# ATTACHMENT C

## STAFF REPORT TITLED PROPOSED ADMINISTRATIVE CIVIL LIABILTY FOR THE SANITARY DISCHARGER #1 OF MARIN (ALSO KNOWN AS "ROSS VALLEY SANITARY DISTRICT") REGARDING SANITARY SEWER OVERFLOWS: STAFF REPORT AND CONSIDERATION OF FACTORS UNDER WATER CODE SECTION 13385

# California Regional Water Quality Control Board
## San Francisco Bay Region

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Reviewed and Approved By:

**DATE:** December 13, 2011

**SUBJECT:** Administrative Civil Liability for the Sanitary Discharger #1 of Marin (also known as "Ross Valley Sanitary District") regarding Sanitary Sewer Overflows: Staff Report and Consideration of Factors under Water Code Section 13385

## INTRODUCTION

The Ross Valley Sanitary District (herein referred as the "Discharger") provides wastewater collection service for the towns of Fairfax, San Anselmo, and Ross, the City of Larskpur, and the unincorporated areas of Sleepy Hollow, Kentfield, Kent Woodlands, Oak Manor, and Greenbrae. Under contract, the Discharger also serves the collection system of Murray Park and the conveyance system (pump station and force main) for San Quentin Prison. The Discharger owns, operates, and maintains approximately 195 miles of gravity sewer pipelines, 9 miles of force mains, and 20 pumping stations that collect and transport an average of 5 million gallons per day (MGD) of wastewater to the Central Marin Sanitation Agency (CMSA) Treatment Plant. The Discharger's collection system serves a population of approximately 50,000.

From January 1, 2008, through April 21, 2011, the Discharger reported 149 SSOs that total 3,162,243 gallons with 2,588,758 gallons not recovered. Of the total volume not recovered, the Discharger reported approximately 2,553,944 gallons or 36 SSOs that reached waters of the United States.

Of the 36 SSOs reported that reached waters of the United States, 2 were particularly significant and resulted in the discharge of about 2,384,789 gallons of raw sewage diluted with storm runoff and groundwater to waters of the United States. The nature and circumstances of these overflows, which occurred from December 17-19, 2010, and on December 22, 2010, are discussed in detail below together with notification and reporting deficiencies for various SSOs related to both SSO reports. In general, the cause of the SSOs during December 17-19, 2010, was insufficient wet weather capacity of the Discharger's collection system, particularly when

one of its major pump stations, the Kentfield Pump Station (or Pump Station 15), was shutdown, in combination with debris blockage. The cause of the SSOs during December 22, 2010, was pipeline failure and insufficient wet weather capacity of the collection system when Pump Station 15 was shut down, and possibly debris blockage. The causes of the remaining SSOs (totaling about 169,155 gallons of raw sewage to waters of the United States) were root and debris blockages, flow exceeding capacity, and pipeline/structural failure. The reported causes and final spill destinations of these SSOs are summarized in Tables 1 (see Appendix A).

The 36 SSOs that occurred during the period January 1, 2008, through April 21, 2011, resulted in the discharge of untreated wastewater and pollutants to waters of the United States in violation of State Water Board Orders (Order No. 2006-0003 DWQ and Order No. 2008-0002-EXEC) and Section 301 of the Clean Water Act. Pursuant to Water Code sections 13385(a)(1) and (5), the Regional Water Board may impose civil liability for an unauthorized discharge of pollutants to waters of the United States, and for violating section 301 of the Clean Water Act. For violations of the Orders reporting and notification requirements, the Regional Water Board may impose civil liability pursuant to Water Code section 13268(b)(1). Based upon consideration of the factors in Water Code Section 13385, which are discussed in detail below, the Assistant Executive Officer proposes that civil liability be imposed upon the Discharger in the amount of $1,539,100.

## AUTHORITY

The requirements applicable to the Discharger are:

1. California Water Code section 13376 prohibits the discharge of pollutants to surface waters of the United States except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit.

2. Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C. § 1311) section 301 provides that it is unlawful for any person to discharge any pollutant into waters of the United States unless that person has complied with all permitting requirements under the Clean Water Act.

3. The Discharger's collection system is regulated by Statewide General Waste Discharge Requirements, Order No. 2006-0003 DWQ, adopted by the State Water Resources Control Board (or State Water Board) on May 2, 2006. As owner of a collection system, the Discharger is required to comply with Order No. 2006-0003 DWQ (or General WDR). The Discharger filed a Notice of Intent for coverage under the General WDR on July 11, 2006. The effective date of the General WDR is July 27, 2006.

4. Order No. 2006-0003 DWQ includes the following finding, prohibition and provisions:

    *2. Sanitary sewer overflows (SSOs) are overflows from sanitary sewer systems of domestic wastewater . . .*

    *C. PROHIBITIONS*

1. *Any SSO that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.*

D. *PROVISIONS*

8. *The Enrollee shall properly manage, operate and maintain all parts of the sanitary sewer system owned and operated by the Enrollee, and shall ensure that the system operators (including employees, contractors, or other agents) are adequately trained and possess knowledge, skills, and abilities.*

I. *INCOMPLETE REPORTS*

1. *If an Enrollee becomes aware that it failed to submit any relevant facts in any report required under this Order, the Enrollee shall promptly submit such facts or information by formally amending the report in the Online SSO Database* (Herein referred as the California Integrated Water Quality System or CIWQS).

5. The Discharger's collection system is also regulated by Monitoring and Reporting Requirements as revised by Order No. 2008-0002-EXEC, Amended Monitoring and Reporting Requirements for Order No. 2006-0003-DWQ.

6. Order No. 2008-0002-EXEC includes the following requirements:

*Notification*

1. *For any discharges of sewage that results in a discharge to a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the State Office of Emergency Services, the local health officer or directors of environmental health with jurisdiction over affected water bodies, and the appropriate Regional Water Quality Control Board.*

2. *As soon as possible, but not later than twenty-four (24) hours after becoming aware of a discharge to a drainage channel or a surface water, the Discharger shall submit to the appropriate Regional Water Quality Control Board a certification that the State Office of Emergency Services and the local health officer or directors of environmental health with jurisdiction over the affected water bodies have been notified of the discharge.*

4. *Category 1 SSOs-… all SSOs that meet the … criteria for Category 1 SSOs must be reported…to the Online SSO System as soon as possible but not later than 3 business days after the Enrollee is made aware of the SSO…A final certified report must be completed through the Online SSO System, within 15 calendar days of the conclusion of SSO response and remediation.*

5. *Category 2 SSOs-All SSOs that meet the… criteria for Category 2 SSOs must be reported to the Online SSO Database within 30 days after the end of the calendar month in which the SSO occurs…*

The California Water Code Provisions relevant to the Discharger are:

1. Pursuant to California Water Code section 13376, a discharger is prohibited to discharge pollutants to surface waters of the United States except in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit. State Water Board Order No. 2006-0003-DWQ and Order No. 2006-0003 DWQ are not NPDES permits. A discharger is liable for violating section 13376 pursuant to California Water Code section 13385(a)(1) in an amount not to exceed the sum of both of the following:
   a. Ten thousand dollars ($10,000) for each day for each violation.
   b. Ten dollars ($10) for each gallon exceeding 1,000 gallons of discharge and not cleaned up.

   If this matter is referred to the Attorney General for judicial enforcement, a higher liability of $25,000 for each day for each violation and $25 for each gallon exceeding 1,000 gallons of discharge and not cleaned up, may be imposed by a superior court

2. Pursuant to the Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C. § 1311) section 301, a discharger is prohibited to discharge pollutants to surface waters of the United States except in compliance with an NPDES permit. A discharger is liable for violating section 301 of the Clean Water Act pursuant to California Water Code section 13385(a)(5) in an amount not to exceed the sum of both of the following:
   a. Ten thousand dollars ($10,000) for each day for each violation.
   b. Ten dollars ($10) for each gallon exceeding 1,000 gallons of discharge and not cleaned up.

   If this matter is referred to the Attorney General for judicial enforcement, a higher liability of $25,000 for each day for each violation and $25 for each gallon exceeding 1,000 gallons of discharge and not cleaned up, may be imposed by a superior court

3. Pursuant to California Water Code section 13267(b)(1), a discharger is required to submit technical and monitoring reports for any discharge or proposed discharge to waters of the state. State Water Board Order No. 2006-0003-DWQ and Order No. 2006-0003 DWQ require technical and monitoring reports. A discharger is liable for violating section 13267 pursuant to section 13268(b)(1) for up to $1,000 a day for each violation.

   If this matter is referred to the Attorney General for judicial enforcement, a higher liability of $5,000 for each day for each violation may be imposed by a superior court.

## VIOLATIONS

1. SSOs that occurred during the period January 1, 2008, through April 21, 2011, resulted in the discharge of untreated wastewater and pollutants to waters of the United States in violation of Order No. 2006-0003-DWQ, and Section 301 of the Clean Water Act, and California Water Code section 13376.
2. SSOs that occurred during the period January 1, 2008, through April 21, 2011, were caused by the Discharger's failure to properly operate and maintain its collection system in violation of Order No. 2006-0003-DWQ.
3. For the SSOs on December 17-19, 2010, , the Discharger failed to provide notice of the SSOs to the appropriate agencies within 2 hours, and to provide within 24 hours a certification that the local health officer had been notified of the discharge, thus violating Order No. 2008-0002-EXEC (amending Order No. 2006-0003-DWQ).
4. For the December 17-19, and 22, 2010, SSOs, the Discharger failed to timely report the SSOs via CIWQS in violation of Order No. 2008-0002-EXEC (amending Order No. 2006-0003-DWQ).
5. The Discharger failed to report via CIWQS an SSO that occurred from manhole # 2647 at the intersection of Behrens Drive and Sherwood Drive on December 22, 2010, in violation of Order No. 2008-0002-EXEC.

## MAXIMUM LIABILITY

The maximum administrative civil liability the Regional Water Board may impose for each of the violations described above is $25,860,790. See Tables in Appendix A for calculations.

## CONSIDERATION OF FACTORS

### Nature and Circumstances

From January 1, 2008, through April 21, 2011, the Discharger reported 149 SSOs that total 3,162,243 gallons with 2,539,105 gallons not recovered. Of the total volume not recovered, the Discharger reported that approximately 2,553,944 gallons or 36 SSOs reached waters of the United States.

Of the 36 SSOs that occurred during the period January 1, 2008, through April 21, 2011, there were two significant SSOs reported that resulted in the discharge of about 2,384,789 gallons of raw sewage diluted with storm runoff and groundwater to surface waters of the United States. The nature and circumstances of these two SSO reports are discussed in more detail below. The causes of the remaining SSOs (totaling about 169,155 gallons of raw sewage to waters of the United States) are primarily root and debris blockages, flow exceeding capacity and pipeline/structural failure. The cause and final spill destinations of these SSOs are summarized in Tables A-1 (see Appendix A).

Background of System Operation Prior to December 2010 SSOs

As depicted in Figure 1 (see Appendix B), during normal operation, sewage from the unincorporated areas of Kent Woodlands and portions of Kentfield flows through two parallel gravity pipelines (27-inch and 30-inch pipelines) along the Kent Middle School property, crosses Corte Madera Creek via a double barrel siphon, and then combines with sewage from the 39-inch Ross Valley gravity pipeline (which carries flows from the towns of Fairfax, San Anselmo, portions of Ross and the unincorporated area of Sleepy Hollow). This combined flow is then directed to either the 30-inch McAllister gravity pipeline or pumped via Pump Station 15 to the 36-inch Kentfield force main (Force Main 15[1]). Flows from Force Main 15 and the 30-inch McAllister pipeline are ultimately transported via a series pump stations and force mains to the CMSA Treatment Plant. According to the Discharger's Sewer Hydraulic Evaluation and Capacity Assurance Plan (SHECAP), Force Main 15 conveys about 60 percent of the Discharger's sewage flow during wet weather[2].

Prior to the December 17-19, 2010, SSOs, the Discharger turned off Pump Station 15 in order to replace Force Main 15[3]. Force Main 15 is composed of Techite, a fiberglass material known to have a greater probability of failure than other pipeline materials, including catastrophic failures. Due to the high risk of failure and the critical nature of Force Main 15, its replacement was a priority for the Discharger. While Pump Station 15 was off, sewage in the 39-inch Ross Valley pipeline and the two parallel Kent Middle School pipelines flows to the 30-inch McAllister pipeline.

<u>December 17 to 19, 2010, SSOs</u>

The Discharger reported all SSOs that occurred during this time period as one SSO that discharged 909,991 gallons of raw sewage diluted with storm runoff and groundwater to waters of the United States. The Discharger reported that this SSO occurred over a period of three days from six different locations and was caused solely by construction-debris blockage. In response to the Prosecution Staff's requests, the Discharger provided additional details on March 2, 2011[4], about the six SSO locations. Prosecution Staff summarized these details in Table 2, below. Figure 1 [5] illustrates the various collection system pipelines, locations where these six overflow occurred, and relevant pump stations.

Upon further analysis of each of the locations and times when each SSO started and stopped, Prosecution Staff has determined that what was reported as one SSO, was four separate incidents. The rationale for this conclusion is described in subsections below for each of the overflow locations reported. In summary, the Prosecution Staff grouped the six SSO locations as follows: (1) SSO locations #1, #3, and #4, (2) SSO location #2, (3) SSO location #5, and (4) SSO location #6.

**Table 5. December 17-19, 2010, SSO Locations, Start/End Dates and Volumes**

| Number | SSO Location | Associated Pipeline(s) of SSO Location | Start Date/ Time | End Date/ Time | SSO Volume, gallons |
|---|---|---|---|---|---|
| 1 | Cleanout at 5 Stadium Way | Sewer lateral that connects to 30-inch | 12/17/10 20:43 | 12/18/10 01:30 | 24,482 |

| Number | SSO Location | Associated Pipeline(s) of SSO Location | Start Date/ Time | End Date/ Time | SSO Volume, gallons |
|---|---|---|---|---|---|
| | | McAllister pipeline | | | |
| 2 | Manhole #3863 at intersection of College Avenue and Magnolia Avenue | 14-inch pipeline that connects to both parallel 27-inch and 30-inch Kent Middle School pipelines | 12/17/10 23:00 | 12/18/10 13:00 | 62,364 |
| 3 | Cleanout at 221 McAllister Avenue | Sewer lateral that connects to 30-inch McAllister pipeline | 12/18/10 02:00 | 12/18/10 05:00 | 144 |
| 4 | Manhole at Pump Station 15 Kentfield | Connects to Pump Station 15 which discharges to Kentfield Force Main (Force Main 15) | 12/18/10 02:30 | 12/18/10 04:30 | 7,440 |
| 5 | Manhole #7317 at Kent Middle School | 30-inch Kent Middle School pipeline | 12/18/10 07:30 | 12/18/10 15:00 | 998,100 |
| 6 | Manhole #3800 at intersection of Laurel Street and Locust Street | pipeline that connects to 39-inch Ross Valley pipeline | 12/18/10 19:40 | 12/19/10 03:10 | 18,000 |
| **Total SSO Volume from all locations** | | | | | **1,110,530** |
| **Total SSO Volume Recovered** | | | | | **200,539**[6] |
| **Total SSO Volume Reached Surface Water** | | | | | **909,991** |

General Causes of December 17-19 SSOs

The shutdown of Pump Station 15, excessive I/I flows into the Discharger's collection system, and debris or other material in the system, led to the SSOs summarized in Table 2.

As discussed in more detail in the Degree of Culpability Section below, during wet weather conditions, when Pump Station 15 is offline, some parts of the collection system are operating at a reduced capacity while other parts operate near maximum capacity. Additionally, the Discharger's collection system is subject to high rates of I/I due to its aging infrastructure (71 % of the system was constructed between 1940-1959[7]), high rainfall in the area, and low

permeability soils. The Discharger's collection system, in particular the Kent Woodlands collection system area, is located in a microclimate that receives some of the highest amounts of rainfall in Marin County. Due to the low permeability of the substrata leaking and broken sewer pipes end us acting a as subdrains during storm events and taking a large amount of I/I[8].

Based on precipitation data obtained from the Marin County Flood Control and Water Conservation District[9] (see Appendix A.1 for storm hyetograph), approximately 2.36 inches of rain fell over a 24-hour period at the Kentfield rain gauge site on December 17-18, 2010, and previous to this event, approximately 13.44 inches had fallen at the site since October 1, and 2.45 inches since December 1. Because the December 17-18, 2010, storm event was not the first storm event of the wet weather season, the soils were likely somewhat saturated. When soils are saturated, they have a reduced capacity of absorbing water and attenuating flows thus leading to greater surface water flows in nearby streams and greater I/I into the collection system. Stream elevation data, indicates a 3.4-foot increase in the elevation of surface water levels in Corte Madera Creek during the December 17-18, 2010 storm event. This notable rise in surface water levels over a short period suggests that soils in the surrounding area were indeed saturated prior to the storm and high I/I into the collection system likely.

