

**United States Environmental Protection Agency
Pacific Southwest Region (Region 9)**



Clean Water Act Compliance Evaluation Inspection

**City of Mill Valley Wastewater Collection System
(Satellite Collection System to Sewerage Agency of Southern Marin
WWTP NPDES No. CA 0038067)**

Date of Inspection: February 12, 2008

Inspector: Ken Greenberg, EPA

Facility representatives: Wayne Bush, Director of Public Works and City Engineer
Jill Barnes, Senior Civil Engineer
James Powell, Superintendent of Public Works

Report prepared by: Ken Greenberg, EPA

Date prepared: April 8, 2008

Background

On February 12, 2008, USEPA Region 9 inspected the City of Mill Valley (the “City”) sanitary sewer system located in Mill Valley, California. The primary purpose of the inspection was to document the history of sewage spills, determine the adequacy of the City’s spill response and prevention programs, evaluate sewer maintenance activities, and assess the accuracy and reliability of its spill reporting procedures. The City’s representatives during the inspection were Wayne Bush, Director of Public Works and City Engineer; Jill Barnes, Senior Civil Engineer; and James Powell, Superintendent of Public Works. Ken Greenberg conducted the inspection for USEPA Region 9. The inspection consisted of interviews with the City representatives and review of documents provided by the City during and following the inspection.

The City owns and operates approximately 59 miles of gravity sewer pipe, 2 sewage pump stations and 0.5 miles of force main pipes. Sanitary sewage generated within the City flows to the Sewage Agency of Southern Marin (SASM) wastewater treatment plant. The City collection system serves a population of approximately 13,600. The combination of household and business connections amounts to about 7,140 equivalent dwelling units (EDUs). Discharges from the SASM wastewater treatment plant (WWTP) into Raccoon Strait (Central San Francisco Bay) are regulated under NPDES Permit No. CA0037711. Other sewage collection agencies discharging to the SASM WWTP are the Alto Sanitary District, Almonte Sanitary District, Homestead Valley Sanitary District, Richardson Bay Sanitary District and portions of the Tamalpais Community Services District (collectively referred to as the member agencies or the satellite systems). None of the member agencies, including the City of Mill Valley, are named as co-permittees under the SASM NPDES permit.

The SASM Wastewater Treatment Plant has an average dry-weather flow design capacity of 3.6 MGD and can provide blended treatment of up to 24.7 MGD peak wet weather flows. The current average dry weather flow to the SASM WWTP is about 2.5 MGD. In its joint powers agreement, SASM allocated 49% of its average treatment capacity to the City of Mill Valley. The City does not measure flows from its collection system, so the actual flow from Mill Valley introduced to the SASM WWTP is not known.

Regulatory Requirements

The City of Mill Valley collection system is subject to requirements imposed by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) in a series of orders issued in 2004 and 2005 pursuant to section 13267 of the Water Code. The City is also subject to requirements of the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, WQO No. 2006-0003 (the Statewide WDR) issued by the California State Water Resources Control Board in May 2006. Pursuant to the RWQCB 13267 letter, beginning in December 2004, Bay Area collection systems were required to report all sewage spills of 100 gallons or more to the RWQCB SSO database. The Regional Board also required submittal of annual reports listing the total number of spills regardless of volume. Beginning in May 2007, the Regional Board SSO database was shut down when the Bay Area collection systems started reporting spills to

the State Board database as required by the Statewide WDR. In addition to the spill reporting obligations, both the Regional Board and the Statewide WDR require systems to develop Sewer System Management Plans. The Regional Board's July 2005 Section 13267 order establishes earlier deadlines for submittal of Sewer System Management Plan (SSMP) components than the SSMP deadlines present in the Statewide WDR. As such, the City must comply with both the Section 13267 order and WQO No. 2006-003 requirements.

