Year-End Performance Report
October 2011
(July 1, 2010 – June 30, 2011)

A Summary of
Construction Compliance Reviews

CTSW-RT-12-222.04.3

Prepared for:

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LIST OF ACRONYMS

ACCRP	Annual Construction Compliance Review Plan
ACL	Administrative Civil Liability
BMP	Best Management Practice
CCEP	Construction Compliance Evaluation Plan
CPSRP	Construction Project Stormwater Review Plan
CSBMPAE	Construction Stormwater Best Management Practices Adequacy Evaluation
CSWAT	Construction Stormwater Advisory Team
DCSWC	District Construction Stormwater Coordinator
Department	Department of Transportation
DSA	Disturbed Soil Area
IA	Independent Assurance
NPDES	National Pollutant Discharge Elimination System
OSPI	Office of Stormwater Program Implementation
QA II	Quality Assurance Level II
QC	Quality Control
RWQCB	Regional Water Quality Control Board
SCAPE	Stormwater Contract Administration Process Evaluation
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Program
WPCP	Water Pollution Control Program

1.0 INTRODUCTION

This *Year-End Performance Report – October 2011* summarizes the construction project stormwater compliance reviews conducted between July 1, 2010 and June 30, 2011. This document reports the level of stormwater pollution control compliance observed on Department of Transportation (Department) construction projects statewide during this reporting period (July 1, 2010 to June 30, 2011) and identifies Best Management Practice (BMP) implementation trends, improvements, and challenges noted during the year.

Since 1990, several construction project stormwater review plans have been developed to evaluate Caltrans projects for adequacy to implement stormwater pollution prevention measures and compliance with the requirements of the Caltrans National Pollutant Discharge Elimination System (NPDES) Permit and the Construction General Permit. The Annual Construction Compliance Review Plan (ACCRP) was adopted in August 2003 and was revised later in August 2005. In July 2008, the document *Construction Compliance Evaluation Plan (CCEP) CTSW-PL-08-999.54.1* was adopted, which superseded the ACCRP. Beginning in July 2008, Caltrans began using the CCEP statewide to conduct project reviews statewide.

The CCEP document describes the activities implemented by Caltrans for evaluating construction project stormwater compliance with the statewide NPDES Permit, Construction General Permit, Caltrans guidance documents and the construction stormwater program. It also monitors the level of compliance in the field, evaluates trends, and recommends improvements. The purpose of the CCEP is to describe an effective procedure for evaluating Caltrans' stormwater program in accordance with Caltrans' statewide Stormwater Management Plan (SWMP) dated June 2003 (Section 14, "Program Evaluation,") and the self-auditing requirements of Caltrans' statewide NPDES Permit (CAS000003) (Order No. 99-06-DWQ), provision K(3)(d) "Overall Management Program Effectiveness."

The CCEP includes the following components:

- A process for evaluating the potential threat to water quality;
- A review rating criteria sensitive to forecasted storm events and contractor preparedness;
- A dual rating system that separates water quality compliance and stormwater contract administration;
- A prescribed project selection process for randomly selecting projects for review;
- A Construction Project Stormwater Review Plan (CPSRP) providing procedures for conducting project reviews, and;
- An independent assurance process for the data collected from project reviews.

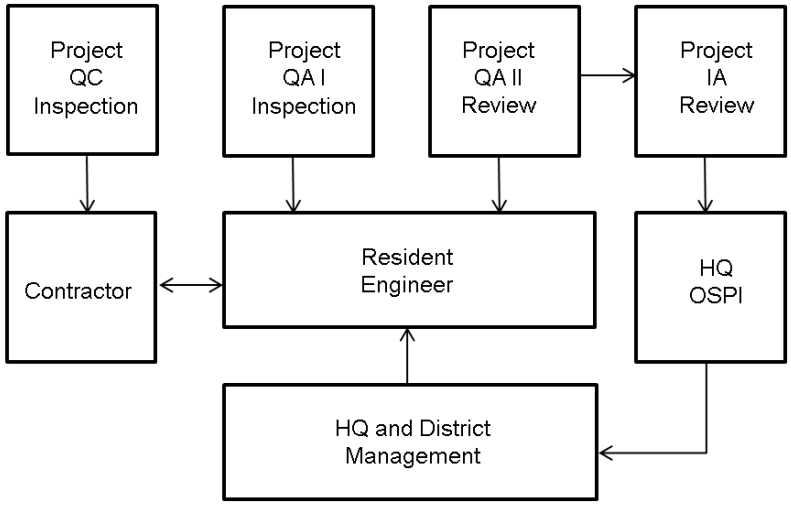
The CCEP also provides feedback procedures and a process for program improvement as follows:

- A Stormwater Contract Administration Process Evaluation (SCAPE) to evaluate contract administration processes based upon the observed trends detected in the data collected from project reviews.
- A Construction Stormwater Best Management Practices Adequacy Evaluation (CSBMPAE) to evaluate BMP adequacy based upon the observed trends detected in the data collected from project reviews.

To be an effective stormwater program for construction, the CCEP is designed to answer the following questions:

- Are resident engineers enforcing an effective Water Pollution Control Program (WPCP) or Stormwater Pollution Prevention Program (SWPPP)?
- Are construction BMPs adequate to protect the waters of California and the United States?
- Do construction contractors properly implement and maintain effective WPCP or SWPPP?
- Does the Caltrans' stormwater program provide adequate support and training for resident engineers and Caltrans staff to satisfactorily administer effective construction site stormwater compliance?
- Are contractors adequately trained to implement, maintain and inspect best management practices that provide effective WPCP or SWPPP?

Caltrans follows the water pollution control quality process as shown on the diagram below.



Water Pollution Control Quality Process

QC: Quality Control inspection is done by the contractor.

QA I: Quality Assurance Level I inspection is done by the resident engineer or designee (assistant resident engineer or construction inspector).

QA II: Quality Assurance Level II review is done by the district construction stormwater coordinator (DCSWC) or designee.

IA: Independent Assurance review is done under the direction of Division of Environmental Analysis, Stormwater IA Reviewer.

This Year-End Performance Report includes the following information:

- Description of the project selection criteria and rating system used to conduct compliance inspections during the reporting period. See Section 2.0 – Elements of Construction Compliance Evaluation Plan.
- Summary of overall ratings from the current reporting period compared with ratings from previous years. See Section 3.0 – Performance Assessment.
- Summary of BMP performance trends from the current reporting period compared with ratings from the 2008/2009 and 2009/2010 reporting period. See Section 4.0 – Trends.

2.0 ELEMENTS OF CONSTRUCTION COMPLIANCE EVALUATION PLAN

The following elements form the basis of the CCEP:

- Review of the level of compliance of selected construction projects with the requirements of the NPDES Construction General Permit (Permit No. CAS000002) or applicable Lahonton Regional Water Quality Control Board (RWQCB) permit, the Caltrans Statewide NPDES Permit (NPDES No. CAS000003), and the statewide SWMP.
- Review of the level of compliance of selected construction projects with the contract specifications and guidance documents (project stormwater contract administration).
- Identify sources, and causes of observed inadequacies.
- Apply the process for evaluating trends.
- Evaluate effectiveness of the stormwater program for construction.
- Recommend program improvements, including SWMP improvements, training, research, updates to guidance documents, updates to specifications, and updates to the CCEP.

2.1 CONSTRUCTION PROJECT STORMWATER REVIEW RATING CRITERIA

The review of construction project stormwater control effectiveness conducted by using two separate rating criteria:

- Water Quality Compliance
- Stormwater Contract Administration

The water quality compliance rating is numerical beginning with number one (1) representing compliance and going to number four (4) representing noncompliance. The water quality compliance rating is an assessment of BMP adequacy. If BMPs are found to be inadequate, a secondary level of analysis is done to confirm if a potential threat to water quality exists. This assessment is referred to as "The Test for Potential Threat to Water Quality," or simply, threat to water quality.

The numeric component of the rating represents the potential threat to water quality in terms of implementation and maintenance of construction site BMPs on a project. The water quality compliance rating could be affected by different factors such as percentage of inadequate BMPs or when a precipitation event is forecasted.

Stormwater contract administration is assessed based on the existence of contract required documentation, amendments to the same, timely review and approval of document submittals and processing requirements. The stormwater contract administration rating goes from A for compliance to D for noncompliance. This alpha rating represents compliance with the permits and the quality of stormwater contract administrative activities in accordance with contract specifications and guidance documents.

2.1.1 AUTOMATED PROCESS FOR CREATING THE PROJECT ALPHA AND NUMERIC RATING

Checklists have been designed to evaluate the adequacy of BMPs and to determine if the implemented BMPs eliminate or minimize stormwater runoff pollution. The checklists are submitted in the automated process called the Construction Project Stormwater Review Tool. It processes information gathered in the checklists and generates a rating and a report form.

2.1.2 WATER QUALITY COMPLIANCE – NUMERIC RATING

The CCEP rating criteria are summarized below. Refer to the CCEP for additional detail.

1 Rating

The project poses no threat to water quality, and review observations support the following criteria:

- Temporary soil stabilization and sediment control BMPs are implemented in accordance with the project's SWPPP or WPCP requirements, rainy season, non-rainy season, active and non-active areas.
- Wind erosion BMPs are properly implemented.
- Sediment tracking is minimal to non-existent.

- Non-stormwater and waste management BMPs are properly implemented.
- Treatment control(s) for dewatering operations meet(s) the requirements of the project's dewatering permit and/or dewatering plan.