For comparison, during the first storm event of the wet weather season on October 23-24, 2010, the Discharger had Pump Station 15 turned off with no SSO occurrences. Based on precipitation data obtained from the Marin County Flood Control and Water Conservation District, approximately 4.6 inches of rain fell over a 24-hour period at the Kentfield rain gauge site on October 23-24, 2010, and previous to this storm event only 0.5 inches of rain had fallen at the site since October 1 and no rain since June 1. Because the October 23-24, 2010, storm event was the first significant storm event of the wet weather season, the surrounding soils were minimally saturated. The stream water level rise in Corte Madera Creek during this storm event was less than half of the rise that occurred during the December 17-18, 2010, storm event (about a 1-foot rise was recorded during the October 23-24 storm event). When soils are unsaturated or minimally saturated, they have an increased capacity to absorb and attenuate water leading to minimal I/I flows into the collection system. With minimal I/I rates entering the system, the Discharger's collection system appears to have had sufficient capacity to handle wet weather flows during the October 23-24, 2010, storm event, even with Pump Station 15 turned off.

Our conclusion that debris could have been a factor in causing the overflows is based on the Discharger finding debris, including construction debris, in parts of the system, and the Discharger's reported overflow start and end times. On December 18 and 21, 2010, the Discharger removed debris from three manholes (manhole #3831, #2513 and #3813) along the 27-inch Kent Middle School pipeline between SSO locations #2 and #3. The debris removed consisted of asphalt pieces of various sizes[10] (see Photo 1 in Appendix D) and various other construction materials[11]. On December 19, 2010, the Discharger also removed pieces of running track from the screen at Pump Station 15 (see Photo 2 in Appendix D). Subsequently, on December 30, 2010, the Discharger cleaned the Corte Madera siphon and found debris in the 18-inch barrel of the siphon consisting of nail gun cartridges and Class II engineered backfill. Prior to the SSO events (on August 5, 2010, mid-October, 2010, and November 5, 2010), the Discharger documented discovering various other construction materials from the screens at Pump Stations 13 and 15, and from manholes on College Avenue and Magnolia Avenue[12].

While there is no direct evidence to determine if debris found after these SSOs was present prior to or during the SSOs, the most plausible explanation for the disconnected timing of the overflows is that the lodging and dis-lodging of debris contributed to the timing and magnitude of the overflows, as described below.

Possible Chain of Events and Specific Causes of December 17-19, 2010, SSOs

The following sections provide a possible chain of events and causes for the December 17-19 SSOs based on the evidence provided to Regional Water Board Prosecution Staff. It also provides the rationale for the conclusion that the one single SSO reported by the Discharger were really four separately caused SSOs. The chain of events is based on the assumption that the overflow location start and stop times provided by the Discharger are accurate. Accurate manhole and cleanout rim elevation could verify or refute the chain of events. However, the Discharger does not have sufficiently accurate elevation information.

*December 17-19 SSO Locations # 1, #3, and #4*

The timing of the three SSOs at these locations was within minutes to a couple of hours of each other, so it is likely that these overflows are part of the same chain of events. Specifically, the following is a possible and likely chain of events:

- wet weather which began at approximately 02:00 on December 17 fully saturates soils and causes I/I, which in combination with the Pump Station 15 shutdown causes the 30-inch McAllister line to run at or near surcharged capacity;
- debris partially restricts flow in the line somewhere downstream of location #1;
- overflow at #1 cleanout starts December 17 at 20:43;
- some or all of the debris dislodges a few hours later on December 18 at about 01:30 and moves downstream to block the line somewhere downstream of location #3;
- overflow at #1 stops at 01:30;
- overflow at # 3 starts 30 minutes later at 02:00;
- same blockage causes higher surcharging upstream resulting in overflow at location #4 about 1 hour later at 02:30 (this assumes rim elevation at #1 is higher than #3 and #4, otherwise #1 would also overflow; if assumption is false, overflow at #4 would be unrelated to # 1 or #3 and was separately caused);
- rainfall stops at about 04:00 decreasing the rate of I/I, which in turn leads to lower flows and surcharge levels in the system;
- the blockage downstream of #3 could also fully or partially dislodge sometime prior to 05:00;
- overflow at #4 stops at 04:30; overflow at #3 stops at 05:00.

*December 17-19 SSO Location #2*

The SSO at location #2 appears to be separate from the other five overflows. While it started within 3 hours after the overflow at location #1 and 3 hours before the overflows at location #3 and #4, overflow location #2 is upstream from #1, #3 and #4. It also continued well over 8 hours

after overflows at #1, #3, and #4 stopped. The following is a possible and likely chain of events for the overflow at #2:

- wet weather starting on December 17, in combination with Pump Station 15 shutdown, causes 14-inch College Avenue line to run at or very near capacity with I/I;
- debris partially restricts flow in the line somewhere downstream of the manhole;
- surcharge level reaches manhole rim and overflow at #2 starts at 23:00;
- rain fall subsides and ends next morning on December 18 at about 04:00 (I/I starts to recede but blockage remains and overflow continues);
- debris blockage partially or fully dislodges sometime before 13:00;
- overflow at # 2 stops at 13:00 on December 18.

*December 17-19 SSO Location #5*

Location #5 is where the most significant overflow occurred. The cause appears to be separate from the other five overflows. This is because SSO #5 started over 2 hours after the overflows that were further down the system had stopped. While SSO #5 is in the same flow path downstream of SSO #2, the causes are likely separate because SSO #5 started 8.5 hours after SSO#2. The following is the possible and likely chain of events for SSO #5:

- wet weather starting on December 17, in combination with Pump Station 15 shutdown, causes the parallel Kent Middle School lines to run at higher flows than normal and the Corte Madera Creek siphon to operate at a reduced capacity;
- rain fall subsides and ends next morning on December 18 at about 04:00 (I/I starts to recede, but system still flowing high from residual I/I and Pump Station 15 shutdown);
- debris partially restricts flow somewhere downstream of the manhole possibly at the siphon early on December 18;
- overflow starts at 07:30;
- debris dislodges sometime before 15:00;
- overflow stops at 15:00 on December 18.

*December 17-19 SSO Location #6*

The cause of the SSO at location #6 appears to be separate from the other SSOs because it started about 5 hours after SSO #5 ended and was not along the same flow path as #2 and #5. It was also upstream of the flow path from SSOs #1, #3, and #4, and started over 14 hours after the last of these SSOs ended. The following is the possible and likely chain of events for SSO #6:

- rain fall starts again at about 16:00 on December 18 and subsides around 18:00;
- wet weather causes Laurel Avenue pipeline to run at or near capacity with I/I;
- debris or other material partially blocks the line and restricts flow;
- overflow starts at 19:40;
- rain fall restarts at 01:00 on December 19;
- blockage dislodges sometime before 03:00;
- overflow stops at 03:00.

<u>27-inch Kent Middle School Pipeline Collapse Not a Factor</u>

On December 29, 2010, the Discharger inspected the 27-inch Kent Middle School pipeline and discovered it had collapsed in two locations. The cause of the collapse is unknown. It is also unknown whether the pipeline collapsed prior to or after the SSO events. Nonetheless, its collapse would not have restricted flows through the collection system. The new 30-inch Kent Middle School pipeline, which was installed about 1 foot deeper and in parallel to the 27-inch pipeline, was designed with sufficient capacity to handle all flows[13].

December 22, 2010, SSOs

The Discharger reported all SSOs that occurred on December 22, 2010, as one SSO that discharged 1,474,798 gallons of raw sewage diluted with storm runoff and groundwater. The Discharger reported in CIWQS that this SSO occurred on one day from seven different locations and was caused by pipeline failure. The SSOs discharged to Central San Francisco Bay via Corte Madera Creek, both waters of the U.S.

In response to the Prosecution Staff's request, the Discharger provided additional details about the seven overflows. Prosecution staff summarized these details in Table 3, below. Figure 2[14] (in Appendix C) illustrates the various collection system pipelines where these seven overflows occurred.

Upon further analysis of the locations and times when each overflow started and stopped, Prosecution Staff has determined that this one reported SSO was four separate SSO incidents. The rationale for this conclusion is described in subsections below for each of the overflow locations reported. In summary, the Prosecution Staff grouped the seven SSO locations as follows: (1) SSO location #1, (2) SSO locations #2, #5, and #6 (3) SSO locations #3 and #4, and (4) SSO location #7.

**Table 6. December 22, 2010, SSO Locations, Start/End Times, and Volumes**

| Number | SSO Location | Start Date/Time | End Date/Time | Total SSO Volume, gallons |
|---|---|---|---|---|
| 1 | Berm at Pit 5 | 12/22/10 9:18 | 12/22/10 10:20 | 58,178 |
| 2 | Cleanout at 5 Stadium Way | 12/22/10 11:00 | 12/22/2010 17:00 | 50 |
| 3 | Manhole #7316 at Kent Middle School | 12/22/10 11:00 | 12/22/10 23:00 | 8,460 |
| 4 | Manhole #7317 at Kent Middle School | 12/22/10 11:00 | 12/22/10 23:00 | 1,762,380 |
| 5 | Manhole #2262 at Laurel Street | 12/22/10 11:00 | 12/22/10 17:00 | 5,400 |
| 6 | Cleanout at 18 Laurel Street | 12/22/10 11:00 | 12/22/10 17:00 | 1,800 |
| 7 | Cleanout at 131 Kent | 12/22/10 | 12/22/10 | 300[15] |

| Number | SSO Location | Start Date/Time | End Date/Time | Total SSO Volume, gallons |
|---|---|---|---|---|
| | Street | 15:00 | time not provided | |
| **Total SSO Volume from all Locations** | | | | **1,836,568** |
| **Total SSO Volume Recovered** | | | | **361,770[16]** |
| **Total SSO Volume Reached Surface Water** | | | | **1,474,798** |

The cause of SSO location #1 was failure of the Techite portion of Force Main 15 along the berm at Pit 5 near Creekside Park. Upon discovery of the ruptured force main, the Discharger shut down Pump Station 15 to prevent further discharge from Force Main 15 at Pit 5 into Corte Madera Creek. The shutdown of Pump Station 15, excessive I/I flows into the Discharger's collection system, and debris or other material in the system, led to five additional overflows (SSOs #2-6). The cause of SSO #7 is likely blockage.

As discussed in more detail in the Degree of Culpability Section below, during wet weather conditions, when Pump Station 15 is offline, some parts of the collection system are operating at reduced capacity while others operate near maximum capacity. Additionally, as mentioned above for the December 17-19 SSOs, the Discharger's collection system is subject to high I/I rates. Approximately 1.24 inches of rain fell over a 24-hour period at the Kentfield rain gauge site on December 21-22, 2010. The storm intensity was not significant (see Appendix A.2 for storm hyetograph). It was not the first storm event in December and was preceded just three days prior by the 2.36-inch December 17-18, 2010, storm event. Thus, the soils were very likely saturated during the December 22, 2010, SSOs. Saturated soil cannot absorb stormwater which maximizes I/I effects in the collection system. This likely led to notable I/I flow into the system. This is evident in stream water level data, which show close to a 2-foot rise in surface water levels in Corte Madera Creek during the December 21-22, 2010, storm event[17].

As discussed above for the December 17-19 SSOs, the conclusion that debris could have been a factor in causing the overflows is based on the Discharger finding debris including construction debris in parts of the system and the Discharger's reported overflow times. As previously mentioned, on December 30, 2010, the Discharger cleaned the Corte Madera siphon and found debris in the 18-inch barrel of the siphon consisting of nail gun cartridges and Class II engineered backfill. Additionally, on December 27, 2010, the Discharger found a hard hat at the screen of Pump Station 15[18]. While there is no evidence to determine if debris found after these SSOs was present prior to or during the SSOs, the fact that the SSOs at Kent Middle School (SSOs #3 and #4) ended six hours after the other SSOs strongly suggests that debris also played an important part in causing these overflows.

<u>Possible Chain of Events and Specific Causes of December 22, 2010, SSOs</u>

The following sections provide a possible chain of events and causes for the December 22, 2010, SSOs, and the rationale for the conclusion that the one single SSO was four separate SSOs. The chain of events is based on the assumption that the overflow start and stop times provided by the Discharger are accurate. Also, with the exception of SSO at location #1, accurate manhole and cleanout rim elevation could verify or refute the chain of events. However, the Discharger does not have accurate elevation information.

*December 22 SSO Location #1*

Overflow from location #1 occurred when Force Main 15 ruptured. Specifically, at approximately 09:18 on 12/22, the Techite portion of the force main failed catastrophically resulting in the overflow.

*December 22 SSO Locations #2, #5, and #6*

The timing of SSOs at locations #2, #5, and #6 was the same, so it is likely that these overflows are part of the same chain of events. Specifically, the following is a possible and likely chain of events:

- wet weather on December 21 and 22[19] causes I/I;
- due to rupture in Force Main 15, Pump Station 15 is shutdown at 09:30 to prevent sewage from entering Corte Madera Creek;
- I/I in conjunction with Pump Station 15 shutdown causes 30-inch McAllister line to run at or near surcharged capacity and the Corte Madera Creek siphon to operate at a reduced capacity;
- overflows at locations #2, #5, and #6 start at 11:00;
- rainfall subsides around 11:00 on December 22;
- shortly thereafter, debris partially restricts flow somewhere downstream of locations #2, #5, and #6;
- overflows continue for an additional 6 hours;
- debris dislodges sometime before 17:00;
- overflows at locations #2, #5, and #6 stop at 17:00.

*December 22 SSO Locations # 3 and #4*

The timing of SSOs at locations #3 and # 4 was the same, so it is likely that these overflows are part of the same chain of events. Specifically, the following is a possible and likely chain of events:

- wet weather on December 21 and 22 causes I/I;
- due to rupture in Force Main 15, Pump Station 15 is shutdown at 09:30 to prevent sewage from entering Corte Madera Creek;
- I/I in conjunction with Pump Station 15 shutdown causes the parallel Kent Middle School pipelines to run at higher flows than normal and the Corte Madera Creek siphon to operate at a reduced capacity;
- overflows at locations #3 and #4 start at 11:00;
- debris partially restricts flow in the Kent Middle School pipelines sometime before 17:00 somewhere downstream of the manholes possibly at the siphon or in one or both of the lines;
- overflows at locations #3 and #4 continue due to debris blockage even though overflows at locations #2, #5, and #6 stopped;

- debris dislodges sometime before 23:00;
- overflows at #3 and #4 stop at 23:00.

*December 22 SSO Location #7*

This SSO started about 4 hours after all other SSOs, so the cause of this SSO appears to be separate from the others. The following is the possible and likely chain of events for SSO #7:

- wet weather on 12/21 and 12/22 causes I/I;
- the Kent Avenue pipeline is running at or very near capacity due to previous wet weather I/I;
- debris partially restricts flow in the line somewhere downstream of the cleanout;
- overflow starts at 15:00;
- overflow end time is unknown, but Discharger reports that the total volume discharged of 300 gallons was all recovered.

SSO Notification Deficiencies

The Discharger initially reported the December 17-19, 2010, SSOs to the California Emergency Management Agency (CalEMA) as a contained, 1,000-gallon SSO on December 17, 2010, at 23:35 hours, within 2 hours of becoming aware of the SSO. Approximately, 1 hour later, on December 18, 2010, at about 00:30 hours, the Discharger learned that this SSO was greater than 1,000 gallons and that it had reached surface waters. Though it became aware of this, the Discharger did not notify or update CalEMA, the Regional Water Board, nor the Marin County Environmental Health Services within 2 hours. Additionally, the Discharger did not submit to the Regional Water Board within 24 hours, a certification that CalEMA and the local health department had been notified of a discharge to surface waters. Instead, the Discharger notified the Regional Water Board and the Marin County Environmental Health Services via telephone three days later on December 22, 2010, and updated CalEMA seven days later on December 27, 2010. Late notification deprived Regional Water Board staff of the opportunity to be onsite soon after the SSO events occurred to gather its own evidence regarding the nature, circumstances and potential water quality impacts of these events.

For the December 22, 2010, SSOs, the Discharger notified all appropriate agencies in a timely manner.

