



**MUNICIPAL SEPARATE STORM
SEWER SYSTEM (MS4)
COMPLIANCE AUDIT**

**STATE OF CALIFORNIA,
DEPARTMENT OF TRANSPORTATION**

**REPORT DATE:
February 26, 2010**

**EVALUATION CONDUCTED:
October 5–7, 13–14, and 21–22, 2009**

Conducted for:
**U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105-3901**

and

**State of California
Water Resources Control Board
Storm Water Program
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Section 1.0 Introduction

On October 5–7, 13–14, and 21–22, 2009, the U.S. Environmental Protection Agency (EPA), representatives from the State Water Resources Control Board (SWRCB), representatives from six different Regional Water Quality Control Board (RWQCB) offices, and EPA’s contractor, PG Environmental, LLC (hereafter, collectively, the EPA Audit Team) conducted an audit of the State of California, Department of Transportation (Caltrans), Municipal Separate Storm Sewer System (MS4) Program in Districts 1 through 4 in northern California. Discharges from the Caltrans MS4 are regulated under the *National Pollutant Discharge Elimination System (NPDES) Permit, Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation*, SWRCB Order No. 99–06–DWQ (hereafter, the Permit), issued July 15, 1999. Caltrans was first permitted under an NPDES MS4 permit issued by the Los Angeles RWQCB in 1990, and it has been developing its MS4 Program since that time.

The Permit authorizes Caltrans (the Permittee) to discharge storm water runoff and certain non-storm water discharges from Caltrans-owned rights-of-way, properties, facilities, and activities, including storm water management activities in construction, maintenance, and operation of state-owned highways in California. As explained in the Fact Sheet, the Permit is intended to cover all municipal storm water activities conducted by Caltrans throughout the state of California, in both areas that require an MS4 permit and areas that do not currently require a permit. It is also intended to cover all Caltrans construction activities that require a permit under the state regulations. Although Caltrans operates a statewide program, the EPA audit focused on only the following Caltrans districts: District 1 (North Coast region), District 2 (Northern Central Valley and Far Northeastern region), District 3 (Sacramento area), and District 4 (San Francisco Bay area).

Caltrans manages approximately 50,000 miles of California’s highway and freeway lanes, provides inter-city rail services, and permits more than 400 public-use airports and special-use hospital heliports. Caltrans is divided into six transportation mobility programs—Aeronautics, Highway Transportation, Mass Transportation, Transportation Planning, Administration, and the Equipment Service Center. The EPA audit included only the Highway Transportation program within its scope.

The primary purpose of the audit was to assess Caltrans’ compliance with the requirements of the Permit through an assessment of Caltrans’ implementation of its current Storm Water Management Program (SWMP). The audit schedule is presented in Appendix A.

Specifically, the audit included an evaluation of the Caltrans’ compliance with the following Permit components:

Provision F

Post-Construction Management

Provision G	Program Management
Provision H	Construction Program Management
Provision I	Maintenance Program Management
Provision I.1	Highway Maintenance Activities
Provision I.2	Highway Surveillance Activities and Illicit Connection/Discharge Detection Program
Provision I.3	Highway Maintenance Facilities
Provision K	Program Evaluation and Reporting

The EPA Audit Team evaluated compliance through a series of interviews with representatives from Caltrans headquarters, Caltrans Districts 1–4, and various contractors, along with a series of site visits, record reviews, and field verification activities. The Caltrans headquarters session was held to determine the role of headquarters in establishing a uniform statewide program, and to assess the Program Management, Program Evaluation, and Monitoring components (Provisions G and K of the Permit). The primary representatives involved in the audit were the following:

Caltrans Headquarters: October 5, 2009

Caltrans Headquarters Representatives	Scott McGowen, Chief Environmental Engineer Joyce Brenner, Storm Water Implementation Karl Dreher, Storm Water Program Development Keith Jones, Environmental Engineering Liaison Parvis Lahai, Office Chief of Maintenance Tim Sobelman, Office Chief of Design Chuck Suszko, Office Chief of Construction Engineering
Caltrans Headquarters Consultant	Anna Lantin, RBF Consulting
State Water Resources Control Board Representatives	Jaime Favila, Environmental Scientist Walt Shannon, Municipal Storm Water Chief Leo Sarmiento, Senior Engineering Geologist
Regional Water Quality Control Board 5 Representatives	Marty Hartzell, Engineering Geologist Steve Rosenbaum, Senior Engineering Geologist
EPA Region 9 Representatives	Greg Gholson, Environmental Scientist Amy Miller, Team Leader
EPA Contractors	Scott Coulson, PG Environmental, LLC Jared Richardson, PG Environmental, LLC Bobby Jacobsen, PG Environmental, LLC Luz Falcon-Martinez, PG Environmental, LLC

District 1: October 21–22, 2009

Caltrans Representatives	Joyce Brenner, Storm Water Implementation David Melendrez, Branch Chief Alex Arevalo, NPDES Storm Water Coordinator Brett Johnson, Maintenance Storm Water Coordinator Walt Dragaloski, Construction Storm Water Coordinator Wyatt Harris, Assistant Maintenance Storm Water Coordinator
State Water Resources Control Board Representative	Walt Shannon, Municipal Storm Water Chief
Regional Water Quality Control Board 1 Representatives	Mona Dougherty, Water Resources Control Engineer Jeremiah Puget, Caltrans Liaison
EPA Region 9 Representative	Greg Gholson, Environmental Scientist
EPA Contractors	Scott Coulson, PG Environmental, LLC Bobby Jacobsen, PG Environmental, LLC

District 2: October 13–14, 2009

Caltrans Representatives	Joyce Brenner, Storm Water Implementation John Bulinski, District Director Miguel Villicana, NPDES Coordinator Mark Harvey, Maintenance Storm Water Coordinator Brian Adams, Construction Storm Water Coordinator David Melendrez, Branch Chief
State Water Resources Control Board Representatives	Leo Sarmiento, Senior Engineering Geologist
Regional Water Quality Control Board 5 Representative	Andrew Jensen, Environmental Scientist
EPA Contractors	Jared Richardson, PG Environmental, LLC Luz Falcon-Martinez, PG Environmental, LLC

District 3: October 6–7, 2009

Caltrans Representatives	Joyce Brenner, Chief Storm Water Implementation Nora Hogan, Maintenance Storm Water Coordinator Darrell Naruto, NPDES Coordinator Kevin Evert, NPDES Coordinator Leslie Case, NPDES Coordinator Doug Coleman, Chief Environmental Engineering Rusty Grout, Regional Maintenance Manager Ken Murray, Senior Landscape Architect Wes Faubel, Design Storm Water Coordinator Kirk Carrington, Construction Storm Water Coordinator Dusty Shell, Construction Storm Water Coordinator
State Water Resources Control Board Representatives	Jaime Favila, Environmental Scientist Leo Sarmiento, Senior Engineering Geologist
Regional Water Quality Control Board 5 Representative	Marty Hartzell, Engineering Geologist
EPA Contractors	Jared Richardson, PG Environmental, LLC Luz Falcon-Martinez, PG Environmental, LLC

District 4: October 6–7, 2009

Caltrans Representatives	Hardeep Takhar, District Office Chief Norman Gonsalves, District Storm Water Coordinator Dragomir Bogdanic, Construction Storm Water Coordinator Keith Jones, Environmental Engineering Liaison David Yam, Erosion Control Coordinator Robert Sorenson, Maintenance Storm Water Coordinator Kamran Nakhjiri, Water Pollution Control Coordinator
Regional Water Quality Control Board 2 Representative	Brendan Thompson, Caltrans Liaison
EPA Contractors	Scott Coulson, PG Environmental, LLC Bobby Jacobsen, PG Environmental, LLC

In addition to the record review and interviews, the EPA Audit Team conducted approximately 55 individual site visits of maintenance facilities, activities, and construction sites located in the Caltrans-owned rights-of-way and/or served by the Caltrans MS4 in Districts 1 through 4. The purposes of the individual site visits were (1) to assess the adequacy of best management practices (BMPs) employed by Caltrans at maintenance facilities and at construction sites to prevent and reduce storm water pollution, and (2) to gauge the overall effectiveness of Caltrans' oversight of storm water compliance at its construction and maintenance sites.

The EPA Audit Team conducted the site visits with Caltrans personnel also participating. Observations related to a select number of these site visits are included in Section 2.0 of this Audit Report and Appendixes D and E. Table 1 provides a list of the Caltrans facilities and activities at which site visits were conducted.

