Year-End Performance Report
A Summary of Construction Compliance Reviews – July 1, 2011 – June 30, 2012

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November 2012

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List of Abbreviations

ACCRP	Annual Construction Compliance Review Plan
BMP	Best Management Practice
CCEP	Construction Compliance Evaluation Plan
CPSRP	Construction Project Stormwater Review Plan
CPSRF	Construction Project Stormwater Review Form
CSBMPAE	Construction Stormwater Best Management Practices Adequacy Evaluation
DCSWC	District Construction Stormwater Coordinator
Department	Department of Transportation
IA	Independent Assurance
NPDES	National Pollutant Discharge Elimination System
OSPI	Office of Stormwater Program Implementation
QA I	Quality Assurance Level I
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. Introduction

This *Year-End Performance Report – November 2012* summarizes the construction project stormwater compliance reviews conducted between July 1, 2011 and June 30, 2012. 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, 2011 to June 30, 2012) 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 In July 2008, the document *Construction Compliance Evaluation Plan (CCEP) CTSW-PL-08-999.54.1* was adopted, which superseded the ACCRP.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.

The CCEP document describes the activities implemented by Caltrans for evaluating construction project stormwater compliance with the statewide NPDES 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.

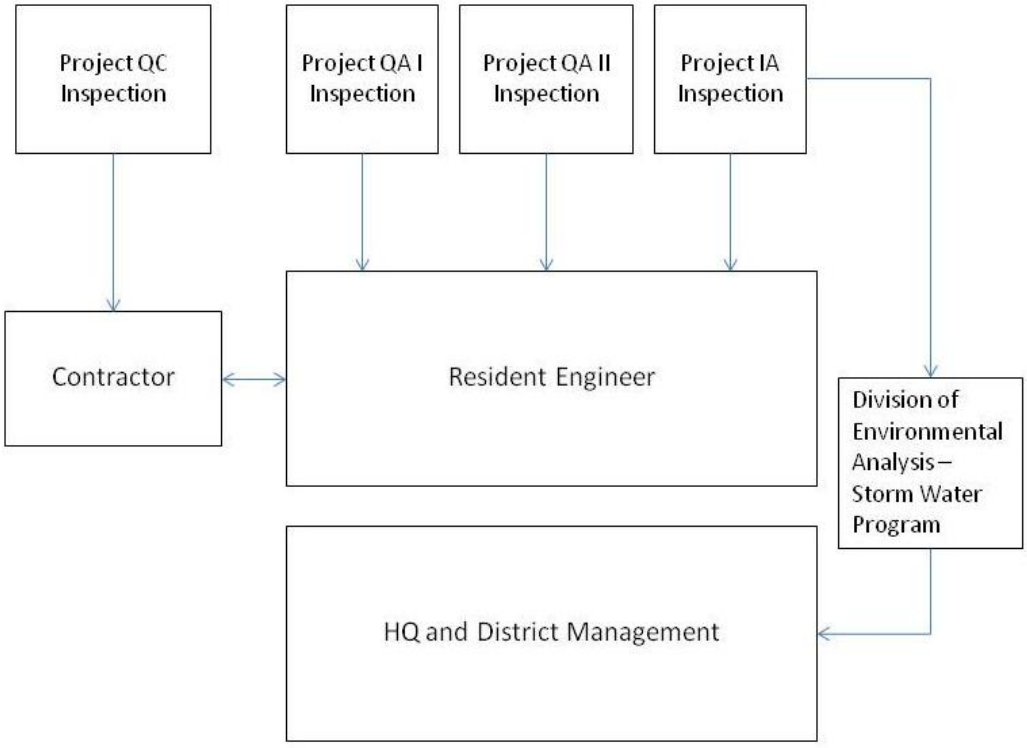
The CCEP also provides feedback procedures and a process for program improvement as follows:

- 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 review process provides answers to 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 2009/2010 and 2010/2011 reporting period. See Section 4.0 – Trends

2. 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 2009 Construction General Permit (Permit No. 2009-0009 DWQ) or applicable Lahontan 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 trends over time of observed inadequate stormwater BMPs.
- 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. 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:
  1. Missing BMP
  2. Improper location
  3. Incorrect installation
  4. Lack of maintenance
  5. Improper selection

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

- 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.