It is not expected that construction sites will reflect 100 percent compliance at all times. However, it is recognized construction methods and operations are dynamic in nature and project sites are subject to occasional occurrences of less than the expected level of compliance. Therefore, the CCEP assigns a rating of 1 for projects:

- Having less than 10 percent inadequate BMPs due to:
    1. Missing BMP
    2. Improper location
    3. Incorrect installation
    4. Lack of maintenance
    5. Improper selection
- Less than 30 percent chance of precipitation within 48 hours

2 Rating

The project poses no threat to water quality and review observations support the following criteria:

- Between 20 to 50 percent of the BMPs are inadequate based on:
    1. Missing BMP
    2. Improper location
    3. Incorrect installation
    4. Lack of maintenance
    5. Improper selection

3 Rating

The project poses a potential threat to water quality and review observations support the following criteria:

At least 50 percent of the BMPs are inadequate based on:

- Missing BMP
- Improper location
- Incorrect installation
- Lack of maintenance

- Improper selection

Projects receiving a rating of 2 will be downgraded to a rating of 3 when all of the following apply:

- The threat to water quality assessment identifies a potential threat to the quality of receiving water.
- At the time of review there is a greater than or equal to a 30 percent chance of rain within the next 48 hours.
- There is no evidence the contractor is actively mobilizing resources and materials to protect the site.

4 Rating

The project poses a threat to water quality or has a high risk of posing a threat to water quality and the review observations support the following criteria:

- Uncontrolled discharge
- Evidence of uncontrolled discharge

Projects receiving a rating of 2 or 3 will be downgraded to a rating of 4 if all of the following apply:

- The assessment identifies a potential threat to the quality of receiving water:
- There is a greater than or equal to 50 percent chance of rain within the next 24 hours at the time of review, and;
- The contractor is not actively implementing water pollution control practices where appropriate before precipitation or a failure of a water pollution control practice is not corrected before precipitation.

2.1.3 STORMWATER CONTRACT ADMINISTRATION – ALPHA RATING

A Rating

A project is assigned an A rating when there are no project document inadequacies and the review of project documentation supports each of the following:

- The approved SWPPP or WPCP appropriately addresses current operations.
- SWPPP or WPCP or amendments are on file and signed.
- Site inspections by the contractor are conducted in accordance with expected frequencies.
- Site inspections by project staff are conducted in accordance with expected frequencies.
- Sampling and analysis plans as required have been properly documented, filed, and reflect current field conditions.
- Sampling results have been properly logged and are up to date.

- If applicable, dewatering plan is approved by the RWQCB and is on file.
- A record of a preconstruction meeting to review SWPPP or WPCP requirements is on file.

In addition to the above requirements, the A rating is still assigned to the project, when 20 percent or less of certain contract *Standard Specifications* and *Standard Special Provision* requirements (if applicable) are not met.

B Rating

A project is assigned a B rating when at least one of the A rating project document inadequacies is documented or when 20 percent to 50 percent of A rating contract specification requirements are not met.

- The approved SWPPP or WPCP does not reflect current operations and amending of the document is needed.
- SWPPP or WPCP or amendment (s) are not on file or signed.
- On file documentation of site inspections performed by the contractor are not up to date.
- On file documentation of site inspections performed by project staff are not up to date.
- Contractor's yard, staging area, material or waste storage sites directly related to the project are not addressed in the SWPPP or WPCP.
- The contractor does not have a copy of the SWPPP or WPCP on site.
- A record of the preconstruction meeting to review SWPPP or WPCP requirements is not on file.

C Rating

There are project documentation inadequacies that require immediate correction. The project receives a C rating when four or fewer of the following are documented or between 50 percent and 80 percent of the contract specification requirements are not met.

- SWPPP or WPCP or amendments are not on file or signed. Annual recertification of the project SWPPP is not on file or signed.
- File documentation of site inspections performed by the contractor do not support the contract specified minimum frequency.
- Expansion beyond the contract specified limit for active disturbed soil areas without resident engineer's written approval.
- Sampling was conducted but proper documentation is not on file.
- A required dewatering plan has not been submitted or approved.

D Rating

A project receives a D rating when at least one of the following conditions exists:

- Work started without an R.E.-approved or conditionally approved SWPPP or WPCP.
- A Notice of Discharge not submitted to the RWQCB within 14 days when required.
- When more than four items under a C rating are observed.
- When 80 percent or more of the contract specification requirements are not met.

2.2 PROJECT SELECTION

Caltrans has decided that the number of projects to be reviewed will be at a level that will result in a 95 percent confidence in conclusions drawn from the information collected. The number of projects to be reviewed for the 95 percent confidence level will be determined in accordance with Appendix B of the CCEP, "Project Selection Process."

Caltrans will review WPCP and SWPPP projects based on a random selection from projects listed in the Caltrans' Statement of Going Contracts. Projects will be randomly selected by the Caltrans' Division of Environmental Analysis, Office of Stormwater Program Implementation (OSPI).

2.3 CONSTRUCTION PROJECT STORMWATER REVIEW PLAN

The purpose of the Construction Project Stormwater Review Plan (CPSRP) is to have a formalized procedure for the Quality Assurance level II review component of the water pollution control quality process. The goal of the CPSRP is to document a project's impact on receiving water quality and to evaluate the administration of construction contract provisions related to stormwater runoff management.

The CPSRP provides a process for review of the selected construction projects using special review rating criteria." The CPSRP lists the step-by-step procedures for reviewing implemented BMPs and documenting observed inadequacies.

The District construction stormwater coordinator (DCSWC) or a designee is responsible for arranging and conducting project compliance reviews.

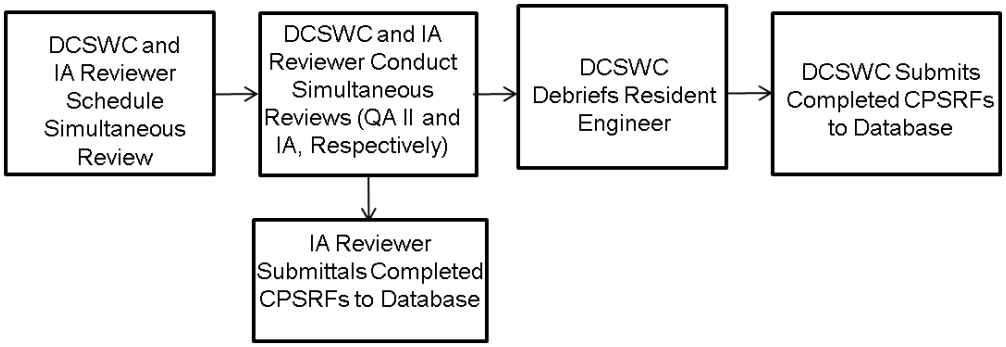
The locations and numbers of BMPs to be reviewed for each type of BMP are performed according to the table below.

No. of BMPs Implemented by Type	Minimum No. of BMPs to Review
1 – 3	1
4 – 10	2
10 – 20	3
20 – 40	4
40 plus	5

The field review focuses on the proper implementation and maintenance of BMPs and the potential impact on receiving water quality from construction activities. The participants must include: resident engineer or a designee, and may include the contractor's water pollution control manager or designee.

2.4 CONSTRUCTION COMPLIANCE EVALUATION PLAN –INDEPENDENT ASSURANCE PROCEDURE

The purpose of the independent assurance CCEP reviews is to have a formalized procedure for the evaluation of the water quality pollution control process. The procedure examines the quality and consistency of data collected and ratings generated by the DCSWC and compiled in the CPSRP database. Implementing this procedure ensures the detection of inconsistencies in project ratings. Shown below is a flow diagram of the Independent Assurance project review procedure:



2.5 FEEDBACK AND PROGRAM IMPROVEMENT

The DCSWC or designee will debrief the resident engineer or their designee after completion of each review. The DCSWC will work directly with the resident engineer to resolve or correct project level inadequacies to ensure an effective stormwater program is in place at project level. The DCSWCs will assist the resident engineer in identifying immediate corrective action to be taken for projects receiving a rating of 3, 4, C, or D. Projects reflecting a rating of 4 will be acted upon within 24 hours upon receipt of the project review report. Projects receiving a rating of 3, 4, C, or D will be reported to the district construction division chief (deputy district director for construction) and the district stormwater NPDES coordinator. The district construction division chief should identify inadequacies common to project ratings of 3, 4, C, or D.

The resident engineer documents the action that was taken in response to the project's rating of 3, 4, C, or D. Projects reflecting a rating of 3, C, or D will be acted upon within one week (5 working days) upon receipt of the project review report. Projects reflecting a rating of 4 will be acted upon within 24 hours upon receipt of the project review report.

The DCSWC will report within 24 hours at completion of the CPSRP to Division of Environmental Analysis, OSPI for projects reflecting a rating of 4.

2.5.1 TRENDS EVALUATION

The Division of Environmental Analysis, OSPI, will analyze the data to identify trends for occurrence of reported inadequacies by type and by district. The information gathered through the

CSBMPAE and SCAPE will identify the source(s) and cause(s) for inadequacies and will provide a solid basis for redirecting or refining stormwater program for construction activities. The information gathered will also provide critical data about strengths and weaknesses of the stormwater program for construction, current and future resource needs to administer an effective and stable program.

