 65, East Mission Gorge, and Penasquitos

Prepared for:

City of San Diego
Metropolitan Wastewater Department

December 2002

San Diego MWWD – PM/CM Services, Task 10

Document Number 10.002

Feasibility Study for Standby Electrical Power Generation Systems at Pump Station 2, 64, 65, East Mission Gorge, and Penasquitos

Executive Summary

The City of San Diego Metropolitan Wastewater Department (MWWD) contracted HDR Engineering, Inc. (HDR) to conduct a feasibility study to investigate potential sources of standby electrical power for five of the City's regional wastewater pump stations. San Diego Gas & Electric (SDG&E) informed MWWD that electricity cannot be guaranteed at Pump Station 2, Pump Station 64, Pump Station 65, East Mission Gorge Pump Station (EMG), and Penasquitos Pump Station (PEN) in the event of a blackout. The purpose of this feasibility study is to investigate alternative means of insuring standby electric power sources at each station through on-site power generation.

The scope of this feasibility study involves assessing the current electrical consumption at each pump station and projection of future consumption in the design year 2020. HDR investigated installing diesel engine driven electric generators at each pump station or bypassing options that would eliminate the need to provide standby power. Detailed analysis of sound attenuation, air quality (and related permits), and fuel storage requirements will be conducted should MWWD pursue the installation of the recommended diesel engine generator sets.

HDR initiated discussion with Dynegy Power Corporation (Dynegy) and Sithe Energies USA, Inc. (Sithe) regarding the feasibility of installing a new dedicated power feed to Pump Station 2. Both Dynegy and Sithe operate gas/oil fired cogeneration turbines on the land they lease from the Navy at the Marine Corps Recruitment Depot. The Navy has indicated that they do not plan to renew the current lease they have with Dynegy and proposes to replace them with a new power company. The Navy will issue a Request for Proposal (RFP) for other power companies to replace Dynegy and will allow the MWWD to participate in development of the RFP with provisions for the distribution of dedicated power to Pump Station 2 as a major consideration. A recommendation therefore, cannot be made at this time regarding a viable source of standby power for Pump Station 2 due the termination of Dynegy's current lease and lack of an appointed successor. However, if standby power is provided from this location, the estimated cost to install one-mile of underground conductors between the two facilities is approximately $1.8 million.

Diesel engine driven generator sets are recommended for 64, 65, EMG, and PEN pump stations. A summary of these recommendations are presented as follows:

Pump Station	PS 64	PS 65	EMG	PEN
2020 peak daily flow (mgd)	37.5	25.8	24.9	16.8
2020 peak WW flow (mgd)	53.3	27.4	24.9	19.1
Future power required (kW)	2,960	1,240	1,270	2,000
Est. Standby Generator Cost	$2.8-3.2 million	$1.2–1.4 million	$1.2–1.4 million	$1.4–1.6 million

The MWWD contracted Brown & Caldwell Engineers to conduct a similar feasibility study for Pump Station 1. Brown & Caldwell's findings are presented as Appendix 1 of this report.

San Diego MWWD – PM/CM Services, Task 10

Document Number 10.002

Feasibility Study for Standby Electrical Power Generation Systems at Pump Station 2, 64, 65, East Mission Gorge, and Penasquitos

The purpose of this feasibility study is to define alternative methods to meet reliability requirements at five Metropolitan Wastewater Department (MWWD) regional wastewater pump stations to insure standby electric power sources. San Diego Gas & Electric (SDG&E) has informed MWWD that electricity cannot be guaranteed at Pump Station 2, 64, 65, East Mission Gorge, and Penasquitos Pump Station in the event of a blackout (see Map 1 for general locations of each pump station). An assessment of the current electrical consumption at each pump station and projected future consumption in the design year 2020 was conducted. On-site standby electric generators were sized to provide sufficient power to meet these future loads. The potential location for these generators at each site, the routing of electrical ducts, and general modifications to existing switchgear are also presented as part of this feasibility study. Standby generator sizing will be confirmed in final design. Switchgear controls that return the pump stations to the utility supplied power without interruption will need to be investigated in final design in conjunction with other control related issues and development of detailed drawings.

HDR Engineering, Inc. (HDR) visited each of the pump stations and met with MWWD Engineering and Operations personnel to determine: current sewage flow rates, maximum pumping capacity available, and ancillary equipment required to operate each station. Future sewage flow rate data was obtained from the MWWD Truck Sewer Modeling group and the Trunk Sewer Modeling Program 2000 Annual Report prepared by The Engineering and Program Management Division of the MWWD. The MWWD Trunk Sewer Modeling Group estimate future flows based on SANDAG population and employment data, unit flow generation rates, and City of San Diego Water and Sewer Design Guide standard peaking factors. These sewage flow projections do not include a component for wet weather since the influence of rain events has not been included in the hydraulic model. Therefore, the wet-weather flow component was determined by subtracting the current average daily flow from the maximum peak flow at each pump station in the past four years. The maximum peak flow at each pump station coincides with significant rain events and represents the impact wet weather has on the pump station flow. This value was added to the hydraulic model-predicted sanitary flow rate for the year 2020 to determine the future wastewater flows. Future power consumption was determined by the percentage increase in horsepower required to pump the future flows. The additional horsepower required for ancillary equipment, was conservatively estimated and factored into the total future power demand. A summary of current and future flows, anticipated horsepower, and future power requirements is presented in Table 1 (Pump Station Flow Data and Generator Sizing Criteria).

Recommendations for providing reliable standby power at each pump station are presented and discussed.

Map 1. Location of Pump Stations

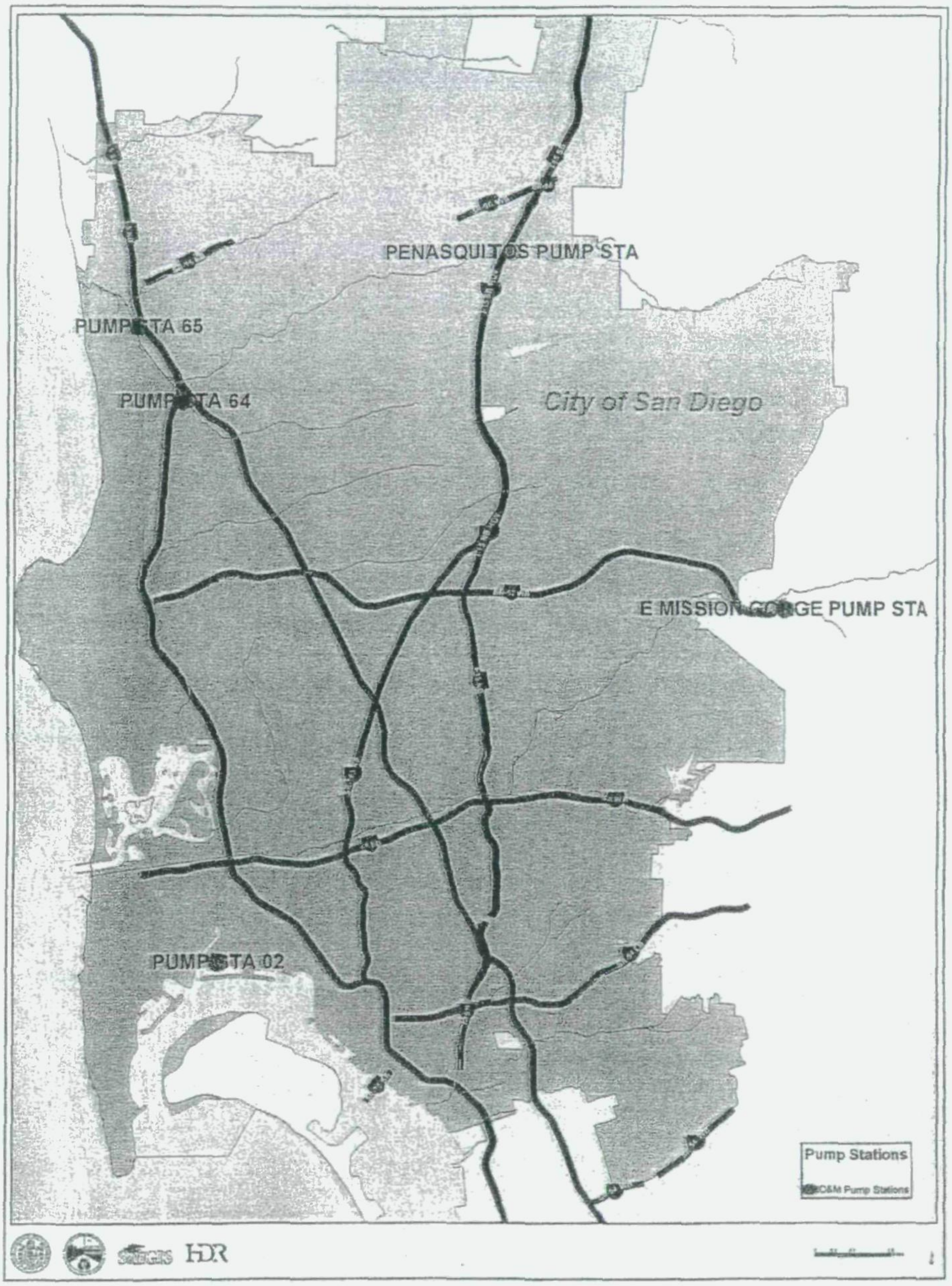


Table 1. Pump Station Flow Data and Generator Sizing Criteria

Pump Station	PS 2	PS 64	PS 65	EMG	PEN
2001 average daily flow (mgd)	165-185	21.5	6.8	2.7	8.0
Current peak daily flow (mgd)[1]	245.0	37.3	8.4	26.2	10.3
2020 average daily flow (mgd)	223.0	25.0	17.6	17.3	8.7
2020 peak daily flow (mgd)	301.1	37.5	25.8	24.9	16.8
2020 wet-weather flow (mgd)	347.5	53.3	27.4	28.2	19.1
Number of pumps/Hp each currently available	8/2,250	4/200 (2 sets) 4/400 (2 sets) 8/500 (4 sets)	2/150 2/400	4/500	8/400 (4 sets)
Rated station capacity (mgd)	413.0	73.0	24.5	42.3	32.0
No./Hp required @ current peak flow	7/2,250 (6 electric)	2/500, 4/400	1/150, 1/400	1/500	2/400
Hp required @ current peak flow	13,500 [2]	3,270	550	500	800
Hp required @ 2020 peak flow	13,500 [2]	4,670	1,500	1,500	2,400
Ancillary loads:					
Lighting panel	Yes	Yes	Yes	Yes	Yes
Bar rack/screens	Yes	Yes	Manual [3]	Yes	Yes
HVAC	Yes	Yes	Yes	Yes	Yes
Odor control	Yes	Yes	Yes	Yes	Yes
Variable speed LR – liquid rheostat CS – constant speed VFD – variable frequency drive	LR, CS	CS	CS	VFD	VFD
Seal water system	Yes	Yes	Yes	Yes	Yes
Surge tank system	N/A	Yes	Yes	N/A	N/A
Lube oil system	N/A	N/A	N/A	N/A	Yes
Est. ancillary horsepower	1,080	640	150	200	270
Total future horsepower required	16,830[2]	5,310	1,650	1,700	2,670
Future power required (kW)	11,000	3,960	1,250	1,300	1,990
Generator size (kW)	See text	2 @ 2,000	1,750	1,750	2,000
Generator size (kVA) [4]	See text	2 @ 2,500	2,188	2,188	2,500
Estimated cost	See text	$2.8-3.2 mil	$1.2–1.4 mil	$1.2–1.4 mil	$1.4–1.6 mil

[1] Current peak daily flow is the maximum wet-weather flow recorded at the station since 1998
[2] Does not include the use of one, or two, natural gas fired engine driven pumps
[3] Will be changed to motor operated
[4] Assumes 0.8 power factor

Pump Station 2:

Pump Station 2 was built in 1963 and is located at 4077 North Harbor Drive near Lindbergh Field adjacent to San Diego Bay. This is the largest of the Metro pump stations and is staffed 24 hours per day, 7 days per week. Pump Station 2 pumps wastewater conveyed from Pump Station 64/65, the North Metropolitan Interceptor, Pump Station 1, and the South Metropolitan Interceptor to the E.W. Blom Point Loma Metropolitan Wastewater Treatment Plant (PLMWTP). Current (2001) average dry weather flow at Pump Station 2 varies between 165 and 185 million gallons per day (mgd). Peak wet weather flows have been logged at the station in excess of 245 mgd during significant rainfall events. Extreme wet weather events have produced flows at Pump Station 2 of 413 mgd.

Pump Station 2 contains eight 2,250 horsepower (Hp), 50,000-gallon per minute (gpm) pumps. Flow is pumped through two 87-inch diameter force mains that join together to form the 108-inch diameter Point Loma Tunnel and Interceptor Sewer. The Point Loma Tunnel eventually increases to 114-inch diameter prior to the PLMWTP headworks. Six of the eight pump units are driven by electric motors. Three (pumps 2, 7, and 8) are constant speed synchronous motors and three (pumps 1, 3, and 6) are variable speed wound rotor induction motors controlled by liquid rheostats. Natural gas fired engines are used to drive pumps 4 and 5. Three electric motor driven pumps and one natural gas fired engine driven pump are dedicated to each force main under normal operating conditions. The two natural gas fired engine driven pumps provide surge protection for the force mains by preventing flow reversal if the electric motor driven pumps are suddenly stopped. Other operations at Pump Station 2 include chemical addition, screening/solids removal, and odor control. Although the screening facilities may be by-passed, the remaining equipment is essential for the operation of the station.

In the event of spill, due to a complete loss of power at Pump Station 2, sewage will enter the storm drains and the affected water body would be the nearby marina on San Diego Bay and potentially Convair Lagoon to the north. Surcharging upstream may also occur near the intersection of Interstate 5 and Interstate 8. Reliable power is essential at this pump station since it is the largest and most critical link in the MWWD's wastewater collection system.

Electric power redundancy at Pump Station 2 is currently accomplished with three 50 percent power supply feeds from two different SDG&E substations. Two power feeds come from the Kettner substation (circuits 134 and 367) and are capable of supplying enough power to run two pumps each under normal conditions and three pumps in an emergency. The other dedicated feed comes from the Point Loma substation through circuit 496 (formerly circuit 124) and, similar to the other power feeds, it is capable of running two pumps under normal conditions and three pumps in an emergency. The number of pumps allowed to operate on each power feed is limited under MWWD's contract with SDG&E. The MWWD has commissioned a study to investigate the cost associated with making one of the two power supply feeds 100 percent redundant.

The current daily power consumption at Pump Station 2 averages approximately 5.4 megawatts (MW). The installation of a generator at Pump Station 2 capable of generating adequate standby power was not considered as part of this feasibility study. Other sources of nearby reliable power were investigated. The closest potential source of stand-by electric power of this quantity is the privately owned gas/oil fired cogeneration turbines at the Marine Corps Recruitment Depot (MCRD) power plant located approximately one mile from Pump Station 2. This facility is capable of providing sufficient power to operate the station, but a dedicated power feed and transfer switches would be required to transmit power to the pump station. The cost associated with installing one mile underground conduit and medium voltage conductors between the two facilities including manholes, pull boxes, fused switch/circuit interrupters, modification of existing fused switches, control system modifications, and site work is approximately $1.8 million.

Sithe Energies USA, Inc. (Sithe) and Dynegy Power Corporation (Dynegy) each own 50 percent of the power plant turbines at the NTC/MCRD facility. The Dynegy turbine was built approximately 30 years ago and is rated at 14 MW and 12,000 volts. Sithe operates a 23 MW and 12,500-volt cogeneration facility in combination with a 2.5 MW steam turbine generator. All electricity produced by the gas turbine is sold to SDG&E. Electricity produced by the steam turbine generator is sold to the Navy. All of the steam produced is also sold to the Navy. Both Sithe and Dynegy were contacted by HDR to discuss providing emergency power to Pump Station 2 through a dedicated transmission system.

At this time, a recommendation cannot be made regarding the future reliability of the Dynegy facility and further discussions are required with Sithe. Dynegy has expressed interest in working with MWWD to provide dedicated power to Pump Station 2. However, Dynegy currently leases the generator location from the Navy and are in negotiations for the renewal of their lease agreement. The Navy has indicated that they do not wish to establish a new agreement with Dynegy and have requested that Dynegy terminate operations and remove their equipment from the site in the near future. SDG&E is working with Dynegy in an attempt to negotiate a new lease agreement with the Navy. The current contract and lease negotiations, between Dynegy and the Navy, cast uncertainty on the future reliability of this power plant as a viable source of power. Sithe, on the other hand, has recently renewed their lease agreement with the Navy for the next 19 years and may prove to be a better source of potential standby power. The MWWD has discussed this issue with the Navy and the Navy has indicated that they will allow the City to be involved in their RFP process to replace Dynegy such that the new facility will be adequate to supply standby power to Pump Station 2.

Pump Station 64:

Pump Station 64 is located at 10749 Roselle Street in a light industrial area near the intersection of Interstates 5 and 805. Pump Station 64 pumps sewage from the Penasquitos Trunk Sewer, which serves the North County communities of Poway, Rancho Penasquitos, and Carmel Valley. Tributary flows from the Pump Station 65 service area are also pumped to Pump Station 64. From this pump station, sewage is directed south to a diversion structure where it can be directed to the North City Water Reclamation Plant (NCWRP) or Pump Station 2 where it is then pumped to the Point Loma Wastewater Treatment Plant. This station also serves as a maintenance support facility.

Pump Station 64 contains 16 constant speed pump units of varying horsepower. The station formerly contained 8 pumps, but in 1988 an additional eight pumps were added with the construction of Pump Station 64 East. Prior to this expansion, sewage spills caused significant negative publicity. The entire station now contains four 200 Hp pumps, four 400 Hp pumps, and eight 500 Hp pumps and has a maximum design capacity of 73.0 mgd. Current (2001) average daily flow at Pump Station 64 is approximately 21.5 mgd and the maximum flow recorded at the station since 1998 was 37.3 mgd on July 20, 1998. A variety of pumps with various capacities are used to match the incoming flow. The pumps are arranged in sets of two and designed to operate in such a way that the first pump draws from the wet well and discharges flow directly into the suction side of the second pump. This design is used to generate higher discharge head. During low flow conditions, four 200 Hp units are sufficient to match incoming flow. During current wet weather peak flow conditions, two 500 Hp and four 400 Hp pumps are required.

SDG&E's Genesee and Torrey Pines Substations serve Pump Station 64, through circuits 529 and 261 respectively. Step down transformers, at a small substation in front of Pump Station 64, drop power in circuits 529 and 261 from 12 kV to 2.4 kV. From here, two separate 2.4 kV power feeds then serve the pump station. The incoming switchgear is distributed to two distribution buses that are each served by one of the SDG&E power feeds. A normally open tie breaker is located between the two distribution buses. In the event that one of the SDG&E power sources is lost, the tie breaker will close distributing power from the remaining active bus to the one that was lost. In the event that both SDG&E power sources are lost (loss of SDG&E Circuit 529 and 261), and an extended power outage results in a surcharged system, sewage may potentially overflow near the station and into the adjacent storm drainage channel. This situation may also cause the sewage system upstream of Pump Station 64 to surcharge and spill at low points on Sorrento Valley Road. The affected receiving water body would be the Penasquitos Lagoon/Torrey Pines slough.

Approximately 3,300 Hp is required for pumps and ancillary equipment at Pump Station 64 during current (2001) peak flow. Ancillary equipment includes lights, odor control system, and seal water system. Future growth of the Pump Station 64 service area is expected to increase the current peak wet-weather flow from 37.3 mgd to approximately 53.3 mgd in the design year 2020. Projection data presented herein was obtained from MWWD Trunk Sewer Modeling group and is based upon SANDAG population and employment data, unit flow generation, and City-standard peaking factors. These sewage flow projections do not include a component for wet weather since the influence of rain events has not been included in the hydraulic model. The wet-weather component was determined by subtracting the current average daily flow (21.5 mgd) from the maximum wet-weather flow recorded at the station since 1998 (37.3 mgd) and is equivalent to 15.8 mgd. The wet-weather component was then added to the model-predicted year 2020 dry-weather flow (37.5 mgd) to derive the future peak wet-weather flow of 53.3 mgd. This projection of future flow also assumes that the Penasquitos Pump Station, which diverts flow out of the Penasquitos trunk sewer prior to Pump Station 64, is on line. If the Penasquitos Pump Station is not on line, the projected 2020 peak dry-weather flow at Pump Station 64 will increase to approximately 48.7 mgd. The proposed generators were sized to meet the future peak demand, during the 2020 design year, assuming the Penasquitos Pump Station is on line.

Although a complete hydraulic analysis of the pumping system and development of a future system head curve were beyond the scope of this report, the anticipated horsepower required to meet the projected 2020 design year load is estimated to increase from approximately it current 3,300 Hp to more than 5,300 Hp. To support this future horsepower load a system consisting to two standby generators rated at 2,000 kW each is recommended.

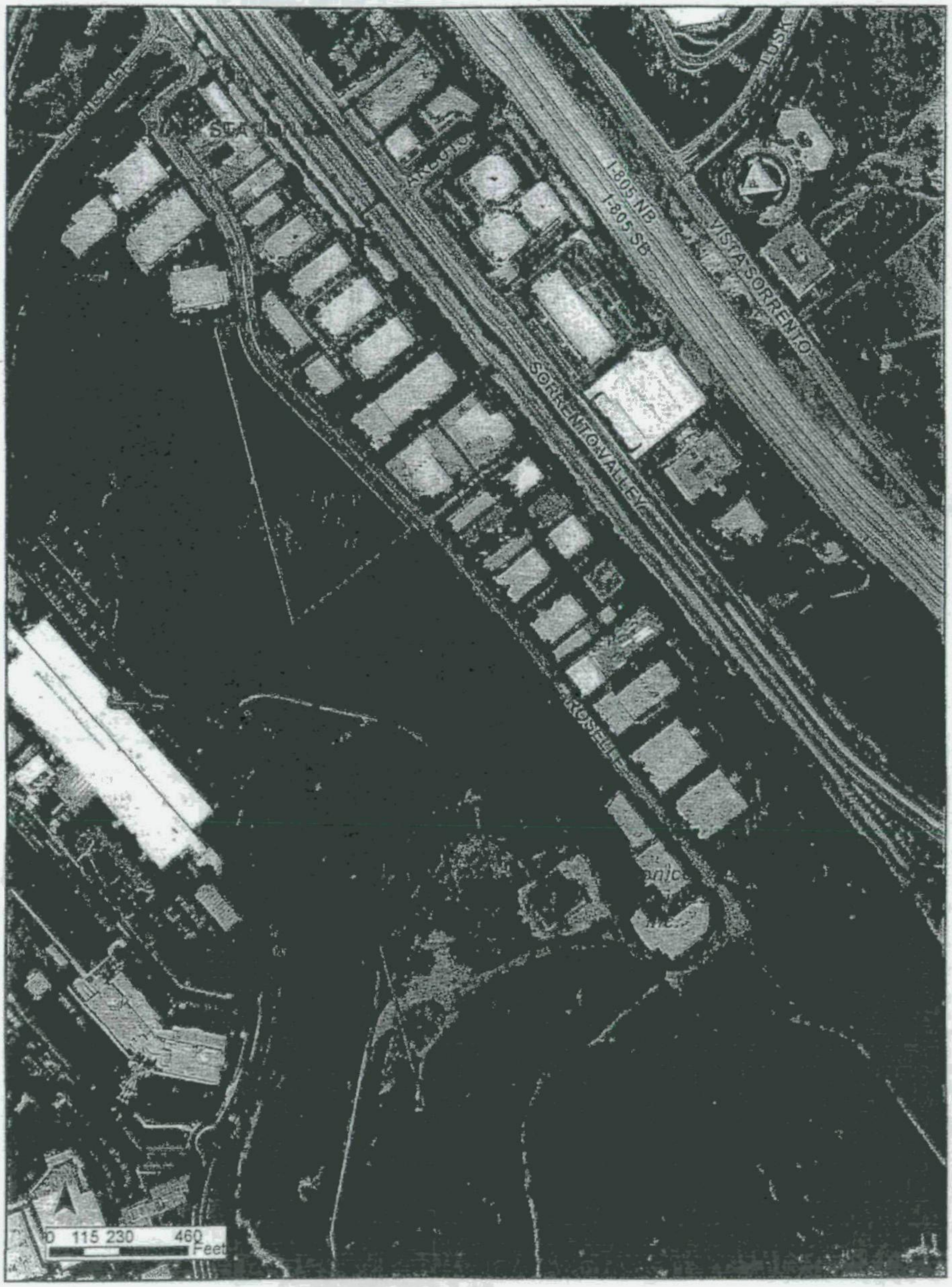
The Penasquitos Pump Station, as previously described, is located upstream of Pump Station 64 and serves to divert flow from the Pump Station 64 service area (Penasquitos Trunk Sewer) to the North City Water Reclamation Plant. When the Penasquitos Pump Station is not in service, sewage flows (by gravity) to Pump Station 64. Consideration was given to installing one standby generator system at Pump Station 64 that would serve the needs of both stations. Although it appears the design capacity of Pump Station 64 (73.0

mgd) is adequate to handle the increased flow attributed to bypassing the Penasquitos Pump Station (10.3 mgd in 2000 and 19.1 mgd in the 2020 design year), this is not recommended since the Penasquitos Trunk Sewer is known to be approaching capacity in certain reaches. In addition, standby power generators sized to run Pump Station 64 alone would require a significant amount space that is not readily available.

Installation of two 2,000 kW generators at Pump Station 64 will be difficult due to the limited amount of space. Private property to the east and west, a storm drainage channel to the north, and Roselle Street to the south bound the pump station property. In addition, a SDG&E transformer station occupies approximately 4,000 square feet in the southwest corner of the site. The proposed skid-mounted generator sets with sound attenuating enclosure and integral diesel fuel storage tanks will require an area of approximately 300 square feet each. Access around the generators will be required for maintenance and servicing. A reinforced concrete foundation/maintenance pad is recommended beneath the generator sets and should extend at least 3 feet beyond the outside of the generator enclosure to serve as a walkway for maintenance workers. Switchgear associated with the proposed generators will be considerable in size also and may require a separate dedicated enclosure due to the lack of space in the existing electrical facilities building. The only currently open area on the pump station property large enough to site the proposed generators and switchgear is the parking lot along the east property line. Figure 1 shows Pump Station 64 and the proposed stand by generators sets installed in this area. This location will provide ready access for maintenance purposes, but will eliminate over 1,040 square feet of parking space currently used for maintenance vehicles. The Fire Marshall may need to be consulted regarding the proposed location of fuel storage and generator sets along the property line for compliance with Uniform Fire Code.

An alternative location for the generators and associated switchgear is in the northwest side of the screening structure where a steel storage container is now located. A small amount of equipment is being stored in this container and could be relocated to Pump Station 65 or another MWWD facility. Another alternative that warrants investigation, but was beyond the scope of this feasibility study, is to locate the proposed generators remote from the pump station. The City owns land on the southwest side of Roselle Street (approximately 450 feet away) and behind the Sonico site at the end of Roselle Street (approximately 3,600 feet away). Both areas are suitable locations for the generator sets, but the location at the end of the street behind the Sonico property may be less visible (see Map 2). A brief review was conducted with the Public Utilities Commission of the State of California, Rules Relating to the Construction of Electric Generation, Transmission/Power/Distribution Line Facilities and Substations Located in California. These rules did not preclude the transmission of power from a privately owned power plant to the same end user. However, to ensure safety and compliance with local building standards, local authorities must be contacted regarding land use matters and for acquisition and approval of local permits required for the construction and operation of transmission facilities such as these.

Map 2. Pump Station 64 Alternative Generator(s) Sighting Locations



Pump Station 65:

Pump Station 65 is located at 12112 Sorrento Valley Road in the Torrey Pines State Reserve adjacent to Penasquitos Lagoon. Built in 1997, Pump Station 65 is one of the newest pump stations in the City's collection system. The station currently pumps an average (2001) daily flow of 6.8 mgd from its tributary service area to Pump Station 64. The maximum flow recorded at the station is approximately 8.4 mgd. The design capacity of the station is 24.5 mgd. Pump Station 65 contains two 150 Hp and two 400 Hp constant speed pumps. The station was designed with provisions for the installation of a third 400 Hp pump. Manual bar racks are used to remove solid material from the influent to protect the pumps. Current peak flow is handled using one 400 Hp pump. Ancillary equipment at Pump Station 65 includes odor control equipment, seal water system, and lighting. The station is remotely monitored from Pump Station 64 and has a maintenance person on site 8 hours daily.

Pump Station 65 is served by two separate SDG&E power sources; circuit 738 from the Torrey Pines Substation and circuit 834 from the North City West Substation. Similar to Pump Station 64, the incoming power to the main switchgear is distributed to two distribution buses. A normally open tie breaker is located between the two distribution buses. In the event that one of the SDG&E power sources is lost the tie breaker will close distributing power from the remaining active bus to the one that was lost. However, in the event that both power feeds are lost for an extended time, no alternatives exist for by passing Pump Station 65 and sewage will overflow at a manhole approximately 20 feet from the pump station and eventually into the Torrey Pines slough/Penasquitos Lagoon.

The current peak wet-weather flow at Pump Station 65 is projected to increase from approximately 8.4 mgd to 27.4 mgd in the design year 2020. The current dry-weather average daily flow at Pump Station 65 is 6.8 mgd. The model-predicted year 2020 dry-weather flow is 25.8 mgd. Assuming the wet-weather flow component is equal to 1.6 mgd (8.4 mgd – 6.8 mgd), the future wet-weather flow would be equivalent to 27.4 mgd (note the pump stations initial pumping capacity is 24.5 mgd). This marked increase in flow will require significantly more horsepower than is currently being used. To pump the projected peak flows in the design year all of the existing pumps, plus the spare 400 Hp pump, will be required. This is equivalent to 1,500 Hp for pumps and an additional 300 Hp for ancillary equipment, odor control system, and lights. The estimated power required to operate the five pumps, will be approximately 1,250 kW, therefore a 1,750 kW standby generator is recommended.

As illustrated in Figure 2, a standby generator this size with sound attenuating enclosure and integral fuel storage tank will require an area of approximately 312 square feet and may be installed on a cast-in-place concrete pad on the north side of the station. The existing concrete block retaining wall in this location may need to be moved out to the north a few feet to accommodate the proposed generator system. Figure 2A is a one-line diagram showing how the proposed standby generator may be connected to the existing switchgear. An alternative location for the generator would be between the screening structure and the odor control system. This location is closer to the main switchgear in the electric room of the pump station and slightly more concealed from view. However, depending upon the size of the actual equipment furnished the generator with sound attenuating enclosure and fuel tank may not fit in this narrow area.

East Mission Gorge Pump Station:

The East Mission Gorge Pump Station is located at 15390 Mission Gorge Road on the Mission Gorge Trunk Sewer No. 33. This station is in the San Diego River area, south of Santee Lakes Regional Park near State Routes 52 and 125. The 42-inch diameter Mission Gorge Trunk Sewer serves the participating agencies of El Cajon and Padre Dam. The pump station was built in 1993 and is designed to allow up to 25 mgd to by-pass the station in Trunk Sewer 33. Once the flow in the trunk sewer reaches 25 mgd the station sluice gate opens and a portion of the flow is diverted into the station and pumped. When the flow eventually recedes to 22.5 mgd at the master meter the sluice gate closes and the station shuts down and returns to standby. This serves to provide additional capacity and control downstream peak flows in the trunk sewer. The diverted flow is pumped approximately 8 miles through a 48-inch diameter force main that eventually terminates at the North Mission Valley Interceptor Sewer near the intersection of Fairmont Avenue and Twain Avenue.

The East Mission Gorge Pump Station has four variable frequency drive controlled 500 Hp pumps. The design capacity of the station is 42.3 mgd. Bar screens and conveyor belts are used to remove solid waste and rags from the wastewater prior to pumping. Currently, the station is operated one day per week for preventive maintenance purposes. During this procedure, approximately 2.0 million gallons of sewage is pumped through the station to exercise the pumps and ancillary equipment.

Modeling results presented in the Trunk Sewer Modeling Program 1999 Annual Report indicate that the sanitary wastewater flows tributary to the Mission Gorge Trunk Sewer, upstream of the East Mission Gorge Pump Station, are not projected to increase significantly in the future. This model predicts that if the East Mission Gorge Pump Station is used to pump all sanitary flow in excess of 22.5 mgd, the maximum pumped flow at buildout (maximum densification of the service area under current zoning) of the service area will be approximately 20.0 mgd or 50 percent of the pump stations design capacity. The Municipal Trunk Sewer and Pump Station 2001 Capacity Report predicts the maximum pumped flow at buildout to be 28.2 mgd or 67 percent of the pump station's design capacity. Although pump station projection data, obtained from MWWD's modeling group, for the 2020 design year indicate that the peak flow will be 24.9 mgd, the more conservative flow rate of 28.2 mgd was used to size the standby generators. The additional capacity of the pump station may be utilized to pump additional wet weather flows from the participating agencies if necessary.

The standby generator recommended for the East Mission Gorge Pump Station will support three 500 Hp pumps (75 percent of the stations design capacity) and ancillary equipment. The operation of three pumps will be sufficient to handle the build out flow rate of 28.2 mgd. This is equivalent to approximately 1,700 Hp and will require approximately 1,270 kW of electric power. A generator with a capacity of 1,750 kW is therefore recommended. The approximate size of this generator with a sound attenuating enclosure and integral fuel tank is illustrated on the east side of the pump station in Figure 3. The generator will occupy an area of approximately 312 square feet and will be mounted on a cast-in-place concrete pad. Switchboard expansion in the electrical room and installation of a duct bank to the generator set will also be required. Figure 3A is a one-line diagram showing how the proposed standby generator may be connected to the existing switchgear.

Penasquitos Pump Station:

The Penasquitos Pump Station was built in 1998 and is located at 10150 Scripps Poway Parkway, east of Interstate 15, adjacent to the Los Penasquitos Canyon Preserve. This pump station contains eight 400 Hp pumps arranged in four sets of two similar to the pump configuration at Pump Station 64. Penasquitos Pump Station was constructed to divert wastewater from the Penasquitos Trunk Sewer 48 and pump it directly to the North City Water Reclamation Plant. The pump station provides relief for this trunk sewer that was known to be approaching capacity in certain reaches. Other facilities at the pump station include mechanical screens, conveyor belts, and a screw compactor to remove and condense solid waste and rags from the sewage flow prior to pumping. Sewerage odors are contained and treated with odor control equipment. Similar to Pump Station 64 and 65, the Penasquitos Pump Station is served by two redundant SDG&E power sources. Each power source is capable of serving 100 percent of the station load. The SDG&E Chicarita substation serves this pump station through circuit 911.

The model predicted dry-weather flow rate at this station in the year 2020 is estimated to be 16.8 mgd. The current peak flow rate is 10.3 mgd and occurred on February 28, 2002. The current ADF is 8.0 mgd. Assuming the wet-weather flow component is equal to 2.3 mgd (10.3 mgd – 8.0 mgd), the future wet-weather flow would be equivalent to 19.1 mgd. The station has a design capacity of 32.0 mgd. As an alternative to installing a standby generator set at this site, consideration was given to bypassing the pump station and allowing the wastewater to remain in Trunk Sewer 48 until it reaches Pump Station 65. This alternative is not recommended due to restrictions in the capacity of Trunk Sewer 48 downstream.

The proposed standby power generator at the Penasquitos Pump Station is sized to run three sets of 400 Hp pumps to meet the future wet weather peak flow in the design year 2020. The generator is sized to operate these pumps and ancillary equipment at the same time. Accommodations for time delayed starting of pumps, while the pump station is operating on generator power, will be incorporated in the final design. Time delayed starting of the second pump in each set, by a time period not to exceed the pump manufacturer's recommendation, will avoid voltage drops in the system that may adversely affect the operation of other equipment picked up by the generator. Accommodations for sensitive auxiliaries on the emergency bus will be made in final design. The estimated electrical load for the pump station is approximately 1,990 kW, therefore a 2,000 kW generator is recommended. Although the capacity of the generator is very close to the future design load, the operation of all equipment and the full horsepower demand on the unit, particularly when the pumps are running at steady state, is expected to be less. As illustrated in Figure 4, the proposed standby generator may be located near the northwest corner of the pump station and will require an area of approximately 300 square feet. Modifications will also be necessary in the electrical room for the installation of switchgear and connection to the existing bus service. Figure 4A is a one-line diagram showing how the proposed standby generator may be connected to the existing switchgear.

Recommendations:

The following recommendations summarize the content of this memorandum and present estimated costs for furnishing and installing standby electric generator sets based on an estimated unit cost per kilowatt. These estimated costs include all construction and modifications to the existing facilities associated with furnishing and installing skid mounted diesel engine driven electric generators with mufflers, sound attenuating enclosures, transfer switches, switch board modifications, and fuel storage tanks. These costs do not include detailed load analyses, electrical engineering, or development of detailed engineering drawings for modifications to the existing sites, structures, and equipment nor additional costs associated with securing appropriate environmental permits. Refinement of the predicted electrical loads and equipment cost will need to be performed during preliminary design.

Pump Station 2:

Sithe operates a 23 MW power plant approximately one mile from Pump Station 2 and has recently renewed their lease with the Navy to maintain their facilities in their current location. Additional discussions with Sithe, SDG&E and MWWD must be initiated to establish an agreement with the City to provide reliable standby power in the event that the three existing feeds from SDG&E are not available. The cost associated with installing one-mile of underground conductors between the two facilities is approximately $1.8 million. The Navy also plans to prepare an RFP for replacing Dynegy and have indicated that they will allow the City to participate in its development.

Pump Station 64:

Two synchronized 2,000 kW engine driven generator sets are recommended for pump Station 64 to provide adequate power for pumping the current peak wet-weather flow of 37.3 mgd and future peak flow of 53.3 mgd in the event of an interruption in the SDG&E power supply. The cost to purchase and install these generators is estimated to be between $2.8 and $3.2 million. Alternatively, the City may choose to purchase a nearby parcel of land and locate the generator sets remotely from the station. This estimate does not include cost associated with final engineering, permitting, and transmission facilities if the generators are located remotely from the pump station. An in-depth review of local zoning and power generation and transmission regulations will be required for this alternative.

Pump Station 65:

One 1,750 kW engine generator set is recommended for Pump Station 65 to meet the future wet-weather pumping requirements. The proposed generator will provide sufficient power to operate the four existing pumps, the fifth spare pump, and all auxiliary equipment in the event of an interruption in of SDG&E power supply. The estimated cost to furnish and install the generator is between $1.2 and $1.4 million.

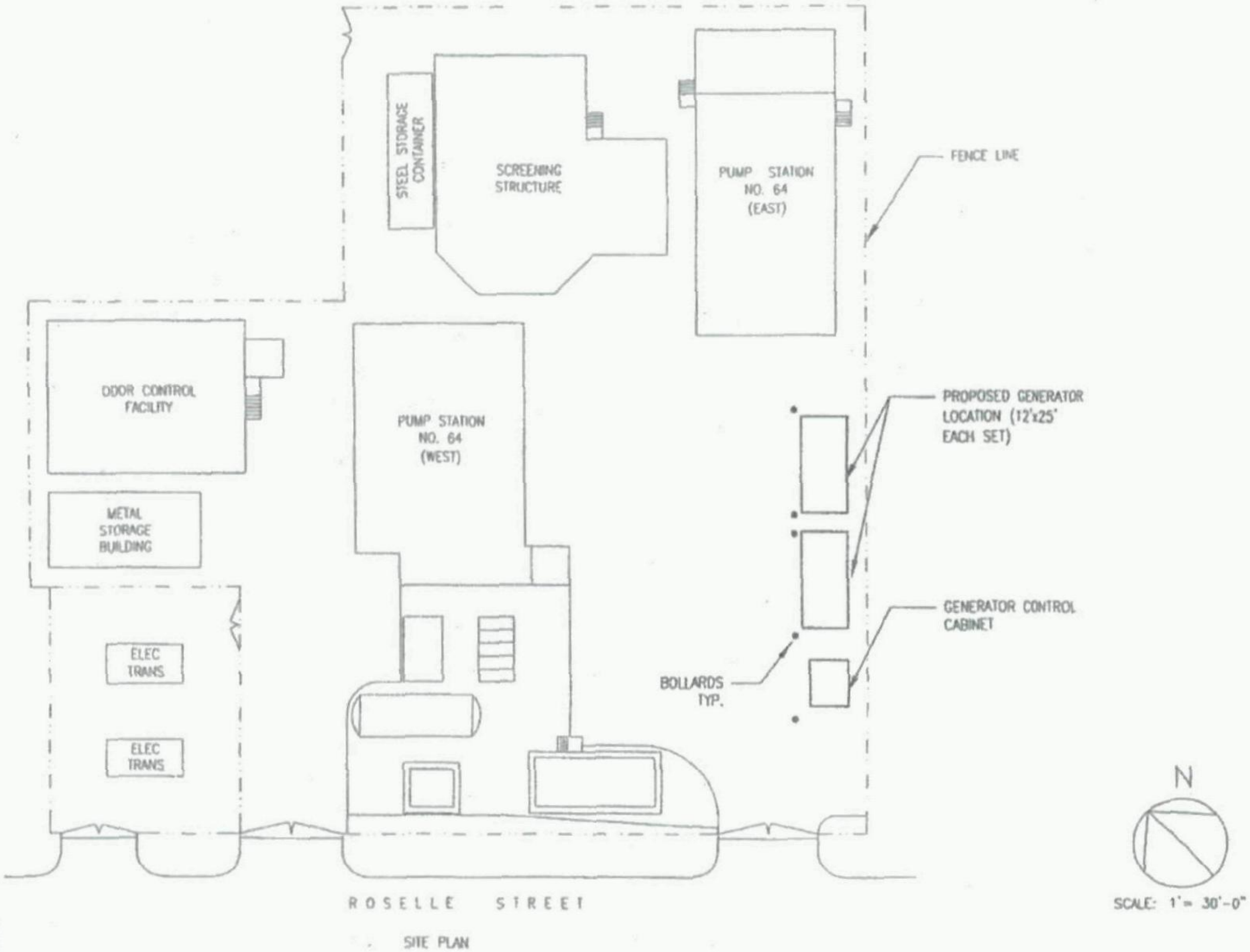
East Mission Gorge Pump Station:

One 1,750 kW engine generator set is recommended for the East Mission Gorge Pump Station. The estimated cost to furnish and install this generator is between $1.2 and $1.4 million. Due to the recent lack of significant rainfall in the service area, the flow in Trunk Sewer 33 has not been significant enough to compromise the sewer's capacity or require automatic operation of the station. Currently, the station is operated once a week for preventive maintenance purposes, but this under-utilization is predicted to change. Future peak flows in Trunk Sewer 33 are predicted to require diversion of about 24.9 mgd by the 2020 design year and 28.2 mgd with the full buildout of the service area. The standby generator selected will need to provide sufficient power to operate 75 percent of the pump stations capacity. This is equivalent to three 500 horsepower pumps with a combined capacity adequate to pump the anticipated 28.2 mgd flow rate and run auxiliary equipment.

Penasquitos Pump Station:

One 2,000 kW engine driven generator set is recommended for this station to provide adequate power in the design year to support the wet-weather pumping operations and ancillary equipment. The cost to furnish and install this generator is estimated to be between $1.4 and $1.6 million. The Penasquitos Pump Station, in the 2020 design year, is expected to divert between 16.8 and 19.1 mgd out of the Penasquitos Trunk Sewer 48 to the North City Water Reclamation Plant.

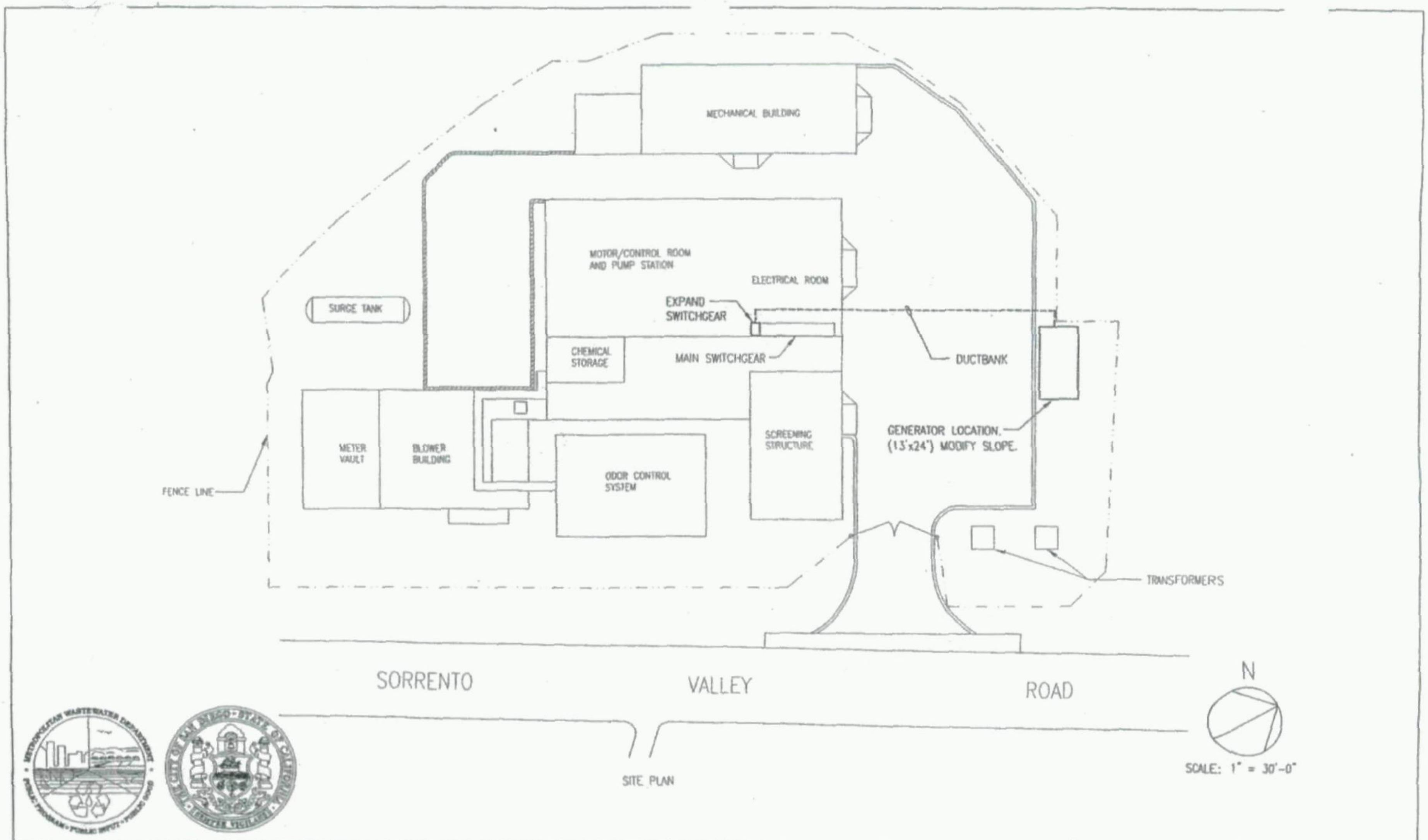
10/17/2011



HDR

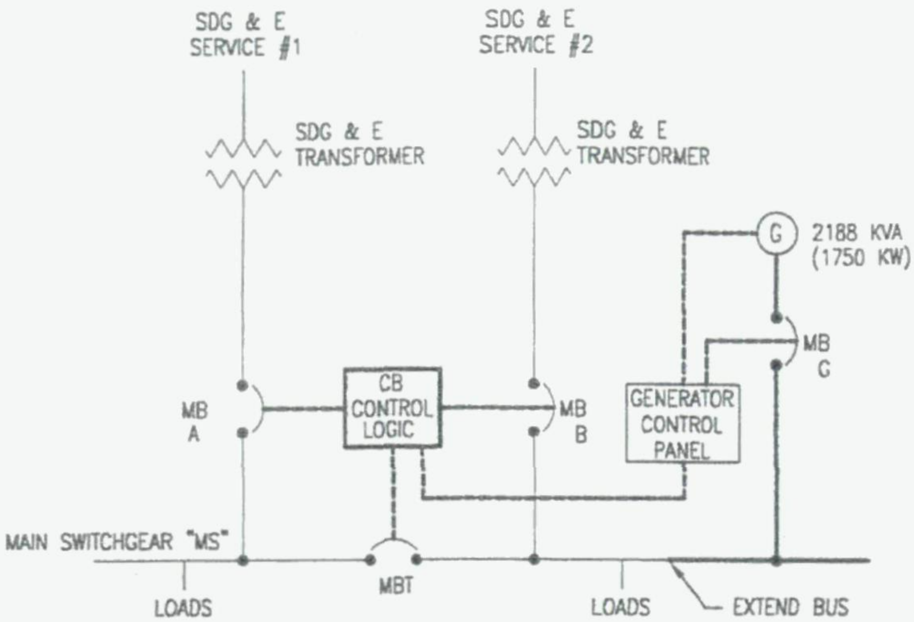
FIGURE 1
PUMP STATION 64 PROPOSED ELECTRICAL GENERATORS
City of San Diego
Metropolitan Wastewater Department

10/17/2011



HDR

FIGURE 2
PUMP STATION 65 PROPOSED ELECTRICAL GENERATOR
City of San Diego
Metropolitan Wastewater Department



<u>NOTE:</u> SEE AS-BUILT DRAWINGS FOR RATINGS.

<u>DESCRIPTION OF WORK:</u>

1. ADD MBG, GENERATOR CIRCUIT BREAKER AND EXTEND BUS. GENERATOR CONTROL PANEL IS PART OF MBG.

2. INSTALL CB CONTROL SUCH THAT UPON LOSS OF SDG & E SERVICE #1 AND #2 THE FOLLOWING SEQUENCE OCCURS:
   1. GENERATOR STARTS.
   2. MBA & MBB OPENS.
   3. MBT & MBG CLOSES.

3. MODIFY MBA, MBB, AND MBT TO OPERATE AS DESCRIBE.

ONE LINE DIAGRAM

FIGURE 2A
PUMP STATION 65 PROPOSED ELECTRICAL GENERATOR
City of San Diego
Metropolitan Wastewater Department

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

10/17/2011

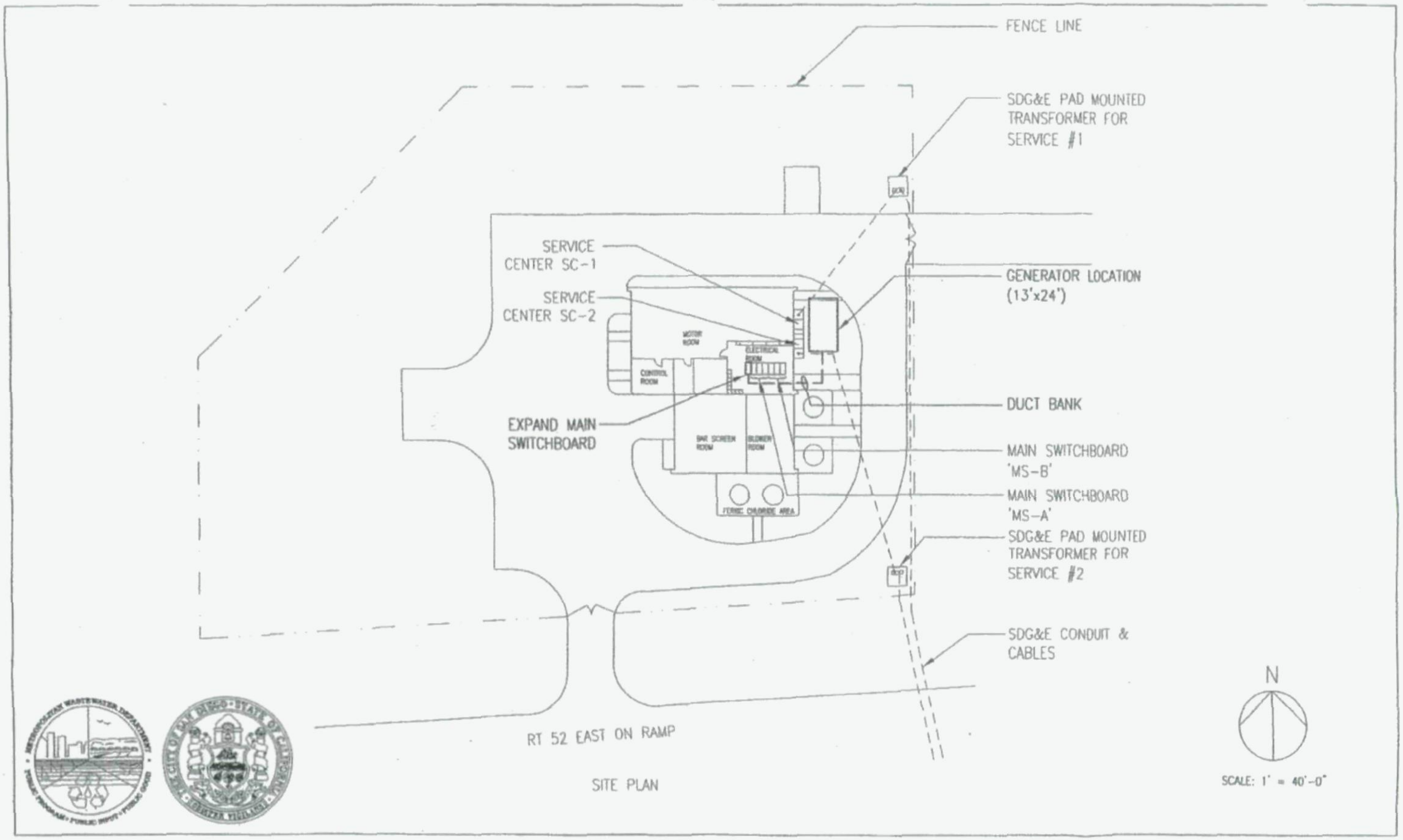
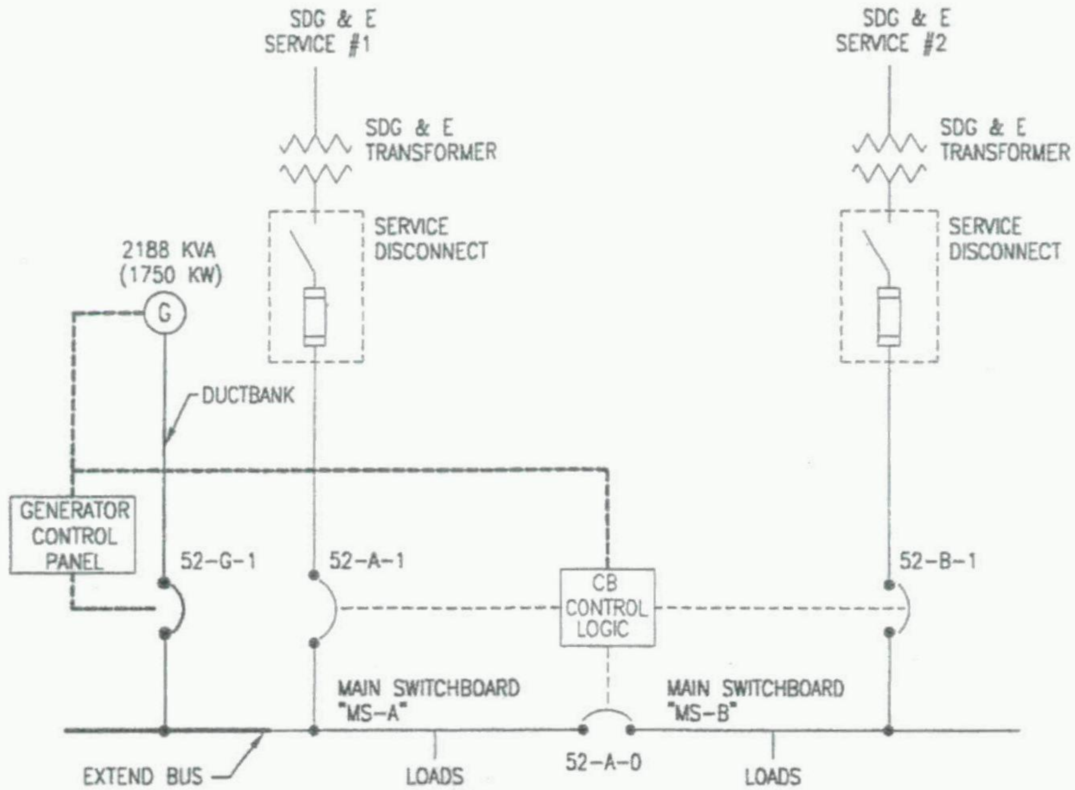


FIGURE 3
EAST MISSION GORGE PUMP STATION PROPOSED ELECTRICAL GENERATOR
City of San Diego
Metropolitan Wastewater Department



NOTE: SEE AS-BUILT DRAWINGS FOR RATINGS.

DESCRIPTION OF WORK:

1. ADD 52-G-1, GENERATOR CIRCUIT BREAKER AND EXTEND BUS. GENERATOR CONTROL PANEL IS PART OF 52-G-1.

2. MODIFY CB CONTROL LOGIC SUCH THAT UPON LOSS OF SDG & E SERVICE #1 & #2 THE FOLLOWING SEQUENCE OCCURS:
   1. GENERATOR STARTS.
   2. 52-A-1 AND 52-B-1 OPENS.
   3. 52-G-1 AND 52-A-0 CLOSES.
   4. LOAD IS LIMITED TO STARTING ONE PUMP AT A TIME.

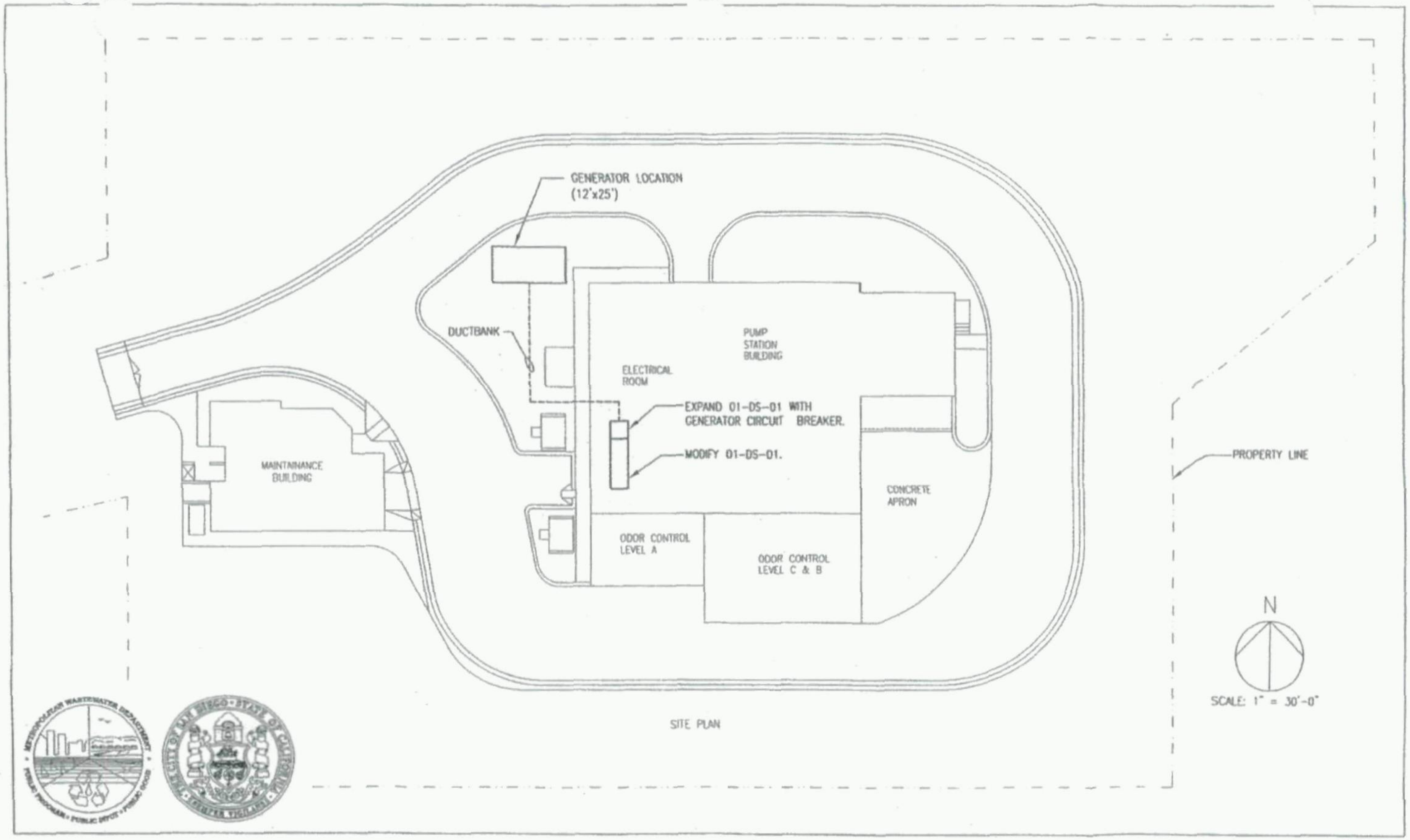
3. MODIFY 52-A-1 AND 52-B-1 TO OPERATE AS DESCRIBED.