Spills and sanitary sewer overflows (SSOs) from the sewer system are prohibited by the Clean Water Act. Under section 301(a) of the Clean Water Act (CWA), it is unlawful for any person to discharge any pollutant from a point source into "waters of the United States" except in compliance with a NPDES permit. The City of Mill Valley does not have an NPDES permit that authorizes the discharge of sewage spills. Therefore, any sewage spill from the City's collection system that flows to "waters of the United States" constitutes a violation of the Clean Water Act. Additionally, spills and SSOs from the City's system are prohibited by the Statewide WDR. The City is an enrollee under the Statewide WDR.

Attached to this inspection report are the following documents:

- Attachment 1 – City of Mill Valley, Sewage Spills December 2004 to February 2008

Findings

Occurrence of Spills: Based on a review of spill data on the Regional Board and State Board databases, as well as annual reports submitted by the City, it was determined that, between December 2004 and March 2008, the City of Mill Valley reported 113 sewage spills from its collection system with 25 of these spills reported as flowing to storm drains or surface waters. A listing of the reported spills is provided in Attachment 1.

The number of spills reported by Mill Valley increased each year with 6 spills in 2005; 24 spills in 2006; 68 spills in 2007 and 15 spills through March 6 in 2008. The City explained that the increasing spill numbers might be explained by more complete reporting of spills by City contractors that respond to spills after-hours. Nearly all of the Mill Valley spills are reported as being caused by sewer pipe blockages resulting from roots growing into cracks in the sewer pipes.

For the time period December 2004 through March 2008, the normalized spill rate for the City of Mill Valley is 58.9 spills/100 miles of sewer pipe/year. (Calculation based on 113 spills from 59 miles of pipe over 3.25 years.) This is a very high spill rate compared to a median spill rate in the San Francisco Bay Area of about 10 spills/100 miles/year. (Bay Area median based on State Board spill data for May 2007 through March 2008.)

EPA suspects that there are several factors contributing to the high spill rate in Mill Valley. The City has a fairly old sewer system. With more than 90% of the City's pipes

being made of vitrified clay, these pipes have likely deteriorated over the years making the pipes more susceptible to blockage spills. The City does not have a complete inventory of pipe age, but they estimate that half of the pipes were installed before 1940 and the other half installed between 1940 and 1980. The City also has an unusually high percentage of small diameter sewer pipes. About 60% of the pipes are 6-inch clay pipes that are highly susceptible to blockage. Conditions are further exacerbated by the hilly terrain, shifting soils and dense vegetation, all of which create a difficult environment for aging sewer pipes. It is possible, however, to combat these difficult conditions in the short-term with an aggressive sewer-cleaning program and in the long-term with a program to rehabilitate and replace deteriorated sewer pipes.

Staffing: The City Sewer Division is staffed with 2 full-time maintenance workers and the Superintendent who splits his time 50/50 between sewers and other Public Works functions. City engineers also dedicate a portion of their time to the Sewer Division.

Equipment: The City's sewer maintenance equipment includes a 500-gallon hydrojet (for pressure cleaning sewers), a mechanical rodder (commonly used for clearing roots), a backhoe and a spill response trailer (trash pump, generator, sand bags, signs, etc.). The City must rely on Roto Rooter for other commonly used sewer maintenance equipment such as hand rodding equipment (used for clearing roots in easement pipes), large capacity hydrojetter and a vactor truck.

Budget: In 2004, the City increased its annual sewer fees to \$297 for the average household. Prior to the increase, fees had been stable at \$243/year since 1992. The rate increase was set to support an annual budget of about \$2.2 million. The annual budget is divided with about \$1.1 million going to support the City's share of SASM wastewater treatment costs, \$530,000 for capital improvements and \$600,000 for sewer maintenance and operating costs including salaries. Part of the reason for the fee increase was to provide funding for deferred capital improvements. Between 1993/94 and 2003/04, annual capital expenditures ranged from \$254,000 to \$1.1 million, with the average outlay trending downward to just over \$400,000 by 2003/04.