SSO Reporting Deficiencies

For the December 17-19, and 22, 2010, SSOs, the Discharger did not submit a certified report via CIWQS within 15 calendar days after completion of SSO response and remediation[20]. For the December 17-19, 2010, SSOs, the Discharger submitted a certified report on April 4, 2011, 91 days after the certified report due date of January 4, 2011. For the December 22, 2010, SSOs, the Discharger submitted a certified report via CIWQS, 88 days after the due date of January 7, 2011.

Furthermore, during the December 22, 2010, SSOs, the Discharger failed to report an unknown volume SSO that occurred on the same date, from manhole #2647 at the intersection of Behrens Drive and Sherwood Ct (see Appendix D, Photo 3). Photo 3 was taken by Nute Engineering, Inc. staff who stated that shortly after this photo was taken, a Discharger vactor truck arrived[21]. The total SSO volume discharged was likely small based on the photographic evidence and the fact that Discharger staff arrived to recover sewage shortly after the picture was taken. Nonetheless, this SSO should have been reported via CIWQS.

**Whether the discharge is susceptible to cleanup or abatement**

Typically, the majority of insufficient capacity wet weather related SSOs are not susceptible to cleanup or containment because the sanitary collection system in the vicinity is more than full so the overflows cannot be easily routed back to it, and the storm drains and surface waters are also flowing high so the overflows cannot be contained and recovered from them. In some cases, a small portion of the SSO can be recovered and returned to a different part of the collection system that if there is sufficient capacity at that location, or transported directly to a treatment facility.

December 2010 SSOs and Other Capacity Related Wet Weather SSOs

For the December 17-19, and 22, 2010, SSOs and other capacity related wet weather SSOs, less than 50% of these SSOs were susceptible to cleanup and abatement since the collection system, storm drains, and creeks are flowing full at the time.

All other SSOs

For all other SSOs, either all or a portion of the SSO, can be contained and returned to the collection system for treatment. While the Discharger's average response time of about one hour is usually considered adequate, we note that the Discharger recovered a low percentage (12%) of all other SSOs.

**Degree of toxicity of the discharge**

Untreated wastewater would be expected to have a deleterious effect on the environment, including causing potential nuisance in the near shore areas. Raw or diluted wastewater typically has elevated concentrations of biochemical oxygen demand, total suspended solids, oil and grease, ammonia, high levels of viruses and bacteria, trash (only in the case of raw sewage) and toxic pollutants (such as heavy metals, pesticides, personal care products, and pharmaceuticals). These pollutants exert varying levels of impact on water quality, and, as such, will adversely affect beneficial uses of receiving waters to different extents. These conclusions

are based on general knowledge of untreated wastewater and not on laboratory analysis of any specific SSO discharge conducted by the Discharger.

December 17-19 and 22, 2010, SSOs, and Other Capacity Related Wet Weather SSOs

The toxicity of the discharge for SSOs that occurred during wet weather conditions was medium. Since storm related SSOs are diluted with storm runoff and groundwater, they would not pose the same level of toxicity as an equal volume of raw sewage during non-storm conditions. While the Discharger provided calculations showing the levels of solids and biochemical oxygen demand for December 2010 SSOs were theoretically within federally permittable discharge standards because of dilution, Water Board prosecution staff maintains that solids and biochemical oxygen demand are just indicator parameters of an acceptable level of treatment, and that low levels of these indicator parameters alone (without treatment) is not proof that the sewage in the December 2010 SSOs were equivalent to sewage that has in fact gone through treatment processes. Biologically treated sewage reduces other pollutants that are not reflected in those two indicator parameters. Viruses and bacteria that are present in undisinfected wastewater at such levels where dilution alone cannot mitigate potential negative effects pose a serious water quality concern. Bacteria and viruses levels in raw sewage are typically tens of thousands times greater than safe levels. The sewage in the December 2010 SSOs was only diluted by ten to a hundred times. Furthermore, samples of the Corte Madera Creek indicated levels above bacteria water quality standards[19]. Other toxic pollutants such as ammonia, metals, pharmaceuticals, and personal care products, while diluted, may also been present at toxic concentrations in the discharge.

All other Non-Capacity Related Dry Weather SSOs

The toxicity of the discharge that occurred during dry weather conditions was high. These SSOs consisted of raw undiluted sewage. SSOs that occur during dry weather are generally much smaller in volume than wet weather related SSOs. The Discharger reported that its largest dry weather SSO from January 1, 2008, to April 21, 2011, had a volume of 7,200 gallons and was due to pipeline/structural failure on May 4, 2008. All except 1 gallon of this SSO was recovered.

**Extent**

December 17-19, and 22, 2010, SSOs

Bacteria concentrations in receiving waters are used to indicate the presence of waste. The SSO events in December 2010 resulted in the exceedance of bacterial water quality standards[22].

Bacterial monitoring results conducted by the Discharger in Corte Madera Creek on December 18, 2010, demonstrated total coliform bacteria as high as 16,000 colonies per 100 ml near the source (Kent Middle School site), and 100 feet upstream and downstream of the source. Fecal coliform bacteria as high as 16,000 colonies per 100 ml were detected near the source and 100 feet downstream of the source. E. Coli levels were detected as high as about 2,419 colonies per 100 ml near the source and 100 ft upstream and downstream[23]. Enterococci levels as high as 200 colonies per 100 ml were detected near the source and 100 feet upstream and downstream[24].

Bacterial monitoring results conducted by the Discharger in Corte Madera Creek on December 23, 2010, demonstrated total coliform bacteria as high as 12,997 colonies per 100 ml near the source (West Side Creek Running Track site). E. Coli levels were detected as high as about 1,153 colonies per 100 ml at the source and 100 feet upstream and downstream. Enterococci levels as high as 538 colonies per 100 ml were detected near the source and 100 feet upstream and downstream.

The temporal extent of bacterial exceedances at various sampling locations was from December 18, 2010, to January 6, 2011.

All Other SSOs

The temporal extent of the remaining SSOs which reached waters of the United States consisted of at least 39 days over 3 years. This is because the Discharger for the period of January 1, 2008, to April 21, 2011, with the exception of the December 17-19 and 22, 2010 SSOs, reported SSOs reaching surface waters during at least 39 days. The spatial extent of the SSOs generally includes Corte Madera Creek, San Anselmo Creek, Sleepy Hollow Creek, Fairfax Creek, Tamalpais Creek and Woodland Road Creek, all waters of the United States, throughout the Discharger's service area.

## Gravity

December 17-19, and 22, 2010, SSOs

As mentioned previously, the SSOs resulted in the discharge of a significant cumulative volume of raw sewage diluted with stormwater and groundwater to waters of the United States. Since it was diluted raw sewage, it did not pose the same level of toxicity or impact as an equal volume of raw sewage during dry weather. Nonetheless, because undisinfected sewage contain high levels of bacteria and virus, the December 2010 SSOs resulted in the posting of signs warning the public of sewage contamination, thus impacting water contact and non-water contact recreational uses. The Discharger was required to post signs warning of sewage contamination for a period of 24 days, from December 18, 2010, to January 10, 2011. It is likely, however, that some of the residual bacteria present in the Corte Madera Creek during this period were due to bacteria common in urban runoff (i.e., from animal waste). While some of the warning signs posted were precautionary in nature, they still restricted potential water contact recreational use, and aesthetic enjoyment and other non-contact water uses of Corte Madera Creek. Lower Corte Madera Creek is a popular spot for kayaking. Additionally, the SSOs impacted water quality and potentially other beneficial uses[25] with higher concentrations of toxic pollutants that would not otherwise be discharged to Corte Madera Creek. Other beneficial uses in this receiving water body are particularly important to protect, as Corte Madera Creek is among the few streams flowing to San Francisco Bay that retain a steelhead trout population[26]. Other species known or highly likely to be present in Corte Madera Creek and marsh include the federally threatened green sturgeon, the state threatened California black rail, and state and federally endangered California clapper rail[27].

For the December 17-19, 2010, SSOs, the Marin County Environmental Health Services was not informed of the magnitude of the SSOs until December 22, 2010, and as such did not require the Discharger to post signs or sample Corte Madera Creek. Nonetheless, the Discharger stated that it posted warning signs along Stadium Way alignment and sampled Corte Madera Creek at locations near the Kent Middle School SSO site and 100 feet upstream and downstream of this site.

On December 23, 2010, in light of new information regarding the magnitude of the December 17-19, 2010, SSOs, and upon receiving notification of the SSOs on December 22, 2010, the County Health Department required the Discharger to post warning signs intermittently at a minimum of 1/2 mile upstream and downstream of the SSO sites. The County Health Department also required the Discharger to sample Corte Madera Creek near the SSO sites and 100 feet upstream and downstream, and then intermittently 1/2 mile upstream and downstream of the SSO sites. The Discharger posted signs as required and sampled Corte Madera Creek.

Other Capacity Related Wet Weather SSOs

The gravity of the other wet weather SSOs is below moderate. This is because although the SSOs are diluted with stormwater and groundwater, the combined volume of about 164,000 gallons that reached surface waters is moderately significant, and it is likely that there were impacts to beneficial uses of the receiving waters.

Non-Capacity Related Dry Weather SSOs

The gravity of dry weather SSOs is below moderate. The Discharger reported a combined total of about 5,100 gallons reaching surface waters during dry weather conditions. A majority of these SSOs (97 %) are small in volume (<1,000 gallons reaching surface waters) and received no dilution.

**Any Voluntary Cleanup Efforts Undertaken and Cooperation**

Emergency Bypasses during December 17-19, and 22, 2010, SSOs

Upon arriving onsite during the December 2010 SSOs, the Discharger implemented several cleanup efforts to mitigate the effects of the SSOs. This included installing several emergency bypass systems to relieve and redirect flows within its collection system. The purpose of these emergency bypass systems was to reduce the volume of overflow occurring within the collection system. The specific bypass systems put in place are briefly described below:

1. COLLEGE AVE EMERGENCY BYPASS: On December 18 and 22, 2010 (time unknown), the Discharger placed a 5 MGD pump and a 6-inch hose above ground along College Avenue and Magnolia Avenue. Sewage was pumped from manhole #7322 on College Avenue and reintroduced into the system via manhole #3934 on Magnolia Avenue. This temporary bypass system reduced the amount of sewage flows entering the

Kent Middle School parallel pipelines by diverting flows from the Kentfield collection system area to the Larkspur collection system area.

2. PS25 to PS24 EMERGENCY BYPASS: On December 18, 2010, (time unknown) the Discharger placed a 5 MGD pump and 6-inch pipe along South Eliseo Drive from a manhole near Pump Station 25 to a manhole near Pump Station 24. According to the Discharger, this emergency bypass system did not significantly reduce flows during the SSO event and as such was not utilized during the December 22 SSOs[28].
3. PS15 EMERGENCY BYPASS: On December 22, 2010, (time unknown) the Discharger placed a 12-inch pipe on the berm alongside Corte Madera Creek from a manhole near PS15 to manhole #4552 at the intersection of Magnolia Avenue and Bon Air Road. This emergency bypass system was not in place during the SSOs due to "contractor liability concerns"[29].
4. EL PORTAL EMERGENCY BYPASS: On December 22, 2010, (time unknown) the Discharger placed a 20 horse power pump in a manhole on El Portal Drive (Manhole #5051) with an above ground hose extending to a manhole near Pump Station 13 (Manhole #3497). This bypass relieved flows in the 30-inch McAllister Line.

In terms of voluntary cooperation, though the Discharger ultimately provided the necessary evidence to corroborate what volume was recovered it did not do so until 10 months after the SSOs and only after repeated requests from Prosecution Staff for the evidence. Additionally, as of November 1, 2011, the Discharger has not updated CIWQS to indicate its findings on the volumes recovered during the December 17-19, and 22, 2010, SSOs.

The Discharger initially reported that it recovered approximately 105,352 gallons of sewage during the December 17-19, 2010, SSOs, and approximately 241,770 gallons of sewage during the December 22, 2010, SSOs. In response to the Prosecution Staff's requests, the Discharger provided additional evidence to corroborate the total volume recovered during the December 2010 SSOs [30], and revised the estimated total volume discharged and recovered. The revised volumes are shown in Table 2 and 3 above[31].

Other Response Actions Related to December 17-19, 2010, SSOs

On December 18, 2010, in order to re-establish sewage flows through Force Main 15, the Discharger reconnected whatever portion of the new HDPE pipeline that had been installed to the remaining Techite portion of Force Main 15. The Discharger used a temporary repair coupler to reconnect the Techite to the new HDPE pipeline. By installing this temporary repair coupler, the Discharger was able to turn Pump Station 15 back on. It took the Discharger about eight to ten hours to install the coupler. Force Main 15 was then reenergized and Pump Station 15 was put back online on December 19, 2010.

Other Response Actions Related to December 22, 2010, SSOs

Upon shutting down Pump Station 15 on December 22, 2010, the Discharger immediately began repairing the ruptured Force Main 15. The Discharger opted to complete replacement of the entire remaining Techite portion of Force Main 15 by placing approximately 2,000 feet of HDPE pipeline aboveground from Pit 5 to Pump Station 15. It took the Discharger about 48 hours to

replace the remaining Techite portion of the force main. The Discharger will move this pipeline underground during the next construction season.

**Any Prior History of Violations**

The Water Board has taken previous enforcement against the Discharger. On July 14, 2006, Water Board staff issued an administrative civil liability complaint proposing a civil liability of $78,000 against the Discharger for SSOs totaling 472,600 gallons. The SSOs, which occurred on December 31, 2005, were caused by a shutdown of Pump Station 15 during a storm event. Pump Station 15 including its back-up power system shut down due to a power failure and a false over-temperature alarm that caused the pumps to automatically turn off. The phone line notification system also failed during this time. The Discharger corrected the problems with back-up power and phone line notification systems.

On April 24, 2006, the Discharger entered into a consent decree and order with Ms. Garril Page, a private citizen, to address violations of the Clean Water Act, 33 U.S.C. §1251et seq. (*Garril Page v. Sanitary District No. 1 of Marin County*, United States District Court, Northern District of California, case number C 05 4358). The consent decree and order requires the Discharger to implement a total of sixteen actions related to its sanitary sewer collection system. These actions include but are not limited to the following: implement an asset inspection program, develop a computerized maintenance management system, develop a capital improvement program and hire a professional engineer. The Discharger stated that it has complied with all consent decree and order requirements. Ms. Garril Page wrote a letter (dated September 2009) confirming that the Discharger has met and in some cases exceeded consent decree and order requirements.

**Ability to Pay[32]**

The Discharger has the ability to pay the proposed penalty and continue to provide its services. The Discharger's operating budget for fiscal year 2010-2011 was $16,455,340, with net assets totaling $51,463,304 at the beginning of the fiscal year (July 1, 2010). The Discharger's primary sources of revenue are sewer service charges and property tax collection. The Discharger also receives some revenue from inspection fees, connection fees, and investment income.

The Discharger has authority to adjust its sewer rate scale to provide for financial needs in accordance with California Proposition 218 and District Ordinance 48. In fiscal year 2008-2009, the Discharger implemented sewer rate increases to ensure adequate financial resources are available to implement capital improvement and operation and maintenance needs through fiscal year 2010-2011.

The Discharger has two sewer rate zones. Prior to the sewer rate increases, the Discharger's annual sewer rates were $270 per Equivalent Dwelling Unit (EDU) for the Ross Valley Rate Zone and $342 per EDU for the Larkspur Rate Zone. For fiscal year 2010-2011, the Discharger's annual sewer fee is $520 per EDU for the Ross Valley Rate Zone and $592 per EDU for the Larkspur Rate Zone. This equates to a 93% increase in sewer rates from fiscal year

2008-2009 to fiscal year 2010-2011 for the Ross Valley Rate Zone and a 72% increase in rates for the Larkspur Rate Zone.

**Degree of Culpability**

The Discharger is culpable for the violations because it is responsible for the proper operation and maintenance of its collection system facilities, and for achieving full compliance with prohibitions and provisions of Orders No. 2006-0003-DWQ and No. 2008-0002-EXEC, and Section 301 of the Clean Water Act. As noted earlier, the shutdown of Pump Station 15, excessive I/I flows into the Discharger's collection system, and debris or other material, including construction debris, in the system, led to the multiple SSOs that occurred December 17-19, 2010. As described below, a majority of these SSOs could have been mitigated with the implementation of an adequate contingency plan that included prior installation of emergency bypass systems and having a temporary repair coupler onsite prior to shutting down Pump Station 15. Additionally, the December 17-19, 2010, SSO #5 could have been mitigated with proper maintenance of the Corte Madera Creek siphon. As described below, the culpability for the December 22, 2010, SSOs is lower since it was originally caused by pipeline failure, which forced the Discharger to shutdown Pump Station 15. The pipeline failed without warning. The cause of the remaining SSOs was primarily blockages due to root and debris. These SSOs can be prevented with a more strategic cleaning and inspection program and system upgrades.