ONE LINE DIAGRAM

HDR

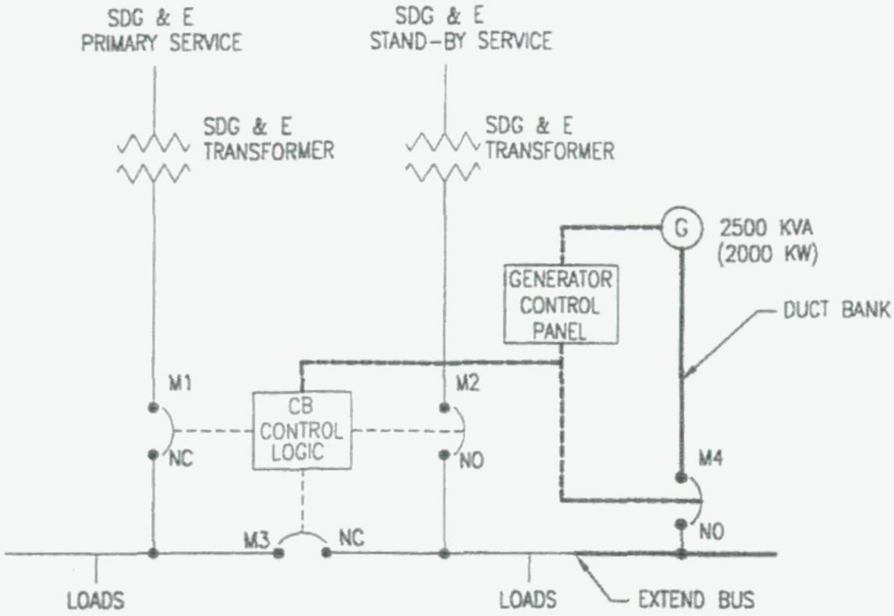
FIGURE 3A
EAST MISSION GORGE PUMP STATION PROPOSED ELECTRICAL GENERATOR
City of San Diego
Metropolitan Wastewater Department

10/17/2011



HDR

FIGURE 4
PENASQUITOS PUMP STATION PROPOSED ELECTRICAL GENERATOR
City of San Diego
Metropolitan Wastewater Department



NOTE: SEE AS-BUILT DRAWINGS FOR RATINGS.

DESCRIPTION OF WORK:

1. ADD M4, GENERATOR CIRCUIT BREAKER AND EXTEND BUS. GENERATOR CONTROL PANEL IS PART OF M4.

2. MODIFY CB CONTROL SUCH THAT UPON LOSS OF SDG & E PRIMARY & STANDBY SERVICE, THE FOLLOWING SEQUENCE OCCURS:
   1. GENERATOR STARTS.
   2. M1 & M2 OPENS.
   3. M3 & M4 CLOSES.

ONE LINE DIAGRAM

HDR

FIGURE 4A
PENASQUITOS PUMP STATION PROPOSED ELECTRICAL GENERATOR
City of San Diego
Metropolitan Wastewater Department

List of References

Metropolitan Wastewater Department, Wastewater Collection Division Data Manual 2002 (Draft Version).

U.S. Environmental Protection Agency Region IX "NPDES Compliance Evaluation Report, City of San Diego Wastewater Collection System" November 2001.

City of San Diego Engineering and Program Management Division Metropolitan Wastewater Department " City of San Diego Municipal Trunk Sewer and Pump Station 2001 Capacity Report", June 2001.

City of San Diego Engineering and Program Management Division Metropolitan Wastewater Department "Trunk Sewer Modeling Program 2000 Annual Report", January 2001.

City of San Diego Engineering and Program Management Division Metropolitan Wastewater Department "Trunk Sewer Modeling Program 1999 Annual Report", January 2001.

City of San Diego Engineering and Program Management Division Metropolitan Wastewater Department "Penasquitos Pump Station O&M Manual – Volume I Operational Information", Boyle Engineering Corporation, date unknown.

Clean Water Program for Greater San Diego "Operation Manual for the Pump Station No. 65 and Force Main, Volume I Operational Information", Parsons Engineering Science, Inc., date unknown.

City of San Diego Metropolitan Wastewater Department "Pump Stations and Trunk Sewer Pipelines Map", date unknown.

City of San Diego Wastewater Collection Division, Metropolitan Wastewater Department. "Pump Stations and Force Main Audit Report" June 1997.

Caterpillar Electric Power Generation Manual, March 1993.

Public Utilities Commission of the State of California "Rules Relating to the Construction of Electric Generation, Transmission/Power/Distribution Line Facilities and Substations Located in California", September 10, 1995.

California Regional Water Quality Control Board San Diego Region and U.S. Environmental Protection Agency Region IX "Order No. 95-106 NPDES Permit No. CA107409, Waste Discharge Requirements and National Pollutant Discharge Elimination System Permit for the City of San Diego E. W. Blom Point Loma Metropolitan Wastewater Treatment Plant", November 9, 1995.

Appendix 1

Standby Power Reliability Study for MWWD Pump Station 1

by

Brown & Caldwell Engineers

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

CITY OF SAN DIEGO
MWWD PUMP STATION 1
STANDBY POWER STUDY

July 19, 2002

BROWN AND
CALDWELL
16735 Von Karman Avenue, Suite 200
Irvine, California 92606-4953

1.0 INTRODUCTION

Pump Station No.1 (PS1) along with Pump Station No. 2 (PS2) are critically vital in the operation of the City of San Diego Metropolitan Wastewater System. Most of the City's wastewater goes through these two pump stations.

Pump Station 1 has six (6) 600 hp each electric pumps that pump wastewater from the southern area of San Diego along Harbor Boulevard to Pump Station 2. Four of the pumps have variable speed liquid-rheostat wound rotor induction motors and the remaining two pumps have constant speed Synchronous motors. Three pumps are required during average flow conditions and five pumps to meet peek flow conditions. Therefore, five of the six pumps should be available at all times for a safe and reliable system.

The Pump station has two 4.16 kV feeds from the utility, San Diego Gas & Electric (SDG&E), one from the Samson Substation and one from the Sweetwater Substation. Currently, the PS1 does not have any on site standby power system.

The configuration of utility power supply to PS1 is, for the most part, in compliance with recommendations of the Environmental Protection Agency as far as the requirement for "two separate and independent sources of power". The available capacity of each of the two SDG&E utility transformers to provide the required peak flow power appears sufficient and only possibly limited by the capacity of the 12 kV feeder to each transformer (which needs to be confirmed by SDG&E).

Recent simultaneous power outages of short duration from both utility feeds to PS1 has raised concerns about the reliability of the two "independent" utility power sources. Therefore, an onsite standby power generating system is being considered for PS1 to prevent costly spills in an unmanned facility and improve the reliability of electric power supply to PS1..

This study will focus on evaluating an onsite standby electrical power generating system for PS1 to supply power to five (5) 600 hp pumps during peak flow conditions.

2.0 STANDBY POWER SYSTEM

2.1 Standby Power Generating Systems

As indicated in Appendix B, the minimum standby generating system must have a site capability of 2800 kW to provide standby power to the pump station auxiliary loads and five (5) 600 hp wastewater pumps. This can be provided by a single diesel engine generator, two diesel engine generators, a single natural gas fueled engine generator, or two natural gas fueled engine generators.

2.2 Natural Gas Fueled Verses Diesel Engine Generators

Most standby engine generator systems with capacities over 400 kW utilize diesel engines. The diesel engine generators are half the size and weigh half as much as the corresponding spark ignited natural gas fueled engines. Also, the cost of the diesel engine is half the cost of the gas fueled engine counterparts.

A single Caterpillar D 3608 engine is required to generate 2800 kW electric power, but it requires two G 3608 spark ignited engine generators to provide 2800 kW.

Large spark ignited gas engines are seldom used for standby power for the following reasons:

1. Large spark ignited gas engines operate at 900 rpm, while their counterpart diesel engine operate at 1800 rpm.

2. Large spark ignited gas engines start slowly and don't have high compression ratios.

3. Spark ignited gas engines do not have good transient response and do not accept large block loads.

4. Spark ignited gas engines require three-way catalytic converters to meet the SDAPCD permit requirements.

5. Large spark ignited gas engines are not available in trailers, they need to be land based.

6. Spark ignited gas engines require more maintenance and are less reliable then diesel engines.

The Caterpillar 3608 engine is approximately the same physical size and weight as the gas engines that drive Pumps No. 3 and No. 4 at PS2, and will require massive foundations compared to the Caterpillar 3516 diesel engines that generate 2000 kW. Therefore, this study will focus on diesel engine generators.

2.3 One Verses two Diesel Engine Generators

As indicated above, the minimum 2800 kW required standby power can be provided either with a single 2800 kW diesel engine generator, or two 1400 kW diesel engine generators. The single 2800 kW engine generator will require a Caterpillar D 3608 engine. This engine has most of the disadvantages as the Caterpillar G 3608 engine, namely:

1. The D 3608 engine operates at 900 rpm and does not have as good transient response as an 1800 rpm engine.

2. The D 3608 engine is not available in a trailer, it needs to be land based.

3. The D 3608 engine costs more than twice the price as two Caterpillar D 3512 engines.

Therefore, this study will focus on providing two trailer mounted diesel engine generators to supply standby power to the pump station auxiliary loads and five (5) 600 hp wastewater pumps

2.4 1400 kW Verses 2000 kW Diesel Engine Generators.

The standby diesel engine generators will provide 4160 volt power to a double-ended switchgear. Each bus of the double-ended switchgear supplies power to pump station auxiliary loads and three (3) 600 hp wastewater pumps.

A 1400 kW diesel engine generator is capable of starting two 600 hp pumps. A 1750 kW diesel engine generator is require to start three 600 hp pumps. Therefore, with 1400 kW diesel generators, paralleling switchgear will be required to start five pumps.

Between the two alternatives, to provide two 1400 kW diesel engine generators and paralleling switchgear, or to provide two larger engine generators, each connected to one of the double-ended switchgear, the latter alternative is preferred, because the use of paralleling switchgear reduces the reliability of standby power generating system.

A larger capacity standby generator will require the use of Caterpillar D 3516B engine. This engine can be coupled with a 1750 kW generator to start up to three 600 hp pumps and provide power to station auxiliaries. An alternative would be to couple this engine with a 2000 kW generator and operate it at reduced load to match the station demand.

3.0 RECOMMENDATIONS FOR STANDBY POWER SYSTEM

Two 2000 kW diesel engine generator sets in ISO containers are recommended to operate five wastewater pumps during wet weather emergency conditions. Although two sets of 1750 kW diesel engine generators could meet the 5 pump requirement, the reason for recommending two 2000 kW engine generators is as follows:

1. The ISO container size is the same for a 1750 kW or the 2000 kW engine generator.

2. The incremental cost for increasing from a 1750 kW to a 2000 kW engine generator in an ISO container is insignificant.

Therefore, the recommended standby power generation system for PS1 includes two Caterpillar D 3516B, 1800 rpm diesel engine generators in ISO containers, each coupled to a 2000 kW, Wye connected, 4160 volt, 3-phase, 60 cycle generator.

Each ISO container is 8 ft. wide and 40 ft. long. The two ISO containers can be located next to each other with a footprint that is 16 ft. wide by 40 ft. long to avoid locating the diesel generators over the wastewater force main.

The fuel consumption to generate 2400 kW with two D3516B engines is about 200 gallons per hour. A 5000 gallon fuel tank can provide 24 hour of fuel for standby power generation, and a 7500 gallon tank will provide fuel for 36 hours. The 7500 gallon fuel tank is recommended which will have an 8 ft. wide and 24 ft. long footprint.

APPENDIX A

PUMP STATION LOAD SCHEDULE

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

APPENDIX "A" LOAD SCHEDULE

EXISTING:

EQUIPMENT: 4.16 kV SWITCHGEAR

EXIST. LOAD	TYPE	CB	DUTY / STNDBY		CONN HP	CONN KVA	DEM HP	DEM KVA	KV	EFF *	PF *	CONN KVA TOTAL	CONN FLA	DEM KVA TOTAL	DEM FLA
PUMP NO. 1	LIQUID RHEOSTAT		DUTY		600	0	600	0	4.16	90.00%	90.00%	552.59	76.78	552.59	76.78
PUMP NO. 2	SYNCHRONOUS MOTOR		DUTY		600	0	600	0	4.16	90.00%	90.00%	552.59	76.78	552.59	76.78
PUMP NO. 3	LIQUID RHEOSTAT		DUTY		600	0	600	0	4.16	90.00%	90.00%	552.59	76.78	552.59	76.78
UNIT SUB XFMR-A	UNIT SUB		DUTY		197	156.25	100	75	4.16	90.00%	90.00%	337.68	46.92	167.10	23.22
UNIT SUB XFMR-B	UNIT SUB		DUTY		123.5	178	61	90	4.16	90.00%	90.00%	291.74	40.54	146.18	20.31
PUMP NO. 4	LIQUID RHEOSTAT		DUTY		600	0	600	0	4.16	90.00%	90.00%	552.59	76.78	552.59	76.78
PUMP NO. 5	SYNCHRONOUS MOTOR		DUTY		600	0	600	0	4.16	90.00%	90.00%	552.59	76.78	552.59	76.78
PUMP NO. 6	LIQUID RHEOSTAT		STNDBY		600	0	0	0	4.16	90.00%	90.00%	552.59	76.78	0.00	0.00
TOTAL					3920.5	334.25	3161	165				3944.98	548.16	3076.24	427.45

* DENOTES ESTIMATED

UTILITY SERVICE:	SAMSON SUBSTATION	4.16	KV
EQUIPMENT:	4.16 kV SWITCHGEAR	4.16	KV

TOTAL AVAIL:	3750.00	KVA	521.06	AMPS
TOTAL CONN:	3944.98	KVA	548.16	AMPS
TOTAL DEM:	3076.24	KVA	427.45	AMPS
EXIST. DEM:	3076.24	KVA	427.45	AMPS

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

PUBLIC UTILITIES

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Dirk Smith	Date:	9/09/11
Contact Number:	(858) 614-5722	Location:	Manhole 35 (FSN 80053) Sorrento Valley Blvd at the storm channel (adjacent to 3848 Sorrento Valley Blvd.)
Project Name:	Sewage Pump Station 64 Spill	Time:	4:45 PM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☒ Sunny ☐ Cloudy ☐ Rain	Temperature:	☐ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☒	Emergency	☐	Other (describe below)

Personnel Onsite:	None	Contact Number:	
Description of Work:	Follow-up environmental reporting to determine the effects of the sewage that spilled from MH 35 as a result of the shutdown of SPS 64 due to the SDG&E power outage on 9/08/11.		

Environmental			
ESL	☒ Yes ☐ No	MHPA	☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☐ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other		
Impacts to Environmental Resources	☒ Yes ☐ No		
Description of Impact	No direct impact to sensitive environmental resources. Possible indirect impacts from the water quality effects on the drainage leading to the Los Penasquitos Lagoon.		

Habitat(s) Onsite	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☐ Willow Scrub ☐ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (090811)
Description of Photos	Manhole 35, concrete channel, and creek and adjacent habitat
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	

Comments:	I went to MH 35 (FSN 80053) to investigate the spill for possible impacts from erosion or to habitat. The manhole is located within the pavement near 3848 Sorrento Valley Blvd. I observed cloudy water (appeared to be sewage by the smell) in the concrete channel northwest of the manhole. I did not observe any direct impacts from erosion or to habitat in the concrete channel. I then survey the area near 11200 Sorrento Valley Road (just passed the transit station) where the stream channel (natural) intersects with Sorrento Valley Road bridge. I did not observe any impacts from erosion or to habitat to this portion of the channel. I noticed more cloudy water that also appeared to be sewage by the smell. I called CDFG, RWQCB, and USACE and mentioned to them there were no direct impacts form erosion or to habitat. I also mentioned that I would follow up with them the following week as more information became available about the spill.

PUBLIC UTILITIES

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Dirk Smith	Date:	9/12/11
Contact Number:	(858) 614-5722	Location:	Manhole 35 (FSN 80053) Sorrento Valley Blvd at the storm channel (adjacent to 3848 Sorrento Valley Blvd.)
Project Name:	Sewage Pump Station 64 Spill	Time:	6:00 PM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☒ Sunny ☐ Cloudy ☐ Rain	Temperature:	☐ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☒	Emergency	☐	Other (describe below)
Personnel Onsite:	Mike Bedard		Contact Number:	619-980-8609	

Description of Work:	Atlas Pumping Service was pumping river water into their tank trucks. City forces were in the process of setting up pumping from the river into the sewer behind 11055 Roselle St.

Environmental			
ESL	☒ Yes ☐ No	MHPA	☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☐ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other		
Impacts to Environmental Resources	☒ Yes ☐ No		
Description of Impact	No direct impact to sensitive environmental resources. Possible indirect impacts from the water quality effects on the drainage leading to the Los Penasquitos Lagoon.		

Habitat(s) Onsite	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☐ Willow Scrub ☐ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (091211)
Description of Photos	Equipment, creek, and adjacent habitat
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	

Comments:	I monitored the pumping of river water both at the Sorrento Valley Road (SVR) Bridge and behind 11055 Roselle St. When I arrived at the SVR site at approximately 6:00 PM I noticed dead fish just upstream of the SVR Bridge. I also noticed a turtle that was alive and swimming. Near the RR trestle I noticed a frog that was alive. Atlas Pumping Service begin pumping water from the SVR Bridge at about 6:45 PM and when I left at 10:00 PM they had pumped 9 truckloads of water each containing 5,500 gallons. City forces attempted to pump water from the river behind 11055 Roselle St. but by the time I left them at 9:45 PM they had not starting pumping yet. No impact to habitat was observed during the Atlas Pumping Service or City forces operations

City of San Diego PUBLIC UTILITIES Water & Wastewater

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Staci Domasco	Date:	9/14/11
Contact Number:	(858) 292-6409	Location:	*3 Pumping Locations - Sorrento Valley Rd and* Roselle Road
Project Name:	Sewage Pump Station 64 Spill	Time:	9:00 AM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☒ Sunny ☐ Cloudy ☐ Rain	Temperature:	☐ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☐	Emergency	☒	Other (describe below)
Personnel Onsite:	None	Contact Number:			
Description of Work:	3 pumping locations were set up on 9/13 to address the sewage spilled as a result of the shutdown of SPS 64 due to the SDG&E power outage on 9/08/11.				

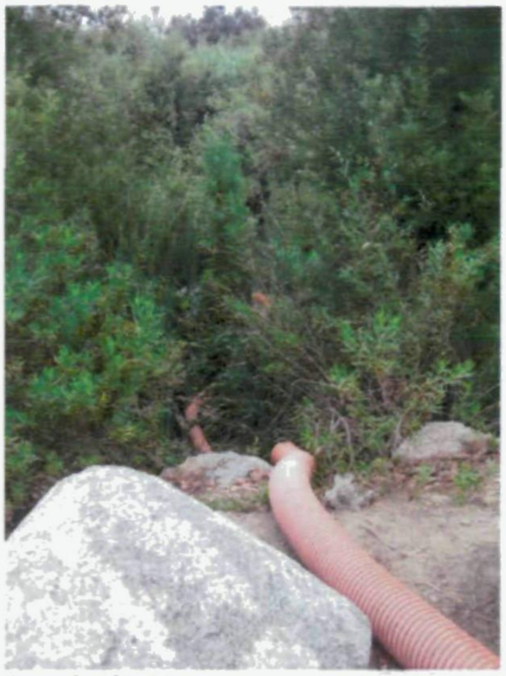
Environmental			
ESL	☒ Yes ☐ No	MHPA	☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☒ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other		
Impacts to Environmental Resources	☒ Yes ☐ No		
Description of Impact	No direct impact to sensitive environmental resources. Possible indirect impacts from the water quality effects on the drainage leading to the Los Penasquitos Lagoon.		

Habitat(s) Onsite		
	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☒ Willow Scrub ☒ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (091411)
Description of Photos	
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	

COMMENTS:	I went to each pumping location (see map below) to monitor any affects on habitat and/or wildlife from the spill and/or from the pumping efforts. <u>Pumping Site 1</u> (Roselle Street): City crews set up on 9/13 around 10 a.m. Today they were still pumping in the same location and had been pumping all night. There is evidence that the water level has dropped based on the water line on the wetland vegetation. The water was murky. I observed one dead fish just downstream of this pumping location and a live duck in the water just upstream from this location. I also observed the pump and connection points on the hose were leaking and recommended to the crew that those leaks should be contained. The crew did not have any sand bags, wattles, or any other sediment control devices with them. <u>Pumping Site 2</u> (west side of bridge on Sorrento Valley Rd): City crews set up on 9/13 around 1 p.m. Today they were still pumping in the same location. There is evidence that the water level has dropped based on the water line on the wetland vegetation. The water is murky. I observed 2 dead fish that were there the day before. I also observed leaks from the pump and connection points on the hose and recommended to the crew that those leaks be contained. The crew did not have any sand bags, wattles, or any other sediment control devices with them. <u>Pumping Site 3</u> (east side of bridge on Sorrento Valley Rd): According to the crew at site 2, site 3 was set up around 3pm the day before and had been pumping all night. Site 3 is being pumped by a contractor (Atlas?) The water at this location is very murky. I observed a few dead fish. Water levels looked lower than the day before. By the time I left the site around 10:20 this pump was removed. <u>Additional Efforts Observed</u>: City crews were also skimming the top of the water with vactor trucks from the east side of the bridge. <u>Other comments</u>: I recommended to the crews at site 1 and 2 on 9/13 that they use screens at the end of the hoses to prevent any additional impacts to wildlife. However Mike Bedard said if we use the screens then the hoses would get clogged too easily and the pumping effort would take longer. He instructed his crews not to use screens.

PHOTOS



Pumping Location - Roselle - 9/14/2011

Live Duck and vegetation showing evidence of change in water level - Roselle – 9/14/2011

Dead fish – Roselle - 9/14/2011

PHOTOS

Pumping under railroad track – 9/14/2011

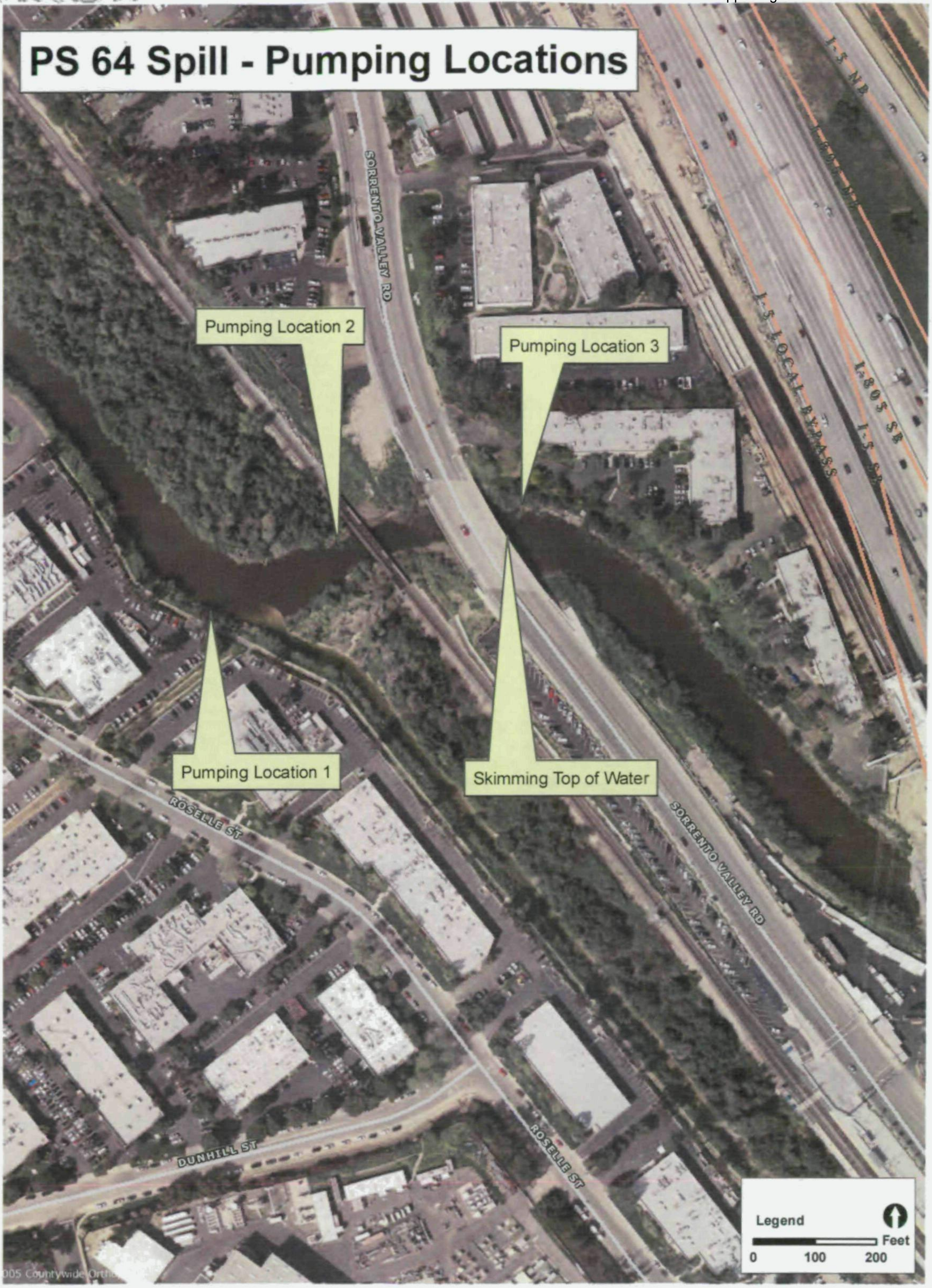
Murky water under railroad track – 9/14/2011

Dead Fish – Railroad Tracks – 9/14/2011

PHOTOS

Pumping on east side of Sorrento Valley Rd Bridge – 9/14/2011

Skimming effort – East side of bridge 9/14/2011


PS 64 Spill - Pumping Locations
Pumping Location 2
Pumping Location 3
Pumping Location 1
Skimming Top of Water
SORRENTO VALLEY RD
SORRENTO VALLEY RD
ROSELLE ST
ROSELLE ST
DUNHILL ST
I-5 NB
I-5 LOCAL BYPASS
I-805 SB
I-5 SB
Legend
Feet
0
100
200

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Staci Domasco	Date:	9/15/11
Contact Number:	(858) 292-6409	Location:	3 Pumping Locations - Sorrento Valley Rd and Roselle Road
Project Name:	Sewage Pump Station 64 Spill	Time:	9:30 AM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☒ Sunny ☐ Cloudy ☐ Rain	Temperature:	☐ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☐	Emergency	☒	Other (describe below)

Personnel Onsite.	None	Contact Number:	
Description of Work:	Pumping locations were set up on 9/13 to address the sewage spilled as a result of the shutdown of SPS 64 due to the SDG&E power outage on 9/08/11.		

Environmental			
ESL	☒ Yes ☐ No	MHPA	☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☒ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other		
Impacts to Environmental Resources	☒ Yes ☐ No		
Description of Impact	No direct impact to sensitive environmental resources. Possible indirect impacts from the water quality effects on the drainage leading to the Los Penasquitos Lagoon.		

Habitat(s) Onsite	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☒ Willow Scrub ☒ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (091511)
Description of Photos	
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	

COMMENTS:	I went to each pumping location (see map below) to monitor any affects on habitat and/or wildlife from the spill and/or from the pumping efforts. Pumping Site 1 (Roselle Street): This pumping site was moved approximately 500 feet downstream on 9/14 after 1 pm. Today they were still pumping slowly and had been pumping all night. The water is murky. I observed three dead fish near this location and one about 200 feet upstream this pumping location. The pump and connection points on the hose are leaking so I recommended to the crew that those leaks should be contained. The crew did not have any sand bags, wattles, or any other sediment control devices with them, and they cannot leave the site to go get any. Pumping Site 2 (west side of bridge on Sorrento Valley Rd): City crews set up on 9/13 around 1 p.m. Today they were still pumping slowly in the same location. There is evidence that the water level has risen when compared to photos taken on 9/14. The water is murky. I did not observe any dead fish. The crew possibly removed the dead fish from yesterday. The leak from the pump was being contained by a bucket. Pumping Site 3 (east side of bridge on Sorrento Valley Rd): Removed 9/14. The water is still cloudy. No new dead fish observed. Skimming: Removed 9/14.

PHOTOS

New Pumping Location - Roselle - 9/15/2011

Murky water – Roselle – 9/15/2011

Murky Water and Vegetation showing evidence of change in water level – Roselle - 9/15/2011

Dead fish and bank showing evidence of change in water level Roselle – 9/15/2011

PHOTOS

Pumping Location – Railroad Tracks at Sorrento Valley Rd
9/15/2011

Cloudy water - West side of Sorrento Valley Road - 9/15/2011

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Staci Domasco	Date:	9/16/11
Contact Number:	(858) 292-6409	Location:	2 Pumping Locations - Sorrento Valley Rd and Roselle Road
Project Name:	Sewage Pump Station 64 Spill	Time:	9:30 AM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☐ Sunny ☒ Cloudy ☐ Rain	Temperature:	☐ <55 ☒ 55-70 ☐ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☐	Emergency	☒	Other (describe below)

Personnel Onsite:	None	Contact Number:	
Description of Work:	Pumping locations were set up on 9/13 to address the sewage spilled as a result of the shutdown of SPS 64 due to the SDG&E power outage on 9/08/11.		

Environmental			
ESL	☒ Yes ☐ No	MHPA	☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☒ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other		
Impacts to Environmental Resources	☒ Yes ☐ No		
Description of Impact	No direct impact to sensitive environmental resources. Possible indirect impacts from the water quality effects on the drainage leading to the Los Penasquitos Lagoon.		

Habitat(s) Onsite		
	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☒ Willow Scrub ☒ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (091611)
Description of Photos	
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	

COMMENTS:	I went to each pumping location (see map below) to monitor any affects on habitat and/or wildlife from the spill and/or from the pumping efforts. <u>Pumping Site 1</u> (Roselle Street): Today they were still pumping slowly and had been pumping all night. The pump and connection points on the hose are still leaking. The water is murky. I observed two dead fish and two live ducks just downstream from this pumping location. I also observed 4 live ducks upstream from this site. The water level is similar to the day before. <u>Pumping Site 2</u> (west side of bridge on Sorrento Valley Rd): City crews set up on 9/13 around 1 p.m. Today they were still pumping slowly in the same location and had been pumping all night. The water is murky. I did not observe any new dead fish. The water level is similar to the day before. <u>Pumping Site 3</u> (east side of bridge on Sorrento Valley Rd): Removed 9/14. The water is still cloudy. No new dead fish observed. <u>Additional Comments</u> City Lab staff (Beverly Morisako) was onsite at the Sorrento Valley Rd bridge testing the water. She said they have been monitoring and testing the water all night and would continue this effort. RWQCB staff (Jeremy and Catherine) was at the bridge site as well testing water. Jeremy recommended we put warning signs up in locations where the public can access the water to prevent the public from touching the water or fishing. I called Mike Bedard to inform him about RWQCB's recommendation. Mike said they do have signs and that he would get it done asap.

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

PHOTOS


Roselle Location 9/16/2011


Ducks downstream from Roselle location 9/16/2011


Ducks upstream from Roselle location 9/16/2011

PHOTOS

Sorrento Valley Rd location, under railroad 9/16/2011

Sorrento Valley Rd location, facing east 9/16/2011

Sorrento Valley Road, east of bridge 9/16/2011

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

PS 64 Spill - Site Assessment

Sources: SanGIS and the City of San Diego

HO\-HN\NOHH

City of San Diego
PUBLIC UTILITIES
Water & Wastewater

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Dirk Smith	Date:	9/17/11
Contact Number:	(858) 614-5722	Location:	Manhole 35 (FSN 80053) Sorrento Valley Blvd at the storm channel (adjacent to 3848 Sorrento Valley Blvd.)
Project Name:	Sewage Pump Station 64 Spill	Time:	7:30 AM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☒ Sunny ☐ Cloudy ☐ Rain	Temperature:	☐ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☒	Emergency	☐	Other (describe below)

Personnel Onsite:	Terrell Powell	Contact Number:	
Description of Work:	Met with Terrell Powell and other WWC staff to discuss clean-up of storm drain channel north and south of Sorrento Valley Blvd.		

Environmental		
ESL	☒ Yes ☐ No	MHPA ☐ Yes ☒ No
Sensitive Resources Onsite	☐ Historical ☐ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other	
Impacts to Environmental Resources	☒ Yes ☐ No	
Description of Impact	Impacts to Fresh Water Marsh will occur during the clean-up	
Habitat(s) Onsite	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☐ Willow Scrub ☐ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (090811)\091711
Description of Photos	Photos of the channel pre-clean-up
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	
Comments:	I called Helix Environmental Planning Inc. (our on-call consultant) to monitor the removal of the fresh water marsh and clean-up of the storm drain channel. They were to monitor the work the afternoon of September 17th and the morning of September 18th. They will provide a follow-up biological letter report on the clean-up activities.

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Staci Domasco	Date:	9/19/11
Contact Number:	(858) 292-6409	Location:	Pumping Locations - Sorrento Valley Rd and Roselle Road
Project Name:	Sewage Pump Station 64 Spill	Time:	9:00 AM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☒ Sunny ☐ Cloudy ☐ Rain	Temperature:	☐ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☐	Emergency	☒	Other (describe below)
Personnel Onsite:	None	Contact Number:			
Description of Work:	Pumping locations were set up on 9/13 to address the sewage spilled as a result of the shutdown of SPS 64 due to the SDG&E power outage on 9/08/11.				

Environmental			
ESL	☒ Yes ☐ No	MHPA	☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☒ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other		
Impacts to Environmental Resources	☒ Yes ☐ No		
Description of Impact	No direct impact to sensitive environmental resources. Possible indirect impacts from the water quality effects on the drainage leading to the Los Penasquitos Lagoon.		

Habitat(s) Onsite		
	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☒ Willow Scrub ☒ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (091911)
Description of Photos	
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	

COMMENTS:	I went to each pumping location (see map below) to monitor any affects on habitat and/or wildlife from the spill and/or from the pumping efforts. <u>Pumping Site 1</u> (Roselle Street): Today they were still pumping slowly and had been pumping all night. The pump and connection points on the hose are still leaking. The creek water is clearer. I observed 4 ducks just downstream from this pumping location. One of the ducks dove into the water several times. I did not observe any new dead fish. The water level is similar to my last visit on 9/16. <u>Pumping Site 2</u> (west side of bridge on Sorrento Valley Rd): Today they were still pumping slowly in the same location and had been pumping all night. The water is must clearer. I could see the hose at the bottom of the water, which I was unable to before today. I did not observe any new dead fish. The water level is similar to my last visit on 9/16. <u>Pumping Site 3</u> (upstream from site 1): This pump was not running. City staff informed me that the pump would not run more than 1 hour at a time so they turned it off. <u>Skimming</u> (east side of bridge on Sorrento Valley Rd): Two vactor trucks were skimming the top of the water on the east side of the bridge. The City crew said they had been doing this off and on since Friday 9/16 or Saturday 9/17. The water on this side was clearer than my last visit on 9/16. <u>Additional Comments</u> I observed 10 contaminated water signs at the Roselle site, and 1 sign at the Sorrento Valley Rd site. I also verified that the concrete channel on both sides of Sorrento Valley BLVD was cleared as proposed over the previous weekend.

PHOTOS

Pumping Site 1 - Roselle

Pumping Site 2 – West of Sorrento Valley Road Bridge

PHOTOS

New Pumping Site 3 – Downstream of Site One

Skimming on east side of Sorrento Valley Bridge

PHOTOS

Cleared Concrete Channel – South Side of Sorrento Valley Blvd

Contaminated Water Sign – Upstream from Site 1

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

City of San Diego
PUBLIC UTILITIES
Water & Wastewater

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	**Keli Balo**	Date:	**9/20/2011**
Contact Number:	**619-997-7357**	Location:	**Along Los Penasquitos Creek**
Project Name:	**PS 64 Spill**	Time:	**8:00am**
Field Book Page:		Community:	
Weather:	☐ Sunny ☒ Cloudy ☐ Rain	Temperature:	☒ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☒	Emergency	☐	Other (describe below)

Personnel Onsite:		Contact Number:	
Description of Work:	**Sewer Spill Remediation**		

Environmental			
ESL	☒ Yes ☐ No	MHPA	☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☒ Vegetation/Habitat ☒ Animal ☒ Waterway ☐ Other		
Impacts to Environmental Resources	☒ Yes ☐ No		
Description of Impact	**Pumping water out of Los Penasquitos Creek**		

Habitat(s) Onsite		
Habitat(s) Onsite	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☒ Riparian Forest ☒ Willow Scrub ☐ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☒ Other open water	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G drive
Description of Photos	Pumping operations
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	
Comments:	**Atlas Pumping from new location upstream of Sorrento Valley bridge** **City continuing to pump from Sorrento Valley Rd at Railroad tracks**

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Staci Domasco	Date:	9/21/11
Contact Number:	(858) 292-6409	Location:	Pumping Locations - Sorrento Valley Rd and Roselle Road
Project Name:	Sewage Pump Station 64 Spill	Time:	9:00 AM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☒ Sunny ☐ Cloudy ☐ Rain	Temperature:	☐ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☐	Emergency	☒	Other (describe below)

Personnel Onsite:	None	Contact Number:	
Description of Work:	Pumping locations were set up on 9/13 to address the sewage spilled as a result of the shutdown of SPS 64 due to the SDG&E power outage on 9/08/11.		

Environmental			
ESL	☒ Yes ☐ No	MHPA	☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☒ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other		
Impacts to Environmental Resources	☒ Yes ☐ No		
Description of Impact	No direct impact to sensitive environmental resources. Possible indirect impacts from the water quality effects on the drainage leading to the Los Penasquitos Lagoon.		

Habitat(s) Onsite	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☒ Willow Scrub ☒ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (092111)
Description of Photos	
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	

<table>
<tr><td>COMMENTS:</td><td>I went to each pumping location (see map below) to monitor any affects on habitat and/or wildlife from the spill and/or from the pumping efforts.

<u>Pumping Site 1</u> (Roselle Street): Today they were still pumping slowly. The pump and connection points on the hose are still leaking. The water is clearer. However there is some debris on top of the water. I did not observe any new dead fish. The water level is higher than to my last visit on 9/19. I noticed a stronger sewer smell that I had not noticed since last week.

<u>Pumping Site 2</u> (west side of bridge on Sorrento Valley Rd): Today they were still pumping slowly in the same location. The water is clearer. I can see the hose at the bottom of the water. I did not observe any new dead fish. The water level is higher than my last visit on 9/19.

<u>Pumping Site 3</u> (downstream from Site 1): Pump was running but was unmanned. I observed 4 gas cans next to the pump near the stream. I observed 5 ducks. More than likely the same ducks I've been seeing since last week. I observed one duck diving in the water and coming up with vegetation and eating it. I also saw what I believe was a Blue Heron at the edge of the water. It flew away as I approached so I was unable to get a photo. Smells here like at site 1.

<u>Pumping Site 4</u> (upstream from Site 2): This site is being pumped by Atlas. They were not at the site at the time I came by but a City worker confirmed Atlas had left to dump and would return. The water here still looks cloudy.

<u>Skimming</u> (east side of bridge on Sorrento Valley Rd):
Two vactor trucks were skimming the top of the water on the east side of the bridge. The water on this side was clearer than my last visit on 9/16.

<u>Additional Comments</u></td></tr>
</table>

PHOTOS

Site 1 - Roselle

Site 2 – Sorrento Valley Road

PHOTOS

Site 3 – Downstream from site one.

Site 4 – Upstream from site 2

Skimming - East of SV Road Bridge

PHOTOS

Duck eating vegetation – Near Site 3

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

PS 64 Spill - Site Assessment

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Staci Domasco	Date:	9/22/11
Contact Number:	(858) 292-6409	Location:	Pumping Locations - Sorrento Valley Rd and Roselle Road
Project Name:	Sewage Pump Station 64 Spill	Time:	10:00 AM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☒ Sunny ☐ Cloudy ☐ Rain	Temperature:	☐ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☐	Emergency	☒	Other (describe below)
Personnel Onsite:	None		Contact Number:		
Description of Work:	Pumping locations were set up on 9/13 to address the sewage spilled as a result of the shutdown of SPS 64 due to the SDG&E power outage on 9/08/11.				

Environmental		
ESL	☒ Yes ☐ No	MHPA ☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☒ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other	
Impacts to Environmental Resources	☒ Yes ☐ No	
Description of Impact	No direct impact to sensitive environmental resources. Possible indirect impacts from the water quality effects on the drainage leading to the Los Penasquitos Lagoon.	

Habitat(s) Onsite		
	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☒ Willow Scrub ☒ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (092211)
Description of Photos	
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	

COMMENTS:

I went to each pumping location (see map below) to monitor any affects on habitat and/or wildlife from the spill and/or from the pumping efforts.

Pumping Site 1 (Roselle Street): Today they were still pumping slowly. The pump and connection points on the hose are still leaking. The water is clearer. There is some debris on top of the water upstream from this location. I did not observe any new dead fish. I observed several live fish upstream from this location. The water level is about the same. There is still a slight sewer smell.

Pumping Site 2 (west side of bridge on Sorrento Valley Rd): Today they were still pumping slowly in the same location. The water is clearer. I can see the hose at the bottom of the water. I did not observe any new dead fish. The water level is about the same. The crew onsite reported seeing 2 ducks at this site earlier in the morning.

Pumping Site 3 (downstream from Site 1): Pump was running but was unmanned. I observed 2 gas cans next to the pump near the stream. I observed 4 ducks.

Pumping Site 4 (upstream from Site 2): This site is being pumped by Atlas. The water is starting to clear but is still cloudy. I observed 3 ducks upstream under the freeway overpass.

Skimming (east side of bridge on Sorrento Valley Rd):
Two vactor trucks are skimming the top of the water on the east side of the bridge. The water is clearing. There is a slight film on top of the water.

Additional Comments
I met Kevin Evans at Pumping Site 4 to discuss an alternative route for a 4" hose. The new hose would stretch along the fence line of the lumber company in what appears to be an irrigation lane and it would have to go through what appears to be an active revegetation site. More than likely this is a Caltrans site. The hose would go through approximately 20 feet of the revegetation site and could lie around the existing plants. If the hose is laid out carefully then the revegetation site should not be impacted.
Kevin said this hose would not be needed if the most recent water quality tests conclude the conditions are getting better. I requested that he call me if they end up putting in this hose so I can monitor the installation of the hose through the revegetation site.

PHOTOS

Site 1 - Roselle

Site 2 – Sorrento Valley Road

PHOTOS

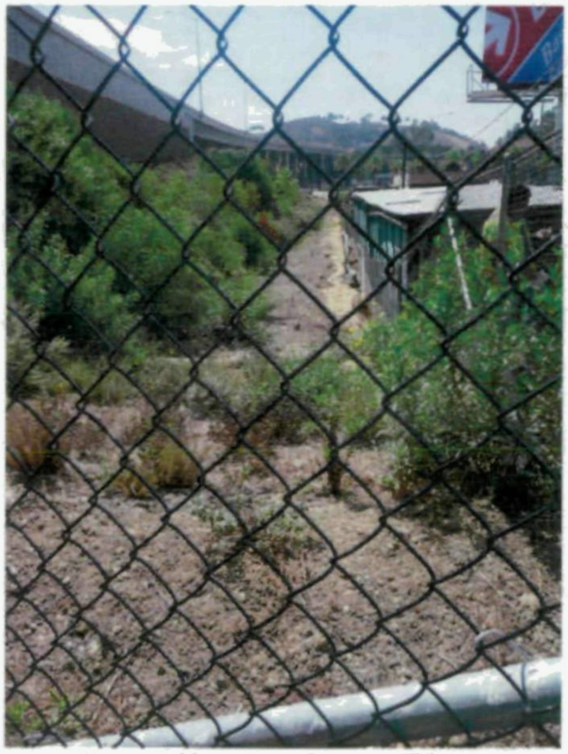
Site 3 – Downstream from site one.

Site 4 – Upstream from site 2

PHOTOS

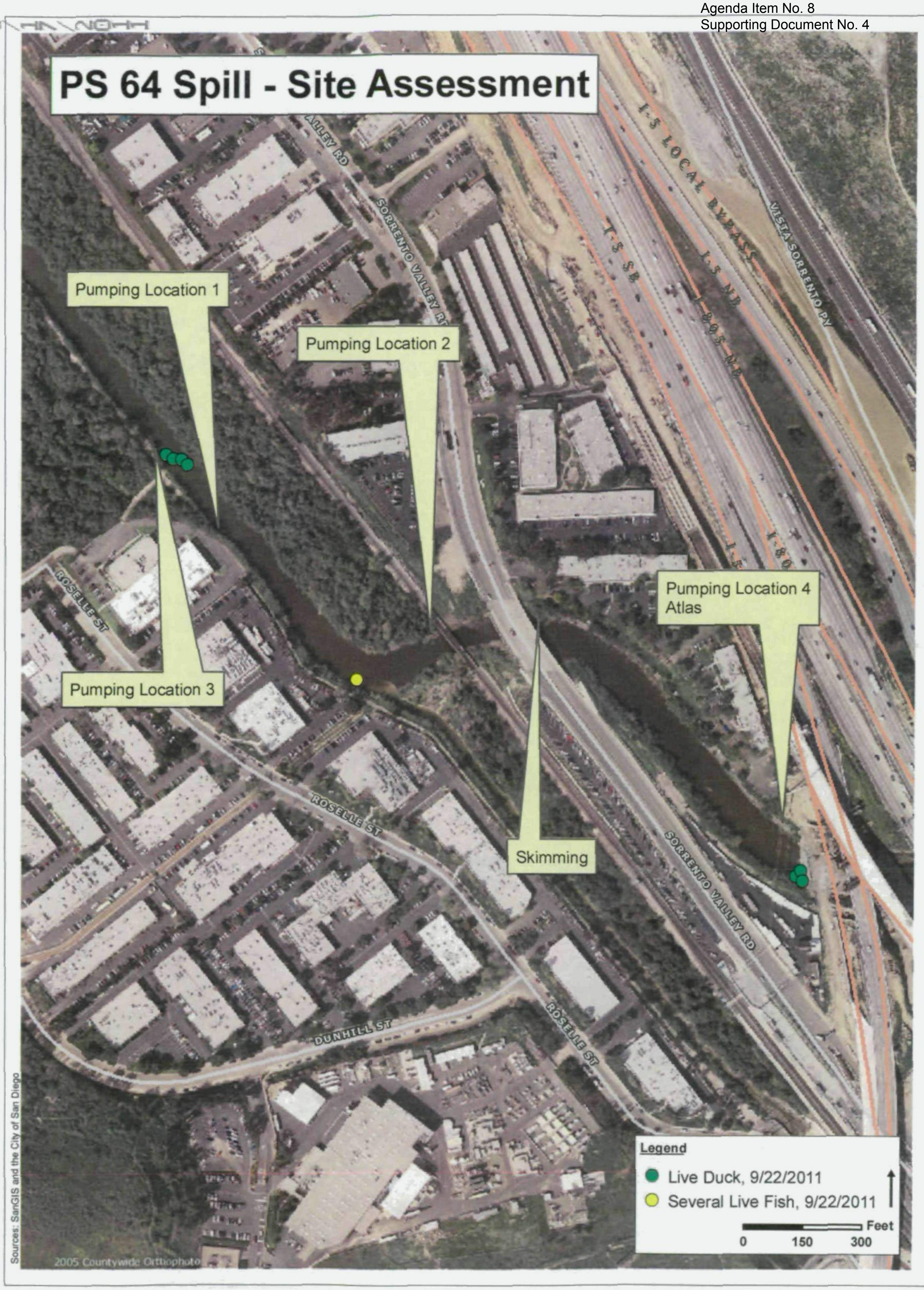
Skimming - East of SV Road Bridge

Ducks near Site 4



Potential location of a new 4" hose

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4



Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Staci Domasco	Date:	9/23/11
Contact Number:	(858) 292-6409	Location:	Pumping Locations - Sorrento Valley Rd and Roselle Road
Project Name:	Sewage Pump Station 64 Spill	Time:	9:45 AM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☒ Sunny ☐ Cloudy ☐ Rain	Temperature:	☐ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☐	Emergency	☒	Other (describe below)

Personnel Onsite:	None	Contact Number:	
Description of Work:	Pumping locations were set up on 9/13 to address the sewage spilled as a result of the shutdown of SPS 64 due to the SDG&E power outage on 9/08/11.		

Environmental			
ESL	☒ Yes ☐ No	MHPA	☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☒ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other		
Impacts to Environmental Resources	☒ Yes ☐ No		
Description of Impact	No direct impact to sensitive environmental resources. Possible indirect impacts from the water quality effects on the drainage leading to the Los Penasquitos Lagoon.		

Habitat(s) Onsite		
	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☒ Willow Scrub ☒ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (092311)
Description of Photos	
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	

COMMENTS:	I went to each pumping location (see map below) to monitor any affects on habitat and/or wildlife from the spill and/or from the pumping efforts. Pumping Site 1 (Roselle Street): Today they were still pumping slowly. The pump and connection points on the hose are still leaking. The water is clearer. There is some debris on top of the water upstream from this location. I observed some live fish upstream from this location. The water level is about the same. There is still a slight sewer smell. Pumping Site 2 (west side of bridge on Sorrento Valley Rd): Today they were still pumping slowly in the same location. I did not observe any new dead fish. The water level is about the same. I noticed the some soil disturbance at the staging area adjacent to the sidewalk. I asked the City worker onsite what happened. He said that AT&T dug up this area and then backfilled within the day before. Pumping Site 3 (downstream from Site 1): Pump was running but was unmanned. I observed 2 gas cans next to the pump near the stream. I observed 1 duck. Pumping Site 4 (upstream from Site 2): I confirmed with Kevin Evans that this pump was removed yesterday afternoon. Skimming (east side of bridge on Sorrento Valley Rd): Two vactor trucks are skimming the top of the water on the east side of the bridge. Additional Comments

PHOTOS

Site 1 - Roselle

Site 2 – Sorrento Valley Road

PHOTOS

Site 3 – Downstream from site one.

Site 2 – Area disturbed by AT&T

Public Utilities Department

City of San Diego
9192 Topaz Way
San Diego, CA 92123

Site Observation Form

Project Information			
Observer Name:	Staci Domasco	Date:	9/26/11
Contact Number:	(858) 292-6409	Location:	Pumping Locations - Sorrento Valley Rd and Roselle Road
Project Name:	Sewage Pump Station 64 Spill	Time:	1:00 PM
Field Book Page:		Community:	Sorrento Valley; TB 1208 (B-5)
Weather:	☒ Sunny ☐ Cloudy ☐ Rain	Temperature:	☐ <55 ☐ 55-70 ☒ 70-85 ☐ >85

Type of Work					
☐	Path Maintenance	☐	Erosion Control	☐	Sewer Cleaning
☐	Vegetation Trimming	☐	Manhole Maintenance	☐	Sewer Repair
☐	Water Repair	☐	Emergency	☒	Other (describe below)

Personnel Onsite:	None	Contact Number:	

Description of Work:	Pumping locations were set up on 9/13 to address the sewage spilled as a result of the shutdown of SPS 64 due to the SDG&E power outage on 9/08/11. Pumping was stopped on 9/23 afternoon. Today checking cleanup.

Environmental			
ESL	☒ Yes ☐ No	MHPA	☒ Yes ☐ No
Sensitive Resources Onsite	☐ Historical ☒ Vegetation/Habitat ☐ Animal ☒ Waterway ☐ Other		
Impacts to Environmental Resources	☒ Yes ☐ No		
Description of Impact	No direct impact to sensitive environmental resources. Possible indirect impacts from the water quality effects on the drainage leading to the Los Penasquitos Lagoon.		

Habitat(s) Onsite		
	☐ Native Grassland ☐ Oak Woodlands ☐ Scrub Oak Chap ☐ Maritime Chap ☐ Maritime Scrub	Tier I
	☐ Coastal Sage Scrub ☐ Coastal Sage Scrub/Chaparral	Tier II
	☐ Mixed Chaparral ☐ Chamise Chaparral	Tier IIIA
	☐ Non-Native Grasslands	Tier IIIB
	☐ Developed ☐ Disturbed Habitat ☐ Non-Native Vegetation ☐ Ornamental ☐ Eucalyptus	Tier IV
	☐ Salt Marsh ☐ Oak Riparian ☐ Riparian Forest ☒ Willow Scrub ☒ Mulefat Scrub ☒ Freshwater Marsh ☒ Disturbed Wetland ☐ Vernal Pool ☐ Other	Wetlands

Comments/Observations	
Photographs Taken	☒ Yes ☐ No
Location of Photographs	G:\progmngt\environmental\Photos\PS 64 Spill (092611)
Description of Photos	
GPS Data Taken	☐ Yes ☒ No
Location of Data	
Description of Data	

COMMENTS:	I went to each pumping location (see map below) to check on the clean up effort after the pumping efforts were stopped on 9/23.. <u>Pumping Site 1</u> (Roselle Street): All PUD pumping equipment and vehicles were removed from the site on 9/23. No trash or erosion or habitat impacts were observed. The creek smell better and the water levels are up. Observed one duck at this location. <u>Pumping Site 2</u> (west side of bridge on Sorrento Valley Rd): All PUD pumping equipment and vehicles were removed from the site on 9/23. No trash or erosion or habitat impacts were observed. There was a vehicle, trailer and stockpiling occurring at this location. These were not City crews. There was not anyone by the vehicle to ask what was going on. The crew was busy working in the street on the bridge so I was unable to ask what was going on. <u>Pumping Site 3</u> (downstream from Site 1): All PUD equipment and vehicles were removed from this site on 9/23. No erosion or habitat impacts observed. I discovered napkins near where the gas cans had been sitting. The napkins looked like they were used to wipe gas off the gas cans. I removed and disposed of this trash. <u>Pumping Site 4</u> (upstream from Site 2): Pump removed 9/22. No trash or erosion or habitat impacts were observed. <u>Skimming</u> (east side of bridge on Sorrento Valley Rd): All PUD equipment and vehicles were removed from this site on 9/23. No trash or erosion or habitat impacts were observed. <u>Additional Comments</u>

PHOTOS

Site 1 - Roselle

Site 2 – Sorrento Valley Road – Non City Crew stockpiling

Site 3 – Trash left behind - Downstream from site one.

Enclosure 7

Calculation of Spill Recovery

Calculation of Amount of Sewage Recovered

Method 3 from **appendix C** of the **Sewer Overflow Response and Tracking Plan,** which is included as part of the Sewer System Management Plan, Enclosure 8, was used to calculate the volume of sewage recovered from the Los Penasquitos Creek.

Duration and Flow Rate
Duration: The duration is the elapsed time from the start time to the time the spill stopped.
Flow Rate: The flow rate is the average flow that left the sewer system during the time of the spill.

2,431,550 million gallons of sewage entered Los Penasquitos Creek from Pump Station 64. The average fresh water flow rate into Los Penasquitos Creek is (500,000 gallons/daily). Pumping operations began at the Creek three days (72 hours) after the sewage was released from Pump Station 64.

Amount of sewage released: 500,000 X 3 = 1,500,000 gallons

Amount of sewage recovered: 2,431,550 – 1,500,000 = 931,550 gallons

Enclosure 8

Sewer System Management Plan

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

Sewer System Management Plan (SSMP)

City of San Diego
PUBLIC UTILITIES
Water & Wastewater

City of San Diego
Public Utilities Department
Wastewater Collections

October 2011

TABLE OF CONTENTS

1.0 GOAL

Goal: The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.

The mission of the City of San Diego's Public Utilities Department (PUD) is:

"***to provide the public with safe, efficient, and effective regional wastewater service.***"

The PUD Vision statement:

"***We are a recognized Wastewater Service Leader, committed to continual improvement.***"

The Sewer System Management Plan (SSMP) Goal that the PUD has implemented is concise and is stated herein:

The City of San Diego PUD is committed to:

- **Maintaining and improving the condition and performance of the City of San Diego's wastewater collection system;**
- **Cost effectively minimizing infiltration/ inflow (I/I) and providing adequate sewer capacity to accommodate design storm flows;**
- **Reducing the number and impact of sanitary sewer overflows (SSOs) that occur in the City.**

This goal is consistent with the Waste Discharge Requirements (WDR) and SSMP provisions that require proper management, operation, and maintenance of all parts of the sanitary sewer systems that are owned and controlled by the City and that require adequate capacity to convey base and peak flows. This SSMP documents the City's plans and practices for meeting this critical goal.

Reference:
MWWD Strategic Business Plan Document, FY 2008

2.0 ORGANIZATION

ORGANIZATION: THE SSMP MUST IDENTIFY:

(a) The name of the responsible or authorized representative as described in Section J of this Order.

(b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and

(c) The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services(OES)).

The City owns and operates the sanitary sewer system in the City of San Diego. It also provides wastewater conveyance and treatment services to 15 other cities and special districts (satellite agencies) under contractual agreements but does not fund, operate or have control over the sanitary sewer systems of these communities. The City is not responsible for the organization of the satellite agencies, or for implementing WDR and SSMP measures within them organizations. The 15 satellite agencies own and operate sanitary sewer systems within their jurisdictions.

The City of San Diego is governed by the Mayor, who is the chief executive, and 8 full-time Council Members. The Mayor and the City Council authorize the necessary funding. The City Attorney provides legal advice and guidance to the City and City departments in implementing the City ordinances and exercising legal authorities; and represents the City, its departments, commissions and employees in legal matters, including enforcement actions. The Wastewater Branch reports to the Office of the Mayor through the Director of Public Utilities.

The Wastewater Branch is comprised of Four divisions:

- Engineering and Program Management
- Environmental Monitoring and Technical Services
- Wastewater Collection
- Wastewater Treatment and Disposal

The four Wastewater Branch divisions manage and coordinate all activities associated with the sanitary sewer system within the City of San Diego. While many Capital Improvement Program (CIP) projects are designed and constructed through the efforts of other City Departments, the Wastewater Branch maintains overall responsibility for ensuring that these projects are appropriate and are completed on schedule.

Many Wastewater Branch administrative functions are coordinated and provided in conjunction with other City departments; i.e., Personnel, Purchasing, Auditors, City Attorney. This service arrangement is typical of other large governmental organizations.

(a) The name of the responsible or authorized representative as described in Section J of this order (WDR).

The City has designated a Legally Responsible Official (LRO) pursuant to Section J., REPORT DECLARATION, of the State General WDR (Order No. 2006-0003). Contact information for the City's LRO is provided below:

Ann Sasaki, Assistant Director
Wastewater Branch
9192 Topaz Way
San Diego, CA 92123
858-292-6402
asasaki@sandiego.gov

(b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation.

A brief outline of management personnel responsible for implementing specific measures in the SSMP program are listed herein. Specific narrative explanation, key personnel contact information, and other organizational details may be found in the "Sewer Overflow Response and Tracking Plan" document, which serves as the City of San Diego's SSO Emergency Response Plan in this SSMP.

City Attorney's Office:

Deputy City Attorney assigned to Wastewater Program
Thomas Zeleny, (619) 236-6220
Legal Authority

Public Utilities Department

Director, Roger Bailey (858)292-6401
Assistant Director (Legally Responsible Official)
Ann Sasaki, (858) 292-6402

Administrative Services Division:

Acting Deputy Director
Susan LaNier, (858) 292-6384
Communication Program
Budget and Financial Support for Capital Improvement and O&M Programs

Administration of the Contracts with Satellite Agencies

Engineering and Program Management Division:

Deputy Director
Guan Hwang, (858) 292-6476
GIS and Mapping
Design and Performance Provisions System Evaluation and Capacity Assurance
Monitoring, Measurement and Program Modifications
Design and Performance Provisions

Environmental Monitoring and Technical Services Division:

Deputy Director
Steve Meyer, (619) 758-2301
Industrial Waste Source Control, Pretreatment, Enforcement
Laboratory Monitoring and Analyses
Ocean Monitoring Program
Regulatory Agencies' Permitting

Wastewater Collection Division:

Deputy Director
Stan Griffith, (858) 654-4440
Operation and Maintenance Program,
Municipal Wastewater Collection System
Sewer System Overflow Emergency Response Plan
FOG Control Program

Wastewater Treatment and Disposal Division

Deputy Director
Chris Mckinney, (858) 292-6447
Operation and Maintenance Program,
Wastewater Treatment Plants, Bio-Solids Facility,
Metropolitan Sewerage System

The Wastewater Branch FY11 Organizational Chart depicting these positions and their relationships within the City of San Diego is attached to this document.

(c) The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable(such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES).

The Public Utilities Department's Wastewater Collection Division has procedures that provide for effective notification of each Category of SSOs through a clear and step-by-step method of communication by Division staff at different levels of the Division's organization. The policies and procedures for SSO reporting are reviewed and updated as needed to ensure that they are in full compliance with all regulatory and legal requirements and advance the Public Utilities Department's mission to provide the public with safe, efficient, and effective regional wastewater service.

These reporting procedures are incorporated herein and are detailed in Section 6: Sewer Overflow and Tracking Plan.

In Fiscal Year 2009, the support Divisions of MWWD have undergone consolidation review with peer Water Department support Divisions. Implementation actions for these support Divisions are planned for FY 2010. In Fiscal Year 2010 and 2011 additional consolidation activities will involve the Operational Divisions within both the MWWD and Water Department as a new Public Utilities Department is formed from these two existing Departments.

Reference:
Public Utilities Department, Wastewater Collection Division, *Sanitary Sewer Overflow Response and Tracking Plan*, dated October 2011.