Spill Response: During normal working hours, spill response is normally handled by City maintenance workers. After-hours and weekend spill response is typically handled by Roto-Rooter, dispatched from Novato, California on contract with the City. The City may call in Roto-Rooter during normal working hours if the City needs additional assistance or if the City's spill response equipment is insufficient for the job. Citizen calls regarding spills normally come in to the City dispatcher who then contacts the Public Works Superintendent who then dispatches either City staff or the contractor to respond to the spill. The City Fire or Police Departments are also typically dispatched for spill response where they can secure the site and take preliminary measures to contain the spill. The close proximity and 24/7 availability of Fire and Police staff is a valuable asset for the City's spill response program.

The City has a written spill response plan that appears to adequately delineate response procedures and responsibilities. City staff and contractors are both instructed to follow the same procedures and use the same forms for documenting spill conditions. The field spill reports are then used by the City as the basis for filing required reports to the State regulatory agencies.

EPA recommends that the City strengthen the spill response procedures for estimating and documenting spill volume. The current plan includes only one method for calculating spill volume. EPA recommends that the plan include a variety of volume estimation procedures so response staff could choose from the method most suitable for the particular spill conditions. Spill response staff should also be required to document the method used to estimate spill volume. Finally, it is suggested that responders further document spill conditions by taking photographs and including sketches of the spill area and flow path.

Sewer Cleaning: The City approaches sewer cleaning in three ways: 1) scheduled cleaning, 2) cleaning in conjunction with street paving projects (see rehabilitation replacement section below), and 3) cleaning associated with spill response and other trouble calls.

City representatives were not able to provide the total length of sewer pipe cleaned annually. Paper records are kept on each maintenance/cleaning call-out; however, because these records are not entered in a computerized maintenance tracking system, the City could not readily provide statistics on its sewer cleaning activities. The City was, however, able to make an estimate of its type 1 sewer cleaning based on its regular schedule. Scheduled cleaning (type 1 above) is aimed at 19 hot spots covering 8,705 feet of sewer pipe (about 3% of the system). Counting repeat cleaning at these locations, the City schedules about 27,785 feet of sewer cleaning annually. Sewer cleaning in conjunction with annual street paving projects may account for an additional 1 mile of pipe cleaning annually (about 1.7 % of the system).

Taken together, it appears that the City is cleaning less than 10% of its sewer system annually. This is a low level of cleaning, especially given the high rate of blockage related spills. Blockage related spills could be reduced in the short-term with an aggressive and well-targeted sewer-cleaning program.

Collection System Inspection and Condition Assessment: The City's only effort to inspect sewer pipes is associated with its annual street paving projects. The City has a regular program of repaving about one mile of City streets annually. Prior to paving, the sewers beneath the targeted streets are cleaned and inspected with CCTV by a contractor. The City does not own CCTV equipment.

Because the CCTV locations are dictated by the street paving schedule, sewer inspections are likely not targeted to the parts of the sewer system in most need of inspection (i.e. high spill areas, oldest pipes, etc.). At the current rate, it will take the City decades to complete inspection of its sewers. It is recommended that the City launch a dedicated

sewer inspection program. A system of this size could easily be inspected under contract over the course of one or two years. Inspection contracts can also include a standardized condition assessment that would provide information for prioritizing sewer rehabilitation and replacement.

Sewer Pipe Rehabilitation and Replacement: The City provided a list of sewer rehabilitation and replacement projects dating back to 1991; however, they were not able to quantify the length of sewer pipe addressed in these projects. City representatives explained that most sewer rehabilitation and replacement during this time period was completed in conjunction with the City's street paving program. The City repaves approximately one mile of City streets annually. To minimize disruption, the City has confined its planned sewer pipe rehabilitation and replacement to the streets being repaved. Prior to paving, the sewer pipes are cleaned and inspected by CCTV. Defective pipes are repaired, rehabilitated or replaced prior to paving.