3.0 PERFORMANCE ASSESSMENT

This section presents the overall site ratings for the projects reviewed according to the CCEP protocol implemented beginning on July 1, 2008. These Quality Assurance Level II (QAII) reviews were conducted by the DCSWC according to CCEP protocol. The combined numeric/alphabetic criteria are presented first, followed by overall performance of numeric BMP ranking (1 to 4) and Alpha-BMPs ranking (A to D).

3.1 COMBINED REVIEW RESULTS

Figure 3-1 presents a summary of the combined review results for the first three years of the CCEP. Construction site reviews were conducted state-wide from July 1, 2008 to June 30, 2009, July 1, 2009 to June 30, 2010 and July 1, 2010 to June 30, 2011.

In 2008-09, a total of 365 reviews were conducted. In 2009-10 and 2010-2011, fewer reviews (137 and 150, respectively) were conducted. Some construction sites were reviewed more than once during each year, as follows:

- 2008-2009 – 365 reviews conducted at 120 construction sites
- 2009-2010 – 137 reviews conducted at 118 construction sites
- 2010-2011 – 150 reviews conducted at 145 construction sites

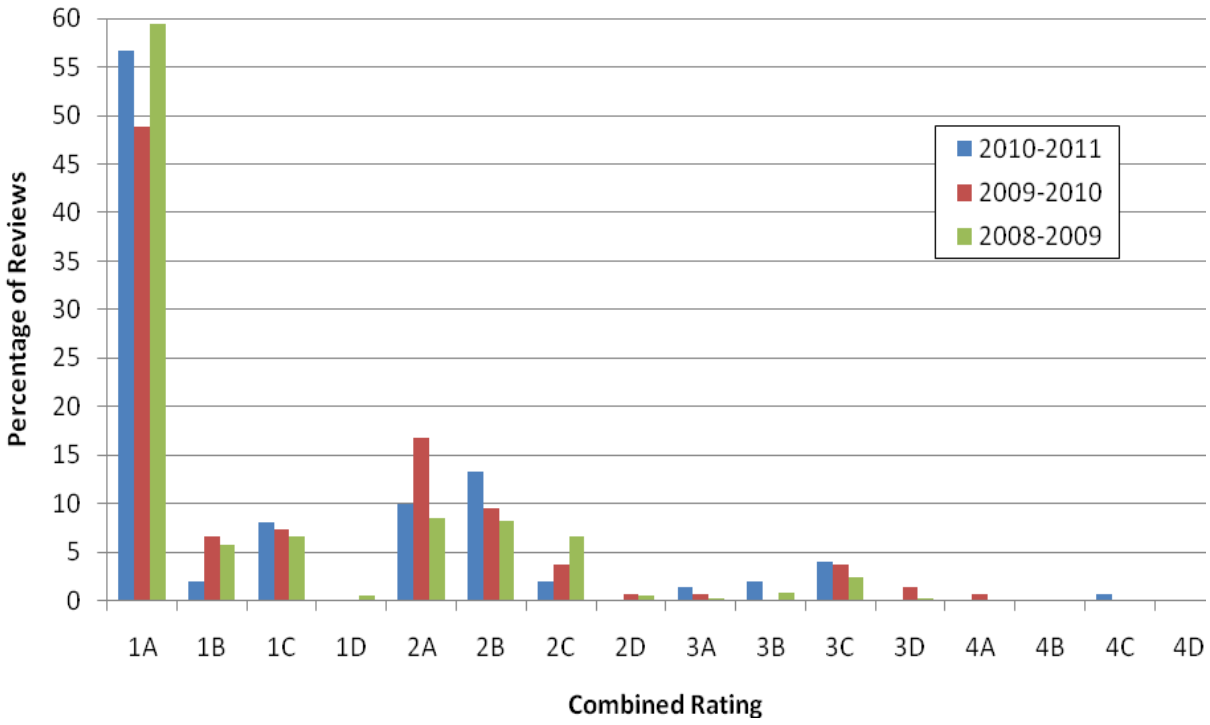
More than 82% of all project reviews were rated 1A, 1B, 2A, 2B in all three years.

Table 3-1. Combined Review Results (All Projects)
Current Data Compared to Past Years

2010-2011			2009-2010			2008-2009		
Combined Rating	**Number of Reviews**	**Percentage of Reviews**	**Combined Rating**	**Number of Reviews**	**Percentage of Reviews**	**Combined Rating**	**Number of Reviews**	**Percentage of Reviews**
1A	85	56.7	1A	67	48.9	1A	217	59.5
1B	3	2.0	1B	9	6.6	1B	21	5.8
1C	12	8.0	1C	10	7.3	1C	24	6.6
1D	0	0.0	1D	0	0.0	1D	2	0.5
2A	15	10.0	2A	23	16.8	2A	31	8.5
2B	20	13.3	2B	13	9.5	2B	30	8.2
2C	3	2.0	2C	5	3.6	2C	24	6.6
2D	0	0.0	2D	1	0.7	2D	2	0.5
3A	2	1.3	3A	1	0.7	3A	1	0.3
3B	3	2.0	3B	0	0.0	3B	3	0.8
3C	6	4.0	3C	5	3.6	3C	9	2.5
3D	0	0.0	3D	2	1.5	3D	1	0.3
4A	0	0.0	4A	1	0.7	4A	0	0.0
4B	0	0.0	4B	0	0.0	4B	0	0.0
4C	1	0.7	4C	0	0.0	4C	0	0.0
4D	0	0.0	4D	0	0.0	4D	0	0.0
Total:	**150**	**100**	**Total:**	**137**	**100**	**Total:**	**365**	**100**

Figure 3-1 shows the overall ratings were distributed in a similar pattern (based on percentage distribution) in 2008-09 and 2009-10, despite more site reviews performed in 2008-09 (365) versus 2009-10 (137).

Figure 3-1. Overall Alpha Numeric Ratings (All Projects)



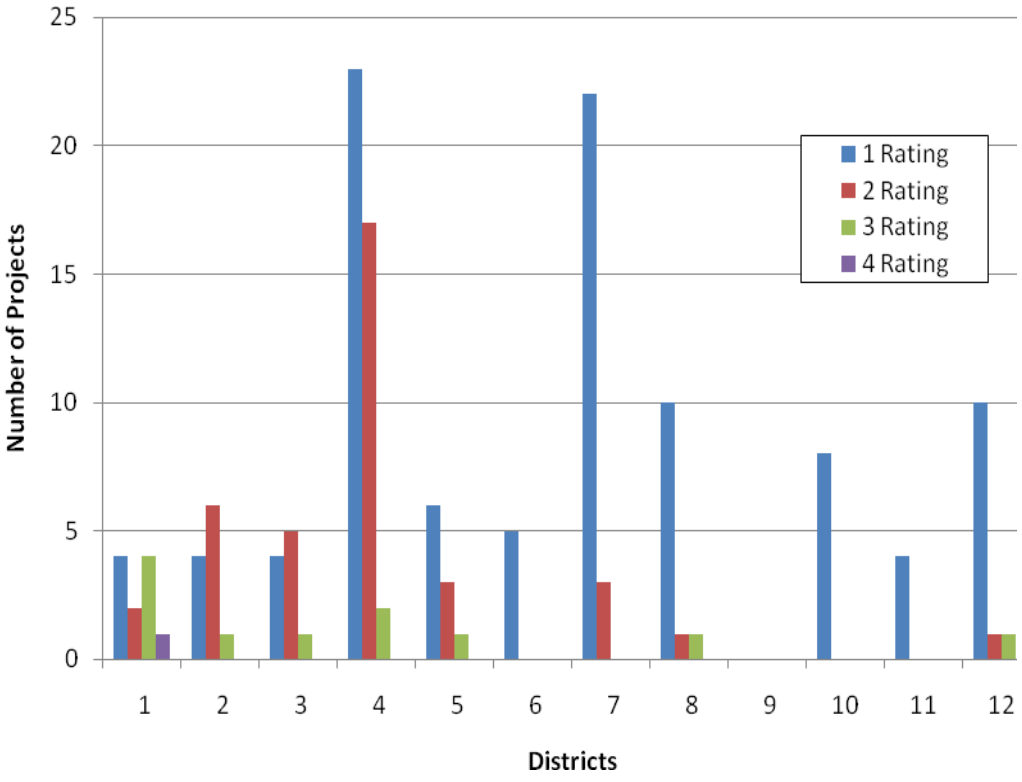
3.2 NUMERIC REVIEW RESULTS

Section 3.2 evaluates only numeric ratings in 2010-2011 for project reviews by district to evaluate the adequacy of BMPs in minimizing stormwater runoff. Of the 150 reviews conducted during the entire reporting period, 138 (92%) resulted in a 1 or a 2 rating, with 11 (7%) of all projects receiving a 3 rating, and 1 (1%) receiving a 4 rating. As discussed in Section 2, a numeric rating of 1 or 2 indicates that the project poses no threat to water quality. Table 3-2 summarizes the numeric ratings by district in 2010-11.