City of San Diego
PUBLIC UTILITIES
Water & Wastewater

PUBLIC UTILITIES DEPARTMENT
Management
September 1, 2011

- **DIRECTOR** — **ROGER BAILEY**, Dept 777, PCN 30004213, Org 60000011, Dept 760 (PCN 30005039) 2000000001
  - *Executive Secretary* — **JANET BRUCE**, PCN 30004149, Org. 60000033, Cost Center 2000000001
  - **Assistant Director, Wastewater Ops** — **ANN SASAKI**, 30005041, Org. 60001131, Cost Center 2000000001
    - Deputy Director, Engineering & Program Management — **GUANN HWANG**, 30004881, Org. 60000956, Cost Center 2000150001
    - Deputy Director, Environmental Monitoring & Technical Services — **STEVE MEYER**, 30004502, Org. 60000879, Cost Center 2012120001
    - Deputy Director, Wastewater Collection — **STAN GRIFFITH**, 30004682, Org. 60000941, Cost Center 201130001
    - Deputy Director, Wastewater Treatment & Disposal — **CHRIS MCKINNEY**, 30004432, Org. 60000832, Cost Center 2012110001
    - Sr. Public Info Officer — **BRIAN DRUMMY**, 30005015, Org 60001131, Cost Center 2000000001
    - Program Manager — **AGNES GENEROSO**, 30004683, Org. 60001131, Cost Center 2011131101
  - **Assistant Director, Business Support** — **ALEX RUIZ**, 30004212, Org. 60001130, Cost Center 2013000001
    - Deputy Director, Customer Support — **MIKE VOGL**, 30004217, Org. 60000750, Cost Center 2000130001
    - Deputy Director, Employee Services & Internal Control (Interim) — **SUE LANIER**, 30005038, Org. 60002038, Cost Center 2000120001
    - Deputy Director, Finances & IT (Interim) — **LEE ANN JONES-SANTOS**, 30004222, Org. 60000742, Cost Center 2000110001
    - Deputy Director, Long Range Planning & Water Resources — **MARSI STEIRER**, 30004216, Org. 60000773, Cost Center 2000140001
  - **Assistant Director, Water Ops** — **JIM FISHER**, 30004215, Org 60000790, Cost Center 2000000001
    - Deputy Director, Water Operations & Engineering — **JESUS MEDA**, 30004221, Org. 60000778, Cost Center 2013131201
    - Deputy Director, Water Construction & Maintenance — **STAN MEDINA**, 30004223, Org. 60002020, Cost Center 2013131101
    - Program Manager, Administrative Support — **CRAIG BOYD**, 30004218, Org. 60003175, Cost Center 2013130001
  - **Program Manager** — **JONATHAN BRENT EIDSON**, 30004033, Org 60000011, Cost Center 2000000001
  - **Program Manager** — **VACANT**, 30004030, Org 60000033, Cost Center 200000001
  - **Assistant Director, Strategic Programs** — **TOM CRANE**, 30004214, Org. 60004125, Cost Center 2000000001
    - Asset Management Coordinator — **SUSAN BOWMAN**, 30004289, Org 60000955, Cost Center 2000000001

3.0 LEGAL AUTHORITY

Each enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

(a) Prevent illicit discharges into its sanitary sewer system (examples may include I/I, storm water, chemical dumping, unauthorized debris and cut roots, etc.);

(b) Require that sewers and connections be properly designed and constructed;

(c)Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;

(d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages;

and

(e) Enforce any violation of its sewer ordinances.

I. General Legal Authority of the City Of San Diego to Adopt and Enforce Ordinances:

The California State Constitution provides in Article 11, Section 7 that "A county or city may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws."

The City of San Diego Charter provides in Section 2 that "the City of San Diego, in addition to any of the powers now held by or that may hereafter be granted to it under the Constitution or Laws of this State, shall have the right and power to make and enforce all laws and regulations in respect to municipal affairs, subject only to the restrictions and limitations provided in this Charter; provided, however, that nothing herein shall be construed to prevent or restrict the City from exercising, or consenting to, and the City is hereby authorized to exercise any and all rights, powers and privileges heretofore or hereafter granted or prescribed by General Laws of the State." Section 26.1 of the Charter establishes that "It shall be the obligation and responsibility of The City of San Diego to provide public works services…."

II. Regional Wastewater Disposal Agreements

The Metropolitan Sewerage System (Metro System) is owned and operated by the City of San Diego, and provides wastewater transportation, treatment and disposal services to 15 Participating Agencies (PAs) that discharge wastewater into the system, in addition to the City. Since 1963 the City has entered into transportation and disposal agreements with each contributing jurisdiction. In 1998, new Regional Wastewater Disposal Agreements (RWDAs) that supersede the 1963 agreements were executed with each of the PAs including, as amended: City of Chula Vista, City of Coronado, City of Del Mar, City of El Cajon, City of Imperial Beach, City of La Mesa, Lakeside /Alpine Sanitation District, Lemon Grove Sanitation District, City of National City, Otay Water District, Padre Dam Municipal Water District, City of Poway, Spring Valley Sanitation District, Winter Gardens Sewer Maintenance District, and East Otay

Sewer Maintenance District. Section II F of the RWDAs places limitations on the types and condition of wastewater discharged by the PAs to the Metro System, as described more fully, where applicable, below.

III. Participating Agency Sewage Transportation Agreements

The Participating Agencies (PAs) and the City of San Diego (the City) are responsible for the "retail" wastewater collection operations within their respective jurisdictions. The PAs also send collected wastewater through large City-owned trunk lines (the Municipal System) to the City's Metropolitan System for treatment and disposal. Transportation of wastewater through the City's Municipal System to the Metropolitan System is facilitated by 13 separate transportation agreements, each between the City and an individual PA. Each PA is charged individually for such transport, utilizing a per gallon/per mile/per day rate that is intended to recover the PAs' proportionate share of operations and maintenance expenses for the Municipal System. Additionally, each PA contributes a proportionate share of capital improvements funds for improvements or rehabilitations to the specific infrastructure through which that PA's flows are transported.

IV. Required Specific Legal Authorities

(a) Prevent illicit discharges into its sanitary sewer system (examples may include I/I, storm water, chemical dumping, unauthorized debris and cut roots, etc.)

The City of San Diego Municipal Code (SDMC) Chapter 6: Public Works, Article 4: Sewers, provides for the maximum beneficial public use of the City's wastewater system through adequate regulation of sewer construction, sewer use, and industrial wastewater discharges.

The ordinance provides for the regulation of sewer construction in areas within the City's boundaries, the quantity and quality of discharged wastes, the degree of waste pretreatment required, the approval of plans for sewer construction, the issuance of Permits for Industrial Wastewater Discharge, and the establishment of penalties for violation of the ordinance.

Section 64.0307 establishes that any unauthorized entering, breaking, damaging, destroying, uncovering, defacing, or tampering with any structure, equipment or appurtenance which is a part of the City's wastewater system shall be a violation of the Sewer ordinance.

Regional Wastewater Disposal Agreements, Section F.1 requires that each Participating Agency will comply with all applicable laws, rules, and regulations including its regulatory obligations associated with the discharge of wastewater into its respective system and from such system, into the Metro System.

- **Industrial Wastewater Control Program**

40 CFR Parts 401 – 476

The Code of Federal Regulations at 40 CFR Parts 401 – 476 implement requirements of the 1972 Federal Water Pollution Control Act (P.L. 95-217) as amended by the 1977 Clean Water Act (P.L. 95-217) and the 1987 Water Quality Act (P.L. 100-4) Act to establish National Pretreatment Standards for discharges of industrial wastes. The regulations provide for delegation of administrative and enforcement responsibilities to states and by states to local jurisdictions. California has an EPA-approved NPDES program, and has delegated to the State Water Resources Control Board the responsibility for administering and enforcing National Pretreatment Standards, and other standards or prohibitions established by state or local laws as long as the State or local requirements are not less stringent than any set forth in National Pretreatment Standards, or any other requirements or prohibitions established under the Clean Water Act. The SWRCB and EPA have further delegated Pretreatment Program administrative and enforcement responsibilities to the City of San Diego through requirements established in RWQCB Order No R9-2002-0025, NPDES Permit No CA0107409 for the Point Loma Treatment Plant, and in RWQCB Order No R9-2006-0067, NPDES Permit No CA0109045 for the South Bay Water Reclamation Plant.

San Diego Municipal Code

The San Diego Municipal Code establishes requirements and provides authority necessary to implement the Pretreatment Program required by the NPDES permits.

SDMC Section 64.05 requires that any person, municipality, sanitation district, or governmental agency desiring to discharge industrial waste into a public sewer, which may interfere with the operation and maintenance of the sewer system or with the wastewater treatment facilities, shall obtain a permit to discharge wastes into the system from the City.

Industrial User Discharge Permits are issued, administered, and enforced by the Industrial Wastewater Control Program. Permits include applicable federal categorical pretreatment discharge standards and requirements, local limits, and general and specific prohibitions.

SDMC Section 64.0501 establishes that "the Permit for Industrial Wastewater Discharge or Discharge Authorization shall require compliance with applicable National Pretreatment Standards and requirements, State discharge requirements, and local limits and requirements. It is unlawful to discharge industrial wastewaters in excess of the quantity or quality limitations set by the Permit for industrial Wastewater Discharge or Discharge Authorization.

SDMC Section 64.0511 requires that each permittee shall provide protection from non-routine, episodic discharges of prohibited materials or other substances regulated by SDMC Division 5, including but not limited to an accidental spill or a non-customary batch discharge.

SDMC Section 64.0512 sets forth general and specific prohibitions which apply to each User introducing pollutants into a Publicly Owned Treatment Works, whether or not the User is subject to other national pretreatment standards or any national, state, or local pretreatment requirements. See Illicit Discharges and Inflow/Infiltration Prevention, below, for a detailed list of specific prohibitions.

SDMC Section 64.0513 requires that the Industrial Wastewater Control Program shall develop, apply, and enforce specific limits or Best Management Practice Requirements as necessary to implement the General and Specific Prohibitions; such limits are termed "Local Limits" and are enforceable as Pretreatment Standards.

SDMC Section 64.0511 requires that each permittee shall provide protection from non-routine, episodic discharges of prohibited materials or other substances regulated by SDMC Division 5, including but not limited to an accidental spill or a non-customary batch discharge.

Regional Wastewater Disposal Agreements, Section F.3 requires that each Participating Agency will insure that all industrial users of its wastewater system are regulated by an effective industrial pretreatment program that conforms to all applicable laws, rules, and regulations, and that is acceptable to the City.

Interjurisdictional Pretreatment Agreements

The City has entered into Interjurisdictional Pretreatment Agreements (IJAs) with each Participating Agency comprising the Metro System. Condition (1) of these agreements require each Agency to adopt and diligently enforce an ordinance which conforms to the minimum legal requirements contained in the Federal Pretreatment Regulations (40 CFR Part 403) and which incorporates any other legal authorities necessary to implement procedures outlined in the IJA or in the Federal Pretreatment Regulations. Condition (3) requires that each PA adopt amendments to ordinances when necessary to ensure the effective administration and operation of the pretreatment program. Condition (4) requires that each PA shall adopt, as part of its ordinance, and enforce specific discharge limits at least as stringent as the specific discharge limits established in the City of San Diego ordinance. Condition (10) allows for a service agreement providing the City of San Diego with the legal authority and responsibility for performance of technical and administrative activities necessary for implementation of the pretreatment program within the PA; at this time, the City of San Diego implements the pretreatment program in all PAs.

- **Illicit Discharges and Inflow/Infiltration Prevention**

SDMC Section 64.0512 incorporates the Federal General and Specific Prohibitions for discharges to sewer set forth at 40 CFR 403.5. These General and Specific Prohibitions apply to all users of the Metropolitan Sewerage System. A User may not introduce into a public sewer which directly or indirectly connects to the City's wastewater system any pollutant which causes pass-through or interference. Specifically prohibited discharges include, but are not limited to: matter which may cause fire or explosion; toxic matter in quantities that could cause acute health and safety problems; matter which will cause corrosive damage; solid or viscous substances or other matter of such quality, size, or quantity that it may cause obstruction to flow in the sewer; rainwater, storm water, groundwater, and any other uncontaminated water; matter having a temperature higher than 150 degrees Fahrenheit; radioactive matter, except in conformance with CA Radiation Control Regulations; and trucked wastes, except at the City's designated dump site.

Currently, however, the City of San Diego has installed and operates several dry weather storm water diversion systems to ensure that pollutants present in dry weather urban runoff will not reach receiving waters. During wet weather, the dry weather flow diversion ceases and storm water is handled by the storm water drainage system.

Regional Wastewater Disposal Agreements, Section F.2 requires that each Participating Agency will minimize to the maximum extent practicable, the infiltration and inflow of surface, ground or storm waters into its respective wastewater systems. Each Participating Agency has included a specific prohibition in its governing legislative authority. Furthermore, Industrial User Discharge Permits issued to Users in Participating Agencies pursuant to Interjurisdictional Pretreatment Agreements specifically prohibit the discharge to the sanitary sewer of any rainwater, storm water, groundwater, street drainage, subsurface drainage, roof drainage, yard drainage, water from yard fountains, ponds or lawn sprays, or any other uncontaminated water.

(b) Require that sewers and connections be properly designed and constructed.

SDMC Article 4: Sewers, Division 4: Construction, Maintenance, Funding, and Use of Wastewater Facilities establishes at 64.0400 that it is a misdemeanor for any person to connect any pipe on private property with any pipe in the street that is connected with the public sewer of City, or to construct any sewer in City, without first obtaining a permit from the City and provides that all connections shall be installed under City supervision. Application must be made in writing to the City, by the owner of the property to be sewered, or his agent. A permit must be obtained prior to the installation of any plumbing fixtures.

SDMC Section 64.0401 establishes that only employees, contractors, or maintenance workers of the City may construct or cause to be constructed, or alter or cause to be altered, any public sewer, lateral sewer, house connection or industrial connection to sewer, or wastewater pumping station, within the City where existing or proposed wastewater flows will discharge directly or indirectly to the City's public sewer without first obtaining approval of wastewater facility construction plans from the City. The applicant must submit to the City for approval, construction plans and such specifications and other details as required to describe fully the proposed wastewater facility. The plans shall have been prepared under the supervision of and shall be signed by an engineer of suitable training registered in the State of California.

ORDINANCE NUMBER O-19730 (NS), passed on April 8, 2008, adopted the 2007 California Plumbing Code, with state and local amendments. Service connections must be designed and constructed to meet the 2007 California Plumbing Code, as adopted.

(c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency.

The City does not maintain private lateral sewer lines on private property or in easements or encroachments. Property owners are responsible for maintaining approved lateral installations. Engineering & Capital Projects Department, Field Engineering Division staff, perform site inspections during construction of all approved laterals in the public right-of-way.

(d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages.

SDMC Section 64.0512 (4) specifically prohibits the discharge to the sewer of "any solid or viscous substance or other matter of such quality, size, or quantity that it may cause obstruction to flow in the sewer or be detrimental to proper wastewater treatment plant operations. These objectionable substances include, but are not limited to, asphalt, dead animals, offal, ashes, sand, mud, straw, industrial process shavings, metal, glass, rags, feathers, tar, wood, whole blood, paunch manure, bones, hair and fleshings, entrails, fatty acids, grease and oil, paper dishes, paper cups, milk containers, or other similar paper products, either whole or ground.

SDMC Section 64.0512 (8) prohibits fats, oils, and greases of animal or vegetable origin in a concentration that exceeds 500 mg/L.

SDMC Section 64.0512 (19) prohibits petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through.

As discussed earlier, the general and specific prohibitions set forth at SDMC 64.0512 apply to all users of the sewer system. They are also included in all Industrial User Permits issued for industries located within the City of San Diego and in the Participating Agencies.

- **Food Establishment Wastewater Discharge Program**

SDMC Article 4; Sewers, Division 7: The Food Establishment Wastewater Discharge program provides that (non-residential) facilities engaged in preparing food for consumption by the public desiring to discharge wastewater into public sewer shall obtain a permit to discharge known as a permit for Food Establishment Wastewater Discharge (FEWD permit).

SDMC Section 64.0708 establishes that all Permittees shall be required to install an approved type grease pretreatment device (grease trap or interceptor) in the waste line leading from the food preparation area, or from sinks, drains, appliances, and other fixtures or equipment used in food preparation or cleanup where grease may be introduced into the sewerage system. Such grease pretreatment devices shall be installed to remove grease from wastewater and shall be maintained in efficient operating conditions by periodic removal of the accumulated grease. No such collected grease shall be introduced into any drainage piping or public sewer.

Each permittee shall also be required to provide a collection drum or container for the purpose of physically segregating oils, greases and greasy solids. Permittees shall establish procedures for personnel to practice maximum segregation of oils, greases, and greasy solids to the collection drum or container prior to washing and other water cleaning which goes into sewers. The permittee shall be responsible for the proper removal and disposal by appropriate means of the material captured from either grease pretreatment devices on wastewater lines or the collection drum for segregating oil, greases, and greasy solids.

(e) Enforce any violation of its sewer ordinances.

SDMC Section 64.0504 establishes that the conditions of Industrial Wastewater Discharge Permits shall be uniformly enforced by the City in accordance with the ordinance, and applicable local, State, and Federal regulations. The City of San Diego ensures compliance with permit requirements and general and specific prohibitions by taking administrative enforcement actions consistent with the Program's EPA-approved Enforcement Response Plan (ERP) in the event of non-compliance. The ERP was submitted to EPA On December 15, 1993. The ERP describes criteria and other considerations for responding to violations of pretreatment regulations and discharge standards in a consistent and timely manner. The ERP provides for a range of enforcement responses including, but not limited to: Notice of Violation, administrative orders, permit suspension, permit revocation, sewer service termination, and / or referral for civil or criminal prosecution.

SDMC Section 64.0710 provides for penalties for violation and civil liability related to misdemeanor discharges of wastewater in any manner in violation of SDMC Article 4, Division 7: Food Establishment Wastewater.

SDMC Section 64.0301 establishes penalties for Violations of Chapter 6, Article 4: Sewers, and declares discharges of wastewater in any manner in violation of the ordinance to be a public nuisance and a misdemeanor. The section provides for relief through Injunction, Liability for Costs of Damage, Termination of Service, Civil Penalties not to exceed $2,500 per day per violation; and Criminal Penalties in the amount of $25,000 per day per violation or imprisonment for not more than one year, or both.

SDMC Division 8 of Article 2 of Chapter 1 governs the administrative assessment of civil penalties for violations of the Municipal Code and applicable state codes. Section 12.0803 (a) provides that any person violating any provision of the SDMC may be subject to the assessment of civil penalties pursuant to the administrative procedures provided in Sections 12.0804 through 12.0810 of Division 8. Section 12.0803 (b) provides that each and every day a violation of any provisions of the SDMC exists constitutes a separate and distinct violation. Section 12.0803 (c) provides that civil penalties may be directly assessed by means of a Notice and Order issued by the Director or affirmed by a Enforcement Hearing Officer. Civil penalties may be recovered by assessment of an Enforcement Lien or subsequent legal action brought by the City Attorney. Section (d) provides that civil penalties for violations of any provision of the Municipal Code or applicable state codes shall be assessed at a daily rate determined by the Director or Enforcement Hearing Officer. The maximum rate shall be $2,500 per violation. The maximum amount of civil penalties shall not exceed $250,000 per parcel or structure for any related series of violations. The Industrial Wastewater Control Program issues 2 types of Notice and Orders: Compliance Orders, and Penalty Orders.

Participating Agencies: Interjurisdictional Pretreatment Agreements provide that any inspector of the City of San Diego may enter and inspect at any reasonable time any part of the sewer system of the Participating Agency. The right of entry and inspection shall extend to public streets, easements, and property within which the system is located. Additionally, inspectors of the City of San Diego shall be permitted, as appropriate, to enter onto private property to inspect industrial waste dischargers. When, based on the Program's approved Enforcement Response Plan, the Industrial Wastewater Control Program determines that an Administrative Penalty Notice and Order is appropriate, the Program prepares the Penalty Order and submits it to the Participating Agency's legal staff for issuance under the Agency's letterhead and collection.

References:
1977 Clean Water Act

1987 Water Quality Act

Code of Federal Regulations 40 CFR Parts 401-476

California State Constitution: Article 11, Section 7

City of San Diego Charter: Section 2; Section 26.1

Regional Wastewater Disposal Agreements

San Diego Municipal Code

Interjurisdictional Pretreatment Agreements

4.0 OPERATION AND MAINTENANCE PROGRAM

Operation and Maintenance Program: The SSMP must include those elements listed below that are appropriate and applicable to the Enrollee's system:

(a) Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes, valves and applicable stormwater conveyance facilities;

A comprehensive set of sewer maps show all the features of the City's sanitary sewer systems. These maps have been converted to Geographic Information System (GIS) maps and are the basis for Environmental Systems Research Institute, Inc. (ESRI) based electronic files that can be used in the field for locating pipelines, maintenance holes, service connections and other features of the City's systems. Modern state-of-the-art customized electronic GIS maps of the entire sanitary sewer system and other information layers are actively used in system management, work prioritization, and management decisions. The maps are routinely updated to include new or rehabilitated sewers. The Public Utilities Department and Engineering and Capital Projects Department are responsible for providing as-built information to the Water Department's Mapping Group for updating the maps on a continual basis.

The ESRI-based SHARQ and PSTools software products are easy-to-use desktop applications that combine the power of electronic mapping with useful layers of data, linked databases and reports. This mapping is a valuable data source for field locating utilities, avoiding damage and service disruption. These software applications also are used for initial planning studies to locate potential conflicts to new construction or rehabilitation. The City of San Diego is planning a migration of these desktop computer applications to new SAP-based software within the next four years. The Public Utilities Department utilizes GIS-based stormwater conveyance facility maps on-line on an as-needed basis. These GIS-based stormwater conveyance maps are provided by the General Services Department

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

The City operates and maintains a very large wastewater sanitary sewer system, serving a municipal population of approximately 1.3 million within a 330 square mile service area. The City's sewer system consists of approximately 3017 miles of sewer mains, approximately 59,000 maintenance holes, and 83 pump stations. In addition, there are about 280,000 privately owned sewer laterals with a total length of more than 1500 miles. The City also provides wastewater conveyance and treatment services to 15 satellite agencies under contractual agreements but is not responsible for those agencies' sewer system management.

The Public Utilities Department's Wastewater Collection Division's computerized maintenance management system (CMMS) software and Standard Operating Procedures (in concert with equipment-specific operation and maintenance manuals) guide the frequency of sewer cleaning and maintenance of pump stations and equipment. Tasks and their frequency are determined based on operation and maintenance experience, past performance, manufacturer's recommendations and site-specific conditions. Scheduled and completed tasks are catalogued and tracked by work orders in several CMMS software applications, including Enterprise Maintenance Planning and Control (EMPAC), Planner Scheduler Tools (PSTools), Construction Scheduler Tools (CSTools), FEWD Scheduler Tools (FSTools), Sewer Water Infrastructure Management (SWIM), and Sewer History and Research Query (SHARQ). Pump run times are routinely monitored and used in scheduling routine maintenance. Maintenance program includes preventive, proactive, predictive, and corrective maintenance; maintenance engineering; and quality control.

These software applications are used to manage work, track warehouse parts, and streamline maintenance related purchases. The Wastewater Collection Division also uses Global Positioning System (GPS) devices on its maintenance vehicles to enhance maintenance activities.

Sewer System Preventive and Proactive Maintenance

The City has a proactive and preventive maintenance program for its sewer system. A single, centralized maintenance yard is strategically located in the Kearny Mesa area of the City to minimize travel time and maximize efficiency. Preventive maintenance is focused on critical and problematic areas. Problem sewers are identified, prioritized and scheduled for maintenance based on comprehensive review of the maintenance history and system characteristics of all the sewers in the City including overflows, blockages, excessive maintenance, age, material, condition, etc. Maintenance includes high velocity sewer flushing, bucketing, mechanical and manual rodding of sewers. The City's sewers are classified into two groups: trunk sewers (greater than 15 inches in diameter) and secondary sewers (15 inches or smaller in diameter). The City's sewers are maintained either on a 5 year cycle (System-wide Cleaning Program) a 36-month cycle (Canyon Cleaning Program) or on a cycle of 24 months or less (Accelerated Cleaning Program), depending upon the individual maintenance history of each pipe.

All problem sewers are inspected as soon as possible, usually within 24 hours after the initial occurrence of an overflow, by closed circuit television (CCTV) to identify any necessary repairs or special, additional maintenance needs.

Flow monitoring and CCTV inspection records are reviewed to identify deficiencies. Sewers that exhibit high flow levels or operational failure are identified. These may trigger further reviews to determine cause and/or immediate or accelerated corrective actions. Priorities and schedules are set based on the severity of the problem.

In addition to the preventive maintenance, the City implements a proactive maintenance program where "non-problem" sewers are also scheduled for maintenance and cleaning, but on a less frequent basis. The City's proactive maintenance program provides cleaning and maintenance of the "non-problem" secondary sewers at least once every five years. Also, the City has developed and implemented a system-wide five-year maintenance hole inspection program.

The City implements a quality control/quality assurance test designed to examine the effectiveness of cleaning. After cleaning a sewer, a sampling of pipes are inspected by closed circuit television (CCTV) to ensure that cleaning has restored the flow area of the sewer to at least 95 percent of the pipe diameter. Any sewer that fails the test is re-cleaned and the crew is retrained as necessary on proper procedures. Personnel-related actions are taken on an as-needed basis.

Fats, Oils, and Grease (FOG) Cleaning

Overflows caused by blockages from FOG are monitored and reviewed for location and cleaning frequency. The City has increased the cleaning in sewers with repeated FOG-related blockages or overflows. A more detailed description of the City's FOG Program can be found in Section 7.

Root Control Strategy

In addition to the City's routine maintenance activities including mechanical root removal, the City maintains a program to control the growth of roots in sewers by the use of environmentally safe chemicals. Chemical root control treatment is carefully monitored and the frequency of treatment and application rates are adjusted as required to maximize the effectiveness of the chemical treatment to minimize blockages caused by roots.

Odor Control Strategy

The City employs a chemical odor control program to deal with noxious sulfide-generated odors in certain neighborhoods. This program entails injecting chemicals (Bioxide) at key locations reducing the hydrogen sulfide levels (source of the foul odors) in sewers. The City's program has been effective in reducing the hydrogen sulfide levels in those key areas. In addition, the City is continuing to work towards improving the effectiveness of its overall odor control efforts. The City also utilizes carbon odor scrubbers on an as-needed basis along several sewers in odor-prone, "hot-spot" areas. The City also seals sewer manholes in specific areas where odors can be problematic.

Pump Stations Maintenance

As a part of the routine preventive maintenance program, the Wastewater Collection Division's staff conducts scheduled preventive maintenance of pumps and related accessories. On the average, each station is visited for inspection purposes daily. A crew spends about 30 minutes to 2 hours in a station for every scheduled preventive maintenance visit.

Almost all of the City's 83 sewage pump stations have built-in backup emergency and redundancy systems. Only several comfort station pump stations located in Mission Bay Park lack these features (these small comfort station pump stations utilize a solenoid valve to shut off the water supply to the comfort station whenever a power failure or sewer pump failure occurs).

Construction-Related Overflow Prevention

In a determined effort to reach the City's goal of no preventable overflows, the City of San Diego has issued construction contract provisions that require construction contractors to prepare and utilize sanitary sewer overflow plans and procedures when they perform City contract work. These provisions further require that flow control requirements be explained to potential bidders at the pre-bid meeting. The contractor is required to provide an Emergency Response Plan for controlling sewage flow during the construction. The City of San Diego's Engineering and Capital Projects Department (E&CP) reviews and approves the contractor's Emergency Response Plan prior to start of construction.

A map of all sewer construction projects is periodically updated by the E&CP staff. Contact information for each ongoing construction project, including the names and telephone or pager numbers of the inspector, the inspector's supervisor and contractor's contact person, is available for computer system use by all City Department's staff.

E&CP staff communicate the City's "no-spills" policy and project plans and specifications to the contractor, enforcing plans and specifications and ensuring the contractor responds appropriately in case of emergencies. Notifying the contractor of its responsibility to prevent overflows and respond with quick mitigating action if an overflow does occur. A City inspector is required to be present on-site to inspect construction project-related sewage bypasses equipment prior to the start of construction activities.

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

The City has a Rehabilitation and Replacement Plan. As a part of this Plan, structural deficiencies are identified and needed improvements are developed and implemented systematically. The Rehabilitation and Replacement Plan implementation entails a variety of short- and long-term activities that ensure the sustainability of the sanitary sewer system infrastructure.

Short Term:
City staff and private contractors perform CCTV inspection in support of operational activities. The City uses state-of-the-art CCTV equipment to inspect and assess the condition of sewers. Each sewer pipe segment is assigned a condition rating. The very worst sewer pipes are immediately rehabilitated on an emergency basis. Sewer pipes which are not considered to be in imminent danger of failure are placed in a capital improvement program as a CIP project in a priority order based primarily on sewer structural conditions. These sewer pipes are scheduled

for replacement or rehabilitation, as appropriate, with a goal of completion within ten years. Follow-up CCTV inspections are conducted at sewer overflow locations usually within 24 hours of the overflow event to identify the extent of necessary repairs or any special maintenance needs.

Long Term:
In its sewer overflow prevention program, the City conducts comprehensive and systematic inspections and assessments of all components of its sewer system. Inspections are used to identify problems requiring repair and prioritize needed improvement projects for inclusion in the City's capital improvement program.

CCTV inspections are prioritized using a ranking system that incorporates age, size, construction material, maintenance condition, spill history, and known problem sewers. Some sewers are also inspected, depending on size and flow levels. Inspection and maintenance of remaining primary sewers at the City's discretion may be contracted to private contractors.

In addition to the CCTV Program, the City implemented a program to visually inspect and document the condition of each of the approximately 59,000 maintenance holes in the City's approximately 3017-mile gravity sewer system on a five-year cycle. CCTV inspections together with routine flow measurement and physical inspections provide up-to-date data that is used by the City to evaluate the hydraulic and structural condition of its sanitary sewer system. From this assessment, deficiencies are identified, evaluated, improvement projects identified and scheduled.

The City has identified short and long-term plans through the development of a Rehabilitation and Replacement Report and Plan (Rehab Plan). This report was completed in Calendar Year 2002, and plays an integral part in documenting the City's legal/regulatory compliance and the overall activities aimed at reducing overflows and protecting public health and the environment. The Rehab Plan provides a summary of current project mileage and forecasted mileage for future projects.

Individual Rehabilitation and Replacement Projects are identified and described in the Capital Improvement Program (CIP). A CIP budget and plan is prepared annually and is available for review on the City of San Diego website: www.sandiego.gov.

(d) Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained;

Training comes under various City programs. It includes formal classroom training, informal on-the-job and hands-on training. Training is facilitated by both City staff and by outside training consultants. Most of the internal functional and safety training is currently provided through the Public Utilities Department's Administrative Services Division staff. Training courses are added and existing courses are modified to stay current with the rapidly changing technology and requirements, including computer-aided and online training. On-the- Job cross training is actively pursued to ensure staff has a proficient working knowledge of each and every specific part of a task. City staff is cross-trained on an as-needed basis so that critical tasks can be done without interruption even when the crew members change. Task proficiency is a requirement for all job positions and promotions, and training records are entered and maintained in the Training Information Management System (TIMS) to monitor completed classes and schedule future employee training. Each employee has an annual training plan that is developed in cooperation with their supervisor and is coordinated with the PUD Safety and Training Program staff. The employee's training plan ensures that the full requirement of their position is met, professional standards maintained, their knowledge and skill base expanded, and leadership skills developed and leveraged for the benefit of the organization.

Crews are initially trained in the proper operation and maintenance of all new major mobile equipment and facilities by the contractor/manufacturer. Written operation and maintenance manuals are used as resource material for initial start-up training as well as new staff training. Wastewater Collection Division supervisory staff are responsible for providing operational training on sewer cleaning equipment. Consultant trainers regularly provide technical training for sewer crew members on sewer cleaning equipment.

Safety training is an integral part of the City's program. Every staff member receives formal training. Staff that require Confined Space Entry training are provided this training on an on-going basis. Employees are trained in hazardous materials management, as required by regulations on an on-going basis.

The City of San Diego prepares employees to respond to major emergencies and disasters and has established an Emergency Operation Center (EOC) and emergency response teams. Emergency training exercises are conducted and documented on a regular basis. The EOC is assisted in these efforts by PUD's Department Operations Center (DOC).

In order to ensure a complete and thorough inspection of a food service establishment (FSE), Standard Operating Procedures (SOPs) have been developed to guide Food Establishment Waste Discharge (FEWD) Program inspectors through inspection processes in a systematic fashion. All new FEWD inspectors undergo an initial training program prior to being assigned to FSE inspections alone. Once at the journey-level, FEWD inspectors receive annual updated training as a part of their regular employee training plan processes.

The City identifies training needs for staff development in its annual budget and provides adequate funding for tuition reimbursement.

(e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

As noted previously, City crews maintain pump stations and perform repair or replacement of underground pipelines. Routine repair and replacement of underground pipelines associated with Capital Improvement Program projects are contracted out to licensed contractors who have the equipment, materials and staff to complete the work. The City maintains an electronic inventory of equipment, replacement parts, and supplies and follows a structured process to ensure an up-to-date accounting and complete inventory of equipment and replacement parts for their specific duties. PUD maintains a tool room for specialized hand and power tools. PUD personnel also have full access to City wide storerooms, to procure a wide variety of consumable tools, equipment and supplies that are associated with their daily tasks.

The PUD utilizes Planning and Scheduling staff to schedule routine maintenance activities for sewer maintenance, pump station, and construction section personnel.

Parts that are needed for preventive maintenance are identified ahead of time for each specific maintenance task. Parts are secured prior to the start of preventive maintenance. Redundancy is provided for key pump station equipment and all pump stations have backup power to minimize the risk of a complete shut-down. There has been little need to purchase parts through City emergency procurement measures, which attests to the City's readiness.

The City maintains equipment such as portable pumps, portable generators, traffic control devices and night lighting systems in a ready state for immediate deployment in an emergency. The City has a procedure for pre-qualifying manufactures and equipment vendors and, in some cases, purchasing sole-source equipment to standardize equipment and parts. This additional procurement option reduces inventories, simplifies procurement procedures, and reduces training and operation & maintenance costs.

References:

City of San Diego SANGIS GIS system and documentation

Metropolitan Wastewater Department, Wastewater Collection Division's Operation & Maintenance Manuals

Wastewater Collection Division Enterprise Maintenance Planning and Control (EMPAC) software and database installation

Wastewater Collection Division PSTools, CSTools, FSTools, SHARQ, and SWIM software and database installations

City of San Diego, Metropolitan Wastewater Department, Wastewater Collection System Plans, September 2002

City of San Diego and Metropolitan Wastewater Department Training Materials

Training, Information, and Management System (TIMS)

5.0 DESIGN AND PERFORMANCE PROVISIONS

(a) Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems;

New sewers and pump stations are planned, designed and constructed per the City of San Diego (City) Sewer Design Guide, www.sandiego.gov/mwwd/pdf/sewerdesign.pdf. This guide summarizes and outlines relevant City policies, applicable codes, and engineering standards for planning and design of wastewater infrastructures, which consist of new sewer mains, pump stations, force mains, and other appurtenances.

Sections include:

- Flow projections and sewer hydraulics
- Alignments and grade of mains
- Separation of mains
- Sewer materials and structures
- Planning and design for sewer replacement
- Easements and encroachments
- Sewer construction
- Pump stations and force mains
- Sewer system operations and maintenance

Public Utilities Department (PUD) is responsible for updating and maintaining the City's "Sewer Design Guide" and "Approved Materials List". The Sewer Design Guide is updated every 3 years to incorporate improved materials, methods, and processes. The City's Wastewater Collection Division provides input for improved performance of system components based on experience gained in operations and maintenance. Proposed changes to design criteria are evaluated by the Sewer Design Guide Committee before implementation.

As new products are introduced, they go through a review and evaluation process by City staff or by the Standard Specifications for Public Works Construction (Green Book). Prior to adding new products to the City Approved Materials List, the City Approved Materials Committee makes recommendation to the Public Utilities Director for approval. Once approved, the new products will then be added to the City Approved Materials List. The City participates on the Green Book Committee and references applicable "Green Book" specifications as appropriate for the construction of new sewer projects.

The Engineering & Capital Projects Department (E&CP) is responsible for updating the San Diego Regional Standard Drawings and the City's master specifications for construction projects.

E&CP is responsible for enforcing compliance with the plans and specifications for installing new sewers, pumps and other appurtenances.

All system components are designed to meet permit requirements of the various federal, state and local agencies. In addition, environmental documents are prepared to comply with the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both as appropriate. This process ensures that projects meet regulatory requirements and benefit from the input of all affected and interested parties including the communities.

(b) Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

The Field Engineering Division of the E&CP Department provides inspection on all new and rehabilitated sewer and pump station construction contracts. Inspection procedures are followed to ensure that sewer system facilities are built per the plans and specifications. Inspections are conducted both at the jobsite and as required at material fabricators during manufacturing and testing. The Field Engineering Division coordinates its work with the project engineer to ensure design criteria is met. The City issues final acceptance for projects when they have met all required performance tests as well as a field acceptance from the operational staff.

References:

City of San Diego, Sewer Design Guide

San Diego Regional Standard Drawings

City Approved Materials List

Standard Specifications for Public Works Construction, referred to as the "Green Book"

6.0 OVERFLOW EMERGENCY RESPONSE PLAN

DOCUMENT IS UPDATED WITH CURRENT INFORMATION ON A REGULAR, ON-GOING BASIS. LATEST VERSION IS INCLUDED IN THIS PLAN DOCUMENT

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

Sewer Overflow Response and Tracking Plan

City of San Diego
Public Utilities Department
October 2011 DD-D-001.0 Rev 7

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

This Sewer Overflow Response and Tracking Plan (Plan) addresses Section VII. B of the Final Consent Decree in the matter of United States, et al.v. City of San Diego, dated May 8, 2007. The Plan documents processes and procedures that ensure that all sanitary sewer overflows are identified, responded to, investigated, and reported in an effective and timely manner. This document supersedes any and all previous versions of the Plan.

The Appendices of this document include several documents that support the Sewer Overflow Response and Tracking Plan. The Appendices include:

- **Appendix A - Sewer Overflow Response and Tracking Diagram**
  This diagram illustrates the current overflow response and tracking processes performed by the City of San Diego Wastewater Collection Division. It tracks the process from the time the City receives a customer complaint through the response, resolution, and reporting process.

- **Appendix B - WWC Event Notification List**
  This list identifies all parties that are notified in the event of a sanitary sewer overflow. The parties that are notified are dependent on the type, magnitude, and location of the event.

- **Appendix C – Estimation of Spill Volume**
  This appendix identifies several approaches that can be used to estimate the volume of a sanitary sewer overflow. The person preparing the estimate is responsible for choosing the most appropriate approach to the sewer overflow in question. The choice of volume estimation method will depend on the best information that is available at the time the flow volume is estimated.

- **Appendix D - Sewer Overflow Internal and External Reporting Forms**
  This appendix contains the internal and external reporting forms used to document and report sanitary sewer overflows. These forms include modifications to sewer overflow reporting to incorporate trunk sewer name and canyon name for sanitary sewer overflows from trunk sewers or canyon sewers. These modifications address EPA Administrative Order Section II.A.1 that identifies requirements for enhanced spill reporting.

  - Internal Report (Pages D-2 and D-3) - This form captures data used to track sanitary sewer spills.

- External Report (Pages D-4 and D-5) - This form is used to report sanitary sewer overflows to the Regional Water Quality Control Board (RWQCB) and the San Diego County Department of Environmental Health (DEH).
- External Private Spill Report (Page D-6) - This form is used to report private spills to the RWQCB and the DEH for sanitary sewer overflows that are responded to by the City of San Diego.

- **Appendix E – Sewer Overflow Tracking Reports**
  This appendix contains samples of current reports used by the City of San Diego Wastewater Collection Division to track sanitary sewer overflows. Reports are periodically reviewed and revised to increase tracking and reporting accuracy and to capture and report new data.

2.0 REGULATORY REQUIREMENTS

2.1 Final Consent Decree with United States, et al. (CIV. No. 03 – CV – 1349K (POR)) (Paragraph VII. B.):

1. In addition to the information required to be reported pursuant to Statewide WDR No 2006-0003-DWQ and Regional Board Order R9-2007-0005, the City's NPDES permit (CA0107409), and any other applicable local, state or federal requirement, the City's Quarterly SSO reports required under Section VII (Compliance Actions) Paragraph H of this Final Consent Decree (CIV No. 03 – CV – 1349K (POR)) shall include at a minimum:

    a. The name of the trunk sewer (for SSOs relating to trunk sewers);

    b. The name of the canyon (for SSOs relating to canyons);

    c. The total SSO volume (excluding SSBs), the volume returned to the system, and the volume not captured; and

    d. The total SSB volume.

2. The City shall have crews on duty and available for response to SSOs twenty-four (24) hours per day every day of the year with the exception of the ten (10) holidays designated by the City. On each of the ten (10) holidays, the City shall have a duty supervisor on call who is able to immediately mobilize response crews. The City shall make all reasonable efforts to respond to a SSO within thirty (30) minutes of notification.

3. For any SSB about which a private customer contacts the City for assistance or the City otherwise responds to, if either a licensed plumber or the City concludes that an SSB has occurred, the City must follow the same response procedures as it follows for other SSOs.

4. The City shall maintain a SSO response log including response times. The City may maintain a separate log for SSBs.

5. The City shall operate and maintain a flow metering alarm system that covers at least ninety percent (90%) of the flow weighted length of the City's three hundred forty (340) miles of trunk sewers, including all canyon trunk sewers. The system must be capable of detecting and notifying City staff within ninety (90) minutes of reductions in flow of twenty-five percent (25%) or more of the average dry weather flow during dry weather conditions.

2.2 Statewide General Waste Discharge Requirements (WDR) for Wastewater Collection Agencies (SWRCB Order No 2006-0003 DWQ)

1. **Overflow Emergency Response Plan** – Each Enrollee shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:
   a. Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;
   b. A program to ensure an appropriate response to all overflows;
   c. Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, Regional Water Boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the Monitoring and Reporting Program (MRP). All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The Sewer System Management Plan (SSMP) should identify the officials who will receive immediate notification;
   d. Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;
   e. Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and
   f. A program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting for the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

2.3 Regional Water Quality Control Board (Order No. R9-2007-0005)

Order No. R9-2007-0005 of the California Regional Water Quality Control Board San Diego Region, "Waste Discharge Requirements for Sewage Agencies in the San Diego Region," adopted on February 14, 2007, prohibits sanitary sewer overflows and supplements the requirements prescribed in SWRCB Order 2006-0003-DWQ, for all federal and local sewage collection agencies in the San Diego Region.

1. 1. Reporting Requirements
   a. All Category 1 SSOs must be reported as soon as possible, but no later than 24 hours after the agency becomes aware of the overflow. The agency must use the State Board Online SSO System for reporting these overflows, but an additional notification to the Regional Board by telephone, fax, or e-mail is highly advisable. In the event that the Online SSO System is not available, the agency is required to fax a report to the Regional Board and then enter all required information into the Online

SSO System as soon as practical. The Regional Board fax number is (858) 571-6972. Notifications by telephone or e-mail can be made to (858) 467-2952 or e-mail at rb9_questions@waterboards.ca.gov or you may call your Regional Board contact.

b. As specified by Requirement No. A.4 of Monitoring and Reporting Program No. 2006-0003-DWQ, a final certified report must be completed through the Online SSO system, within 15 calendar days of the conclusion of SSO response and remediation for a Category 1 SSO. Further note that as specified by Requirement No. A.5, all Category 2 SSOs must be reported to the Online SSO System within 30 calendar days after the end of the calendar month in which the SSO occurs.

c. Order No. R9-2007-0005 requires Sewage Collection Agencies to report those Category 1 and 2 private lateral sewage discharges that they are aware of.

2.4 NPDES Permit Requirements (Permit No. CA-0107409; RWQCB Order No. R9-2002-0025)

The operation and maintenance of the City of San Diego PUD wastewater collection system is regulated by the provisions of the Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permit for the City of San Diego E.W. Blom Point Loma Wastewater Treatment Plant issue by the California Regional Water Quality Control Board, San Diego Region (Order No. 2002-0025) and the United States Environmental Protection Agency, Region IX (NPDES Permit No. CA0107409 dated August 15, 2002).

Specific requirements for the City's Municipal Wastewater Collection System include:

1. *Sewer Overflow Reporting:* The discharger shall report sewer overflow events in accordance with the following procedures:

    a. Definition

    For purposes of this Reporting Requirement, a sewer overflow event is a discharge of treated or untreated wastewater at a location not authorized by waste discharge requirements and/or NPDES permit which results from a pump station failure, sewer line break, obstruction, surcharge, or any other operational dysfunction. This Reporting Requirement applies to all sewer overflow events other than those events subject to regulation under this Regional Board's Order No. 96-04, *General Waste Discharge Requirements Prohibiting Sanitary Sewer Overflows by Sewage Collection Agencies:*

b. 24-Hour Reporting to the Regional Board

If a sewer overflow event results in a discharge of 1,000 gallons or more, or results in a discharge to surface waters (any volume), the discharger shall:

Report the sewer overflow event to the Regional Board by any available means, including telephone, voice mail, or FAX, within 24 hours from the time that: (1) discharger has knowledge of the sewer overflow, (2) notification is possible, and (3) notification can be provided without substantially impeding cleanup or other emergency measures. Notification may be made after normal business hours by leaving a message for the Regional Board on voice mail or FAX.

For the purposes of this Reporting Requirement, surface waters include navigable waters, rivers, streams (including ephemeral streams), lakes, playa lakes, natural ponds, bays, the Pacific Ocean, lagoons, estuaries, man-made canals, ditches, dry arroyos, mudflats, sandflats, wet meadows, wetlands, swamps, mashes, sloughs and water courses, and storm drains tributary to surface waters. The term includes waters of the United States as used in the CWA (see 40 CFR 122.2)

The information reported to the Regional Board in the initial report shall include the name and phone number of the person reporting the sanitary sewer overflow, the responsible sanitary sewer system agency, the estimated total sewer overflow volume, the location, the receiving waters, whether or not the sewer overflow is still occurring at the time of the report, and confirmation that the local health services agency was or will be notified as required under the reporting requirements of the local health services agency.

c. Five-Day Reporting to the Regional Board

If the sewer overflow event results in a discharge of 1,000 gallons or more, or results in a discharge to surface waters (any volume), the discharger shall:

Complete a copy of the Sanitary Sewer Overflow Form attached to Monitoring and Reporting Program No. 96-04, and submit the completed Sanitary Sewer Overflow Report form, along with any additional correspondence, to the Regional Board no later than 5 days following the starting date of the sanitary sewer overflow. Additional correspondence and follow-up reports should be submitted to the Regional Board, as necessary, to supplement the Sanitary Sewer Overflow Report Form to provide detailed information on cause, response, adverse effects, corrective actions, preventative measures, or other information.

d. Quarterly Reporting to the Regional Board

The discharger shall report all sewer overflows, regardless of volume or final destination, in the next quarterly self-monitoring report, in accordance with the format described in Order No. 96-04. (Note: RWQCB Order No. 96-04 has been replaced by Order No. R9-2007-0005.)

2. *Sewer Overflow Prevention Plan:* The discharger shall maintain a Sewer Overflow Prevention Plan (SOPP) in an up-to-date condition and shall amend the SOPP whenever there is a change (e.g., in the design, construction, operation, or maintenance of the sewerage system or sewerage facilities) which materially affects the potential for sewer overflows. The discharger shall review and amend the SOPP as appropriate after each sewer overflow from the Point Loma Metropolitan Wastewater Treatment Plant (PLMWTP) and downstream facilities. The SOPP and any amendments thereto, shall be subject to the approval of the Executive Officer and shall be modified as directed by the Executive Officer. The discharger shall submit the SOPP and any amendments thereto to the Executive Officer upon request of the Executive Officer. The discharger shall ensure that the up-to-date SOPP is readily available to sewerage system personnel at all times and that sewerage system personnel are familiar with it.

3. *Sewer Overflow Response Plan:* The discharger shall maintain a Sewer Overflow Response Plan (SORP) for the PLMWTP and downstream facilities. The SORP shall establish procedures for responding to sewer overflows from the PLMWTP and downstream facilities so as to: (a) minimize the sewer overflow volume which enters surface waters, and (b) minimize the adverse effects of sewer overflows on water quality and beneficial uses. The discharger shall maintain the SORP in an up-to-date condition and shall amend the SORP as necessary to accomplish these objectives. The discharger shall review and amend the SORP as appropriate after each sewer overflow from the Point Loma Ocean Outfall (PLOO) and the area tributary to the PLOO. The SORPs, and any amendments thereto, shall be subject to the approval of the Executive Officer and shall be modified as directed by the Executive Officer. The discharger shall submit the SORP and any amendments thereto to the Executive Officer upon request of the Executive Officer. The discharger shall ensure that the up-to-date SORP is readily available to sewerage system personnel at all times and that sewerage system personnel are familiar with it.

2.5 RWQCB Order No. R9-2007-0001; USEPA NPDES No. CA20108758

Order No. R9-2007-0001 of the RWQCB, "Waste Discharge Requirements for Discharge of Urban Runoff from the Municipal Separate Storm Sewer System (MS4)" for the City of San Diego prohibits sanitary sewer overflow from reaching surface waters.

Specifically, this Order prescribes that the City of San Diego shall:

1. Prevent Infiltration From Sanitary Sewer to MS4/Provide Preventive Maintenance of Both

   Each Committee shall implement controls and measures to prevent and eliminate infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. Each Committee that operates both a municipal sanitary sewer system and a MS4 shall implement controls and measures to prevent and eliminate infiltration of seepage from the municipal sanitary sewers to the MS4s that shall include overall sanitary sewer and MS4 surveys and thorough, routine preventive maintenance of both.

2. Prevent and Respond to Sewage Spills (Including From Private Laterals and Failing Septic systems) and Other Spills

   Each Committee shall prevent, respond to, contain and clean up all sewage and other spills that may discharger into its MS4 from any source (including private laterals and failing septic systems). Spill response teams shall prevent entry of spills into the MS4 and contamination of surface water, ground water and soil to the maximum extent practicable. Each Committee shall coordinate spill prevention, containment and response activities throughout all appropriate departments, programs and agencies so that maximum water quality protection is available at all times.

   Each Copermittee shall develop and implement a mechanism whereby it is notified of all sewage spills from private laterals and failing septic systems into its MS4. Each Copermittee shall prevent, respond to, contain and clean up sewage from any such notification. The City of San Diego PUD Wastewater Collection Division assumes responsibility for this RWQCB Order for sewage spills resulting from a blockage of sewer pipes or manholes that are a part of the City of San Diego Municipal Sewerage System.

3.0 DEFINITIONS

ASAP

This stands for "As Soon As Possible." Notification and reporting requirements with this time requirement should be completed at the earliest possible time that does not interfere with or delay the sewer overflow response.

BSO

Bad Sewer Odor

COMC

This refers to the MWWD Central Operations Management Center located at the Metropolitan Operations Center (MOC II) on Topaz Way in Kearney Mesa. COMC shall be staffed full time (24 hours per day, every day of the year).

Department of Environmental Health

This refers to the County Department of Environmental Health.

Duty Supervisor

The Duty Supervisor is the Emergency Response Section Senior Water Utility Supervisor on the day shift, the Night Shift Supervisor, the Weekend Shift Supervisor, or the Standby Supervisor.

EPA

This refers to the United States Environmental Protection Agency.

GWUS

This refers to General Water Utility Supervisor; one of the Section Heads responsible for Sewer Cleaning, Television and Repair, Pump Stations, or Work Planning and Scheduling.

MWWD

This refers to Metropolitan Wastewater Department

OCA

This refers to an employee who has been assigned to work in an Out of Class Assignment.

Overflow

See Sanitary Sewer Overflow.

PUD

This refers to Public Utilities Department

Public Waters

Any body of water such as the ocean, bay, river, lake, stream, or creek where there is the potential for human contact as defined by the County Department of Environmental Health.

Public Water SSO

A public water spill is determined when signs warning of contamination are posted at a Bay, River, Beach, Creek, Stream or where an area of recreational water usage by the public is possible. Department of Environmental Health (DEH) will advise PUD/WWC when a posting is needed and will publish a press release. WWC will only report a public water spill (Event Notification) at the direction of DEH. RWQCB relies on DEH to determine when sewager has entered a public water.

RWQCB

This refers to the San Diego Regional Water Quality Control Board.

SAMS

This refers to the Sewer Alarm Monitoring Section. This section monitors the Pump Station Alarms and the permanent flowmeteres.

Sanitary Sewer Backup (SSB)

A wastewater backup into a building or solely onto private property from a private lateral that is caused by a blockage or other malfunction in the Collection System.

Sanitary Sewer Overflow (SSO)

A discharge of sewage from the public collection system of the City of San Diego's sanitary sewer system at any point upstream of the sewage treatment plant. SSOs include SSBs.

Significant Sewer Overflow

Any sewer overflow that reaches public waters or that poses a significant threat to the environment, water quality, or the public health. Significant sewer overflows shall be reported to the State Office of Emergency Services, the Regional Water Quality Control Board, and the Department of Environmental Health soon as possible after the overflow is known to have occurred.

Sewage

Any untreated or partially treated wastewater. Reclaimed water is not included in this definition.

Spill

See Sanitary Sewer Overflow

Station 38

The City of San Diego Dispatch Center located at the Chollas Yard, 2871 Caminito Chollas. Telephone number (619) 527-7660. Station 38 shall be staffed full time (24 hours per day, every day of the year).

Storm Water Conveyance System

A creek, bay, stream, river, pond, swale, street, curb and gutters are considered part of the storm water conveyance system.

Surface Waters

A creek, bay, stream, river, pond, ocean, and all storm drains (open concrete or soil) are considered surface waters. The curb and gutter and all portions of paved roadways are NOT considered surface waters. Surface waters start at storm inlet box per the storm water NPDES. Any overflow that enters a storm drain that is tributary to "Waters of the State" shall be reported as a discharge to surface waters.

SWIM

The Sewer and Water Infrastructure Management System is the City of San Diego's proprietary computerized maintenance management system.

SWUS

This refers to Senior Water Utility Supervisor.

WWC

This refers to Wastewater Collection Division

4.0 RECEIPT OF INFORMATION REGARDING A SEWER OVERFLOW

4.1 *Telephone Calls:*

1. All telephone calls from the general public, City employees and officials, plumbers, contractors, and other public and private agencies regarding suspected sewer overflows are routed to Station 38 at (619) 515-3525. The Station 38 operator shall obtain all relevant information regarding the sewer overflow including:
    - Date and time that the call was received.
    - Specific location (address, street name, cross street, city).
    - Characteristics and severity of the overflow.
    - Date and time that the overflow was first noticed by the caller.
    - Caller's name and phone number.
    - Other relevant information.

2. If a caller is uncertain as to the nature of a reported leakage (e.g. fresh water, storm water, street drainage, sewage, etc.), then the Station 38 operator shall obtain additional information to ensure that the appropriate field crew is dispatched. Additional follow up questions should include:
    - Color, consistency, odor, and other appearance characteristics.
    - Precise location relative to streets, alleys, or off-road areas.
    - Type of structure (e.g. manhole, gate valve cover, meter box).

3. The Station 38 operator shall enter sewer overflow information in the SWIM and assign a unique Service Request Number.

4.2 Other Sources of Information Regarding Sewer Overflows:

Sewer Pump Station Alarms shall be monitored by COMC Staff. The COMC Staff shall immediately notify Pump Station personnel via pager or telephone upon receipt of a pump station alarm event. COMC staff shall notify appropriate field crews for gravity sewer main problems/issues.

Trunk Sewer Flow Meters shall be monitored by the contract vendor. The vendor shall immediately notify the duty COMC operator of any potential trunk sewer overflow to detect major deviations in sewage flow. COMC operator shall immediately notify the Duty Supervisor by pager and then by telephone of potential trunk sewer overflows. WWC Staff (SAMS) reviews daily hydrographs of flow meters to ensure flow meters function property, are serviced, and are maintained.

5.0 DISPATCH OF APPROPRIATE CREWS TO SITE OF SEWER SPILL

1. Station 38 and/or COMC operators shall immediately notify the Duty Supervisor first by pager and then by mobile radio regarding sewer overflows:

Table 5-1: Notification Information

Shift	Day and Time	Shift/Duty Supervisor*
Day	Monday- Friday (except holidays) 7:00 am – 3:30 pm	Emergency Response Section SWUS
Night	Monday – Thursday (except holidays) 3:30 pm – 1:00 am	Night Shift SWUS
Weekend	Friday 7:00 am – 9:00 pm Saturday – Sunday 7:00 am – 9:00 pm (except Holidays)	Weekend Shift SWUS
Grave Yard	Sunday – Saturday (except holidays) 8:30 p.m. – 7:30 a.m.	Graveyard Shift Water Utility Worker
	Holidays	Standby Supervisor

*This includes employees working in an OCA capacity. Reference MCM organizational chart.

2. Shift/Duty Supervisors shall respond to notifications by Station 38 and/or COMC operators with instructions regarding appropriate crews, materials, supplies, and equipment to be dispatched.

3. Station 38 and/or COMC operators shall immediately dispatch field crews by pager, mobile radio, or telephone.

4. Station 38 and/or COMC operators shall ensure that the entire message has been received and acknowledged by the field crews who were dispatched. No message is considered complete unless acknowledged by the field crew.

5. Station 38 and/or COMC operators shall refer all pertinent information to the next shift including any details of the problems described by customers including unconfirmed reports of sewage overflows.

6. Duty Supervisors shall monitor all dispatches due to sewer overflows to assure that an appropriate resolution has been achieved.

6.0 COMMUNICATION AND RESPONSIBILITIES DURING SEWER OVERFLOW RESPONSE

1. Station 38 operators shall receive, convey to appropriate parties, and dispatch requests for additional personnel, material, supplies, and equipment from crews working at the site of a sewer overflow.

2. If the Station 38 operator has not received a report of findings from the responding field crew within 30 minutes of their arrival at the spill site, the Station 38 operator will contact the field crew to determine the status of their investigation. If the responding field crew has been unable to locate the reported leakage, the Station 38 operator shall provide assistance by contacting the original caller(s) to either provide additional information or to meet with the field crew at the spill site.

3. Any delays or conflicts in assignments are to be immediately reported to the Duty Supervisor or to the Station 38 operator for resolution.

4. If a spill cannot be located or a BSO complaint does not result in discovery of a sewer spill, the Duty Supervisor may determine a sample of nearby public waters be taken.

5. The responding field crew shall meet with the original caller, if at all possible, before making a determination that the overflow cannot be confirmed.

6. Shift/Duty Supervisors and Standby Supervisors shall complete their investigation of any sewer call they receive during their shift. If they are unable to personally investigate the call then they shall request an update from the Station 38 operator as to the findings of the responding field crew.

7. Shift/Duty Supervisors are required to ensure all calls given to them have been investigated by taking the following actions:
   - The SWIM System Dispatch Screen shall be reviewed at the end of each shift to ensure that all calls given to Emergency Service Units have been investigated.
   - Calls appearing on the SWIM Dispatch Screen that were not investigated shall be referred to the next shift.

8. The Duty Supervisor shall notify the Standby Supervisor of any ongoing sewer overflows at the end of their shift.

7.0 OVERFLOW RESPONSE, CONTAINMENT, CORRECTION, AND CLEAN-UP

1. All employees dispatched to a spill site shall proceed immediately to the site of the overflow. The City's goal is to arrive at the spill site within 30 minutes of the initial report.

2. It is the responsibility of the first City Employee who arrives at the site of a sewer overflow to protect the health and safety of the public:
   - Confirm that an overflow has occurred and immediately report the confirmation to the Station 38 operator.
   - Determine the cause of the overflow (e.g. sewer line blockage, pump station mechanical or electrical failure, sewer line break).
   - Identify and request, if necessary, assistance or additional resources to correct the overflow, to assist in determining its cause, and/or to contain the spilled sewage.
   - Take immediate steps to stop the overflow (e.g. relieve pipeline blockage, manually operate pump station controls, repair the pipe).

3. Areas where public contact with sewage is possible shall be isolated using barricades, signs, or other effective means.

4. The City Crew responding to the incident shall initiate measures to contain the overflowing sewage and to recover as much spilled sewage as possible:
   - Determine the immediate destination of the overflow (e.g. storm drain, canyon floor, street curb gutter, body of water, creek bed).
   - Identify and request, if necessary, assistance or additional resources (materials and equipment) to contain or isolate the overflow.
   - Take immediate steps to contain the overflow (e.g. block storm drain, recover sewage with a vacuum truck, dig or construct containment pond, divert into downstream manhole).
   - When **SSO volume exceeds** the containment capabilities of the Main Cleaning Maintenance Section immediately contact the construction section SWUS for additional resources.
   - The construction SWUS will then dispatch appropriate personnel/equipment and assume containment responsibilities.
   - After normal business hours, 07:00 to 15:30 the Duty Supervisor or Graveyard Shift Emergency Response section staff will contact Standby Supervisor for additional containment personnel and/or equipment.

5. The Duty Supervisor will proceed to the site of each confirmed overflow to assure that all provisions of this Sewer Overflow Response and Tracking Plan and other City directives are met.

6. In the event that bypass pumping is required, contact the construction SWUS/Duty Supervisor:
   - Install the required pump-around equipment using Table 7-1as a guide for pump selection.