During the 2002 and 2003 sewer rehabilitation projects, the City identified 46% of the inspected sewers as needing rehabilitation or replacement. (Harris and Associates, May 12, 2004 memo: "Sanitary Sewer System Cost Analysis – 2004/2005 to 2008/2009" written in support of the City's proposed sewer rate increase.) Based on this defect rate, and the schedule for street paving, Harris and Associates estimated the need to rehabilitate or replace 10,542 ft. of sewer pipe between 2004/2005 and 2008/2009. Harris also projected the need to rehabilitate or replace an additional 6,200 ft. of known problem pipes and another 2300 ft. of pipe with possible infiltration problems. Taken together, this amounts to a plan to rehabilitate or replace 19,900 ft. of sewer over five years (0.75 miles/year or 1.3% of the system annually). As noted above, because the City was not able to quantify the actual amounts of historic sewer rehabilitation and replacement, the inspection did not determine if the City completed pipe renewal at the rate projected by Harris and Associates.

In an attempt to quantify historic sewer rehabilitation and replacement, an estimate can be based on the City's schedule for street paving and the pipe defect rate noted by Harris and Associates. From this, it can be reasonably assumed that historic sewer pipe rehabilitation and replacement was probably limited to between 0.5 and 1 mile per year. Based on post-inspection communications with the City, the 0.5 to 1 mile estimate is probably valid for the years since 1996. City staff, however, recalls that rehabilitation and replacement rates were closer to 2 miles/year between 1985 and 1996.

Collection System and Treatment Plant Capacity: During wet weather, infiltration and inflow (I/I) to the member agency collection systems can drive peak wet weather flows at the SASM WWTP up to 18 times the average dry weather flow of 2.5 MGD. During a heavy storm on January 25, 2008, SASM reported a peak flow of 44 MGD that exceeded the plant's treatment capacity and caused an overflow of the wet weather equalization pond. On February 3, 2008, SASM reported a peak flow of 29 MGD and on January 31, 2008, influent flows exceeded 18 MGD. It is not known how much these peak wet weather flows are attributable to the City of Mill Valley collection system because the City does not measure the flow from its collection system. (Richardson Bay

Sanitation District is the only member agency that has flow meters installed on its collection system.) It can be reasonably assumed, however, that because of the age and deteriorated condition of its sewer pipes, the City of Mill Valley collection system experiences I/I which then impacts the SASM treatment plant during wet weather. (In the 2004 “City Engineer’s Analysis of Proposed Sewer Service Charge Increase”, the City’s consultant, Harris and Associates concludes that City sewer pipes suffering from root intrusion should be assumed to be potential sources of I/I.)

The most recent comprehensive study of I/I in the City of Mill Valley was in 1983/1984 at which time the consulting firm Black and Veatch evaluated I/I throughout the SASM service area. The Black and Veatch I/I study was part of a larger effort at the time to develop a strategy for dealing with peak wet weather flows in the SASM service area. In the mid-1980’s the State of California provided a grant to SASM for sewer rehabilitation, increased wastewater transport (relief sewers and pump station expansion) and expansion of the hydraulic capacity of the SASM treatment plant, including construction of an equalization basin. The sewer rehabilitation portion of the grant was intended to reduce I/I by 28%. This inspection did not evaluate the outcome of the 1980’s I/I control work. Based on recent events, however, it appears that I/I remains a problem in the SASM service area. Given the current conditions, a new I/I evaluation is warranted.

City representatives stated that the Mill Valley collection system does not have capacity bottlenecks. A review of the City’s spill reports indicates no spills attributed to wet weather conditions or I/I. This does not mean that the City sewers are not experiencing I/I. Because many of the City sewers are on steep slopes, it’s quite possible that I/I is entering City sewers and flowing unimpeded down to the SASM interceptor and treatment plant.

SASM bills the member agencies based on the number of equivalent domicile units rather than actual measured flow. This common approach for billing member agencies is based on recovering the costs for treating average flows. Because SASM does not charge member agencies for peak wet weather flows, there is little incentive for the member agencies to control I/I.