Table 3-2. Numeric Rating Summary (All Projects)
July 1, 2010 – June 30, 2011

District	Number of Reviews	1 Rating		2 Rating		3 Rating		4 Rating	
1	11	4	3%	2	1%	4	3%	1	1%
2	11	4	3%	6	4%	1	1%	0	0%
3	10	4	3%	5	3%	1	1%	0	0%
4	42	23	15%	17	11%	2	1%	0	0%
5	10	6	4%	3	2%	1	1%	0	0%
6	5	5	3%	0	0%	0	0%	0	0%
7	25	22	15%	3	2%	0	0%	0	0%
8	12	10	7%	1	1%	1	1%	0	0%
9	0	0	0%	0	0%	0	0%	0	0%
10	8	8	5%	0	0%	0	0%	0	0%
11	4	4	3%	0	0%	0	0%	0	0%
12	12	10	7%	1	1%	1	1%	0	0%
TOTAL	150	100	67%	38	25%	11	7%	1	1%

Figure 3-2. Numeric Rating Summary (All projects)



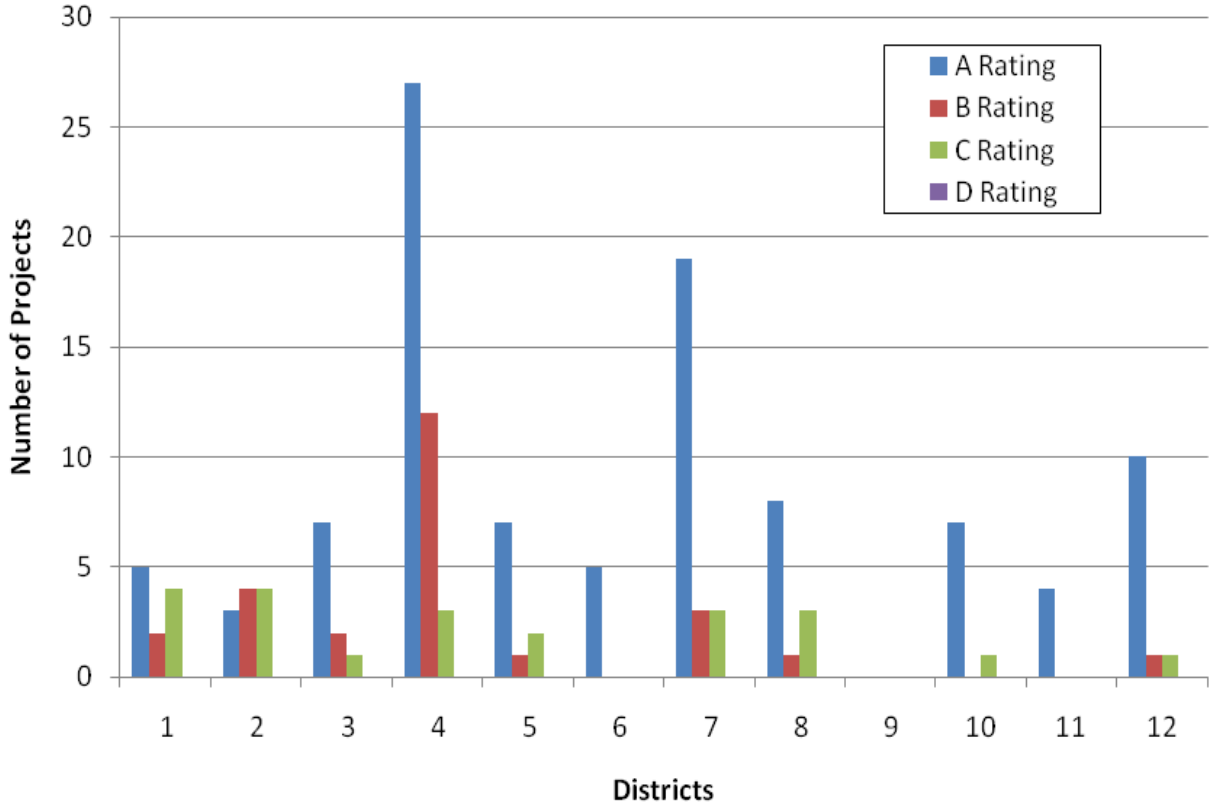
3.3 ALPHA REVIEW RESULTS

Section 3.3 presents a summary of the 2010-2011 alpha ratings for projects reviews in each district. As discussed in Section 2, alpha ratings are based on stormwater contract administration; more specifically the existence of required contracts, required documentation, amendments, reviews and approvals of documents. Table 3-3 presents the alpha rating for each district for 2010-2011.

Table 3-3. Alpha Rating Summary (All Projects)
July 1, 2010 – June 30, 2011

District	Number of Reviews	A Rating		B Rating		C Rating		D Rating	
1	11	5	3%	2	1%	4	3%	0	0%
2	11	3	2%	4	3%	4	3%	0	0%
3	10	7	5%	2	1%	1	1%	0	0%
4	42	27	18%	12	8%	3	2%	0	0%
5	10	7	5%	1	1%	2	1%	0	0%
6	5	5	3%	0	0%	0	0%	0	0%
7	25	19	13%	3	2%	3	2%	0	0%
8	12	8	5%	1	1%	3	2%	0	0%
9	0	0	0%	0	0%	0	0%	0	0%
10	8	7	5%	0	0%	1	1%	0	0%
11	4	4	3%	0	0%	0	0%	0	0%
12	12	10	7%	1	1%	1	1%	0	0%
TOTAL	150	102	68%	26	17%	22	15%	0	0%

Figure 3-3. Alpha Rating Summary (All Projects)



4.0 TRENDS

This section summarizes the trends in BMP adequacy reviewed for 2010-2011. As discussed in Sections 1 and 2, the emphasis of the CCEP program is to review BMP adequacy, corresponding risk to receiving water body, and contract administration. The numeric trends of BMP performance are presented, followed by discussion of trends in alpha ratings for contract administration. Whenever possible, the numeric and alpha BMP performance for 2010-2011 will be compared to performance in 2008-2009 and 2009-2010, the first two years of the CCEP implementation.

4.1 BMP ADEQUACY

The trends for most and least adequate of the 50 BMPs identified in the CCEP are summarized in this section. Figure 4-1 summarizes the 30 types of numeric BMPs identified as being deficient for one or more reasons in 2010-2011.

Table 4-1 presents a summary of the performance for all 1,826 BMPs reviewed in 2010-2011. This table is sorted by most to fewest inadequacies reported, regardless of the total number of BMPs reviewed. As shown in Table 4-1, 273 of 2,072, BMPs reviewed, or 13%, were found to be inadequate for one or more reasons.

Table 4-1. Summary of BMPs Reviewed

BMP Name	Description	No. Reviewed	No. Inadequacies	% Inadequate
SS-1	Scheduling	115	36	31
SC-10	Storm Drain Inlet Protection	229	34	15
WM-3	Stockpile Management	88	24	27
WM-4	Spill Prevention and Control	60	21	35
NS-9	Vehicle and Equipment Fueling	30	18	60
SC-1	Silt Fence	110	18	16
SC-4	Check Dam	74	17	23
SC-5	Fiber Rolls	110	16	15
WM-5	Solid Waste Management	100	13	13
TC-1	Stabilized Construction Entrance/Exit	94	12	13
NS-10	Vehicle and Equipment Maintenance	28	9	32
WM-6	Hazardous Waste Management	22	6	27
NS-13	Material and Equipment Use Over Water	17	5	29
SC-8	Sandbag Barrier	6	4	67
SS-9	Earth Dikes/Drainage Swales & Lined Ditches	14	4	29
TC-4	Street Sweeping and Vacuuming	87	4	5
WM-1	Material Delivery and Storage	92	4	4
WM-8	Concrete Waste Management	66	4	6
SS-6	Straw Mulch	12	3	25
SS-7	Geotextiles, Plastic Covers, Erosion Cont Blankets	47	3	6
WM-9	Sanitary/Septic Waste Management	124	3	2
NS-1	Water Conservation Practices	65	2	3
SC-6	Gravel Bag Berm	33	2	6
SS-3	Hydraulic Mulch	31	2	6
TC-2	Stabilized Construction Roadway	20	2	10
WM-2	Material Use	23	2	9
NS-14	Concrete Finishing	14	1	7
NS-3	Paving and Grinding Operations	21	1	5
NS-4	Temporary Stream Crossing	3	1	33
SS-2	Preservation of Existing Vegetation	141	1	1
WE-1	Wind Erosion Control	57	1	2
NS-11	Pile Driving Operations	4	0	0
NS-12	Concrete Curing	15	0	0
NS-15	Structure Demolition/Removal Near Water	1	0	0
NS-2	Dewatering Operations	7	0	0
NS-5	Clear Water Diversion	2	0	0
NS-6	Illicit Connection/Illegal Discharge Detection	40	0	0
NS-7	Potable Water/Irrigation	5	0	0
NS-8	Vehicle and Equipment Cleaning	6	0	0

Table 4-1. Summary of BMPs Reviewed (continued)

BMP Name	Description	No. Reviewed	No. Inadequacies	% Inadequate
SC-2	Sediment/Desilting Basin	9	0	0
SC-3	Sediment Trap	4	0	0
SC-9	Straw Bale Barrier	0	0	0
SS-10	Outlet Protection/Velocity Dissipation Devices	5	0	0
SS-11	Slope Drains	5	0	0
SS-12	Streambank Stabilization	1	0	0
SS-4	Hydroseeding	7	0	0
SS-5	Soil Binders	12	0	0
SS-8	Wood Mulching	7	0	0
TC-3	Entrance/Outlet Tire Wash	3	0	0
WM-10	Liquid Waste Management	2	0	0
WM-7	Contaminated Soil Management	4	0	0
Total		**2,072**	**273**	**13**