December 17-19, 2010 SSOs

The Discharger is culpable for the December 17-19, 2010, SSOs . The Discharger failed to timely put in place adequate contingencies and to properly maintain the Corte Madera Creek siphon.

1. *The Discharger had no adequate back-up plan in place in the event flows exceeded system capacity when Pump station 15 is shut down.*

Prior to shutting down Pump Station 15, the Discharger had no adequate contingency plan in place to redirect flows within its collection system in the event that flows exceeded the collection system capacities. During wet weather conditions, when Pump Station 15 is offline, the 30-inch McAllister pipeline is operating at or near maximum capacity. Additionally, when Pump Station 15 is offline, the capacity of the Corte Madera Creek siphon is likely reduced.

The hydraulic capacity of the 30-inch McAllister pipeline ranges from 11.4 to 14 million gallons per day[33]. The actual flows through the pipeline during the December 17-18, 2010, storm event were not measured, but can be estimated based on actual measured flows through the collection system during a similar but less intense storm event in February 2005 of 1.6 inches over a 24-hour period in Fairfax[34]. During that storm event, the flow through the 30-inch McAllister pipeline has a calculated average about 9 million gallons per day with a peak at about 16.5 million gallons per day[35].

The hydraulic capacity of the Corte Madera Creek siphon[36] is about 16.3 million gallons per day[37]. Wastewater is "pulled" through the siphon when the upstream sewer elevation (at the junction manhole) is higher than the downstream sewer. When Pump Station 15 was shutdown, it caused the wastewater elevation in the downstream sewer to be higher than typical and most likely higher than design. When the wastewater level differential across the siphon was minimized, the draw or pull power of the siphon was reduced and less wastewater from upstream sewers would be pulled through the siphon. Additionally, when siphon is partially blocked, as likely occurred during overflow location #5, the siphon capacity was further reduced.

Considering that (1) the Corte Madera Creek siphon would be operating at a reduced capacity due to Pump Station 15 shutdown, (2) and that the 30-inch McAllister pipeline would be operating at, and at times very likely above, its maximum capacity during wet weather conditions, the Discharger should have had additional contingencies in place prior to the December 17-18, 2010, storm event. Specifically, the Discharger should have had the College Avenue and El Portal emergency bypass systems in place prior to the storm event. These bypass systems would have reduced the total volume of sewage discharged by redirecting flows to other parts of the collection system that were not under capacity constraints because of the Pump Station 15 project .

In addition, the Discharger should have had a temporary repair coupler on site prior to continuing to slip line Force Main 15 with an HDPE pipeline during the December 17-18 storm event. A temporary repair coupler enables the Discharger to reestablish sewage flows by reconnecting the new HDPE pipeline with the remaining Techite portion of Force Main 15. Installation of the temporary repair coupler would have allowed the Discharger to turn Pump Station 15 back on to alleviate capacity limitations of the system in anticipation of significant wet weather. Although the Discharger pre-ordered a temporary repair coupler, it did not do so until December 14, six business days after the Discharger made its decision to proceed with Force Main 15 replacement into the wet weather season[38]. This resulted in the repair coupler not being on site and available until December 18 after the SSO started. Having the coupler available could have significantly reduced the SSO volume.

Because Pump Station 15 shutdown likely contributed to the overflows at locations #1, #2, #3, #4, and #5, the Discharger's failure to have in place an adequate back-up plan weighed into determining overall culpability for these SSOs.

2. *The Discharger did not properly maintain the double barrel siphon 5804/5805 under Corte Madera Creek (Corte Madera Creek siphon).*

Based on data provided by the Discharger, there is no evidence of when the Corte Madera Creek siphon was last cleaned prior to the December SSO events. It is likely that the siphon may not have been cleaned in the past couple of years. The Discharger's policy is to clean siphons every 6 months. However, due to an oversight, the Discharger did not put the Corte Madera Creek siphon on a 6-month cleaning schedule. The Discharger should have regularly cleaned the Corte Madera siphon per its own maintenance plan particularly since there was construction in the line upstream during the summer. Cleaning of this siphon could have, at a minimum, reduced the amount of debris, including construction debris that accumulated within the siphon.

Since debris blockage at the siphon is a likely cause of SSO #5, the Discharger's poor maintenance practices of the Corte Madera Creek siphon weighed into determining overall culpability for SSO#5. Nonetheless, as discussed below, the Discharger's pipeline cleaning and inspection program to reduce debris-induced SSOs is on schedule and has the main elements necessary for an effective program to reduce such SSOs. Because the Discharger's pipeline cleaning and inspection program is generally adequate, the Discharger's pipeline maintenance practices did not significantly weigh into determining the overall culpability for SSOs #2 and #6.

December 22, 2010, SSOs

The Discharger is culpable for the December 22, 2010, SSOs, but there were circumstances beyond the Discharger's control because Force Main 15 failed without warning. In this case, the Discharger had no alternative other than to shut down Pump Station 15 to prevent the direct discharge of raw sewage diluted with rainwater and groundwater from Force Main 15 into Corte Madera Creek. The Discharger was well aware of the critical nature of Force Main 15, and as discussed previously, had embarked on implementing a capital improvement project to replace this force main with a more reliable pipeline material. Since Force Main 15 failed without warning, the Discharger could not have planned the shutdown of Pump Station 15 by putting in place adequate contingencies prior to shutting down the pump station.

However, as discussed earlier, the Discharger did not properly maintain the Corte Madera Creek siphon. Cleaning of this infrastructure could have, at a minimum, reduced the amount of debris accumulated within the siphon, and also possibly reduced the likelihood that such debris further compromised the collection system's ability to handle flows when Pump Station 15 was offline. Since debris blockage is a possible contributing cause that extended the duration of some December 22 SSOs, the Discharger's poor maintenance practices of the Corte Madera Creek siphon weighed into determining overall culpability for these SSOs.

Other SSOs

The Discharger is culpable for SSOs caused by roots and debris. The Discharger has the necessary program elements, but could implement a more strategic root control and cleaning/inspection program to prevent such SSOs. The Discharger's rate of SSOs including the rate of root and debris-induced SSOs appears comparatively higher than other agencies within Marin County and the San Francisco Bay region (see Tables 4, 5 and 6 below). The number of SSOs, in particular the number of root and debris related SSOs, has not decreased over the past three years. Additionally, of the total volume discharged due to debris blockages (29, 832 gallons), about 76% (22, 553 gallons) reached surface waters. However, of the total volume discharged due to root blockages (about 13,762 gallons), only about 830 gallons (6% of total volume) reached surface waters.

Table 7: All SSOs (Rate = # SSO/100 miles of system)

| Year | # of SSOs Reported by Discharger | Discharger SSO rate | SF Bay Region Median SSO | Marin County Median SSO rate |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| | | | rate | |
| 2008 | 47.0 | 22.5 | 7.2 | 16.3 |
| 2009 | 39.0 | 18.7 | 6.3 | 14.6 |
| 2010 | 43.0 | 20.6 | 5.6 | 9.8 |

Table 8: Root blockage caused SSOs
(Rate = # SSO/100 miles of system)

| Year | # of SSOs Reported by Discharger | Discharger SSO rate | SF Bay Region Median SSO rate | Marin County Median SSO rate |
|---|---|---|---|---|
| 2008 | 10.0 | 4.8 | 0.6 | 2.9 |
| 2009 | 18.0 | 8.6 | 1.1 | 8.2 |
| 2010 | 15.0 | 7.2 | 0.0 | 0.0 |

Table 9: Debris caused SSOs
(Rate = # SSO/100 miles of system)

| Year | # of SSOs Reported by Discharger | Discharger SSO rate | SF Bay Region Median SSO rate | Marin County Median SSO rate |
|---|---|---|---|---|
| 2008 | 10.0 | 4.8 | 0.0 | 0.0 |
| 2009 | 10.0 | 4.8 | 0.1 | 0.9 |
| 2010 | 15.0 | 7.2 | 0.0 | 0.0 |

The Discharger's collection system cleaning and inspection program to reduce/eliminate debris and root-induced SSOs is on schedule and has the main elements necessary for an effective program to reduce debris and root-induced SSOs[39]. However, the Discharger's rate of SSOs remains high and the Discharger needs to apply a more strategic approach in its efforts to reduce the number of SSOs due to roots and debris.

The Discharger is culpable for other SSOs due to insufficient capacity, excessive I/I, pipeline failure, and fats, oils, and grease (FOG) blockages. Over the past several years, the Discharger has completed various sewer rehabilitation and replacement projects and maintains a list of identified sewer rehabilitation needs. The Discharger is generally on track with its schedule to rehabilitate and replace collection system pipelines to address insufficient capacity, excessive I/I and aging infrastructure.

Additionally, the Discharger reports that it has a grease hotspot GIS database (established in July 2006) and a six-month priority maintenance schedule for flushing and/or rodding problem sewer lines. Additional sewer lines can be added to the six-month priority maintenance schedule after an SSO event or if closed circuit television (CCTV) inspection indicates grease buildup[40]. As of April 2007, the Discharger and the CMSA entered into an agreement for administering a FOG Control Program for use throughout its tributary service area, which includes the Discharger's service area. CMSA will be regulating targeted Food Service Establishments (FSE) through source control activities, including developing a database of FSEs, issuing permits, and inspecting facilities for proper installation and maintenance of grease removal devices.

Notification and Reporting Deficiencies

The Discharger is culpable for the notification violation because it failed to notify the appropriate regulatory agencies within 2 hours, and it did not submit within 24 hours, a certification that the local health officer had been notified of a discharge to surface waters.

The Discharger is culpable for the reporting violations. The reporting requirements have been in place since 2008, over 2 years prior to the December 17-19, and 22, 2010, SSOs. The Discharger was well aware of the reporting requirements and did not timely submit a certified report via CIWQS for these SSOs. The Discharger also did not report via CIWQS the SSO from manhole #2647 that occurred on December 22, 2010.

**Economic Benefit**

The Discharger gained no economic benefit or savings from the SSOs. The Discharger is on track with its schedule to clean/inspect and rehabilitate/replace its collection system pipelines pursuant to its Capital Improvement Strategic Plan developed in January 2007, and thus has not incurred any significant savings by delaying necessary upgrades. The Discharger also has staff who are responsible for responding to, evaluating, and reporting SSOs; thus there is no economic benefit of savings for the notification and alleged reporting deficiencies.

**Other Factors as Justice May Require**

Matters considered that increased the administrative civil liability

*Staff Time*

Regional Water Board Prosecution Team time to investigate the violations, and prepare this report, supporting evidence, and other documents related to those violations is estimated to be about 504 hours. Based on an average cost to the State of $150 per hour, the total staff cost is $75,600.

Matters considered that did not impact the administrative civil liability

Over the past several years, the District has completed various sewer rehabilitation and replacement projects and maintains a list of identified sewer rehabilitation needs. The District's Sewer System Replacement Master Plan (January 2007) included a review of the District's list of identified sewer rehabilitation needs as well as the capacity projects identified in the Sewer Hydraulic Evaluation and Capacity Assurance Plan (SHECAP). The recommended system improvements presented in the Sewer System Replacement Master Plan were incorporated into the District's Capital Improvement Strategic Plan (CIP). The Discharger's current annual capital expenditure budget for sanitary sewer system facilities is $13,172,200[41]. The Discharger's annual capital expenditures rate or annual capital expenditure budget ($) per 100 miles of system is approximately $6.5 million/100 miles[42]. This rate is above the median rate of $1.1 million/100 miles for San Francisco Bay Region collection system agencies with a collection system greater than 100 miles.

The District has demonstrated its commitment to improving its collection system by raising its sewer rates by a total of 93 percent for the Ross Valley Rate Zone and by a total of 72% for the Larkspur Rate Zone since fiscal year 2008-2009. These rates are on par with the other collection system's sewer rates in Marin County.

Prior to rehabilitating Force Main 15 and recognizing the capacity issues associated with the 30-inch McAllister Line, the Discharger rehabilitated the 30-inch McAllister Line in 2010. Additionally, in anticipation of the December 17-18 storm event, the Discharger stationed collection system staff to monitor sewage levels at the manholes likely to overflow. This allowed the Discharger to more rapidly initiate cleanup and abatement efforts in the event of sewage overflows.

Additionally, in early 2011 in response to the December 17-19 notification deficiencies, the Discharger conducted a review of its in-field notification and response practices during an SSO event. As a result of this review, the Discharger revised its SSO response plan and notification procedures in order to ensure adequate response and notification of SSOs. The revised plan and procedures include a flow chart for response activities and notification requirements for all SSO categories.

Matters considered that decreased the administrative civil liability

The Discharger reported that all 19 of its collection system staff maintain a California Water Environment Association (CWEA) certification. The CWEA certification provides evidence and a level of assurance that a Discharger is staffed with employees who have demonstrated an appropriate level of collection system O&M knowledge, skills, and abilities, and who are competent in safe work practices. The basic standard of CWEA certification is that all certificate holders have, and continue to perform at a level of basic competence that enables them to perform the essential duties of their job safely, effectively, without close supervision and without further training. Because of the Discharger's commitment to a knowledgeable and skilled work force, the proposed amount of the liability is reduced by $14,400.

## Penalty Calculation Methodology

The proposed liability is calculated in accordance with the methodology set forth in the State Water Board's Water Quality Enforcement Policy (dated May 20, 2010). A summary of the factors assigned for the alleged violations is summarized in the tables below.

**Table 10. Potential for Harm for Discharge Violations**

| Category | Harm Factor | Reason |
|---|---|---|
| Harm or Potential Harm to Beneficial Uses | 2 | For the December 17-19, and 22, 2010, SSOs, the potential harm is below moderate. Though there were impacts to uses of Corta Madera Creek, a below moderate harm is warranted because the discharges were diluted with high wet weather flows in the receiving water; and the actual recreational uses are typically less during wet weather events. And while the Enforcement Policy indicates an "above moderate" or a "major" harm due to the more than 5 days of restrictions on beneficial uses, the high number of days posted were likely extended due to residual bacteria from urban runoff sources rather than the events themselves. |
| | 1 | For other capacity-related wet weather SSOs, the potential harm factor is minor for the same reasons as described above, and because they occurred in recreation areas with fewer, if any, days posted. |
| | 2 | For non-capacity related dry weather SSOs, the potential harm factor is below moderate, because though smaller in volume and thus smaller areal extent than wet weather related SSOs, there is little or no dilution from flows in the receiving water to reduce potential impacts. |
| Physical, Chemical, Biological, or Thermal Characteristics (Degree of Toxicity) | 3 | Discharge from the December 17-19, and 22, 2010, SSOs and other capacity-related and wet weather SSOs pose an above moderate risk or threat to potential receptors because, though diluted by I&I, the SSOs are not at all treated and would contain bacteria at levels exceeding human health standards and potentially toxic to aquatic organisms. |
| | 3 | All other non-capacity related dry weather SSOs pose an above moderate risk or threat to potential receptors because these SSOs consist of undiluted sewage. |
| Susceptibility to Cleanup or Abatement | 1 | For capacity-related wet weather SSOs, less than 50% of these SSOs is amenable to cleanup or containment because the collection system, storm drains, and creeks are also flowing full at the time; |
| | 0 | For all other SSOs, greater than 50% of each is susceptible to cleanup as the Discharger response time is adequate (average of about 1 hour). However, we note that the actual average SSO recovery is about 12 percent. |
| Final Potential to Harm Scores | 6<br>5<br>5 | For December 17-19, and 22, 2010, SSOs<br>For other capacity-related SSOs;<br>For non-capacity related dry weather SSOs |