City Plans: During the inspection, City representatives highlighted a number of actions they plan to pursue, including:

- The City plans to purchase a combination vacator/flusher truck to supplement its compliment of sewer maintenance equipment.
- The City intends to conduct a capacity assessment of the system as part of its obligation to complete the Sewer System Management Plan required by the statewide WDR.
- The City’s 2004 sewer rate increase was adopted to cover operating and capital expenses for fiscal years 2004/05 through 2008/09 with the expectation that, at the end of the five-year period, the City would reevaluate capital improvement needs and consider the possibility of further rate increases.

Summary

1. Between December 2004 and March 2008, the City reported 113 sewage spills for a spill rate of 58.9 spills/100 miles of sewer pipe/year, a rate considerably higher than the median rate for the San Francisco Bay Area. Most spills in Mill Valley are caused by root blockages.
2. In 2004, the City increased its average household sewer fee to \$297/year.
3. The City has a minimal inventory of sewer maintenance equipment and relies on contractors that have access to a more complete array of equipment.
4. Sewer cleaning and spill response duties are split between City staff and on-call contractors.
5. The City maintains paper records of sewer cleaning, repairs, rehabilitation and replacement; however, because this information is not stored in a database, the City was not able to provide the inspector with quantities of pipe cleaning or rehabilitation and replacement projects. Similarly, the City maintains paper records of sewage spills, but does not link this information in a database or to a GIS map of the City sewers.
6. It appears that the City is cleaning less than 10% of its sewer pipes annually.
7. The City completes about one mile of sewer pipe CCTV inspection annually in conjunction with street paving projects.
8. Over the last decade, sewer pipe rehabilitation and replacement was mostly confined to streets scheduled for repaving. Historic sewer pipe rehabilitation and replacement ranged from 0.5 to 2 miles per year.
9. During winter storms, the SASM wastewater treatment plant is adversely impacted by extreme peak flows caused by infiltration and inflow to the member agency collection systems. Current I/I levels in the City of Mill Valley are not known although the age and deteriorated condition of the Mill Valley sewer system indicates the likelihood of significant infiltration.

Recommendations

EPA recommends that the City of Mill Valley implement the following actions related to its wastewater collection system:

1. Take steps to reduce the number of spills through targeted sewer cleaning and rehabilitation and replacement of deteriorated pipes.
2. Utilize a maintenance management system (MMS) for scheduling and tracking sewer maintenance and replacement activities. Link sewage spill and sewer maintenance records with the MMS and GIS map.
3. Complete CCTV inspections of the entire sewer system and identify pipes in need of rehabilitation or replacement. Highest priority for inspection should be given to older pipes, 6-inch pipes and pipes with a history of blockage spills.
4. The City should complete an evaluation to quantify infiltration and inflow rates and identify areas of significant I/I.
5. Based on the findings of sewer pipe inspections and I/I assessment, the City should embark on a long-term program to renew its sewer infrastructure. Identify and eliminate illicit storm drain connections to the sanitary sewers. The City should consider a program to promote rehabilitation and replacement of private sewer laterals as needed to control infiltration.

6. Collaborate with SASM and the other SASM member agencies to assess the impact of peak wet weather flows on the SASM plant and identify a cost effective strategy for managing peak wet weather flows.
7. Explore opportunities to collaborate or consolidate with the other SASM member agencies on sewer system spill response, operations and maintenance.