Table 1. Site Visits Conducted October 6–7, 13–14, and 21–22, 2009

Caltrans District	Facility/Activity Site Name	General Location	Facility Type	Site Visit Report No. ¹	Date
1	Last Chance Grade Roadway Construction Project	About 2.5 miles north of the intersection of Highway 101 and Wilson Creek Road in Del Norte County, CA	Construction	9	10/21/2009
1	Smith River Safety Roadway Construction Project	Post mile 43 -45 on Highway 101 North, Del Norte County, CA; About 15 miles north of Crescent City, Del Norte County, CA	Construction	12	10/21/2009
1	Willow Creek Maintenance Facility	Post mile 0.6 Highway 96, Willow Creek, CA	Maintenance	16	10/22/2009
1	Bracut Maintenance Facility	6100 North Highway 101, Eureka, CA	Maintenance	21	10/22/2009
1	Garberville Highway Maintenance Facility	Redwood Drive, Garberville, CA 95542	Maintenance	22	10/22/2009
1	Berry Summit Sand Storage Facility	Post mile 34.1 Highway 299, Willow Creek, CA	Maintenance	23	10/22/2009
1	Crescent City Maintenance Facility	711 North Highway 101, Crescent City, CA	Maintenance	24	10/21/2009
1	Confusion Hill Bypass Project	On Route 101, approximately 5 miles north of Leggett, Mendocino County, CA	Construction	N/A	10/22/2009
1	Seven Culverts Project	On Route 101, approximately 11 miles north of Leggett, CA, near the Mendocino/Humboldt County border	Construction	N/A	10/22/2009
1	Rio Dell Rehabilitation Project	On Route 101, in Rio Dell, Humboldt County, CA	Construction	N/A	10/22/2009
1	Alton Interchange (EA No. 290304)	Route 101/36 interchange approximately 2 miles south of Fortuna, Humboldt County, CA	Construction	N/A	10/22/2009

¹ The Site Visit Report Number corresponds to the site visit report included in either Appendix E or Appendix F. Construction site visit reports are included in Appendix E, and Maintenance facility site visit reports are included in Appendix F. N/A means “not applicable,” indicating that photographs and notes were collected and obtained, but detailed site visit reports were not produced.

Table 1. Site Visits Conducted October 6–7, 13–14, and 21–22, 2009 (Continued from previous page)

Caltrans District	Facility/Activity Site Name	General Location	Facility Type	Site Visit Report No.	Date
1	Vactor Decant Area	On Route 101, approximately 7 miles north of Garberville, Humboldt County, CA	Maintenance	N/A	10/22/2009
1	Temporary Sweeper Waste Storage Location	Near intersection of Little River Drive and Highway 101 about 10 miles north of Arcata, CA	Maintenance	N/A	10/22/2009
2	Thomes Creek Bridge	Approximately 3 miles north of Corning, CA at the Interstate 5 Thomes Creek bridge crossing in Tehama County	Construction	1	10/13/2009
2	South Avenue On-ramp	Approximately 3 miles south of Corning, CA at the South Avenue and Interstate 5 interchange in Tehama County	Construction	2	10/13/2009
2	Fountain Curve Rehabilitation Project	Shasta County, on Highway 299 East of Redding, between post miles 51.8 and 52.2	Construction/ Maintenance	3	10/14/2009
2	Salyer Roadway Realignment Construction Project	Post mile 2.2-2.5 on Highway 299 in Trinity County, CA	Construction	4	10/22/2009
2	Top of Buckhorn Project	Approximately 25 miles west of Redding, CA on State Highway CA-299 near the intersection of Hoadley Peaks roadway in Shasta County	Construction	7	10/14/2009
2	Yankee Gulch Project	Approximately 17 miles west of Redding, CA on State Highway CA-299 east of the intersection of Lewiston Turnpike roadway in Shasta County	Construction	8	10/14/2009
2	Dana to Downtown Project	Redding on I-5 from .1 km north of hartnell overcrossing to .9 km north of hilltop drive overcrossing and on route 44 from pine street to .2 km west of 5/44 separation	Construction	13	10/14/2009

Table 1. Site Visits Conducted October 6–7, 13–14, and 21–22, 2009 (Continued from previous page)

Caltrans District	Facility/Activity Site Name	General Location	Facility Type	Site Visit Report No.	Date
2	Obrien Rest Area	North of Redding on I-5; post mile 31.10 near Shasta Lake	Maintenance	25	10/13/2009
2	Lake Boulevard Temporary Storage Site	Near the intersection of I-5 and Highway 299 (Lake Boulevard East)	Maintenance	26	10/13/2009
2	Red Bluff Maintenance Station (new) Project	Off of Hess Road near intersection with Interstate 5 (exit 651), Tehama County, CA	Construction	N/A	10/13/2009
2	Red Bluff Maintenance Station	13700 State Highway 36 E, Red Bluff, CA, 96080 in Tehama County, CA	Maintenance	N/A	10/13/2009
2	China Slide Project	Post mile 13.4 on Highway 299 in Trinity County, CA	Construction	N/A	10/14/2009
2	Buckhorn Sandhouse Facility	On State Highway CA-299, approximately 26 miles west of Redding, CA in Trinity County, CA	Maintenance	N/A	10/14/2009
2	Old Maintenance Disposal Site	Maintenance disposal site located on State Highway CA-299, approximately 20 west of Redding, CA in Shasta County, CA	Maintenance	N/A	10/14/2009
2	Shasta River Bridge Project	Near Weed, CA	Construction	N/A	10/14/2009
2	Redding Maintenance Yard	1450 George Drive, Redding, CA	Maintenance	N/A	10/13/2009
2	Salt Creek Sandhouse	Interstate 5, post mile 37.5	Maintenance	N/A	10/13/2009
2	Temporary Vactor Waste Storage Site	Interstate 5 and Sweetbrier exit	Maintenance	N/A	10/13/2009
2	China Slide Roadway Construction Project	Post mile 13.4 on Highway 299 in Trinity County, CA	Construction	N/A	10/22/2009
3	Nicolaus Bypass Project	Highway 70 roadway project from intersection with Feather River Boulevard to approximately Rio Osa Road, Yuba and Sutter Counties, CA	Construction	5	10/7/2009

Table 1. Site Visits Conducted October 6–7, 13–14, and 21–22, 2009 (Continued from previous page)

Caltrans District	Facility/Activity Site Name	General Location	Facility Type	Site Visit Report No.	Date
3	Lincoln Bypass Project	West of intersection Twelve Bridges Drive and SR-65 north to Nicolaus Road, Placer County, CA	Construction	6	10/7/2009
3	Tudor Bypass Project	Realignment SR-99 from intersection with Hull Road to intersection with Wilson Road, Sutter County, CA	Construction	14	10/7/2009
3	Marysville Maintenance Station	1001 North Beale Road, Marysville, CA	Maintenance	20	10/7/2009
3	Temporary Storage Site near Colusa, CA	NW of the Colusa Maintenance Facility on Route 20	Maintenance	27	10/7/2009
3	Special Crews Yard	1403 Furneaux Road, Marysville, CA	Maintenance	N/A	10/7/2009
3	Colusa Maintenance Yard	1401 Will S Green Avenue, Colusa, CA	Maintenance	N/A	10/7/2009
4	Isabel Avenue/Route 580 Interchange Project (EA No. 17334)	Route 580 and Portola Avenue Extension in Alameda County, CA	Construction	10	10/7/2009
4	Sunol Grade/Route 680 Roadway Rehabilitation Project (EA No. 253794)	Scott Creek staging yard located west of Route 680 at the Scott Road interchange near the Alameda-Santa Clara County boundary	Construction/ Maintenance	11	10/7/2009
4	Sunol Grade/Route 680 Roadway Rehabilitation Project (EA No. 4A5204)	West of Route 680 at the Vargas Road interchange, Alameda County, CA	Construction	15	10/7/2009
4	Washington Waste Storage Site	Near the Washington Boulevard exit along Highway 880 North in San Leandro, Alameda County	Maintenance	17	10/7/2009
4	Livorna Waste Storage Site	Approximately post mile 10 along Highway 680 North near the Livorna exit in Contra Costa County	Maintenance	18	10/7/2009
4	Schaefer Ranch Waste Storage Site	Approximately post mile 25 along Highway 580 West in Alameda County	Maintenance	19	10/7/2009

Table 1. Site Visits Conducted October 6–7, 13–14, and 21–22, 2009 (Continued from previous page)

Caltrans District	Facility/Activity Site Name	General Location	Facility Type	Site Visit Report No.	Date
4	Route 92/880 Freeway Interchange Project (EA No. 016014)	West of Route 580 in the City of Hayward, Alameda County, CA	Construction	N/A	10/7/2009
4	5th Avenue Overhead Bridge Replacement (EA No. 1706U4)	On Route 880 in the City of Oakland, Alameda County, CA	Construction	N/A	10/7/2009
4	Walnut Creek East (Delta Region) Maintenance Facility	2616 North Main Street, Walnut Creek, CA	Maintenance	N/A	10/7/2009
4	Sycamore Landscape Maintenance Facility	815 Camino Ramon, Danville, CA	Maintenance	N/A	10/7/2009
4	Alcosta Landscape Maintenance Facility	21300 San Ramon Valley Boulevard, San Ramon, CA	Maintenance	N/A	10/7/2009
4	San Leandro (East Bay Region) Maintenance Facility	600 Lewelling Boulevard, San Leandro, CA	Maintenance	N/A	10/7/2009
4	Oakland/South Oakland (29th Avenue) Maintenance Facility	1112 29th Avenue, Oakland, CA	Maintenance	N/A	10/7/2009

Section 2.0 Permit Compliance Review

The EPA Audit Team conducted an evaluation of the Caltrans MS4 Program to assess compliance with the requirements of the Permit, which was issued July 15, 1999. The EPA Audit Team identified several deficiencies (hereafter, audit findings) regarding compliance with the Permit. The presentation of audit findings in this report does not constitute a formal compliance determination or notice of violation. The report identifies program deficiencies that represent areas of concern for successful program implementation. All referenced documentation used as supporting evidence is provided in Appendix B, and photo documentation is provided in Appendix C.

Section 2.1 Program Management

The Caltrans headquarters session was held to determine the role of headquarters in establishing a uniform statewide program, and to assess the Program Management and Program Evaluation and Reporting components of the program (Provisions G and K of the Permit).