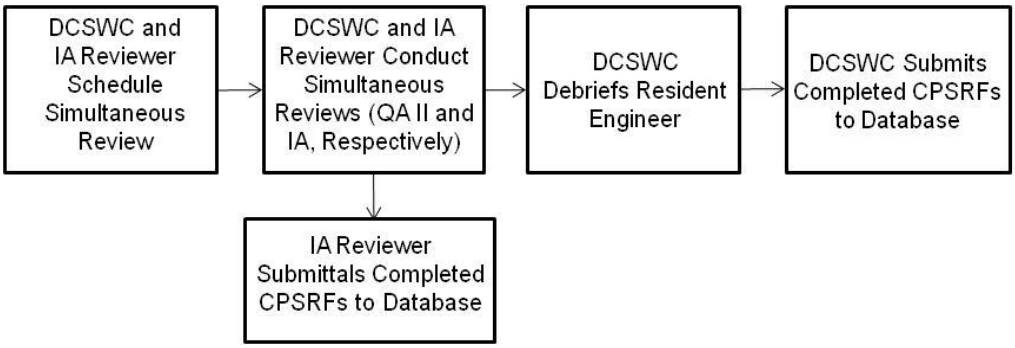
The locations and numbers of BMPs to be reviewed for each type of BMP are performed according to the table below.

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. Performance Assessment

This section presents the overall site ratings for the projects reviewed from July 1, 2011 to June 30, 2012 according to the CCEP protocol implemented beginning on July 1, 2008. 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, 2009 to June 30, 2010, July 1, 2010 to June 30, 2011 and July 1, 2011 to June 30, 2012.

In 2011-12, a total of 88 reviews were conducted. In 2010-11 and 2009-2010, more reviews (150 and 137, respectively) were conducted. Some construction sites were reviewed more than once during each year, as follows:

- 2009-2010 – 137 reviews conducted at 118 construction sites
- 2010-2011 – 150 reviews conducted at 145 construction sites
- 2011-2012 – 88 reviews conducted at 71 construction sites

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

2011 - 2012			2010 - 2011			2009 - 2010		
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	36	40.9	1A	85	56.7	1A	67	48.9
1B	13	14.8	1B	3	2.0	1B	9	6.6
1C	4	4.5	1C	12	8.0	1C	10	7.3
1D	0	0.0	1D	0	0.0	1D	0	0.0
2A	13	14.8	2A	15	10.0	2A	23	16.8
2B	8	9.1	2B	20	13.3	2B	13	9.5
2C	11	12.5	2C	3	2.0	2C	5	3.6
2D	0	0.0	2D	0	0.0	2D	1	0.7
3A	0	0.0	3A	2	1.3	3A	1	0.7
3B	0	0.0	3B	3	2.0	3B	0	0.0
3C	3	3.4	3C	6	4.0	3C	5	3.6
3D	0	0.0	3D	0	0.0	3D	2	1.5
4A	0	0.0	4A	0	0.0	4A	1	0.7
4B	0	0.0	4B	0	0.0	4B	0	0.0
4C	0	0.0	4C	1	0.7	4C	0	0.0
4D	0	0.0	4D	0	0.0	4D	0	0.0
TOTAL	**88**	**100**	**Total:**	**150**	**100**	**Total:**	**137**	**100**

Table 3-1 presents the number of reviews and the ratings for construction sites over the past three fiscal years. Table 3-1 shows that more than 82% of all project reviews were rated 1A, 1B, 2A, 2B in all three years.

Figure 3-1 shows the overall ratings in 2011-12 were distributed in a similar pattern (based on percentage) in 2009-10 and 2010-11.