Table 7-1: Pump Capacity Estimating Table

Pump Size, Inches	TDH(*ft*)	Estimated Capacity, GPM
2 X 2	Min. 20' – Max.100'	Max. 200 - Min. 0
4 X 4	Min. 25'- - Max. 117'	Max. 611- Min. 0
6 X 6	Min. 20' – Max. 160'	Max. 1,750 – Min. 0

   - Additional pump-around equipment can be obtained from the Emergency Vendor List maintained by the WWC Construction Section. After hours contacts are listed for each vendor.
   - Monitor the by-pass pumping operation periodically or continuously as required.

7. Sewage spill sites shall be thoroughly cleaned as soon as possible after an overflow. No residue will be left that may impact future water quality.
   - The sewage spill site shall be secured to prevent public contact until the site has been thoroughly cleaned.
   - Wherever possible, the affected area shall be thoroughly flushed and cleaned of any sewage. Wash-down water shall be contained. Solids and debris shall be flushed, swept, raked, or picked-up by hand, and hauled away for proper disposal.
   - Wherever appropriate (typically in areas with hard surfaces), the affected area shall be deodorized. The materials used for this purpose shall be confined to the immediate area.
   - City Staff shall conduct an assessment of the impacts following a sewage spill. Appropriate mitigations shall be implemented following the assessment.
   - Any impacted storm drain inlet shall be cleaned with fresh water and vacuumed immediately. If sewage flow has entered the storm drain pipe and if the downstream storm drain outlet is accessible by flusher truck, the storm drain shall be flushed with water from the flusher truck's process water tank and vacuumed up at the downstream outlet. In this way, public sewer discharges to the storm water system will be cleaned up as soon as possible to the greatest extent practicable.
   - When possible inlet basins to the storm water system will be protected with straw wattles or sand bags to avoid sewage from entering a storm water inlet basin.
   - Any soil/debris in street gutters that comes in contact with sewage shall be removed and disposed of with other sewage-related materials.

8.0 PUBLIC NOTIFICATION OF SEWAGE CONTAMINATION

1. Warning signs shall be posted in the vicinity of any water body that is suspected of being contaminated by sewage as determined by County Department of Environmental Health. This will be done as soon as practicable following the initial response to the overflow. Signs should be posted on either side of the point of entry where sewage entered the body of water and the nearest public access point to that body of water. A minimum of seven signs, 50 feet apart, will be posted. Contamination signs shall be doubled-sided so that they are plainly visible.

2. If City Lifeguards are present, they shall be notified immediately to assist in warning bathers. If there are no on-duty lifeguards, the employee or crew shall attempt to gain the attention of the bathers to make them aware of the spill.

3. The Duty Supervisor shall direct field crews to place additional warning signs when requested by the Department of Environmental Health.

4. Field crews posting warning signs will notify the Station 38 operator when the warning signs have been posted.

5. Sewer Pump Station Patrol Units shall inspect posted warning signs twice daily during April through October, and once daily from November through March. Any missing warning signs shall be replaced.

6. Warning Signs shall not be removed except at the direction of Department of Environmental Health.

7. The following provisions shall apply to posting and removing warning signs around Mission Bay.
    - The Department of Environmental Health will notify City Lifeguards of sewage closures or openings of Mission Bay.
    - City Lifeguards will notify:
        - Wastewater Collection Division to post, inspect, and remove warning signs due to sewage-related closures of Mission Bay.
        - Mission Bay lessees and other interested parties.

9.0 REPORTING REQUIREMENTS

1. The Duty Supervisor shall ensure that all appropriate notifications are made in accordance with the Event Notification List documented in *Appendix B*. The Duty Supervisor shall also ensure that all reports are submitted in an accurate and timely manner:

Table 9-1: SSO Reporting Requirements

Type of Overflow	Report to	Timing	Method
Significant	State Office of Emergency Services San Diego RWQCB Department of Environmental Health WWC Event Notification List Microbiology Laboratory San Diego Storm Water Pollution Prevention Program	ASAP ASAP ASAP ASAP ASAP	Phone Phone Phone Phone Phone
All Overflows	PUD Management (Event Notification list under Management contact) WWCD Deputy Director San Diego Storm Water Pollution Prevention Program	ASAP ASAP	Electronic Electronic
All Overflows	San Diego RWQCB Department of Environmental Health USEPA	Quarterly Quarterly Quarterly	Electronic Electronic Electronic
Overflows Caused by Vandalism	San Diego Stormwater Pollution Prevention Program San Diego Police Department	ASAP ASAP	Phone via Sta. #38
Private Sewers	San Diego RWQCB (use private sewer spill form) San Diego Storm Water Pollution Prevention Program	< 24 hours	FAX

2. Preliminary sewer overflow reports should be submitted based on available information. Amended reports shall be submitted as more accurate information is developed. A final report shall be filed within five working days of initial notification of the sewer overflow.

3. The SWUS in charge of the repairs shall notify the Department of Environmental Health on a daily basis regarding the status of repairs being made to address the cause of the reported sewer overflow. This notification requirement includes situations where the flow has been contained but is not flowing through a sewer line or a bypass system.

4. The GWUS shall review all sewer overflow reports initiated within their section for completeness and accuracy. Deficiencies shall be reported to the Deputy Director, the Department of Environmental Health, and the San Diego RWQCB.

10.0 INVESTIGATION OF SEWER OVERFLOWS

1. The purpose of investigating the sewer overflows is to provide information for:
   - Management for performance measurement and decision-making
   - Regulators to meet established reporting requirements
   - Maintenance Planners for decision-making regarding future maintenance activities and whether to repair
   - Engineering for decision-making regarding rehabilitating or replacing a line segment
   - Reference regarding historical performance or claims.

2. The Duty Supervisor shall ensure that all sewer overflows occurring during their shift are properly investigated.

3. The minimum information required from the investigation is:
   - Cause of overflow
   - Volume of overflow including volume released and volume recovered
   - Location of Point of Discharge
   - Ultimate destination of the overflow
   - Impact and Extent of impact
   - Actions taken to mitigate the overflow
   - Response time
   - Notifications to Regulators and Others

4. When photographs are taken, they shall document the activities, investigation, and the level of damage/impacts of the sewer overflow event.

11.0 SSO TRACKING DATABASE AND SEWER OVERFLOW TRACKING

1. Data from the investigation of all sewer overflows shall be entered in the SSO Tracking Database.

2. The Shift/Duty Supervisors and Standby Supervisors shall be responsible for entering the data in the SSO Tracking Database in a timely manner. Original documents created or compiled during the investigation shall be archived in the Administration Section Files. All SSO Tracking information and associated documents shall be retained for five years from the date of the SSO.

3. The WWC Administration Section shall be responsible for administering the SSO Database. Database maintenance procedures shall be performed weekly to ensure data integrity.

4. The WWC Administration Section shall be responsible for creating all internal and external reports from the SSO Tracking Database.

5. The following internal reports shall be available by WWC staff in adhoc use:
   - SSOs by month, quarter, and calendar year
   - SSOs by cause
   - SSOs by geographical area
   - SSOs by volume

12.0 DISTRIBUTION AND AMENDMENTS TO THE SEWER OVERFLOW RESPONSE AND TRACKING PLAN

1. Updates to the Sewer Overflow Response and Tracking Plan will be made to reflect changes in policies and procedures.

2. The Sewer Overflow Response and Tracking Plan will be reviewed annually on the anniversary of the plan.

3. Copies of the Sewer Overflow Response and Tracking Plan and any amendments will be distributed to:
   - Executive Officer, Regional Water Quality Control Board, San Diego Region.
   - Cognizant City officials of the Metropolitan Wastewater, Water, Engineering and Capital Projects Departments, and Storm Water Pollution Prevention Program.
   - All supervisors of the Wastewater Collection Division.
   - All other City employees who may become directly involved in responding to sewer overflows.

APPENDIX A - Sewer Overflow Response and Tracking Process Diagram

This flow diagram illustrates the current overflow response and tracking processes performed by the City of San Diego Wastewater Collection Division. It tracks the process from the time the City receives a customer complaint through response, resolution, and reporting.

10/17/2011

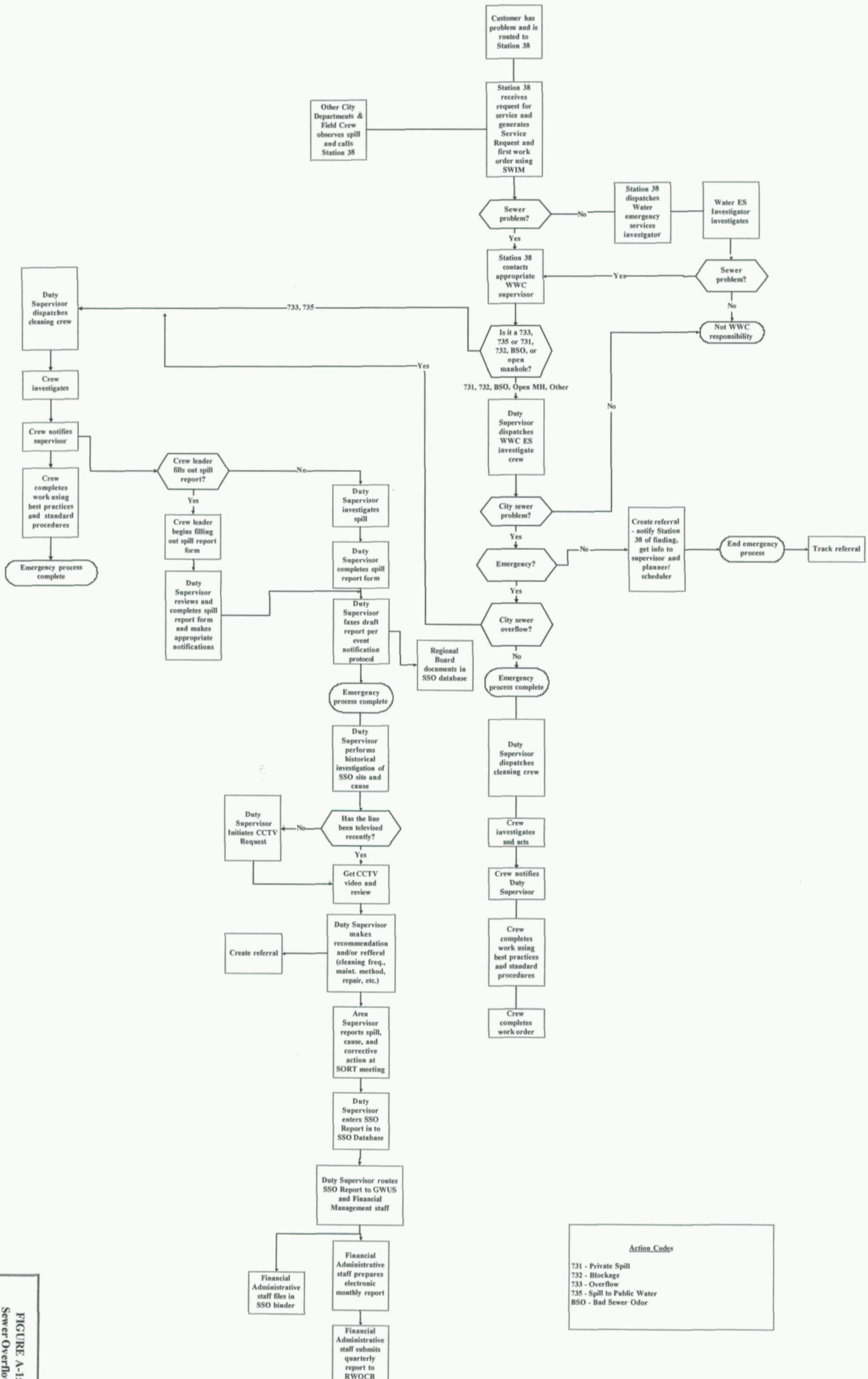


FIGURE A-1: Sewer Overflow Response Tracking Process Diagram

APPENDIX B – WWC Event Notification List (DD-D-002.0)

The Event Notification List identifies all parties that are notified in the event of a sanitary sewer overflow. The parties that are notified are dependent on the type, magnitude, and location of the event. This Event Notification List is updated on a regular ad-hoc basis and is illustrated in this SORTP on an annual basis.

PUBLIC UTILITIES DEPARTMENT, WASTEWATER COLLECTION DIVISION
EVENT NOTIFICATION LIST 10.06.11

The Duty Supervisor's responsibility is to notify all of the appropriate persons. Any changes to this listing should be sent to the Deputy Director at once.

TYPE OF EVENT

Sewer/Manhole Overflow .... Group 3
Sewer Overflow reaching Public Waters including Mission Bay, Pacific Ocean, S.D. River, or S.D. Bay. .... Group 1, 2, and 3
Emergency Incidents -Definition on page 3 .... Group 1 and 4
Unusual Occurrences -Definition on page 1 .... Group 1

GROUP 1 – *Unusual Occurrences:*

Wastewater Collection Division Contact:

Notify one of the following in this order:

Stan Griffith, Deputy Director
(O) (858) 654-4440 (P) None
(H) (619) 934-2757 (C) (619) 980-6964

Mike Bedard, GWUS Sewer Pump Stations
(O) (858) 654-4154 (R) 353 (P) (619) 580-1179
(H) (858) 487-1502 (C) (619) 980-8609

Terrell Powell, GWUS Main Cleaning Maintenance
(O) 858-614-5731 (R) 347 (P) (619) 580-1180
(H) 951-332-7662 (C) (619) 980-2429

Isam Hireish, Senior Civil Engineer
(O) (858) 654-4181 (P) None
(H) (858) 674-9815 (C) (619) 851-5862

Brian Drummy, Senior Public Information Officer
(O) (858) 292-6415 (C) (619) 517-7069

Management Contact:

Notify one of the following in this order after notifying Wastewater Collection Division:

Roger Bailey, Director of Public Utilities Department
(O) (858) 292-6401 (P) None
(H) (623) 640-1112 (C) (858) 395-0187

Ann Sasaki, Assistant Department Director of Public Utilities Department
(O) (858) 292-6402 (P) None
(H) (858) 484-9423 (C) (619) 980-8266

GROUP 1 – *Unusual Occurrences continued:*

Wastewater Collection Division Contact:

Notify one of the following in this order:

Examples of Unusual Occurrences are as follows:

A. A discharge of 1,000 gallons or greater of sewage.
B. A significant vehicle or personnel accident of any kind involving an employee and/or the public.
C. Repeat sewer backups at the same building or residence, resulting in damage claim.
D. The news media appears on or has inquired about any City force job, station or facility.
E. Loss of Electrical Power to SPS if backup generator does not function effectively.
F. Damage to Public Utilities equipment in excess of $50,000.

GROUP 2 – *Sewer Overflows to Public Waters Including: Mission Bay, Pacific Ocean, San Diego River, San Diego Bay, Penasquitos Lagoon and Domestic Water Supply:*

Roger Bailey, Director of Public Utilities Department
(O) (858) 292-6401 (P) None
(H) (623) 640-1112 (C) (858) 395-0187
Also, Fax a copy to Director: Fax (858) 292-6420

Ann Sasaki, Assistant Director of Public Utilities Department
(O) (858) 292-6402 (P) None
(H) (858) 484-9423 (C) (619) 980-8266
Also, Fax a copy to Assistant Director: Fax (858) 292-6420

Technical Services Microbiology (during business hours):
(619) 758-2361 - 08:00 a.m. – 5:00 p.m.
Fax (619) 758-2309
Refer to WWCD Standby List and Notify On Call Biologist

FAX a copy of report to ALL Council Districts (see page 2)

If flow reaches Mission Bay, notify all of the following:

Mission Bay District Manager (Bay):
Stacy McKenzie (619) 235-1154
Mission Bay Park District Manager (Shoreline):
Dan Daneri (619) 235-5914

PUBLIC UTILITIES DEPARTMENT, WASTEWATER COLLECTION DIVISION
EVENT NOTIFICATION LIST 10.06.11

GROUP 2 – *continued*:

If flow reaches Ocean Beaches, Mission Bay, or S.D. River, west of 1-5, notify:
S.D. Lifeguards Service: (619) 221-8800 (24 hrs.)
Also, FAX a copy of spill report to (619) 221-8881

If flow reaches San Diego Bay, notify:
San Diego Port District Environmental Management
8 a.m. – 5 p.m. Week Days: (619) 686-6254
After Hours & Weekends: (619) 686-6254 Leave message
Also, call Harbor Police: (619) 686-6272 (24 hrs.)

If Spill comes from Mexico, notify:
Steve Smullen, IBWC
(O) (619) 662-7600 (C) (619) 405-4224 (H) (619) 546-0772

If Spill results in the posting of waters of another City, notify Public Works Director/Department:

Imperial Beach: Hank Levine (619) 423-8311
Coronado: Scott Huth (619) 522-7380
Del Mar: Eric Minicilli (858) 755-3294
24hr Emergency Posting (858) 756-1126
Chula Vista: Public Works (619) 397-6000 (7:30-3:30 M-F)
After Hours Emergency (CVPD) (619) 691-5151
National City: Public Works (619) 336-4580 (7:00-6:00 M-T)
After Hours Emergency (NCPD) (619) 336-4411

If Spill Reaches a Lake, Reservoir, or Other Domestic Water Supply notify:

1) **Water Operations Division:**
Jesus Meda (O) (619) 527-3156 (H) Call Station 38
Dana Chapin (O) (619) 668-3233 (H) Call Station 38

2) **State Dept. of Health Services:**
Sean Sterchi (O) (619) 525-4922

3) **California Department of Fish and Game:**
Bill Paznokas (O) (858) 467-4218 FAX: (858) 467-4299

4) **Lake Hodges (only):**
Escondido CWA:
Gary Eaton (760) 271-9208
Control Center (760) 480-5534
R.E. Badger Filtration Plant:
Core Schaeffer (858) 602-7611

Public Water SSO – A discharge of sewage, from the public sanitary sewer system of the City of San Diego, which enters a body of water such as Pacific Ocean, bay, river, lake, stream, or creek where there is a potential for human contact as defined by the County Department of Environmental Health.

GROUP 3 –*Sewer/Manhole Overflow*

ALWAYS NOTIFY THE SAN DIEGO COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH:

During Business Hours (DEH):

County Staff	(O) (858) 495-5579	(C) (619) 866-9297
FAX:		(858) 694-3670
DEH – Water Quality Hotline		(619) 338-2073

After Business Hours (DEH):
County Communications (858) 565-5255

Regional Water Quality Control Board (No after hour's service)
Christopher Means (O) (858) 637-5581
After Hours Hotline (858) 822-8344

Also, FAX a copy of spill report to RWQCB at (858) 571-6972

Copies of all Public and Private Sewer Spills are to be faxed to the PUD/Asst. Director, Mayor's Office and to all Council Offices Impacted by the Sewer Overflow:

FAX Numbers:

Mayor's office	(619) 236-7228
Council District 1	(619) 236-6999
Council District 2	(619) 236-6996
Council District 3	(619) 595-1481
Council District 4	(619) 236-7273
Council District 5	(619) 238-0915
Council District 6	(619) 236-7329
Council District 7	(619) 238-1360
Council District 8	(619) 231-7918
PUD/Asst. Director	(858) 292-6420

All Sanitary Sewer Overflows notify:
Office of Emergency Services (OES) (800) 852-7550

If Spill is from Navy/Marine Facilities, or housing (excluding The Marine Corps Recruit Depot), immediately notify, the Navy Public Works Center (NAFAC Southwest Utilities):
7/24 – Duty Desk: (619) 556-7349
FAX: (619) 556-9471

If Spill is from private or non-city sewer facilities notify:
The Storm Water Pollution Prevention Hotline: (858) 541-4360
FAX Spill Report to: (858) 541-4350

If Spill is due to Vandalism, notify, San Diego Police Department and the Storm Water Pollution Prevention Hotline to conduct investigation:

Storm Water Pollution Prevention:	(858) 541-4360
San Diego Police Dept. via Station #38:	(619) 527-7663
File Electronic Vandal Report (SDPD):	(619) 531-2000

PUBLIC UTILITIES DEPARTMENT, WASTEWATER COLLECTION DIVISION
EVENT NOTIFICATION LIST 10.06.11

GROUP 4 –*Emergency Incidents*:

An emergency incident is defined as follows:
A situation, which has or could cause widespread damage, such as significant sewer system failure affecting parts of a community area.

Example of Emergency Incidents are as follows:

A. Failure of a sewer pipeline 18 inches in diameter or larger or extensive damage caused by a pipeline failure.
B. Any accident involving an employee which will result in significant lost time, injury, or death.
C. A sewer stoppage or overflow affecting three or more residences or a commercial or retail establishment.
D. A sewer pump station failure that can't be immediately corrected on site.

Notify, one of the following in this order until live notification is made, subsequently leave pager notification for earlier recipient:

1. Stan Griffith, Deputy Director of Public Utilities Department, Wastewater Collection Division
(O) (858) 654-4440 (P) None
(H) (619) 934-2757 (C) (619) 980-6964

2. Ann Sasaki, Assistant Director of Public Utilities Department
(O) (858) 292-6402 (P) None
(H) (858) 484-9423 (C) (619) 980-8266

3. Roger Bailey, Director of Public Utilities Department
(O) (858) 292-6401 (P) None
(H) (623) 640-1112 (C) (858) 395-0187

4. Agnes Generoso, Program Manager of Public Utilities Department, Wastewater Operations
(O) (858) 292-6490 (P) None
(H) (619) 656-0538 (C) (619) 994-5535

Other contact phone numbers:

Station 38:	(619) 527-7663
Sewer Hotline:	(619) 515-3525
COMC:	(858) 614-4551
SPAWAR's (access):	(619) 524-700

APPENDIX C - Spill Volume Estimating

A variety of approaches exist for the estimation of the volume of a sanitary sewer overflow. This appendix documents the three methods that are most often employed by the City of San Diego. The person preparing the estimate should use the method most appropriate to the sewer overflow in question using the best information available. Every effort should be made to make the best possible estimate of the volume. Assistance from the WWC Engineering Section should be sought for larger sewer overflows.

Method 1 <u>Visual Estimate</u>

The volume of very small spills can be estimated using a visual estimate. To use this method imagine the amount of water that would spill from a bucket or a barrel. A bucket contains 5 gallons and a barrel contains 50 gallons. If the spill is larger than 50 gallons, try to break the standing water into barrels and then multiply by 50 gallons. This method is useful for contained spills up to 100 gallons.

Method 2 <u>Measured Volume</u>

The volume of most small spills can be estimated using this method. The shape, dimensions, and the depth of the spilled wastewater are needed. The shape and dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.

Step 1 Sketch the shape of the contained sewage
Step 2 Measure or pace off the dimensions.
Step 3 Measure the depth at several locations
Step 4 Convert the dimensions, including depth to feet.
Step 5 Calculate the area using the following formulas:
- Rectangle Area = length x width
- Circle Area = 0.785 x D^2 (where D is diameter of pipe)
- Triangle Area = base x height x 0.5

Step 6 Multiply the area times the depth
Step 7 Multiply the volume by 7.5 to convert it to gallons

Method 3 <u>Duration and Flow Rate</u>

Calculating the volume of spills where it is difficult or impossible to measure the area and depth requires a different approach. In this method a separate estimate is made of the duration of the spill and the flow rate. The methods of estimating duration and flow rate are:

Duration: The duration is the elapsed time from the start time to the time the spill stopped.

Start time is sometimes difficult to establish. Here are some approaches:

Local residents can be used to establish start time. Inquire as to their observations. Spills that occur in rights-of-way are usually observed and reported in short order. Spills that occur out of the public view can go on longer. Sometimes observations like odors or sounds (e.g. water running in a normally dry creek bed) can be used to estimate the start time.

Changes in flow on a downstream flowmeter can be used to establish the start time. Typically the daily flow peaks are "cut off" or flattened by the loss of flow. This can be identified by comparing hourly flow data, when available.

Conditions at the spill site change with time. Initially there will be limited deposits of grease and toilet paper. After a few days to a week, the grease forms a light colored residue. After a few weeks to a month the grease turns dark. In both cases the quantity of toilet paper and other materials of sewage origin increase in amount. These changes with time can be used to estimate the start time in the absence of other information.

End time is usually much easier to establish. Field crews on-site observe the "blow down" that occurs when the blockage has been removed. The "blow down" can also be observed in downstream flowmeters.

Flow Rate: The flow rate is the average flow that left the sewer system during the time of the spill. There are three ways to estimate the flow rate:

San Diego Manhole Flow Rate Chart: This chart shows the sewage flowing from a manhole cover for a variety of flow rates. The observations of the field crew are used to select the approximate flow rate from the chart.

Flowmeter: Changes in flows in the downstream flowmeters can be used to estimate the flow rate during the spill.

Estimate based on up-stream connections: Once the location of the spill is known, the number of upstream connections can be determined from the field books. Multiply the number of connection by 200 to 250 gallons per day per connection or 8-10 gallons per hour per connection.

Once duration and flow rate have been estimated, the volume of the spill is the product of the duration in hours or days times the flow rate in gallons per hour or gallons per day.

APPENDIX D - Sewer Overflow Internal and External Reporting Forms

This appendix contains the internal and external reporting forms used by the City of San Diego to document and report sanitary sewer overflows.

- Internal Report (Pages D-2 and D-3)
  This form captures data used to track sanitary sewer spills
- External Report (Pages D-4 and D-5)
  This form is used to report sanitary sewer overflows to the Regional Water Quality Control Board (RWQCB) and the San Diego County Department of Environmental Health (DEH).
- External Private Spill Report (Page D-6)
  This form is used to report private spills to the RWQCB and the DEH for sanitary sewer overflows that are responded to by the City of San Diego.

Preliminary ☐ Final ☐ | Revision #: ____ | Revised Item #'s ____

REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) COUNTY HEALTH DEPT.
SANITARY SEWER OVERFLOW (SSO) REPORT FORM

City of San Diego
Public Utilities Department
Wastewater Collection Division

Service Area: ____
Thom. Bros. Pg ____
Field Book Pg ____
Resp. Unit(s) ____
Resp. Name(s): ____

1. SSO Sequential Tracking Number (SR #): ____
2. Reported To: ____
3. Date Reported: ____ (mm/dd/yy)
   Time Reported: ____ (24-Hour Clock)
4. Reported By: ____
   Phone: ____

5a. Responsible Sewer Agency: ____ ☐ Private Spill? (Responsible Party): ____
5b. Reporting Sewer Agency: ____ (Contact Info): ____

6. Overflow Start/Confirm: Date/Time: ____
   Notified (date/time) ____ (24-Hour Clock)
   Arrived (date/time) ____ (24-Hour Clock)

7. Overflow (End): ☐ (Ongoing): ☐
   *Check One
   Date/Time: ____

Main FSN # ____
Overflowing MH FSN # ____
Cleanout? ☐ MHMapID: ____

8. Total Overflow Volume to date (____ gpm X ____ mins) = ____ (Gallons)
9a. Overflow Volume Recovered: ____ (Gallons)
9b. Overflow Volume Released to environment: ____ (Gallons) ☐ Indicate if 3rd party estimate

Easement Main? (Y/N) ____
Canyon Main? (Y/N) ____ Canyon Name ____
Trunk? (Y/N) ____ Trunk Name ____

SSO Location:

10. Street or Location Description: ____
11. City/Zip Code: ____ / ____
12. County: ____
13. SSO Structure I.D.: ____

14a. Number of SSOs within 1,000 feet at this location in past 12 Months: ____
14b. Dates of SSOs within 1,000 feet at this location in past 12 Months: ____
*Format: mm/dd/yyyy, mm/dd/yyyy, ...

SSO Cause:

15. SSO Cause* Primary: ____ Other: ____
    Secondary: ____ Other: ____

* If more than one cause, use Primary for primary cause and Secondary to indicate secondary cause. If cause is not in pick list, pick other and type in cause on line.

Pump Station Involved? ____ Station # ____
Weather Conditions: ____
Was there measurable precipitation during 72-Hour period prior to SSO? ____

16. SSO Cause (detailed description): ____

Corrective Action:

17. *SSO Correction - Description of all preventative and corrective measures taken or planned:* ____

Preliminary ■ Final ■ Revised Item #'s ______ SR# ______

Initial & Secondary Receiving Waters:

18. Did the SSO enter a storm drain? ____
19. Did the SSO reach surface waters other than a storm drain? ____
20. Name/description of initial receiving waters: (if NONE write NONE) ______
21. Name/description of secondary receiving waters: (if NONE write NONE) ______
22. If SSO did not reach surface waters, what was final destination of sewage? ______
23. Did SSO enter public waters? ____

Public water reached: ______ Other: ______

Other public health exposure? ____ Explain ______

Notifications

24. Was the local health services agency notified? ______(DEH fax #: (619) 338-2848)
25. OES Confirmation # ______ OES Warning Center Phone: (800) 852-7550

City Claims Notified? ____

Traffic Impacted? ____

Agencies Notified:

- ■ RWQCB
- ■ County Health
- ■ Lifeguard
- ■ Mayor's Pr. Sec.
- ■ Council District # ____
- ■ Public Utilities Director
- ■ Stormwater Poll.
- ■ Other

Affected Area Posting

26. Were signs posted to warn of contamination? ____

If so, location of signs: ______

Did SSO result in a beach closure? ____

Beach Location: ______

27. How many days were the warning signs posted? ____ # of signs posted: ____

28. Remarks:

Note: ***If the SSO event results in a discharge of more than 1,000 gallons to surface waters, this form must be received by the Regional Board no later than five days after the date notified.***

The following certification must be completed with the five day notice:

I swear under penalty of perjury that the information submitted in this document is true and correct. I certify under penalty of perjury that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

______
Signature

______
Name

______
Title

______
Date

Distribution:

	Fax Number
Public Utilities Director	(619) 533-7593
Asst. MWWD Director	(858) 292-6420
Public Information Officer	(858) 292-6420

EXTERNAL SANITARY SEWER OVERFLOW (SSO) REPORT FORM
REGIONAL WATER QUALITY CONTROL BOARD

Via FAX:

To: California Regional Water Quality Control Board, San Diego Region
1.858.571.6972

From: City of San Diego Public Utilities Department
Wastewater Collection System Division
9150 Topaz Way, San Diego, CA 92123-1119

Subject: Report of Sanitary Sewer Overflow

GENERAL INFORMATION: #Error

1. Preliminary ☐ Final ☐
2. SANITARY SEWER OVERFLOW SEQUENTIAL TRACKING NUMBER: ______
3. REPORTED TO: ______
4. DATE REPORTED: ______ (MM/DD/YY)
   TIME REPORTED: ______ (MILITARY OR 24 HOUR TIME)
5. REPORTED BY: ______
   PHONE: ______
6. REPORTING SEWER AGENCY: ______
   Public or Private SSO? (Check if Private) ☐ (If Private - Complete Observation of SSO Due to Action of Other - Attachment 3)
7. RESPONSIBLE SEWER AGENCY: ______
8. OVERFLOW START:
   DATE: ______ (MM/DD/YY)
   TIME: ______ (MILITARY OR 24 HOUR TIME)
   WWC Notified: ______
   WWC Crew Arrival at Site: ______ ______
9. OVERFLOW END:
   DATE: ______ (MM/DD/YY)
   TIME: ______ (MILITARY OR 24 HOUR TIME)
10. ESTIMATED OVERFLOW RATE: ______
11. TOTAL OVERFLOW VOLUME: ______
12. OVERFLOW VOLUME RECOVERED: ______
13. OVERFLOW VOLUME RELEASED TO ENVIRONMENT: ______

SANITARY SEWER OVERFLOW LOCATION AND DESCRIPTION:

14. STREET ADDRESS: ______
15. CITY: ______ ZIP CODE: ______
16. County: ______
17. SANITARY SEWER OVERFLOW STRUCTURE I.D.: ______
    17a. Canyon Main? ______ 17b. Trunk? ______
    Canyon Main Name: ______ Trunk Name: ______
18. NUMBER OF OVERFLOWS WITHIN 1000 FT. OF THIS LOCATION IN PAST 12 MONTHS: ______
19. DATES OF OVERFLOWS WITHIN 1000 FT. OF THIS LOCATION IN PAST 12 MONTHS: ______

EXTERNAL SANITARY SEWER OVERFLOW (SSO) REPORT FORM
REGIONAL WATER QUALITY CONTROL BOARD

20. OVERFLOW CAUSE - SHORT DESCRIPTION: ______________
21. OVERFLOW CAUSE - DETAILED DESCRIPTION OF CAUSE

22. SANITARY SEWER OVERFLOW CORRECTION -- DESCRIPTION OF ALL PREVENTATIVE AND CORRECTIVE MEASURES TAKEN OR PLANNED.

23. WAS THERE MEASURABLE PRECIPITATION DURING 72-HOURS PERIOD PRIOR TO THE OVERFLOW? ___

INITIAL AND SECONDARY RECEIVING WATERS

24. DID THE SANITARY SEWER OVERFLOW ENTER A STORM DRAIN? ___
25. DID THE SANITARY SEWER OVERFLOW REACH SURFACE WATERS OTHER THAN A STORM DRAIN? ___
26. NAME OR DESCRIPTION OF INITIAL RECEIVING WATERS. (IF NONE, TYPE NONE.) ______________
27. NAME OR DESCRIPTION OF SECONDARY RECEIVING WATERS. (IF NONE, TYPE NONE.) ______________
28. IF THE SANITARY SEWER OVERFLOW DID NOT REACH SURFACE WATERS, DESCRIBE THE FINAL DESTINATION OF SEWAGE.

NOTIFICATION:

29. WAS THE LOCAL HEALTH SERVICES AGENCY NOTIFIED? ___
30. IF THE OVERFLOW WAS OVER 1,000 GALLONS, WAS THE OFFICE OF EMERGENCY SERVICES (OES) NOTIFIED? Y

AFFECTED AREA POSTING:

31. WERE SIGNS POSTED TO WARN OF CONTAMINATION? ___
32. LOCATION OF POSTING (IF POSTED): ______________
33. HOW MANY DAYS WERE THE WARNING SIGNS POSTED? ___
34. REMARKS:

CERTIFICATION:

I swear under penalty of perjury that the information submitted in this document is true and correct. I certify under penalty or perjury that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signature

Name

Title

Date

Report of Private Property Sanitary Sewer Overflow

To: **California Regional Water Quality Control Board, San Diego Region**

From: **City of San Diego Public Utilities Department**
Wastewater Collection System Division
9150 Topaz Way, San Diego, CA 92123-1119

Subject: **OBSERVATION OF SSO DUE TO ACTION OF OTHERS**

1. Overflow Information
   a. Date ____________________
   b. Time ____________________ (Military or 24 Hour)
   c. Location
      Street Address: ____________________
      City: ____________________
      Zip Code: ____________________
2. Estimate Volume (if Possible) ____________ gallons
3. Contact information for responsible person (if known)
   Responsible Party: ____________________
   Responsible Party Info: ____________________
4. Contact information for person making the report
   Name: ____________________
   Phone: ____________________
5. Brief narrative of events and observations:

APPENDIX E – Sewer Overflow Tracking Reports

These are samples of current reports used by the City of San Diego Wastewater Collection Division to track spills. Reports are periodically reviewed and revised to increase tracking and reporting accuracy and to capture and report new data.

City of San Diego PUBLIC UTILITIES Water & Wastewater

WASTEWATER COLLECTION DIVISION
SSO Summary
City Spills Only
7/1/2011 to 7/31/2011

Run Date: 10/6/2011

City Spills
Public Water Reached? Yes

Srvc Area	Spill Start Date	SR#	7-31?:	Total Overflow	Total Recovery	Total Released	Public Water Reached	Other Water(s) Reached
CE	07/08/2011	3327927	In: N Out: N	8505	8255	250	PACOC	Pacific Ocean
			Gallons Reported =	8,505	8,255	250		

Section Summary**
Public Water Reached? Yes

Total # of City Spills	1
Total Overflow Volume	8.51
Total Volume Recovered	8.26
Total Volume Released	0.25
% Volume Recovered	97.06 %

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

10/17/2011

City Spills Only Report Summary

Total Gallons Reported = 8,505 Overflowed 8,255 Recovered 250 Released

Total # of Spills	1
Total Overflow Volume	8.51
Total Volume Recovered	8.26
Total Volume Released	0.25
% Volume Recovered	97.06%
Total # of Spills Per 100 Miles of Pipe*	0.03

**Note: Based on 3,006 miles of piping*
***Note: All Summary Volumes are in Thousands*

Authentication Stamping

Date Generated: 10/6/2011 8:42:50 AM

Run Parameters for this Report

Start Date: 7/1/2011

End Date: 7/31/2011

City Spills Only

JBLIC UTILITIES
Water & Wastewater

WASTEWATER COLLECTION DIVISION
SSO RESPONSE TIME REPORT
08/01/2011 to 08/31/2011

SR #	SSO Start	Notified	Arrival	RESPONSE TIME Notified Vs Arrival (minutes)	SSO Stop	CONTAINMENT TIM Start Vs Stop (minutes)	Start Vs Arrival (minutes)	RESPONSE TIME Notified Vs Arrival Indicator	Responsible Sewer Agency
3333060	8/4/2011 10:58:00AM	8/4/2011 11:06:00AM	8/4/2011 11:15:00AM	9	8/4/2011 11:38:00AM	40	17	OK	City of San Diego PUD/WWC
3336254	8/23/2011 9:55:00AM	8/23/2011 9:59:00AM	8/23/2011 10:15:00AM	16	8/23/2011 10:34:00AM	39	20	OK	City of San Diego PUD/WWC

7.0 FATS, OIL, AND GREASE (FOG) CONTROL PROGRAM

FOG Control Program: Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system.

Background

In July 1988, the Food Establishment Wastewater Discharge (FEWD) Permit Program was created following the adoption of Municipal Code, Chapter VI, Article 4, Section 64, "Food Establishment Wastewater."

The FEWD program initially had the following goals:

1. Permits for all food establishments were to be issued no later than June 30, 1991.
2. All required grease removal equipment was to be installed no later than September 30, 1991.

The Final Consent Decree between the Federal Court and the City of San Diego (CIV. NO. 03-CV-1349k(POR)) required that the City accelerate the enforcement of this section of the Municipal Code. The FEWD Permit Program met both of these deadlines. Since that time, the FEWD Program has continually worked to further reduce FOG-related sewage spills. Using a baseline year 1997, FOG-related SSOs has had a reduction from a total of 94 FOG-related SSOs to 8 in the last full year of data available, 2010; or a 91% reduction.

FOG Control Program

The following is a description of the City's FOG Control Program including Sub-parts (a) through (g) as provided in the State's General Waste Discharge Requirements for developing SSMP Part vii, FOG Control Program.

(a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;

Public education outreach has been an ongoing effort, including educational videos, brochures and a postcard describing the best practices for residents to follow to help keep FOG out of the sewer system. In addition, the City's Public Utilities Department maintains an up-to- date website which serves as an additional source of information to the food service industry and the community at large. General information about eliminating FOG discharges into the sewer system is among the information provided on the website. The City's Public Information Office also produces and broadcasts FOG Public Service Announcements daily on City TV; distributes FOG postcards to all addresses within 1000 foot radius of a FOG related SSO within 10 days of the event; inserts FOG brochures with water/sewer billings twice yearly;

FEWD participates in the San Diego County Apartment Association annual convention to communicate its FOG Control Program and to pass out FOG brochures. FEWD also takes names, address and the number of brochures each member needs for their condominium or apartment complex to be mailed later.

(b) A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;

The City does not own or operate any FOG disposal facilities. The Food Service Establishments (FSEs) must collect the waste FOG and prevent the waste FOG discharge into the sewer system by installing grease removal equipment. FSEs are responsible for the proper disposal of the collected FOG (see question'd' below for approved maintenance methods).

(c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;

The City's FOG Control Municipal Code, Chapter VI, Article 4, Section 64, "Food Establishment Wastewater" effective July 1988, mentioned in Sub-part vii (a) above, provides the legal authority to prohibit FOG discharges by FSEs. To mitigate SSOs resulting from blockages caused by FOG accumulation, the City's Wastewater Collection Division implements its Sewer Overflow Response and Tracking Plan (SORTP). FEWD provides investigation of all FOG related SSOs and takes enforcement and corrective actions with FSEs as needed to prevent future FOG related SSOs.

(d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;

The City of San Diego's Municipal Code Chapter VI, Article 4, Section 64, "Food Establishment Wastewater" states: "Facilities engaged in preparing food for consumption by the public…shall obtain a permit to discharge…known as a Food Establishment Wastewater Discharge [Permit]."

"…all permittees shall be required to install an approved type grease pretreatment device in the waste lines leading from the food preparation area, or from sinks, drains, appliances and other fixtures or equipment used in food preparation or cleanup where grease may be introduced into the sewerage system. Such grease pretreatment devices shall be installed to remove grease from wastewater and shall be maintained in efficient operating conditions by periodic removal of the accumulated grease."

Major provisions of the FOG Control Ordinance and its Rules and Regulations regarding the requirements for installing and maintaining grease removal devices are summarized below:

Grease Interceptor Requirements

A grease interceptor is a plumbing device, with a minimum size of 750 gallons that is installed in a wastewater drainage system to intercept and prohibit FOG from entering the sewer system. If an FSE can demonstrate that installation of a grease interceptor is not feasible due to space constraints or other considerations, the FEWD Program may authorize the installation of grease traps. A grease trap is a small grease removal device from minimum size 20gpm/40lbs to 50gpm/100lbs. A grease trap may be installed inside an FSE as long as it is not in the food prep or scullery areas. Grease traps may serve from one to 4 fixtures depending on their size. FSEs must also gain approval for placement of grease traps from the County of San Diego Department of Environmental Health.

Grease removal equipment installed in San Diego must be an IAPMO (International Association of Plumbing and Mechanical Officials) or PDI (Plumbing and Drain Institute) approved device. Installation of grease removal equipment must conform to the UPC (Uniform Plumbing Code) which is enforced by the City of San Diego Development Services Department Mechanical Inspectors.

Variance to allow Alternative Grease Removal Devices

FEWD does not have a variance to installation of grease removal equipment. All FSEs plan checking to open new food service establishments receive requirements to install grease removal equipment with the exception of ice cream/yogurt shops and juice bars. Preferably, each FSE will receive a grease interceptor requirement, but on case-by-case basis, FSEs may be allowed to install grease trap(s). Usually, tenant improvements in existing buildings are allowed to install grease traps, new construction requires a grease interceptor. If a new FSE plan checks and they do not have the area outside the facility to install a grease interceptor, they must show on the drawings proof that there is not enough space and grease traps are allowed.

Operation and Maintenance of Grease Interceptors

The City of San Diego Food Establishment Wastewater Ordinance requires that grease removal equipment "be maintained in efficient operating conditions by periodic removal of the accumulated grease and solid food waste". The cleaning interval varies with the amount of food preparation and clean-up activities and with the facility's housekeeping procedures. This interval must be determined by each facility but will be mandated by the City when maintenance is found to be unsatisfactory.

Two maintenance methods are approved by the City of San Diego:

1. MANUAL REMOVAL OF GREASE. This consists of skimming out accumulated grease and oil and removing solids that have settled at the bottom. None of the removed material can be disposed of in the sewer or storm drain system. Collected material can be put in the grease recycling barrel, in a barrel specifically designated to hold grease trap waste or in the

trash. If applicable, FSEs must ensure that grease recyclers or waste haulers accept grease trap waste. Moreover, material disposed of in the trash must be containerized and may not be over 50% liquid.

2. PUMPING. An FSE may hire a pumping service to empty its GRE. If an FSE has a grease interceptor, it must pump all grease, oil and food matter from each chamber and sample box, including solids or sludge at the bottom of each chamber, specifically at the bottom of all standpipes. FEWD requires a complete pump out at each cleaning.

BACTERIAL PRODUCTS may help to reduce cleaning frequency. However, high temperature, high or low pH level, sanitizers and other cleaning products render them ineffective. Bacterial products may also cause the accumulated grease to 'fluff-up', or take more space in a GRE than if left alone.

This is not a substitute for methods 1 or 2.

ENZYME PRODUCTS ARE NEVER ALLOWED as they keep grease and oil suspended in water, which causes them to pass through your grease trap or interceptor. They may also contribute to the corrosion of your grease trap/interceptor.

Grease removal equipment collects grease that would otherwise enter the sewer lines and cause blockages and overflows. Methods 1 & 2 are the best ways of disposing of this grease. Bacteria may reduce the frequency of, but will not eliminate the need for, manual cleaning or pumping.

A record of the dates, methods and identity of persons/company cleaning your grease trap/interceptor must be kept at the facility and be available for review at any time by FEWD Inspectors. During facility inspections, all grease removal equipment will be required to be opened and will be examined for proper maintenance.

Levels of fat, oil, grease and solids allowable in grease traps and interceptors:

<u>Grease Traps</u> (Ashland, Jonspec, Josam, Mifab, Rockford, Smith Wade, Watts, Zurn)	**Maximum Depth of Grease Allowed**
7gpm/14lbs	½"
10gpm/20lbs	1"
15gpm/30lbs	1 ½"
20gpm/40lbs	2"
25gpm/50lbs	2 ½"
35gpm/70lbs	3"
50gpm/100lbs	3 ½"
75gpm/150lbs	4"
100gpm/200lbs	5"
150gpm/300lbs	6"
Low Profile (any size)	2"
Canplas 20gpm/40lbs & 25gpm/50lbs	2"
Canplas 35gpm/70lbs & 50gpm/100lbs	3"
Schier PATG2025	7"
Schier PATG2635	10"
Schier PATG-35-LO	4 ½"
Schier PATG3050	13"
Trapzilla TZ-400	7"
Trapzilla TZ-600	14"

Interceptors	**Maximum**
Highland 1000 gal	12"
Highland 1500-4000 gal	16"
Proceptor 750 gal	13"
Proceptor 1000 gal	20"
Proceptor 1300 gal	26"
Proceptor 1500 gal	13"
Proceptor 2000 gal	20"
Schier GB35	7"
Schier GB50	9"
Schier GB75	17"
Schier GB250	21"

<u>CONCRETE GREASE INTERCEPTORS (JENSEN, PRO-CAST)</u>

Concrete grease interceptors, regardless of their size, are required to be pumped when the second chamber has a grease and/or oil layer of **6"**. At no time should there be visible grease or oil in the sample box.

The above grease and/or oil levels include any solids or sludge that has accumulated on the bottom of your grease trap or grease interceptor.

The above grease and/or oil levels include any solids or sludge that has accumulated on the bottom of your grease trap or grease interceptor.

Best Management Practices (BMPs)

When FEWD started its FOG Control Program in late 1989 all existing FSEs were required to install grease removal equipment except cold delis, ice cream shops, juice bars and convenience stores with minimal food prep. They were required to follow what FEWD called "Specific Permit Conditions." These Specific Permit Conditions were BMPs in that most of them were instructions to wipe everything prior to washing. With FSEs that were required to install grease removal equipment, FEWD used Specific Permit Conditions to help limit the number of retrofit grease traps that would be needed; for example… "Ensure wastewater from kitchen area wash down is discharged to a fixture connected to grease removal equipment" - the mop sink did not need to be connected. "Ensure the first rinse from tilt skillet and/or soup kettle is discharged to a fixture connected to grease removal equipment" - the tilt skillet or soup kettle drains did not need to be connected. When FEWD found the prep sink(s) being used to defrost chicken the facility received a Specific Permit Condition to - "Confine use of the prep sink(s) to vegetable and fruit preparation only." Specific Permit Conditions are printed on the front of each FSEs Wastewater Discharge Permit and they are specific to each facility.

During all site visits, FEWD Inspectors look for violations to the FSEs Specific Permit Conditions. For example: if a cold deli has added cooking equipment, added any item on their menu that would require or generate fat oil or grease to prepare or grease is found in a prep sink or cook line sink a requirement is issued to install grease removal equipment. Often FSEs request a second chance which is provided to them by signing a 'Change in Procedure Form' that states they will remove the cooking equipment, confine use of the prep sinks or cook line sinks and the requirement is canceled. Any second violation, the requirement is re-issued and is irrevocable.

(e) Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;

The City of San Diego's Municipal Code Chapter VI, Article 4, Section 64, Division 7, "Food Establishment Wastewater" was enacted in July 1988 in order to control waste FOG discharges from food service establishments. A stipulation under this amendment requires those FSEs that generate waste FOG during food preparation processes to obtain a Food Establishment Wastewater Discharge [Permit].

The City of San Diego's municipal code gives the FEWD Permit Program the legal authority to visit and inspect FSEs and monitor compliance with discharge permits. As part of routine inspection activities, inspectors from FEWD determine permit requirements and verify compliance. Additionally, information and training materials such as multi-language Storm Water BMP's, sizing of grease traps handout, maintenance handout and maintenance logs with plastic covers are provided to help FSEs.

Staffing for the FEWD Section is as follows:

1- Wastewater Pretreatment Inspector III – FEWD Program Manager
1- Principal Engineering Aide – FEWD Program Coordinator
3- Principal Engineering Aides – FEWD Supervisors
9- Senior Engineering Aides – FEWD Inspectors
1-Word Processing Operator – FEWD Clerical Support

(f) An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section; and

Procedures related to the cleaning maintenance are described in the Operation and Maintenance Program (Section 4 of this SSMP) and its related Reference documentation.

(g) Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified in (f) above.

FEWD investigates potential source(s) of FOG waste to verify compliance with applicable sections of Municipal Code. FSEs are required to have a Wastewater Discharge Permit, comply with source control measures for all sources of grease, implement BMPs and/or Specific Permit Conditions, install grease removal equipment as applicable, and are subject to at minimum bi--annual inspections to verify continuous compliance.

In the event an FSE fails to comply with the requirements of the Municipal Code, FEWD takes immediate enforcement action by applying one or more appropriate enforcement action(s). The Enforcement actions available to the City of San Diego FEWD Permit Program are outlined as follows:

- **Level 1 Notice of Violation (NOV)** – A notice by certified mail which identifies the permit condition(s) violated, the circumstances surrounding the violation(s), and provides the FSE with an opportunity to correct the non-compliance within 30 days. There is an administrative fee of $150.00 for Level 1 NOVs.

- **Level 2 NOV** - A notice by certified mail which identifies the permit condition(s) violated, usually failure to reach compliance from a Level 1 NOV due date. Level 2 NOVs call FSEs into the FEWD offices for a Preliminary Hearing, usually within 21 days to discuss their barriers to compliance and to establish a new due date for compliance, no more that 90 days. Level 2 NOVs are also issued for any second violation in a year, regardless of the violation. There is an administrative fee of $400.00 for Level 2 NOVs.

- **Level 3 NOV** - A notice by certified mail which identifies the permit condition(s) violated, usually failure to reach compliance from a Level 2 NOV due date. Level 3 NOVs call FSEs into the FEWD offices for a Show Cause Hearing, usually within 21 days to discuss their barriers to compliance and to establish a new due date for compliance, no more that 90 days. There is an administrative fee of $400.00 for Level 3 NOVs.

- **Permit Revocation** – FEWD Permit Program Manager revokes the FSEs Wastewater Discharge Permit for protracted non-compliance with their Wastewater Discharge Permit.

- The City may pursue civil penalties, as well as injunctive relief.

Reference:

City of San Diego Municipal Code, Chapter VI, Article 4, Section 64, Division 7, "Food Establishment Wastewater."

2007 California Plumbing Code.

FEWD Permit Program Procedures Manual.

City of San Diego SANGIS GIS system and documentation.

Wastewater Collection Division PSTools, CSTools, FSTools and SWIM software and database installations.

City of San Diego, Metropolitan Wastewater Department, Wastewater Collection System Plans, September 2002.

8.0 SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

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

a. **Evaluation: Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to a Sanitary Sewer Overflow (SSO) discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events.**

PUD operates and maintains the municipal wastewater collection system, consisting of approximately 3,017 miles of sanitary sewer pipelines, including collection mains, trunk sewers and major interceptors that convey wastewater to the region's three treatment plants. The system also includes 83 wastewater pump stations and more than approximately 59,000 manholes. This system collects flow from a 450-square-mile service area and services more than 2.2 million residents. The pipelines consist of a variety of materials, such as vitrified clay, polyvinyl chloride, concrete, and cast iron.

PUD is responsible for capital improvement planning and implementation of the City's sewer facilities. PUD's Engineering and Program Management Division is responsible for the flow monitoring program, the municipal sewer capacity assessment program and ensuring sufficient capacity in the sewer system.

FLOW MONITORING PROGRAM

As of this date, PUD maintains a total of 147 permanent flow monitors in its sewer system to quantify the flows within the City limits and from 15 Participating Agencies (PAs). These monitors are installed and utilized for multiple purposes including strength-based billing, facility planning, sewer modeling, criticality evaluation, infiltration/inflow (I/I) analysis, and spill detection. The multi-purpose utilization of the flow monitors makes the flow monitoring program cost-effective. The monitoring system was initiated in the late 1980s and has been considerably enhanced by adding additional monitors periodically in the last decade.

70 of the 147 permanent monitors are located in 60 trunk sewers (15-inch diameter or larger) and are utilized in the capacity assessment and assurance program. Some trunk sewers are metered by more than one flow monitor. 13 of these 70 monitors were installed in 2005 per the requirements stated in the 2005 Partial Consent Decree with the EPA, Case No. 03-CV-1349K and 01-CV-0550B, Section VII.D.1. The remaining 61 unmetered trunk sewers, mostly smaller size with less flow, have been metered with 10 monitors on a rotational basis for a period of six or seven years.

The City's sewer capacity assessment and assurance program and sewer design process depends heavily on quality monitoring data, and the City regularly updates a list of critical trunk sewers through the ongoing flow monitoring program.

TRUNK SEWER CAPACITY ASSESSMENT PROGRAM

Beginning in late 1996, PUD's Engineering and Program Management Division developed a trunk sewer modeling program to efficiently analyze the hydraulic capacity of the City's municipal trunk sewer system. The hydraulic model is used to analyze the capacity of existing trunk sewers under current and future conditions, and to pro-actively develop solutions to any potential future problems before they manifest themselves as wastewater overflows.

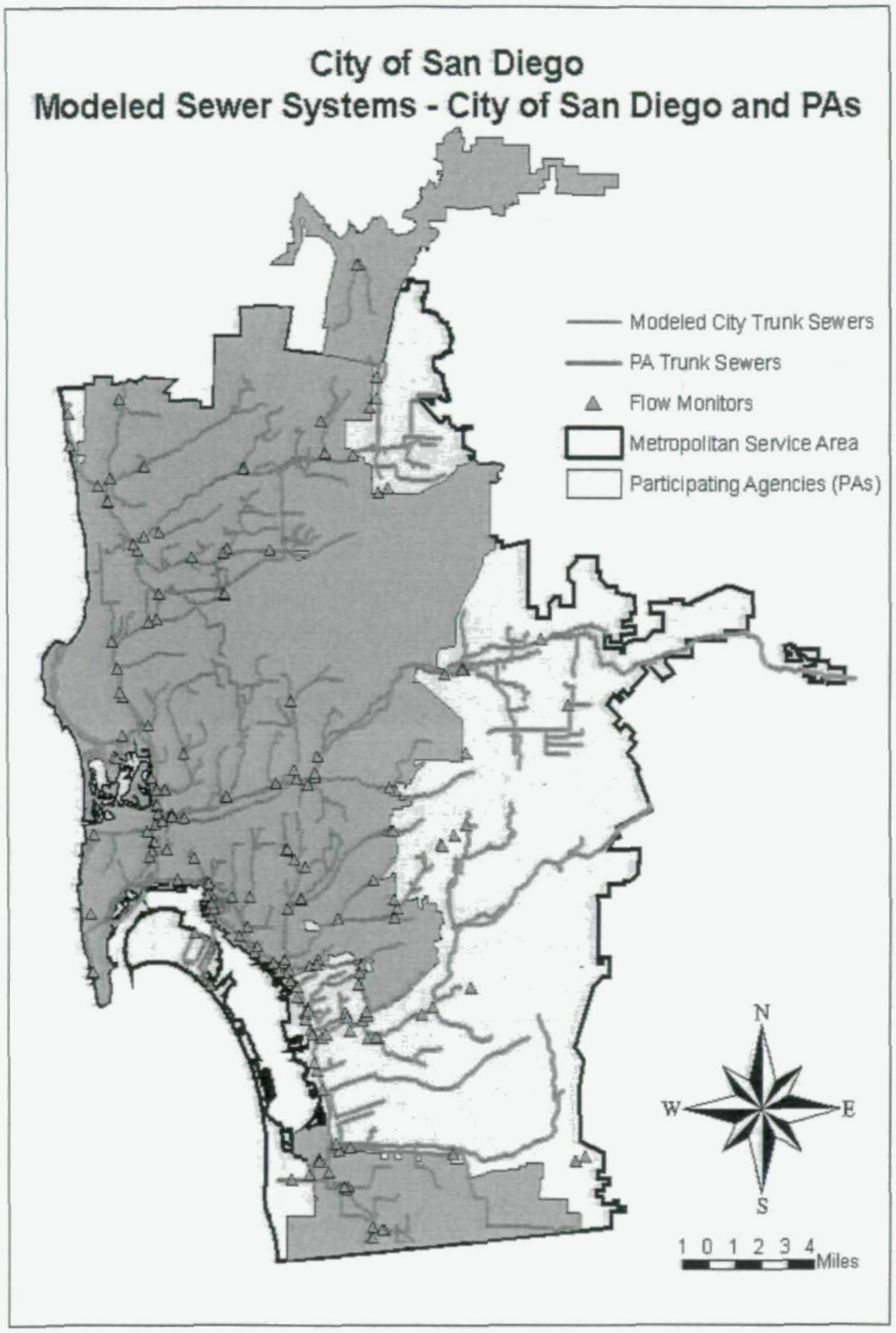
The City's trunk sewer model includes over 6,800 manholes and a like number of pipe segments on 121 trunk sewers. The model includes all pipes 15 inches in diameter or larger, plus many key smaller pipes. The City's wastewater service area consists of approximately 2,400 separate tributary areas, with an average size of less than 70 acres each. Existing and projected population and employment within each of the tributary areas are based on demographic data provided by the regional planning agency, the San Diego Association of Governments (SANDAG).

As shown in Figure 1-1, the City's Metropolitan Wastewater System also services areas outside the City. PUD's sewer model includes the PAs' trunk sewers and their tributary areas to allow flow projections from the PAs to be made on the same consistent basis as flow projections from areas within the City, and to route flows accurately. In addition, the flows from the PA's trunks that connect to San Diego's municipal trunk sewers are fully accounted for in the capacity analysis of the City trunk sewers.

The hydraulic model includes a database of the characteristics of the trunk sewers and their tributary areas, calibrated unit flow parameters, software to maintain these data, hydraulic algorithms to compute flows and water depths, and output routines to tabulate and graphically present the results.

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

Figure 1-1



Modeling results, which include the flows, depths, and velocities throughout the entire trunk, are used in the capacity assessment program. Modeling results are also used to identify hydraulic problems (e.g., general lack of capacity, short bottleneck reach that backs flow upstream, etc.). The model also indicates if there is a significant risk of surcharging and overflows, and if that risk will increase due to future growth. For trunks where modeling in the capacity assessment process has identified current or potential future capacity deficiencies, detailed modeling studies have been initiated in which the model of that specific trunk sewer is refined, the nature and extent of infiltration/inflow is assessed, and alternatives for providing the needed capacity are formulated. Generally, the modeling study is followed by a planning study and/or pre-design study in which alternatives are refined and evaluated considering such factors as the condition of the existing trunk sewer, right-of-way availability, capital costs, construction and long-term environmental impacts.

In compliance with the 2007 Final Consent Decree, Section VII.D.1, the City is required to include both dry weather and wet weather flow simulations for present and future (5-10 years) scenarios in its capacity assessment program. Additionally, the Consent Decree requires the City to prioritize the trunk sewers as critical, semi-critical, or non-critical, according to the assessment combining both flow monitoring and modeling.

The monitoring criticality of a trunk sewer is based on the maximum depth of flow observed during the period in which the flow data is utilized for the assessment. In general, a 15-minute monitoring interval is used. The observed maximum depth (d) is expressed as a percentage of the pipe diameter (D), and each trunk is classified using the following rules:

For pipes less than 18 inches in diameter:	$50\% \leq d/D$	Critical
	$40\% \leq d/D < 50\%$	Semi-Critical
	$d/D < 40\%$	Non-Critical
For pipes greater than or equal to 18 inches:	$75\% \leq d/D$	Critical
	$50\% \leq d/D < 75\%$	Semi-Critical
	$d/D < 50\%$	Non-Critical

The rules for dry weather d/D are set at less than full pipe to allow for the possibility of higher flows during unmonitored peak wet weather periods, to allow for possible lower capacity due to localized hydraulic inefficiencies, and to provide lead time to better assess the problem and develop solutions. The semi-critical rating category was designated to provide the early warning of possible future capacity problems. The more conservative rules applied to pipes less than 18 inches in diameter reflect the greater potential for factors such as deposits, roots, grease, sags, and poor joints to reduce pipe capacity in smaller pipes.

The strength of the flow monitoring and criticality rating system is that it flags potential problems based on actual field conditions rather than theoretical flow and capacity calculations. The limitation of the system is that it provides only a snapshot in time at one or two locations on each trunk sewer. This limitation is addressed when trunk sewers are further analyzed with a hydraulic model. Hydraulic modeling provides additional spatial definition (e.g., flow versus capacity in all pipe segments rather than just at monitored locations), estimates future flows as well as existing flows, and allows solutions such as diversions and relief sewers to be tested.