2.1.1 Need for Improved Development and Implementation of a Uniform Statewide Storm Water Program. During the audit, Caltrans headquarters staff stated that their storm water program components (e.g., construction, post-construction, storm drain system maintenance, illicit connection/discharge program, and vegetation control) have been implemented uniformly throughout the state and that the program no longer differentiates between areas located inside or outside Phase I and II permit coverage. However, the Caltrans Office Chief of Design acknowledged that before the implementation of the 2008 Project Plan Design Guide (PPDG), the post-construction component of the storm water program was implemented differently outside Phase I and II areas. Specifically, treatment BMPs were not routinely and consistently deployed outside Phase I and II areas. Caltrans' inventory of treatment BMPs, for example, differentiates between areas located inside or outside Phase I and II permit coverage and lists only one treatment BMP in the primarily rural area of Caltrans District 1 (see [Appendix B, Exhibit 1](#)). In addition, as part of the 2007 update to the SWMP, Caltrans undertook a significant mapping effort that differentiates between areas located inside or outside Phase I and II permit coverage (see [Appendix B, Exhibits 2 and 3](#)). In summary, there are still some remnants of a storm water program that was not implemented uniformly throughout the state without regard to Phase I and II permit areas.

Caltrans headquarters staff described a number of tools it has used to attempt the development of a uniform statewide MS4 program. Caltrans headquarters staff acknowledged that it is beneficial to achieve some level of consistent operation across the districts. The tools used by headquarters to help establish consistent and reproducible results on a statewide basis include Storm Water Advisory Team (SWAT) meetings, a statewide SuperSWAT meeting, the headquarters Storm Water Management Team, technical memorandums/bulletins, and informal guidance changes. The Caltrans SWMP, dated May 2003, Section ES.2, states that "implementation of the Statewide SWMP is initiated by directives from Headquarters." Notwithstanding the efforts of headquarters,

the EPA Audit Team noted significant variation in program implementation methods throughout Districts 1–4. Examples of these variations are discussed in the following paragraphs.

Despite the existence of numerous storm water guidance documents and associated recordkeeping forms developed by headquarters, Districts 1–4 exhibited significant variation in the tracking of Maintenance Program activities and construction site locations, inspections, and documentation. For example, district Construction Storm Water Coordinators were not consistently adhering to the Caltrans *Construction Storm Water Coordinator Guidance Manual*, dated January 2003 for electronically tracking construction projects within each district (see Section 2.3.3 of this Audit Report). Although headquarters has developed a Storm Water Pollution/Drainage recordkeeping form, the EPA Audit Team questioned maintenance personnel in the field and did not find that Storm Water Pollution/Drainage reports or functionally equivalent forms had been actively used in identifying and tracking illicit connections/illicit discharges (see Section 2.4.2.1 of this Audit Report). Furthermore, the individual Caltrans districts were generally unaware of how public complaints of illicit connections/illicit discharges (IC/IDs) were to be collected and tracked, even though the procedure is specified in Appendix C of the *Caltrans Maintenance Staff Guide* (See Section 2.4.2.3 of this Audit Report). During the interview session at Caltrans headquarters, the Caltrans Chief Environmental Engineer explained that the districts should be following these guidance documents.

Although there were multiple examples of variation in district-level implementation methods that have contributed to program deficiencies, the EPA Audit Team also noted positive attributes that could potentially serve as models for improvement if adequately modified and implemented. For example, District 4 has been conducting pilot projects for post-construction BMPs that could expand the types of BMPs that are approved for statewide application. District 4 has also developed standard operating procedures (SOPs) for construction oversight and documentation that show that a consistent process has been established for its inspection program. In addition, District 1 has developed a Notice of Discharge Reporting Protocol pursuant to the reporting requirements of the Permit and in conjunction with Construction Program management.

The observed variations suggest that the districts are operating semi-independently in terms of SWMP implementation (see, for example, Section 2.4.3.2 of this Audit Report). The observed variations between districts are inconsistent with the SWMP goal of implementation of a uniform statewide program.

Section 2.2 Post-Construction Program Management

Provision F.3 of the Permit requires Caltrans to “include an analysis of the feasibility of structural controls in the BMP selection process. At a minimum, a consideration of structural controls for water quality improvement shall be included in the design of any new construction or major reconstruction or repair project.” The EPA Audit Team confirmed that district staff had consistently used the Storm Water Data Report, a standard statewide documentation format, to address consideration of structural controls.

2.2.1 Need for Improved Tracking of Post-Construction BMP Maintenance.

Conversations with district Maintenance Storm Water Coordinators suggested that Maintenance staff were not using an effective set of tracking tools for conducting post-construction BMP maintenance inspections. In some districts, Maintenance staff was not using either a formal tracking system or the BMP inventory developed by headquarters to perform maintenance of post-construction BMPs.

Without effective tracking and inspection procedures, Caltrans cannot ensure that adequate long-term maintenance is performed. Caltrans Maintenance personnel are responsible for maintaining post-construction BMPs. The lack of effective tracking and inspection procedures is a significant impediment to proper long-term maintenance and operation of post-construction BMPs.

Section 2.3 Construction Program Management

Provision H of the Permit requires Caltrans to implement a program to control all construction in the rights-of-way. Provision E of the Permit requires that the SWMP “reflect the principles that storm water management is to be a year-round proactive program to eliminate or control pollutants at their source or to reduce them from the discharge by either structural or nonstructural means when elimination at the source is not possible.” In this manner, the Permit emphasizes the use of year-round source control, and the EPA Audit Team took this into consideration in its evaluation of the Construction Management Program.

As part of the evaluation, the EPA Audit Team conducted 25 site visits at construction sites located in the Caltrans rights-of-way, directly related to the construction activity, and/or served by the Caltrans MS4. The purposes of the site visits were (1) to assess the adequacy, appropriateness, and maintenance of BMPs at construction sites to prevent and reduce storm water pollution, and (2) to gauge the overall effectiveness of Caltrans’ oversight of storm water compliance at its construction sites.

2.3.1 Failure to Require Adequate Structural and Nonstructural BMPs.

The Permit requires Caltrans to implement a program to control all construction in the rights-of-way and states the “program must include requirement of structural and nonstructural BMPs” as required by Provision H.1.b. Pursuant to these requirements, the SWMP, Section 1.4, states that the “Department [Caltrans] will implement the revised SWMP approved by the SWRCB. Appendix D of the SWMP contains the “Statewide Storm Water Quality Practice Guidelines....” which provide a description of each approved [structural and nonstructural] BMP included in the SWMP for statewide application. Based on an assessment of 25 construction sites, Caltrans failed to require its contractors to implement adequate structural and nonstructural BMPs. The construction site assessments were considered collectively in making this determination, which directly pertains to Caltrans’ oversight obligations under its MS4 permit.

The EPA Audit Team identified numerous on-site examples of inadequate BMPs that had not been implemented in accordance with the proven design, selection, installation, and

maintenance specifications included in Appendix D of the Caltrans SWMP, and did not meet the current performance standards of Best Available Technology Economically Achievable/Best Conventional Technology (BAT/BCT). The Thomes Creek Bridge Project is presented below as a prime example of this issue.

Caltrans District 2: Thomes Creek Bridge Project. The EPA Audit Team conducted a site visit at the Thomes Creek Bridge project located approximately 3 miles north of Corning, California, at the Interstate 5 Thomes Creek bridge crossing in Tehama County. The site visit coincided with a precipitation event on October 13, 2009, that produced heavy rains. Precipitation data obtained from the California Data Exchange Center (CDEC) Corning Airport Station, approximately 3 miles southeast of the Thomes Creek Bridge project, indicated that rain began falling at approximately 1 a.m. on October 13, 2009, and lasted through 5 p.m. October 13, 2009. The total accumulation during this 16-hour period was 2.21 inches of rainfall. The National Oceanic and Atmospheric Administration (NOAA) Atlas 2, Volume XI, isopluvial map indicates that 2.5 inches of rainfall would accumulate during a 2-year, 24-hour precipitation event, which is more than the actual 2.21 inches of rainfall that occurred on October 13, 2009. Based on these data, the storm occurring on October 13, 2009, was less than a 2 year, 24-hour event and is therefore considered a common precipitation event. The site conditions observed on October 13, 2009, are summarized below.

Prohibition A.1 of the Permit states that the “discharge of runoff from construction sites containing pollutants which have not been reduced using BAT for toxic pollutants and BCT for conventional pollutants to waters of the United States is prohibited.” Adequate BMPs or perimeter controls had not been implemented for the areas of disturbance associated with the contractor staging and material storage areas located up-gradient of Thomes Creek. For example, a concrete washout was improperly implemented and was lined with plastic that had been torn and badly deteriorated (see Appendix D, Site Visit No. 1, Photographs 1 and 2). In addition, uncontained concrete waste was observed on the ground surface directly adjacent to the concrete washout (see Appendix D, Site Visit No. 1, Photograph 3). The Caltrans District 2 Resident Engineer for the project stated that the concrete washout area had been present for a long time and was not identified in the project’s Storm Water Pollution Prevention Plan (SWPPP). Moreover, a visible discharge of sediment and/or other pollutants was observed leading from the contractor staging and material storage areas to Thomes Creek (see Appendix D, Site Visit No. 1, Photographs 4 through 7).