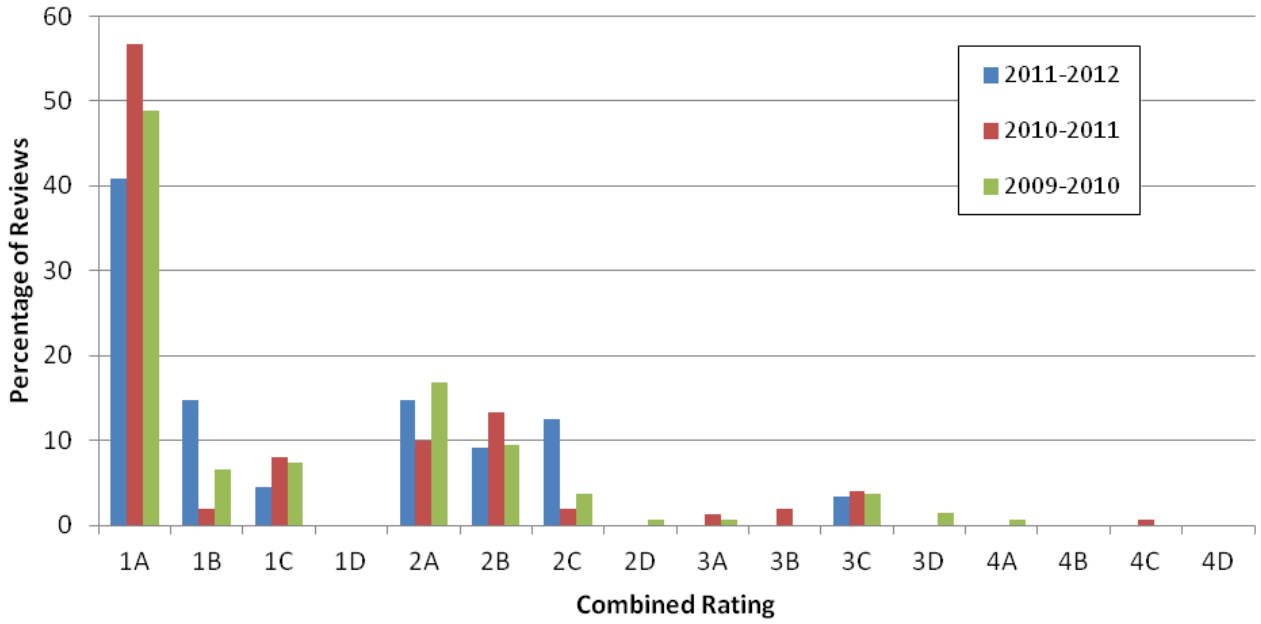


Figure 3-1. Overall Alpha Numeric Ratings (All Projects)

3.2 Numeric Review Results

Section 3.2 evaluates the numeric ratings in 2011-12 for project reviews by district to evaluate the adequacy of BMPs in minimizing stormwater runoff. Of the 88 reviews conducted during the July 1, 2011 to June 30, 2012 reporting period, 85 (96%) resulted in a 1 or a 2 rating, with 3 (3%) of all projects receiving a 3 rating, and 0 (0%) receiving a 4 rating. As discussed in Section 2, a numeric rating of 1 or 2 indicates that the project poses minimal threat to water quality. Table 3-2 summarizes the numeric ratings by district in 2011-12.

Table 3-2. Numeric Rating Summary (All Projects)
July 1, 2011 – June 30, 2012

District	Number of Reviews	1 Rating		2 Rating		3 Rating		4 Rating	
1	4	2	2%	0	0%	2	2%	0	0%
2	7	1	1%	5	6%	1	1%	0	0%
3	2	1	1%	1	1%	0	0%	0	0%
4	28	14	16%	14	16%	0	0%	0	0%
5	3	3	3%	0	0%	0	0%	0	0%
6	2	2	2%	0	0%	0	0%	0	0%
7	11	10	11%	1	1%	0	0%	0	0%
8	5	3	3%	2	2%	0	0%	0	0%

Table 3-2. Numeric Rating Summary (All Projects) July 1, 2011 – June 30, 2012									
District	Number of Reviews	1 Rating		2 Rating		3 Rating		4 Rating	
9	0	0	0%	0	0%	0	0%	0	0%
10	3	3	3%	0	0%	0	0%	0	0%
11	2	0	0%	2	2%	0	0%	0	0%
12	21	14	16%	7	8%	0	0%	0	0%
TOTAL	88	53	60%	32	36%	3	3%	0	0%