For wet weather model simulations, criticality is based on both the d/D and the hydraulic grade line (HGL) depth below rim of the manhole. HGL depth below rim is defined as the distance between the maximum depth of flow and the ground surface. In general, a low HGL value indicates a high risk of sewage spill. Each trunk is classified using the following rules:

For all sizes of pipes:	100% < d/D and HGL depth below rim < 2'	Critical
	100% < d/D and HGL depth below rim > 2'	Semi-Critical
	100% ≥ d/D	Non-Critical

The rules for wet weather d/D are set at full pipe since wet weather flows have been accounted for. The wet weather model is simulated based on the standard of a 10-year return wet weather flow. This standard yields a somewhat higher peak wet weather flow than that which occurred during the El Niño storms in 1998.

The City has performed these practices consistently since the beginning of its capacity assessment & assurance program. The City also prepared a Municipal Trunk Sewer Capacity Assessment Annual Report which updates the capacity assessment information by considering new flow trends, changes in the sewer system, and other modifications.

SMALL MAINS CAPACITY ASSESSMENT PROGRAM

The City's small mains, which are pipes 12-inch in diameter or smaller, generally service smaller and fully developed areas; these small mains generally contain excess capacity. The City requires sewers to be a minimum of 8 inches in diameter mainly for maintenance purposes. Nevertheless, the City has long had procedures in place to assess the capacity of small mains on a selective basis. Two situations which typically trigger assessments are: (1) new development proposals (e.g. sewer planning studies, which are generally performed by consulting engineers for developers) and (2) replacement of concrete mains or other mains determined to be in poor condition or requiring excessive maintenance (e.g. group jobs).

Since 2001, initial capacity assessments of small mains have also been performed in conjunction with the City's sewer inspection and condition assessment program. Capacity assessments are required in order to determine the most effective recommendation for each inspected sewer; primarily to determine if rehabilitation by lining the pipes is a feasible alternative for replacement of pipes in poor condition. Lining is considered feasible if the existing pipe has adequate capacity and velocity. If the capacity or velocity of the existing pipe is not adequate, replacement with a larger or steeper pipe is required. In this case, the pipes will most likely be grouped with other pipes and sometimes water CIP projects in the same area into a "group job." During the design of group jobs, City staff further assesses capacity and determines appropriate sizes and slopes for the new replacement pipes. In summary, the initial capacity assessments are part of a screening process to identify pipes suitable for rehabilitation by lining the pipes. This screening process is an important step because rehabilitation projects can be implemented much more quickly and inexpensively than replacement projects, contributing sooner to the City's goal of reducing sanitary sewer overflows.

The small main model uses the same dynamic modeling software and similar approach as the trunk sewer model. Hydraulic computations are performed using the InfoWorks software, as documented in the section of **TRUNK SEWER CAPACITY ASSESSMENT PROGRAM** mentioned above. The key outputs consist of the peak flow, depth, and velocity in each pipe. This data is exported into a spreadsheet for final post-processing, and considered during the condition assessment process to determine the feasibility of rehabilitation by lining.

Approximately 2,600 miles of small mains have been modeled to-date. Additional mains are being modeled on an ongoing basis, corresponding to mains included in various phases of the City's inspection and condition assessment program. Because all mains in a tributary area must be modeled in one simulation, the number of modeled pipes greatly exceeds that of assessed pipes.

The great majority of small mains have adequate capacity. Only about four percent of the modeled mains have peak flows that exceed 50 percent of the pipe capacity. The pipes considered to have inadequate capacity (i.e., over 50 percent full for a projected flow under the build-out condition) are designated for replacement during the small main assessment process.

The PUD sewer modeling team will continue using the dynamic model to analyze the hydraulic capacity of the sewer system. PUD will ensure that system capacity is sufficient by continuing the current trunk sewer and small main assessment programs, including collecting flow monitoring data in both dry and wet weather and performing hydraulic modeling analysis for the City's sewer system.

SEWER PIPE AND MANHOLE INSPECTION PROGRAM

The City is systematically inspecting and assessing its pipe and manhole facilities as part of a program to reduce sanitary sewer overflows. Pipes are inspected using CCTV cameras. For the manholes, an inspection crew performs a visual inspection and completes a checklist. This information is used to assess the condition of the pipes and manholes and to generate recommendations for repair, rehabilitation or replacement projects.

In the mid-1990's, the City analyzed sewer overflow records and observed that overflows occurred more than twice as often from concrete pipes than from pipes made of other materials. Recognizing the problem with concrete mains, the City launched its Concrete Sewer Main Replacement Program in 1997. The goal of this program was to improve the level of service to City residents and reduce the impacts of sanitary sewer overflows from concrete mains that had been severely deteriorated by hydrogen sulfide gases. Also in 1997, the City completed the first phase of an ongoing CCTV inspection program aimed at assessing the condition of vitrified clay sewers and sewers made of unknown materials - all located in the same areas as the concrete sewers.

The City contracted with consultants to televise and assess the concrete mains and adjacent sewers. Based on this information, the concrete main replacement group jobs were prioritized and the design efforts began. Since then, a significant amount of the City's concrete mains have been replaced, rehabilitated, or abandoned. Most of the remaining concrete mains are part of the current design and construction projects.

In 2001, MWWD began a three-year program to inspect approximately 1,200 miles of the collection system, starting with the sewers most likely to experience overflows. Over the course of the program, MWWD completed inspection primarily of all pipes installed before 1965, most of the non-right-of-way sewers, and the trunk sewers built before 1991. Following this three-year program, similar CCTV inspection programs have been continuously conducted by PUD.

In compliance with the 2007 Final Consent Decree, Section VII.C.4, the City will complete CCTV inspection of at least 40 miles of its pipelines each year. To meet this requirement, PUD manages inspection contracts to inspect several categories of pipes including pipes over 40 years old, pipes on a high frequency maintenance interval, and pipes with a history of overflows.

The PUD's systematic inspection program consists of both internal CCTV inspections and external manhole inspections and surveys. Because of the use of multiple contractors PUD has standardized defect codes and point scores, database structures, digital video formats, and GIS linkages to ensure consistency.

The primary goal of the inspection program is to provide the field observations needed to assess the structural condition of every sewer pipe segment and manhole. Along with hydraulic capacity assessments being performed by the modeling section, these structural assessments are used to identify and prioritize sewer capital improvements, resulting in reduced pipe failures and ensuring adequate hydraulic capacity for growth.

Additional benefits of the inspection program include:

- Identify and immediately correct acute internal pipe defects or blockages that could cause near-term overflows.
- Identify and correct external conditions that could lead to future overflows (e.g., exposed pipes or encasements, large trees near manholes, erosion or damage at raised manholes, missing manhole locks).
- Locate sewer manholes and survey their spatial coordinates and note access issues, including manholes in canyons that are obstructed by vegetation or buried. In the future, crews will then be able to use portable GPS equipment to readily find these manholes to perform inspections and maintenance.
- Identify sewers in need of cleaning to restore hydraulic capacity.

- Populate a baseline database of sewer assets and their current structural condition that can be used in the future to better quantify deterioration rates and remaining useful life.

SEWER PUMP STATION INSPECTION AND CONDITION ASSESSMENT

Prior to 1996, City sewer pump station upgrade and replacement projects were generally identified by focusing on problem stations. These were sewer pump stations with a significant number of pumping capacity or maintenance issues, and/or sewer overflows.

City sewer pump stations are categorized as "Large Pump Stations" and "Small Pump Stations" based on the capacity of the pump station and the PUD division responsible for its operation.

Large Pump Stations are the eight largest City pump stations and are operated by the Wastewater Treatment and Disposal Division. The following pump stations are in the category of the Large Pump Stations: Pump Station # 1, Pump Station # 2, Pump Station # 64, Pump Station # 65, Grove Avenue Pump Station, Otay River Pump Station, East Mission Gorge Pump Station, and Penasquitos Pump Station. Their pumping capacity varies from 12 mgd for the Otay River Pump Station to 432 mgd for the Pump Station # 2.

The other 75 City's sewer pump stations are in the category of the Small Pump Stations, which have considerably less pumping capacity and are operated by the Wastewater Collection Division.

Since 1997, several condition assessment reports on the Large Pump Stations were prepared by consultant engineers. Subsequently, MWWD staff prepared Master Plan reports for each Large Pump Station during 2004 to 2007. These Master Plan reports assessed the condition and the required projected pumping capacity of the facility, and recommended improvement projects. As a result of this master planning effort, CIP projects were implemented.

Also, in 1997 MWWD accomplished the inspection and assessment on all the Small Pump Stations. This assessment included the following activities: comprehensive inventory of all station equipment, perform station inspection and testing, review operating records, and develop formal criteria to identify and prioritize recommended equipment upgrade and facility replacement projects. A report dated June 1997, Pump Station and Force Main Audit Report (Audit Report), compiled the results of this inspection and assessment. As a result of this Audit Report, several CIP projects were implemented.

For both Large and Small Pump Stations, peak inflow projections for each pump station have been developed and updated by PUD's Sewer Modeling Team using the latest information on population and employment from SANDAG. These flow projections are used to ensure that all pump stations have, or will have after planned upgrades, sufficient pumping capacity.

The PUD Facilities Condition Assessment Plan (or CAP), dated June 18, 2008, establishes the Department's plan for the inspection and assessment of all City's wastewater facilities, including pump stations, pipelines, and treatment plants. For Large Pump Stations, PUD will perform an assessment and prepare a "Condition Assessment Report" ("CAR") on one to two pump stations per year. With this assessment initiated in FY 09, a CAR for all eight pump stations will be completed by June 2013. This process of assessing all the Large Pump Stations every five years will be on going.

Similarly, for Small Pump Stations, an inspection and assessment of each station will be accomplished every five years. Accordingly, 20% of the Small Pump Stations will be assessed every year. A report will be prepared for each assessed station, which will include recommendations for needed equipment upgrade and facility replacement projects. With this assessment work initiated in FY 09, reports on all the Small Pump Stations will be completed by June 2013. The reports will be compiled into an audit report scheduled to be prepared in 2013, which will be similar to the 1997 Pump Station and Force Main Audit Report mentioned above.

These Large and Small Pump Station assessment reports will provide an ongoing and comprehensive methodology for the evaluation of sewer pump station performance, and facility upgrade/replacement requirements.

RAINFLL DEPENDENT INFILTRATION & INFLOW STUDIES

To prevent wet weather related sanitary sewer overflows, PUD conducts Rainfall Dependent Infiltration & Inflow (RDI/I) studies to identify areas with the tendency of high RDI/I. PUD performs two types of RDI/I studies: One is to perform a system-wide RDI/I study by analyzing data collected from the permanent ADS flow monitors, when RDI/I is deemed evident in a rainy season. The other one is to concentrate on locating RDI/I sources for previously identified high RDI/I sewer basins by installing ISCO flow monitors on a temporary basis. In addition, other RDI/I studies such as smoke testing is applied to further narrow down the source of RDI/I when needed. The results of these RDI/I studies will be used to assist in the wet weather capacity assessment of the sewerage system and for the RDI/I remedial actions.

1. Wet Weather Flow Characterization Report

The objective of this study is to identify potential sources of RDI/I for the entire Metropolitan Service Area from a macro perspective. This study utilizes data from the City's existing permanent ADS monitors and a computer program, called Sewer Hydrograph Analysis & Peak Evaluation (SHAPE), to determine the RDI/I component of wet weather flow in the wastewater collection system. An advantage of the SHAPE program is being able to separate the groundwater infiltration component from the RDI/I component automatically.

There are two parts in this report. Part I analyzed the RDI/I from the Participating Agencies and compared it to each other and to the City. This part also included the comparison of RDI/I from the three major geographic sewer basins: North Metro, Mission Valley, and South Metro. Part II analyzed the RDI/I from various sewer basins within the City limits.

Two characterization reports have been completed to date. The first characterization report was completed in August 2002 analyzing the El Niño storm in 1998. The second report was completed in February 2004 analyzing the two storms in March and April of 2003. The third characterization report analyzed a storm in January of 2008. This report was completed in January 2009. When RDI/I is deemed evident in any given rainy season, PUD will perform these system-wide studies to monitor the status of RDI/I by analyzing the data collected from the permanent ADS flow monitors. Any City sewer basins with exceptionally high RDI/I identified in this program will be subject to further studies such as the **Temporary Flow Monitoring Program** or **Other I/I Study** as mentioned below.

2. Temporary Flow Monitoring Program – Rainfall Dependent Infiltration and Inflow Report

The objective of this study is to identify the potential sources of infiltration and inflow in sewer basins, where high RDI/I were evidenced during the historically severe rain event on October 27, 2004. The PUD Temporary Flow Monitoring Program was initiated in the summer of 2005 and has continued since. The uniqueness of this program is that it employs in-house staff and utilizes City-owned monitors and equipment to achieve the flexibility of tracking down the RDI/I.

Upon identifying the high RDI/I basins in response to the October 27, 2004 storm event, action items were initiated in an attempt to determine the causes of high RDI/I and to minimize potential RDI/I and thus to reduce wet weather related sewer overflows. The action items included the installation of temporary flow monitors in the high RDI/I basins before the next rainy season, flow separation analysis, smoke tests, investigation of potential sewer-storm cross-connections, inspection of manholes, televising certain sewer and storm drain segments, negotiation with upstream discharge agencies, and replacing manhole covers in the remote and low-lying areas.

This Temporary Flow Monitoring Program is implemented during each rainy season. The lower-than-average rainfall in the past has not yielded adequate RDI/I data for identifying the sources in most of the study areas. A Temporary Flow Monitoring Program – Rainfall Dependent Infiltration and Inflow Report is published when substantial findings are deduced based on monitoring data collected in a targeted rainy season.

3. Other I/I Study – Smoke Testing Study

The objective of conducting this kind of study is to pinpoint the exact causes of the RDI/I, particularly for the component of inflows, when the high RDI/I basin is narrowed down through the flow separation techniques to a manageable size. Smoke testing is intended to detect potential points of inflow due to direct connections to the sewer such as storm sewer cross-connections and point source leaks in drainage paths or ponding areas, roof leaders, cellars, yard or area drains, fountain drains, abandoned building sewers, and faulty service connections. The City will continue performing smoke testing or other effective investigations on an as-needed basis when significant RDI/I is identified in a relatively small basin.

(b) Design Criteria: Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria; and

The City has developed a Sewer Design Guide, as stated in Section 5 of this SSMP, for both in-house engineers and consultant engineers to comply with. This guide summarizes and outlines relevant City policies and applicable codes, and engineering and operational practices and procedures that have been developed in an attempt to establish a cost-effective, reliable, and safe wastewater collection system. The Sewer Design Guide is available online at www.sandiego.gov/mwwd/pdf/sewerdesign.pdf. The latest guideline updates in 2004 took into consideration of designing sewer facilities based on a 10-year return wet weather flow and redirecting sewer flow from the canyons and environmentally sensitive areas. PUD is in the process of updating the Sewer Design Guide and this latest update is anticipated to be completed in 2009.

The focus of the Sewer Design Guide is on the design of sewer systems including pump stations with a capacity of less than three million gallons per day (mgd). For pump stations greater than three mgd, the design criteria are provided in the Clean Water Program (CWP) Guidelines (Volume I through Volume X). The CWP Guidelines are written primarily for facilities related to wastewater treatment and reclamation plants, including large influent pump stations. The CWP Guidelines is available online at:
www.sandiego.gov/mwwd/business/cwpspecs/index.shtml.

The Sewer Design Guide is updated every three years whereas the Clean Water Program Guidelines is updated on an as-needed basis when new design/construction techniques, new regulatory requirements, and/or new materials dictate such an update. A Guideline Committee, consisting of seasoned engineers appointed from the PUD,, and Development Services Department, is formed to undertake the necessary updates.

(c) Capacity Enhancement Measures: The steps needed to establish a short-and-long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.

The first step needed to establish a short-and-long-term CIP to address identified hydraulic deficiencies is to perform capacity assessment for the sewer system as detailed in **(a) Evaluation** above. For those trunk sewers that have been identified as having potential capacity deficiencies through monitoring and/or modeling or have been triggered for further study will be kept in the "Wet Weather Watch List". Trunk sewers that are kept in this Wet Weather Watch List are assessed annually using hydraulic modeling according to their peak wet weather flows, which are usually determined from the permanent flow monitoring data, or in some cases assumed based on other available information. Five to 20 semi-critical and non-critical trunks (critical trunks are not on the list since they have completed this process, and become CIP projects) with high RDI/I, are kept in this Watch List and reviewed in June every year. As a conclusion of this review, trunk sewers that may experience capacity constraint under a ten-year return peak wet weather flow in the next 6-10 years will be identified and recommended for the detailed modeling study.

The second step is to prepare a detailed modeling study for those hydraulically deficient trunk sewers. In general, only one trunk sewer is being assessed in the detailed modeling study, which includes further validated and refined model for that particular trunk sewer. The study consists of modeling peak wet weather flows, developing preliminary alternatives to solve the capacity problem (e.g., replacement or relief sewers, flow diversions to other trunk sewers, etc.), and determining the sizes of required new sewers. These findings are incorporated into a subsequent planning report, which further evaluates the alternatives based on costs and other factors, and recommends a project for subsequent design and construction. Typically, sewer main and pump station project do not need detailed modeling studies; inspection and condition assessment, however, is necessary to identify the need for improvements as detailed in **(a) Evaluation** above.

The third step is to prepare a planning report to further evaluate the proposed alternatives. A planning report is necessary to assess the proposed alternatives based on constructability, conformance to Sewer Design Guide, impact on surrounding residential areas, ability to expand, land acquisition, long-term maintenance and project cost. After each of these elements have been weighed and compared, only one alternative (considered the best alternative) will be recommended for implementation. The recommended alternative will then be further assessed in a Business Case Evaluation (BCE).

The fourth step is to conduct a BCE. A BCE is a thorough examination of a facility requirement at its infancy to determine which alternative, if any, is the most cost-effective solution to address the requirement. It validates the need for a solution in terms of customer value and seeks the lowest life-cycle cost solution with due consideration for risk. A "Do Nothing" alternative is often added to the BCE to evaluate the risk of doing nothing. If the risk is considered too high compared to the costs (in terms of present value) and benefits of a project over its life-cycle, then the project is validated and will be presented to the PUD's Management Team for approval.

Once the BCE is approved by the Management Team, a CIP project will be established. A new stand-alone CIP project may be added to the CIP budget during the annual City-wide budget process or separately by processing a Request for Council Action (1472). Project schedules will be established and prioritized based on current and future capacity needs, condition assessment, and potential risks of spill. Project budgets and schedules will be routinely reviewed by the responsible Project Manager and Project Management Team. CIP projects that are scheduled to be implemented in the next two years are considered to be the short-term CIP projects. Those CIP projects that are scheduled to be implemented in the next two to 10 years are considered to be the long-tem CIP projects. Facility improvement for small mains, trunk sewers, and pump stations can either be short-term or long-term CIP projects.

The City's CIP is generally funded by bond funding, cash funding, and/or State Revolving Fund (SRF). The sewer revenue bonds are used to pay for approximately 80% of the CIP program. The remaining 20% is paid on a pay-as-you-go basis from Net System Revenues, which are supported by currently approved sewer service charges. A project may qualify for an SRF loan depending upon the purpose of the project. If a project addresses a clean water related issue, it would qualify under the categories outlined in the SRF Policy. Grants issuance is subject to the policy of the each funding agency.

(d) Schedule: The enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D.

The City's 10-Year Wastewater Capital Improvement Program is reviewed and updated annually and lists capital improvement projects scheduled for implementation during the following 10 years. The prioritization of these capital improvement projects is reevaluated every year and determined based on the following factors: condition assessment of the infrastructure, future capacity requirements associated with growth, and EPA requirements mandated under the Final Consent Decree. A list of the capital improvement projects for the City is available online at www.sandiego.gov/fm/annual/fy09vol3.shtml.

References:

Municipal Trunk Sewer Capacity Assessment – 2008 Annual Update

Municipal Wastewater Collection System Master Plan – 2005 update

Peak Flow Management Strategy - Wet Weather Flow Characterization Report (2002)

Pump Station and Force Main Audit Report (June 1997)

Sewer Design Guide (2004)

Temporary Flow Monitoring Program – 2008 Infiltration and Inflow Report

Wet Weather Flow Characterization Report – 2004

9.0 MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

(a) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities:

The City maintains multiple databases which provide information for efficient maintenance and CIP development. These databases are essential and utilized to establish and prioritize appropriate SSMP activities.

SPLASH DATABASE

The acronym SPLASH stands for System Planning & Locator Application for Sewer and Hydrography. The SPLASH application is used to maintain an inventory of the type and location of water, reclaimed water, and wastewater facilities. The type of data maintained for these facilities includes engineering information, geographic information on the location, and geographic representation (symbology) for the facility. For wastewater, it includes transmission, trunk and collection pipelines with manholes, laterals, pump stations, and other appurtenances. Facility details include attributes such as: size, length, material type, age, depth, location, etc. There are over 100 different attributes available for the various wastewater facilities. The City's Water Department, Facility Information Management Section, maintains the data in SPLASH. The SPLASH application was developed using Smallworld GIS software and integrates with the utility Oracle database. Smallworld allows the users to see and edit real time data graphics and create standard plots and custom maps.

The GIS database was developed back in 1991 with a conversion process that took information maintained on 100' and 400' hardcopy maps and digitized the information into a GIS database. Since then the database has been maintained using data gathered from operational and as-built drawings and is augmented regularly with updates from CIP projects, and field updates. The SPLASH database integrates the utility data with the regional GIS land-base data. Additional data available in SPLASH for spatial analysis includes aerial photography, contours, environmentally sensitive land areas, CIP projects, parcel and subdivision information, Thomas Brothers maps and demographic information.

SPLASH is the central component of TIDES (or Totally Integrated Database Enterprise System). The information created and maintained by SPLASH can be accessed by all water and wastewater applications. SWIM, Water Modeling and Sewer Modeling are examples of city business applications that access the SPLASH database. SPLASH provides monthly shapefiles to the regional GIS agency SanGIS, and those shapefiles are then used in other utility based applications such as sewer modeling. The City's Water Department updates the SPLASH database continually according to the verified information from the field observation, modeling, and condition assessment.

HYDRAULIC MODEL DATABASE

The trunk sewer hydraulic model includes a database of the characteristics of the trunk sewers (15-inch diameter and larger) and their tributary areas, calibrated unit flow parameters, software to maintain these data, hydraulic algorithms to compute flows and water depths, and output routines to tabulate and graphically present the results. Similar data for the small mains (12-inch diameter and smaller) are also kept in the hydraulic modeling database for those sewer basins where a small main modeling has been performed for the purpose of condition assessment. The City continues using the model to analyze the capacity of the trunk sewers and small mains under current and future conditions, and to proactively develop solutions to any potential future problems.

All prudent data related to pipes, manholes, and tributary areas are stored in InfoWorks database. The data management tasks are supported by the use of ArcGIS to process and convert data into the hydraulic model. Modeling and data management functions that are not supported by out-of-the-box features from the ArcGIS and InfoWorks software are provided by Hydraulic Model Framework (HMF), a customized software tool packaged and accessed via the GIS user interface. HMF is used to interface between InfoWorks and ArcGIS. It also manages other data used in the modeling process, e.g., calibrated unit flow generation rates, diurnal flow profiles, infiltration/inflow parameters, major industrial flows, and provides tabular and graphic reports of model results. InfoWorks modeling software performs the flow routing and hydraulic computations, the outputs of which include flow, depth, and velocity in each pipe over the simulation period.

The flow-generation algorithms in the model utilize the SANDAG 2030 Forecasts containing the population and employment projections for small areas called Master Geographic Reference Areas (MGRAs), supplemented by point discharges for major commercial or industrial dischargers. The SANDAG 2030 data are available for years 2010, 2015, 2020, 2025 and 2030. The projection for year 2030 corresponds to the maximum capacity for population and employment based on current zoning and community plans. The projection for year 2030 may be modified to represent the build out condition when prudent information regarding long-term planning is available from the City or other PAs. Generally, SANDAG updates its growth forecasts every 3-5 years.

Modeling results, which include the flows, depths, and velocities throughout the entire trunk sewer or small main system, are exported into Microsoft Excel format for further enhancement. This Excel spreadsheet, referred to as *Hydraulic Model Results Table (Hydraulic Table)*, will include sewer data such as Facility Sequence Number, Pipe ID, Manhole ID, Invert Elevation, Rim Elevation, Slope, Diameter, Length, Max Velocity, Max Depth, d/D (Max depth/Diameter) in percentage, Max HGL (Hydraulic Grade Line), Max EGL (Energy Grade Line), Max Flow, Full Capacity and q/Q (Max flow/Capacity) in percentage for each pipe segment. This *Hydraulic Table* is very useful for both trunk sewers and small mains capacity assessment. In general, the Max Velocity is used to determine the maintenance frequency, d/D and q/Q are used in capacity assessment, and the Max HGL is used to determine the potential risks of spill.

SHARQ DATABASE

SHARQ stands for Sewer History Activities Repository & Query System. This system is developed on the ArcGIS platform. City staff uses this application to perform sewer condition assessment for the on-going sewer replacement and rehabilitation program that was mandated by the EPA in the Final Consent Decree. This system provides visual and data identification of pipeline segments, manholes, and other sewer system structures. The system also consists of a list of CCTV inspection videos on select segments of the sewage system and the preventative maintenance data for each of the pipeline segments within the sewer system. SHARQ is updated monthly.

SEWER CONDITION ASSESSMENT MASTER DATABASE

In addition to SHARQ, City staff created a sewer condition assessment master database to provide a quick but reliable means of viewing all pertinent data related to the condition of sewer pipes and manholes. This is a valuable tool for engineers looking for condition information on any given sewer pipe segment or manhole. Oracle data is the foundation or anchor for the entire database. The Oracle data contains historical data for each pipe segment. Each pipe segment may have been televised several times by private contractors or by PUD Wastewater Collection Division crews. The data provided by Oracle is sorted by date descending; so when entering the facility sequence number (FSN), the newest data for the pipe segment appears first in the Oracle section. All of the other sections contain the latest information in them and are not designed to have historical reference.

The master database provides basic sewer pipes information, such as FSN, diameter, length, invert elevation, etc. It also includes trunk sewer names and numbers, assessed dispatch and comments, sewer pipes currently being assessed, sewer pipes currently being televised, sewers abandoned, sewers not accessible, and hydraulic modeling data. The manhole portion of the database provides the same type of data as the sewer pipe portion.

Updates to the master database will be performed as new condition assessment data becomes available. The master database with the latest updates is stored in the designated G:drive in the PUD server.

OTHER MANAGEMENT SYSTEMS

PUD's Wastewater Collection Division field crews use SHARQ and PSTools to prepare map and locate utilities. In addition, they use the Computerized Maintenance Management System (CMMS) to track work orders and Training Information Management System (TIMS) to track training records. For more information on the databases that the field crews maintain refer to **Section 4 - (a), (b) and (d)** of this SSMP.

(b) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP.

The City's SSMP plan is developed to complement and support the other SSMP elements. Each year as part of the City's strategic planning, the SSMP goals are set, the deliverables required to meet goals are defined and prioritized, and progress is measured and reported to ensure the goals are met. PUD utilizes the services of the E&CP for execution of capital projects within the Capital Improvement Program. PUD serves as E&CPs' "client" establishing the project's budget and overall objectives during the initial project planning. PUD oversees the project execution to ensure that the project deliverables are met, and takes over the operation of the finished facility upon completion of the work. PUD meets with E&CP monthly to evaluate progress and performance.

The City's Rehabilitation and Replacement Plan implementation include short and long-term activities that ensure the sustainability of the sanitary sewer system infrastructure. The City also implements a quality control/quality assurance plan to examine the effectiveness of cleaning. A more detailed description of these two plans can be found in **Section 4 - (b) and (c)** of this SSMP.

(c) Assess the success of the preventative maintenance program;

The City assesses the success of its programs by analyzing the condition assessment results and keeping track of the quantities and trends of various types of sewer blockages and overflows as well as odor problems and complaints. Successful practices are continued and program adjustments are made when appropriate. Examples of these assessments include: regular condition assessment review meetings, weekly SSO reviews, monthly review of chemical root control contractors, annual capacity assurance review, and a comprehensive annual review of the preventive maintenance program.

The City's preventive measures also include community outreach and education activities on the workings of the sewer system and steps the public can take to help reduce blockages and overflows.

The City submits Sewer System Performance Reports to the EPA prior to the beginning of March each year. These reports provide numerical and quantifiable output information related to the City's Wastewater Collection System Plans. The major preventative maintenance program activities that are assessed include the:

- System-wide Gravity Collection System Cleaning Program
- Accelerated Preventive Maintenance Cleaning Program
- Root Control Program
- Sewer Pipe Inspection and Condition Assessment
- Sewer Repair, Rehabilitation, and Replacement
- Fats, Oils and Grease Blockage Control Program
- Canyon Area SSO Elimination
- Pump Station and Force Main SSO Reduction Action Program
- Program to Address Other Causes of SSOs
- Collection System Capacity Assessment and Assurance

(d) Update program elements; as appropriate, based on monitoring or performance evaluations;

As mentioned in the paragraphs above, a comprehensive review of the preventative maintenance program is conducted on an annual basis. Based upon this review, program elements are updated to ensure that permit compliance is achieved and that all requirements of the Final Consent Decree with the EPA are adhered to.

(e) Identify and illustrate SSO trends, including: frequency, location and volume.

SSO trends are identified and tracked through a state-of-the-art CMMS computer system. When complaints are called in, they are uploaded to a master database and plotted on a City-wide map for visual review on an as-needed basis. The City's information management system is an integral part of the operation and maintenance program. All attributes of each sewer pipe gravity and pressure segment are included in a comprehensive inventory database. Information regarding each new overflow and odor complaint is entered into a maintenance management database. This information is evaluated to document locations, causes, and frequency of overflows and odors. This data is overlain on a GIS base map of the sewer system to quickly identify and visualize problem areas; communicate conditions and needs to City policy makers and management; and prioritize maintenance activities, urgent and emergency repairs, and mid- and long-term solutions.

The PUD also reviews SSO data in relation to the last maintenance activities completed on impacted sewer mains and/or manholes prior to the SSO event. PUD management reviews the correlation between GIS, vehicle GPS, and SSO maintenance event data to ensure that the department's sewer main cleaning activities are being conducted in a professional and efficient manner.

References:

None

10.0 SSMP PROGRAM AUDITS

As part of the SSMP, the Enrollee shall conduct periodic audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the Enrollee's compliance with the SSMP requirements identified in this subsection (D.13), including identification of any deficiencies in the SSMP and steps to correct them.

Program Audits

The City of San Diego PUD's Wastewater Collection Division has been registered to the ISO 14001 Environmental Management System standard since Calendar Year 2003. As a part of its on-going ISO 14001 registration, the Wastewater Collection Division has a current audit program that has been expanded to cover the WDR requirements and its elements. An internal audit covering both compliance and conformance is conducted on an on-going basis as a part of the ISO 14001 EMS internal audits. Likewise, external ISO 14001 EMS audits also will include audits of the WDR requirements and elements.

Both internal and external audits will comport with the ISO 14001 EMS audit scheme. Internal PUD staff is trained at appropriate levels to conduct internal audits. PUD utilizes ISO 14001 Registrars to conduct external audits.

Compliance Documents

The documents used for audit evaluations may include the following:

Wastewater Collection Division Environmental Management Plan with Standard Environmental Operating Procedures

City of San Diego, Metropolitan Wastewater Department, Wastewater Collection System Plans, September 2002

Public Utilities Department, Wastewater Collection Division's Operation and Maintenance Manuals

11.0 COMMUNICATION PROGRAM

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

Communication with the Public

The City of San Diego PUD regularly communicates with the public through its participation in regular City Council and Council Committee meetings, regular and ad-hoc City of San Diego citizens committees, and regular individual citizen communications. The PUD has a Public Information Office which routinely communicates Department information both to its external stakeholders and to internal audiences within the City organization. The PUD maintains current information on the City's website and regularly submits billing insert information with the City's water/sewer billing processes. The City has published a schedule of upcoming SSMP-related communication meetings on its website page. The PUD communicates ongoing development and implementation of SSMP processes through the City's Independent Rate Oversight Committee (IROC). The PUD is working to achieve final certification of this SSMP through the San Diego City Council by May, 2009. The PUD will provide regular annual updates on the performance of its SSMP through informational presentations to the City's Independent Rate Oversight Committee and/ or its sub committees.

Communication with Satellite Public Sewer Systems

The City of San Diego PUD regularly communicates with its satellite collection system agencies through the Metro Commission, which meets on a regular, monthly basis. The PUD has made an information presentation regarding its SSMP development at the Metro Commission's Technical Advisory Committee in calendar year 2008. The PUD has made an information presentation to the Metro Commission in early calendar year 2009. The PUD will provide regular annual updates on the performance of its SSMP through informational presentations to the Metro Commission and/ or its sub committees.

References:
None

Enclosure 9

Report on the Effects of Spill from Pump Station 64 into Los Penasquitos Creek

Public Utilities Department
Environmental Monitoring and Technical Services Division
Investigative Order No. R9-2011-0070, Section B10

Report on the Effects of Spill from Pump Station 64 into Los Penasquitos Creek

Subsequent to the power outage on September 8, a sanitary sewer overflow event caused sewage to spill into Los Penasquitos Creek (LPC), which empties into Los Penasquitos Lagoon (LPL) and ultimately the Pacific Ocean. The Water Quality Control Plan for the San Diego Basin (9) (Basin Plan; this and all other references available on request) has assigned several beneficial uses for these water bodies, including: agricultural supply; industrial service supply; contact recreation; non-contact recreation; warm fresh water habitat; cold fresh water habitat; wildlife habitat; habitats of special significance; estuarine habitat; rare, threatened, or endangered species; marine habitat; migration of aquatic organisms; shellfish harvesting; navigation; commercial and sport fishing; spawning, reproduction, and/or early development of fishes. An evaluation of how these beneficial uses were impacted by the sewage spill and a summary of all monitoring efforts follows.

Effects of Spill on San Diego County Beaches and Los Penasquitos Lagoon

In accordance with established protocols, the City of San Diego reported the sanitary sewer overflow event of September 8 to the San Diego County Department of Environmental Health (DEH), who immediately closed all beaches between Solana Beach and Scripps Pier starting September 9, and directed the City to collect water samples daily at what the DEH considered impacted beaches. As a result, water quality conditions were monitored at 17 beach and lagoon sites between September 9 and 13, 2011. These stations range from Solana Beach south to Scripps Pier and were selected based on their proximity to public bathing areas and to the mouth of the LPL. Maps of these sites are included as Attachment B10.1 – B10.4; GPS coordinates, site descriptions, and a summary of sample dates and total number of samples are included as Attachment B10.6.

Seawater samples were collected at each station once per day. Sampling technicians used GPS instrumentation and maps to locate approved sampling locations. Visual observations of water color and clarity, surf height, human or animal activity, and weather conditions were recorded at the time of sample collection. Wind speed and direction were measured using a hand-held anemometer with a compass. At each site, 250 ml pre-sterilized sample bottles were used to collect samples for analyses using aseptic techniques, preserved and transported to the City's Marine Microbiology Laboratory (CSDMML) within six hours of collection.

Water samples were analyzed for the presence of total coliform, fecal coliform, and enterococcus bacteria using standard membrane filtration techniques (APHA 1998). The CSDMML follows guidelines issued by the United States Environmental Protection Agency (USEPA) Water Quality Office, Water Hygiene Division, and the California State Department of Health Services

(CDHS) Environmental Laboratory Accreditation Program (ELAP) with respect to sampling and analytical procedures (Bordner et al. 1978, APHA 1998). Estimated values for bacteriological analyses are denoted by greater than (>), less than (<), or estimated (e) qualifiers and result from plates with colony counts above or below the permissible counting limits established in Bordner et al. (1978). This document defines membrane filtration limits of 20–80 colonies per plate for total coliforms and 20–60 colonies per plate for fecal coliforms. Although there are currently no plate limits for enterococcus, the City of San Diego's Microbiology lab applies the more conservative limit of 20–60 colonies per plate when counting and reporting enterococcus values. No Data (ND) is reported if plate counts from all dilutions have a non-coliform colony count of >200 per plate. Routine Quality Control (QC) tests were performed on seawater samples to ensure that test procedures and sampling variability did not exceed acceptable limits. Duplicate and split bacteriological samples were processed according to method requirements to measure intra-sample and inter-analyst variability, respectively. These routine QC data are being reported in the September 2011 Monthly Receiving Waters Monitoring Reports for the Point Loma Ocean Outfall and the South Bay Water Reclamation Plant as part of the City's NPDES reporting.

Results of the bacteriological analysis of seawater samples were assessed relative to the single sample maximum water-contact standards specified in the 2005 California Ocean Plan (i.e., total coliform > 10,000 CFU/100 mL, fecal coliform > 400 CFU/100 mL, enterococcus > 104 CFU/100 mL, or Fecal:Total ratio cannot exceeded 0.1 when total coliform density exceeds 1,000 CFU/100 mL). All results from these monitoring efforts are included as Attachment B10.7, with visual observations listed in Attachment B10.8. Of the 65 water samples collected along San Diego County beaches from September 9 – 13, only 23 contained elevated bacteria densities (see Attachment B10.7). Four occurred on September 9, nine on September 10, eight on September 11, and only two on September 12. By September 13, all bacteria levels were back in compliance with water contact standards, and the beaches were reopened to the public on September 14. Therefore, effects on public and environmental uses of the Pacific Ocean (as stated in the Basin Plan) from the spill were limited to elevated bacteria levels at various San Diego beaches which caused beach closures from September 9 – 13, 2011.

Effects of Spill on Los Penasquitos Creek

In conjunction with clean-up efforts, monitoring within LPC began on September 13, 2011. Appropriate (i.e., upstream/reference, downstream/impacted) monitoring sites within the creek were established by City staff in consultation with Regional Water Board and Department of Fish and Game staff. The number of sites surveyed each day ranged from three to seven; however, six sites were consistently surveyed from September 16 – 26. Each site was sampled up to four times a day. Maps of the LPC sites are included as Attachment B10.1 and B10.5; GPS coordinates, site descriptions, and a summary of sample dates and the total number of samples are included as Attachment B10.9. In addition, monitoring continued at the stations located within and 50 ft upstream of the LPL mixing zone (see above and Attachments B10.7, B10.8).

Water samples for bacterial analyses were collected in 250 mL pre-sterilized sample bottles from LPC locations following the same protocols described in the previous section. Sample collection date, time, and field observations (e.g., odor, water clarity, water color, floatables, deposits, etc) were documented. Conductivity and temperature measurements occurred in the field immediately after sample collection using an Orion Model 105 probe; pH was also measured as samples were collected, using an Oakton Waterproof pHTestr probe. Both instruments were calibrated according to manufacturer recommendations prior to use. Dissolved oxygen (DO) and ammonia measurements were conducted in the field within 15 minutes of sample collection. Tests were performed using colorimetric techniques employing Oxygen Vacu-vials®, Ammonia Vacu-vials® test kits, and a V-2000 Multi-Analyte Photometer®. A portion of each water sample was mixed with the reagent ampoule for color development, and the intensity of the resultant color was measured using the Multi-Analyte Photometer to determine analyte concentration. Additional water samples were analyzed for ammonia (as nitrogen) by the Salicylate Method using a Hach DR850 colorimeter. Quality Control tests for these analyses were performed using blanks; QA/QC summaries are included as Attachment B10.17.

All data collected as a result of the LPC monitoring efforts are included as Attachment B10.10, B10.11, and B10.12. Data from stations LOSPEN_CR1 – LOSPEN_CR6 were evaluated using a weight of evidence approach. First, upstream "non-impacted" or "reference" sites (i.e., LOSPEN_CR2, LOSPEN_CR6) were compared to down-stream "impacted" sites (LOSPEN_CR1, CR3, CR4, CR5) (see Attachments B10.13, B10.14, B10.15a-d). Second, "reference" stations were compared to available historical data (see Attachments B10.13, B10.14). It is important to note that these different projects/organizations may have used different methods to collect their data. Historical data included:

1) up to 31 water chemistry and water quality samples collected by Coastkeeper between January 2009 and June 2011 at a site located proximal to LOSPEN_CR3 (32.9069N latitude, 117.2304W longitude);

2) eight water chemistry samples collected by StreamTeam staff from two locations at the headwaters of LPC (32.9492N latitude/117.0702W longitude, 32.8901N latitude/117.2120W longitude);

3) four samples collected by the City's StormWater Division at an unknown LPC location during March 2010.

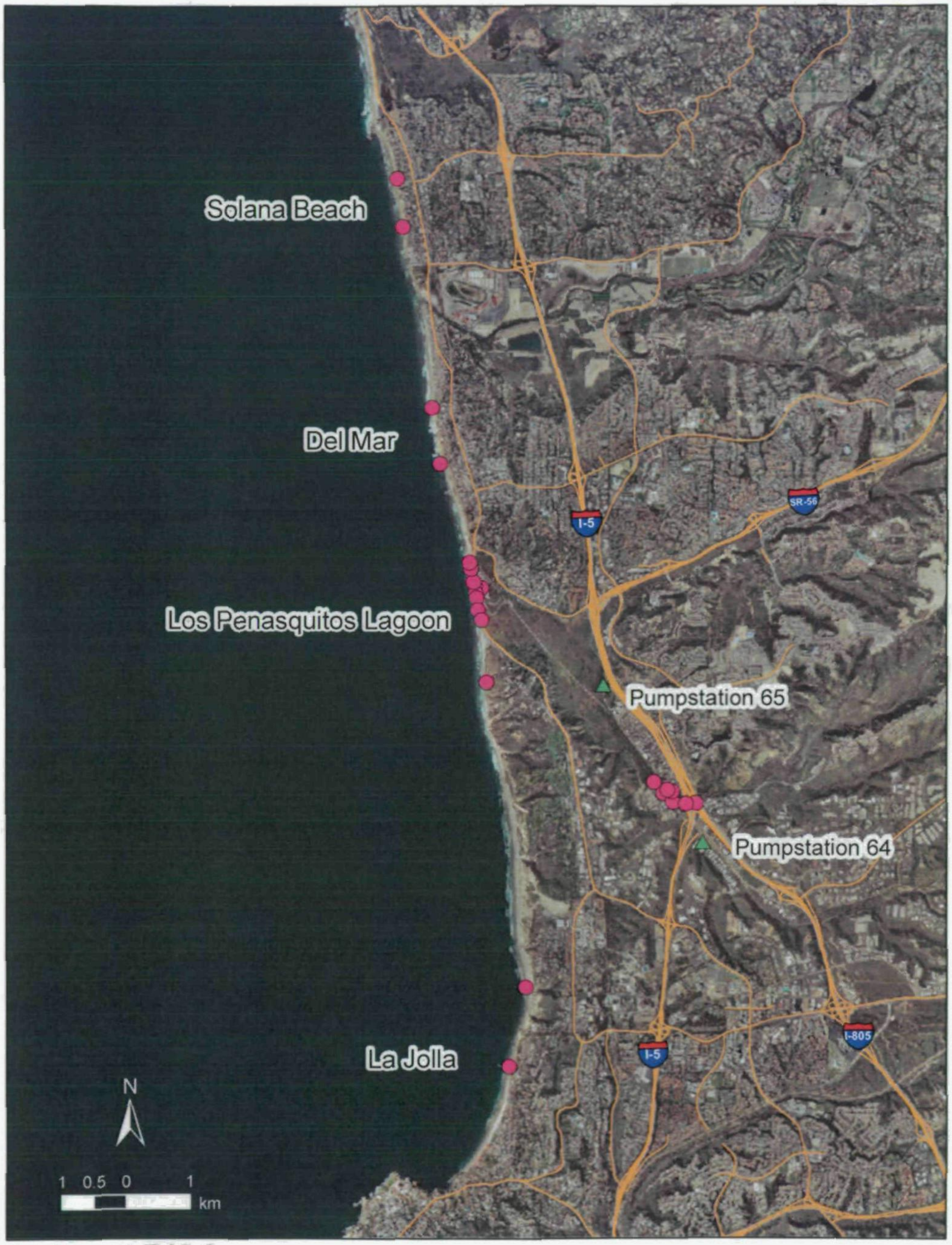
Lastly, data were also compared to available thresholds (see Attachment B10.15 and B10.16).

The City was able to determine that by September 26, data for most parameters were below action limits and/or basin plan thresholds, and/or values were close to or getting closer to reference/upstream conditions (see Attachments B10.15a-c). For example, DO levels at the downstream sites have increased over time, are generally above the basin plan standard of 5.0 ppm, and do not appear significantly lower than might be observed in a non-spill urban stream for this time of year. Ammonia concentrations were highest at the furthest downstream station (LOSPEN_CR3) in the earliest days of sampling, but currently have similar concentrations that are below the action level of 1 ppm. Ammonia is likely being assimilated by plants, as the creek(s) is highly vegetated. Further, at the observed ammonia, pH and temperature levels, it is highly unlikely that native aquatic organisms will be adversely impacted, since the corresponding toxic fraction (i.e., unionized ammonia) is well below the threshold for toxicity. In fact, the density of vegetation in the lagoon may enable rapid assimilation of nitrogen.

Bacterial counts at the downstream stations have also declined over time, are all currently below action levels, and are now comparable between upstream and downstream sites (see Attachment B10.15d). Densities for all sampling locations are also well below action levels for Dry Weather Storm Drain (DWSD) monitoring. Persistent but slight fluctuations in bacterial densities at some locations may be related to sample collection times, water stagnation and sediment disruption from pumping operations. The deeper pumping sites (e.g., LOSPEN_CR4 and LOSPEN_CR5) tend to have higher bacteria counts than the shallower sites. In addition, samples collected earlier in the day may have higher bacterial levels due to lack of sun exposure that otherwise may act as a disinfectant.

Other observations of water clarity, odor, color and the presence of live insects, other invertebrates, and fish further suggest conditions are steadily improving (Attachment B10.12). Fish have been returning to impacted stations, including several bass in the 6-10 inch size range. Insect activity and oviposition have been observed and live, healthy benthic invertebrates have been collected from LOSPEN_CR1 and LOSPEN_CR3. Blue herons are back in the water fishing for prey and two healthy 12-inch turtles were observed at LOSPEN_CR4. Finally, the riparian zone and aquatic vegetation along the affected areas are fairly robust for such a built-up urban area.

Assigned beneficial uses specific to Los Penasquitos Creek include agricultural supply, industrial service supply, potential for contact recreation, non-contact recreation, warm fresh water habitat, cold fresh water habitat, and wildlife habitat (Basin Plan). The City's monitoring results indicate that potential effects on these public and environmental uses of the creek from the spill were limited to elevated bacteria levels at various locations during the entire monitoring period. However, it is unclear how much the public is actually able to access LPC. In addition, there were reports of a significant fish kill that likely occurred immediately following the spill (and before monitoring of the creek began).



Attachment B10.1

Overview of the region monitored following the sewage spill on September 8, 2011.

Attachment B10.2

Monitoring stations north of Penasquitos Lagoon.

Attachment B10.3

Monitoring stations south of Los Penasquitos Lagoon.

Attachment B10.4

Monitoring stations close to and within Los Penasquitos Lagoon.

Attachment B10.5
Monitoring stations in and near Los Penasquitos Creek.

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

10/17/2011

Attachment B10.6

Summary of stations sampled along San Diego County beaches and within Los Penasquitos Lagoon in response to the sewage spill on September 8, 2011. Data include station locations and the number of samples collected by date. Note that the mixing zone station (LOSPEN_BCH9) is along the north side of the mouth of the lagoon such that any station to the south has an extra 200 ft included in the distance to the mixing zone station since that is the distance across the mouth of the lagoon.

		GPS Coordinates		No. of Samples by Date					Total
Station	**Description**	**Latitude (N)**	**Longitude (W)**	**Sept 9**	**Sept 10**	**Sept 11**	**Sept 12**	**Sept 13**	**No. of Samples**
LOSPEN_BCH1	Fletcher Cove (Solana Beach)	32.9923	117.2745	1	1	1	1	—	4
LOSPEN_BCH2	Seascape Park (Solana Beach)	32.9856	117.2735	1	1	1	1	—	4
LOSPEN_BCH3	15th St Del Mar	32.9600	117.2684	1	1	1	1	1	5
LOSPEN_BCH4	6600' N of the mixing zone station	32.9521	117.2670	—	—	—	—	1	1
LOSPEN_BCH5	1300' N of the mixing zone station	32.9381	117.2619	—	—	—	—	1	1
LOSPEN_BCH6	970' N of the mixing zone station	32.9372	117.2617	1	1	1	1	1	5
LOSPEN_BCH7	300' N of the mixing zone station	32.9354	117.2611	1	1	1	1	1	5
LOSPEN_BCH8	80' N of the mixing zone station	32.9348	117.2609	1	1	1	1	1	5
LOSPEN_BCH9	Los Penasquitos Lagoon Mixing Zone*	32.9346	117.2607	1	1	1	1	1	13
LOSPEN_BCH10	50 ft upstream of the mixing zone*	32.9345	117.2599	1	1	1	1	1	13
LOSPEN_BCH11	315' S of the mixing zone station	32.9338	117.2608	1	1	1	1	1	5
LOSPEN_BCH12	560' S of the mixing zone station	32.9331	117.2607	1	1	1	1	1	5
LOSPEN_BCH13	1200' S of the mixing zone station	32.9314	117.2605	1	1	1	1	1	5
LOSPEN_BCH14	1700' S of the mixing zone station	32.9300	117.2598	—	—	—	—	1	1
LOSPEN_BCH15	5000' S of the mixing zone station	32.9211	117.2589	—	—	—	—	1	1
LOSPEN_BCH16	Blacks Beach	32.8779	117.2519	1	1	1	1	—	4
LOSPEN_BCH17	Scripps Pier	32.8667	117.2545	1	1	1	1	—	4

* samples were collected at these stations through September 22.

Attachment B10.7

All fecal indicator bacteria data collected at San Diego County beaches and within Los Penasquitos Lagoon in response to the sewage spill on September 8, 2011. Bold values exceed the 2005 California Ocean Plan water contact single sample maximum standards (i.e., total coliform > 10,000 CFU/100 mL, fecal coliform > 400 CFU/100 mL, enterococcus > 104 CFU/100 mL, or the Fecal:Total ratio cannot exceed 0.1 when total coliform density exceeds 1,000 CFU/100 mL).

Date	Time	Station	Total	Fecal	Entero
9-Sep-11	1046	LOSPEN_BCH1	<20	<2	<2
9-Sep-11	1110	LOSPEN_BCH2	<20	<2	4e
9-Sep-11	1120	LOSPEN_BCH10	**>16,000**	**>12,000**	**480**
9-Sep-11	1127	LOSPEN_BCH9	700	240e	<2
9-Sep-11	1130	LOSPEN_BCH3	<2	2	<2
9-Sep-11	1135	LOSPEN_BCH8	60e	56	<2
9-Sep-11	1140	LOSPEN_BCH7	20e	10e	<2
9-Sep-11	1146	LOSPEN_BCH6	<20	<2	<2
9-Sep-11	1211	LOSPEN_BCH11	**>16,000**	**>12,000**	**1000**
9-Sep-11	1216	LOSPEN_BCH12	**>16,000**	**11000**	**480**
9-Sep-11	1222	LOSPEN_BCH13	**>16,000**	**11000**	**200e**
9-Sep-11	1235	LOSPEN_BCH17	<20	<2	<2
9-Sep-11	1308	LOSPEN_BCH16	<20	<2	6e
10-Sep-11	752	LOSPEN_BCH1	<200	14e	10e
10-Sep-11	815	LOSPEN_BCH2	60e	4e	10e
10-Sep-11	839	LOSPEN_BCH3	60e	6e	8e
10-Sep-11	910	LOSPEN_BCH10	**14000**	**4400**	**140e**
10-Sep-11	919	LOSPEN_BCH9	**15000**	**3800e**	**180e**
10-Sep-11	932	LOSPEN_BCH8	**11000**	**3600e**	**160e**
10-Sep-11	939	LOSPEN_BCH7	**14000**	**3600e**	**180e**
10-Sep-11	955	LOSPEN_BCH6	**11000**	**3600e**	**160e**
10-Sep-11	1020	LOSPEN_BCH13	7600	**580**	40
10-Sep-11	1029	LOSPEN_BCH12	9600	**11000**	84
10-Sep-11	1039	LOSPEN_BCH11	**13000**	**2200e**	80e
10-Sep-11	1108	LOSPEN_BCH17	<200	<2	<2
10-Sep-11	1140	LOSPEN_BCH16	3000	**2400e**	90
11-Sep-11	730	LOSPEN_BCH11	**>16,000**	**5200**	**140e**
11-Sep-11	739	LOSPEN_BCH12	**>16,000**	**6600**	**280e**
11-Sep-11	748	LOSPEN_BCH13	**>16,000**	**4400**	100e
11-Sep-11	810	LOSPEN_BCH6	**>16,000**	**3,800e**	**180e**
11-Sep-11	818	LOSPEN_BCH7	**>16,000**	**6200**	**160e**
11-Sep-11	828	LOSPEN_BCH8	**>16,000**	**4000**	92
11-Sep-11	840	LOSPEN_BCH9	**11000**	**4000**	**120e**
11-Sep-11	847	LOSPEN_BCH10	6000	**2,600e**	64
11-Sep-11	915	LOSPEN_BCH1	<200	2e	2e
11-Sep-11	930	LOSPEN_BCH2	<20	<2	2e
11-Sep-11	954	LOSPEN_BCH3	1500	100	100e
11-Sep-11	1040	LOSPEN_BCH17	<20	<2	<2
11-Sep-11	1105	LOSPEN_BCH16	4200	<20	8e

12-Sep-11	808	LOSPEN_BCH13	2600e	360e	16e
12-Sep-11	819	LOSPEN_BCH12	2400e	400	22e
12-Sep-11	828	LOSPEN_BCH11	2600e	260e	18e
12-Sep-11	837	LOSPEN_BCH10	360e	32e	4e
12-Sep-11	844	LOSPEN_BCH9	220	<200	4e
12-Sep-11	858	LOSPEN_BCH6	260e	38e	4e
12-Sep-11	905	LOSPEN_BCH7	320e	44	4e
12-Sep-11	912	LOSPEN_BCH8	240e	52	2e
12-Sep-11	935	LOSPEN_BCH1	100e	50	6e
12-Sep-11	942	LOSPEN_BCH2	40e	<2	<2
12-Sep-11	1005	LOSPEN_BCH3	74	8e	8e
12-Sep-11	1055	LOSPEN_BCH17	<20	<2	2e
12-Sep-11	1115	LOSPEN_BCH16	<2	<2	<2
13-Sep-11	710	LOSPEN_BCH3	20e	2e	<2
13-Sep-11	728	LOSPEN_BCH10	260e	32e	4e
13-Sep-11	749	LOSPEN_BCH6	340e	20e	<2
13-Sep-11	755	LOSPEN_BCH7	600e	100e	4e
13-Sep-11	800	LOSPEN_BCH8	180e	40e	8e
13-Sep-11	813	LOSPEN_BCH13	200e	6e	4e
13-Sep-11	820	LOSPEN_BCH12	140e	24e	2e
13-Sep-11	824	LOSPEN_BCH11	220e	22e	2e
13-Sep-11	930	LOSPEN_BCH14	2e	<2	<2
13-Sep-11	935	LOSPEN_BCH9	200e	34e	<2
13-Sep-11	945	LOSPEN_BCH15	20e	<2	<2
13-Sep-11	1019	LOSPEN_BCH4	<20	2e	2e
13-Sep-11	1019	LOSPEN_BCH5	<20	2e	<2
15-Sep-11	1140	LOSPEN_BCH9	<20	<2	<2
15-Sep-11	1145	LOSPEN_BCH10	<20	<2	<2
16-Sep-11	906	LOSPEN_BCH9	<20	<2	2e
16-Sep-11	910	LOSPEN_BCH10	20e	<2	2e
17-Sep-11	905	LOSPEN_BCH9	<20	4e	12e
17-Sep-11	910	LOSPEN_BCH10	2e	<2	4e
18-Sep-11	906	LOSPEN_BCH10	<20	<2	2e
18-Sep-11	910	LOSPEN_BCH9	<20	<2	<2
19-Sep-11	820	LOSPEN_BCH9	20e	<2	<2
19-Sep-11	823	LOSPEN_BCH10	20e	10e	2e
20-Sep-11	939	LOSPEN_BCH9	<20	2e	<2
20-Sep-11	942	LOSPEN_BCH10	<20	<2	<2
21-Sep-11	938	LOSPEN_BCH9	<20	20e	12e
21-Sep-11	942	LOSPEN_BCH10	42	22e	18e
22-Sep-11	915	LOSPEN_BCH9	160e	50	16e
22-Sep-11	919	LOSPEN_BCH10	260e	120e	90

10/17/2011

Attachment B10.8

All visual observations recorded at San Diego County beaches and within Los Penasquitos Lagoon in response to the sewage spill on September 8, 2011.