Figure 4-1. BMPs – Sorted by Number of Inadequacies

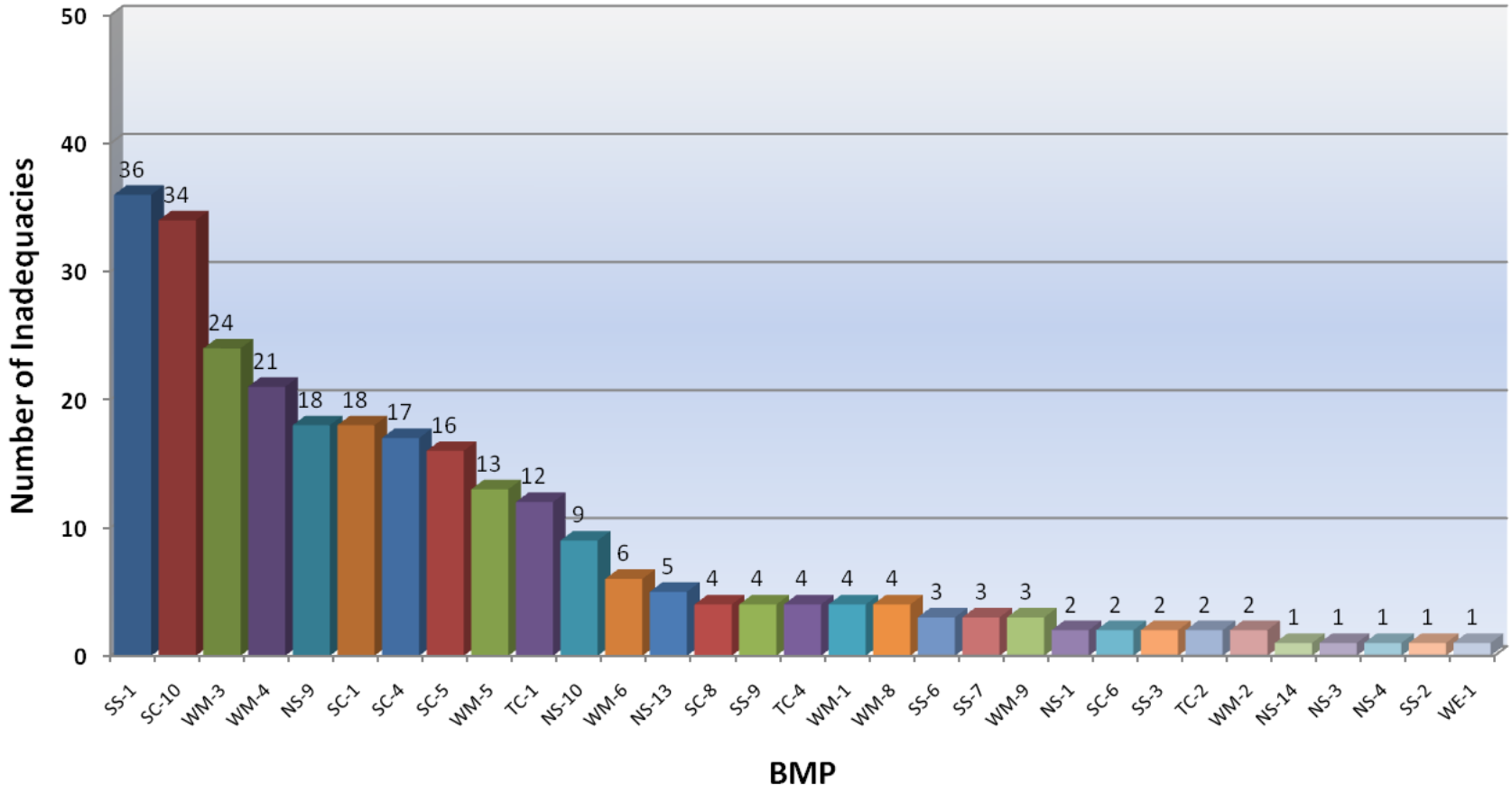


Figure 4-1 presents the number of inadequacies reported for all 50 BMPs in 2010-2011, sorted by most to fewest inadequacies. Those BMPs with zero reported inadequacies in 2010-2011 are not presented in Figure 4-1.

Analysis of Table 4-1 and Figure 4-1 provide the following trends:

- Out of 2,072 BMPs reviewed, 273 BMPs, or 13%, were not properly implemented.
- Scheduling and the next 10 numeric BMPs with the most reported inadequacies accounted for 218 of the 273 (80%) of the reported inadequacies in 2010-2011. A total of 55 inadequacies were reported from the remaining 40 BMPs.
- The highest numbers of inadequacies (36) were reported for scheduling (SS-1) and storm drain inlet protection (SC-10), which also had 34 reported inadequacies.
- Stockpile management (WM-3), spill prevention and control (WM-4), and vehicle and equipment fueling (NS-9) had the second highest number of inadequacies (24, 21 and 18, respectively). Silt fence (SC-1) also had 18. WM-4 is considered both in the numeric BMP category and in the contract administration (Alpha rating) category.
- Check dam (SC-4) had the third highest number of inadequacies, followed by fiber rolls and solid waste management (WM-5).

To fully understand trends, the adequacy of the BMPs should also be assessed according to percentage of the inadequate BMPs. Some BMPs were reviewed over 200 times; partially explaining why a large number of a particular BMP was identified as inadequate. Table 4-2 and Figure 4-2 sort BMPs by percentage of inadequate BMPs, rather than total number.

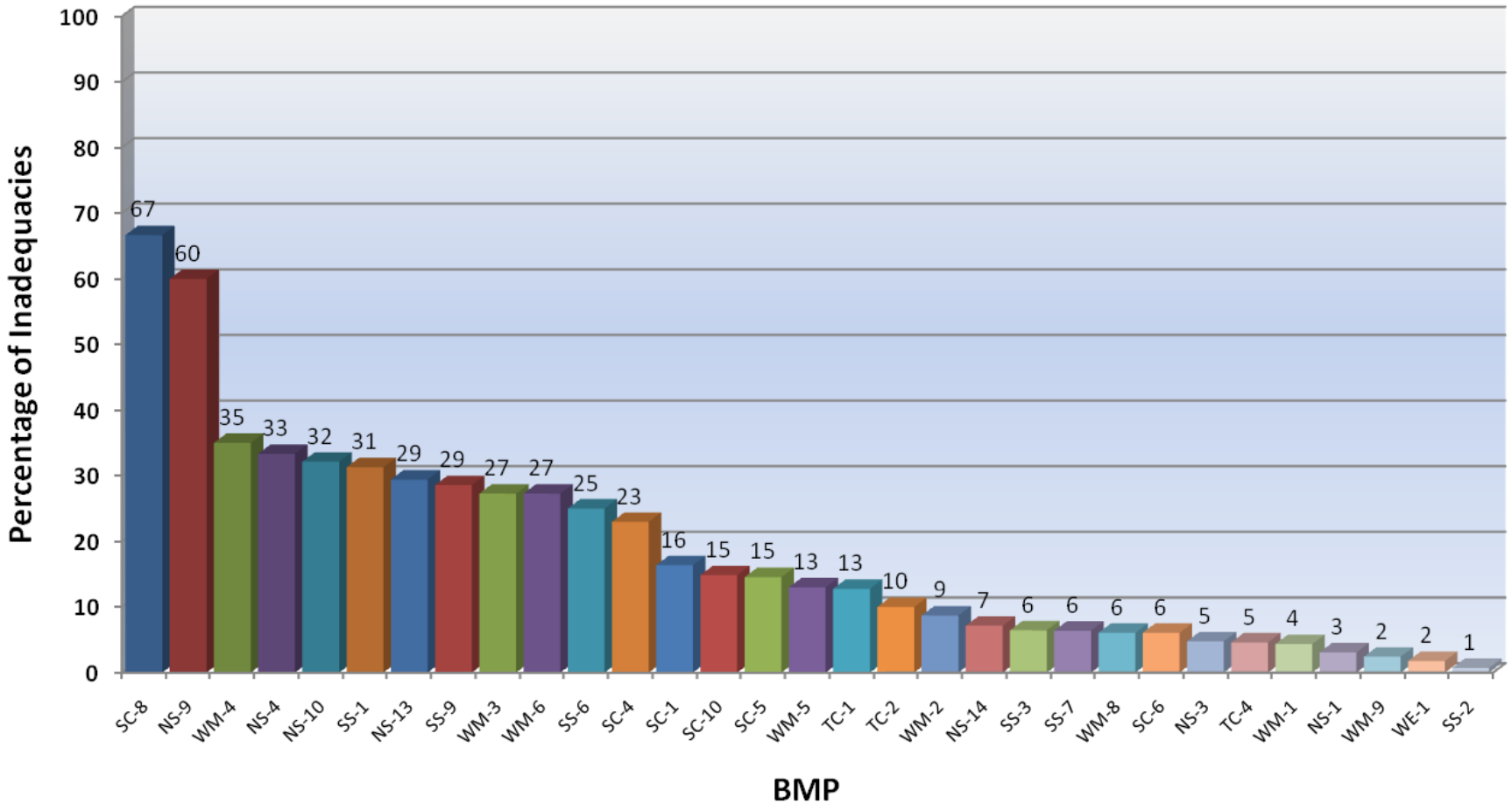
Table 4-2. BMPs Sorted by Percentage of Inadequacies