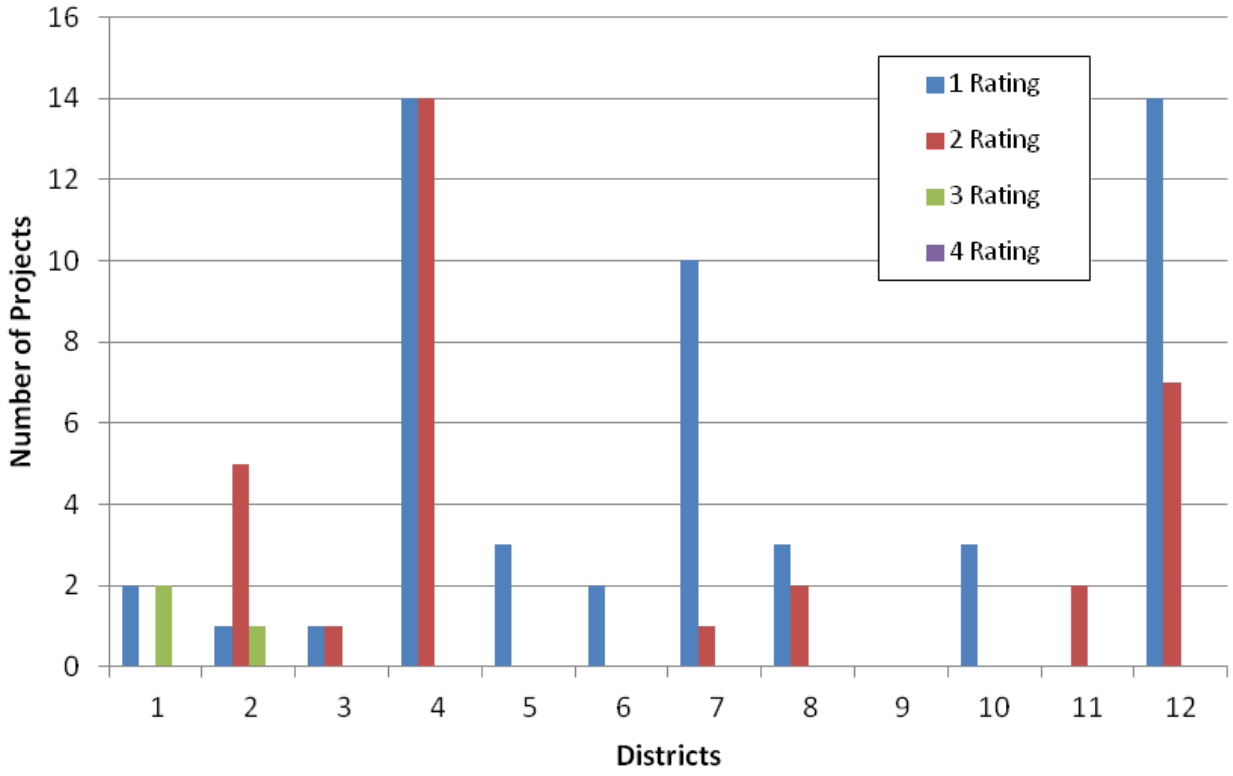


Figure 3-2. Numeric Rating Summary (All Projects)

3.3 Alpha Review Results

Section 3.3 presents a summary of the 2011-12 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 and Figure 3-3 presents the alpha rating for each district for 2011-12.

Table 3-3. Alpha Rating Summary (All Projects) July 1, 2011 – June 30, 2012									
District	Number of Reviews	A Rating		B Rating		C Rating		D Rating	
1	4	1	1%	0	0%	3	3%	0	0%
2	7	2	2%	2	2%	3	3%	0	0%
3	2	1	1%	1	1%	0	0%	0	0%
4	28	14	16%	10	11%	4	5%	0	0%
5	3	1	1%	2	2%	0	0%	0	0%
6	2	2	2%	0	0%	0	0%	0	0%
7	11	9	10%	1	1%	1	1%	0	0%
8	5	2	2%	1	1%	2	2%	0	0%
9	0	0	0%	0	0%	0	0%	0	0%
10	3	1	1%	2	2%	0	0%	0	0%
11	2	0	0%	0	0%	2	2%	0	0%
12	21	16	18%	2	2%	3	3%	0	0%
TOTAL	88	49	56%	21	24%	18	20%	0	0%