Provision E.1 of the Permit states “Caltrans shall maintain and implement an effective SWMP.” Adequate BMPs had not been implemented for areas of disturbance located directly adjacent to the flowing Thomes Creek. Although erosion log BMPs had been implemented, the erosion logs had not been staked in accordance with Appendix D of the Caltrans SWMP, Section 4.5.1, and a resulting discharge of sediment was observed bypassing the BMPs and leading to Thomes Creek (see Appendix D, Site Visit No. 1, Photographs 8 and 9).

Further, Appendix D of the Caltrans SWMP, Section 4.5.14, Stockpile Management, states that “protection of stockpiles is a year-round requirement. All stockpiles shall be located away from concentrated flows of storm water, drainage courses, and inlets.” BMPs had not been implemented to prevent the discharge of sediment from unconsolidated soils and soil stockpiles located adjacent to the Thomes Creek bridge and west of Interstate 5 (see [Appendix D, Site Visit No. 1, Photographs 10 and 11](#)). Because the unconsolidated soils and soil stockpiles were located within the reach and bounds of Thomes Creek without BMPs, Caltrans had not implemented the BMPs specified in Appendix D of the Caltrans SWMP, Section 4.5.14. The EPA Audit Team observed a discharge of pollutants from the contractor staging and material storage areas to Thomes Creek.

Appendix D of the Caltrans SWMP, Section 4.5.10, Waste Management, states, “Temporary sanitary facilities shall be located away from drainage facilities and watercourses. When subjected to high winds or risk of high winds, as determined by the RE [Resident Engineer], temporary sanitary facilities shall be secured to prevent overturning.” Adequate BMPs for waste storage, spill prevention, and containment had not been implemented for a portable toilet located under the Thomes Creek bridge. The portable toilet was not properly secured and had blown over, resulting in visible chemical and sanitary waste staining on the ground surface (see [Appendix D, Site Visit No. 1, Photographs 12 through 14](#)). Because the portable toilet was located within the reach and bounds of Thomes Creek and was not properly secured, Caltrans had not implemented the BMPs specified in Appendix D of the Caltrans SWMP, Section 4.5.10. Because of the lack of adequate BMPs, there was a chemical and sanitary waste spill from the toilet and the potential to contribute pollutants to storm water.

An analysis of additional construction sites is provided in Appendix D, which includes a narrative summary of construction site observations and associated photo documentation. In some instances, a lack of BMPs or inadequate BMPs had resulted in BMP failure, off-site transport of pollutants, or the discharge of pollutants to a receiving water. The following Construction Program Site Visit Reports provide additional supporting evidence that directly pertains to this audit finding:

- District 2 South Avenue On-ramp (see [Appendix D, Site Visit No. 2](#))
- District 2 Fountain Curve Rehabilitation Project (see [Appendix D, Site Visit No. 3](#))
- District 2 Salyer Roadway Realignment (see [Appendix D, Site Visit No. 4](#))
- District 3 Nicolaus Bypass Project (see [Appendix D, Site Visit No. 5](#))
- District 3 Lincoln Bypass Project (see [Appendix D, Site Visit No. 6](#))
- District 2 Top of Buckhorn Project (see [Appendix D, Site Visit No. 7](#))
- District 2 Yankee Gulch Project (see [Appendix D, Site Visit No. 8](#))
- District 1 Last Chance Grade Project (see [Appendix D, Site Visit No. 9](#))
- District 4 Isabel Avenue/Route 580 Interchange Project (see [Appendix D, Site Visit No. 10](#))
- District 4 Sunol Grade/Route 680 Roadway Rehabilitation Project (EA No. 253794) (see [Appendix D, Site Visit No. 11](#))

- District 1 Smith River Safety Roadway Project ([see Appendix D, Site Visit No. 12](#))
- District 2 Dana to Downtown Project ([see Appendix D, Site Visit No. 13](#))
- District 3 Tudor Bypass Project ([see Appendix D, Site Visit No. 14](#))
- District 4 Sunol Grade/Route 680 Roadway Rehabilitation Project (EA No. 4A5204) ([see Appendix D, Site Visit No. 15](#))

Provision H.1.b of the Permit requires Caltrans to implement a program to control all construction in the rights-of-way that includes requirements for adequate structural and nonstructural BMPs. Provision E.1 of the Permit states “Caltrans shall maintain and implement an effective SWMP” including the proven design, selection, installation, and maintenance specifications included in Appendix D the SWMP. On limited occasions, the EPA Audit Team observed the application of BMPs that were adequately implemented in accordance with proven design, selection, installation, and maintenance specifications. For example, the District 1 Alton Interchange Project (EA No. 290304) used a tiered combination of multiple erosion and sediment controls and could serve as a model for improving the Caltrans Construction Program ([see Appendix C, Photographs 1 and 2](#)).

2.3.2 Failure to Conduct Adequate Site Inspections and Enforcement. The Permit requires Caltrans to implement a program to control all construction in the rights-of-way and states that the “program must include site inspections and enforcement” as required by Provision H.1.c. Pursuant to these requirements, Section 4.2.2 of the Caltrans SWMP states that the Resident Engineer (RE) is the Caltrans representative “charged with administering construction contracts and responsibility for ensuring that storm water controls are implemented on construction sites....The RE periodically inspects the construction site for proper installation and maintenance of BMPs and overall implementation of the approved WPCP [Water Pollution Control Plan] or SWPPP.”

Based on an assessment of 25 construction sites, Caltrans failed to conduct adequate site inspections and enforcement. The construction site assessments were considered collectively in making this determination. The EPA Audit Team identified multiple examples of inadequate BMPs attributed to a RE not fully enforcing the contract conditions to correct deficiencies identified during inspections. The Sunol Grade/Route 680 Roadway Rehabilitation Project is presented below as a prime example of this issue.

Caltrans District 4: Sunol Grade/Route 680 Roadway Rehabilitation Project (Caltrans EA No. 253794). The EPA Audit Team conducted a site visit at the Scott Creek staging yard located west of Route 680 at the Scott Road interchange near the Alameda-Santa Clara County boundary. The Scott Creek waterway is approximately 500 feet southeast of the staging yard.

Adequate BMPs had not been implemented for construction waste handling and disposal. Various construction wastes and chemicals were improperly disposed of and/or stored throughout the Scott Creek staging yard ([see Appendix D, Site Visit No. 11, Photographs 1 through 9](#)). Uncovered and uncontained construction waste included asphalt release

agent and petroleum products without secondary containment BMPs (see Appendix D, Site Visit No. 11, Photographs 6, 7, and 8).

In an oversight inspection conducted September 9, 2009, the Caltrans Construction Storm Water Coordinator's inspector also identified the asphalt release agent and petroleum products lacking secondary containment, and uncovered/uncontained construction waste, but these issues had not been corrected through adequate enforcement of the contract conditions as of October 7, 2009, the date of the EPA Audit Team's site visit (see Appendix B, Exhibits 6, 7, and 8).

An analysis of additional construction sites is provided in Appendix D, which includes a narrative summary of construction site observations and associated photo documentation. The following Construction Program Site Visit Reports provide additional supporting evidence that directly pertains to this audit finding.

- District 2 South Avenue On-ramp (see Appendix D, Site Visit No. 2)
- District 1 Last Chance Grade Project (see Appendix D, Site Visit No. 9)
- District 4 Sunol Grade/Route 680 Roadway Rehabilitation Project (EA No. 4A5204) (see Appendix D, Site Visit No. 15)

The failure to correct deficiencies identified by Construction Storm Water Coordinators indicates that Caltrans water quality staff do not have adequate control over construction projects. The Caltrans Districts 1 and 4 Construction Storm Water Coordinators acknowledged that poor construction site conditions are often a result of REs that are not supportive of storm water considerations. Caltrans District 1, for example, places oversight inspection priority on projects where the RE is known to be resistant to storm water considerations.

Provision G.5 of the Permit requires that "Caltrans shall have an inspection program to insure actions are implemented...in accordance with this NPDES Permit [SWRCB Order No. 99-06-DWQ] and the SWMP. The program shall include...documentation of field activities." District 1 oversight inspections by the Construction Storm Water Coordinator were not adequately documented. Additionally, Construction Storm Water Coordinator Guidance Manual, Section 3.5.5 states "the CSWC [Construction Storm Water Coordinator] is required to conduct an inspection at least once a month of every SWPPP project (≥ 5 acres of soil disturbance) and every other month of WPCP projects, using the contractor or consultant inspector checklists." The District 1 Construction Storm Water Coordinator explained that he does not use an inspection checklist to document inspections. Instead, inspection results and recommended corrective actions are typically transmitted to the RE verbally. This process is not consistent with the Permit or the Construction Storm Water Coordinator Guidance Manual.

2.3.3 Need for Improved Construction Site Tracking. To comply with Provision H of the Permit, including construction oversight inspections, Caltrans must implement an effective mechanism for construction site tracking.

The EPA Audit Team formally requested an “inventory of current active construction sites in the permit area of Districts 1–4.” Caltrans Districts 1–4 each provided lists of construction sites, titled “Statement of Ongoing Contracts (SOGC),” for projects within the respective districts. The lists, however, did not provide the actual status of the construction sites, and it was determined during the audit that the presence of a construction site on the SOGC list did not necessarily indicate that the site was active.