BMP Name	Description	No. Reviewed	No. Inadequacies	% Inadequate
SC-8	Sandbag Barrier	6	4	67
NS-9	Vehicle and Equipment Fueling	30	18	60
WM-4	Spill Prevention and Control	60	21	35
NS-4	Temporary Stream Crossing	3	1	33
NS-10	Vehicle and Equipment Maintenance	28	9	32
SS-1	Scheduling	115	36	31
NS-13	Material and Equipment Use Over Water	17	5	29
SS-9	Earth Dikes/Drainage Swales & Lined Ditches	14	4	29
WM-3	Stockpile Management	88	24	27
WM-6	Hazardous Waste Management	22	6	27
SS-6	Straw Mulch	12	3	25
SC-4	Check Dam	74	17	23
SC-1	Silt Fence	110	18	16
SC-10	Storm Drain Inlet Protection	229	34	15

Table 4-2. BMPs Sorted by Percentage of Inadequacies (continued)

BMP Name	Description	No. Reviewed	No. Inadequacies	% Inadequate
SC-5	Fiber Rolls	110	16	15
WM-5	Solid Waste Management	100	13	13
TC-1	Stabilized Construction Entrance/Exit	94	12	13
TC-2	Stabilized Construction Roadway	20	2	10
WM-2	Material Use	23	2	9
NS-14	Concrete Finishing	14	1	7
SS-3	Hydraulic Mulch	31	2	6
SS-7	Geotextiles, Plastic Covers, Erosion Cont Blankets	47	3	6
WM-8	Concrete Waste Management	66	4	6
SC-6	Gravel Bag Berm	33	2	6
NS-3	Paving and Grinding Operations	21	1	5
TC-4	Street Sweeping and Vacuuming	87	4	5
WM-1	Material Delivery and Storage	92	4	4
NS-1	Water Conservation Practices	65	2	3
WM-9	Sanitary/Septic Waste Management	124	3	2
WE-1	Wind Erosion Control	57	1	2
SS-2	Preservation of Existing Vegetation	141	1	1
NS-11	Pile Driving Operations	4	0	0
NS-12	Concrete Curing	15	0	0
NS-15	Structure Demolition/Removal Near Water	1	0	0
NS-2	Dewatering Operations	7	0	0
NS-5	Clear Water Diversion	2	0	0
NS-6	Illicit Connection/Illegal Discharge Detection	40	0	0
NS-7	Potable Water/Irrigation	5	0	0
NS-8	Vehicle and Equipment Cleaning	6	0	0
SC-2	Sediment/Desilting Basin	9	0	0
SC-3	Sediment Trap	4	0	0
SC-9	Straw Bale Barrier	0	0	0
SS-10	Outlet Protection/Velocity Dissipation Devices	5	0	0
SS-11	Slope Drains	5	0	0
SS-12	Streambank Stabilization	1	0	0
SS-4	Hydroseeding	7	0	0
SS-5	Soil Binders	12	0	0
SS-8	Wood Mulching	7	0	0
TC-3	Entrance/Outlet Tire Wash	3	0	0
WM-10	Liquid Waste Management	2	0	0
WM-7	Contaminated Soil Management	4	0	0
Total		**2,072**	**273**	**13**

Figure 4-2. BMPs – Sorted by Percentage of Inadequacies



Analysis of Table 4-2 and Figure 4-2 provide the following trends for numeric BMPs in 2010-2011:

- 67% of the 6 sandbag barriers (SC-8) BMPs were identified as inadequate.
- 60% of the 30 vehicle and equipment fueling (NS-9) BMPs were identified as inadequate.
- 12 of 51 total BMPs reported higher than the average percentage (13%) inadequacies.
- 39 of 50 numeric BMPs reported lower than average percentage (13%) inadequacies. Of these 39 BMPs, 20 BMPs had 0% reported inadequacies.

Tables 4-3A, B, C and D present the percentage inadequacies by each BMP type. Tables 4-3A, B, C and D also compare the percentage inadequacies from 2010-2011, 2009-2010 and 2008-2009. This evaluation is useful to consider if one type of BMP (e.g., waste management) has a higher proportion of reported inadequacies.

Table 4-3A. Summary of Non-Stormwater BMPs

		2010-2011			2009-2010	2008-2009
BMP Name	**Description**	**No. Reviewed**	**No. Inadequacies**	**% Inadequate**	**% Inadequate**	**% Inadequate**
NS-1	Water Conservation Practices	65	2	3	5	7
NS-2	Dewatering Operations	7	0	0	0	0
NS-3	Paving and Grinding Operations	21	1	5	10	7
NS-4	Temporary Stream Crossing	3	1	33	0	0
NS-5	Clear Water Diversion	2	0	0	0	10
NS-6	Illicit Connection/Illegal Discharge Detection	40	0	0	0	0
NS-7	Potable Water/Irrigation	5	0	0	0	8
NS-8	Vehicle and Equipment Cleaning	6	0	0	0	0
NS-9	Vehicle and Equipment Fueling	30	18	60	100	57
NS-10	Vehicle and Equipment Maintenance	28	9	32	15	12
NS-11	Pile Driving Operations	4	0	0	0	8
NS-12	Concrete Curing	15	0	0	0	3
NS-13	Material and Equipment Use Over Water	17	5	29	29	9
NS-14	Concrete Finishing	14	1	7	0	5
NS-15	Structure Demolition/Removal Near Water	1	0	0	0	0
NS ALL		**258**	**37**	**14**	**14**	**12**

Table 4-3B. Summary of Sediment Control BMPs

BMP Name	Description	2010-2011			2009-2010	2008-2009
		No. Reviewed	No. Inadequacies	% Inadequate	% Inadequate	% Inadequate
SC-1	Silt Fence	110	18	16	18	12
SC-2	Sediment/Desilting Basin	9	0	0	20	0
SC-3	Sediment Trap	4	0	0	0	0
SC-4	Check Dam	74	17	23	12	7
SC-5	Fiber Rolls	110	16	15	15	6
SC-6	Gravel Bag Berm	33	2	6	14	3
SC-8	Sandbag Barrier	6	4	67	0	0
SC-9	Straw Bale Barrier	0	0	0	100	0
SC-10	Storm Drain Inlet Protection	229	34	15	11	9
SC ALL		**863**	**146**	**17**	**13**	**7**

Table 4-3C. Summary of Soil Stabilization BMPs

BMP Name	Description	2010-2011			2009-2010	2008-2009
		No. Reviewed	No. Inadequacies	% Inadequate	% Inadequate	% Inadequate
SS-1	Scheduling	115	36	31	27	33
SS-2	Preservation of Existing Vegetation	141	1	1	1	1
SS-3	Hydraulic Mulch	31	2	6	14	0
SS-4	Hydroseeding	7	0	0	0	0
SS-5	Soil Binders	12	0	0	0	18
SS-6	Straw Mulch	12	3	25	8	0
SS-7	Geotextiles, Plastic Covers, Erosion Cont Blankets	47	3	6	9	13
SS-8	Wood Mulching	7	0	0	0	0
SS-9	Earth Dikes/Drainage Swales & Lined Ditches	14	4	29	0	0
SS-10	Outlet Protection/Velocity Dissipation Devices	5	0	0	33	0
SS-11	Slope Drains	5	0	0	0	0
SS-12	Streambank Stabilization	1	0	0	0	17
SS ALL		**397**	**49**	**12**	**12**	**13**

In 2010-2011, Table 4-3C shows that the percentage of inadequate soil stabilization BMPs (12%) are slightly less than the average of all BMPs (i.e., 13%) presented in Tables 4-1 and 4-2. In 2010-2011, scheduling (SS-1), earth dikes/drainage swales & lined ditches (SS-9) and straw mulch (SS-6) reported higher than average inadequacy percentages (31, 29 and 25, respectively). Excluding SS-1, SS-9 and 22-6, the remaining soil stabilization BMPs have inadequacies ranging from 6% to 0%, far below the overall BMP average of 13%.

Table 4-3D. Summary of Other BMPs
(Tracking Control, Wind Erosion, Waste Management)

BMP Name	Description	2010-2011			2009-2010	2008-2009
		No. Reviewed	No. Inadequacies	% Inadequate	% Inadequate	% Inadequate
TC-1	Stabilized Construction Entrance/Exit	94	12	13	18	12
TC-2	Stabilized Construction Roadway	20	2	10	0	8
TC-3	Entrance/Outlet Tire Wash	3	0	0	0	0
TC-4	Street Sweeping and Vacuuming	87	4	5	6	0
TC ALL		**204**	**18**	**9**	**6**	**10**
WE-1	Wind Erosion Control	87	4	5	4	1
WE ALL		**87**	**4**	**5**	**4**	**1**
WM-1	Material Delivery and Storage	92	4	4	4	2
WM-2	Material Use	23	2	9	13	8
WM-3	Stockpile Management	88	24	27	37	30
WM-4	Spill Prevention and Control	60	21	35	41	20
WM-5	Solid Waste Management	100	13	13	5	7
WM-6	Hazardous Waste Management	22	6	27	16	8
WM-7	Contaminated Soil Management	4	0	0	0	0
WM-8	Concrete Waste Management	66	4	6	12	15
WM-9	Sanitary/Septic Waste Management	124	3	2	2	1
WM-10	Liquid Waste Management	2	0	0	0	0
WM ALL		**581**	**77**	**13**	**14**	**11**

In 2010-2011, Table 4-3D shows that the percentage of inadequate tracking control, wind erosion and waste management BMPs are 9%, 5% and 13% respectively; less than the average of all BMPs (i.e., 13%) presented in Tables 4-1 and 4-2. In 2010-2011, reported percentage of inadequacies for waste management BMPs were slightly lower, respectively, than reported in 2009-2010. In 2010-2011 three waste management BMPs, reported a higher than average percentage inadequacies percentage; spill prevention and control (WM-4; 35%), stockpile management (WM-3; 27%) and hazardous waste management (WM-6; 27%).