Date	Time	Station	Wind Speed	Wind Direction	Wave Height	Water Color	Weather	Floatables	Animals Present	Misc. Observations
9-Sep-11	1040	LOSPEN_BCH1	5.0	E	2	Green	Sunny	None	None	Kelp
9-Sep-11	1110	LOSPEN_BCH2	4.2	E	2	Green	Sunny	None	2 People; 3 Birds	Kelp; Seaweed
9-Sep-11	1120	LOSPEN_BCH10	4.2	W	0	Green	Sunny	None	Around 20 seagulls	Water clear; Kelp
9-Sep-11	1127	LOSPEN_BCH9	5.6	W	1	Green	Sunny	None	5 Seagulls; 6 Sandpiper	Water clear; Kelp; Seagrass; "Contaminated" sign posted
9-Sep-11	1130	LOSPEN_BCH3	5.0	E	2	Green	Sunny	None	15 People; 8 Birds	Kelp
9-Sep-11	1135	LOSPEN_BCH8	5.4	W	1	Green	Sunny	None	8 Seagulls; 3 Sandpiper	Water clear; Kelp; Seagrass; "Contaminated" sign posted
9-Sep-11	1140	LOSPEN_BCH7	5.8	W	2	Green	Sunny	None	1 Seagull	Water clear; Kelp; Seagrass; "Contaminated" sign posted
9-Sep-11	1146	LOSPEN_BCH6	4.2	W	2	Green	Sunny	None	1 Seagull; 2 sandpipers	Water clear; Kelp; Seagrass; "Contaminated" sign posted
9-Sep-11	1211	LOSPEN_BCH11	5.6	W	1	Green	Sunny	None	None	Water clear; Kelp; Seagrass; "Contaminated" sign posted
9-Sep-11	1216	LOSPEN_BCH12	5.8	W	2	Green	Sunny	None	None	Water clear; Kelp; Seagrass; "Contaminated" sign posted; 3 people in water including 1 small child
9-Sep-11	1222	LOSPEN_BCH13	7.1	W	2	Green	Sunny	None	7 Seagulls	Water clear; Kelp; Seagrass; "Contaminated" sign posted
9-Sep-11	1235	LOSPEN_BCH17	4.0	E	2	Green	Sunny	None	4 Birds	
9-Sep-11	1308	LOSPEN_BCH16	5.2	E	2	Green	Sunny	None	3 People; 21 Birds	Clear; No kelp

10/17/2011

Attachment B10.8 *continued*

Date	Time	Station	Wind Speed	Wind Direction	Wave Height	Water Color	Weather	Floatables	Animals Present	Misc. Observations
10-Sep-11	752	LOSPEN_BCH1	1.7	NE	2	Green	Overcast	None	None	"Contaminated" sign posted; Kelp
10-Sep-11	815	LOSPEN_BCH2	2.9	NE	1	Green	Overcast	None	None	"Contaminated" sign posted; some kelp
10-Sep-11	839	LOSPEN_BCH3	3.3	NE	3	Green	Overcast	None	13 Birds	"Contaminated" sign posted; 4 Surfers
10-Sep-11	910	LOSPEN_BCH10	2.8	E	0	Green	Overcast	None	None	"Contaminated" sign posted; 4 People fishing; 3 Surfers; Dead pelican on rocks
10-Sep-11	919	LOSPEN_BCH9	1.5	E	4	Green	Overcast	None	None	"Contaminated" sign posted; 5 People fishing
10-Sep-11	932	LOSPEN_BCH8	6.4	E	4	Green	Overcast	None	>25 Birds	"Contaminated" sign posted
10-Sep-11	939	LOSPEN_BCH7	5.2	E	4	Green	Overcast	None	None	"Contaminated" sign posted
10-Sep-11	955	LOSPEN_BCH6	6.7	E	2	Green	Overcast	None	13 Birds	"Contaminated" sign posted
10-Sep-11	1020	LOSPEN_BCH13	7.1	NE	2	Green	Partly sunny	None	None	
10-Sep-11	1029	LOSPEN_BCH12	7.3	NE	2	Green	Partly sunny	None	None	
10-Sep-11	1039	LOSPEN_BCH11	6.9	E	2	Green	Partly sunny	None	None	
10-Sep-11	1108	LOSPEN_BCH17	2.9	E	3	Green	Partly sunny	None	None	Kelp
10-Sep-11	1140	LOSPEN_BCH16	7.3	E	3	Green	Sunny	None	None	>100 People in street clothes in water south of pier
11-Sep-11	730	LOSPEN_BCH11	0.0	E	3	Green	Overcast	None	None	Seaweed; Algae; 4 People fishing
11-Sep-11	739	LOSPEN_BCH12	0.0	E	3	Green	Overcast	None	2 Birds	Kelp; Seaweed; 2 Joggers
11-Sep-11	748	LOSPEN_BCH13	1.3	E	3	Green	Overcast	None	>25 Birds	Kelp; Seaweed; 5 Surfers
11-Sep-11	810	LOSPEN_BCH6	3.6	E	3	Green	Overcast	None	8 Birds	Tide incoming

10/17/2011

Attachment B10.8 *continued*

Date	Time	Station	Wind Speed	Wind Direction	Wave Height	Water Color	Weather	Floatables	Animals Present	Misc. Observations
11-Sep-11	818	LOSPEN_BCH7	2.1	E	4	Green	Overcast	None	>25 Sandpipers	Kelp; Seaweed; 2 Runners
11-Sep-11	828	LOSPEN_BCH8	5.4	E	3	Green	Overcast	None	4 Seagulls	Kelp; Seaweed; 2 Surfers; 10 walkers
11-Sep-11	840	LOSPEN_BCH9	1.5	E	2	Green	Overcast	None	None	6 People fishing; 2 People surfing; 1 person paddling
11-Sep-11	847	LOSPEN_BCH10	2.0	E	0.5	Green	Overcast	None	>50 Birds onshore	5 People fishing; 3 People surfing
11-Sep-11	915	LOSPEN_BCH1	4.6	E	3	Brown	Sunny	None	None	Kelp in water; "Contaminated" signs posted
11-Sep-11	930	LOSPEN_BCH2	3.6	E	4	Green	Sunny	None	2 Birds	"Contaminated" signs posted; 8 surfers
11-Sep-11	954	LOSPEN_BCH3	3.4	E	3	Green	Sunny	None	6 Dogs	Floating kelp; 4 surfers
11-Sep-11	1040	LOSPEN_BCH17	3.5	E	3	Green	Sunny	None	2 Birds	Kelp; Seaweed; Lifeguard
11-Sep-11	1105	LOSPEN_BCH16	3.8	E	4	Green	Sunny	None	8 Birds	Kelp; Seaweed; 10 surfers including 1 child
12-Sep-11	808	LOSPEN_BCH13	5.0		2	Green	Sunny	None	>50 Birds	Kelp; "Contaminated" sign posted
12-Sep-11	819	LOSPEN_BCH12	4.9		2	Green	Sunny	None	3 Birds	Kelp; "Contaminated" sign posted; 4 Surfers
12-Sep-11	828	LOSPEN_BCH11	3.1		3	Green	Sunny	None	None	Kelp; "Contaminated" sign posted; 5 Surfers
12-Sep-11	837	LOSPEN_BCH10	0.3		0.5	Brown	Sunny	None	None	Dead pelicn on rocks; "Contaminated" sign posted
12-Sep-11	844	LOSPEN_BCH9	3.9		2	Brown	Sunny	None	None	Kelp; "Contaminated" sign posted
12-Sep-11	858	LOSPEN_BCH6	5.2		3	Green	Sunny	None	3 Birds	Kelp; "Contaminated" sign posted; 3 Surfers
12-Sep-11	905	LOSPEN_BCH7	5.4		3	Green	Sunny	None	None	Kelp; "Contaminated" sign posted
12-Sep-11	912	LOSPEN_BCH8	6.1		4	Green	Sunny	None	None	2 People fishing; 1 person paddling; "Contaminated" sign posted

10/17/2011

Attachment B10.8 *continued*

Date	Time	Station	Wind Speed	Wind Direction	Wave Height	Water Color	Weather	Floatables	Animals Present	Misc. Observations
12-Sep-11	935	LOSPEN_BCH1	4.9		4	Brown	Sunny	None	None	2 Surfers; "Contaminated" sign posted
12-Sep-11	942	LOSPEN_BCH2	5.3		4	Brown	Sunny	None	None	Lots of floating kelp; "Contaminated" sign posted
12-Sep-11	1005	LOSPEN_BCH3	5.4		4	Green	Sunny	None	None	Toddlers and adults in water; 20 surfers; 2 paddlers; "Contaminated" sign taken down by lifeguard
12-Sep-11	1055	LOSPEN_BCH17	6.4		5	Green	Sunny	None	18 Birds	"Contaminated" sign posted
12-Sep-11	1115	LOSPEN_BCH16	5.2		3	Green	Sunny	None	None	2 Surfers; 2 paddlers
13-Sep-11	710	LOSPEN_BCH3	0.0		4	Green	Overcast	None	None	16 Surfer
13-Sep-11	728	LOSPEN_BCH10	1.0		0	Green	Overcast	None	>50 Birds	"Contaminated" sign posted; 1 Surfer
13-Sep-11	735	LOSPEN_BCH9	4.0		4	Green	Overcast	None	None	Kelp; "Contaminated" sign posted
13-Sep-11	749	LOSPEN_BCH6	3.0		6	Green	Overcast	None	8 Birds	Kelp; Seaweed; "Contaminated" sign posted; 2 Surfers
13-Sep-11	755	LOSPEN_BCH7	4.8		6	Green	Overcast	None	21 Birds	Kelp; "Contaminated" sign posted; 4 Surfers
13-Sep-11	800	LOSPEN_BCH8	4.3		5	Green	Overcast	None	None	Kelp; "Contaminated" sign posted
13-Sep-11	813	LOSPEN_BCH13	3.0		4	Green	Overcast	None	>50 Birds	Kelp; "Contaminated" sign posted
13-Sep-11	820	LOSPEN_BCH12	3.2		4	Green	Overcast	None	4 Birds	Kelp; Seaweed; "Contaminated" sign posted
13-Sep-11	824	LOSPEN_BCH11	3.6		2	Green	Overcast	None	9 Birds	"Contaminated" sign posted
13-Sep-11	930	LOSPEN_BCH14	5.2		4	Green	Partly cloudy	None	9 Birds	Seaweed; "Contaminated" sign posted; 3 Surfers

Attachment B10.8 *continued*

Date	Time	Station	Wind Speed	Wind Direction	Wave Height	Water Color	Weather	Floatables	Animals Present	Misc. Observations
13-Sep-11	945	LOSPEN_BCH15	5.1		4	Green	Overcast	None	13 Birds	Seaweed; "Contaminated" sign posted
13-Sep-11	1019	LOSPEN_BCH5	6.3		6	Green	Sunny	None	10 Birds	Seaweed; "Contaminated" sign posted
13-Sep-11	1038	LOSPEN_BCH4	6.1		4	Green	Sunny	None	21 Birds	"Contaminated" sign posted
15-Sep-11	1140	LOSPEN_BCH9	4.1		3.4	Green	overcast	none	none	1 fisherman
15-Sep-11	1145	LOSPEN_BCH10	0.4		0	Green	overcast	none	none	2 Surfers
16-Sep-11	906	LOSPEN_BCH9	1.4		none	Green	overcast	none	none	>50 Birds on shore
16-Sep-11	910	LOSPEN_BCH10	3.2		3 to 4	Green	overcast	none	none	3 Fishermen
17-Sep-11	905	LOSPEN_BCH9	1.3		none	Green	overcast	none	none	Birds resting
17-Sep-11	910	LOSPEN_BCH10	4.7		4	Green	overcast	none	none	2 Surfers; 0 Birds
19-Sep-11	820	LOSPEN_BCH9	0.0		0	Green	cloudy	none	none	Very low tide
19-Sep-11	823	LOSPEN_BCH10	2.0 to 3.0		1 to 2	Green	cloudy	none	none	
21-Sep-11	938	LOSPEN_BCH9	0.8	E	2 to 3	Green	overcast	none	6 Sandpipers in the water	
21-Sep-11	942	LOSPEN_BCH10	3.6	E	0	not recorded	overcast	none	none	2 People in water; 1 Fisherman
22-Sep-11	915	LOSPEN_BCH9	3.8		2 to 3	Green	overcast	none	9 Sandpipers	
22-Sep-11	919	LOSPEN_BCH10	1.6		0.5	Green	overcast	none	>50 Birds resting on shore	

Attachment B10.9

Summary of stations sampled near and within Los Penasquitos Creek in response to the sewage spill on September 8, 2011. Data include station locations and the number of samples collected by date.

Station	LOSPEN_CR1	LOSPEN_CR2	LOSPEN_CR3	LOSPEN_CR4
ALIAS	Station #1	Station #2	Station #3	Station #4
Lat (N)	32.9056	32.9044	32.9072	32.9059
Long (W)	117.2289	117.2273	117.2305	117.2274
Description	pumping point, 11065 Roselle St.	upstream; 340 yds east of #1 pumping point	end of Roselle St. and Estuary Wy.	bridge Sorento Office Pk.

	Total Number of Samples											
Date	Chem[1]	Bacti[2]	Vis Obs[3]	Chem[1]	Bacti[2]	Vis Obs[3]	Chem[1]	Bacti[2]	Vis Obs[3]	Chem[1]	Bacti[2]	Vis Obs[3]
Sept 13	1	1	1	1	1	1	1	1	1	—	—	—
Sept 14	1	1	1	1	1	1	1	1	1	1	1	1
Sept 15	8	6	8	8	5	8	8	5	8	—	—	—
Sept 16	5	2	5	5	2	5	5	2	5	6	2	6
Sept 17	4	2	4	4	2	4	5	2	5	4	2	4
Sept 18	5	2	5	5	2	5	4	2	4	4	2	4
Sept 19	4	2	4	4	2	4	4	2	4	4	2	4
Sept 20	4	2	4	4	2	4	4	2	4	4	2	4
Sept 21	4	2	2	4	2	2	4	2	2	4	2	2
Sept 22	2	1	2	2	1	2	2	1	2	2	1	2
Sept 23	1	1	1	1	1	1	1	1	1	1	1	1
Sept 24	1	1	1	1	1	1	1	1	1	1	1	1
Sept 25	1	1	1	1	1	1	1	1	1	1	1	1
Sept 26	1	1	1	1	1	1	1	1	1	1	1	1

10/17/2011

Attachment B10.9 *continued*

Station	LOSPEN_CR5	LOSPEN_CR6	LOSPEN_CR7
ALIAS	Station #5	Station #6	Station #7
Lat (N)	32.9062	32.9043	32.90413
Long (W)	117.2282	117.2234	117.2251
Description	across bridge, under the railroad track	upstream; near post office	J&W Redwood Sorrento Valley Road, downstream of Station #6

	Total Number of Samples								
Date	**Chem[1]**	**Bacti[2]**	**Vis Obs[3]**	**Chem[1]**	**Bacti[2]**	**Vis Obs[3]**	**Chem[1]**	**Bacti[2]**	**Vis Obs[3]**
Sept 13	—	—	—	—	—	—	—	—	—
Sept 14	1	1	1	—	—	—	—	—	—
Sept 15	—	—	—	—	—	—	—	—	—
Sept 16	6	2	6	3	1	3	—	—	—
Sept 17	4	2	4	4	2	4	—	—	—
Sept 18	4	2	4	4	2	4	—	—	—
Sept 19	4	2	4	4	2	4	—	—	—
Sept 20	4	2	4	4	4	4	1	1	—
Sept 21	4	2	2	4	4	2	—	—	—
Sept 22	2	1	2	2	2	2	—	—	—
Sept 23	1	1	1	1	1	1	—	—	—
Sept 24	1	1	1	1	1	1	—	—	—
Sept 25	1	1	1	1	1	1	—	—	—
Sept 26	1	1	1	—	—	—	—	—	—

[1] count of sample events where chemistry parameters were measured; parameters include pH, dissolved oxygen, conductivity, temperature, and ammonia

[2] samples analyzed for total coliforms, fecal coliforms, and enterococcus

[3] count of sample events where visual observations were taken; parameters include odor, clarity, color, floatables, deposits, biological, and comments

Attachment B10.10

All water chemistry data collected from stations sampled near and within Los Penasquitos Creek in response to the sewage spill on September 8, 2011. Chemistry parameters include pH, dissolved oxygen (DO), temperature (Temp), conductivity (Cond), and ammonia.

Station	Date	Time	pH	DO (ppm)	Temp (°C)	Cond (mS/cm)	Ammonia (ppm)
LOSPEN_CR1	13-Sep-11	1310	7.56	5.25	21.9	3.54	ns
LOSPEN_CR2	13-Sep-11	1324	8.01	10.08	23.4	3.55	ns
LOSPEN_CR3	13-Sep-11	1335	7.69	3.14	23.9	3.51	ns
LOSPEN_CR1	14-Sep-11	1306	7.67	2.67	24.4	2.77	ns
LOSPEN_CR2	14-Sep-11	1313	7.99	9.35	23.5	3.55	ns
LOSPEN_CR3	14-Sep-11	1330	7.71	3.13	23.8	3.72	ns
LOSPEN_CR4	14-Sep-11	1425	7.64	3.49	23.4	3.28	ns
LOSPEN_CR5	14-Sep-11	1500	7.67	2.20	24.7	3.42	ns
LOSPEN_CR2	15-Sep-11	1040	7.87	7.75	23.9	5.14	0.30
LOSPEN_CR1	15-Sep-11	1050	7.78	1.21	24.3	4.33	0.60
LOSPEN_CR3	15-Sep-11	1100	7.61	2.26	25.2	4.65	0.70
LOSPEN_CR2	15-Sep-11	1150	7.77	7.78	24.1	5.44	0.30
LOSPEN_CR1	15-Sep-11	1200	7.63	1.70	24.3	4.61	0.80
LOSPEN_CR3	15-Sep-11	1215	7.73	1.74	25.5	4.82	1.40
LOSPEN_CR1	15-Sep-11	1340	7.68	2.89	24.2	4.75	0.41
LOSPEN_CR2	15-Sep-11	1345	7.95	8.33	25.1	5.42	0.40
LOSPEN_CR3	15-Sep-11	1350	7.79	2.97	24.9	4.82	1.70
LOSPEN_CR1	15-Sep-11	1437	7.70	1.08	23.2	4.14	0.30
LOSPEN_CR2	15-Sep-11	1442	8.07	9.97	23.3	5.51	0.10
LOSPEN_CR3	15-Sep-11	1510	7.33	2.08	23.9	4.71	1.10
LOSPEN_CR1	15-Sep-11	1545	7.17	4.74	21.2	4.83	0.40
LOSPEN_CR2	15-Sep-11	1600	7.51	9.95	22.0	5.43	0.10
LOSPEN_CR3	15-Sep-11	1626	7.34	2.37	20.7	4.92	1.30
LOSPEN_CR1	15-Sep-11	1645	7.15	1.36	20.5	4.66	0.20
LOSPEN_CR2	15-Sep-11	1652	7.52	9.97	21.0	5.50	0.30
LOSPEN_CR3	15-Sep-11	1720	7.28	2.52	19.7	4.17	1.10
LOSPEN_CR1	15-Sep-11	1748	7.11	3.71	19.5	4.30	0.36
LOSPEN_CR2	15-Sep-11	1812	7.70	10.04	20.9	5.44	0.30
LOSPEN_CR3	15-Sep-11	1835	7.30	2.10	20.1	4.97	1.30
LOSPEN_CR1	15-Sep-11	2110	7.15	7.09	19.6	5.32	0.45
LOSPEN_CR2	15-Sep-11	2125	7.69	9.65	20.2	5.35	0.54
LOSPEN_CR3	15-Sep-11	2140	7.36	4.94	19.6	4.81	1.50
LOSPEN_CR2	16-Sep-11	0020	7.63	8.99	19.4	5.50	0.43
LOSPEN_CR1	16-Sep-11	0030	7.32	3.88	18.8	4.63	0.41
LOSPEN_CR3	16-Sep-11	0041	7.30	4.76	18.5	4.92	1.30
LOSPEN_CR1	16-Sep-11	0600	7.26	2.68	18.9	4.78	0.99
LOSPEN_CR2	16-Sep-11	0600	7.30	4.50	18.6	4.59	0.41
LOSPEN_CR3	16-Sep-11	0600	7.44	8.15	19.4	5.49	0.46
LOSPEN_CR4	16-Sep-11	1010	7.32	4.18	20.8	4.61	0.36
LOSPEN_CR5	16-Sep-11	1045	7.25	4.25	20.3	4.48	0.40
LOSPEN_CR2	16-Sep-11	1118	7.41	8.07	22.3	5.72	0.52
LOSPEN_CR1	16-Sep-11	1120	7.39	7.61	20.7	5.18	0.41
LOSPEN_CR3	16-Sep-11	1145	7.29	3.98	23.2	4.84	1.09
LOSPEN_CR5	16-Sep-11	1245	7.25	3.66	23.7	4.39	0.49
LOSPEN_CR6	16-Sep-11	1248	7.65	9.33	27.0	4.36	0.35
LOSPEN_CR4	16-Sep-11	1210	7.30	3.12	24.7	4.15	0.44

Attachment B10.10 *continued*

Station	Date	Time	pH	DO (ppm)	Temp (°C)	Cond (mS/cm)	Ammonia (ppm)
LOSPEN_CR4	16-Sep-11	1410	7.33	4.65	22.8	4.61	0.42
LOSPEN_CR1	16-Sep-11	1441	7.29	5.89	21.1	4.79	0.50
LOSPEN_CR2	16-Sep-11	1445	7.43	8.57	21.5	5.25	0.60
LOSPEN_CR5	16-Sep-11	1445	7.34	3.17	21.3	4.43	0.50
LOSPEN_CR3	16-Sep-11	1450	7.26	4.29	22.6	4.50	1.23
LOSPEN_CR4	16-Sep-11	1610	7.38	4.31	21.2	4.54	0.36
LOSPEN_CR5	16-Sep-11	1645	7.29	3.84	21.9	4.49	0.47
LOSPEN_CR6	16-Sep-11	1819	7.65	7.90	18.0	4.30	0.16
LOSPEN_CR4	16-Sep-11	1820	7.30	5.76	19.2	4.39	0.24
LOSPEN_CR5	16-Sep-11	1845	7.30	4.02	18.3	4.50	0.36
LOSPEN_CR2	16-Sep-11	1846	7.66	9.60	18.3	5.08	0.36
LOSPEN_CR1	16-Sep-11	1847	7.20	3.93	18.6	3.94	0.40
LOSPEN_CR3	16-Sep-11	1910	7.29	5.30	19.0	4.76	0.60
LOSPEN_CR6	16-Sep-11	2325	7.98	7.96	18.1	4.45	0.33
LOSPEN_CR5	16-Sep-11	2340	7.68	2.69	18.2	4.75	0.32
LOSPEN_CR4	16-Sep-11	2348	7.41	4.54	18.6	4.62	1.07
LOSPEN_CR3	17-Sep-11	0001	7.37	2.67	19.5	4.88	0.42
LOSPEN_CR2	17-Sep-11	0013	6.93	9.35	19.1	5.53	0.73
LOSPEN_CR1	17-Sep-11	0028	7.31	3.44	18.7	4.55	0.47
LOSPEN_CR1	17-Sep-11	0500	7.78	2.99	18.6	4.73	0.43
LOSPEN_CR2	17-Sep-11	0510	7.99	8.26	19.3	5.57	0.45
LOSPEN_CR3	17-Sep-11	0518	7.78	3.28	18.9	4.97	0.67
LOSPEN_CR4	17-Sep-11	0540	7.71	3.56	18.2	4.60	0.38
LOSPEN_CR5	17-Sep-11	0547	7.78	3.52	18.2	4.53	0.29
LOSPEN_CR6	17-Sep-11	0601	8.04	7.93	18.1	4.66	0.26
LOSPEN_CR1	17-Sep-11	1000	7.69	5.36	22.8	4.65	0.39
LOSPEN_CR2	17-Sep-11	1005	7.75	7.98	22.0	5.54	0.52
LOSPEN_CR3	17-Sep-11	1012	7.66	6.65	21.9	4.93	0.73
LOSPEN_CR6	17-Sep-11	1030	7.97	8.45	22.3	4.45	0.35
LOSPEN_CR4	17-Sep-11	1038	7.03	4.01	22.1	9.30	1.32
LOSPEN_CR5	17-Sep-11	1055	7.62	1.29	22.2	4.65	0.49
LOSPEN_CR1	17-Sep-11	1500	7.72	5.82	21.6	4.99	0.36
LOSPEN_CR2	17-Sep-11	1505	7.88	8.61	21.4	5.49	0.36
LOSPEN_CR3	17-Sep-11	1525	7.69	3.07	22.4	4.91	1.20
LOSPEN_CR6	17-Sep-11	1605	8.03	8.50	21.7	4.51	0.24
LOSPEN_CR4	17-Sep-11	1630	7.45	2.61	21.1	5.37	0.78
LOSPEN_CR5	17-Sep-11	1645	7.71	3.04	21.1	4.65	0.38
LOSPEN_CR3	17-Sep-11	2253	7.71	6.54	16.9	4.92	0.52
LOSPEN_CR4	17-Sep-11	2315	7.63	3.29	16.8	4.64	0.30
LOSPEN_CR5	17-Sep-11	2332	7.69	3.59	16.7	4.73	0.20
LOSPEN_CR6	17-Sep-11	2346	8.02	8.17	16.4	4.45	0.14
LOSPEN_CR2	18-Sep-11	0001	7.89	8.99	17.0	5.47	0.28
LOSPEN_CR1	18-Sep-11	0010	7.73	3.46	16.4	4.76	0.29
LOSPEN_CR6	18-Sep-11	0550	8.02	8.61	19.6	4.60	0.23
LOSPEN_CR4	18-Sep-11	0607	7.79	3.56	18.7	4.61	0.34
LOSPEN_CR5	18-Sep-11	0611	7.84	3.04	19.4	4.63	0.32
LOSPEN_CR2	18-Sep-11	0636	7.81	8.08	19.2	5.12	0.34
LOSPEN_CR1	18-Sep-11	0643	7.74	2.90	19.1	4.75	0.32
LOSPEN_CR3	18-Sep-11	0651	7.71	5.88	19.4	4.71	0.53
LOSPEN_CR1	18-Sep-11	1000	7.71	5.92	20.3	4.87	0.33

Attachment B10.10 *continued*

Station	Date	Time	pH	DO (ppm)	Temp (°C)	Cond (mS/cm)	Ammonia (ppm)
LOSPEN_CR2	18-Sep-11	1004	7.22	8.02	19.6	5.49	0.32
LOSPEN_CR3	18-Sep-11	1015	7.78	6.02	20.9	4.96	0.51
LOSPEN_CR4	18-Sep-11	1047	7.32	5.93	23.1	6.41	1.22
LOSPEN_CR5	18-Sep-11	1100	7.61	2.91	21.7	4.71	0.46
LOSPEN_CR6	18-Sep-11	1115	8.05	8.36	20.4	4.52	0.19
LOSPEN_CR1	18-Sep-11	1400	7.88	7.84	23.0	4.85	0.46
LOSPEN_CR2	18-Sep-11	1410	8.03	9.22	22.7	5.08	0.37
LOSPEN_CR3	18-Sep-11	1419	7.71	5.43	22.0	4.51	0.85
LOSPEN_CR4	18-Sep-11	1436	7.88	5.26	22.5	4.58	0.32
LOSPEN_CR5	18-Sep-11	1500	7.71	2.97	22.7	4.64	0.30
LOSPEN_CR6	18-Sep-11	1515	8.04	9.13	23.0	4.29	0.10
LOSPEN_CR6	18-Sep-11	2320	7.96	8.23	19.4	4.55	0.23
LOSPEN_CR5	18-Sep-11	2336	7.80	4.84	19.8	4.58	0.31
LOSPEN_CR4	18-Sep-11	2340	7.79	4.15	20.2	4.57	0.28
LOSPEN_CR3	18-Sep-11	2344	7.81	5.73	20.5	4.74	0.55
LOSPEN_CR1	18-Sep-11	2350	7.90	4.39	20.1	4.64	0.26
LOSPEN_CR2	18-Sep-11	2359	8.03	9.87	20.8	5.31	0.82
LOSPEN_CR6	19-Sep-11	0530	8.07	8.83	19.0	4.54	0.17
LOSPEN_CR4	19-Sep-11	0540	7.88	4.27	18.8	4.70	0.31
LOSPEN_CR5	19-Sep-11	0547	7.83	5.22	19.2	4.73	0.31
LOSPEN_CR2	19-Sep-11	0559	7.93	8.61	19.7	5.36	0.30
LOSPEN_CR1	19-Sep-11	0608	8.00	5.36	19.2	4.86	0.32
LOSPEN_CR3	19-Sep-11	0620	7.76	6.38	19.0	4.98	0.39
LOSPEN_CR1	19-Sep-11	1040	7.68	5.11	20.2	4.72	0.31
LOSPEN_CR2	19-Sep-11	1045	7.78	8.51	20.3	5.53	0.35
LOSPEN_CR3	19-Sep-11	1100	7.72	5.11	20.3	4.91	0.37
LOSPEN_CR6	19-Sep-11	1145	8.05	8.89	19.3	4.47	0.21
LOSPEN_CR4	19-Sep-11	1205	7.73	3.48	20.3	4.75	0.39
LOSPEN_CR5	19-Sep-11	1215	7.69	3.58	19.8	4.74	0.39
LOSPEN_CR1	19-Sep-11	1500	7.76	4.12	21.2	4.70	0.33
LOSPEN_CR2	19-Sep-11	1505	7.98	9.90	21.9	5.54	0.33
LOSPEN_CR3	19-Sep-11	1535	7.70	4.86	21.2	4.90	0.47
LOSPEN_CR6	19-Sep-11	1600	8.12	9.15	19.7	4.53	0.27
LOSPEN_CR4	19-Sep-11	1618	7.79	4.02	20.6	4.62	0.22
LOSPEN_CR5	19-Sep-11	1640	7.85	4.48	20.5	4.70	0.27
LOSPEN_CR1	19-Sep-11	1900	7.82	4.93	19.5	4.74	0.33
LOSPEN_CR2	19-Sep-11	1905	8.08	10.89	19.9	5.55	0.34
LOSPEN_CR3	19-Sep-11	1915	7.81	5.37	20.0	4.93	0.53
LOSPEN_CR6	19-Sep-11	1935	8.04	7.94	19.3	4.43	0.21
LOSPEN_CR4	19-Sep-11	2010	7.79	3.89	19.4	4.71	0.29
LOSPEN_CR5	19-Sep-11	2020	7.84	4.83	19.2	4.75	0.29
LOSPEN_CR6	20-Sep-11	0600	7.85	7.99	18.8	4.50	0.24
LOSPEN_CR4	20-Sep-11	0612	7.74	3.40	19.0	4.31	0.33
LOSPEN_CR5	20-Sep-11	0616	6.92	4.26	18.9	3.62	0.33
LOSPEN_CR2	20-Sep-11	0629	7.96	8.02	19.5	5.46	0.34
LOSPEN_CR1	20-Sep-11	0635	7.90	4.09	19.3	4.66	0.30
LOSPEN_CR3	20-Sep-11	0645	7.88	5.47	19.1	4.94	0.34
LOSPEN_CR6	20-Sep-11	1004	8.02	8.51	20.9	4.16	0.23
LOSPEN_CR4	20-Sep-11	1012	7.72	3.86	20.1	4.43	0.35
LOSPEN_CR5	20-Sep-11	1016	7.79	6.57	20.8	4.71	0.32

Attachment B10.10 *continued*

Station	Date	Time	pH	DO (ppm)	Temp (°C)	Cond (mS/cm)	Ammonia (ppm)
LOSPEN_CR2	20-Sep-11	1040	7.81	7.79	20.1	5.37	0.29
LOSPEN_CR1	20-Sep-11	1048	7.80	5.00	19.8	4.78	0.31
LOSPEN_CR3	20-Sep-11	1053	7.81	7.81	20.5	4.66	0.41
LOSPEN_CR1	20-Sep-11	1400	7.91	8.55	22.5	5.24	0.39
LOSPEN_CR2	20-Sep-11	1411	7.92	8.70	22.5	5.01	0.57
LOSPEN_CR3	20-Sep-11	1440	7.87	8.13	23.2	4.60	0.46
LOSPEN_CR6	20-Sep-11	1532	8.04	8.61	24.1	4.35	0.22
LOSPEN_CR5	20-Sep-11	1558	7.78	6.27	21.4	4.40	0.36
LOSPEN_CR4	20-Sep-11	1613	7.86	6.01	21.8	4.40	0.37
LOSPEN_CR6	20-Sep-11	1804	8.08	8.64	20.8	3.11	0.21
LOSPEN_CR7	20-Sep-11	1804	7.47	5.97	ns	3.61	0.32
LOSPEN_CR1	20-Sep-11	1828	7.74	7.91	20.5	4.23	0.40
LOSPEN_CR2	20-Sep-11	1839	7.99	10.74	20.4	4.27	0.40
LOSPEN_CR3	20-Sep-11	1856	7.81	7.11	19.7	3.94	0.42
LOSPEN_CR4	20-Sep-11	1924	7.71	3.48	20.2	3.56	0.35
LOSPEN_CR5	20-Sep-11	1945	7.67	3.05	19.6	3.68	0.37
LOSPEN_CR6	21-Sep-11	0620	7.84	8.19	19.0	3.53	0.20
LOSPEN_CR5	21-Sep-11	0644	7.67	5.07	18.9	3.45	0.29
LOSPEN_CR4	21-Sep-11	0652	7.76	3.46	19.1	3.53	0.26
LOSPEN_CR3	21-Sep-11	0657	7.83	6.83	19.4	3.84	0.34
LOSPEN_CR2	21-Sep-11	0706	7.80	7.83	19.8	4.12	0.34
LOSPEN_CR1	21-Sep-11	0712	7.74	4.32	19.9	3.57	0.33
LOSPEN_CR4	21-Sep-11	1020	7.68	4.85	22.8	3.51	0.29
LOSPEN_CR6	21-Sep-11	1028	7.81	8.33	22.8	3.59	0.24
LOSPEN_CR2	21-Sep-11	1042	7.79	8.09	22.2	4.05	0.35
LOSPEN_CR5	21-Sep-11	1112	7.69	5.99	22.4	3.61	0.32
LOSPEN_CR3	21-Sep-11	1137	7.51	6.81	22.6	3.72	0.25
LOSPEN_CR1	21-Sep-11	1142	7.68	8.16	22.6	3.69	0.30
LOSPEN_CR6	21-Sep-11	1415	8.05	8.78	24.3	3.47	0.08
LOSPEN_CR4	21-Sep-11	1430	7.10	3.67	23.4	5.98	1.71
LOSPEN_CR3	21-Sep-11	1448	7.88	7.95	22.4	3.94	0.28
LOSPEN_CR5	21-Sep-11	1455	7.80	6.47	23.2	3.69	0.30
LOSPEN_CR2	21-Sep-11	1458	8.05	9.70	23.0	4.04	0.32
LOSPEN_CR1	21-Sep-11	1503	7.70	5.44	22.7	3.76	0.28
LOSPEN_CR6	21-Sep-11	1740	8.13	8.88	20.2	3.57	0.21
LOSPEN_CR4	21-Sep-11	1750	7.76	5.69	20.4	3.70	0.27
LOSPEN_CR5	21-Sep-11	1800	7.78	6.50	20.1	3.66	0.31
LOSPEN_CR1	21-Sep-11	1820	7.86	7.12	20.0	3.66	0.30
LOSPEN_CR2	21-Sep-11	1825	8.16	9.84	21.7	4.08	0.44
LOSPEN_CR3	21-Sep-11	1835	7.96	8.28	20.9	3.93	0.22
LOSPEN_CR6	22-Sep-11	0605	8.05	8.22	18.8	3.62	0.21
LOSPEN_CR4	22-Sep-11	0612	7.87	3.79	19.0	3.64	0.29
LOSPEN_CR5	22-Sep-11	0618	7.79	4.89	18.9	3.60	0.22
LOSPEN_CR3	22-Sep-11	0630	7.85	7.07	19.3	3.93	0.33
LOSPEN_CR2	22-Sep-11	0647	7.81	6.10	19.7	4.14	0.28
LOSPEN_CR1	22-Sep-11	0653	7.96	7.22	19.6	3.76	0.32
LOSPEN_CR6	22-Sep-11	1000	8.01	8.00	20.3	3.62	0.41
LOSPEN_CR4	22-Sep-11	1006	7.84	4.66	20.2	3.70	0.34
LOSPEN_CR5	22-Sep-11	1009	7.87	4.70	20.1	3.66	0.36
LOSPEN_CR2	22-Sep-11	1016	7.88	7.39	20.2	4.10	0.37

Attachment B10.10 *continued*

Station	Date	Time	pH	DO (ppm)	Temp (°C)	Cond (mS/cm)	Ammonia (ppm)
LOSPEN_CR1	22-Sep-11	1021	7.95	7.44	20.6	3.93	0.36
LOSPEN_CR3	22-Sep-11	1027	7.81	6.90	20.3	3.89	0.31
LOSPEN_CR1	23-Sep-11	1013	7.74	5.01	20.7	3.38	0.37
LOSPEN_CR2	23-Sep-11	1035	7.73	7.50	20.4	3.67	0.38
LOSPEN_CR3	23-Sep-11	1050	7.77	7.40	20.8	3.41	0.30
LOSPEN_CR4	23-Sep-11	1140	7.74	4.54	21.1	3.30	0.33
LOSPEN_CR5	23-Sep-11	1150	7.72	4.58	22.7	3.36	0.41
LOSPEN_CR6	23-Sep-11	1212	7.99	8.76	21.9	3.13	0.22
LOSPEN_CR1	24-Sep-11	0955	7.65	3.96	19.6	3.40	0.38
LOSPEN_CR2	24-Sep-11	1000	7.78	7.62	19.8	3.80	0.39
LOSPEN_CR3	24-Sep-11	1010	7.79	5.67	19.5	3.40	0.31
LOSPEN_CR6	24-Sep-11	1030	7.93	8.51	18.9	3.01	0.16
LOSPEN_CR4	24-Sep-11	1040	7.73	4.07	19.6	3.31	0.34
LOSPEN_CR5	24-Sep-11	1050	7.71	4.03	19.3	3.35	0.34
LOSPEN_CR1	25-Sep-11	0950	7.73	4.02	19.8	3.32	0.32
LOSPEN_CR2	25-Sep-11	1000	7.66	6.74	19.7	3.81	0.34
LOSPEN_CR3	25-Sep-11	1020	7.72	5.03	20.2	3.40	0.31
LOSPEN_CR6	25-Sep-11	1055	8.02	8.11	21.1	3.26	0.23
LOSPEN_CR4	25-Sep-11	1110	7.71	4.39	20.9	3.52	0.40
LOSPEN_CR5	25-Sep-11	1118	7.71	4.19	20.8	3.39	0.34
LOSPEN_CR1	26-Sep-11	1018	7.81	5.65	19.7	3.51	0.38
LOSPEN_CR2	26-Sep-11	1020	7.78	7.63	20.2	3.90	0.41
LOSPEN_CR3	26-Sep-11	1040	7.80	5.77	20.4	3.60	0.30
LOSPEN_CR6	26-Sep-11	1120	8.06	8.53	21.7	3.50	0.28
LOSPEN_CR4	26-Sep-11	1122	7.85	4.78	20.4	3.36	0.28
LOSPEN_CR5	26-Sep-11	1135	7.84	4.88	20.0	3.38	0.28

ns=not sampled

Attachment B10.11

All microbiology data collected from stations sampled near and within Los Penasquitos Creek in response to the sewage spill on September 8, 2011. Data include total coliforms (Total), fecal coliforms (Fecal), and enterococcus (Entero) as CFU/100 mL.

Station	Date	Time	Total	Fecal	Entero
LOSPEN_CR1	13-Sep-11	1310	60,000e	4000	2800e
LOSPEN_CR2	13-Sep-11	1324	2600e	20e	100e
LOSPEN_CR3	13-Sep-11	1335	760,000	12,000	3800e
LOSPEN_CR1	14-Sep-11	1306	76,000	2800e	4200
LOSPEN_CR2	14-Sep-11	1313	4000e	40e	100e
LOSPEN_CR3	14-Sep-11	1330	240,000e	10,000	3400e
LOSPEN_CR4	14-Sep-11	1425	36,000e	5000	2400e
LOSPEN_CR5	14-Sep-11	1500	20,000e	4200	2000e
LOSPEN_CR2	15-Sep-11	1040	56,000	<20	80e
LOSPEN_CR1	15-Sep-11	1050	<20,000	2400e	800e
LOSPEN_CR3	15-Sep-11	1100	160,000e	5400	2200e
LOSPEN_CR2	15-Sep-11	1150	5600	40e	60e
LOSPEN_CR1	15-Sep-11	1200	32,000e	1600e	2200e
LOSPEN_CR3	15-Sep-11	1215	40,000e	1800e	1800e
LOSPEN_CR1	15-Sep-11	1340	10,000e	1500e	920
LOSPEN_CR2	15-Sep-11	1345	10,000e	<20	<20
LOSPEN_CR3	15-Sep-11	1350	120,000e	6000	2400e
LOSPEN_CR1	15-Sep-11	1437	34,000e	3000e	1800e
LOSPEN_CR2	15-Sep-11	1442	1600e	40e	20e
LOSPEN_CR3	15-Sep-11	1510	140,000e	9000	1200e
LOSPEN_CR1	15-Sep-11	1545	24,000e	1800e	1200
LOSPEN_CR2	15-Sep-11	1600	<2000	40e	40e
LOSPEN_CR3	15-Sep-11	1626	260,000e	9200	3800e
LOSPEN_CR1	15-Sep-11	1645	28,000e	3600e	1800e
LOSPEN_CR1	16-Sep-11	0600	80,000e	5200	1400e
LOSPEN_CR2	16-Sep-11	0611	<20,000	1100	900
LOSPEN_CR3	16-Sep-11	0625	4000e	20e	80e
LOSPEN_CR4	16-Sep-11	1010	3800e	480	380e
LOSPEN_CR5	16-Sep-11	1045	12,000e	700	960
LOSPEN_CR6	16-Sep-11	1248	1600e	20e	100e
LOSPEN_CR4	16-Sep-11	1410	6000e	640	740
LOSPEN_CR3	16-Sep-11	1440	80,000e	3200e	2200e
LOSPEN_CR1	16-Sep-11	1441	12,000e	1200e	780
LOSPEN_CR2	16-Sep-11	1445	<2000	20e	20e
LOSPEN_CR5	16-Sep-11	1445	6000e	780	760
LOSPEN_CR1	17-Sep-11	0500	20,000e	860	480
LOSPEN_CR6	17-Sep-11	0743	2000e	120e	140e
LOSPEN_CR3	17-Sep-11	0820	20,000e	2400e	540
LOSPEN_CR4	17-Sep-11	0840	2000e	500	800
LOSPEN_CR5	17-Sep-11	0845	6000e	940	740
LOSPEN_CR2	17-Sep-11	0922	4000e	60e	100e
LOSPEN_CR1	17-Sep-11	1500	6000e	280e	280e
LOSPEN_CR3	17-Sep-11	1525	20,000e	2400e	1300e
LOSPEN_CR2	17-Sep-11	1505	4000e	20e	20e

Attachment B10.11 *continued*

Date	Time	Station	Total	Fecal	Entero
LOSPEN_CR6	17-Sep-11	1605	2600e	20e	80e
LOSPEN_CR4	17-Sep-11	1630	2800e	360e	300e
LOSPEN_CR5	17-Sep-11	1645	12,000e	640e	240e
LOSPEN_CR6	18-Sep-11	0550	4800	120e	240e
LOSPEN_CR4	18-Sep-11	0607	120,000e	13,000e	9600e
LOSPEN_CR5	18-Sep-11	0619	8000e	320e	320e
LOSPEN_CR2	18-Sep-11	0636	16,000e	<20	60e
LOSPEN_CR1	18-Sep-11	0643	12,000e	640	3600e
LOSPEN_CR3	18-Sep-11	0651	1200e	100e	40e
LOSPEN_CR1	18-Sep-11	1400	40,000e	1600e	960
LOSPEN_CR2	18-Sep-11	1410	<20,000	<20	<20
LOSPEN_CR3	18-Sep-11	1419	<20,000	1400e	200e
LOSPEN_CR4	18-Sep-11	1436	20,000e	600e	1100
LOSPEN_CR5	18-Sep-11	1500	140,000e	10,000	9400
LOSPEN_CR6	18-Sep-11	1515	4000e	20e	40e
LOSPEN_CR6	19-Sep-11	0530	<2000	80e	140e
LOSPEN_CR4	19-Sep-11	0540	<2000	300e	340e
LOSPEN_CR5	19-Sep-11	0547	2000e	1100	440
LOSPEN_CR2	19-Sep-11	0559	4000e	40e	40e
LOSPEN_CR1	19-Sep-11	0608	6000	660	440
LOSPEN_CR3	19-Sep-11	0620	4000e	400	180e
LOSPEN_CR1	19-Sep-11	1500	1800e	520	300e
LOSPEN_CR2	19-Sep-11	1505	1600e	20e	20e
LOSPEN_CR3	19-Sep-11	1535	<2000	160e	<20
LOSPEN_CR6	19-Sep-11	1600	<2000	20e	100e
LOSPEN_CR4	19-Sep-11	1618	<2000	540	140e
LOSPEN_CR5	19-Sep-11	1640	2000e	140e	160e
LOSPEN_CR6	20-Sep-11	0850	2800e	60e	100e
LOSPEN_CR7	20-Sep-11	0850	16,000e	1200	880
LOSPEN_CR6	20-Sep-11	1004	4200	40e	160e
LOSPEN_CR4	20-Sep-11	1012	1600e	100e	320e
LOSPEN_CR5	20-Sep-11	1016	2000e	120e	360e
LOSPEN_CR2	20-Sep-11	1040	2000e	60e	240e
LOSPEN_CR1	20-Sep-11	1048	<2000	120e	140e
LOSPEN_CR3	20-Sep-11	1053	1600e	160e	80e
LOSPEN_CR1	20-Sep-11	1400	2800e	20e	40e
LOSPEN_CR2	20-Sep-11	1411	3000e	20e	60e
LOSPEN_CR3	20-Sep-11	1440	800e	60e	<20
LOSPEN_CR6	20-Sep-11	1532	3000e	80e	140e
LOSPEN_CR5	20-Sep-11	1558	3000e	340e	160e
LOSPEN_CR4	20-Sep-11	1613	1400e	40e	60e
LOSPEN_CR6	20-Sep-11	1804	2800e	80e	120e
LOSPEN_CR6	21-Sep-11	0620	3200e	120e	160e
LOSPEN_CR5	21-Sep-11	0644	2800e	360e	580
LOSPEN_CR4	21-Sep-11	0652	2800e	160e	360e
LOSPEN_CR3	21-Sep-11	0657	2400e	140e	80e
LOSPEN_CR2	21-Sep-11	0706	3000e	20e	20e

Attachment B10.11 *continued*

Date	Time	Station	Total	Fecal	Entero
LOSPEN_CR1	21-Sep-11	0712	3000e	200e	200e
LOSPEN_CR6	21-Sep-11	1028	3200e	80e	<20
LOSPEN_CR6	21-Sep-11	1415	3600e	60e	100e
LOSPEN_CR4	21-Sep-11	1430	2400e	220e	260e
LOSPEN_CR3	21-Sep-11	1448	1400e	140e	<20
LOSPEN_CR5	21-Sep-11	1455	2400e	280e	80e
LOSPEN_CR2	21-Sep-11	1458	<2000	<20	<20
LOSPEN_CR1	21-Sep-11	1503	3600e	160e	120e
LOSPEN_CR6	21-Sep-11	1740	1800e	<20	40e
LOSPEN_CR6	22-Sep-11	0605	2200e	60e	40e
LOSPEN_CR6	22-Sep-11	1000	2200e	40e	80e
LOSPEN_CR4	22-Sep-11	1006	2000e	20e	180e
LOSPEN_CR5	22-Sep-11	1009	4000e	380e	380e
LOSPEN_CR2	22-Sep-11	1016	4000e	240e	160e
LOSPEN_CR1	22-Sep-11	1021	1400e	160e	200e
LOSPEN_CR3	22-Sep-11	1027	<2000	100e	20e
LOSPEN_CR1	23-Sep-11	1013	2000e	60e	260e
LOSPEN_CR2	23-Sep-11	1035	4000e	<20	120e
LOSPEN_CR3	23-Sep-11	1050	1200e	80e	20e
LOSPEN_CR4	23-Sep-11	1140	2800e	100e	200e
LOSPEN_CR5	23-Sep-11	1150	2400e	200e	340e
LOSPEN_CR6	23-Sep-11	1212	2400e	<20	80e
LOSPEN_CR1	24-Sep-11	0955	3400e	160e	340e
LOSPEN_CR2	24-Sep-11	1000	6000e	20e	20e
LOSPEN_CR3	24-Sep-11	1010	1600e	160e	80e
LOSPEN_CR6	24-Sep-11	1030	3600e	120e	160e
LOSPEN_CR4	24-Sep-11	1040	3800e	260e	300e
LOSPEN_CR5	24-Sep-11	1050	4000	260e	240e
LOSPEN_CR1	25-Sep-11	0950	4000e	300e	280e
LOSPEN_CR2	25-Sep-11	1000	2000e	40e	40e
LOSPEN_CR3	25-Sep-11	1020	3000e	280e	140e
LOSPEN_CR6	25-Sep-11	1055	4000e	60e	120e
LOSPEN_CR4	25-Sep-11	1110	3000e	280e	320e
LOSPEN_CR5	25-Sep-11	1118	2800e	140e	200e
LOSPEN_CR1	26-Sep-11	1018	2200e	160e	180e
LOSPEN_CR2	26-Sep-11	1020	6000e	<20	20e
LOSPEN_CR3	26-Sep-11	1040	2200e	80e	40e
LOSPEN_CR6	26-Sep-11	1120	3600e	140e	160e
LOSPEN_CR4	26-Sep-11	1122	1600e	160e	200e
LOSPEN_CR5	26-Sep-11	1135	2600e	200e	300e

Attachment B10.12

All visual observations made at stations sampled near and within Los Penasquitos Creek in response to the sewage spill on September 8, 2011. Qualified staff made observations based on their training to meet NPDES permit monitoring requirements.

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR1	13-Sep-11	1310	sewage	turbid	green	none	sediment	plant debris	
LOSPEN_CR2	13-Sep-11	1324	none	clear	green	none	none	plant debris, fish	
LOSPEN_CR3	13-Sep-11	1335	sewage	turbid	gray	oily sheen	oily sediments	plant debris	
LOSPEN_CR1	14-Sep-11	1306	sewage	turbid	green	oil	sediment	plant debris	
LOSPEN_CR2	14-Sep-11	1313	none	clear	green	none	none	plant debris	
LOSPEN_CR3	14-Sep-11	1330	sewage	turbid	grey	oily sheen	oil, sediment	4 dead fish	
LOSPEN_CR4	14-Sep-11	1425	sewage	turbid	green	oily sheen	oil, sediment	1 dead fish, 2 *live tortoises*, plant debris	
LOSPEN_CR5	14-Sep-11	1500	sewage	turbid	grey	oily sheen	sediment	4 dead fish, plant debris	
LOSPEN_CR2	15-Sep-11	1040	none	clear	green	none	none	plant debris	
LOSPEN_CR1	15-Sep-11	1050	sewage	turbid	grey	sewage	sediment	plant debris	
LOSPEN_CR3	15-Sep-11	1100	sewage	turbid	grey	oily sheen, sewage	sediment	4 dead fish, plant debris	
LOSPEN_CR2	15-Sep-11	1150	none	clear	green	none	none	plant debris	
LOSPEN_CR1	15-Sep-11	1200	sewage	turbid	grey	sewage	sediment	plant debris	
LOSPEN_CR3	15-Sep-11	1215	sewage	turbid	grey	oily sheen, sewage	sediment	4 dead fish, plant debris	
LOSPEN_CR1	15-Sep-11	1340	sewage	turbid	grey	sewage	sediment	plant debris	
LOSPEN_CR2	15-Sep-11	1345	none	clear	green	none	none	plant debris	
LOSPEN_CR3	15-Sep-11	1350	sewage	turbid	grey	oily sheen, sewage	sediment	4 dead fish, plant debris	
LOSPEN_CR1	15-Sep-11	1437	sewage	turbid	grey	sewage	sediment	plant debris	
LOSPEN_CR2	15-Sep-11	1442	none	clear	green	none	none	plant debris	
LOSPEN_CR3	15-Sep-11	1510	sewage	turbid	grey	oily sheen, sewage	sediment	4 dead fish, plant debris	
LOSPEN_CR1	15-Sep-11	1545	none	clear	green	none	sediment	plant debris	
LOSPEN_CR2	15-Sep-11	1600	none	clear	green	none	none	plant debris	
LOSPEN_CR3	15-Sep-11	1626	sewage	turbid	grey	oily sheen, sewage	sediment	4 dead fish, plant debris	
LOSPEN_CR1	15-Sep-11	1645	none	clear	green	none	sediment	plant debris	
LOSPEN_CR3	15-Sep-11	1720	sewage	turbid	grey	oily sheen, sewage	sediment	4 dead fish, plant debris	
LOSPEN_CR2	15-Sep-11	1652	none	clear	green	none	none	plant debris	

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR1	15-Sep-11	1748	none	clear	green	none	sediment	plant debris	
LOSPEN_CR2	15-Sep-11	1812	none	clear	green	none	none	plant debris	
LOSPEN_CR3	15-Sep-11	1835	sewage	turbid	grey	oily sheen, sewage	sediment	4 dead fish, plant debris	
LOSPEN_CR1	15-Sep-11	2110	none	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR2	15-Sep-11	2125	none	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR3	15-Sep-11	2140	none	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR2	16-Sep-11	0020	none	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR1	16-Sep-11	0030	none	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR3	16-Sep-11	0041	Marine water smell	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR1	16-Sep-11	0600	none	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR2	16-Sep-11	0600	none	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR3	16-Sep-11	0600	none	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR4	16-Sep-11	1010	sewage	turbid	grey-green	oily sheen	none	plant debris	
LOSPEN_CR5	16-Sep-11	1045	sewage	turbid	grey-green	oily sheen	none	plant debris	
LOSPEN_CR2	16-Sep-11	1118	none	turbid	green	none	none	plant debris	
LOSPEN_CR1	16-Sep-11	1120	sewage	turbid	green	none	sediment	plant debris	
LOSPEN_CR3	16-Sep-11	1145	sewage	turbid	grey	oily sheen	oily sediments	1 blue heron, plant debris	
LOSPEN_CR4	16-Sep-11	1210	sewage	turbid	grey-green	oily sheen	none	plant debris	
LOSPEN_CR5	16-Sep-11	1245	sewage	turbid	grey-green	oily sheen	none	plant debris	

10/17/2011

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR6	16-Sep-11	1248	none	clear	colorless	none	silt	none	Flow=4.4 CF/sec; riffles present
LOSPEN_CR4	16-Sep-11	1410	sewage	turbid	dark grey	oily sheen	none	plant debris	
LOSPEN_CR1	16-Sep-11	1441	none	turbid	green	none	sediment	plant debris	
LOSPEN_CR2	16-Sep-11	1445	none	turbid	green	none	none	plant debris	
LOSPEN_CR5	16-Sep-11	1445	sewage	turbid	green-grey	oily sheen, grainy gritty sediment	none	plant debris	
LOSPEN_CR3	16-Sep-11	1450	sewage	turbid	grey	oily sheen	sediment	1 dead fish, plant debris	
LOSPEN_CR4	16-Sep-11	1610	sewage	turbid	green	none	oily	plant debris, 1 dead fish	
LOSPEN_CR5	16-Sep-11	1645	sewage	turbid	green	none	oily	plant debris	
LOSPEN_CR6	16-Sep-11	1819	none	clear	colorless	none	silt	plant debris	Flow=4.4 CF/sec; riffles present
LOSPEN_CR4	16-Sep-11	1820	sewage	turbid	green	none	sediment	plant debris	
LOSPEN_CR5	16-Sep-11	1845	sewage	turbid	green	none	sediment	plant debris	
LOSPEN_CR2	16-Sep-11	1846	none	turbid	green	none	none	plant debris	
LOSPEN_CR1	16-Sep-11	1847	sewage	turbid	green	none	sediment	plant debris	
LOSPEN_CR3	16-Sep-11	1910	sewage	turbid	grey	oily sheen	oily sediments	plant debris	
LOSPEN_CR6	16-Sep-11	2325	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR5	16-Sep-11	2340	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR4	16-Sep-11	2348	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR3	17-Sep-11	0001	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR2	17-Sep-11	0013	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR1	17-Sep-11	0028	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	

10/17/2011

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR1	17-Sep-11	0500	none	clear	green	none	none	0 dead fish; 3 mallards; 3 coots	
LOSPEN_CR2	17-Sep-11	0510	none	clear	green	none	none	5 coots; 1 bullfrog	
LOSPEN_CR3	17-Sep-11	0518	none	cloudy	green	oily sheen	none	2 bullfrogs	
LOSPEN_CR4	17-Sep-11	0540	musty	cloudy	grey	none	none	none	
LOSPEN_CR5	17-Sep-11	0547	none	cloudy	green	oily sheen	none	none	
LOSPEN_CR6	17-Sep-11	0601	none	clear	colorless	none	none	none	
LOSPEN_CR1	17-Sep-11	1000	none	clear	green	none	none		
LOSPEN_CR2	17-Sep-11	1005	none	clear	green	none	none	plant debris	
LOSPEN_CR3	17-Sep-11	1012	none	cloudy	green	oily sheen	plant debris		
LOSPEN_CR6	17-Sep-11	1030	none	clear	colorless	none	none	none	
LOSPEN_CR4	17-Sep-11	1038	musty	cloudy	dark grey	oily sheen	oily	none	
LOSPEN_CR5	17-Sep-11	1055	none	cloudy	green	oily sheen	none	none	
LOSPEN_CR1	17-Sep-11	1500	none	clear	green	none	none	1 live fish	
LOSPEN_CR2	17-Sep-11	1505	none	clear	green	none	none	plant debris	
LOSPEN_CR3	17-Sep-11	1525	none	cloudy	green	styrofoam cup	none	1 duck (charcoal body, blk head, white beak; plant debris	
LOSPEN_CR6	17-Sep-11	1605	none	clear	colorless	none	none	none	
LOSPEN_CR4	17-Sep-11	1630	musty	cloudy	dark grey	oily sheen	none	none	
LOSPEN_CR5	17-Sep-11	1645	none	cloudy	green	oily sheen	none	none	
LOSPEN_CR3	17-Sep-11	2253	none	very clear	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR4	17-Sep-11	2315	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR5	17-Sep-11	2332	none	very clear; could see approx 8 feet of hose	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR6	17-Sep-11	2346	none	clear	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR2	18-Sep-11	0001	none	very clear	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR1	18-Sep-11	0010	none	clear	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR6	18-Sep-11	0550	none	clear	colorless	none	none	none	
LOSPEN_CR4	18-Sep-11	0607	none	clear	colorless	little oily sheen	none	none	
LOSPEN_CR5	18-Sep-11	0611	none	clear can see hose in about 8 feet in length	colorless	little oily sheen	none	none	
LOSPEN_CR2	18-Sep-11	0636	none	clear; could see about 1 foot into creek	colorless	none	none	"Frogs jumping in"; while walking between sites 1-3 saw a 6"-8" bass downstream from station #2	
LOSPEN_CR1	18-Sep-11	0643	none	very clear; can see bottom	colorless	none	none	2 ducks; could hear frogs	
LOSPEN_CR3	18-Sep-11	0651	none	clear; could see about 1 foot into creek	colorless	none	none	4 coots, a couple of mallards; 1 blue heron "fishing"	
LOSPEN_CR1	18-Sep-11	1000	none	turbid	green	sewage	sediments	algae; 1 fish alive	
LOSPEN_CR2	18-Sep-11	1004	none	clear	green	none	none	plant debris; algae	
LOSPEN_CR3	18-Sep-11	1015	none	turbid	green	sewage	sediments	1 dead fish; 2 ducks; algae; collections dept pumping sewage approx 10 yards from site	

10/17/2011

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR4	18-Sep-11	1047	none (not perceptable)	turbid	green	oily sheen sewage	sediments	1 turtle alive; plant debris	
LOSPEN_CR5	18-Sep-11	1100	sewage	turbid	green	oily sheen; sewage	sediment	algae; plant debris; collection dept pumping sewage	
LOSPEN_CR6	18-Sep-11	1115	none	clear	colorless	none	none	algae	
LOSPEN_CR1	18-Sep-11	1400	none	turbid	green	sewage	sediments	algae; 6 fish alive	
LOSPEN_CR2	18-Sep-11	1410	none	clear	green	none	none	plant debris; algae	
LOSPEN_CR3	18-Sep-11	1419	sewage	turbid	green	sewage	sediments	2 ducks; algae; collections dept pumping sewage approx 10 yards from site	
LOSPEN_CR4	18-Sep-11	1436	sewage	turbid	green	oily sheen sewage	sediments	algae; plant debris	
LOSPEN_CR5	18-Sep-11	1500	sewage	turbid	green	sewage	sediment	algae; plant debris	
LOSPEN_CR6	18-Sep-11	1515	none	clear	colorless	none	none	plant debris; algae	
LOSPEN_CR6	18-Sep-11	2320	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR5	18-Sep-11	2336	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR4	18-Sep-11	2340	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR3	18-Sep-11	2344	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	
LOSPEN_CR1	18-Sep-11	2350	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	

10/17/2011

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR2	18-Sep-11	2359	not observed	too dark to collect data	too dark to collect data	too dark to collect data	too dark to collect data	not observed	
LOSPEN_CR6	19-Sep-11	0530	none	very clear	colorless	none	none		
LOSPEN_CR4	19-Sep-11	0540	none	somewhat cloudy	green	oily sheen	slightly oily		
LOSPEN_CR5	19-Sep-11	0547	none	clear	green	oily sheen	slightly oily		
LOSPEN_CR2	19-Sep-11	0559	none	clear	colorless	none	none		
LOSPEN_CR1	19-Sep-11	0608	none	clear	colorless	none	none		
LOSPEN_CR3	19-Sep-11	0620	none	slightly cloudy	colorless	oily sheen	slightly oily		Pump #2 (4"pump) failed at 1900 9/18/11. No pumping from the 2nd *site ar station #3 until it* is replaced by collections. Main pump (6"pump) is still working
LOSPEN_CR1	19-Sep-11	1040	slight sewage odor	clear	green	none	none	none	
LOSPEN_CR2	19-Sep-11	1045	musty	clear	green	none	none	plant debris	
LOSPEN_CR3	19-Sep-11	1100	slight sewage odor	cloudy	green	oily sheen	none	plant debris	
LOSPEN_CR6	19-Sep-11	1145	none	clear	colorless	none	none	none	
LOSPEN_CR4	19-Sep-11	1205	*none*	*cloudy*	*dark green*	*oily sheen*	*none*	*none*	
LOSPEN_CR5	19-Sep-11	1215	none	cloudy	green	none	none	none	
LOSPEN_CR1	19-Sep-11	1500	slight sewage odor	clear	green	none	none	8 live fish	
LOSPEN_CR2	19-Sep-11	1505	none	clear	green	none	none	plant debris	
LOSPEN_CR3	19-Sep-11	1535	slight sewage odor	clear	green	garbage	none	1 dead fish	
LOSPEN_CR6	19-Sep-11	1600	none	clear	colorless	none	none	none	
LOSPEN_CR4	19-Sep-11	1618	slight sewage	cloudy	dark grey	oily sheen	none	none	
LOSPEN_CR5	19-Sep-11	1640	slight sewage	cloudy	green	none	none	none	

10/17/2011

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR1	19-Sep-11	1900	sewage	clear	green	none	none	none	
LOSPEN_CR2	19-Sep-11	1905	musty	clear	green	none	none	plant debris	
LOSPEN_CR3	19-Sep-11	1915	sewage	clear	green	garbage	none	1 dead fish	
LOSPEN_CR6	19-Sep-11	1935	none	clear	colorless	none	none	none	
LOSPEN_CR4	19-Sep-11	2010	sewage	not recorded	not recorded	not recorded	not recorded	none	
LOSPEN_CR5	19-Sep-11	2020	slight sewage	cloudy	unable to determine at night	none	none	none	
LOSPEN_CR6	20-Sep-11	0600	none	very clear	colorless	none	some sediment	0 people; 0 animals	station is at merge of storm drain and Los Penasquitos Creek; shallow water 4"-6"
LOSPEN_CR4	20-Sep-11	0612	oily smell	clear	a bit cloudy	leaves	none	0 people; 0 animals	at 0600 Collections Dept brought in pumper truck to pump out from station #4, upstream from station #5; started at 0700 on 9/20/2011
LOSPEN_CR5	20-Sep-11	0616	oily smell	clear	colorless	none	none	2 mallards	can see 8 feet of hose; at 1010 pumper truck is for the for the new sewage puddle found on 9/19/2011; the puddle is located in the Los Penasquitos Creek, downsream from Station #6 and upstream from stations #4 and #5
LOSPEN_CR2	20-Sep-11	0629	earthy	very clear	colorless	leaves; cattails; bullrush	none	0 people; 0 animals	can see creek bottom
LOSPEN_CR1	20-Sep-11	0635	little musty	very clear	colorless	other leaves; twiggs	none	0 people; 1 coot; no algae	overcast; drizzle

10/17/2011

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR3	20-Sep-11	0645	earthy smell	very clear	colorless	leaves; 1 styrofoam cup	can see creek bottom	0 people; 3 mallards	pump replaced with new one; pumping re-started at 1030AM on 9/19/2011; at 0815 it is still drizzling with no runoff
LOSPEN_CR6	20-Sep-11	1004	none	very clear	colorless	none	sediments	filamentous algae	dragonfly oviposting
LOSPEN_CR4	20-Sep-11	1012	oily smell	clear	cloudy	leaves	none	0 people; perched blue heron	stations #4 and #5 are under wooden train bridge (tressel); the pilars are usually coated with creosote to protect the wood from the water
LOSPEN_CR5	20-Sep-11	1016	less oily than before	clear	colorless	oily sheen breaking up	none	1 mallard duck	can see pumping hose 8 feet into creek; stations #4 and #5 are under wooden train bridge (tressel); the pilars are usually coated with creosote to protect the wood from the water
LOSPEN_CR2	20-Sep-11	1040	smells like a creek smell	very clear	colorless	leaves	none	0 people; 0 animals	can see creek bottom
LOSPEN_CR1	20-Sep-11	1048	little musty	very clear	colorless	leaves	none	0 people; blue heron	can see creek bottom
LOSPEN_CR3	20-Sep-11	1053	earthy smell	very clear	colorless	dead cattails	none	0 people; 3 coots	can see creek bottom
LOSPEN_CR1	20-Sep-11	1400	none	clear	green	none	sediment	5 fish live swimming bass 6-8"	no visible water movement
LOSPEN_CR2	20-Sep-11	1411	none	clear	green	none	sediment	1 fish swimming	no visible water movement; plant debris; thin scum
LOSPEN_CR3	20-Sep-11	1440	none	clear	green	none	sediment	1 dead fish	plant debris; no visible water movement
LOSPEN_CR6	20-Sep-11	1532	none	clear	green	none	algae	none	about 6 riffles present; flow visible

10/17/2011

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR5	20-Sep-11	1558	tar from wooden tracks	clear	green	none	sediment	none	no visible flow
LOSPEN_CR4	20-Sep-11	1613	none	clear	dark green	leaf debris; oily sheen	sediment	10" turtle swimming	no visible water movement
LOSPEN_CR6	20-Sep-11	1804	none	clear	green	none	algae	none	riffles present; visible flow
LOSPEN_CR1	20-Sep-11	1828	none	clear	green	none	sediment	none	no visible water movement
LOSPEN_CR2	20-Sep-11	1839	none	clear	green	thin layer of scum	plant debris; sediment	none	no visible water movement
LOSPEN_CR3	20-Sep-11	1856	rotting flesh smell in the area, not in the water	clear	too dark to observe	too dark to observe	too dark to observe	too dark to observe	too dark to observe
LOSPEN_CR4	20-Sep-11	1924	none	too dark to observe	too dark to observe	too dark to observe	too dark to observe	too dark to observe	too dark to observe
LOSPEN_CR5	20-Sep-11	1945	none	too dark to observe	too dark to observe	too dark to observe	too dark to observe	too dark to observe	too dark to observe
LOSPEN_CR6	21-Sep-11	1415	none	clear	colorless	none	none	none	
LOSPEN_CR4	21-Sep-11	1430	none	clear	dark green	oily sheen	none	1 turtle	
LOSPEN_CR3	21-Sep-11	1448	slight sewage odor	slightly turbid	green	none	none	2 dead fish; plant debris	
LOSPEN_CR5	21-Sep-11	1455	none	slightly turbid	green	none	none	plant debris	
LOSPEN_CR2	21-Sep-11	1458	none	clear	green	none	none	2 live fish; plant debris	
LOSPEN_CR1	21-Sep-11	1503	slight sewage odor	clear	green	none	none	4 live fish	
LOSPEN_CR6	21-Sep-11	1740	none	clear	colorless	none	none	none	
LOSPEN_CR4	21-Sep-11	1750	slight sewage	slightly turbid	dark green	oily sheen	none	none	
LOSPEN_CR5	21-Sep-11	1800	slight sewage	slightly turbid	green	none	none	none	

10/17/2011

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR1	21-Sep-11	1820	slight sewage odor	too dark to collect data	green	none	none	none	
LOSPEN_CR2	21-Sep-11	1825	none	too dark to collect data	green	none	none	plant debris	
LOSPEN_CR3	21-Sep-11	1835	none	too dark to collect data	green	none	none	2 dead fish; plant debris	
LOSPEN_CR6	22-Sep-11	0605	earthy	clear	colorless	none	sediments	algae	
LOSPEN_CR4	22-Sep-11	0612	musty	clear	colorless	none	oily sheen	2 dragonflies	
LOSPEN_CR5	22-Sep-11	0618	musty	clear	colorless	none	oily sheen	none	
LOSPEN_CR3	22-Sep-11	0630	earthy smell	clear	colorless	none	none	2 ducks; 2 coots	
LOSPEN_CR2	22-Sep-11	0647	earthy	clear	colorless	none	none	>50 water boatman	
LOSPEN_CR1	22-Sep-11	0653	none	clear	colorless	none	none	>20 Water boatman	
LOSPEN_CR6	22-Sep-11	1000	none	very clear	colorless	none	sediments	algae	
LOSPEN_CR4	22-Sep-11	1006	oily smell	opaque	colorless	oily sheen	oily	1 turtle; dragonflies	
LOSPEN_CR5	22-Sep-11	1009	oily smell	very clear	green	oily sheen	oily sheen	dragonflies	
LOSPEN_CR2	22-Sep-11	1016	none	very clear	colorless	leaf debris none		collected lots of benthic invertebrates	
LOSPEN_CR1	22-Sep-11	1021	earthy	very clear	colorless	leaf debris	none	collected lots of benthic invertebrates	
LOSPEN_CR3	22-Sep-11	1027	none	clear	colorless	none	none	collected lots of invertebrate	
LOSPEN_CR1	23-Sep-11	1013	none	clear	green	none	none	plant debris; 2 fish alive; algae	
LOSPEN_CR2	23-Sep-11	1035	none	clear	green	none	none	plant debris; algae; 1 fish alive	

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR3	23-Sep-11	1050	musty	clear	green	none	none	1 fish dead; plant debris; algae	Wednesday Sept 21 @1430 depth was 3.8 ft according to biologist Dennis Brown; by Friday Sept 23rd the depth of the creek was 3.3 ft @ 1050
LOSPEN_CR4	23-Sep-11	1140	musty	cloudy	green	oily sheen	none	plant algae; algae; bird's wing observed	conditions are improving
LOSPEN_CR5	23-Sep-11	1150	none	cloudy	green	oily sheen	none	plant debris; algae	
LOSPEN_CR6	23-Sep-11	1212	none	clear	colorless	none	none	none	
LOSPEN_CR1	24-Sep-11	0955	musty	clear	green	none	none	2 live fish	
LOSPEN_CR2	24-Sep-11	1000	none	clear	green	none	none	plant debris; 1 live fish; algae	
LOSPEN_CR3	24-Sep-11	1010	fish smell	clear	green	none	none	plant debris; 1 dead fish	
LOSPEN_CR6	24-Sep-11	1030	none	clear	colorless	none	none	algae	
LOSPEN_CR4	24-Sep-11	1040	none	slightly turbid	green	oily sheen	none	plant debris	
LOSPEN_CR5	24-Sep-11	1050	none	slightly turbid	green	oilu sheen	none	algae; plant debris; 1 live fish	
LOSPEN_CR1	25-Sep-11	0950	musty	clear	green	oily sheen	none	algae; plant debris; 1 live fish	
LOSPEN_CR2	25-Sep-11	1000	none	clear	clorless	none	none	algae; plant debris	
LOSPEN_CR3	25-Sep-11	1020	none	slightly turbid	green	oily sheen	none	algae; plant debris	
LOSPEN_CR6	25-Sep-11	1055	none	clear	colorless	none	none	algae	
LOSPEN_CR4	25-Sep-11	1110	none	turbid	green	oily sheen	none	algae; plant debris; 1 duck	
LOSPEN_CR5	25-Sep-11	1118	none	turbid	green	oily sheen	none	algae; plant debris	
LOSPEN_CR1	26-Sep-11	1018	none	slightly turbid	green	oily sheen	none	abundant algae; plant debris	

Attachment B10.12 *continued*

Station	Date	Time	Odor	Clarity	Color	Floatables	Deposits	Biological	Comments
LOSPEN_CR2	26-Sep-11	1020	none	clear	green	none	none	plant debris; 1 live fish	
LOSPEN_CR3	26-Sep-11	1040	slightly musty	slightly turbid	green	none	none	abundant algae; plant debris; 1 dead fish	
LOSPEN_CR6	26-Sep-11	1120	none	clear	colorless	none	none	none	
LOSPEN_CR4	26-Sep-11	1122	none	slightly turbid	green	oily sheen	trash	plant debris; 1 turtle	
LOSPEN_CR5	26-Sep-11	1135	none	slightly turbid	green	none	none	algae; plant debris	

Attachment B10.13

Summary of pH, dissolved oxygen (DO), temperature (Temp), conductivity (Cond), and ammonia collected from LOSPEN_CR1 - LOSPEN_CR6 and two reference sources. Data include number of samples (n), minimum (min), maximum (max), median and mean values, with standard deviation (STD), coefficient of variation (CoV), and the 95% confidence interval provided as measures of dispersion.