ATTACHMENT 1

Sanitary Sewer Overflows Reported by the City of Mill Valley

Table 1: Spills Reported to the Regional Board and State Board Online Databases				
Spill Date	Spill Location	Spill Volume (gal)	Spill Destination	Record No.
3/6/2008	Marguerite Ave @ W. Blithedale Ave	50	Unpaved surface	SB SSO No. 714771
3/3/2008	20 Vasco Dr	750	Unpaved surface	SB SSO No. 714440
3/2/2008	10 Underhill Road	450	Unpaved surface	SB SSO No. 714426
2/21/2008	3 Wainwright Pl	100	Unpaved surface	SB SSO No. 714429
2/19/2008	280 Buena Vista Ave	225	Unpaved surface	SB SSO No. 713154
2/8/2008	209 Molino Ave	90	Street/curb and gutter	SB SSO No. 712677
2/7/2008	775 Redwood Hwy	65	Other: Captured in storm drain	SB SSO No. 712598
2/6/2008	77 Molino Avenue	105	Storm drain	SB SSO No. 712534
1/25/2008	15 Elinor Ave	30	Street/curb and gutter	SB SSO No. 711907
1/22/2008	80 Cypress Ave	80	Unpaved surface	SB SSO No. 711519
1/21/2008	10 Glen Drive	20	Street/curb and gutter	SB SSO No. 711471
1/11/2008	60 Monte Vista Ave	30	Unpaved surface	SB SSO No. 711234
1/9/2008	315 Magee Ave	45	Unpaved surface	SB SSO No. 711227
1/9/2008	343 Hazel Ave	50	Unpaved surface	SB SSO No. 711232
1/1/2008	56-60 Monta Vista Ave	100	Unpaved surface	SB SSO No. 710689
2008 spill count:				15
12/31/2007	116 Rose Ave	100	Unpaved surface	SB SSO No. 710687
12/30/2007	14 Glen Drive	200	Unpaved surface	SB SSO No. 710685
12/28/2007	Behind 12 Azalea Dr	30	Unpaved surface	SB SSO No. 710682
12/25/2007	233-235 Eldridge Ave	25	Unpaved surface	SB SSO No. 710680
12/12/2007	340 W. Blithedale Ave	20	Unpaved surface	SB SSO No. 709328
12/11/2007	Bernard Street @ Lovell Ave	30	Storm drain	SB SSO No. 709013
12/9/2007	360 W. Blithedale Ave	900	Unpaved surface	SB SSO No. 709482
12/5/2007	120 Shelley Drive	10	Street/curb and gutter	SB SSO No. 708800
11/28/2007	58 Florence Ave	180	Unpaved surface	SB SSO No. 708399
11/28/2007	19 Sunrise Avenue	1	Street/curb and gutter	SB SSO No. 708394
11/28/2007	403 Vista Linda Dr	100	Unpaved surface	SB SSO No. 708395
11/25/2007	Bernard Stairs	1000	Unpaved surface	SB SSO No. 708248
11/23/2007	26 Corte Madera Ave	225	Storm drain	SB SSO No. 708245
11/22/2007	11 Sheridan Court	5	Street/curb and gutter	SB SSO No. 708239
11/21/2007	11 Sunrise Avenue	10	Unpaved surface	SB SSO No. 708244
11/19/2007	401 Summit Ave	50	Unpaved surface	SB SSO No. 707961