4.1.1 BMP PERFORMANCE TRENDS OVER TIME

Figure 4-3 shows the performance of BMPs over time for the 2008-09, 2009-10 and 2010-11 construction seasons. Figure 4-3 compares fifteen BMPs with the most inadequacies over time to assess BMP performance trends over time.

Figure 4-3. BMP Performance Trends over Time

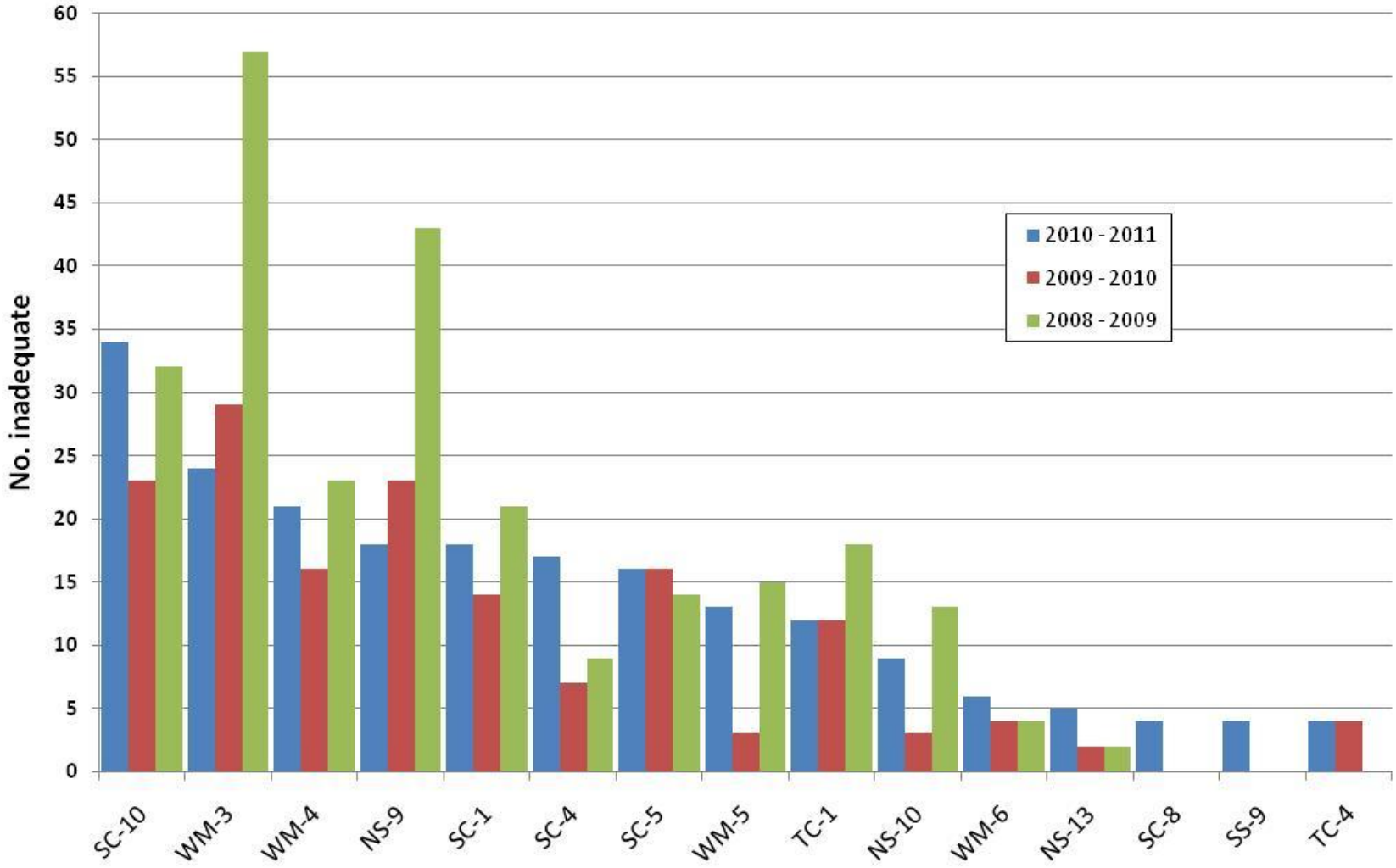


Figure 4-3 shows three general trends:

1) BMPs with similar numbers of inadequacies from 2008 to 2011 include:

Storm Drain Inlet Protection (SC-10)
Spill Prevention and Control (WM-4)
Silt Fence (SC-1)
Fiber Rolls (SC-5)
Solid Waste Management (WM-5)
Stabilized Construction Entrance/Exit (TC-1)
Vehicle and Equipment Maintenance (NS-10)
Hazardous Waste Management (WM-6)
Material and Equipment Use Over Water (NS-13)
Sandbag Barrier (SC-8)
Earth Dikes/Drainage Swales & Lined Ditches (SS-9)
Street Sweeping and Vacuuming (TC-4)

2) BMPs with declining numbers of inadequacies from 2008 to 2011 include:

Stockpile Management (WM-3)
Vehicle and Equipment Fueling (NS-9)

3) One BMP shows increasing numbers of inadequacies from 2008 to 2011:

Check Dam (SC-4)

Figure 4-3 shows that the performance of most BMPs (12 of 15) is not changing over time. The performance of stockpile management (WM-3), vehicle and equipment fueling (NS-9) and concrete waste management (WM-8) appears to be improving over time, with fewer inadequacies in 2010-11 compared to 2008-09. The number of inadequacies for check dams has increased slightly, from 7 in 2008-09 to 17 in 2010-11.

4.2 CONTRACT ADMINISTRATION EFFECTIVENESS

The trends for most and least inadequacies observed with contract administration issues observed throughout the year are summarized in this section. The CCEP defines 17 discrete types of contract administration criteria, termed alpha BMPs. Some of these criteria are tied to site-wide issues (e.g., schedule [SS-1], SWPPP/WPCP on file [Alpha 1-9]); others are tied to specific BMPs. For example, with material storage (WM-1), an inventory of stored material must be available on-site and kept up-to-date. If supporting documents are not available for particular BMPs, the alpha BMP for WM-1 is inadequate.

Table 4-4 lists all alpha BMPs and other BMPS, assorted with contract administration deficiencies. It provides a short description and sorts these alpha BMPs from most to fewest inadequacies. Figure 4-4 summarizes all 192 alpha BMPs identified as being deficient for one or more reasons in 2010-2011.

Table 4-4. Summary of Alpha BMPs Reviewed

Alpha BMP Name	Description	No. Reviewed	No. Inadequacies	% Inadequate
SS-1	Scheduling	115	93	81
WM-1	Material Delivery and Storage	92	26	28
Alpha 1-9	SWPPP/WPCP	144	14	10
Alpha 28-30	Training	144	14	10
WM-5	Solid Waste Management	100	14	14
WM-4	Spill Prevention and Control	60	13	22
WE-1	Wind Erosion Control	57	6	11
WM-6	Hazardous Waste Management	22	4	18
NS-6	Illicit Connection/Illegal Discharge Detection	40	3	8
Alpha 10-15	Site Inspection Documentation	144	2	1
NS-3	Paving and Grinding Operations	21	2	10
NS-2	Dewatering Operations	7	1	14
Alpha 16-19	Sampling and Analysis Plan	144	0	0
Alpha 20-24	Dewatering Plan	144	0	0
Alpha 25	Pre-construction Meeting Records	144	0	0
Alpha 26-27	Active Disturbed Soil Area(s)	144	0	0
WM-2	Material Use	23	0	0
WM-7	Contaminated Soil Management	4	0	0
ALPHA ALL		**1,549**	**192**	**12**