Statistic	pH	DO (ppm)	Temp (^{0}C)	Cond. (mS/cm)	Ammonia (ppm)	pH	DO (ppm)	Temp (^{0}C)	Cond. (mS/cm)	Ammonia (ppm)
	LOSPEN_CR1					LOSPEN_CR2				
n	42	42	42	42	42	42	42	42	42	40
Min	7.11	1.08	16.4	2.77	0.20	6.93	4.50	17.0	3.55	0.10
Max	8.00	8.55	24.4	5.32	0.99	8.16	10.89	25.1	5.72	0.82
Median	7.72	4.84	20.3	4.65	0.36	7.81	8.59	20.4	5.33	0.36
Mean	7.64	4.79	20.7	4.36	0.39	7.78	8.63	20.9	4.93	0.38
STD	0.25	1.96	1.8	0.61	0.14	0.25	1.26	1.8	0.71	0.14
CoV	3.29	40.99	8.9	14.04	35.86	3.25	14.63	8.4	14.46	35.21
95% CI	0.08	0.59	0.6	0.19	0.04	0.08	0.38	0.5	0.22	0.04
	LOSPEN_CR3					LOSPEN_CR4				
n	42	42	42	42	40	33	33	33	33	32
Min	7.26	1.74	16.9	3.40	0.22	7.03	2.61	16.8	3.28	0.22
Max	7.96	8.28	25.5	5.49	1.70	7.88	6.01	24.7	9.30	1.71
Median	7.72	5.40	20.5	4.73	0.52	7.72	4.07	20.4	4.54	0.34
Mean	7.65	5.17	21.0	4.48	0.68	7.62	4.20	20.6	4.46	0.47
STD	0.21	1.94	2.0	0.56	0.42	0.24	0.84	1.8	1.14	0.35
CoV	2.76	37.60	9.5	12.61	61.50	3.13	19.87	8.6	25.50	75.92
95% CI	0.06	0.59	0.6	0.17	0.13	0.08	0.28	0.6	0.39	0.12
	LOSPEN_CR5					LOSPEN_CR6				
n	33	33	33	33	32	29	29	29	29	29
Min	6.92	1.29	16.7	3.35	0.20	7.65	7.90	16.4	3.01	0.08
Max	7.87	6.57	24.7	4.75	0.50	8.13	9.33	27.0	4.66	0.41
Median	7.71	4.19	20.1	4.48	0.33	8.02	8.50	20.2	4.35	0.22
Mean	7.65	4.20	20.5	4.18	0.35	7.99	8.46	20.5	4.05	0.23
STD	0.22	1.28	1.8	0.55	0.07	0.12	0.40	2.3	0.54	0.07
CoV	2.92	30.43	8.7	13.18	21.52	1.49	4.70	11.0	13.44	31.37
95% CI	0.08	0.44	0.6	0.19	0.03	0.04	0.14	0.8	0.20	0.03
	Coastkeeper*					StreamTeam				
n	31	30	31	31	18	6	8	10	8	na
Min	6.51	4.41	11.5	1.13	0.02	7.50	7.00	11.1	1.98	—
Max	8.21	13.92	25.6	4.22	0.08	8.00	9.50	20.8	3.43	—
Median	7.92	7.54	18.0	3.40	0.02	7.90	8.10	15.1	2.87	—
Mean	7.90	8.11	17.9	3.15	0.03	7.85	8.05	15.7	2.76	—
STD	0.29	2.52	4.1	0.84	0.21	0.19	0.82	2.6	0.48	—
CoV	3.67	31.12	23.1	0.03	725.64	2.38	10.23	16.6	0.02	—
95% CI	0.10	0.90	1.5	0.29	0.10	0.15	0.57	1.6	0.33	—

na = not available

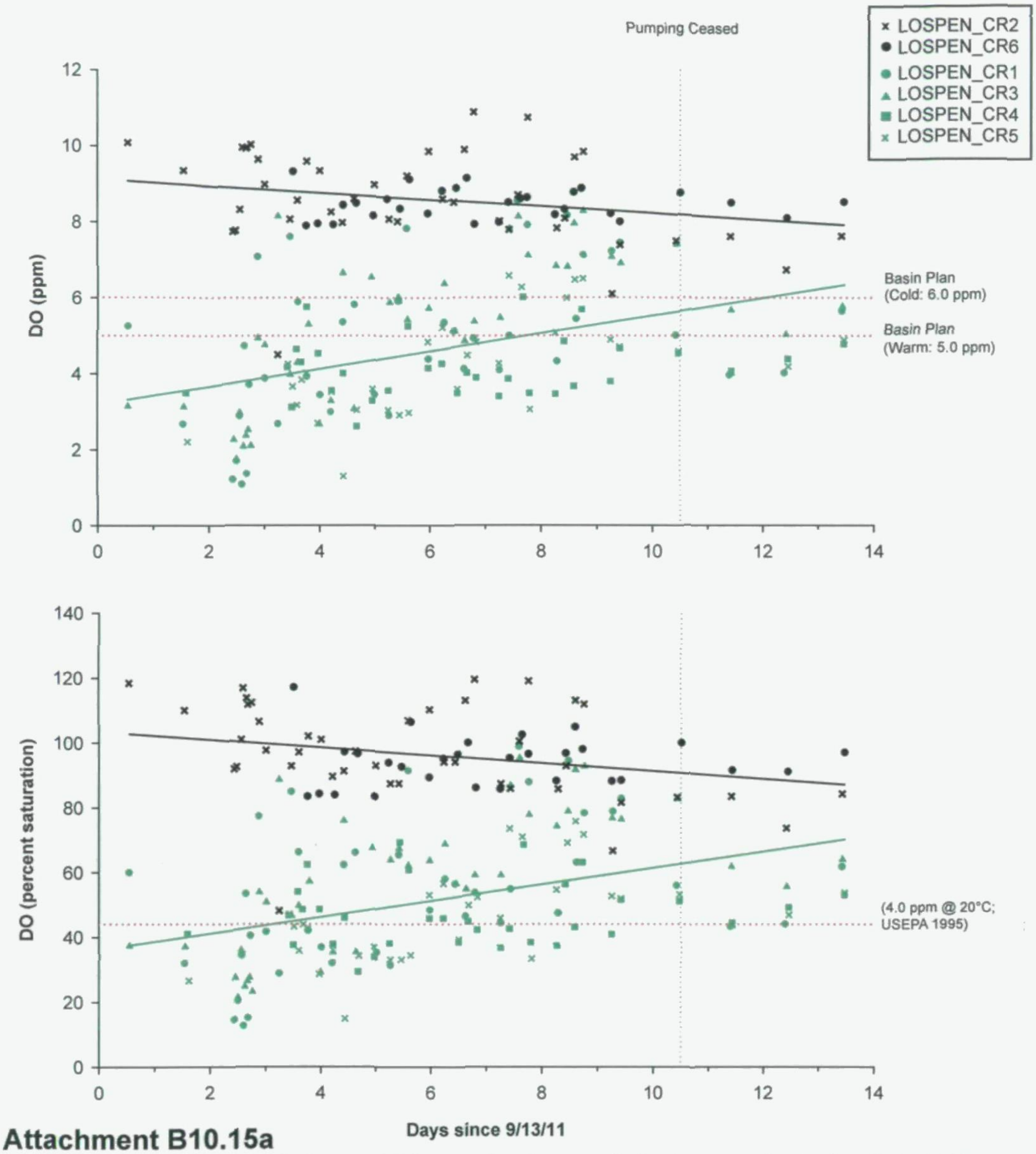
*Ammonia reference values (Coastkeeper, Basin Plan Threshold) are problematic because they are below known detection limits.

Attachment B10.14

Summary of total coliform (Total), fecal coliform (Fecal), and enterococcus (Entero) bacteria densities (CFU/100 mL) collected from LOSPEN_CR1 - LOSPEN_CR6 and two reference sources. Data include number of samples (n), minimum (min), maximum (max), mean, and median values, with the interquartile range (IQR), standard deviation (STD) and the 95% confidence interval provided as measures of dispersion.

Statistic	Total	Fecal	Entero	Total	Fecal	Entero
	LOSPEN_CR1			LOSPEN_CR2		
n	25	25	25	24	24	24
Min	1600	20	40	1600	20	20
Max	80000	5200	4200	56000	1100	900
Mean	19456	1320	1029	7725	83	96
Median	10000	660	480	4000	20	40
IQR	25000	1640	1140	4000	20	80
STD	23084	1433	1131	11626	221	180
95% CI	9049	562	443	4651	89	72
	LOSPEN_CR3			LOSPEN_CR4		
n	24	24	24	18	18	18
Min	800	20	20	1400	20	60
Max	760000	12000	3800	36000	13000	9600
Mean	78642	2695	986	6000	1276	1012
Median	4000	340	160	2800	330	320
IQR	88100	3620	1860	1800	355	485
STD	164613	3775	1308	8806	3133	2210
95% CI	65858	1510	523	4068	1447	1021
	LOSPEN_CR5			LOSPEN_CR6		
n	18	18	18	21	21	21
Min	2000	120	80	1600	20	20
Max	140000	10000	9400	4800	140	240
Mean	13000	1172	981	2933	66	110
Median	3500	350	350	2800	60	100
IQR	5050	545	460	1400	60	60
STD	32056	2392	2148	895	40	53
95% CI	14809	1105	992	383	17	23
	Coastkeeper			StormWater		
n	28	na	28	4	4	4
Min	40	na	10	800	34	120
Max	24190	na	6490	3000	400	460
Mean	8897	na	479	1700	205	235
STD	8991	na	1353	931	182	156
95% CI	3330	na	501	912	179	153

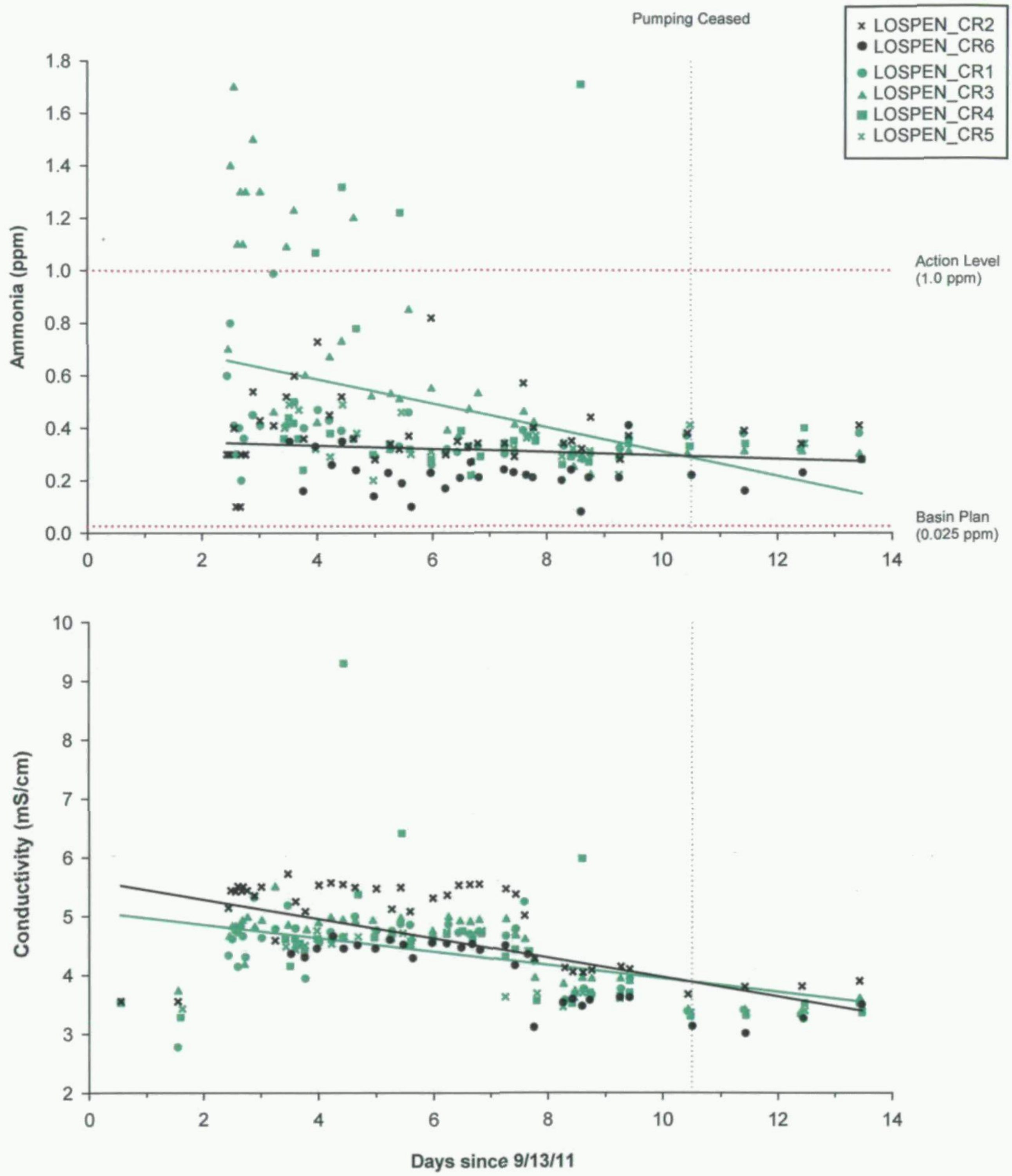
na=not available



Attachment B10.15a

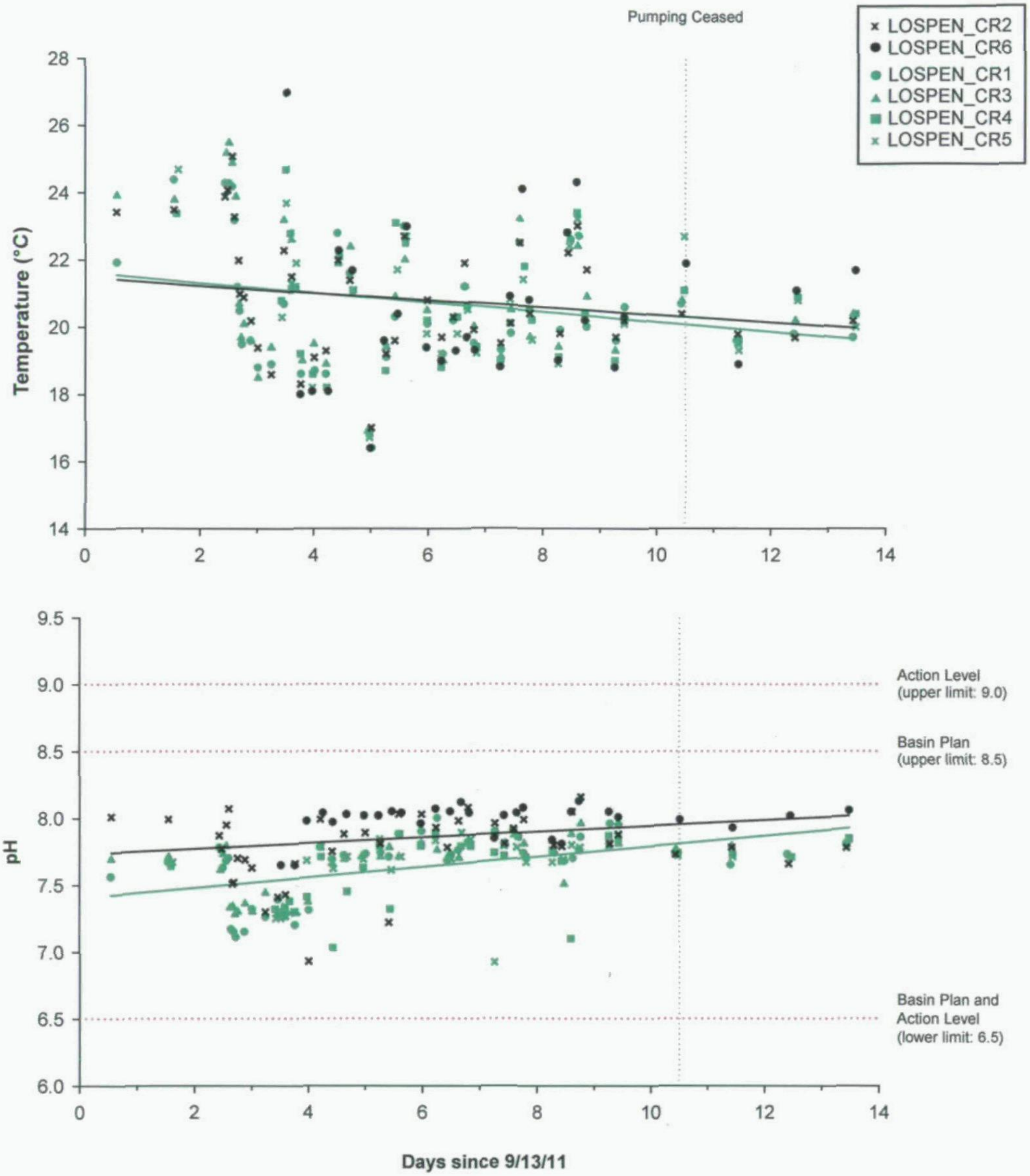
Dissolved oxygen (DO) concentrations and DO saturation since monitoring began on September 13, 2011. Percent saturation is based on temperature-dependent capacity for DO. Linear trendlines are drawn for the upstream reference (black) and downstream impacted (green) station groups. Black-dotted vertical line denotes the time pumping was ceased (September 23, 1200 hrs). Red-dotted reference lines in the upper panel represent CA Basin Plan water quality objectives for DO concentrations for inland waters with cold and warm beneficial uses. The red-dotted reference line in the lower panel represents the percent DO saturation of 4.0 ppm at 20°C, considered minimal to sustain life (USEPA 1995).

[USEPA] United States Environmental Protection Agency. (1995). Short-term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms. EPA/600/R-95-136.



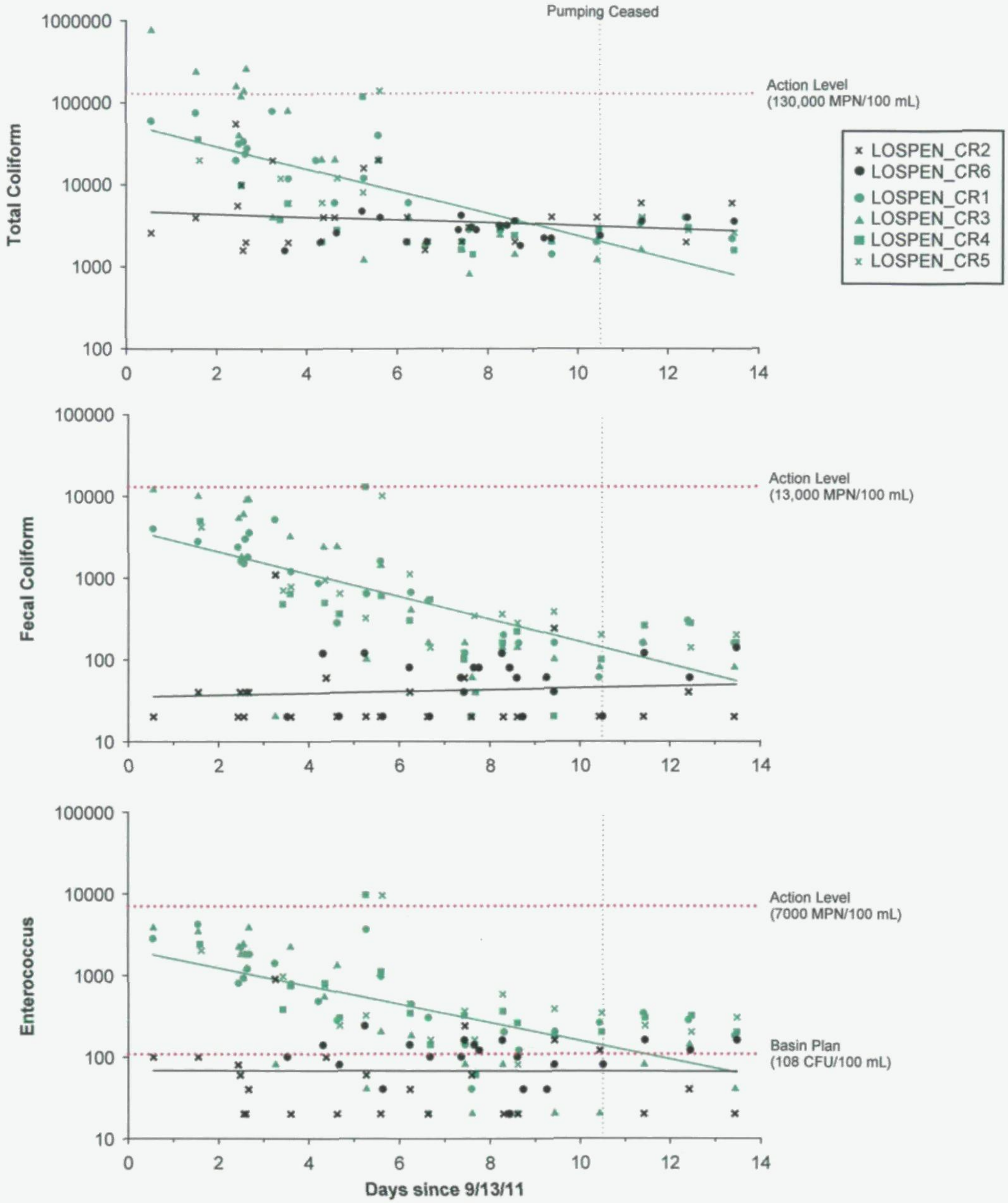
Attachment B10.15b

Ammonia and conductivity since monitoring began on September 13, 2011. Linear trendlines are drawn for the upstream reference (black) and downstream impacted (green) station groups. Black-dotted vertical line denotes the time pumping was ceased (September 23, 1200 hrs). Red-dotted reference lines in the upper panel represent the Stormwater 2011 action level and CA Basin Plan water quality objectives for ammonia concentrations for inland waters. Action levels for conductivity are based upon best professional judgement.



Attachment B10.15c

Temperature and pH since monitoring began on September 13, 2011. Linear trendlines are drawn for the upstream reference (black) and downstream impacted (green) station groups. Black-dotted vertical line denotes the time pumping was ceased (September 23, 1200 hrs). Red-dotted reference lines in the lower panel represent the upper and lower limits of pH as stated in the Stormwater 2011 action levels and CA Basin Plan water quality objectives for inland surface waters. Action levels for temperature are based on best professional judgement.



Attachment B10.15d

Bacterial densities (CFU/100 mL) since monitoring began on September 13, 2011. Linear trendlines are drawn for the upstream reference (black) and downstream impacted (green) station groups. Black-dotted vertical line denotes the time pumping was ceased (September 23, 1200 hrs). Red-dotted reference lines represent Stormwater 2011 action levels and CA Basin Plan water quality objectives (enterococcus only) for inland waters.

Attachment B10.16

Sources of threshold and action level data used in the evaluation of Los Penasquitos Creek monitoring data.

Parameter	Limit	Source(s)
Dissolved Oxygen (ppm)	5.0 ppm (warm) 6.0 ppm (cold)	CA Basin Plan Water Quality Objectives[1]
Dissolved Oxygen (% saturation)	44%	Represents percent saturation at 20°C for DO concentration of 4.0 ppm, considered the minimum to sustain life.[2]
Ammonia	1.0 ppm[3] 0.025 ppm[1]	Stormwater Action Levels[3] CA Basin Plan Water Quality Objectives[1]
Conductivity	Best Professional Judgement	Stormwater Action Levels[3]
Temperature	Best Professional Judgement	Stormwater Action Levels[3]
pH	8.5[1] and 9.0[3] (upper limit) 6.5[1,3] (lower limit)	CA Basin Plan Water Quality Objectives[1] Stormwater Action Levels[3]
Total Coliform	130,000 MPN/100 mL	Stormwater Action Levels[3]
Fecal Coliform	13,000 MPN/100 mL	Stormwater Action Levels[3]
Enterococcus	7000 MPN/100 mL[3] 108 CFU/100 mL[1]	Stormwater Action Levels[3] CA Basin Plan Water Quality Objectives[1]

[1] State of California. (1994). Water Quality Control Plan for the San Diego Basin (9). California Regional Water Quality Control Board San Diego Region, San Diego, CA.

[2] [USEPA] United States Environmental Protection Agency. (1995). Short-term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms. EPA/600/R-95-136.

[3] Action levels are set by the Storm Water Division and co-permittees for use in storm drain monitoring during dry weather. Exceedances of these levels initiate investigation and follow up response. Levels are based on a combination of regulatory limits, previous sampling years, and workgroup experience.

10/17/2011

Attachment B10.17a

Quality control (QC) measurements of pH, dissolved oxygen (DO, ppm), temperature (Temp, ^{0}C), conductivity (Cond, µS/cm), and ammonia (ppm) conducted on samples from LOSPEN_CR1 - LOSPEN_CR6. Data include: QC Type, where SPL= split, a replicate analysis performed on a separate aliquot of the sample being verified, and DUP = duplicate, a replicate analysis performed on a sample taken within 15 minutes of and from the same site as the sample being verified; replicate measurements made by the City's Watershed Group (Replicate 1) except where noted; original sample measurements made by the City's Marine Microbiology Laboratory (Replicate 2); Relative Percent Difference (RPD) between measurements for each. With the exception of DO, most RPD results indicated that replicate analyses were within 20% of each other. Therefore, parallel analyses were subsequently performed with Wastewater Chemistry Services to validate the instrument used to collect dissolved oxygen field measurements (see Attachment B10.17b).

				Measurement			
Parameter	Station	Date	QC Type	Sample	QC	RPD	Notes
ammonia	LOSPEN_CR2	9/19/2011	SPL	0.43	0.40	7	QC performed by Marine Microbiology/Grab Sample Measurement
ammonia	LOSPEN_CR5	9/19/2011	SPL	0.30	0.27	11	QC performed by Marine Microbiology/Grab Sample Measurement
Cond	LOSPEN_CR5	9/19/2011	SPL	4700	4750	1	QC performed by Marine Microbiology/Grab Sample Measurement
Cond	LOSPEN_CR1	9/20/2011	DUP	5240	4290	20	Instream Measurement
Cond	LOSPEN_CR1	9/20/2011	DUP	4230	4312	2	Instream Measurement
Cond	LOSPEN_CR2	9/20/2011	DUP	5010	4278	16	Instream Measurement
Cond	LOSPEN_CR2	9/20/2011	SPL	4270	4100	4	QC performed by Marine Microbiology/Grab Sample Measurement
Cond	LOSPEN_CR2	9/20/2011	DUP	4270	4348	2	Instream Measurement
Cond	LOSPEN_CR3	9/20/2011	DUP	3940	3909	1	Instream Measurement
Cond	LOSPEN_CR4	9/20/2011	DUP	4400	6359	36	Instream Measurement
Cond	LOSPEN_CR4	9/20/2011	DUP	3560	5018	34	Instream Measurement
Cond	LOSPEN_CR5	9/20/2011	DUP	4400	3617	20	Instream Measurement
Cond	LOSPEN_CR5	9/20/2011	DUP	3680	3616	2	Instream Measurement
Cond	LOSPEN_CR6	9/20/2011	DUP	4350	3471	22	Instream Measurement
Cond	LOSPEN_CR6	9/20/2011	DUP	3110	3060	2	Instream Measurement
Cond	LOSPEN_CR1	9/21/2011	SPL	3760	3691	2	Grab Sample Measurement
Cond	LOSPEN_CR1	9/21/2011	SPL	3660	3569	3	Grab Sample Measurement
Cond	LOSPEN_CR2	9/21/2011	SPL	4040	4007	1	Grab Sample Measurement
Cond	LOSPEN_CR2	9/21/2011	SPL	4080	3985	2	Grab Sample Measurement
Cond	LOSPEN_CR3	9/21/2011	SPL	3930	3849	2	Grab Sample Measurement
Cond	LOSPEN_CR3	9/21/2011	SPL	3930	3843	2	Grab Sample Measurement
Cond	LOSPEN_CR4	9/21/2011	SPL	5980	5906	1	Grab Sample Measurement
Cond	LOSPEN_CR4	9/21/2011	SPL	3700	3613	2	Grab Sample Measurement
Cond	LOSPEN_CR5	9/21/2011	SPL	3690	3594	3	Grab Sample Measurement

10/17/2011

Attachment B10.17a *continued*

Parameter	Station	Date	QC Type	Measurement Sample	Measurement QC	RPD	Notes
Cond	LOSPEN_CR5	9/21/2011	SPL	3660	3564	3	Grab Sample Measurement
Cond	LOSPEN_CR6	9/21/2011	SPL	3470	3426	1	Grab Sample Measurement
Cond	LOSPEN_CR6	9/21/2011	SPL	3570	3498	2	Grab Sample Measurement
Cond	LOSPEN_CR1	9/23/2011	DUP	3380	3809	12	Instream Measurement
Cond	LOSPEN_CR1	9/23/2011	DUP	3380	3689	9	Grab Sample Measurement
Cond	LOSPEN_CR2	9/23/2011	DUP	3670	4072	10	Instream Measurement
Cond	LOSPEN_CR2	9/23/2011	DUP	3670	4052	10	Grab Sample Measurement
Cond	LOSPEN_CR3	9/23/2011	DUP	3410	3739	9	Instream Measurement
Cond	LOSPEN_CR3	9/23/2011	DUP	3410	3744	9	Grab Sample Measurement
Cond	LOSPEN_CR4	9/23/2011	DUP	3300	3621	9	Instream Measurement
Cond	LOSPEN_CR4	9/23/2011	DUP	3300	3926	17	Grab Sample Measurement
Cond	LOSPEN_CR5	9/23/2011	DUP	3360	3670	9	Instream Measurement
Cond	LOSPEN_CR5	9/23/2011	DUP	3360	3648	8	Grab Sample Measurement
Cond	LOSPEN_CR6	9/23/2011	DUP	3130	3427	9	Instream Measurement
Cond	LOSPEN_CR6	9/23/2011	DUP	3130	3521	12	Grab Sample Measurement
DO	LOSPEN_CR5	9/19/2011	SPL	4.48	4.37	2	QC performed by Marine Microbiology/Grab Sample Measurement
DO	LOSPEN_CR1	9/20/2011	DUP	8.55	6.89	22	Instream Measurement
DO	LOSPEN_CR1	9/20/2011	DUP	7.91	4.43	56	Instream Measurement
DO	LOSPEN_CR2	9/20/2011	DUP	8.70	6.76	25	Instream Measurement
DO	LOSPEN_CR2	9/20/2011	SPL	10.74	10.31	4	QC performed by Marine Microbiology/Grab Sample Measurement
DO	LOSPEN_CR2	9/20/2011	DUP	10.74	5.57	63	Instream Measurement
DO	LOSPEN_CR3	9/20/2011	DUP	7.11	5.88	19	Instream Measurement
DO	LOSPEN_CR4	9/20/2011	DUP	6.01	0.42	174	Instream Measurement
DO	LOSPEN_CR4	9/20/2011	DUP	3.48	0.48	152	Instream Measurement
DO	LOSPEN_CR5	9/20/2011	DUP	6.27	1.51	122	Instream Measurement
DO	LOSPEN_CR5	9/20/2011	DUP	3.05	1.95	44	Instream Measurement
DO	LOSPEN_CR6	9/20/2011	DUP	8.61	8.38	3	Instream Measurement
DO	LOSPEN_CR6	9/20/2011	DUP	8.64	7.19	18	Instream Measurement
DO	LOSPEN_CR1	9/21/2011	SPL	5.44	3.22	51	Grab Sample Measurement
DO	LOSPEN_CR1	9/21/2011	SPL	7.12	2.79	87	Grab Sample Measurement
DO	LOSPEN_CR2	9/21/2011	SPL	9.70	5.55	54	Grab Sample Measurement
DO	LOSPEN_CR2	9/21/2011	SPL	9.84	5.80	52	Grab Sample Measurement
DO	LOSPEN_CR3	9/21/2011	SPL	7.95	5.03	45	Grab Sample Measurement
DO	LOSPEN_CR3	9/21/2011	SPL	8.28	5.05	48	Grab Sample Measurement
DO	LOSPEN_CR4	9/21/2011	SPL	3.67	2.28	47	Grab Sample Measurement

10/17/2011

Attachment B10.17a *continued*

Parameter	Station	Date	QC Type	Measurement Sample	Measurement QC	RPD	Notes
DO	LOSPEN_CR4	9/21/2011	SPL	5.69	2.92	64	Grab Sample Measurement
DO	LOSPEN_CR5	9/21/2011	SPL	6.47	3.28	65	Grab Sample Measurement
DO	LOSPEN_CR5	9/21/2011	SPL	6.50	3.14	70	Grab Sample Measurement
DO	LOSPEN_CR6	9/21/2011	SPL	8.78	4.79	59	Grab Sample Measurement
DO	LOSPEN_CR6	9/21/2011	SPL	8.88	4.46	66	Grab Sample Measurement
DO	LOSPEN_CR1	9/23/2011	DUP	5.01	4.03	22	Instream Measurement
DO	LOSPEN_CR1	9/23/2011	DUP	5.01	3.55	34	Grab Sample Measurement
DO	LOSPEN_CR2	9/23/2011	DUP	7.50	4.31	54	Instream Measurement
DO	LOSPEN_CR2	9/23/2011	DUP	7.50	5.21	36	Grab Sample Measurement
DO	LOSPEN_CR3	9/23/2011	DUP	7.40	4.31	53	Instream Measurement
DO	LOSPEN_CR3	9/23/2011	DUP	7.40	5.29	33	Grab Sample Measurement
DO	LOSPEN_CR4	9/23/2011	DUP	4.54	3.22	34	Instream Measurement
DO	LOSPEN_CR4	9/23/2011	DUP	4.54	2.25	67	Grab Sample Measurement
DO	LOSPEN_CR5	9/23/2011	DUP	4.58	0.96	131	Instream Measurement
DO	LOSPEN_CR5	9/23/2011	DUP	4.58	2.13	73	Grab Sample Measurement
DO	LOSPEN_CR6	9/23/2011	DUP	8.76	8.76	0	Instream Measurement
DO	LOSPEN_CR6	9/23/2011	DUP	8.76	5.67	43	Grab Sample Measurement
pH	LOSPEN_CR5	9/19/2011	SPL	7.95	7.89	1	QC performed by Marine Microbiology/Grab Sample Measurement
pH	LOSPEN_CR1	9/20/2011	DUP	7.91	7.59	4	Instream Measurement
pH	LOSPEN_CR1	9/20/2011	DUP	7.74	7.69	1	Instream Measurement
pH	LOSPEN_CR2	9/20/2011	DUP	7.92	7.48	6	Instream Measurement
pH	LOSPEN_CR2	9/20/2011	SPL	7.99	7.81	2	QC performed by Marine Microbiology/Grab Sample Measurement
pH	LOSPEN_CR2	9/20/2011	DUP	7.99	7.66	4	Instream Measurement
pH	LOSPEN_CR3	9/20/2011	DUP	7.81	7.67	2	Instream Measurement
pH	LOSPEN_CR4	9/20/2011	DUP	7.86	7.59	3	Instream Measurement
pH	LOSPEN_CR4	9/20/2011	DUP	7.00	8.59	20	Instream Measurement
pH	LOSPEN_CR5	9/20/2011	DUP	7.78	7.97	2	Instream Measurement
pH	LOSPEN_CR5	9/20/2011	DUP	7.67	7.85	2	Instream Measurement
pH	LOSPEN_CR6	9/20/2011	DUP	8.04	7.81	3	Instream Measurement
pH	LOSPEN_CR6	9/20/2011	DUP	8.08	7.83	3	Instream Measurement
pH	LOSPEN_CR1	9/21/2011	SPL	7.70	7.53	2	Grab Sample Measurement
pH	LOSPEN_CR1	9/21/2011	SPL	7.86	7.56	4	Grab Sample Measurement
pH	LOSPEN_CR2	9/21/2011	SPL	8.05	7.78	3	Grab Sample Measurement
pH	LOSPEN_CR2	9/21/2011	SPL	8.16	7.89	3	Grab Sample Measurement
pH	LOSPEN_CR3	9/21/2011	SPL	7.99	7.69	4	Grab Sample Measurement

Attachment B10.17a *continued*

Parameter	Station	Date	QC Type	Measurement Sample	Measurement QC	RPD	Notes
pH	LOSPEN_CR3	9/21/2011	SPL	7.96	7.74	3	Grab Sample Measurement
pH	LOSPEN_CR4	9/21/2011	SPL	7.10	7.19	1	Grab Sample Measurement
pH	LOSPEN_CR4	9/21/2011	SPL	7.76	7.6	2	Grab Sample Measurement
pH	LOSPEN_CR5	9/21/2011	SPL	7.80	7.57	3	Grab Sample Measurement
pH	LOSPEN_CR5	9/21/2011	SPL	7.78	7.58	3	Grab Sample Measurement
pH	LOSPEN_CR6	9/21/2011	SPL	8.05	7.8	3	Grab Sample Measurement
pH	LOSPEN_CR6	9/21/2011	SPL	8.13	7.83	4	Grab Sample Measurement
pH	LOSPEN_CR1	9/23/2011	DUP	7.74	7.14	8	Instream Measurement
pH	LOSPEN_CR1	9/23/2011	DUP	7.74	7.34	5	Grab Sample Measurement
pH	LOSPEN_CR2	9/23/2011	DUP	7.75	7.29	6	Instream Measurement
pH	LOSPEN_CR2	9/23/2011	DUP	7.75	7.38	5	Grab Sample Measurement
pH	LOSPEN_CR3	9/23/2011	DUP	7.77	7.42	5	Instream Measurement
pH	LOSPEN_CR3	9/23/2011	DUP	7.77	7.42	5	Grab Sample Measurement
pH	LOSPEN_CR4	9/23/2011	DUP	7.74	7.45	4	Instream Measurement
pH	LOSPEN_CR4	9/23/2011	DUP	7.74	7.41	4	Grab Sample Measurement
pH	LOSPEN_CR5	9/23/2011	DUP	7.72	7.44	4	Instream Measurement
pH	LOSPEN_CR5	9/23/2011	DUP	7.72	7.44	4	Grab Sample Measurement
pH	LOSPEN_CR6	9/23/2011	DUP	7.99	7.74	3	Instream Measurement
pH	LOSPEN_CR6	9/23/2011	DUP	7.99	7.69	4	Grab Sample Measurement
Temp	LOSPEN_CR5	9/19/2011	SPL	20.5	20.3	1	QC performed by Marine Microbiology/Grab Sample Measurement
Temp	LOSPEN_CR1	9/20/2011	DUP	22.5	20.5	9	Instream Measurement
Temp	LOSPEN_CR1	9/20/2011	DUP	20.5	20.1	2	Instream Measurement
Temp	LOSPEN_CR2	9/20/2011	DUP	22.5	19.8	13	Instream Measurement
Temp	LOSPEN_CR2	9/20/2011	SPL	20.4	20.6	1	QC performed by Marine Microbiology/Grab Sample Measurement
Temp	LOSPEN_CR2	9/20/2011	DUP	20.4	19.6	4	Instream Measurement
Temp	LOSPEN_CR3	9/20/2011	DUP	23.2	20.0	15	Instream Measurement
Temp	LOSPEN_CR4	9/20/2011	DUP	19.7	20.5	4	Instream Measurement
Temp	LOSPEN_CR4	9/20/2011	DUP	21.8	19.2	13	Instream Measurement
Temp	LOSPEN_CR5	9/20/2011	DUP	20.2	18.9	7	Instream Measurement
Temp	LOSPEN_CR5	9/20/2011	DUP	21.4	18.9	12	Instream Measurement
Temp	LOSPEN_CR6	9/20/2011	DUP	24.1	19.3	22	Instream Measurement
Temp	LOSPEN_CR6	9/20/2011	DUP	20.8	19.2	8	Instream Measurement
Temp	LOSPEN_CR1	9/21/2011	SPL	22.7	22.3	2	Grab Sample Measurement
Temp	LOSPEN_CR1	9/21/2011	SPL	20.0	19.6	2	Grab Sample Measurement
Temp	LOSPEN_CR2	9/21/2011	SPL	23.0	22.7	1	Grab Sample Measurement

10/17/2011

Attachment B10.17a *continued*

Parameter	Station	Date	QC Type	Measurement Sample	Measurement QC	RPD	Notes
Temp	LOSPEN_CR2	9/21/2011	SPL	21.7	21.5	1	Grab Sample Measurement
Temp	LOSPEN_CR3	9/21/2011	SPL	22.4	21.8	3	Grab Sample Measurement
Temp	LOSPEN_CR3	9/21/2011	SPL	20.9	20.2	3	Grab Sample Measurement
Temp	LOSPEN_CR4	9/21/2011	SPL	23.4	22.9	2	Grab Sample Measurement
Temp	LOSPEN_CR4	9/21/2011	SPL	20.4	19.9	3	Grab Sample Measurement
Temp	LOSPEN_CR5	9/21/2011	SPL	23.2	22.9	1	Grab Sample Measurement
Temp	LOSPEN_CR5	9/21/2011	SPL	20.1	19.7	2	Grab Sample Measurement
Temp	LOSPEN_CR6	9/21/2011	SPL	24.3	23.6	3	Grab Sample Measurement
Temp	LOSPEN_CR6	9/21/2011	SPL	20.2	19.7	3	Grab Sample Measurement
Temp	LOSPEN_CR1	9/23/2011	DUP	20.7	19.5	6	Instream Measurement
Temp	LOSPEN_CR1	9/23/2011	DUP	20.7	19.6	6	Grab Sample Measurement
Temp	LOSPEN_CR2	9/23/2011	DUP	20.4	19.5	5	Instream Measurement
Temp	LOSPEN_CR2	9/23/2011	DUP	20.4	20.5	0	Grab Sample Measurement
Temp	LOSPEN_CR3	9/23/2011	DUP	20.8	19.9	4	Instream Measurement
Temp	LOSPEN_CR3	9/23/2011	DUP	20.8	21.0	1	Grab Sample Measurement
Temp	LOSPEN_CR4	9/23/2011	DUP	21.1	18.1	15	Instream Measurement
Temp	LOSPEN_CR4	9/23/2011	DUP	21.1	20.6	2	Grab Sample Measurement
Temp	LOSPEN_CR5	9/23/2011	DUP	22.7	19.2	17	Instream Measurement
Temp	LOSPEN_CR5	9/23/2011	DUP	22.7	20.4	11	Grab Sample Measurement
Temp	LOSPEN_CR6	9/23/2011	DUP	21.9	18.7	16	Instream Measurement
Temp	LOSPEN_CR6	9/23/2011	DUP	21.9	20.7	6	Grab Sample Measurement

na = not available

RPD = |Replicate 1 - Replicate 2|/ (Replicate 1 + Replicate 2) / 2 X 100

Attachment B10.17b

Results from parallel analyses performed on October 6, 2011 between the City's Marine Microbiology Laboratory and Wastewater Chemistry Services to validate the instrument used to collect dissolved oxygen field measurements. The Relative Percent Difference (RPD) for this set of analyses were within 15%, thus validating the performance of the unit used to collect the DO measurements in the field (see Attachment B10.17a).

Station	DO (ppm)			Relative Percent Difference (%)	
	Sample (Instrument 1)	Split (Instrument 1)	Split (Instrument 2)	Split (Instrument 1)	Split (Instrument 2)
LOSPEN_CR1	5.94	6.62	6.10	10.83	2.66
LOSPEN_CR1	6.63	6.65	6.48	0.30	2.29
LOSPEN_CR2	6.81	6.87	6.74	0.88	1.03
LOSPEN_CR2	6.54	7.06	6.56	7.65	0.31
LOSPEN_CR3	6.97	7.00	7.36	0.43	5.44
LOSPEN_CR3	6.74	7.05	7.05	4.50	4.50
LOSPEN_CR4	6.40	6.30	6.68	1.57	4.28
LOSPEN_CR4	6.60	6.55	6.60	0.76	0.00
LOSPEN_CR5	6.52	6.53	6.86	0.15	5.08
LOSPEN_CR5	6.34	6.78	7.20	6.71	12.70
LOSPEN_CR6	6.69	6.72	6.86	0.45	2.51
LOSPEN_CR6	6.93	6.99	7.00	0.86	1.01

RPD = |Replicate 1 - Replicate 2|/ (Replicate 1 + Replicate 2) / 2 X 100

Split - Replicate analysis performed on a separate aliquot of the sample

Enclosure 10

Annual Progress Report for Calendar Year 2010, Wastewater Collection System Plans

THE CITY OF SAN DIEGO

February 25, 2011

Ms. Jo Ann Cola
U.S. Environmental Protection Agency
Clear Water Compliance Office (WTR-7), Water Division
75 Hawthorne Street
San Francisco, CA 94105

Dear Ms. Cola:

Subject: FINAL CONSENT DECREE CIV. NO. 03-CV-1349K (POR)

In accordance with the Final Consent Decree CIV. NO. 03-CV-1349K (POR) between the United States of America and the City of San Diego, the City of San Diego has completed and hereby submits this set of Annual Progress Reports detailing the implementation of the Requirements of the Decree during Calendar Year 2010. These Annual Progress Reports have been prepared in response to Item VII of the Final Consent Decree.

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, 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 or imprisonment for knowing violations.

Sincerely

Ann Sasaki

Ann Sasaki
Public Utilities Department Assistant Director

SG/mk

DIVERSITY
BRINGS US ALL TOGETHER

Wastewater Collection Division
Metropolitan Wastewater • 9150 Topaz Way • San Diego, CA 92123
Tel (858) 654-4160

Enclosure: Annual Progress Reports for Calendar Year 2010

cc: Roger Bailey, Director, Public Utilities Department
Stan Griffith, Deputy Director, Wastewater Collection Division
Tom Zeleny, Senior Deputy City Attorney
Executive Director, Surfrider Foundation
Surfrider Foundation, San Diego Chapter
San Diego Coastkeeper
Rory Wicks and Marco Gonzales, Coast Law Group LLP
Section Chief, Environment & Natural Resources Division, U.S. Dept. of Justice
Gary Hess, ORC-2, Attorney, Air, Toxics, Water and General Law Group, Office of Regional Counsel, U.S. Environmental Protection Agency

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

Annual Progress Report for Calendar Year 2010

WASTEWATER COLLECTION SYSTEM PLANS

February 2011

City of San Diego
Public Utilities Department

LIST OF TABLES

LIST OF FIGURES

A. System-Wide Gravity Collection System Cleaning Program

In accordance with the Final Consent Decree (CIV. NO. 03-CV-1349K (POR) filed October 12, 2007) between the United States of America and the City of San Diego, the City of San Diego has completed, and hereby submits, this set of Annual Progress Reports detailing the implementation of the requirements of the Decree during Calendar Year 2010. These Annual Progress Reports have been prepared in response to Item VII of the Final Consent Decree.

A.1 Regulatory Requirements

The Final Consent Decree (CIV. NO. 03-CV-1349K (POR) filed October 12, 2007) Paragraph VII.C.1.b, System-Wide Gravity Collection System Cleaning Program, states as follows:

> *Starting April 1, 2004, the City shall clean each sewer pipe in the City's two thousand five hundred thirty-eight (2,538) mile small diameter gravity collection system on a minimum five (5) year frequency. For each five (5) year cleaning cycle, the City may elect to exclude from cleaning up to thirty (30) miles in environmentally sensitive non-right of way areas if the CCTV inspection demonstrates the pipe is clear. Starting April 1, 2004, the City shall clean each sewer pipe in the City's two hundred eighty-one (281) mile large diameter gravity system on a minimum five (5) year frequency unless the City can demonstrate the pipe is adequately clean through a cleaning needs assessment consisting of CCTV and hydraulic investigation, manhole inspection, and/or personnel entry into the sewer pipe. All miles cleaned under this Paragraph may be included in the one thousand five hundred (1,500) miles of annual cleaning required in Section VII (Compliance Actions) Paragraph C 2a.*

A.2 Annual Report for System-Wide Cleaning Program

Table A-1
System-Wide Cleaning Program Progress Report

January 1, 2010 through December 31, 2010

Mileage Cleaned	Accelerated Cleaning (First Clean)*		Area Cleaning		Justify to not Clean	Total (First Clean)*
	Small Diameter	Large Diameter	Small Diameter	Large Diameter		
Actual Mileage Cleaned	1,605	72	380	66	3	2,123

* Accelerated "First Clean" is a term meant to describe the first cleaning of a pipe under the Accelerated Cleaning Program as it applies to the 5-year System-Wide Cleaning Program goal. Even though pipes under the Accelerated Cleaning Program may be cleaned many times during the 5-year period of time, only the first cleaning will count toward the goal of cleaning every pipe in the system. The "first clean" mileage figures above represent the actual "in ground" lengths of pipe regardless of cleaning frequencies.

A.2.1 Justification for those Pipes Not Requiring Cleaning

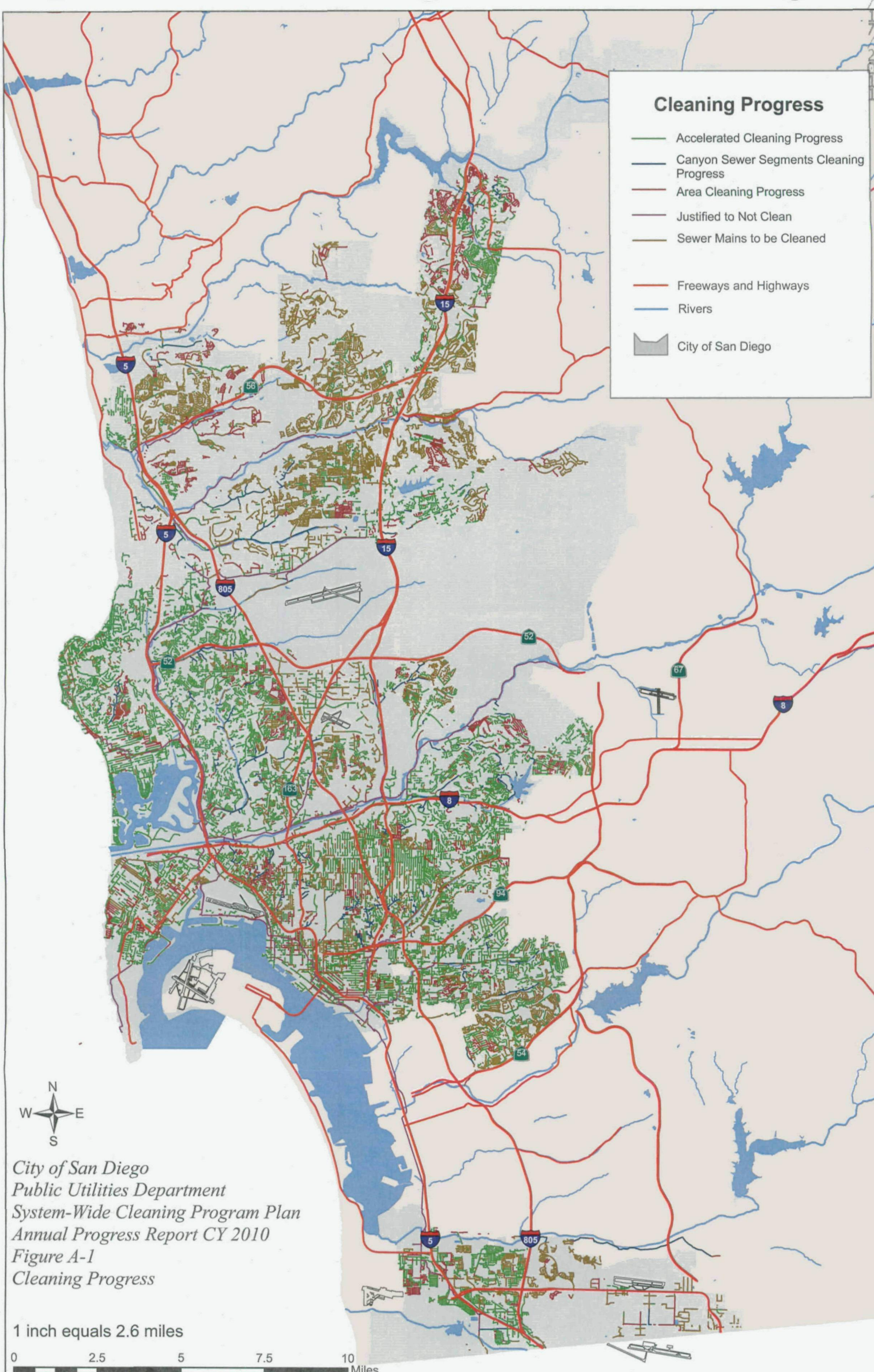
In CY 2009 the City conducted a Sediment Transport Analysis study to determine the cleaning needs of the large diameter collection system pipes. The extensive study looked at pipe slopes, flow rates, and historic maintenance data. See Appendix A. 1.4 for complete report.