The Caltrans Construction Storm Water Coordinator Guidance Manual acknowledges the need for a statewide construction site tracking system. Section 3.1 of the Construction Storm Water Coordinator Guidance Manual states that the SOGC should be used a “starting point” for tracking construction projects. Furthermore, the document lists the specific types of information that Construction Storm Water Coordinators should track electronically for each construction project within a district. If specified information were effectively tracked, it would provide Construction Storm Water Coordinators and headquarters staff with information to determine the status of construction sites and prioritize oversight inspections. However, this information had not been effectively tracked for construction sites in each district and an effective statewide construction tracking system had not been implemented.

The EPA Audit Team observed wide variation in construction site project tracking at the district level, and the Construction Storm Water Coordinators had difficulty identifying all active construction and project locations. For example, Districts 1 and 3 had not implemented a formal construction site tracking mechanism and exhibited a reliance on the institutional knowledge of their staff for identifying construction sites for oversight inspections. In addition, District 4 was not able to readily determine which construction sites were active and had to contact multiple REs to determine the status of several construction projects.

Section 2.4 Maintenance Program Management

Provision I of the Permit requires Caltrans to implement the Maintenance Program specified in the Caltrans SWMP. All Caltrans organizational divisions involved in highway maintenance and support activities are collectively referred to as “Maintenance” throughout the remainder of this Audit Report.

As part of the evaluation, the EPA Audit Team conducted approximately 30 site visits at maintenance facilities and activities located in the Caltrans owned rights-of-way and/or served by the Caltrans MS4. The purposes of the site visits were (1) to assess the adequacy, appropriateness, and maintenance of BMPs to prevent and reduce storm water pollution, and (2) to gauge the overall effectiveness of the Caltrans oversight activities for maintenance facilities and activities.

Section 2.4.1 Highway Maintenance Facilities

2.4.1.1 Failure to Develop Required Facility Pollution Prevention Plans for all Caltrans Organizational Divisions with Maintenance Facilities. Provision I.3 of the Permit requires Caltrans to “prepare Maintenance FPPPs [Facility Pollution Prevention

Plans] for all maintenance facilities.” The EPA Audit Team identified and observed two Caltrans Division of Equipment and headquarters Department of General Services vehicle maintenance facilities where FPPPs had not been developed as required. Furthermore, these facilities are not included in the inventory of district facilities listed in the respective Caltrans Storm Water Management Program District Work Plan, Fiscal Year 2009–2010, used for NPDES reporting. Because Caltrans uses this inventory for scheduling inspections, these facilities would not be included in the inspection program for storm water purposes, particularly the oversight inspections carried out by Caltrans headquarters and its consultant. The identified and observed facilities included the following:

- District 3 Equipment Shop No. 23110 at 981 North Beale Road in Marysville, CA 95901
- District 1 Equipment Shop No. 21110 at 1650 Albee Street in Eureka, CA 95501.

Additional Caltrans Division of Equipment and headquarters Department of General Services maintenance facilities were identified during the post-audit records review. These facilities are not included in the inventory of district facilities listed in the Caltrans Storm Water Management Program District Work Plan, Fiscal Year 2009–2010, used for NPDES reporting. The records did not indicate whether FPPPs have been developed and implemented as required, or whether the facilities have been included in the inspection program for storm water purposes. The facilities identified during the post-audit record review were the following:

- District 3 Sacramento Equipment Sale Yard at 2100 Evergreen Street in Sacramento, CA 95825
- District 3 Equipment Shop at 3400 R Street in Sacramento, CA.

2.4.1.2 Failure to Develop Required Facility Pollution Prevention Plans and Provide Appropriate Site-Specific BMPs for all Maintenance Facility Types. Provision I.3 of the Permit requires Caltrans to “prepare Maintenance FPPPs for all maintenance facilities...each site must be evaluated separately and provided with appropriate site specific BMPs.” The EPA Audit Team observed multiple sweeper and roadway waste stockpile locations where FPPPs had not been prepared and BMPs were not implemented for adequate coverage or containment of pollutants. Sweeper waste contains various fine pollutant particles and non-visible pollutants. As evidenced by Appendix E, Site Visit No. 16, some roadway waste may also be classified as hazardous waste. The District 4 Washington Waste Storage Site is presented below as a prime example of the failure to provide FPPPs and appropriate site-specific BMPs.

Caltrans District 4: Washington Waste Storage Site. The EPA Audit Team conducted a site visit at the facility located near the Washington Boulevard exit along Highway 880 North in San Leandro, Alameda County, California. Caltrans owns and operates this site for the temporary storage of waste picked up by its vector trucks, road sweepers, and road-cleaning crews before the debris is loaded into a truck and hauled to a landfill for final disposal (see Appendix E, Site Visit No. 17, Photograph 1). Solid and liquid wastes

from Caltrans' vactor trucks are deposited into an excavated area for dewatering prior to the debris's being hauled off-site for disposal (see Appendix E, Site Visit No. 17, Photograph 2). Vactor, sweeper, and roadway waste are potential pollutant sources. Although the Washington Waste Storage Site itself is permanent, an FPPP had not been developed for the site.

Provision I.3.b of the Permit requires Caltrans to provide appropriate site-specific BMPs for all maintenance facilities. Coverage and containment BMPs had not been implemented for the sweeper and roadway waste stockpiles, and there was a potential for the discharge of pollutants to storm water runoff (see Appendix E, Site Visit No. 17, Photographs 1, 3, and 4). Due to the lack of coverage and containment BMPs, fugitive trash and other debris were not maintained as part of the original stockpile and had been strewn across the site (see Appendix E, Site Visit No. 17, Photographs 4 and 5). A Caltrans roadway maintenance supervisor from the San Leandro Maintenance Yard stated that the debris deposited at the waste storage site is usually stored for about 90 days before a contracted hauling company removes the material and disposes of it at a nearby landfill. A Caltrans staff member explained that BMPs had not yet been implemented at the site because the audit occurred before the October 15th start of the rainy season. He added that straw wattles would be placed around the waste stockpiles on the ground surface in accordance with the stockpile management techniques outlined in the *Caltrans Stormwater Quality Handbook – Maintenance Staff Guide* (Caltrans Maintenance Staff Guide), dated May 2003. The EPA Audit Team noted that no BMPs were stored at the facility for implementation in the event of precipitation prior to October 15th.

Because collected road sweepings and debris contain fine pollutant particles and non-visible pollutants, the stockpile management techniques outlined in the Caltrans Maintenance Staff Guide are not adequate to contain the collected waste. In recognition of this issue, Appendix D of the Caltrans SWMP, Section 2.29, Sweeping and Vacuuming, states "dispose of waste to a landfill or approved site.... There is to be no dumping on site, especially during the rainy season or during unseasonal storm events." Although it is beyond the scope of this audit, it should be noted that many of the sweeper and roadway waste stockpile locations were likely not meeting solid waste handling and disposal regulations.

An analysis of additional maintenance sites is provided in Appendix E, which includes a narrative summary of Maintenance Program field observations and associated photo documentation. The following facilities are not included in the inventory of district facilities listed in the respective Caltrans Storm Water Management Program District Work Plan, Fiscal Year 2009-2010, used for NPDES reporting. Because Caltrans uses this inventory for scheduling inspections, these facilities would not be included in the inspection program for storm water purposes, particularly the oversight inspections carried out by Caltrans headquarters and its consultant. The following observed sites did not have FPPPs or appropriate site-specific BMPs:

- District 4 Livorna Waste Storage Site (see Appendix E, Site Visit No. 18)
- District 4 Schaefer Ranch Waste Storage Site (see Appendix E, Site Visit No. 19)

- District 4 Scott Creek Road - Sunol Grade/Route 680 Roadway Rehabilitation Project (see [Appendix D, Site Visit No. 11](#))²
- District 1 Sweeper Waste Storage Location near the intersection of Little River Drive and Highway 101, approximately 10 miles north of Arcata, California.

The following sites had FPPPs and were included in the inventory of district facilities listed in the respective Caltrans Storm Water Management Program District Work Plan, Fiscal Year 2009-2010, but appropriate site-specific BMPs had not been implemented:

- District 1 Willow Creek Maintenance Facility (see [Appendix E, Site Visit No. 16](#))
- District 3 Marysville Maintenance Station (see [Appendix E, Site Visit No. 20](#)).

Caltrans had not inventoried all sweeper and roadway waste stockpile locations or roadside vector waste decant sites. It was noted by Caltrans staff that there could be thousands of these sites statewide.

2.4.1.3 Failure to Implement Appropriate Site-Specific BMPs for Street Sweeper, Vehicle, and Equipment Washing. Provision I.3.b of the Permit requires Caltrans to provide appropriate site-specific BMPs for all maintenance facilities. In addition, Prohibition A.7 and B.1 of the Permit require Caltrans to prohibit non-storm-water discharges into its storm water conveyance system. The EPA Audit Team observed multiple examples of inappropriate washing of street sweepers, vehicles, and equipment despite the availability of designated wash racks that are equipped for proper disposal of wash water and associated pollutants. The District 1 Bracut Maintenance Facility is presented below as a prime example of this issue.

Caltrans District 1: Bracut Maintenance Facility. The EPA Audit Team conducted a site visit at the facility located at 6100 North Highway 101, Eureka, CA 95503. The Washington Gulch waterway is approximately 1,000 feet east of the facility. Although the facility is equipped with a designated and covered vehicle and equipment wash rack (see [Appendix E, Site Visit No. 21, Photographs 1 and 2](#)), an area in the northwest corner of the facility and directly adjacent to two storm drain inlets was used for road sweeper washing activities (see [Appendix E, Site Visit No. 21, Photograph 3](#)). The Highway Maintenance Supervisor at the facility explained that the area was actively used for road sweeper washing because the pressure-washing equipment in the dedicated wash rack did not provide enough pressure to effectively conduct the cleaning operation.