**Table 11. Per Gallon and Per Day Assessments for Discharge Violations**

| Category | Factor | Reason |
|---|---|---|
| Per Gallon and Per Day Assessment | 0.22 | For December 17-19, and 22, 2010, SSOs, the discharge of a total of about 2.4 million gallons of untreated sewage to waters of the United States is a major deviation from required standards (Prohibition C.1 in Order No. 2006-0003 DWQ). The SSOs rendered the Prohibition on discharging untreated sewage to waters of the United States ineffective in its essential functions because the prohibition would be effective only if no SSO had occurred. Additionally, because these SSOs resulted in high volume of discharges resulting from wet weather, consistent with the direction in the Enforcement Policy, a maximum per gallon liability of less than $10 is appropriate. Thus, for these SSOs, a maximum liability of $2 per gallon was selected. |
| | 0.15 | For other capacity-related wet weather SSOs (including those SSOs due to pipeline failure and FOG), the discharge of about 151,000 gallons of untreated sewage to waters of the United States is a major deviation from required standards for the same reason as the December 17-19, and 22, 2010, SSOs. Along those lines, a maximum liability of less than $10 per gallon is also appropriate. Thus, consistent with the direction in the Enforcement Policy, a maximum liability of $2 per gallon was selected. |
| | 0.15 | For non-capacity related dry weather SSOs (including SSOs due to debris and root), the discharge of about 19,000 gallons of untreated sewage to waters of the United States is a major deviation from required standards for the same reason as stated above. However, unlike the above, the statutory maximum liability of $10 per gallon is appropriate for these SSOs since these SSOs were not diluted by wet weather and did not result in high volume of discharges. |

**Table 12. Assessments for Non-Discharge Violations**

| Category | Factor | Reason |
|---|---|---|
| Per Day Assessment | 0.7 | Failure to provide 2-hour and 24-hour notification of the December 17-19, 2010, SSOs, warrants a major deviation from required standards and an above moderate potential for harm. The reporting requirement in Order No. 2008-0002-EXEC has been rendered ineffective in its essential functions. The necessary agencies were not notified in a timely manner so that they can perform their critical functions to control harm to the public by providing information to minimize the public's exposure to the event, or to be on site to observe and investigate. |
| | 0.4 | Failure to accurately report SSO causes and to separately report in CIWQS each SSO from December 17-19, and 22, 2010, warrants an above moderate deviation from requirement and a moderate potential for harm. Moderate deviation is warranted because the Discharger did report that the SSOs occurred and the multiple locations. However, for both sets of SSOs, it failed to report each SSO separately despite its own evidence that point to separate causes due to very different SSO times and locations. The Discharger also failed to report capacity as a contributing cause despite the fact that (1) the SSOs occurred during and/or shortly after a significant storm, (2) the system has high I/I, and (3) a critical pump station was shutdown. Above moderate harm is warranted because theses failures both impeded Prosecution Staff's prosecution of these matters, as well as compromise the integrity and reliability of the CIWQS public database that relies solely on accurate and complete self-reporting by dischargers. |
| | 0.4 | Failure to timely certify the December 17-19, and 22, 2010, SSOs via CIWQS warrants a moderate deviation from requirement and a moderate potential for harm. A moderate deviation is warranted because the Discharger ultimately certified the SSOs in CIWQS on April 4, 2011. Above moderate potential for harm is warranted because these failures compromise the integrity and reliability of the CIWQS public database that relies solely on accurate and complete self-reporting by dischargers. The public does not have access to reports until they are certified. |
| | 0.4 | Failure to report via CIWQS an SSO on December 22, 2010, from manhole #2647 warrants a major deviation from requirement and a moderate potential for harm. A major deviation is warranted because the Discharger did not report that the SSO occurred. A moderate potential for harm is warranted because this failure compromises the integrity and reliability of the CIWQS public database. |

**Table 13. Violator's Conduct**

| Category | Adjust-ment Factor | Reason |
|---|---|---|
| Culpability | 1.2 | For December 17-19, 2010 SSOs #1, #2, #3, and #4, the Discharger is culpable because it failed to timely put in place an adequate back-up plan in case flows exceeded system capacity during Pump Station 15 shutdown. |
| | 1.2 | For the December 17-19, 2010, SSO #5, the Discharger is culpable because it failed to properly maintain the Corte Madera Creek siphon. Additionally, considering that the siphon capacity is likely reduced when Pump Station 15 is shutdown, the Discharger should have put in place an adequate back-up plan in case flows exceeded system capacity. |
| | 1.0 | For the December 17-19, 2010, SSO #6, the Discharger is culpable because it is responsible for maintaining its collection system pipelines. Although the Discharger's cleaning and inspection program could be more strategic, the Discharger's pipeline maintenance practices are reasonable. |
| | 0.5 | For the December 22, 2010, SSOs #1, #2, #5, and #6, the Discharger is culpable, but there were circumstances beyond the Discharger's control because Force Main 15 failed without warning. The Discharger was well aware of the critical nature of Force Main 15 and had embarked on rehabilitating it. It had no alternative but to shut down Pump Station 15 once Force Main 15 ruptured in order to prevent or reduce direct discharge of sewage flows into Corte Madera Creek. |
| | 1.2 | For the December 22, 2010, SSOs #3 and #4, the Discharger is culpable because it failed to properly maintain the Corte Madera Creek siphon. |
| | 1.0 | For the December 22, 2010, SSO #7, Discharger is culpable because it is responsible for maintaining its collection system pipelines. Although the Discharger's cleaning and inspection program could be more strategic, the Discharger's pipeline maintenance practices are reasonable. |
| | 1.0 | For SSOs due to debris and root blockages, the Discharger is culpable, but not negligent. The Discharger could have implemented a more strategic root control and cleaning/inspection program to reduce and prevent such SSOs. |
| | 1.0 | For all other SSOs primarily due to insufficient capacity, excessive I/I, |

| Category | Adjust-ment Factor | Reason |
|---|---|---|
| | | pipeline failure and FOG, the Discharger is culpable, but not negligent. The Discharger has completed various rehabilitation/replacement projects over the years and reports an adequate FOG control program to prevent such SSOs. |
| | 1.0 | For failure to provide 2-hour and 24-hour notifications for the December 17-19 SSOs, the Discharger is culpable and no adjustment is warranted. |
| | 1.2 | For failure to accurately report the December 17-19, and 22, 2010, SSOs via CIWQS, the Discharger is culpable. An increase is warranted because the Discharger shared little or no analysis of its own evidence with the Prosecution Staff of the SSOs to substantiate its original conclusion as to cause or relationship, and failed to amend CIWQS to report capacity as a contributing cause. The Discharger has had access to, and ample time to analyze, its own evidence since at least March 2, 2011, when the Discharger provided the evidence in response to a Water Board's Prosecution Staff 13267 order. Thus, as of November, 1, 2011, the Discharger has accrued a total of 490 violation days for failing to amend CIWQS with relevant facts pertaining to SSO causes. However, because these violations lasted more than 30 days, consistent with the Enforcement Policy, it is appropriate to compress this total down to 28 days' worth of violations. |
| | 1.0 | For failure to timely report the December 17-19, and 22, 2010, SSOs via CIWQS, the Discharger is culpable. The Discharger submitted the certified reports via CIWQS a total of 179 days past the required due dates. However, because these violations lasted more than 30 days, consistent with the Enforcement Policy, it is appropriate to compress the total down to 17 days' worth of violations. |
| | 1.0 | For failure to report an SSO on December 22, 2010, from manhole #2647, the Discharger is culpable and no adjustment is warranted. For this SSO, the Discharger has not yet submitted a certified report via CIWQS. Thus, as of November 1, 2011, the Discharger has accrued a total of 300 violation days. However, because this violation has lasted more than 30 days, consistent with the Enforcement Policy, it is appropriate to compress the total down to 16 days' worth of violation. |

| Category | Adjust-ment Factor | Reason |
|---|---|---|
| Cleanup and Cooperation | 1.06 | For the December 17-19, 2010, SSOs, no credit is assigned for the Dischargers emergency bypass measures, because they could have been in place earlier. However, the Discharger failed to timely provide documentation of SSO recovery volumes which impeded Prosecution Staff's investigation. |
| | 0.95 | For the December 22 SSOs, the Discharger installed several emergency bypass systems to relieve and redirect flows within its collection system; thus reducing the volume of the SSOs. However, less credit is assigned because the Discharger failed to timely provide documentation of SSO recovery volumes which impeded Prosecution Staff's investigation. |
| | 1.1 | For SSOs due to debris and root blockages, the volume of SSO recovered averages only 12% of the volume overflowed, despite a good response time of within 1 hour. |
| History of Violations | 1 | There is no history of SSOs similar to the December 17-19, and 22, 2010, SSOs as the circumstances for these events are unique. There is also no known evidence of history of non-reporting or inaccurate reporting and no known history of failure to timely notify the appropriate agencies. |
| | 1.1 | For all other SSOs, there is a history of similar SSOs reported. |
| Other factors that justice may require:<br>• Overall issues | Neutral | Over the past several years, the Discharger has demonstrated its commitment to improving its collection system through the implementation of various capital improvement projects. The Discharger recently revised its SSO response plan and reporting procedures in order to ensure adequate response and reporting of SSOs. |
| • Increased sewer rates | Neutral | The Discharger has demonstrated its commitment to improving its collection system by raising its sewer rates by a total of 93 percent for the Ross Valley Rate Zone and by a total of 72% for the Larkspur Rate Zone since fiscal year 2008-2009. These rates are on par with the other collection system's sewer rates in Marin County. |
| • CWEA certifica-tion | Decreas e | The Discharger is credited with $14,400 for maintaining all 19 of its collection system staff with CWEA certification. The basic standard of CWEA certification is that all certificate holders have, and continue to perform at a level of basic competence that enables them to perform the essential duties of their job safely, effectively, without close supervision and without further training. |

| Category | Adjust-ment Factor | Reason |
|---|---|---|
| • Staff costs | Increase | 498 hours of staff time at $150 per hour for a total cost of $74,700. |

## APPENDIX A

### Table A-1: Discharger SSOs (January 1, 2008 through April 21, 2011) and Associated Total Maximum Penalties for Discharge Violations

**Sources of data: State Water Board CIWQS eReporting Program Database Records (from January 1, 2008 through April 21, 2011)**
**SSOs which reached surface water are highlighted in gray**

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1/3/2008 | 1/4/2008 | 100 Deer Hollow | 50 | 0 | 50 | No | Yes | Unpaved surface | Other: Restricted main and heavy rain caused minor overflow | |
| 1/4/2008 | 1/8/2008 | Via La Cumbre | 2808 | 0 | 0 | No | | Unpaved surface | Pipe structural problem/failure | |
| 1/4/2008 | 1/4/2008 | 111 Goodhill | 450 | 0 | | No | | Building or structure; Unpaved surface | Rainfall exceeded design | |
| 1/5/2008 | 1/5/2008 | Banchero | 216 | 0 | 260 | Yes | | Surface water | Pipe structural problem/failure | $10,000 |
| 1/7/2008 | 1/7/2008 | 4 Oak Springs | 150 | 0 | 150 | No | | Street/curb and gutter | Root intrusion | |
| 1/8/2008 | 1/8/2008 | 33 Agatha | 117 | 0 | 117 | Yes | | Storm drain; Surface water | Other: Heavy rain and rock accumulation from possible main break | $10,000 |
| 1/13/2008 | 1/13/2008 | 64 Via Navaro | 64 | 0 | | No | | Unpaved surface | Debris | |

[1] The maximum penalty was determined by taking the sum of $10,000 for each day the violation occurred and $10 multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1/25/2008 | 1/26/2008 | 19 Morningside | 262 | 262 | | No | | Building or structure | Flow exceeded capacity | |
| 1/25/2008 | 1/25/2008 | 111 Goodhill | 33000 | 0 | 33000 | Yes | Yes | Storm drain | Flow exceeded capacity | |
| 1/25/2008 | 1/25/2008 | 17 Morningside | 1144 | 0 | 0 | No | No | Building or structure; Unpaved surface | Flow exceeded capacity (Separate CS Only) | |
| 1/25/2008 | 1/26/2008 | 118 Sycamore | 4800 | 0 | 4800 | Yes | | Storm drain; Street/curb and gutter; Surface water | Flow exceeded capacity | |
| 1/25/2008 | 1/26/2008 | San Rafael | 24000 | 0 | 24000 | Yes | | Storm drain; Street/curb and gutter; Surface water | Flow exceeded capacity | |
| 1/25/2008 | 1/26/2008 | 800 San Anselmo Ave #2 | 24000 | 0 | 24000 | Yes | | Other paved surface; Storm drain; Surface water | Flow exceeded capacity | |
| 1/25/2008 | 1/26/2008 | 800 San Anselmo Ave. | 24000 | 0 | 24000 | Yes | | Other paved surface; Storm drain | Flow exceeded capacity | |
| 1/25/2008 | 1/26/2008 | Diane Ln | 4800 | 0 | 4800 | Yes | Yes | Other paved surface | Flow exceeded capacity | |
| 1/25/2008 | 1/26/2008 | 67 College | 4800 | 0 | 4800 | Yes | Yes | Street/curb and gutter | Flow exceeded capacity | $1,204,000[2] |
| 1/26/2008 | 1/26/2008 | Quisisana | 500 | 0 | | No | | Unpaved surface | Flow exceeded capacity | |

[2] The SSOs that occurred during the January 25-26, 2008 storm event are treated as one SSO event that lasted two days.