Table 1: Spills Reported to the Regional Board and State Board Online Databases				
Spill Date	Spill Location	Spill Volume (gal)	Spill Destination	Record No.
11/18/2007	12 Oak Lane	500	Unpaved surface	SB SSO No. 708234
11/16/2007	2 Shelley Drive	25	Storm drain	SB SSO No. 707959
11/6/2007	2 Shelley Drive	100	Unpaved surface	SB SSO No. 707472
11/5/2007	85 Shelley Drive	25	Unpaved surface	SB SSO No. 707210
10/31/2007	389 Ethel Ave	55	Unpaved surface	SB SSO No. 707183
10/26/2007	460 Summit Ave	100	Unpaved surface	SB SSO No. 706695
9/28/2007	Vista Linda Drive	300	Unpaved surface	SB SSO No. 704429
9/27/2007	Vista Linda Dr @ Sheridan Ct	30	Street/curb and gutter	SB SSO No. 658174
9/14/2007	125 Shelley Drive	20	Unpaved surface	SB SSO No. 657579
9/5/2007	107 Wildomar St	50	Unpaved surface	SB SSO No. 656840
9/4/2007	4 Marsh Drive	25	Street/curb and gutter	SB SSO No. 656802
8/30/2007	67 Molino Ave	5	Unpaved surface	SB SSO No. 656780
8/28/2007	52 Longfellow Rd	10	Unpaved surface	SB SSO No. 656753
8/28/2007	108 Miller Ave	15	Street/curb and gutter	SB SSO No. 656796
8/26/2007	21 Monte Vista Ave	5	Other: dirt channel	SB SSO No. 656761
8/25/2007	Molino Ave at Cascade Dr	225	Street/curb and gutter	SB SSO No. 656758
8/25/2007	50 Shelley Dr	50	Unpaved surface	SB SSO No. 656759
8/25/2007	117 Tamalpais Avenue	2	Unpaved surface	SB SSO No. 656757
8/24/2007	701 Miller Ave	360	Street/curb and gutter	SB SSO No. 656754
8/20/2007	E. Blithedale Ave	300	Unpaved surface	SB SSO No. 656756
8/2/2007	225 Tamalpais Ave	20	Street/curb and gutter	SB SSO No. 658055
7/31/2007	352 W. Blithedale Ave	50	Street/curb and gutter	SB SSO No. 658059
7/21/2007	2 Overhill	3000	Surface water	SB SSO No. 655722
7/6/2007	Ethel Avenue	100	Other: Dirt channel	SB SSO No. 653847
6/25/2007	across from 403 Vista Linda Dr	2	Unpaved surface	SB SSO No. 652811
6/20/2007	16 Vasco Drive	5	Unpaved surface	SB SSO No. 652671
6/7/2007	151 Monte Vista	30	Unpaved surface	SB SSO No. 651602
6/7/2007	18 Stanton Way	4	Unpaved surface	SB SSO No. 651600
5/31/2007	Lovell Ave @ Elma Street	25	Storm drain	SB SSO No. 651214
5/29/2007	66 Molino	90	Unpaved surface	SB SSO No. 651215
5/23/2007	335 Molino Ave	5	Unpaved surface	SB SSO No. 651471
5/7/2007	24 Longfellow Rd	15	Unpaved surface	SB SSO No. 650446
4/30/2007	400 Vista Linda Dr	200	Yard/Land	RB SSO Track No. 5186
4/30/2007	166 Shelley Dr	20	Yard/Land	RB SSO Track No. 5184
4/28/2007	Bernard Street @ Lovell Ave	195	Street/curb and gutter	SB SSO No. 652594
4/28/2007	35 Bernard & Bayview Stairs	195	Street/curb and gutter	RB SSO Track No. 5182
4/28/2007	333 Summit Avenue	180	Street/curb and gutter	RB SSO Track No. 5180
4/27/2007	409 Summit Avenue	150	Street/curb and gutter	RB SSO Track No. 5178