Figure 4-4. Alpha BMPs – Sorted by Number of Inadequacies

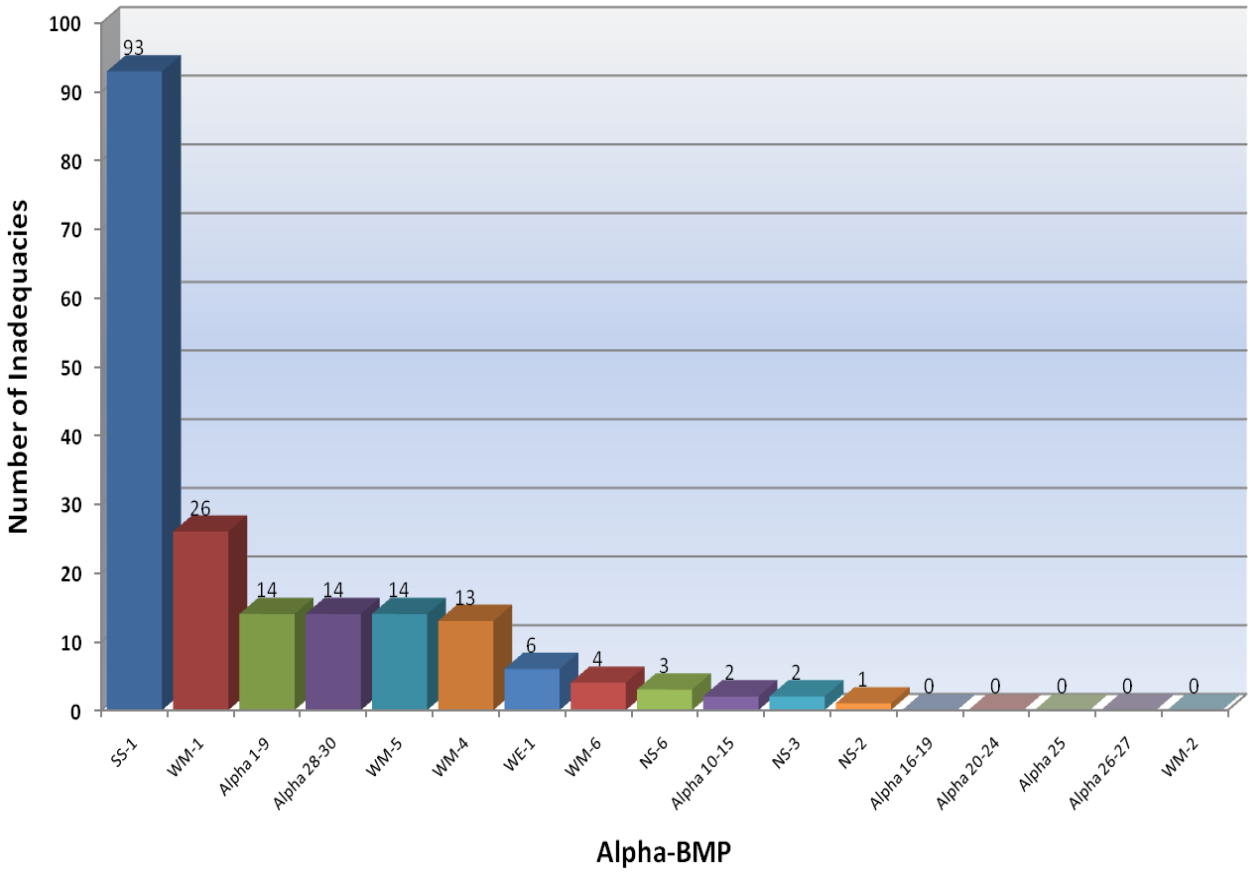


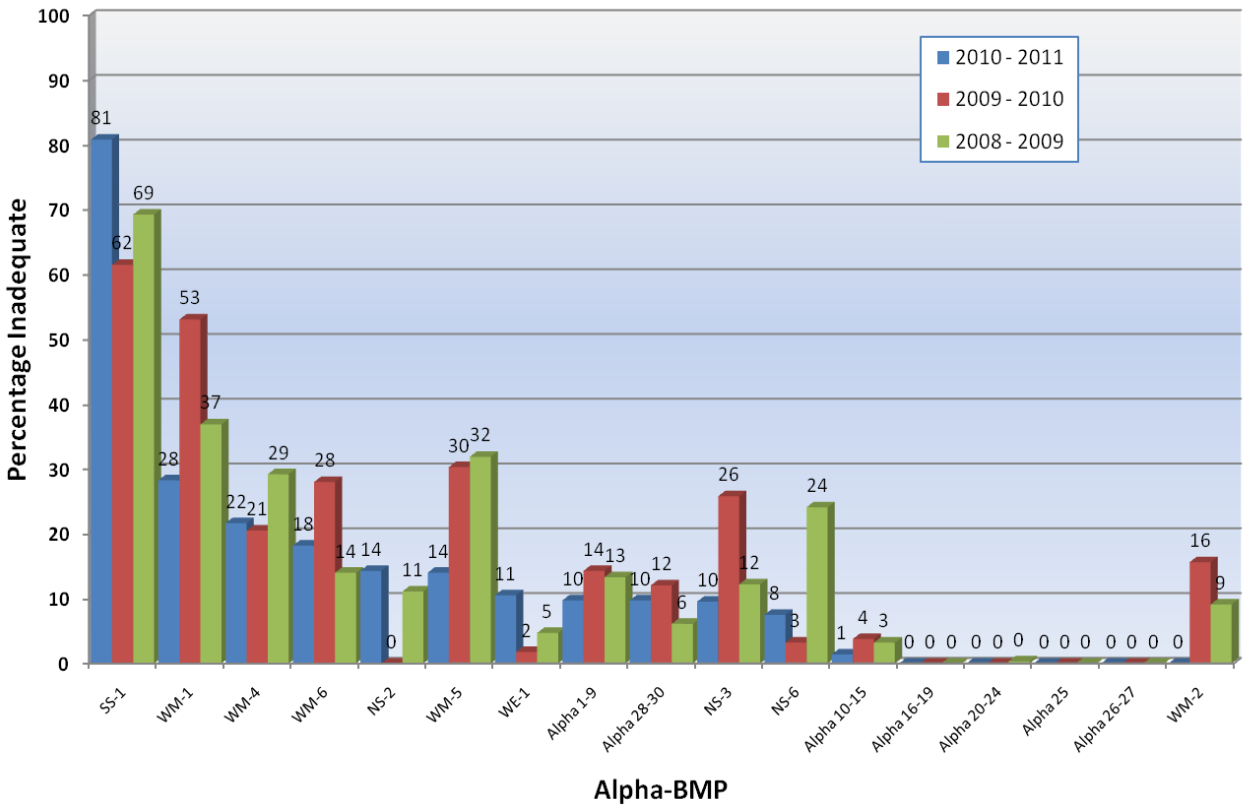
Table 4-4 shows that 192 out of 1,549 (12%) of all alpha BMPs reviewed were rated as inadequate. Figure 4-4 shows that scheduling (SS-1) has the most inadequate ratings of all BMPs (93), followed by documentation problems associated with material delivery and storage (WM-1) with 26 inadequacies.

The level of compliance of the alpha BMPs was also assessed according to the percentage of the alpha BMPs that were found to be inadequate. Some BMPs were reviewed over 100 times; partially explaining why a large number of a particular BMP was identified as inadequate. Table 4-5 and Figure 4-5 present the type of alpha BMPs ranked from highest to lowest percentage inadequacies. Table 4-5 and Figure 4-5 also compare 2010-2011 data to previous years, 2009-2010 and 2008-2009.

Table 4-5. Alpha BMPs Sorted by Percentage of Inadequacies

Alpha BMP Name	Description	2010 - 2011			2009 - 2010	2008 - 2009
		No. Reviewed	No. Inadequacies	% Inadequate	% Inadequate	% Inadequate
SS-1	Scheduling	115	93	81	62	69
WM-1	Material Delivery and Storage	92	26	28	53	37
WM-4	Spill Prevention and Control	60	13	22	21	29
WM-6	Hazardous Waste Management	22	4	18	28	14
NS-2	Dewatering Operations	7	1	14	0	11
WM-5	Solid Waste Management	100	14	14	30	32
WE-1	Wind Erosion Control	57	6	11	2	5
Alpha 1-9	SWPPP/WPCP	144	14	10	14	13
Alpha 28-30	Training	144	14	10	12	6
NS-3	Paving and Grinding Operations	21	2	10	26	12
NS-6	Illicit Connection/Illegal Discharge Detection	40	3	8	3	24
Alpha 10-15	Site Inspection Documentation	144	2	1	4	3
Alpha 16-19	Sampling and Analysis Plan	144	0	0	0	0
Alpha 20-24	Dewatering Plan	144	0	0	0	0
Alpha 25	Pre-construction Meeting Records	144	0	0	0	0
Alpha 26-27	Active Disturbed Soil Area(s)	144	0	0	0	0
WM-2	Material Use	23	0	0	16	9
WM-7	Contaminated Soil Management	4	0	0	28	14
ALPHA ALL		**1,549**	**192**	**12**	**14**	**13**

Figure 4-5. Alpha BMPs - Sorted by Percentage of Inadequacies



For 2010-2011, Table 4-5 and Figure 4-5 show that the primary alpha BMP inadequacies are scheduling (SS-1; 81%), materials delivery and storage (WM-1; 28%), and spill prevention and control (WM-4; 22%). In addition to SS-1, WM-1, and WM-4, only hazardous waste management (WM-6; 18%), dewatering operation (NS-2; 14%), 14%, and solid waste management (WM-5; 14%), are above the alpha BMP average percentage (12%) inadequacies. The remaining Alpha BMPs have lower percentage inadequacies (0 to 11%).

Table 4-5 and Figure 4-5 also compare the performance of alpha BMPs in 2010-2011 to previous years, 2008-2009 and 2009-2010. Scheduling (SS-1), dewatering (NS-2) and wind erosion (WE-1) were the only alpha BMPs to have higher percentages of inadequate BMPs compared to the previous two years.

5.0 CONCLUSION

This *Year-End Performance Report – October 2011 (YEPR)* summarizes construction project stormwater compliance reviews conducted between July 1, 2010 and June 30, 2011. These reviews were conducted in accordance with the July 2008 *Construction Compliance Evaluation Plan.* Sections 1.0 and 2.0 of this YEPR provided the background and methodology for these reviews. Section 3.0 presented a performance assessment of these reviews, both for the current FY 2010/2011 period, as well as a comparison with data from the previous two years. This

assessment concluded that approximately 82% of all project reviews were rated 1A, 1B, 2A, 2B for FY 2010/2011, which was in line with the level of compliance in the previous two years. For FY 2010/2011, 68% of projects receive an A alpha rating. Section 4.0 analyzed trends in the data. This analysis concluded that 273 of the 2,072 BMPs reviewed, or 13%, were found to be inadequate. Other trends for the specific types of BMPs are presented in this section. The general conclusion in comparing data to the previous two years was that the performance of most BMPs is not changing over time.