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 2/4/2008 | 2/4/2008 | Westwood | 18 | 0 | 18 | No | | Storm drain; Unpaved surface | Pipe structural problem/failure | |
| 2/10/2008 | 2/10/2008 | 14 Tamalpais Ave. Larkspur | 50 | 0 | 50 | No | | Other paved surface; Storm drain; Street/curb and gutter | Other: A small amount of roots caught towels flushed into the system | |
| 2/11/2008 | 2/11/2008 | 808 S.F. Drake Blvd. | 81 | 0 | 81 | No | | Storm drain; Other: Dirt area of planter | Grease deposition (FOG) | |
| 2/13/2008 | 2/13/2008 | Banchero | 50 | 0 | 50 | Yes | Yes | Surface water | Pipe structural problem/failure | $10,000 |
| 2/13/2008 | 2/13/2008 | Banchero | 50 | 0 | 50 | Yes | Yes | Surface water | Pipe structural problem/failure | $10,000 |
| 2/23/2008 | 2/23/2008 | 310 West Baltimore | 486 | 0 | 486 | Yes | | Surface water | Debris | $10,000 |
| 2/24/2008 | 2/24/2008 | Cordone | 405 | 0 | | No | | Unpaved surface | Root intrusion | |
| 2/24/2008 | 2/25/2008 | 40 Green Valley | 8000 | 0 | 8000 | Yes | | Surface water; Unpaved surface | Debris | $90,000 |
| 3/10/2008 | 3/10/2008 | 101 Legend | 153 | 0 | 0 | No | | Unpaved surface | Pipe structural problem/failure | |
| 3/26/2008 | 3/27/2008 | 65 Corte Amado | 300 | 0 | 0 | No | | Unpaved surface | Other: Plastic Gatorade bottle | |
| 4/8/2008 | 4/8/2008 | 700 Lincoln Village Cir | 600 | 0 | 0 | No | | Unpaved surface | Root intrusion | |
| 4/17/2008 | 4/17/2008 | 94 Gregory | 638 | 0 | 0 | No | Yes | Storm drain; Street/curb and gutter | Root intrusion | |
| 4/23/2008 | 4/23/2008 | 70 Corte Dorado | 150 | 2 | 0 | No | | Other paved surface; Unpaved surface | Debris | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 5/4/2008 | 5/5/2008 | 2 Los Cerros | 7200 | 7199 | 1 | Yes | Yes | Separate storm drain | Pipe structural problem/failure | $20,000 |
| 5/22/2008 | 5/23/2008 | Via LA Paz Easement | 162 | 0 | 0 | No | No | Unpaved surface | Debris | |
| 5/26/2008 | 5/26/2008 | 68 Alder | 50 | 0 | 0 | No | No | Unpaved surface | Other: Towels in main | |
| 6/28/2008 | 6/28/2008 | 72 Almanar | 319 | 250 | 0 | No | Yes | Storm drain; Unpaved surface | Grease deposition (FOG) | |
| 8/27/2008 | 8/27/2008 | 112 Goodhill | 20 | 0 | 0 | No | No | Other: Land/yard | Debris | |
| 10/6/2008 | 10/6/2008 | 8 Toyon | 50 | 0 | 0 | No | No | Unpaved surface | Other: Roots from a lateral | |
| 10/12/2008 | 10/12/2008 | 120 Oak Kentfield | 567 | 0 | 0 | No | No | Unpaved surface | Other: Paper towels | |
| 10/14/2008 | 10/14/2008 | 16 Laurel Grove | 673 | 0 | 0 | No | No | Unpaved surface; Other: Under building | Pipe structural problem/failure | |
| 10/27/2008 | 10/27/2008 | 40 Corte Cordva | 100 | 0 | 0 | No | No | Unpaved surface | Other: Roots | |
| 11/10/2008 | 11/10/2008 | Laurel Grove | 50 | 0 | 0 | No | No | Other: Building | Pipe structural problem/failure | |
| 11/15/2008 | 11/15/2008 | 16 Wolfe Canyon | 25 | 0 | 0 | No | No | Other: flagstone in yard of 16 Wolfe Canyon. | Root intrusion | |
| 11/17/2008 | 11/17/2008 | 61 Ridgecrest | 40 | 0 | 0 | No | No | Street/curb and gutter | Debris | |
| 11/18/2008 | 11/18/2008 | 110 Wood Lane | 27 | 0 | 0 | No | No | Unpaved surface | Pipe structural problem/failure | |
| 11/20/2008 | 11/20/2008 | 21 Toussin | 150 | 0 | 0 | No | No | Unpaved surface | Other: Roots from lateral | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 11/25/2008 | 11/25/2008 | 405 Sequoia | 100 | 0 | 0 | No | No | Unpaved surface | Pipe structural problem/failure | |
| 12/21/2008 | 12/21/2008 | 20 Liberty | 555 | 50 | 505 | Yes | Yes | Other paved surface; Storm drain | Grease deposition (FOG) | $10,000 |
| 12/30/2008 | 12/30/2008 | Broadmore | 50 | 50 | 0 | No | No | Unpaved surface | Root intrusion | |
| 1/8/2009 | 1/8/2009 | 67 Ridgecrest | 200 | 0 | 0 | No | No | Unpaved surface | Other: Unknown. Did not find any grease, roots of debris. | |
| 1/8/2009 | 1/8/2009 | 22 Canyon | 50 | 50 | 0 | No | No | Street/curb and gutter; Unpaved surface | Debris-General | |
| 1/13/2009 | 1/13/2009 | 100 Deer Hollow | 600 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 1/16/2009 | 1/16/2009 | 6 Greenwood | 250 | 0 | 0 | No | No | Other paved surface; Unpaved surface | Root intrusion | |
| 1/25/2009 | 1/26/2009 | 260 Crescent | 1822 | 100 | 0 | No | No | Unpaved surface | Root intrusion | |
| 1/27/2009 | 1/27/2009 | 832 Fawn | 80 | 0 | 0 | No | No | Other paved surface | Root intrusion | |
| 2/6/2009 | 2/6/2009 | 644 Bolinas | 450 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 2/14/2009 | 2/14/2009 | 10 Canyon Ross | 20 | 0 | 0 | No | No | Street/curb and gutter; Unpaved surface | Root intrusion | |
| 2/16/2009 | 2/16/2009 | 635 Goodhill | 120 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 2/19/2009 | 2/19/2009 | 5 Palm Ct. | 27 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 2/21/2009 | 2/21/2009 | 8 Ivy Ln | 100 | 0 | 0 | No | No | Other paved surface; Unpaved surface | Debris-Rags | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 3/5/2009 | 3/5/2009 | 135 Crown | 24 | 0 | 0 | No | No | Unpaved surface | Debris-Rags | |
| 3/22/2009 | 3/22/2009 | 931 Bolinas Rd | 50 | 25 | 0 | No | No | Other paved surface; Unpaved surface | Root intrusion | |
| 3/24/2009 | 3/24/2009 | 100 Red Hill | 400 | 100 | 300 | Yes | Yes | Storm drain; Street/curb and gutter | Grease deposition (FOG) | $10,000 |
| 4/1/2009 | 4/1/2009 | 52 Woodside Dr. | 15 | 0 | 0 | No | No | Unpaved surface | Other: Operator found roots he felt were from a lateral | |
| 4/3/2009 | 4/3/2009 | 673 Magnolia | 150 | 100 | 0 | No | No | Street/curb and gutter; Unpaved surface | Debris-Rags | |
| 4/4/2009 | 4/4/2009 | 20 Skyland | 4937 | 225 | 4712 | No | Yes | Unpaved surface | Debris-Rags | |
| 4/19/2009 | 4/19/2009 | 83 Hatzic Ct | 40 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 4/27/2009 | 4/27/2009 | 7 Woodhaven | 300 | 0 | 0 | No | No | Unpaved surface | Debris-Rags | |
| 5/9/2009 | 5/10/2009 | 5 Palm | 600 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 5/21/2009 | 5/21/2009 | 51 Woodland | 50 | 0 | 0 | No | No | Unpaved surface | Pipe structural problem/failure | |
| 6/7/2009 | 6/7/2009 | SF Drake & SA Ave | 250 | 250 | 0 | No | Yes | Other: All was recovered | Root intrusion | |
| 7/6/2009 | 7/6/2009 | 2100 SF Drake | 50 | 50 | 0 | No | Yes | Storm drain; Street/curb and gutter | Other :While cleaning the main grease blocked the line causing it to overflow for a short time | |
| 7/19/2009 | 7/19/2009 | 56 Jordan | 50 | 0 | 0 | No | No | Unpaved surface | Other: Unable to determine | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/25/2009 | 7/27/2009 | 119 Crown Rd | 936 | 0 | 0 | No | No | Unpaved surface | Debris-Rags | |
| 8/6/2009 | 8/7/2009 | 167 Scenic | 470 | 0 | 5 | Yes | Yes | Unpaved surface | Debris-Rags | $20,000 |
| 8/13/2009 | 8/13/2009 | 29 Ridgecrest | 177 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 8/28/2009 | 8/28/2009 | 91 Forrest | 23 | 0 | 0 | No | No | Unpaved surface | Debris-Rags | |
| 9/21/2009 | 9/21/2009 | 88 Wellington | 600 | 0 | 0 | No | No | Unpaved surface | Pipe structural problem/failure | |
| 9/28/2009 | 9/28/2009 | 351 Olema Rd | 50 | 50 | 0 | No | Yes | Storm drain; Street/curb and gutter | Grease deposition (FOG) | |
| 11/4/2009 | 11/5/2009 | 78 Chester | 300 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 11/8/2009 | 11/8/2009 | 564 Scenic | 90 | 0 | 0 | No | No | Unpaved surface | Debris-Rags | |
| 11/8/2009 | 11/9/2009 | 49 summit | 25 | 0 | 0 | No | No | Unpaved surface | Debris-Rags | |
| 11/16/2009 | 11/16/2009 | 31 corte Placida | 50 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 11/29/2009 | 11/29/2009 | 14 Geary Ave | 30 | 30 | 0 | No | No | Street/curb and gutter | Root intrusion | |
| 12/5/2009 | 12/5/2009 | 66 Maple | 600 | 600 | 0 | No | Yes | Building or structure; Storm drain; Street/curb and gutter | Root intrusion | |
| 12/19/2009 | 12/19/2009 | 39 Wreden Ave. | 180 | 50 | 0 | No | No | Street/curb and gutter; Other: Hillside | Root intrusion | |
| 12/22/2009 | 12/22/2009 | 21 Raven Rd. | 200 | 50 | 0 | No | No | Street/curb and gutter | Vandalism | |
| 12/31/2009 | 12/31/2009 | 506 Sequoia Dr. | 20 | 0 | 0 | No | No | Street/curb and gutter | Other: Roots from lateral | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1/2/2010 | 1/2/2010 | 19 Bretano Way | 200 | 0 | 0 | No | No | Building or structure; Other: Rear yard | Root intrusion | |
| 1/4/2010 | 1/4/2010 | 309 Via La Paz | 300 | 0 | 0 | No | No | Other: Hillside | Other: Some root intrusion but LOTS of wipes | |
| 1/18/2010 | 1/18/2010 | 2 Los Cerros | 900 | 50 | 850 | Yes | Yes | Other paved surface; Storm drain; Surface water | Debris-Rags | $10,000 |
| 1/19/2010 | 1/19/2010 | 410 William | 900 | 50 | 500 | Yes | Yes | Storm drain; Street/curb and gutter; Surface water; Unpaved surface | Flow exceeded capacity | $10,000 |
| 1/20/2010 | 1/20/2010 | 991 Butterfield | 1 | 0 | 1 | Yes | Yes | Storm drain; Street/curb and gutter; Surface water | Other: Cleaned mains in area, no blockage. | $10,000 |
| 2/8/2010 | 2/8/2010 | 80 Baywood Ave. | 25 | 0 | 0 | No | No | Street/curb and gutter; Other: Small amount made it to land next to garage. | Debris-Rags | |
| 2/9/2010 | 2/10/2010 | 5 Circle Dr. Ross | 150 | 0 | 0 | No | No | Other: Hillside | Other: Found hole on hillside where sewage came out. Also found a 4 in-line CO that had the cap off and full of dirt and rock. | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 2/26/2010 | 2/26/2010 | 33 Woodhaven Rd. | 50 | 0 | 0 | No | No | Street/curb and gutter; Unpaved surface | Root intrusion | |
| 3/16/2010 | 3/16/2010 | 110 Winding Way | 25 | 3 | 0 | No | No | Other: Small amount of soil around MH | Other: 4 test plug and small amount of roots. | |
| 3/16/2010 | 3/16/2010 | 440 Woodland Rd. | 200 | 50 | 150 | Yes | Yes | Storm drain; Other: Tamalpais creek | Root intrusion | $10,000 |
| 4/21/2010 | 4/22/2010 | 370 Via La Cumbre | 1150 | 0 | 0 | No | No | Unpaved surface | Other: Mouth of Manhole blocked by debris from private lateral blockage and Wipes | |
| 5/8/2010 | 5/8/2010 | 8 Ivy Ln. | 25 | 0 | 0 | No | No | Unpaved surface | Debris-General | |
| 5/10/2010 | 5/10/2010 | 3 Rocca Dr. | 25 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 5/11/2010 | 5/11/2010 | 14 garden Way | 75 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 5/20/2010 | 5/20/2010 | 62 Valley Rd. | 200 | 0 | 200 | Yes | Yes | Surface water | Other: Root Intrusion and collapsed pipe | $10,000 |
| 5/29/2010 | 5/29/2010 | 14 Elm Ct. | 100 | 10 | 0 | No | No | Unpaved surface | Other: Rocks, wipes and rags | |
| 6/16/2010 | 6/16/2010 | 94 Forrest | 50 | 50 | 0 | No | Yes | Storm drain; Street/curb and gutter | Debris-General | |
| 7/14/2010 | 7/14/2010 | 639 Magnolia Ave. Larkspur | 20 | 20 | 0 | No | No | Street/curb and gutter | Root intrusion | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/29/2010 | 7/29/2010 | 475 South Eliseo Drive | 50 | 50 | 0 | No | No | Other: Sewage was contained in the parking lot due to the curb. | Other: Ran 2 pumps at once and it came out of the 4 inch cleanout. Turned off both pumps and it stopped immediately. | |
| 8/4/2010 | 8/4/2010 | 1100 South Eliseo Drive. | 75 | 75 | 0 | No | Yes | Storm drain | Grease deposition (FOG) | |
| 8/6/2010 | 8/6/2010 | Bon Air Road and Bayview Road | 150 | 150 | 0 | No | No | Other: The sewage never left the ditch. | Other: The force main was not located. Argonaut hit force main with the back hoe. | |
| 8/17/2010 | 8/17/2010 | 11 Tree Top Way | 50 | 0 | 0 | No | No | Street/curb and gutter | Debris-General | |
| 8/31/2010 | 8/31/2010 | 850 South Eliseo Drive | 200 | 0 | 200 | Yes | Yes | Surface water | Operator error | $10,000 |
| 9/23/2010 | 9/23/2010 | 832 Fawn Dr. | 120 | 0 | 0 | No | No | Street/curb and gutter; Unpaved surface | Root intrusion | |
| 10/2/2010 | 10/2/2010 | 10 Madreo | 25 | 5 | 0 | No | No | Street/curb and gutter | Root intrusion | |
| 10/5/2010 | 10/5/2010 | 599 South Eliseo | 200 | 0 | 0 | No | No | Unpaved surface | Debris-Rags | |
| 10/6/2010 | 10/6/2010 | 57 Berkeley | 200 | 100 | 100 | No | No | Unpaved surface; Other: Concrete driveway | Root intrusion | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 10/7/2010 | 10/12/2010 | 133 Butterfield | 3600 | 400 | 0 | No | No | Unpaved surface | Debris-General | |
| 10/7/2010 | 10/7/2010 | 317 Via La Paz | 10 | 0 | 0 | No | No | Unpaved surface | Debris-Rags | |
| 10/22/2010 | 10/22/2010 | South Eliseo | 8650 | 0 | 8650 | Yes | Yes | Storm drain; Surface water | Pipe structural problem/failure | $86,500 |
| 10/25/2010 | 10/25/2010 | 3 Heather Way | 20 | 0 | 0 | No | No | Street/curb and gutter | Other: Wipes, small amount of roots. low flow line | |
| 11/10/2010 | 11/10/2010 | Taylor Street | 300 | 100 | 30 | Yes | Yes | Surface water | Root intrusion | $10,000 |
| 11/27/2010 | 11/27/2010 | 123 Terrace | 10 | 0 | 0 | No | No | Other paved surface; Unpaved surface | Debri-General | |
| 11/29/2010 | 11/29/2010 | Bon Air Rd. & South Eliseo Dr. | 5 | 5 | 0 | No | No | Other: The spill flowed onto land and was vacuumed up. Samples were taken. | Pipe structural problem/failure | |
| 12/3/2010 | 12/3/2010 | 506 Sequoia | 50 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 12/6/2010 | 12/6/2010 | 905 Bolinas Rd | 60 | 0 | 0 | No | No | Street/curb and gutter; Unpaved surface | Root intrusion | |
| 12/6/2010 | 12/6/2010 | 644 Bolinas Rd | 200 | 55 | 0 | No | No | Street/curb and gutter; Unpaved surface | Flow exceeded capacity (Separate CS Only) | |
| 12/11/2010 | 12/11/2010 | 444 Scenic | 100 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/17/2010[3] | 12/18/2010 | Multiple locations | 1110530 | 200539 | 909991 | Yes | Yes | Other paved surface; Separate storm drain; Street/curb and gutter; Surface water; Unpaved surface | Debris-Rags | $9,099,910[4] |
| 12/22/2010[5] | 12/22/2010 | Bon Air Rd and South Eliseo | 1836568 | 361770 | 1474798 | Yes | Yes | Other paved surface; Separate storm drain; Street/curb and gutter; Surface water; Unpaved surface | Pipe structural problem/failure | $14,747,980[6] |
| 12/27/2010 | 12/27/2010 | 38 Redwood Road | 3150 | 100 | 0 | No | No | Other: The sewer overflowed out of a 4 inch cleanout and went into the ground. | Root intrusion | |

[3] Total volume discharged and recovered, and SSO start and end times have been updated based on data provided by the Discharger. The information is not reflected in CIWQS.

[4] The maximum penalty was determined assuming 4 separately caused SSOs reaching surface water each occurring over a period of one day.

[5] Total volume discharged and recovered, and SSO start and end times have been updated based on data provided by the Discharger. The information is not reflected in CIWQS.

[6] The maximum penalty was determined assuming 4 separately caused SSOs reaching surface water each occurring over a period of one day.