The road sweeper washing area was not equipped to properly capture, treat, reuse, or dispose of road sweeper wash water and associated pollutants. Collected road sweepings contain fine pollutant particles and non-visible pollutants. Although BMPs had been installed, any wash water and associated pollutants passing through the BMPs and subsequently entering the MS4 would be considered an illicit discharge. The BMPs

² Note that this site is listed as “Closed – used by Construction” in the *District 4 Work Plan, Fiscal Year 2009-2010*, but sweeper and roadway waste storage were present.

implemented for the road sweeper washing area are described in the following paragraphs.

Filter fabric had been installed in one of the adjacent storm drain inlets, and absorbent booms had been placed around the other inlet (see Appendix E, Site Visit No. 21, Photographs 4 and 5). However, the BMPs implemented for inlet protection were not properly maintained and significant pollutant accumulation was observed around the inlets. Furthermore, sand bags containing debris had been used for weights on top of the absorbent booms placed around one of the storm drain inlets, and several of the bags were no longer securely closed (see Appendix E, Site Visit No. 21, Photograph 6).

Although storm drain inlets at the facility were equipped with filters, evidence of pollutant accumulation was observed in one of the storm drain inlets near the road sweeper washing area (see Appendix E, Site Visit No. 21, Photograph 7), which indicated that an unknown quantity of sweeper wash water had been discharged to the MS4. The discharge location of the storm drain inlets associated with the road sweeper washing area was unclear. Prohibition A.7 of the Permit states, “Wastes or wastewater from road sweeping vehicles or from other maintenance or construction activities shall not be discharged to any surface waters or to any storm drain leading to surface water bodies.”

In addition, two containers of a cleaning agent were improperly stored adjacent to a concrete drainage swale and a leaking hose along the eastern side of the facility (see Appendix E, Site Visit No. 21, Photograph 11). The containers were not stored within secondary containment, and as a result there was a potential for the contribution of wash water and pollutants to storm water runoff, and subsequently to a downgradient storm drain inlet (see Appendix E, Site Visit No. 21, Photograph 12).

In summary, the observed washing areas in the northwest corner and eastern side of the facility were not equipped to properly capture, treat, reuse, or dispose of wash water and associated pollutants, and the practice of washing vehicles and equipment could therefore lead to pollutant contributions to storm water runoff.

An analysis of additional maintenance sites is provided in Appendix E, which includes a narrative summary of Maintenance Program field observations and associated photo documentation. The following Maintenance Program Site Visit Reports provide additional supporting evidence that directly pertains to this audit finding.

- District 1 Willow Creek Maintenance Facility (see Appendix E, Site Visit No. 16)
- District 1 Garberville Highway Maintenance Facility (see Appendix E, Site Visit No. 22).

2.4.1.4 Failure to Implement Appropriate Site-Specific BMPs for Various Other Maintenance Activities and/or Facilities. Provision I.3.b of the Permit requires Caltrans to provide appropriate site-specific BMPs for all maintenance facilities. The EPA Audit Team observed multiple examples of inadequate pollution prevention and housekeeping practices at maintenance facilities. The District 1 Berry Summit Sand

Storage Facility is presented below as a prime example of inappropriate BMP selection for the particular application and/or pollutant source.

Caltrans District 1: Berry Summit Sand Storage Facility. The EPA Audit Team conducted a site visit at the facility at post mile 34.1, Highway 299, Willow Creek, California. The facility is approximately 250 feet west of Willow Creek. A stockpile of roadway abrasives was stored on the impervious ground surface upgradient of a storm drain inlet in the northern corner of the facility (see Appendix E, Site Visit No. 23, Photographs 1, 2 and 3). BMPs had not been implemented for covering or containing the stockpile. As explained by a Caltrans staff member, the storm drain inlet is equipped with an enlarged catch basin area to allow sand particles to settle prior to discharge; however, based on conversations with Caltrans staff, it did not appear that there was an established frequency for regular cleaning and maintenance of the inlet. Absorbent boom BMPs had been placed around a portion of the storm drain inlet (see Appendix E, Site Visit No. 23, Photograph 2); however, the BMPs were not fully protective of the inlet, and absorbent boom BMPs are not intended to control salt products or other pollutants that will dissolve upon contact with water. As a result, adequate BMPs were not implemented for stockpile management and there was a potential for the discharge of pollutants off-site.

In addition, a 10- to 20-foot section of the berm along the northern perimeter of the site was not intact, and accumulated roadway abrasives were observed adjacent to the failed berm (see Appendix E, Site Visit No. 23, Photograph 4). Roadway abrasives were also observed on the impervious ground surface in various other areas at the facility and beyond the perimeter fence line (see Appendix E, Site Visit No. 23, Photographs 5, 6 and 7). As a result, there was a discharge of pollutants beyond the bermed perimeter, along with the potential for subsequent off-site discharge.

An analysis of additional maintenance sites is provided in Appendix E, which includes a narrative summary of Maintenance Program field observations and associated photo documentation. The following Maintenance Program Site Visit Reports provide additional supporting evidence of inappropriate BMP selection for the particular application and/or pollutant source:

- District 1 Garberville Highway Maintenance Facility (see Appendix E, Site Visit No. 22)
- District 1 Bracut Maintenance Facility (see Appendix E, Site Visit No. 21)
- District 1 Willow Creek Maintenance Facility (see Appendix E, Site Visit No. 16).

Inadequate pollution prevention and housekeeping practices were also observed at the following fixed maintenance facilities.

- District 1 Crescent City Maintenance Facility (see Appendix E, Site Visit No. 24)
- District 2 Obrien Rest Area (see Appendix E, Site Visit No. 25)

- District 2 Lake Boulevard Temporary Storage Site ([see Appendix E, Site Visit No. 26](#))
- District 3 Marysville Maintenance Station ([see Appendix E, Site Visit No. 20](#))
- District 3 Colusa Temporary Storage Site ([see Appendix E, Site Visit No. 27](#)).

Section 2.4.2 Highway Surveillance Activities and IC/ID Detection Program

Provision I.2.b of the Permit requires Caltrans to implement many requirements, including the Illicit Connection/Illicit Discharge (IC/ID) Detection Element described in the SWMP.

2.4.2.1 Need to Adequately Implement a Procedure to Track All IC/IDs through Resolution. Nonstorm Water Discharge Prohibition B.1 of the Permit defines IC/IDs and requires Caltrans to “effectively prohibit nonstorm water discharges into its storm water conveyance system” unless such discharges meet the exemptions specified in the Permit. Finding 4 of the Permit further defines conveyance system in broad terms to include roads with drainage systems, catch basins, curbs, gutters, ditches, manmade channels, or storm drains. Prohibition I.2.b(4) of the Permit requires Caltrans to adequately implement a procedure to track all reports of IC/IDs and the action taken on them. Caltrans was not adequately tracking IC/IDs or collecting data based on the definition in the Permit.

The EPA Audit Team formally requested “records showing incidents of illicit discharges/connections and resolution (2008 Calendar Year).” Caltrans Districts 1-4 provided records for Fiscal Year 2007–2008. However, the records indicate that Caltrans is not reporting all incidents where field and Maintenance personnel are involved. The Caltrans Districts 2, 3, and 4 records indicate between four and five IC/ID incidents in Fiscal Year 2007–2008, and the types of incidents are limited in scope to large-scale encroachments of the Caltrans right-of-way. Moreover, the District 1 records claim that there were no IC/ID incidents in Fiscal Year 2007–2008 ([see Appendix B, Exhibit 12](#)). In contrast to this claim, there are state highways in District 1 that traverse urbanized areas, and some, such as Highway 101 in Eureka, California, are two-lane highways with slower travel speeds. Throughout the audit, the EPA Audit Team viewed incidents of suspect materials along the highway storm water conveyance system ([for example, see Appendix C, Photographs 3 and 4](#)). Furthermore, District 1 Maintenance personnel explained that it is not uncommon to address/remove illegal dumping materials (e.g., petroleum products, methamphetamine production waste) from the highway system ([see Appendix E, Site Visit No. 16](#)). Based on this evidence, IC/IDs and illegal dumping to the Caltrans storm water conveyance system can and do occur but are not being recorded in the District’s records.

The EPA Audit Team formally requested “a procedure to track all reports of IC/IDs and the action taken on them [as required by Provision I.2.b(4) of the Permit]” from Caltrans Districts 1, 2, and 4. The individual Caltrans districts did not produce these records and were generally unaware that procedures existed. Instead, the Caltrans headquarters Chief of Storm Water Implementation researched the issue and provided procedures contained in the Caltrans Maintenance Staff Guide during the final week of the EPA Audit.

Appendix C of the Caltrans Maintenance Staff Guide, Section C.22.3, states that “maintenance personnel, as part of their routine inspections and maintenance work, shall report all observed suspected illicit connections to the District Maintenance Storm Water Coordinator, who will forward these observations to the NPDES Storm Water Coordinator. A Storm Water Pollution/Drainage report has been developed for use in this activity” (see Appendix B, Exhibit 13). Despite the development of this recordkeeping form, the EPA Audit Team questioned Maintenance personnel in the field and did not find that Storm Water Pollution/Drainage reports or functionally equivalent forms had been actively used. The records provided by Caltrans explain that Maintenance staff might not be formally documenting all IC/ID incidents because it is commonplace to simply place a radio call to supervisory staff (see Appendix B, Exhibit 14). Discussions with the District 1 Assistant Maintenance Storm Water Coordinator reaffirmed that radio calls are a common means of notifying supervisory staff of IC/ID incidents.