Table 1: Spills Reported to the Regional Board and State Board Online Databases				
Spill Date	Spill Location	Spill Volume (gal)	Spill Destination	Record No.
4/25/2007	427 Summit Ave	50	Ground Water Impacted	RB SSO Track No. 5143
4/19/2007	14 Eton Way	40	Storm Drain	RB SSO Track No. 5084
4/12/2007	11 Locust Ave	20	Storm Drain	RB SSO Track No. 5080
4/12/2007	583 Throckmorton	20	Street/curb and gutter	RB SSO Track No. 5078
4/9/2007	371 Cascade Drive	300	Surface Water Impact	RB SSO Track No. 5076
3/3/2007	424 W. Blithedale Ave.	120	Street/curb and gutter	RB SSO Track No. 4862
2/22/2007	18 Buena Vista	50	Storm Drain	RB SSO Track No. 4795
2/12/2007	57 Longfellow	550	Yard/Land	RB SSO Track No. 4747
2/12/2007	77 Cascade Dr	30	Street/curb and gutter	RB SSO Track No. 4741
1/10/2007	Bernard Ave Stairs cross street - Bayview	35	Street/curb and gutter	RB SSO Track No. 4495
1/6/2007	12 Montford Ave	300	Storm Drain	RB SSO Track No. 4463
1/5/2007	Summit Ave @ Tamalpais Ave	375	Street/Curb & Gutter	RB SSO Track No. 4461
1/4/2007	31 Millside Lane	65	Storm Drain	RB SSO Track No. 4456
1/4/2007	410 Summit	75	Storm Drain	RB SSO Track No. 4452
2007 spill count:				68
12/20/2006	389 Ethel Ave	30	Storm Drain	RB SSO Track No. 4374
12/12/2006	Manor Dr @ Alvarado	80	Storm Drain	RB SSO Track No. 4297
11/20/2006	120 Shelley Drive	10	Yard/Land	RB SSO Track No. 4139
11/14/2006	67 Molino Avenue	200	Yard/Land	RB SSO Track No. 4115
11/13/2006	524 Miller Avenue	450	Storm Drain	RB SSO Track No. 4110
10/21/2006	49 Cascade Drive	360	Street/Curb & Gutter	RB SSO Track No. 4019
10/17/2006	21 Monte Vista	200	Storm Drain	RB SSO Track No. 4000
10/17/2006	5 Monte Vista	420	Storm Drain	RB SSO Track No. 4002
10/17/2006	352 W. Blithedale	80	Storm Drain	RB SSO Track No. 4004
10/5/2006	10 Dorset Lane	110	Street/Curb & Gutter	RB SSO Track No. 3968
9/25/2006	106 Miller Avenue	35	Street/Curb & Gutter	RB SSO Track No. 3919
9/16/2006	86 Molino Avenue	675	Street/Curb & Gutter	RB SSO Track No. 3892
9/15/2006	21 Monte Vista	350	Storm Drain	RB SSO Track No. 3884
9/4/2006	14 Glen Drive	30	Storm Drain	RB SSO Track No. 3831
8/14/2006	80 Cypress Ave	120	Street/Curb & Gutter	RB SSO Track No. 3751
8/6/2006	115 Marion Avenue	180	Street/Curb & Gutter	RB SSO Track No. 3749
6/29/2006	30 Shelley Drive	720	Yard/Land	RB SSO Track No. 3614
6/29/2006	30 Shelley Drive	6000	Yard/Land	RB SSO Track No. 3619
6/17/2006	Cascade Way & Dipsea Stairs	60	Street/Curb & Gutter	RB SSO Track No. 3541
4/25/2006	52 Longfellow Drive	90	Yard/Land	RB SSO Track No. 3543
4/25/2006	362 Edgewood Ave	120	Yard/Land	RB SSO Track No. 3545

Spill Date	Spill Location	Spill Volume (gal)	Spill Destination	Record No.
1/14/2006	517 Throckmorton Cross Street Cornwall	10	Yard/Land	RB SSO Track No. 2963
2006 spill count:				22
12/16/2005	Safeway 1 Camino Alto cross street Miller	0	Unknown	RB SSO Track No. 2971
12/13/2005	144 Corte Madera Avenue cross street Eldridge	10	Unknown	RB SSO Track No. 2973
12/10/2005	13 Lyon Place cross street Corte Madera Avenue	200	Yard/Land	RB SSO Track No. 2965
11/20/2005	40 Bay View cross street Bernard	250	Street/Curb & Gutter	RB SSO Track No. 2967
3/26/2005	Marion Ave @ Florence Ave	500	Surface Water Impact	RB SSO Track No. 1225
2005 spill count:				5
Total spill count:				110

Spill Year	Total Number of Spills in Annual Report	Net Increase Compared to Number of Spills Previously Reported to State Databases	Source
2007	67	0	Annual Report 1/2006-12/2006
2006	24	2	Annual Report 1/2006-12/2006
2005	6	1	Annual Report 12/2004-12/2005

Spill Year	Total Number of Spills	Number of Spills to Surface Water or Storm Drains
2008	15	2
2007	68	14
2006	24	8
2005	6	1
TOTAL	113	25