The City has identified 79 miles of sewer pipe that do not require cleaning as part of the System-Wide Cleaning Program. There are currently three reasons that provide justification as to why these sewer pipes do not require cleaning as part of this initial System-Wide Cleaning Program. These three reasons are defined in Table A-2. Table A-2 also provides the mileage of sewer pipe that have been included in each category.

Table A-2
Justification and Mileage of Sewer Pipes not Requiring Cleaning

Category	Miles
Pipes that have been deemed self cleaning by the Sediment Transport Analysis Study	72
Pipes that have been CCTV'd and determined not to need immediate cleaning. The inspection data is being used to determine the long-term cleaning needs of these pipes.	6
Pipes in sensitive environmental areas. The City is in the process of acquiring permits to enter and conduct cleaning in these areas.	1
Total	**79**

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4



B. Accelerated Preventive Maintenance (Accelerated PM) Cleaning Program

B.1 Regulatory Requirements

The Final Consent Decree (CIV. NO. 03-CV-1349K (POR) filed October 12, 2007) Paragraph VII.C.2.e, Accelerated Preventive Maintenance (Accelerated PM) Cleaning Program, states as follows:

> *By March 1st of each year, and pursuant to Section VII (Compliance Actions) Paragraph G of this final Consent Decree, the City shall submit an annual report to EPA for review pursuant to Section VIII (Plan and Report Review and Approval) that: (i) documents which sewers and how many miles of pipe were cleaned as part of the Accelerated PM cleaning program during the previous calendar year; (ii) includes a table containing the number of miles of sewer pipes within each cleaning frequency and the number of miles identified for the Repair, Rehabilitation, and Replacement Program; (iii) describes the success of the program at preventing repeat blockages and sewage overflows from pipes included in the Accelerated PM cleaning program; and (iv) distinguishes between pipes in canyons and pipes located elsewhere.*

B.2 Annual Report for Accelerated PM Cleaning Program

B.2.1 Progress Measurement Criteria

The criteria for progress measurement and reporting format is described in the following three bullets.

- A map indicating which sewers have been cleaned and a table showing total mileage cleaned during the previous calendar year as part of the Accelerated Cleaning Program, including the "in ground" mileage of sewers and the mileage of sewers with "repeat" cleaning. The table includes each cleaning technique and cleaning frequency and the map illustrates the frequency of cleaning that each pipe receives (see Table B-1 and Figure B-1). A map showing the type of cleaning frequency for each pipe in the Accelerated Cleaning Program is also provided (see Figure B-2).

- A table which shows the mileage of pipe assigned to each cleaning frequency (see Table B-2).

- Description of the success of the Accelerated Cleaning Program at preventing repeat blockages and SSOs.

B.2.2 Progress Update

Overall, the CY 2010 Accelerated Cleaning Program has maintained the decrease in SSOs at a level rate in the problem areas of the wastewater collection system that can be addressed by maintenance. This is evidenced by an overall reduction of 81% in the number of SSOs from CY 2002 (215) to CY 2010 (41); moreover, the number of SSOs has decreased 89% from CY 2000 (365) vs. CY 2010. The Department is striving to reduce the number of SSOs even more with enhanced cleaning techniques and continuing our aggressive C.I.P. program to replace mains that cannot be addressed by maintenance alone.

As shown in Table B-1, maintenance crews performed Accelerated Cleaning Program activities on 1,123.26 miles of pipe ("in ground" cleaning) which is equivalent to 1,600.69 miles with "repeat" cleanings. The overall success is evidenced by the 81% reduction in the total number of SSOs from CY 2002 to CY 2010, and a reduction in repeat SSOs from 57 repeats in CY 2002 to eleven (8) repeats in CY 2010, or a 86 % reduction.

Figure B-1 and B-2 illustrate the cleaning frequency and type of cleaning, respectively, for each pipe in CY 2010. The cleaning frequencies and types of cleaning illustrated on the maps reflect existing conditions at the end of CY 2010. The figures also illustrate the planned maintenance activities for CY 2011. Please refer to Table G-2 for information related to canyon pipe that was cleaned in CY 2010.

Table B-1
CY 2010 Cleaning Mileage Summary Progress Report

Type of Cleaning	Frequency (months)					
	1	3	6	12	24	Total
In-Ground						
BUCKET	.13	.52	1.57	5.23	15.23	22.68
FLUSH	19.83	57.21	159.68	342.20	397.30	976.22
HAND_ROD	.40	1.73	3.47	3.66	1.17	10.43
ROD	1.76	7.55	19.48	42.12	43.02	113.93
Total	**22.12**	**67.01**	**184.20**	**393.21**	**456.72**	**1,123.26**
With Repeats						
BUCKET	.53	1.05	3.07	5.82	16.34	26.81
FLUSH	129.02	168.30	304.65	377.67	404.76	1,384.40
HAND_ROD	2.32	4.38	5.85	4.42	1.56	18.53
ROD	11.54	23.25	36.22	52.83	47.11	170.95
Total	**143.41**	**196.98**	**349.79**	**440.74**	**469.77**	**1,600.69**

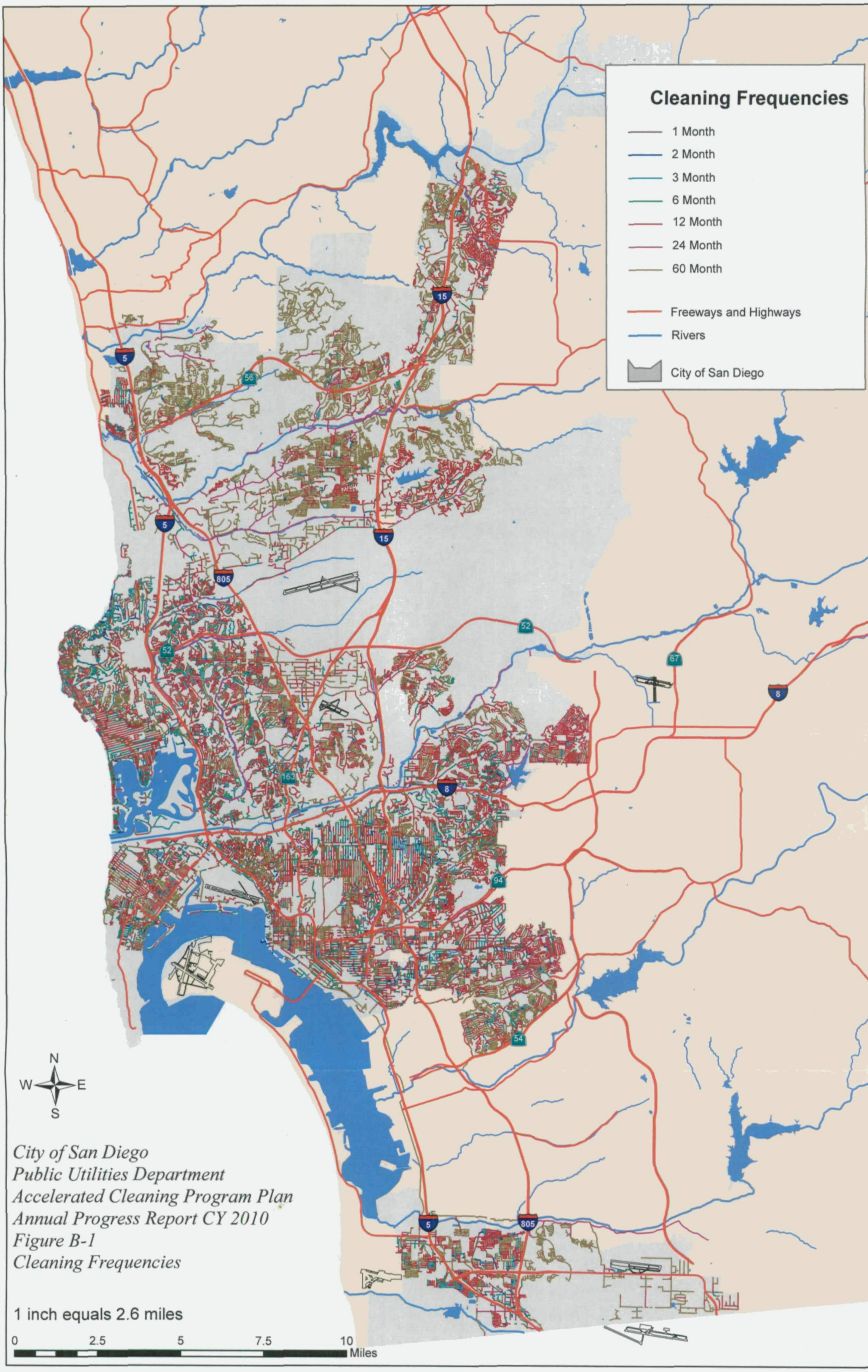
Table B-2
Pipe Cleaning Frequency Mileage

Number of Pipes	Frequency (Months)	Miles
410	1	18
1201	3	51
3472	6	145
9503	12	388
25216	24	1015
1478	36	77
26170	60	1071

Figure B-1 Cleaning Frequencies

(INSERT MAP PAGE HERE)

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4



City of San Diego
Public Utilities Department
Accelerated Cleaning Program Plan
Annual Progress Report CY 2010
Figure B-1
Cleaning Frequencies

10/17/2011

City of San Diego
Public Utilities Department
Accelerated Cleaning Program Plan
Annual Progress Report CY 2010
Figure B-2
Cleaning Techniques

C. Root Control Program

C.1 Regulatory Requirements

The Final Consent Decree (CIV. NO. 03-CV-1349K (POR) filed October 12, 2007) Paragraph VII.C.3.c, Root Control Program, states as follows:

> *By March 1st of each year, the City shall submit an annual report pursuant to Section VII (Compliance Actions) Paragraph G of this Final Consent Decree, to EPA for review pursuant to Section VIII (Plan and Report Review and Approval) documenting how many miles of pipe were subject to mechanical and chemical root control, respectively, during the previous year. The report shall evaluate the success of the program, distinguish between pipes in canyons and pipes located elsewhere and document any problem pipe segments or lines that are referred to the Sewer Repair, Rehabilitation, and Replacement Program in Paragraph C 5 below.*

C.2 Annual Report for Root Control Program

Overall, the CY 2010 Root Control Program has been successful at reducing root-related SSOs in the wastewater collection system. Table C-1 and Table C-2 illustrate this program's results and projections.

Table C-1
Root-Related SSOs

		Calendar Year									
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Total Spills	365	236	215	144	127	63	84	77	62	38	41
Caused by Roots	176	103	99	56	39	15	43	34	30	10	14
	48%	**44%**	**46%**	**39%**	**31%**	**24%**	**51%**	**44%**	**48%**	**26%**	**34%**

Maintenance crews performed mechanical root control activities on 964 miles of pipe ("in ground" cleaning). This number is approximately 275 percent of the 350 miles planned. In 2010 the City implemented the use of more efficient mechanical main cleaning tools and equipment, and discontinued the use of chemical root control, based on improved effectiveness of main cleaning techniques.

The CY 2011 planned amounts of root control are also shown in Table C-2. Approximately 500 miles of pipe are planned to be subjected to mechanical root control.

Table C-2
Root Control Program Results and Projection

Activity	Calendar Year	
	2010	2011 (Planned)
Miles of Mechanical Cleaning		
Planned	350	500
Actual	964	
Percent Actual vs. Planned	**275%**	
Miles of Chemical Root Control		
Planned	150	0
Actual	0	
Percent Actual vs. Planned	**0%**	

Table C-3 illustrates the root related SSOs that occurred in 2010. Of the 14 root related spills that occurred, one was in a canyon. Maintenance frequencies were increased on those mains where there is little or no history of root related sewer spills. Those mains identified for rehabilitation, repair or replacement are indicated.

Table C-3
Root Related SSOs

SR#	FSN	Date	Primary Cause	Secondary Cause	Canyon Name	Maint./ Rehab/ Repair/ Replace
3195775	56832	1/2/2010	ROOTS			Rehab
3200667	942	1/21/2010	ROOTS			Repair
3203048	124262	1/31/2010	ROOTS	GREASE		Maint
3206537	52825	2/14/2010	ROOTS			Maint
3207300	17100	2/18/2010	ROOTS		San Clemente	Maint
3209986	81863	2/27/2010	ROOTS			Repair
3216742	45533	3/27/2010	ROOTS			Maint
3237346	23594	6/23/2010	ROOTS			Repair
3246766	22924	8/2/2010	ROOTS	GREASE		Repair
3248578	52041	8/9/2010	ROOTS			Repair
3271664	58109	11/4/2010	ROOTS			Repair
3271843	103126	11/5/2010	ROOTS			Maint
3276690	96265	12/1/2010	ROOTS			Repair
3280800	8636	12/24/2010	ROOTS			Maint

(THIS PAGE INTENTIONALLY LEFT BLANK)

(THIS PAGE INTENTIONALLY LEFT BLANK)

D. Sewer Pipe Inspection and Condition Assessment

D.1 Regulatory Requirements

The Final Consent Decree (CIV. NO. 03-CV-1349K (POR) filed October 12, 2007) Paragraph VII.C.4.e, Sewer Pipe Inspection and Condition Assessment Plan, states as follows:

By March 1st of each year, the City shall submit an annual report pursuant to Section VII (Compliance Actions) Paragraph G of this Final Consent Decree, to EPA for review pursuant to Section VIII (Plan and Report Review and Approval) summarizing the findings of the sewer pipe condition assessments conducted during the previous calendar year, documenting any past changes in inspection methods, and differentiating between inspections and condition assessments of pipes in canyons and pipes located elsewhere.

D.2 Mains Inspected after SSO

During CY 2010 City forces inspected 33 of the 41 SSOs within seven (7) days of the date of the incident. Of the eight (8) SSOs that were not inspected within seven (7) days, one (1) SSO was caused by a force main leak; one (1) was caused by a contractor bypass pump; one (1) was in an environmentally sensitive are and was televised following environmental planning, 9 days after SSO; and five (5) were caused by capacity/surcharge issues during historically heavy rain storms of December and were later televised.

D.3 2010 Inspection Data

During CY 2010, 48.30 miles of sewer main were televised and 774 manholes were inspected by CCTV consultants. In addition city forces inspected 3,519 manholes and 88.10 miles of sewer main with CCTV. Table D-1 summarizes the work completed for each inspection source in progress during calendar year 2010.

Table D-1
CCTV Inspection Data for 2010

Inspection Source	Manholes Inspected	Pipe Televised	
		Feet	Miles
FY 2010 Service Provider	637	95,000	17.99
FY 2010 Extension Service Provider	137	160,039	30.31
FY 2010 City Forces	3,519	465,168	88.10
Totals	**4,293**	**720,207**	**136.40**

D.3.1 Condition Assessment Summary and Project Identification

The results for CY 2010 are summarized in Table D-2 and Table D-3. Table D-2 shows the results of pipeline assessments of high frequency maintenance sites and mains over 40 years old, while Table D-3 shows the results of the manhole assessments, both as of December 2010.

Table D-2
Summary of 2010 Pipe Assessments (in miles)

Report	Replacement	Rehabilitation	Point Repair	Maintenance	Total
Mains XXIX	12.73	18.04	2.53	22.71	56.01
Total	**12.73**	**18.04**	**2.53**	**22.71**	**56.01**

Table D-3
Summary of 2010 Manhole Assessments

Report	Replacement	Rehabilitation	Maintenance	No Action	Repair	Total
Mains XXIX	65	288	708	124	241	1,426
Total	**65**	**288**	**708**	**124**	**241**	**1,426**

D.3.2 Miles to Be Inspected in CY 2011

The City of San Diego anticipates televising 40 miles by service provider and 100 miles with city forces in calendar year 2011 using CCTV.

D.4 Manhole Inspection

The City has inspected 59,002 of the approximately 59,201 manholes in the collection system since having started the program on September 13, 2005. Of the remaining 199 manholes in the entire system, 104 were found to be either private or abandoned. The remaining 95 were found to be buried and work orders have been generated to raise them to grade.

(THIS PAGE INTENTIONALLY LEFT BLANK)

E. Sewer Repair, Rehabilitation and Replacement

E.1 Regulatory Requirements

The Final Consent Decree (CIV. NO. 03-CV-1349-K (POR) filed October 12, 2007) Paragraph VII.C.5.d, Sewer Repair, Rehabilitation, and Replacement Plan, states as follows:

> *By March 1st of each year, the City shall submit an annual report pursuant to Section VII (Compliance Actions) Paragraph G, to EPA for review pursuant to Section VIII (Plan and Report Review and Approval) which describes all Acute Defect and long-term projects completed in the previous year pursuant to this Paragraph, distinguishes between canyon and non-canyon projects, documents all projects referred to programs under other Paragraphs of this Section, and includes copies of the Acute Defect logs for the previous year. Upon request by EPA, the City shall provide EPA with a copy of its full CIP within thirty (30) days. Nothing in this Paragraph 5 shall require the City to implement any of the projects listed in the CIP not otherwise required hereunder.*

E.2 Annual Report for Sewer Repair, Rehabilitation and Replacement

The City measures the progress of the sewer repair, rehabilitation and replacement progress by miles. The CIP program includes projects that are categorized by the EPA as long-term and include repair, replacement, rehabilitation, and canyon projects. EPA categorized short-term projects include projects that City field crews complete. Both long-term and short-term mileages were added together for a total of 46.18 miles constructed between January 1, 2010 and December 31, 2010.

E.3 Progress Update

The City continues its sewer repair, rehabilitation and replacement program. From July 1, 2007 to December 31, 2010, the City completed a total of 140.56 miles, including banked miles from previous years. The cumulative goal is to complete 250 miles by June 30, 2013.

Table E-1 below illustrates the City's progress in completing the remaining trunk sewer projects required by this Final Consent Decree

TABLE E-1

Trunk Sewers with Improvements under Design and Construction

Trunk No.	Trunk Name	Consent Decree Deadline	Anticipated Construction Completion Date	Comment
40	Miramar Road	November 2008	10/24/2007	Completed
43	Sorrento Valley	November 2008	6/19/2007	Completed
63	Crown Point	December 2009	12/23/2009	Completed
88	Penasquitos Views	December 2010	5/28/2009	Completed
6	South Mission Valley	October 2011	April 2011	In Construction
32	Lake Murray	December 2011	April 2011	In Construction
12	East Point Loma	December 2011	November 2011	In Award Process
62	Sunset Cliffs	July 2012	May 2011	In Construction
71	Pacific Highway	August 2012	March 2012	In Award Process
16	Grantville	November 2012	July 2012	In Design
7	Alvarado Phase III	November 2012	July 2012	In Design
75	Palm City	November 2012	April 2012	In Design
55	USIU-Miramar	April 2013	March 2012	In Award Process
67	Balboa Avenue	May 2013	12/10/2010	Completed
31	Montezuma Road	June 2013	March 2013	In Design
67	Balboa Terrace	June 2013	November 2012	In Design
13	Harbor Drive	June 2013	August 2012	In Design

E.3.1 Acute Defect Remediation Activities

City crews correct acute defects as soon as possible after discovery, and, at a maximum, within one year after discovery. The acute defect repairs resulted in 50 repairs completed by WWC Division crews. All 50 acute defects were repaired within one year of discovery. The acute defect log is provided as Appendix A-1 to this report on a CD ROM.

E.3.2 Capital Improvement Plan

Twenty-two (22) capital improvement pipeline projects were completed in CY 2010. The completed projects are summarized in Table E-2, and reflect 46.18 miles of pipe repaired, replaced or rehabilitated. For pump station project status, refer to the Pump Station and Force Main Spill Reduction Action Plan (SRAP), Section H.

TABLE E-2
SEWER PIPELINE PROJECT MILEAGE SUMMARY
As of December 31, 2010

CIP No.	Project Title	End of Construction	BO/BU*	Miles	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
	WWC - Spot Repair	On-going		0.67	0.02	0.04	0.06	0.03	0.12	0.07	0.06	0.10	0.05	0.06	0.03	0.04
46-050.3	Pipeline Rehab - Phase F-1	6/7/2010A		0.60	0.21	0.06		0.05	0.22	0.06						
46-050.6	Pipeline Rehab - Phase G-1	3/26/2010A		0.21	0.18	0.00	0.03									
46-051.9	Pipeline Rehab - Phase I-1D	6/29/2010A		4.28		1.28	1.23	1.51	0.14	0.12						
46-050.9	Pipeline Rehab - Phase J-1	On-going		8.42		1.58	2.06	1.66		2.67	0.22	0.10	0.06			0.07
46-052.1	Pipeline Rehab - Phase J-1A	6/25/2010A		7.17	0.94	1.55	1.60	0.92	0.06	1.93			0.17			
46-052.2	Pipeline Rehab - Phase J-1B	On-going		4.77					2.25		1.16	0.63	0.27			0.47
46-611.2	60th Street Accelerated Sewer	1/4/2010A	BO/BU	0.05	0.05											
46-196.6	Balboa Avenue Trunk Sewer	12/10/2010A	BO/BU	1.18												1.18
B-00513	Famosa Accelerated Water & Sewer	4/23/2010A	BO/BU	1.51				1.51								
40-936.2	Old Rose Canyon Trunk Sewer Relocation	7/21/2010A	BO/BU	0.56							0.56					
46-611.6	Quincy St and Wilbur Ave Accelerated Sewer Project	4/26/2010A	BO/BU	0.14				0.14								
44-1081	Group Job 648	5/6/2010A	BO/BU	1.20					1.20							
44-1082	Group Job 649	5/6/2010A	BO/BU	0.56					0.56							
44-1083	Group Job 650	5/6/2010A	BO/BU	1.63					1.63							
44-311.3	Sewer Group 703	5/18/10A	BO/BU	1.77					1.77							
44-310.6	Sewer Group 725	4/20/2010A	BO/BU	0.77				0.77								
44-219.8	Sewer Group 742	12/16/2010A	BO/BU	1.49												1.49
44-222.8	Sewer Group 766	5/21/2010A	BO/BU	1.33					1.33							
44-218.9	Sewer and Water Group Job 544	5/27/2010A	BO/BU	0.71					0.71							
44-215/ 73-852.8	Sewer & Water Group 684A	5/12/2010A	BO/BU	1.19					1.19							
44-215.7	Sewer and Water Group 689	6/30/2010A	BO/BU	1.86						1.86						
44-312.3	Sewer and Water Group 715	6/25/2010A	BO/BU	2.11						2.11						
44-218.3/ 73-859.5	Sewer and Water Group Job 731	4/16/2010A	BO/BU	1.11				1.11								
44-220.3	Sewer & Water Group 747	3/1/2010A	BO/BU	0.89			0.89									
	Actual Total Miles CY 2010			46.18	1.40	4.50	5.87	7.70	11.20	8.81	2.00	0.83	0.55	0.06	0.03	3.25

*BO/BU = Beneficial Occupancy/Benefical Use

There are two parts to the Final Consent Decree for replacement, rehabilitation, or repair of sewer pipelines. Part one required the City to replace, rehabilitate, or repair two hundred (200) miles between January 1, 2002 and June 30, 2007. The City met this requirement by completing a total of 214.05 miles by July 1, 2007. Part two requires the City to complete two hundred fifty (250) miles between July 1, 2007 and June 30, 2013. The City completed 140.56 miles as of December 31, 2010, including banked miles. Table E-3 summarizes the Consent Decree sewer miles to be completed.

TABLE E-3
Rehabilitation and Replacement Mileage Tracking

Schedule	Consent Decree miles	Completed miles	Banked miles	Cumulative miles
Part I (200 miles)				
1/1/2002-6/30/2007	200	214.05	14.05	214.05
Part II (250 miles)				
7/1/2007-6/30/2008	30	30.10[(1)]	0.10	30.1
7/1/2008-6/30/2009	45	49.48	4.48	79.58
7/1/2009-6/30/2010	45	54.27	9.27	133.85
7/1/2010-6/30/2011	45	6.71[(2)]		
7/1/2011-6/30/2012	45			
7/2/2012-6/30/2013	40			

Notes:

(1) Includes 14.05 banked miles from previous years.

(2) The City has completed 6.71 miles between July 1, 2010 and December 31, 2010. The City is currently working with its contractors to accelerate their work in order to reach the 45 miles requirement by June 30, 2011.

E.3.3 Rolling 10-Year CIP Update

Table E-4 identifies the specific projects for the pipeline and manhole replacement and rehabilitation program. Future years are based on several factors including, but not limited to, projected revenues and requested rate increases, bond issuances and possible interest requirements, anticipated CIP projects, and operations and maintenance expenditures.

TABLE E-4

Fiscal Year	Project Title	Miles
FY 2011	Annual Allocation Pipeline rehabilitation	30.00
	Annual Allocation Sewer Main Replacement	23.96
	Balboa Avenue Trunk Sewer	1.18
	Lake Murray in Canyon Trunk Sewer	2.33
	South Mission Valley Trunk Sewer	0.69
	Sunset Cliffs Trunk Sewer	1.75
	Pump Station Upgrades - Group I	0.00
	Pump Station Upgrades - Group II	0.00
	Pump Station 41	0.84
FY 2012	Annual Allocation Pipeline rehabilitation	30.00
	Annual Allocation Sewer Main Replacement	25.00
	East Point Loma Trunk Sewer	1.63
	Pacific Highway Trunk Sewer	1.00
	Palm City Trunk Sewer	1.72
	USIU Trunk Sewer	2.49
	Pump Station Upgrades - Group III	3.92
FY 2013	Annual Allocation Pipeline rehabilitation	25.00
	Annual Allocation Sewer Main Replacement	20.00
	Alvarado Trunk Sewer - Phase III	0.51
	Balboa Terrace Trunk Sewer	0.01
	Grantville Trunk Sewer	2.42
	Harbor Drive Trunk Sewer	1.07
	Montezuma Trunk Sewer	0.46
	Pump Station 84	0.00
FY 2014	Annual Allocation Pipeline rehabilitation	20.00
	Annual Allocation Sewer Main Replacement	20.00
FY 2015	Annual Allocation Pipeline rehabilitation	20.00
	Annual Allocation Sewer Main Replacement	20.00
FY 2016	Annual Allocation Pipeline rehabilitation	20.00
	Annual Allocation Sewer Main Replacement	20.00
FY 2017	Annual Allocation Pipeline rehabilitation	20.00
	Annual Allocation Sewer Main Replacement	20.00
FY 2018	Annual Allocation Pipeline rehabilitation	20.00
	Annual Allocation Sewer Main Replacement	20.00
FY 2019	Annual Allocation Pipeline rehabilitation	20.00
	Annual Allocation Sewer Main Replacement	20.00
FY 2020	Annual Allocation Pipeline rehabilitation	20.00
	Annual Allocation Sewer Main Replacement	20.00

The project identification process is an on-going effort. Typically, projects are identified during a planning phase, clustered into CIP projects, designed, and constructed. The miles required to reach the annual goals are obtained through the Rehabilitation, Replacement and Repair Program. Segments are selected from Condition Assessment Reports, High Frequency Maintenance Sites and certain identified Trunk Sewers.

E.3.4 Summary Status of Canyon Projects

The short-term and long-term projects described previously include work that was completed in the 42 canyons. Specifically, City crews responded to several emergency works, made several permanent point repairs, and continued cleaning efforts.

Additionally, the City made progress on efforts to study the removal of sewer lines from canyons. The City Council has promulgated a policy to build new sewers to divert flow away from canyon sewers, when feasible. If all of the flow can be redirected in a cost effective manner, then the pipes and manholes located in the canyons can be abandoned. The Department has completed the process of evaluating each of the stipulated 42 canyons to determine whether flow redirection is feasible, within the guidelines of the City Council policy.

For more information on other canyon related efforts, refer to the Canyon Area Spill Elimination Annual Progress Update Section G.

(THIS PAGE INTENTIONALLY LEFT BLANK)

F. Fats, Oils and Grease (FOG) Blockage Control Program

F.1 Regulatory Requirements

The Final Consent Decree (CIV. NO. 03-CV-1349K (POR) filed October 12, 2007) Paragraph VII.C.6.c, Fats, Oils and Grease (FOG) Blockage Control, states as follows:

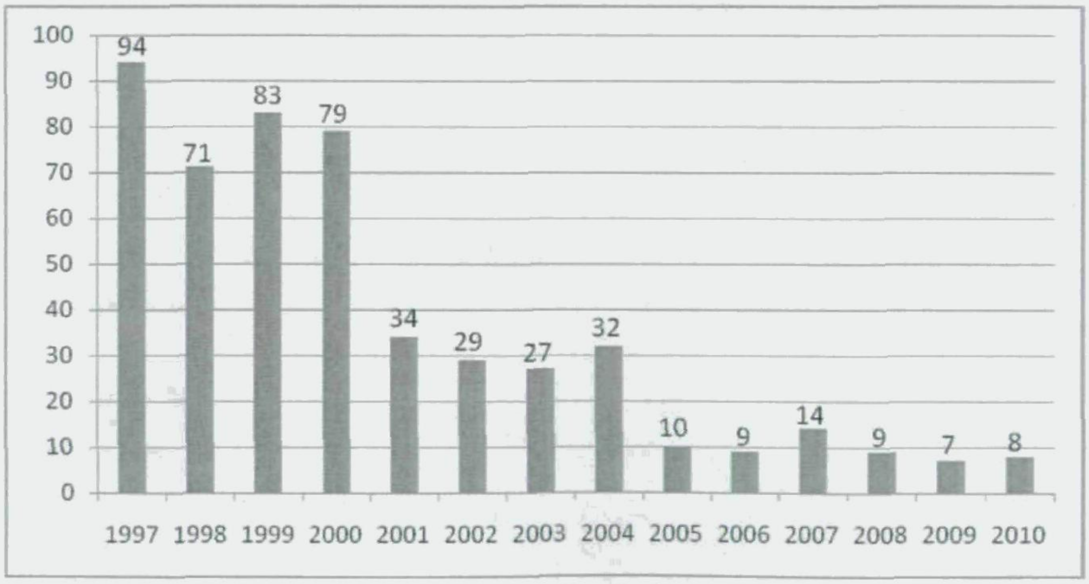
By March 1st of each year, the City shall submit an annual report pursuant to Section VII (Compliance Actions) Paragraph G of this Final Consent decree, to EPA for review pursuant to Section VIII (Plan and Report Review and Approval) documenting the activities carried out under the FOG Blockage Control Program during the previous year. The report shall: (i) include copies of the Food Service Establishment (FSE) inspection and enforcement log for the previous year, and (ii) discuss budget and staffing levels for the previous and current years.

F.2 Annual Report for Fats, Oils and Grease Blockage Control

A total of 8 grease-related SSOs were reported for CY 2010. The Department goal for measuring effective performance of this activity is a downward trend in the number of grease-related SSOs. Although there was one more grease-related SSO in CY 2010 than in the previous year, examining the historical number of grease-related SSOs since CY 1997 reveals a significant downward trend (see Figure F-1). Grease-related SSOs have decreased by 91.5% since CY 1997.

Based on the current measurement methodology for this activity (the downward trend in the number of grease-related SSOs), the FEWD program is in compliance with the Department goal.

Figure F-1
Total Grease-Related SSOs (Primary Cause – Grease)



F.2.1 Food Service Establishment Inspection Frequency

The Department goal for measuring performance of this activity is the inspection of all facilities with active permits every 24 months. The average Food Service Establishment (FSE) Inspection Frequency is calculated by dividing the current number of active permits by the number of FSE inspections during the previous twelve months multiplied by 12. This number is the average interval in months between inspections. The number of FSE inspections is the sum of full inspections (FI), initial inspections (IN), special inspections (SI) and spot check inspections (2-year and 3-month) in the FEWD database.

Based on queries of the FEWD Database, the average FEWD inspection frequency during CY 2010 was approximately one inspection every 18.5 months (Of the 8,071 total inspections conducted in CY 2010, there were 3,573 FSE inspections performed on a total of 5,499 FSEs requiring a permit). Based on the current progress measurement methodology for this activity, the FEWD program is in compliance with the Department goal.

F.2.2 Inspection of New/Remodeled FSEs

The City has a goal to inspect each new/remodeled FSE within four (4) months of its reported opening date. The FEWD's initial process uses an estimated date of opening that is determined in the Plan Review process. In CY 2010 94% (202 of 214) of new/remodeled FSEs were inspected within 4 months (122 days) of their opening date. The remaining 6% (12) were not inspected within 4 months of their opening, because of incorrect expected opening date information from facility contacts and/or contractors on site during inspections. The average time that elapsed between opening date and initial inspection in 2010 was 1.98 months.

F.2.3 Investigation of Grease-Related SSOs

The City currently investigates all grease-related spills, and it has done so since July 1996. The goal of each investigation is to identify all of the underlying causes of the spill including the source of the grease and any pipe conditions that may have caused the grease to accumulate. The investigation includes closed-circuit television (CCTV) inspection of the line segment where the spill occurred and, where conditions warrant, adjacent line segments. The goal for measuring performance of this activity is a 100 percent inspection rate of all grease-related SSOs. For CY 2010, FEWD inspectors investigated 100 percent of the grease-related SSOs. Based on the current progress measurement methodology for this activity, the FEWD program is in compliance with this goal.

F.2.4 Time to Issue Notices of Violation (NOVs)

The Department goal for measuring performance of this activity is the issuance of the NOV within two-weeks of the inspection. The FEWD Program issued 73 NOVs in CY 2010, and 100 percent of these NOVs were issued within two-weeks of the inspection. Based on the current progress measurement methodology for this activity, the FEWD program is in compliance with this goal.

F.2.5 Follow-Up Inspection

The Department goal for measuring performance of this activity is conducting enforcement action and follow-up inspections/Administrative Hearings within the following time frames:

- Follow-up inspection of Level 1 NOV within 30 days, when warranted;

- After 30 days, Level 2 NOV for same issue with Preliminary Hearing where up to 90 days are granted as an extension for completion of requirement, when warranted; and Level 2 NOV for 2nd NOV in a year with Preliminary Hearing;
- Level 3 NOV for failure to meet Preliminary compliance date with Show Cause Hearing where up to 90 Days are granted as an extension for completion of requirement, when warranted; or Permit Revocation for serious compliance issues;
- Permit Revocation for failure to meet Show Cause compliance date;
- Termination of Service after 15 Days of Permit Revocation and/or Referral to City Attorney for prosecution.

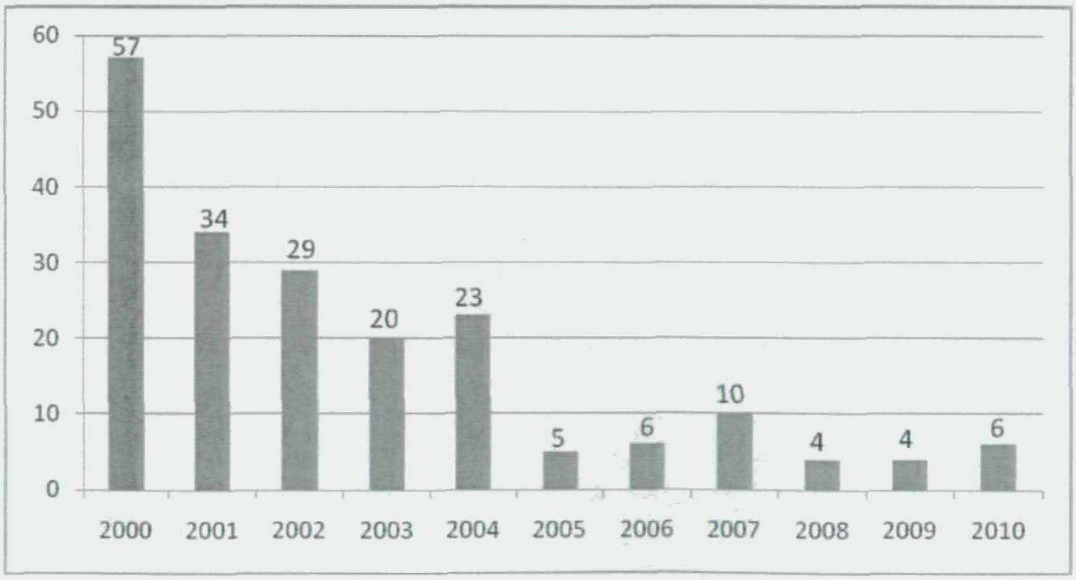
In CY 2010, when warranted, all follow-up inspections were conducted within 30 days of issuance of the Level 1 NOV. All Preliminary Hearings were conducted for failure to comply with the requirements of a Level 1 NOV, or receipt of two NOV's within a year, where up to 90 days extensions were granted. Show Cause Hearings were conducted for FSE's failing to meet the compliance schedule established at the Preliminary Hearing, or for significant non-compliance within the requirements of the permit. No termination of service for failure to achieve compliance following Permit Revocation was required. Based on the current progress measurement methodology for this activity, the FEWD program is in compliance with this goal.

F.2.6 Residential Area Grease SSOs

The Department goal for measuring performance of this activity is to demonstrate a downward trend in grease-related SSOs in residential areas. As shown in Figure F-2 below, while grease-related SSOs in CY 2010 are up by 2 SSOs from CY 2009, there has nonetheless been a significant downward trend for this activity since CY 2000 (an 89.5% reduction in grease-related SSOs since CY 2000).

Based on the current progress measurement methodology for this activity, the FEWD program is in compliance with this goal.

Figure F-2
Residential Area Grease-Related SSOs (Primary Cause – Grease)



F.2.7 Inspection and Enforcement Log

The established goal for measuring progress of this activity is the production of an FSE inspection and enforcement log that records inspection dates for each FSE, regardless of whether or not a violation was identified, or follow-up actions taken. Refer to Appendix A for the Inspection and Enforcement Log. Based on the current progress measurement methodology for this activity, the FEWD program is in compliance with this goal.

F.2.8 Budget and Staffing Levels

During CY 2010 the Program had a $1.4M operating budget and 15.0 staff members: 1.0 Wastewater Pretreatment Inspector III, 4.0 Principal Engineering Aides, 9.0 Senior Engineering Aides, and 1.0 Word Processing Operator.

F.3 Residential Grease Outreach and Education Program

In calendar year 2010, the Department complied with paragraph VII C.6.a, an education and outreach program to inform the residents of the City about impacts associated with residential grease disposal. Eight (8) notifications were distributed by mail to residents within a one-thousand foot radius of residential grease spills; one (1) Fats, Oil & Grease (FOG) insert was distributed in the June/July sewer bill; twice weekly public service announcements on the City's public access channel were broadcast; there were quarterly maintenance and updates of grease education information on the City web site ; and FEWD representatives staffed a booth at the Earth Fair in Balboa park in April 2010, and at the San Diego County Apartment Association Conference in May 2010.

Table F-1 illustrates the City's activities within this public outreach and education program.

Table F-1
FOG Public Outreach and Education Activities

CY 2010	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Produce & Broadcast FOG PSA twice weekly on City TV	34	44	38	36	42	41	45	48	40	38	37	35
Prepare, maintain & update FOG information on website Quarterly			10-Mar		12-May			18-Aug		27-Oct		
Attend 2010 SanDiego County Apartment Association Conference						19-May						
Distribute FOG postcards within 1000 ft. and within 10 working days of FOG-related SSO	Penasquitos Dr. / Clmnt Mesa Bl / 52nd St / Linda Vista Rd.	none	none	none	none	none	none	Federal Blvd.	none	none	Imperial Ave	54th & Laurel Camino de la Luna
Distribute FOG inserts with water/sewer bill semiannually						Jun/Jul 2010						
Fairs				Earth Fair 04/18								

G. Canyon Area SSO Elimination

The Final Consent Decree (CIV. NO. 03-CV-1349K (POR) file October 12, 2007) Paragraph VII.C.7.d, Canyon Area SSO Elimination, states as follows:

> *By March 1st of each year the City shall submit an annual report to EPA for review pursuant to Section VII (Compliance Actions) Paragraph G of this Final Consent Decree, documenting which canyon sewers were cleaned and/or inspected during the previous calendar year, listing all potentially vulnerable sections of canyon pipelines identified in Subparagraph c.(ii) above, describing the plans the City intends to undertake for the then current year, summarizing and including the sewer relocation economic and environmental analyses completed in the previous calendar year, and listing those canyons for which economic and environmental analyses will be done in the current year.*

G.1 Annual Report for Canyon Area SSO Elimination

G.1.1 Annual Visual Inspection Program, SRE Inspections, and Expanded Condition Assessment

All the pipelines within the 42 canyons were visually inspected in CY 2010. In addition, the Department collects canyon sewer condition data from several scheduled inspection programs, including Significant Rain Event (SRE) Inspections. In CY 2010, nine (9) SRE inspections were performed.

G.1.2 Progress of Canyon Access and Cleaning Activities

Table G-2 depicts the actual line segments in the 42 canyons that have been either accessed and cleaned or justified as not requiring cleaning through the end of each report period. Table G-3 is a detailed report of all activities scheduled for completion in the canyon areas.

In CY 2010, WWC Division continued to enhance the methods by which it schedules, prioritizes, tracks, and documents the work completed in canyons. Field reports are generated based upon an "asset query", problems are prioritized, and work orders with corrective actions are dispatched to appropriate crews. The scheduling method is programmed into a Computerized Maintenance Management System (CMMS) and staff in the Maintenance Coordination/ Scheduling section make the final cleaning frequency determination.

G.1.3 Analysis for Redirection of Flow (ROF)

The City completed the Canyon Economic and Environmental Analyses for the forty-two (42) canyons in CY 2008, see Table G-1.

Table G-1
Sewer Relocation Economic and Environmental Analysis Studies on EPA Canyons

Year	Number of Canyons Studied	Minimum Requirement of Canyon Analyses per Year	Cumulative Number of Canyons Studied	Reserve (+/-)
2004	7	6	7	1
2005	8	6	15	3
2006	9	6	24	6
2007	11	6	35	11

2008	7	6	42	12
Total	**42**	**30**	**42**	**12**

Table G-2
Canyon Area Cleaning Program Progress Report for CY 2010

Canyon Name	2010 Inspection		Cleaning Completed (Y/N)	Mains Cleaned	Footage Cleaned
	Visual (Y/N)	SRE (Y/N)			
Tecolote	Y	Y	Y	94	24,797
East Tecolote (East Clairemont)	Y	Y	Y	25	8,443
Stevenson	Y	Y	Y	25	5,318
Van Nuys	Y	Y	Y	50	11,624
San Clemente	Y	Y	N	77	17,025
Upper Rose	Y	Y	N	38	7,471
Middle Rose	Y	Y	N	8	1,552
Lower Rose	Y	Y	N	5	1,297
Dakota	Y	Y	Y	8	1,233
Manning	Y	Y	Y	25	4,047
Acuna	Y	Y	Y	16	2,808
Park Mesa	Y	Y	Y	7	1,337
Bounty & Waring	Y	Y	Y	14	3,943
Mission Center Road	Y	Y	Y	7	1,572
Lake Murray	Y	Y	Y	60	10,167
Adobe Falls	Y	Y	Y	17	4,134
Mission Gorge (Junipero Serra)	Y	Y	N	7	1,337
Chollas Creek	Y	Y	Y	9	1,611
Chocolate (Home Avenue)	Y	Y	Y	56	9,238
Switzer	Y	Y	Y	57	10,167
Carroll (Rock Quarry)	Y	Y	Y	75	

					25,584
Alvarado	Y	Y	Y	9	602
Sorrento/Flinktkote	Y	Y	Y	19	4,052
Roselle/Sonico	Y	Y	Y	13	3,401
Lopez	Y	Y	Y	69	23,621
Pensaquitos	Y	Y	Y	8	2,336
Pensaquitos Bluffs	Y	Y	Y	2	366
Rose Creek E of I-805	Y	Y	N	4	1,276
Mesa College & I-805 (Onalaska)	Y	Y	Y	11	2,371
Black Mountain	Y	Y	Y	7	1,378
Shawn	Y	Y	Y	3	362
Shepard (Santo Road)	Y	Y	Y	43	12,392
Woodman	Y	Y	Y	34	8,869
Lexington	Y	Y	Y	27	6,413
Washington Creek	Y	Y	Y	11	1,418
Highway 163 Corridor	Y	Y	Y	65	11,045
El Camino Real/San Dieguito Road	Y	N	Y	18	7,387
Florida	Y	Y	Y	8	1,877
Sevan Court	Y	Y	Y	8	1,463
Skylark	Y	Y	Y	10	1,815
Rancho Mission	Y	Y	Y	13	2,403
45th & Boston	Y	Y	Y	NA	-
Totals				**1,062**	**249,552**

Table G-3
Scheduled Canyon Cleaning / Inspection Activities 2011

Canyon Name	Number of Mains Scheduled	Feet Scheduled
Tecolote	82	17,604
East Tecolote (East Clairemont)	21	5,105
Stevenson	25	5,385
Van Nuys	38	8,377
San Clemente	76	17,521
Upper Rose	51	9,164
Middle Rose	8	697
Lower Rose	1	291
Dakota	5	584
Manning	33	5,613
Acuna	8	1,444
Park Mesa	N/A	0
Bounty & Waring	11	2,886
Mission Center Road	14	1,763
Lake Murray	54	8,137
Adobe Falls	8	1,787
Mission Gorge (Junipero Serra)	5	1,150
Chollas Creek	2	282
Chocolate (Home Avenue)	55	10,477
Switzer	53	10,423
Carroll (Rock Quarry)	5	1,051
Alvarado	15	1,791
Sorrento/Flinktkote	19	4,196
Roselle/Sonico	12	2,851
Lopez	5	704
Pensaquitos	14	2,971
Pensaquitos Bluffs	15	3,695
Rose Creek E of I-805	4	1,394
Mesa College & I-805 (Onalaska)	14	2,421
Black Mountain		

	40	10,249
Shawn	50	10,937
Shepard (Santo Road)	27	7,709
Woodman	3	609
Lexington	29	5,972
Washington Creek	23	3,401
Highway 163 Corridor	54	9,581
El Camino Real/San Dieguito Road	26	11,097
Florida	N/A	0
Sevan Court	4	199
Skylark	9	1,603
Rancho Mission	31	7,309
45th & Boston	-	-
Total	**949**	**198,430**

H. Pump Station and Force Main SSO Reduction Action Program

H.1 Regulatory Requirements

The Final Consent Decree (CIV. NO. 03-CV-1349K (POR) filed October 12, 2007) Paragraph VII.C.8.b, Pump Station and Force Main SSO Reduction Action Program, states as follows:

> *By March 1st of each year the City shall submit an annual report pursuant to Section VII (Compliance Actions) Paragraph G of this Final Consent Decree, to EPA for review pursuant to Section VII (Plan and Report Review and Approval), documenting the City's progress in the projects during the previous year.*

H.2 Annual Report for Pump Station and Force Main SSO Reduction Action Program

The City is continuing its progress in completing the pump station upgrades required by the Final Consent Decree. On October 26, 2010, the City notified the EPA by letter of our intent to exercise Section VII.E.1. of the Final Consent Decree and extend the completion date of Sewer Pump Station (SPS) 41 from November 2010 to May 2011.

SPS 41 has been in operation since 1953. The facility is located at 2723 De Anza Road, in North Mission Bay and along East Mission Bay Drive. Due to the age of the facility and future flow projections, SPS 41 will be replaced, and new force mains will be installed in De Anza Road, to increase capacity and maintain reliability.

A Construction Notice To Proceed (NTP) was issued on April 13, 2009 to construct a new two story underground sewer pump station, dry-well, wet-well, emergency generator/odor control system, emergency overflow storage structure, 2,200 feet of primary and secondary force-mains, gravity mains, as well as the demolition of the existing pump station. All work was to be completed within 358 working days from the NTP.

The contractor's current construction schedule shows testing of the pump station is to begin in early March.

Table H-1 below illustrates the City's progress in completing the remaining pump station upgrades required by this Final Consent Decree.

TABLE H-1
Pump Stations with Improvements under Design and Construction

Pump Station No.	Consent Decree Deadline	Anticipated Construction Completion Date	Comment
18 (Phase II)	December 2008	October 2008	Completed
63	December 2008	January 2008	Completed
52, 53, 55, 56, 57, 58	June 2009	April 2009	Completed
79	December 2009	April 2010	Completed
41	May 2011	May 2011	In Construction
62	May 2013	N/A	Deleted; flow to be diverted to PS 84
43, 44, 46, 47, 51, 54, 60, 71, 73, 74, 75, 76, 80, 81, 82	June 2013	December 2011	Pump Stations 43, 44, 47, 51, 60, 71, 73-76 and 80-82 are in construction. Pump Stations 46 & 54 were completed in April 2009 as part of the Pump Stations 52, 53, 55-58 group below.
84	June 2013	March 2013	In Design

(THIS PAGE INTENTIONALLY LEFT BLANK)

I. Program to Address Other Causes Of SSOs

I.1 Regulatory Requirements

The Final Consent Decree (CIV. NO. 03-CV-1349K (POR) filed October 12, 2007) Paragraph VII.C.9.d, Program to Address Other Causes of SSOs reads as follows:

> *By March 1st of each year the City shall submit an annual report pursuant to Section VII (Compliance Actions) Paragraph G of this Final Consent Decree, to EPA for review pursuant to Section VIII (Plan and Report Review and Approval), documenting the activities carried out under this program, summarizing the SSOs caused by Contractors or vandalism, and distinguishing between SSOs in canyon and non-canyon areas.*

I.2 Annual Report for Other Causes of SSOs

I.2.1 Contractors SSO Response Plans

In CY 2005 the City incorporated into all new contracts, with contractors working in a public right-of-way or sewer easement, the requirement for the contractor to have a SSO response plan. The City also incorporated provisions for the contractor to bear the burden of any SSO that they may cause including cleanup and mitigation costs.

I.2.2 SSOs Caused by Contractors

In 2010 there were a total of two (2) SSOs caused by contractors. Neither spill occurred in a canyon. Table I-1 illustrates the SSOs caused by Contractors.

Table I-1
SSOs Caused by Contractors

Year	2004	2005	2006	2007	2008	2009	2010
SSOs by Contractor	5	3	5	4	3	4	2
SSO in Canyon	1	1	0	1	0	0	0
Gallons Released	1,464	760	3,617	8,218	7,050	3,092	240

I.2.3 SSOs Caused by Vandalism

In calendar year 2010 there zero (0) SSOs attributed to vandalism.

I.2.4 Manhole Security

In calendar year 2009 City of San Diego construction and canyon access crews secured 283 manholes in the non-right-of-way (NROW) areas of the City. Pursuant to paragraph VII C.9.b *The City shall secure at least six hundred (600) manhole covers in remote areas... If more than 600... are secured in one (1) year, the City may hold these secured covers in reserve...* This brings the total number of manholes secured to 4,127 of the 5,800 manholes requested under this Final Consent Decree. Of the remaining 1,673 manholes originally thought to be in remote areas, 985 have been investigated and documented as being previously secured; and 688 have been determined to not be in remote areas and not in need of security. The City therefore now considers this requirement complete. Please reference Table I-2 for the City's progress to date.

Table I-2
Manholes Secured

Year	2004	2005	2006	2007	2008	2009
# Manholes Secured	650	1,098	644	551	901	283
Goal	600	600	600	600	600	600
Over / Under	50	498	44	(49)	301	317
Year Total	600	600	600	600	600	600
Banked	50	548	592	543	844	527

J. Collection System Capacity Assessment and Assurance

J.1 Regulatory Requirements

The Final Consent Decree (CIV. NO. 03-CV-1349K (POR) filed October 12, 2007. Paragraph VII.D.3, Collection System Capacity Assessment and Assurance reads as follows:

> *By March 1st of each year the City shall submit an annual report pursuant to Section VII (Compliance Actions) Paragraph G of this Final Consent Decree, to EPA for review pursuant to Section VIII (Plan and Report Review and Approval), detailing at a minimum, the upgrades made during the previous year and the effectiveness of those upgrades at eliminating SSOs.*

J.2 Annual Report for Capacity Assessment and Assurance

J.2.1 Previous Year Upgrades and SSO Elimination

In 2010, the City renewed its contract with ADS Environmental Services to install and maintain a flow metering and event notification system. These meters are continuously collecting both dry and wet weather flow data. Currently, the total monitoring coverage of the City's trunk sewer system is at 97% in flow weighted length. The collected flow data was used in assessing the current capacity criticality of trunk sewers under the peak flow condition. The data was also used to calibrate and verify the City's sewer model to ensure its accuracy prior to the model simulations. The current sewer model is the enhancement of the one which the City developed as required by the U.S.A. v. City of San Diego, Case No. 88-1101-B, Stipulated Final Order for Injunctive Relief. The results of model simulations and the respective capacity assessment for City's 123 trunk sewers were presented in the Trunk Sewer Capacity Assessment Report completed and distributed in July 2010 pursuant to VII.D.1.a.

J.2.2 Capacity Improvement Projects

The Department completed one mandated capacity improvement project, as shown below.

	Consent Decree Date	Beneficial Occupancy/Use
Balboa Avenue Trunk Sewer	May 2013	12/10/2010

(THIS PAGE INTENTIONALLY LEFT BLANK)

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

K. Annual / Progress Report Summary

K.1 Progress Summary

The City of San Diego continues to make overall progress in its goals to minimize both the number of SSO events and the impacts caused by them due to volume of sewage released and location of these releases.

There have been no significant program modifications made during the prior calendar year. There have been no delays pursuant to Section VII (Compliance Actions), Paragraph E. In summary, the City continues its positive progress towards meeting the requirements of this Final Consent Decree both program-by-program and overall.

K.2 Reference to Calendar Year SSOs and SSBs

In calendar year 2010 there were 7 SSBs. The listing of Sanitary Sewer Backups (SSBs) shown by volume, number, and location is shown in Appendix A-1, CD Rom.

In calendar year 2010 there were 41 SSOs. The listing of Sanitary Sewer Overflows (SSOs) with volume, number, and locations of SSOs reported for Calendar Year 2010 is shown in Appendix A-1, CD Rom.

May 8, 2013
Agenda Item No. 8
Supporting Document No. 4

(THIS PAGE INTENTIONALLY LEFT BLANK)

DEFINITIONS AND ACRONYMS

This section contains definitions of words and acronyms used in this report.

Accelerated Cleaning Program
A program to regularly clean pipes in the City of San Diego wastewater collection system that have a documented risk of causing a maintenance-related spill. This program currently includes approximately 1,710 miles of pipes outside of canyon areas and approximately 85 miles of pipes in canyon areas, for a total of approximately 1,795 miles. Accelerated Cleaning Program pipes are cleaned at frequencies between once every month and once every 24 months. This program does not include force mains or pipes that are not owned and/or maintained by the City of San Diego.

Area Cleaning Program
A program to regularly clean pipes in the City of San Diego wastewater collection system that are not included under any other program. This program currently includes approximately 1,497 miles of pipe outside of canyon areas and approximately 119 miles of pipe in canyon areas, for a total of approximately 1,616 miles of pipe. All Area Cleaning Program pipes will be cleaned at the minimum frequency of once every 60 months. This program does not include force mains or pipes that are not owned and/or maintained by the City of San Diego.

Calendar Year (CY)
The 12-month period beginning January 1st of one year and ending December 31st of the same year.

Canyon Area Spill Elimination Program
A program to access, inspect, and clean City sewer pipes located in the 42 canyons in a systematic manner. This program currently includes approximately 119 miles of pipe under the Area Cleaning portion of the System-Wide Cleaning Program and approximately 85 miles of pipe under the Accelerated Cleaning Program, for a total of approximately 204 miles.

CAR
Condition Assessment Report.

CCTV
Closed Circuit Television.

City
The City of San Diego.

Chemical Treatment
Application of an approved herbicide to inhibit root growth.

Chemical Treatment Work Order
A chemical treatment work order consists of a list, in electronic or paper format, of pipes dispatched for chemical treatment. The list is generated for a particular work order indicating which pipes are to be treated including a table that provides the contractor or crew with dates before and after which a pipe cannot be treated. The preferred time period for chemical root control application is between 30 and 90 days after mechanical cleaning. It also provides fields for the contractor or crew to enter the actual date of treatment and comments.

Cleaning
Maintenance activity with the purpose of removing roots, grease, or other debris from the sewer system. This is generally accomplished with one or more of the following types of equipment: mechanical rodding, hand-rodding, flushing, or bucketing equipment. This activity also entails vacuuming or otherwise removing debris from the pipe.

Cleaning Work Order
A cleaning work order consists of a set of sewer pipes and manholes that are dispatched for cleaning using a set of paper maps with associated data reference and data collection tables.

CMMS
Computerized Maintenance Management System. A general term to describe software used for planning, scheduling and tracking cleaning and other related-maintenance activities to manage asset and maintenance data.

E&CPD
Engineering and Capital Projects Department.

EPA
United States Environmental Protection Agency.

EPM Division
Engineering and Program Management Division of the Metropolitan Wastewater Department.

Facility Sequence Number (FSN)
An arbitrary and unique asset-identifier number. Each sewer pipe and manhole in the City of San Diego's wastewater collection system has a unique FSN.

Fiscal Year (FY)
The 12-month period beginning July 1st of one year and ending June 30th of the following year.

Force Main
A pressure rated pipe used to convey sewage from a pump station to a point in the collection system where it may be conveyed by gravity or be treated at a wastewater treatment plant.

FTE
Full-time equivalent (equivalent to a full-time employee).

FEWD
City of San Diego Food Establishment Waste Discharge Program. This program, which is an activity within the Metropolitan Wastewater Department, is responsible for enforcing the City's Food Establishment Wastewater Ordinance.

GIS
Geographic Information System.

Group Job
The term "group job" is used to describe a replacement project that defines the City's strategy of replacing "groups" of pipes in a given service area rather than replacing individual manhole-to-manhole pipe segments. A group job may also include water main replacement work.

GWUS
General Water Utility Supervisor; one of the section supervisors responsible for Main Cleaning Maintenance, Construction and CCTV, Sewer Pump Stations, or Maintenance Coordination/ Scheduling.

Hand Referral
A formal request for service made by one operating section to another. The request is written on a pre-printed template and delivered by hand.

"In Ground" Cleaning
Accounting for the length cleaned based on a pipe's actual length, not reflecting multiple cleanings of a single pipe within the accounting period. If a 300-foot pipe is cleaned 2 times during the accounting period, the "in ground" cleaning length is 300 feet.

Mains
A system of pipes that transports sewage to the trunks and is owned and maintained by the City. This generally refers to sewer pipes with diameter less than 15 inches.

Mechanical Cleaning
Refers to root control methods that involve the cutting and removal of roots that are intruding into a sewer. This can be accomplished with a rodding truck using a corkscrew or a root saw head or with a flusher truck using a hydraulic saw nozzle.

Mechanical Cleaning Work Order
A cleaning work order consists of a set of sewer pipes and manholes that are dispatched for cleaning using a set of paper maps with associated data reference and data collection tables.

T&D Division
The Treatment and Disposal Division of the Metropolitan Wastewater Department.

Overflow
See Sanitary Sewer Overflow.

Pesticide
"Any substance, or mixture of substances which is intended to be used for defoliating plants, regulating plant growth or for preventing, destroying, repelling, or mitigating any pest, as defined in Section 12754.5, which may infest or be detrimental to vegetation, men, animals, or households, or be present in any agricultural or nonagricultural environment whatsoever." California Food and Agricultural Code: Division 7, Chapter 1, Section 12753

PM
Preventive Maintenance. A regularly scheduled cleaning and inspection of all City facilities and equipment.

Public Waters
Any body of water such as the ocean, bay, river, lake, stream, or creek where there is the potential for human contact as determined by the San Diego County Department of Environmental Health.

Pump Station
Any of a variety of above or underground structures housing electric motor or engine driven pumps used to lift sewage to a higher elevation for transmission by gravity or transport by pressurized pipe (force main).

Referral
A formal request for service made by one operating section to another. The request can be hand written or made electronically via a CMMS.

"Repeat" Cleaning
Accounting for the length cleaned based on a pipe's actual length and multiple cleanings. If a 300-foot pipe is cleaned 2 times during the accounting period, the "repeat" cleaning length is 600-feet.

Root Intrusion
Roots penetrating the sanitary sewer mains or laterals.

Sanitary Sewer Overflow (SSO)
A discharge of sewage from the public collection system of the City of San Diego's sanitary sewer system at any point upstream of a sewage treatment plant.

Sewage
Any untreated or partially treated wastewater. Reclaimed water is not included in this definition.

Sewer Group Job
(see Group Job)

Sewer Main
(see Main)

SHARQ
Sewer History Activities Repository and Query (SHARQ) is a database used to store asset condition data, primarily collected from CCTV investigation.

SOP
Standard Operating Procedure.

Spill
See Sanitary Sewer Overflow.

SSORT Meeting
Sanitary Sewer Overflow Report Tracking Meeting.

SWIM
The Sewer and Water Infrastructure Management System is the City of San Diego's proprietary computerized maintenance management system for both the wastewater collection and water distribution systems.

SWUS
Senior Water Utility Supervisor.

System-Wide Cleaning Program
A program to clean every pipe in the City of San Diego wastewater collection system within a specified time period, with the exception of pipes not requiring cleaning based on valid justification. This program includes approximately 3,017 miles of pipe. The intent of the program is to clean each pipe at least once every five years. This program does not include force mains or pipes that are not owned and/or maintained by the City of San Diego.

Trunk Sewer
Principal channel of the sewer collection system used to convey sewage from mains to treatment plants or pump stations.

WCS
Wastewater Collection System.

WSD Division
Water and Sewer Design Division of the Engineering and Capital Projects Department, formerly the W&WF Division.

WWC Division
The Wastewater Collection Division of the City's Metropolitan Wastewater Department.

APPENDIX

A-1 (CD-ROM)

A-1.1 2010 SSO & SSB Log

A-1.2 FEWD Inspection and Violation Log

A-1.3 Acute Defect Log