Because Appendix C of the Caltrans Maintenance Staff Guide, Section C.22.3, instructs Maintenance personnel to forward all observations of IC/ID incidents to the district NPDES Storm Water Coordinators, this position is named as a centralized recordkeeping point in the procedures. However, the district NPDES Storm Water Coordinators were generally unaware that the procedures existed. For example, the District 4 NPDES Storm Water Coordinator and Office Chief explained that they did not have procedures to conduct IC/ID investigations, and Districts 2, 3, and 4 could not produce the requested procedure. Collecting data on all IC/IDs is necessary to develop a comprehensive understanding of the types of IC/IDs to address/target in the highway system MS4. To this end, there might be an opportunity to leverage and integrate illegal dumping information obtained through Caltrans’ existing Adopt-a-Highway program.

2.4.2.2 Failure to Develop and Implement Adequate Procedures to Conduct Investigations of IC/IDs. As required by Provision I.2.b of the Permit, Caltrans must develop procedures to conduct investigations of every IC/ID to identify the source. The Permit states that “these procedures may include further field screening (observations and field analysis), collection and laboratory analysis of samples (upstream and downstream), smoke or dye tests, video taping with a remote control camera, or other appropriate means.”

Caltrans has not developed procedures for Maintenance personnel that describe how to recognize IC/IDs, conduct investigations of IC/IDs, or identify the IC/ID source. For example, the procedure in Appendix C of the Caltrans Maintenance Staff Guide, Sections C.22.3 and C.22.4, simply “directs maintenance staff to detect and report illicit connections and illegal discharges into Caltrans storm water drainage systems.” The procedure provides brief definitions for *illicit connection* and *illegal discharge* but does not provide specific examples or other tools for identifying and investigating such occurrences. For example, the procedure does not provide a description of visual or odor indicators, or protocols for documentation or sampling of an illicit discharge. Furthermore, the procedure does not provide tools or protocols for tracking an IC/ID upstream or identifying the source, and it does not denote which Caltrans staff are responsible for conducting source identification.

In contrast to the procedure described above, Caltrans has developed related guidance intended for construction contractors that provides clear direction on how to identify IC/IDs using field observations and related reporting (see Appendix B, Exhibit 15). This template could potentially be modified to serve as a model for the development of adequate IC/ID procedures for Caltrans Maintenance staff.

As explained by Caltrans staff, Maintenance personnel are typically the first responders to potential IC/ID incidents. Maintenance personnel interviewed during the audit explained that they generally perform the work related to IC/IDs but do not always document the occurrence of the incident or the response. Headquarters staff explained that IC/IDs that occur in an area that is not explicitly covered under a Caltrans regulatory mechanism (e.g., contract, encroachment permit) become the responsibility of Maintenance to address, document, and report.

Records of storm drain inlet cleaning activities provided by Maintenance staff in Districts 1, 2 and 4 (see Appendix B, Exhibits 16, 17, and 18) do not include a specific component relating to IC/IDs and indicate that IC/ID identification is not a component of storm drain inlet inspections. For example, the records do not indicate whether flow or ponding was observed and, if there was flow, whether there was a visible sheen or foam, turbidity, sediment accumulation, plumes from the outfall, floatables (e.g., sewage, suds), or odors. Rather, the records include only location and maintenance information.

Furthermore, the Caltrans storm drain system maps have proved to be of limited utility in tracking IC/IDs back to the source. For example, District 4 presented the EPA Audit Team with a storm drain system inventory of areas within Phase I MS4s in District 4. This inventory appeared to be the most comprehensive storm drain system map developed in Districts 1–4. The inventory exists only in paper format, and it includes drainage inlets, outfall locations, and the tributary area to inlets within the Caltrans right-of-way. It should be noted that the inventory does not include contributing inlets, connections, and drainage areas from areas outside the Caltrans right-of-way. Furthermore, Caltrans staff expressed a lack of confidence in the data and explained that the mapping would have to be redone to ensure data consistency. This example highlights the inadequacy of using the existing storm drain system maps as an effective tool for tracking IC/IDs back to the source.

One resource that Caltrans may want to consider is the Center for Watershed Protection's manual, *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments* (EPA Publication No. 833-B-04-005). The manual was developed specifically to assist MS4s in developing and building effective programs to address illicit discharges and improper disposal. It explains the types of testing used to detect illicit discharges, offers information on estimating program costs in terms of capital and personnel expenses, and includes timelines that estimate how long program implementation will take. The Center has also developed related tools, including a procedural checklist and flowchart pertaining to outfall inspections. This document could also be used as a model for Caltrans' IC/ID program, provided it was

modified appropriately to address the concerns of the highway system MS4. The manual and tools can be downloaded at

http://www.cwp.org/Resource_Library/Controlling_Runoff_and_Discharges/idde.htm.

2.4.2.3 Need to Adequately Implement Permit Required Procedures for Receiving and Responding to Public Complaints of IC/IDs. Provision I.2.b(1) of the Permit requires Caltrans to “develop procedures for receiving and investigating public complaints including establishing telephone numbers which the public can use to report IC/IDs and shall post these numbers in places where illegal dumping is found to be a problem.”

The EPA Audit Team formally requested “procedures for receiving and investigating public and employee complaints of IC/IDs” from Caltrans Districts 1 and 2 (see Appendix B, item 16 in Exhibit 19). Caltrans Districts 1 and 2 did not produce these records, and all the individual Caltrans districts were generally unaware of how public complaints were to be collected and tracked. In response to the records request, the Caltrans HQ Chief of Storm Water Implementation researched the issue and provided procedures contained in the Caltrans Maintenance Staff Guide during the final week of the EPA audit. Appendix C of the Caltrans Maintenance Staff Guide, Section C.22.3, states that “all public-initiated calls should be directed to the District’s Public Affairs Officer. Calls regarding illicit connections should be logged and routed to the NPDES Storm Water Coordinator,” effectively naming the district NPDES Storm Water Coordinators as a centralized recordkeeping point in the procedures. Again the individual Caltrans districts were generally unaware of how public complaints were to be collected and tracked. For example, the District 1 NPDES Storm Water Coordinator explained that he had never heard of a public-initiated call being logged or reported. This indicates that the procedure contained in the Caltrans Maintenance Staff Guide has not been implemented and/or that the public reporting mechanism has not been adequately publicized.

When questioned on the topic of public reporting of IC/IDs, the individual Caltrans districts described multiple different telephone numbers (e.g., 9-1-1, California Relay Service/Road Conditions, and IC/ID hotlines maintained by local jurisdictions). The EPA Audit Team tested the California Relay Service/Road Conditions hotline established by Caltrans but did not find that it could be used to report IC/IDs. Therefore, Caltrans has not established dedicated or centralized telephone numbers for public reporting of IC/IDs.

In the Caltrans Maintenance Staff Guide, district Public Affairs Officers are named as a central point of contact for public-initiated calls regarding IC/IDs. However, formal training or guidance has not been developed to ensure calls are routed to the district Public Affairs Officers. Due to the lack of a structured reporting mechanism and a centralized reporting number, Caltrans was not capturing and reporting all IC/ID events that could impact storm water. Without a more thorough data collection effort, Caltrans is not adequately recording and investigating public complaints of IC/IDs and their impact on the highway system MS4.

2.4.2.4 Need to Leverage the Legal Authority of Traditional MS4s. Provision G.2.a of the Permit requires Caltrans to establish and maintain adequate legal authority to control discharges to and from Caltrans properties, facilities, and activities. Caltrans does not have adequate internal legal authority/enforcement capabilities to prohibit and eliminate illicit discharges to its MS4. This is particularly the case for those IC/ID incidents that are not brought under a Caltrans regulatory mechanism (e.g., a contract or encroachment permit). The Caltrans Chief Environmental Engineer and other headquarters staff explained that Caltrans has no enforcement authority and therefore relies on the California Highway Patrol for enforcement at an executive level. The Caltrans Chief Environmental Engineer further explained that Caltrans does not routinely use the California Highway Patrol for enforcement and would do so only under conditions that are hazardous or pose a threat to public safety.

The EPA Audit Team formally requested “regulatory mechanism(s) prohibiting illicit non-storm water discharges to the MS4” from Caltrans Districts 1 through 4. In response, Caltrans provided a written explanation and excerpt from the California Streets and Highways Code ([see Appendix B, Exhibit 20](#)). The EPA Audit Team reviewed the California Streets and Highways Code and determined that it is limited in application. For example, Section 721(c) of that code provides Caltrans only with the authority to remove an encroachment of a state highway that consists of *refuse* (e.g., litter and other illegal dumping). Sections 725–727 of the California Streets and Highways Code generally provides Caltrans with only the authority to prevent or remove IC/IDs to the state highway system that *result in damage to the highway or impede proper drainage*.