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/28/2010 | 12/28/2010 | Diane Lane | 600 | 0 | 600 | Yes | Yes | Other: Corte Madera Creek | Pump station failure | $10,000 |
| 12/29/2010 | 12/29/2010 | 557 Scenic Ave. | 5 | 0 | 0 | No | No | Street/curb and gutter | Debris-General | |
| 1/10/2011 | 1/10/2011 | 20 El Camino Bueno | 50 | 5 | 0 | No | No | Other: Yard/Land | Root intrusion | |
| 1/17/2011 | 1/17/2011 | Morningside Drive | 800 | 50 | 100 | Yes | Yes | Street/curb and gutter; Surface water | Root intrusion | $10,000 |
| 1/21/2011 | 1/21/2011 | 1701 San Anselmo Ave. | 200 | 100 | 0 | No | Yes | Combined storm drain (combined CS only) | Debris-Rags | |
| 1/21/2011 | 1/25/2011 | 79 Berens Drive | 30 | 5 | 0 | No | No | Street/curb and gutter | Debris-Rags | |
| 2/4/2011 | 2/5/2011 | 286 Via La Paz | 480 | 50 | 0 | No | No | Other: The spill destination was in the dirt of backyard of 286 Via La Paz. | Root intrusion | |
| 2/8/2011 | 2/9/2011 | 99 Broadmore Avenue | 20 | 20 | 0 | No | No | Other: In the front yard of 99 Broadmore Avenue. | Root intrusion | |
| 2/25/2011 | 2/25/2011 | 61 Willow Avenue | 2000 | 0 | 2000 | Yes | No | Surface water | Surcharged pipe (Combined CS Only) | $20,000 |
| 2/25/2011 | 2/25/2011 | Frustuck and Coree Lane | 360 | 0 | 360 | Yes | No | Surface water | Surcharged pipe (Combined CS Only) | $10,000 |
| 2/28/2011 | 2/28/2011 | 48 Calumet | 30 | 30 | 0 | No | No | Street/curb and gutter | Debris-General | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 3/2/2011 | 3/2/2011 | 2 Oakwood Court | 250 | 0 | 0 | No | No | Unpaved surface | Grease deposition (FOG) | |
| 3/6/2011 | 3/6/2011 | 152 San Francisco Boulevard | 3 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 3/16/2011 | 3/16/2011 | 2 Fairview Court | 300 | 0 | 300 | Yes | Yes | Other: The overflow came out of the manhole went into the storm drain then into the creek. | Root intrusion | $10,000 |
| 3/17/2011 | 3/17/2011 | 78 Mountain View Road | 20 | 0 | 0 | No | No | Unpaved surface | Root intrusion | |
| 3/23/2011 | 3/23/2011 | Broadmore Ave | 6000 | 0 | 6000 | Yes | Yes | Other: San Anselmo Creek | Debris-Rags | $60,000 |
| 3/24/2011 | 3/24/2011 | San Anselmo Avenue and San Rafael Avenue | 9000 | 0 | 9000 | Yes | Yes | Surface water | Surcharged pipe (Combined CS Only) | $90,000 |
| 3/24/2011 | 3/24/2011 | 68 Alder Ave | 20 | 0 | 0 | No | No | Other: Soil around cleanout | Debris-General | |
| 3/27/2011 | 3/27/2011 | 115 Woodside Drive | 2500 | 0 | 2500 | Yes | Yes | Surface water | Debris-Rags | $25,000 |
| 4/12/2011 | 4/12/2011 | Manhole located at 100 Hawthrone | 150 | 150 | 0 | No | Yes | Separate storm drain | Debri-General | |

| Start Date | End Date | Location | Gallons Discharged | Gallons Recovered | Gallons Reached Surface Water | Reached Surface Water | Reached Storm Drainpipe | Final Spill Destination | Cause | Maximum Penalty[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| 4/13/2011 | 4/20/2011 | 62 Valley Road | 8540 | 0 | 8540 | Yes | Yes | Surface water | Pipe structural problem/failure | $155,400 |
| 4/19/2011 | 4/21/2011 | 30 Vista Drive. | 1500 | 0 | 0 | No | No | Other: 6 inch sewer line was broken on the hillside. A tree root popped the top of the pipe at the hub. Rocks and mud plugged the line. | Other: A tree root popped the top of the pipe at the hub. Rocks and mud plugged the line. | |
| | | | | | | | | | | |
| | | | | | | | | | **Total Maximum Penalty-Discharge Violations** | **$25,798,790** |

**APPENDIX A**

**Table A-2: Total Maximum Penalty for Non-Discharge Violation-Failure to Timely Certify SSOs**

| SSO Event | Date SSO Response & Remediation Complete | Date Certified Report Due | Date Certified Report Submitted | Violation Days | Appropriate Violation Accrual Days | Total Maximum Penalty[7] |
|---|---|---|---|---|---|---|
| 12/17/10-12/19/10 | 12/20/10 | 1/4/11 | 4/4/11 | 91 | 9 | $9,000 |
| 12/22/10 | 12/23/10 | 1/7/11 | 4/4/11 | 88 | 8 | $8,000 |
| 12/22/10 (manhole#2647) | 12/22/10 | 1/6/11 | Not yet submitted | 300 (as of 11/1/11) | 16 | $16,000 |
| | | | **Total** | **479** | **33** | **$33,000** |

**Table A-3: Total Maximum Penalty for Non-Discharge Violation-Failure to Accurately Report SSOs**

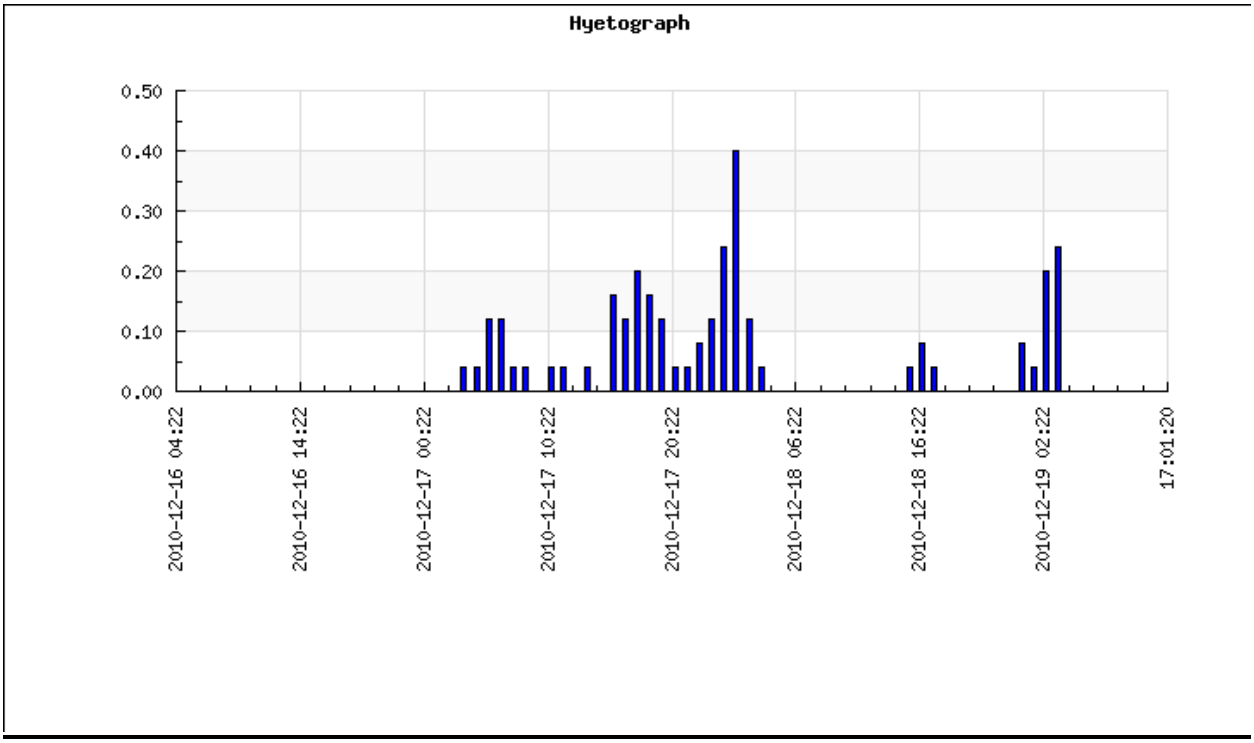
| SSO Date | Date Discharger Became Aware of Causes | Date Certified Report Amended via CIWQS | Violation Days as of 11/1/11 | Appropriate Violation Accrual Days as of 11/1/11 | Total Maximum Penalty |
|---|---|---|---|---|---|
| 12/17/10-12/19/10 | 3/2/10 | Not yet amended | 245 | 14 | $14,000 |
| 12/22/10 | 3/2/10 | Not yet amended | 245 | 14 | $14,000 |
| | | **Total** | **490** | **28** | **$28,000** |

**Table A-4: Total Maximum Penalty for Non-Discharger Violation-Failure to Notify Agencies with 2hr/24hr**

[7] The maximum penalty was determined by taking the sum of $1,000 for each day the violation.

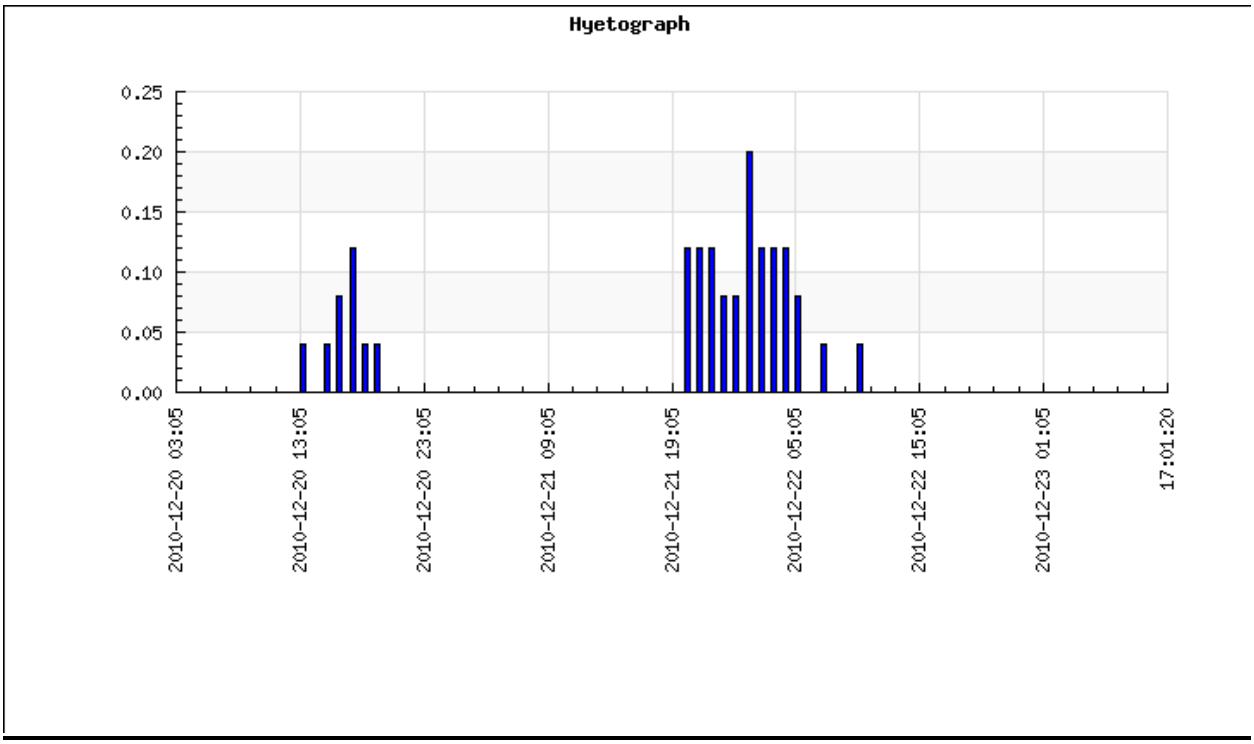
| **SSO Date** | **Date/Time Discharger Became Aware of Category 1 SSO** | **2hr/24hr-Notification Due** | **Violation Days** | **Total Maximum Penalty** |
|---|---|---|---|---|
| 12/17/2010-12/19/10 | 12/18/2010 at 00:30 | 2hr: 12/18/10 at 02:30<br>24-hr: 12/19/2010 at 00:30 | 1 | $1,000 |

**Appendix A.1: December 17-18, 2010, Storm Hourly Hyetograph**




Source: http://marin.onerrain.com; Single Graph, Kentfield-Precipitation increment (2010-12-16 12:22:00-2010-12-19 12:22:00 US/Pacific)

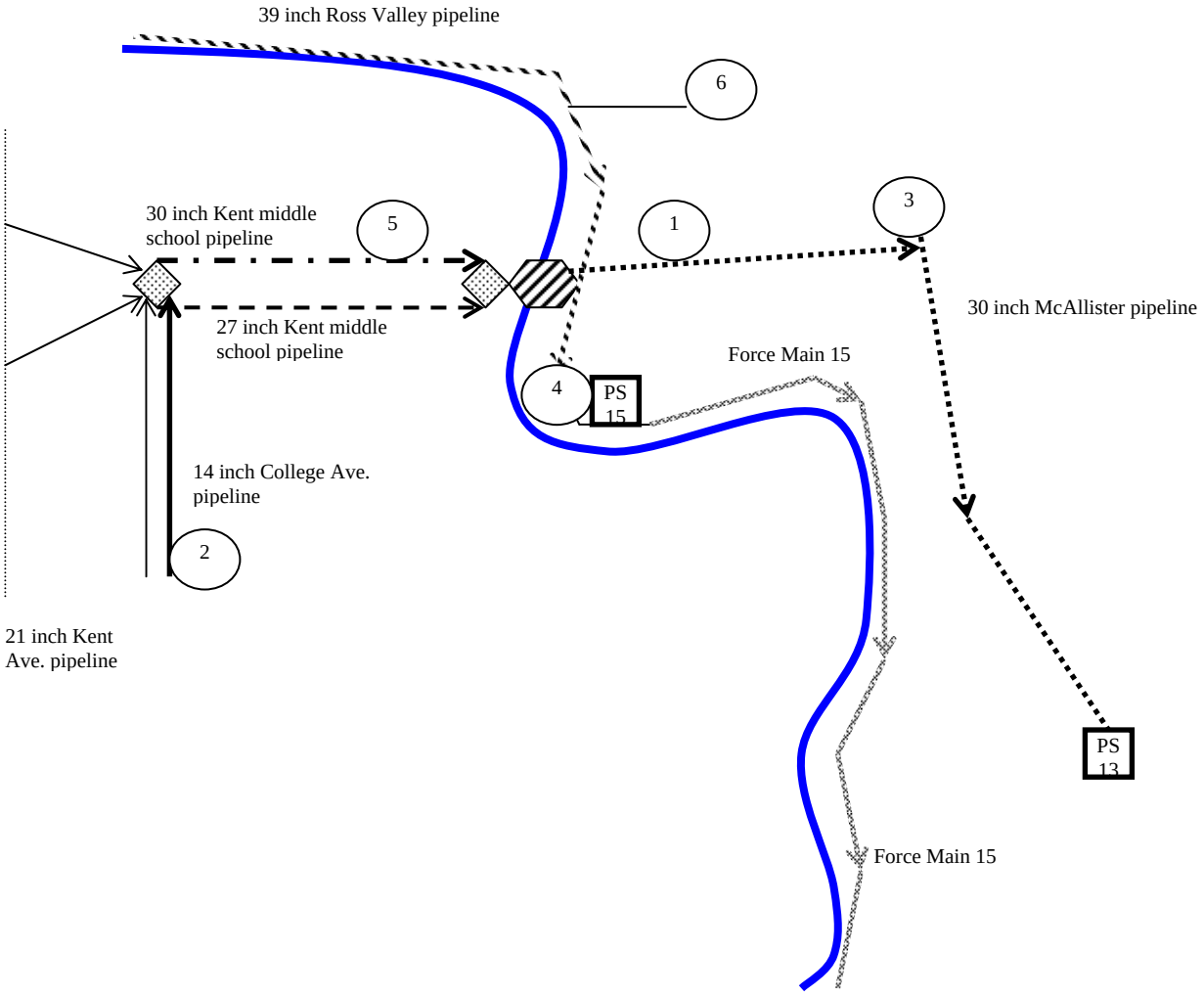
**Appendix A.2: December 21-22, 2010, Storm Hourly Hyetograph**




Source: http://marin.onerain.com; Single Graph, Kentfield - Precipitation increment (2010-12-20 11:05:00 - 2010-12-23 11:05:00 US/Pacific)

## APPENDIX B

### Figure 1: December 17-19, 2010, SSO Locations and Associated Pipelines/Infrastructure




Legend:

SSO locations, see Table 1 for exact location

Junction

Pump station

Siphon

Corte Madera Creek

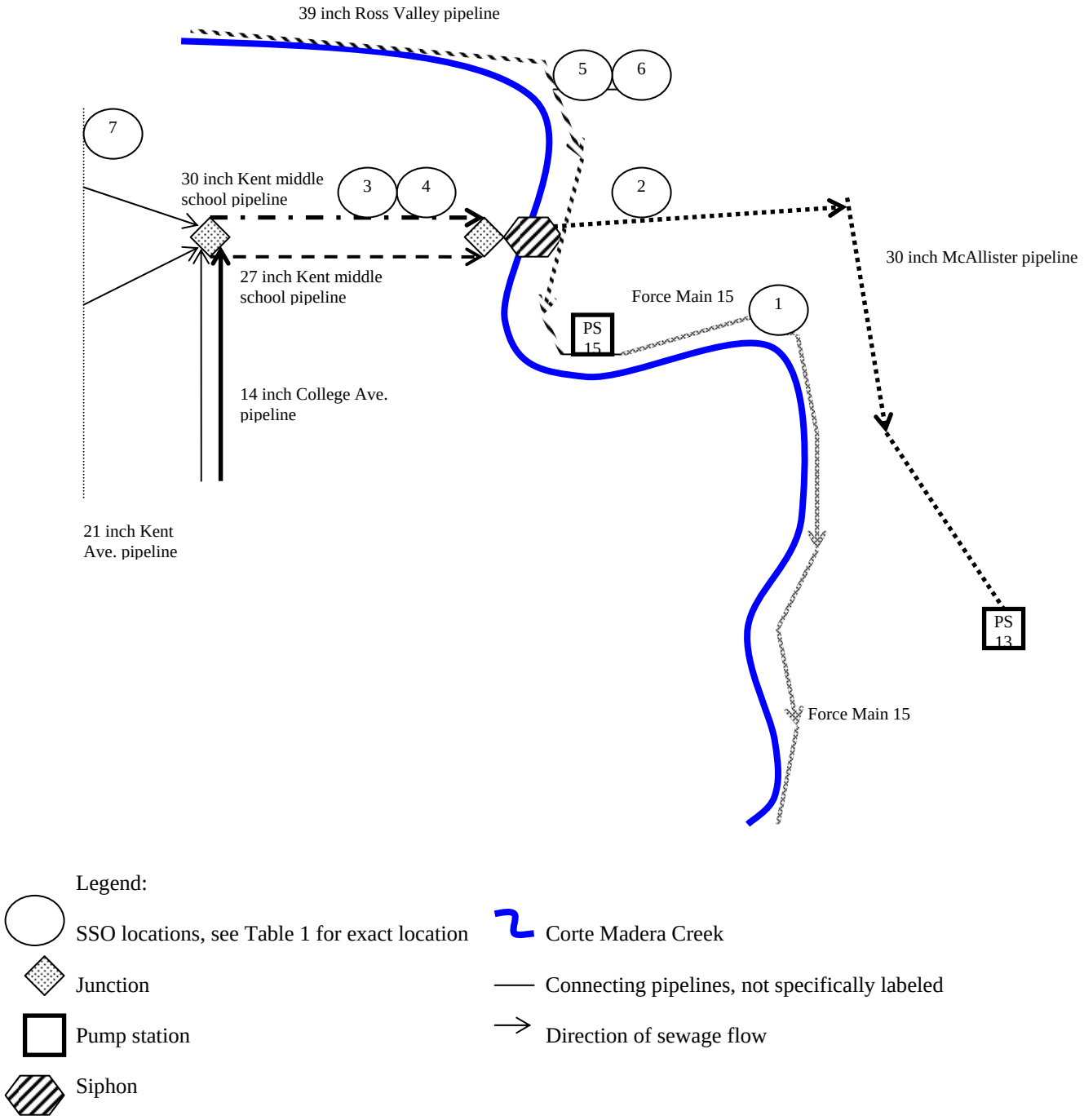
Connecting pipelines, not specifically labeled

Direction of sewage flow

*Not to scale, for illustrative purposes only*

## APPENDIX C

## Figure 2: December 22, 2010, SSO Location and Associated Pipelines/Infrastructure




*Not to scale, for illustrative purposes only*

## APPENDIX D: PHOTOS

Photo 1: District photo of construction debris removed from the 27-inch Kent Middle School pipeline at manhole #2513 on December 21, 2010 at 11:20 am.

Photo Station
scree

Photo 3: Nute Engineering, Inc. photo of December 22, 2010, SSO, from manhole #2647 at the intersection of Behrens Drive and Sherwood Ct.

**APPENDIX E: ENDNOTES**

[1] Discharger March 2, 2010, Submittal in response to Regional Water Board request on February 3, 2010, page 7 of section 1.1.
Portions of Force Main 15 had been replaced with a 42-inch diameter High Density Polyethylene (HDPE) pipeline prior to the December 17-18, 2010 SSO event
[2] Executive Summary, page xiv of Sewer System Replacement Master Plan by RMC, January 2007
[3] The notice to proceed to work for the Force Main 15 Replacement Project was issued on June 3, 2010. Pump Station 15 remained offline for several months except during a couple of start-up attempts and it was brought back online on December 19, 2010. During this time period, sewage flows which typically would have been transported by Force Main 15 were redirected through the 30-inch McAllister pipeline.
[4] The Discharger provided data regarding SSO times, locations and volumes during the December 17-19, and 22, 2010 SSOs in its March 2, 2010, submittal in response to Regional Water Board request on February 3, 2011 (section 6.6). The Discharger later updated this information in its April 15, 2010, submittal in response to Regional Water Board request on March 25, 2011 (section 2.A and 2.B).
[5] Figure 1 is a freehand depiction of the collection system using MS Word and for illustrative purposes only.
[6] A large portion of the total volume recovered (approximately 197,539 gallons) was returned to the collection system. One vactor truck was recorded entering the CMSA Wastewater Treatment Plant at about 02:00 hours on December 18, 2010. Assuming the capacity of the truck is about 3,000 gallons and it was full, the estimated total volume recovered and returned directly to the plant is 3,000 gallons.
[7] Data obtained from the Discharger CIWQS Questionnaire.
[8] Woodland-College-Goodhill Sewer Capacity Improvement: Alternative Analysis and Project Definition" Report, December 2008, page 6. Rehabilitation and upgrade of the aging infrastructure in the Kent Woodlands area is a Discharger priority. Work to rehabilitate and upgrade some of this aging infrastructure began June 21, 2010, as part of the Woodland/College/Goodhill Capital Improvement Project. Some of the construction activities of this project have been completed while others are ongoing.
[9] Precipitation increment, precipitation accumulation and stream stage (or stream water level) data was obtained from the County of Marin website, http://marin.onerain.com; Precipitation accumulation and increment data was obtained from the Kentfield rain gauge, site ID #5261, and stream stage data was obtained from the Corte Madera Creek stage sensor, site ID #5255.
[10] Discharger submitted a statement from its General Manager confirming that debris was collected on December 18, 2010, from two manholes outside the Kent Middle School Library (Discharger April 11, 2010, Submittal in Response to Regional Water Board Request of March 25, 2011, Action Item #6).
[11] The Discharger stated it removed a 2-inch cam lock fitting, an 18-inch metal concrete stake and crushed rock from manhole #2513 (April 15, 2011, Discharger Submittal in Response to Regional Water Board Request of March 25, 2011, Action Item #5). The Discharger submitted sworn affidavits from Discharger staff, who documented discovering a 6-foot long piece of 4-

feet by 4-feet wood in a manhole on College Avenue and Magnolia Avenue on December 18, 2010. Additionally, on December 21, 2010, Discharger staff documented removing a piece of fiberglass from screen at Pump Station 13. The Discharger did not provide photographic evidence of debris collected.

[12] The Discharger submitted sworn affidavits from Discharger staff, who documented the type of debris found prior to the SSO event which included, but was not limited to, a hard hat, pipeline liner and trace wire wrapped around a piece of wood.

[13] The required capacity to carry all flows is about 10.8 million gallons per day. The hydraulic capacity of the 30-inch Kent Middle School pipeline is 11 million gallons per day. The hydraulic analysis was conducted by Nute Engineering as part of the "Woodland-College-Goodhill Sewer Capacity Improvement: Alternative Analysis and Project Definition" Report dated December 2008. The capacity was computed using Kutter's formula assuming sewers operate full and a coefficient of friction, n, of 0.013.

[14] Figures 2 is a freehand depiction of the collection system (using Microsoft Word) and for illustrative purposes only.

[15] Total volume discharged of 300 gallons was all recovered.

[16] A large portion of the total volume recovered (approximately 349,770 gallons) was returned to the collection system. Four vactor trucks were recorded entering the CMSA Wastewater Treatment Plant on December 22 and 23, 2010. Assuming the capacity of each truck is about 3,000 gallons and they were full, the estimated total volume recovered and taken directly to the plant is 12,000 gallons.

[17] Precipitation increment, precipitation accumulation and stream stage (or stream water level) data was obtained from the County of Marin website, http://marin.onerain.com; Precipitation accumulation and increment data was obtained from the Kentfield rain gauge, site ID #5261, and stream stage data was obtained from the Corte Madera Creek stage sensor, site ID #5255

[18] The Discharger submitted a sworn affidavit from Discharger staff, who documented finding a hard hat. The Discharger did not provide photographic evidence of the hard hat collected.

[19] Rain starts at 20:00 on 12/21, stops at 05:00 on 12/22, restarts on the same day at 07:00 and ends at 11:00 (data obtained from County of Marin website, http://marin.onerain.com).

[20] For the December 17-19, 2010, SSOs, the Discharger reported in CIWQS that it completed SSO response activities on December 20, 2010. For the December 22, 2010, SSOs, the Discharger reported it completed SSO response activities on December 23, 2010. Prosecution Staff assumed that remediation activities also ended on the same day SSO response was completed.

[21] Nute Engineering,Inc email correspondence dated September 6, 2011.

[22] California Code of Regulations, Title 17, Article 4, Section 7958 establishes minimum protective bacteriological standards for waters adjacent to public beaches and public water-contact sports areas designated by a regional water quality control board or other authorized and responsible public agency. Based on a single sample, the density of bacteria in water from each sampling station at a public beach or public water contact sports area shall not exceed: (a) 1,000 total coliform bacteria per 100 milliters (ml), if the ratio of fecal/total coliform bacteria exceeds 0.1; or (b) 10,000 total coliform bacteria per 100 ml; or (c) 400 fecal coliform bacteria per 100 ml; or (d) 104 enterococcus bacteria per 100 ml.

[23] Basin Plan establishes a maximum water quality standard for E. Coli of 406 colonies per 100 ml for water contact recreation at a lightly used area.
[24] San Francisco Bay Basin Water Quality Control Plan (Basin Plan) establishes a maximum water quality standard for Enterococci of 108 colonies per 100 ml for water contact recreation at a lightly used area.
[25] The San Francisco Bay Basin Water Quality Control Plan (Basin Plan) establishes the following beneficial uses for Corte Madera Creek and Central San Francisco Bay. Corte Madera Creek supports or could support cold freshwater habitat (COLD), fish migration (MIGR), preservation of rare and endangered species (RARE), fish spawning (SPWN), warm freshwater habitat (WARM), wildlife habitat (WILD), water contact recreation (REC-1), and noncontact water recreation (REC-2). Central San Francisco Bay supports industrial service (IND), industrial process supply (PROC), commercial and sport fishing (COMM), shellfish harvesting (SHELL), estuarine habitat (EST), ish migration (MIGR), preservation of rare and endangered species (RARE), fish spawning (SPWN), wildlife habitat (WILD), water contact recreation (REC-1), noncontact water recreation (REC-2), and navigation (NAV).
[26] Fishery Resources Conditions of the Corte Madera Creek Watershed, Marin County California, November 2000, Alice Rich
[27] Discharger Joint Aquatic Resource Permit Application for the Kentfield Sewage Force Main Replacement and the Berens/McAllister Sloughs Culvert Replacement, Corte Madera Creek, CA, dated March 17, 2011.
[28] Discharger verbal statement during a meeting with Regional Water Board staff on April 6, 2011. [It's best if you can identify the person who made the statement, or at least identify who from the District was present at the meeting.]
[29] Discharger verbal statement during a meeting with Regional Water Board staff on April 6, 2011.
[30] The Discharger provided data regarding total volume discharged and recovered during the December 2010 SSOs in its submittal in response to Regional Water Board request on February 3, 2011 (section 6.6). The Discharger later updated the volume estimates in its April 15, 2010, submittal in response to Regional Water Board request on March 25, 2011 (section 2.A and 2.B). Subsequently, the Discharger provided additional evidence and revised the total volume recovered via CIWQS on December 20, 2011.
[31] The Discharger initially reported the a total SSO volume of 842,630 gallons for the December 17-19, SSOs and a total of 1,831,100 gallons for the December 22, 2010, SSOs.
[32] Discharger budget and sewer rate data was obtained from Discharger Draft Submittal #5 in response to Regional Water Board request of May 12, 2011 and from Discharger Submittal in response to Regional Water Board request of June 3, 2010.
[33] The Discharger submitted model results that estimate the hydraulic capacity of the 30-inch McAllister pipeline. The hydraulic capacity of this pipeline was calculated using H2O Net hydraulic model under surcharged conditions. The model assumed a surcharged water level within 3 feet of the manhole rim. The model was not calibrated against measured flows. The predicted capacity of the 30-inch McAllister pipeline ranged from 11.4 to 14 million gallons per day depending on the pipeline roughness factor assumed.
[34] The model results from the Discharger's SHECAP were used to estimate flows through the 30-inch McAllister pipeline during wet weather conditions. The Discharger's SHECAP used

InfoWorks by Wallingford Software hydraulic model to predict flows through the Discharger's collection system. The model was calibrated against measured flows during dry and wet weather conditions. Two storm events were used to calibrate the model during wet weather: (1) a December 2004 storm which precipitated 6.7 inches over a 24-hr period and (2) a February 2005 storm which precipitated 1.6 inches over a 24-hr period.

[35] The predicted average flow through the 30-inch McAllister pipeline was calculated by totaling the modeled average flow through the 27-inch Kent Middle School pipeline (estimated at 1.62 MGD at Manhole K100.24.1) and the 39-inch Ross Valley pipeline (estimated at 7.24 MGD at Manhole K000.05.01), for a total of 8.86 MGD. The peak flow through the 30-inch McAllister pipeline was calculated by totaling the modeled peak flow through the 27-inch Kent Middle School pipeline (estimated at 2.95 MGD) and the 39-inch Ross Valley pipeline (estimated at 13.52 MGD), for a total of 16.46 MGD. Measured flows through the 30-inch McAllister pipeline during the February 2005 storm event were calculated using the same methodology.

[36] A siphon is a sewer line installed lower than the normal gradient of the sewer line to pass under obstructions such as watercourses or depressed roadways (Operation and Maintenance of Wastewater Collection Systems, Volume I, page 54). The Corte Madera Creek siphon is a double barrel siphon consisting of two sewer lines (18-inch and 21-inch sewer lines).

[37] Woodland-College-Goodhill Sewer Capacity Improvement, Alternative Analysis and Project Definition, Sanitary District No. 1 of Marin County, December 2008 (Table 3, Sewer Line Capacities-Alternative A-2-Modified RFP Project Stadium Way Relief Sewer and New College Avenue Sewer). The capacities of the 18-inch 21-inch siphon sewers are 6.90 million gallons per day and 9.4 million gallons per day, respectively, for a combined total siphon capacity of 16.30 million gallons per day. Based on the Discharger's 2008 Sewer System Hydraulic Evaluation and Capacity Assurance Plan (SHECAP) calculations, the capacities of the 18-inch and 21-inch sewers are about 7.6 million gallons per day and 11.6 million gallons per day, respectively, for a combined total siphon capacity of about 19.2 million gallons per day.

[38] The Discharger ordered the temporary repair coupler on December 14, 2010. However, not all parts of the temporary coupler were on site prior to the December 17-18, 2010 storm event. Two components of the repair coupler arrived on December 15$^{th}$ and the third component arrived the morning of December 18$^{th}$. The third component did not arrive until later because it was damaged at the manufacturing plant, and a new component had to be fabricated (Discharger Draft Submittal II in response to Regional Water Board request of March 25, 2011, section 6). Needs a citation for hearing.

[39] Per the Ross Valley Sanitary District Sewer System Management Plan (SSMP), updated June 2010, page 6-3, the Discharger cleans its entire collection system every 12 to 18 months, and cleans specific portions of the system with known problems on a 6-month basis. Beginning fiscal year 2008-2009, the Discharger launched a closed circuit television (CCTV) inspection program to assess the condition of its entire gravity sewer system over a five to ten year period, inspecting approximately 20 to 39 miles of gravity lines per year. As of June 2010, the Discharger had inspected a total of 39 miles using CCTV. Additionally, in August 2007, the Discharger implemented a Computerized Maintenance Management System (CMMS). CMMS keeps records of service calls and generates as-needed work orders for service calls, and automatic work orders for regular nad 6-month maintenance. CMMS also tracks historical information about each pipe segment that will be used to identify additional pipe segments to be added or

removed from the six-month priority maintenance schedule in order to optimize the District's preventive maintenance activities.

[40] Ross Valley Sanitary District Sewer System Management Plan (SSMP), updated June 2010, page 4-1

[41] CIWQS Questionnaire data submitted by the Discharger

[42] Annual Capital Expenditure rate was calculated as follows: $13,172,200/204 miles*100=6,456,960. The annual capital expenditure rates were calculated similarly for collection systems greater than 100 miles based on CIWQS Questionnaire data provided by Dischargers. The median annual capital expenditures rate for SF Bay Region systems greater than 100 miles is about 1,119,000.