The EPA Audit Team also formally requested an “example/case file of an illicit discharge incident where enforcement was used (ideally full extent of enforcement authority for each District)” ([see Appendix B, item 21 in Exhibit 19](#)). Caltrans Districts 3 and 4 provided examples that displayed some level of response and coordination with local jurisdictions that are traditional MS4s. However, District 1 did not produce records that demonstrate the exercise of internal legal authority/enforcement capabilities ([see Appendix B, Exhibit 21](#)), and Caltrans District 2 provided a case example that did not demonstrate resolution of the incident ([see Appendix B, Exhibit 22](#)). Furthermore, District 1 indicated that enforcement had never been used. This evidence indicates that Caltrans is not exhausting its internal legal authority/enforcement capabilities or effectively resolving IC/ID incidents that affect its MS4.

Provision G.1.b of the Permit requires Caltrans to develop and submit a Municipal Coordination Plan. However, the Caltrans headquarters Chief of Storm Water Implementation explained that the plan had never been developed or submitted to the SWRCB as required by Provision G.1.b of the Permit.

Section 2.4.3 Highway Maintenance Activities - Storm Water Drainage System Facilities Maintenance and Slope Stabilization

Provision I.1 of the Permit requires Caltrans to implement programs and systems for a variety of Highway Maintenance Activities described in the SWMP.

2.4.3.1 Failure to Identify and Conduct Cleaning of Storm Drain Inlets that Pose a Significant Threat to Water Quality. Provision I.1.c(1) of the Permit requires Caltrans to identify inlets that pose a significant threat to water quality and conduct removal of waste annually prior to the winter season.

Based on a review of the program, Caltrans has not identified and inventoried inlets that pose a significant threat to water quality on a statewide basis; and Caltrans cannot demonstrate removal of waste from those inlets on an annual basis prior to the winter season. The EPA Audit Team requested a “statewide inventory of all drainage inlets that pose a significant threat to water quality (based on accumulation or otherwise) and records that demonstrate removal of all waste from those inlets on an annual basis prior to the winter season FY07-08” (see Appendix B, item 13 in Exhibit 19). Caltrans was not able to produce the requested documentation during the audit. In response to the document request in District 1, Caltrans provided a statement that indicates that a statewide inventory of inlets that pose a significant threat to water quality does not exist. This response is included as Exhibit 23 in Appendix B.

Section 5.3.2.1 of the Caltrans SWMP states that “currently, the storm drains are maintained only to ensure hydraulic capacity.... [Caltrans] is working cooperatively with the SWRCB to develop and implement an appropriate measure to determine when systems are to be cleaned based on pollutant reduction.” It should be noted that this statement was included in the SWMP dated May 2003. Caltrans did not provide any information on what progress has been made within the past six years on implementing a program to clean the storm drain system based on pollutant reduction during the audit. As described in Section 5.3.2.2 of the Caltrans SWMP, Caltrans has implemented an “Enhanced Storm Drain Inlet Inspection and Cleaning Program,” in accordance with a court order, in several metropolitan areas along the southern coast of the state. The Enhanced Storm Drain Inlet Inspection and Cleaning Program includes annual inspections and cleaning (if needed) of “right shoulder storm drain inlets and other inlets that do not require lane closures” in the metropolitan portions of Los Angeles, San Diego, and Orange and Ventura counties.

Based on discussions with headquarters staff and Maintenance staff in Districts 1–4, Caltrans does not use consistent maintenance criteria for identifying whether storm drain inlets must be cleaned. For example, headquarters staff stated that storm drains with more than 12 inches of accumulated sediment should be cleaned; however, this maintenance criterion was not cited by district Maintenance staff when questioned on when an inspected storm drain should be cleaned. Further review of the SWMP revealed that the 12-inch maintenance criterion is applicable in only the areas included in the Enhanced Storm Drain Inlet Inspection and Cleaning Program.

There appeared to be a wide variation in maintenance approaches (i.e., timing, maintenance criteria, documentation) for storm drain system cleaning among Maintenance supervisors in Districts 1–4. Without a structured preventive maintenance program for water quality, Maintenance personnel rely primarily on institutional

knowledge of flooding hot spots and conduct storm drain inlet cleaning based on flood control rather than pollution prevention.

It should be noted that Caltrans district and headquarters staff explained that most of the storm drainage system is designed to be self-cleaning due to roadway safety issues. For example, many drop inlets within the system do not have sump or catchment space to collect debris. The self-cleaning design of the storm drainage system presents the challenge that accumulation rates are more difficult to ascertain to determine the relative threat to water quality and associated prioritization. Caltrans headquarters staff explained that Caltrans is evaluating a transition to the prioritization of storm drain inlet cleaning based on applicable Total Maximum Daily Loads (TMDLs) and known hot spot areas for pollutant accumulation. The EPA Audit Team encourages this approach as a component of a program to reduce the pollutant load discharged from the storm drain system.

2.4.3.2 Need to Adequately Identify, Prioritize, and Schedule the Stabilization of Roadway Erosional Areas. Provision I.1.a (3) of the Permit requires Caltrans to “identify road segments with slopes that are prone to erosion and discharge of sediment and stabilize these slopes to the extent possible.” Provisions I.1.a (1) and I.1.a (2) of the Permit further require that Caltrans identify priority and watershed pollutant reduction opportunities and establish schedules for implementing appropriate controls.

As evidenced below, Caltrans headquarters was not conducting adequate oversight of slope inspections and stabilization to ensure compliance with the Permit. The EPA Audit Team formally requested a “statewide inventory of road segments that are prone to erosion” from Caltrans Districts 1 and 2. In response to the records request, the Caltrans headquarters Chief of Storm Water Implementation researched the issue and explained that an overall inventory of roadway erosional areas and a prioritized or established schedule to stabilize roadway erosional areas on a statewide basis do not exist. It was further explained that until recently, the individual Caltrans districts maintained the slope inspection documentation.

The EPA Audit Team observed that a uniform data management system was not used for tracking slope inspection information (see [Appendix B, Exhibit 24](#)). In District 1, for example, the Maintenance Storm Water Coordinator explained that Maintenance uses accounting and data management software referred to as the Integrated Maintenance Management System (IMMS). The District 1 Maintenance Storm Water Coordinator further explained that Maintenance personnel in District 1 are primarily relying on institutional knowledge of slope failure/erosion hot spots and refer to these areas by colloquial names (e.g., Zimmer Slide). In contrast, District 2 was using a Microsoft Office Access database to track slope information.

Furthermore, it is unclear whether Caltrans headquarters currently maintains an oversight role in roadway slope erosion control. Section 5.3.4 of the Caltrans SWMP states that “the program to periodically inspect roadside vegetated slopes and determine the need for remedial measures is being implemented by the Maintenance Inspection and Slope Stabilization Team (MISST),” made up of approximately 40 members representing all

12 districts and headquarters. However, the District 1 Assistant Maintenance Storm Water Coordinator stated that the MISST had essentially dissolved, and district Maintenance Storm Water Coordinators no longer refer potential slope stabilization projects to it. In addition, the MISST is not mentioned in an October 2009 document that describes how Maintenance complies with the slope stabilization provisions of the Permit (see Appendix B, Exhibit 25). Caltrans District 1 and headquarters staff explained that instead of using the MISST, the districts submit proposals for complex slope stabilization projects that must then compete for limited funds. It was further explained that complex slope stabilization projects are not collectively prioritized for funding. In addition, Caltrans headquarters does not require the districts to submit annual reporting data in a format that can be verified by headquarters to ensure that all roadsides are inspected within the 5-year Permit term and that appropriate stabilization/resolution is completed in a timely manner.

It should be noted that based on a spot-check of records provided by District 2, the District had established a 5-year schedule for inspecting segments/lengths of state highway through Fiscal Year 2005/2006. District 2 also maintained a detailed database that includes fields for post mile location; size of gulley, rill, and sheet erosion; eroded volume estimates; grade of slopes; description of erosion; latitude/longitude data; and corresponding photographs. It was not determined whether Districts 1, 3, and 4 maintain similar information, or whether this information is being actively used.

Appendix A

Audit Schedule

Agenda for MS4 Audit of Caltrans (October 5–7, 13–14, and 21–22, 2009)

Caltrans Headquarters		
Day	Time	Program Area/ Agenda Item
Monday October 5, 2009	8:00 am– 8:30 am	Kickoff Meeting
	8:30 am– 12:00 pm	Program Management
	12:00 pm– 1:00 pm	Lunch Break
	1:00 pm– 2:00 pm	Maintenance Program
	2:00 pm– 4:00 pm	Monitoring, Reporting, and Research Program
Districts 3 and 4³		
Day	Time	Program Area/ Agenda Item
Tuesday October 6, 2009	8:00 am– 8:30 am	Kickoff Meeting & Program Management Overview
	8:30 am– 10:30 am	Construction Program (Office)
	10:30 am– 12:00 pm	Post-Construction Program (Office)
	12:00 pm– 1:00 pm	Lunch Break
	1:00 pm– 4:30 pm	Maintenance Program (Office)
		Recap and Logistics Planning for Wednesday

³ This schedule represents the typical discussion and field schedule for each Caltrans district included in the audit. District office and field activities were subject to change.

Districts 3 and 4			
Day	Time	Team 1 Program Area	Team 2 Program Area
Wednesday October 7, 2009	8:00 am– 10:30 am	Maintenance Program (Field)	Construction and Post- Construction Programs (Field)
	10:30 am– 12:00 am		
	12:00 pm– 1:00 pm	Lunch Break	
	1:00 pm– 5:00 pm	Maintenance Program (Field)	Construction and Post- Construction Programs (Field)