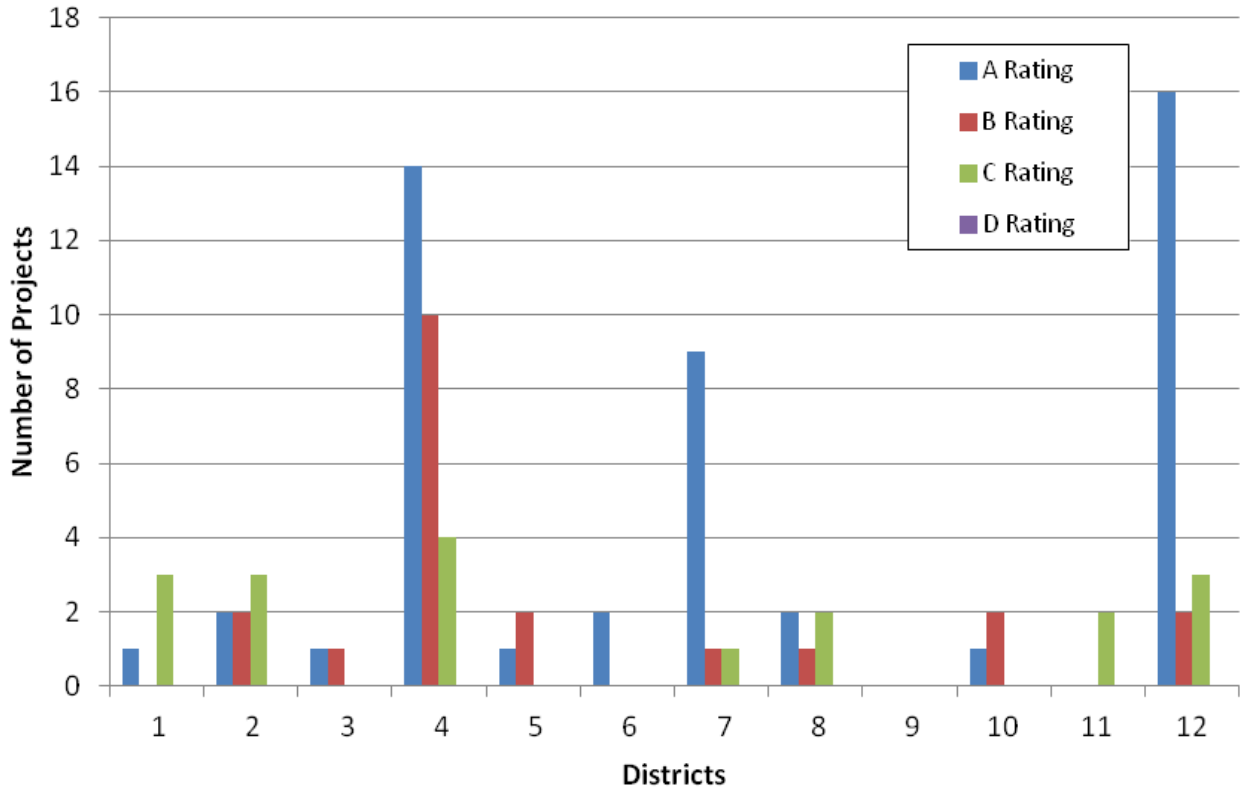


Figure 3-3. Alpha Rating Summary (All Projects)

4. Trends

This section summarizes the trends in BMP adequacy reviewed for 2011-12. 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 2011-12 will be compared to performance in 2009-10 and 2010-11, the first two years of the CCEP implementation.

4.1 BMP Adequacy

The trends for most and least adequate of the 51 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 2011-12.

Table 4-1 presents a summary of the performance for all 1,330 BMPs reviewed in 2011-12. This table is sorted by most to fewest inadequacies reported, regardless of the total number of BMPs reviewed. As shown in Table 4-1, 189 of 1,330 BMPs reviewed in 2011-12, or 14%, 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
SC-10	Storm Drain Inlet Protection	198	27	14
SS-1	Scheduling	60	26	43
WM-3	Stockpile Management	67	19	28
WM-4	Spill Prevention and Control	37	17	46
SC-5	Fiber Rolls	86	12	14
TC-1	Stabilized Construction Entrance/Exit	88	11	13
NS-9	Vehicle and Equipment Fueling	13	8	62
SC-1	Silt Fence	61	8	13
SC-4	Check Dam	42	8	19
WM-5	Solid Waste Management	57	8	14
NS-13	Material and Equipment Use Over Water	10	7	70
WM-1	Material Delivery and Storage	60	7	12
WM-8	Concrete Waste Management	53	6	11
TC-4	Street Sweeping and Vacuuming	43	5	12
SS-3	Hydraulic Mulch	33	4	12
NS-5	Clear Water Diversion	2	2	100
WM-7	Contaminated Soil Management	9	2	22
NS-1	Water Conservation Practices	38	1	3
NS-10	Vehicle and Equipment Maintenance	14	1	7
NS-15	Structure Demolition/Removal Near Water	3	1	33

Table 4-1. Summary of BMPs Reviewed				
BMP Name	Description	No. Reviewed	No. Inadequacies	% Inadequate
NS-3	Paving and Grinding Operations	12	1	8
NS-8	Vehicle and Equipment Cleaning	3	1	33
SC-9	Straw Bale Barrier	2	0	0
SS-10	Outlet Protection/Velocity Dissipation Devices	5	1	20
SS-11	Slope Drains	2	1	50
SS-5	Soil Binders	5	1	20
SS-7	Geotextiles, Plastic Covers, Erosion Control Blankets	26	1	4
WM-10	Liquid Waste Management	6	1	17
WM-9	Sanitary/Septic Waste Management	65	1	2
NS-11	Pile Driving Operations	6	0	0
NS-12	Concrete Curing	9	0	0
NS-14	Concrete Finishing	3	0	0
NS-2	Dewatering Operations	6	0	0
NS-4	Temporary Stream Crossing	1	0	0
NS-6	Illicit Connection/Illegal Discharge Detection	20	0	0
NS-7	Potable Water/Irrigation	1	0	0
SC-2	Sediment/Desilting Basin	3	0	0
SC-3	Sediment Trap	3	0	0
SC-6	Gravel Bag Berm	21	0	0
SC-8	Sandbag Barrier	1	0	0
SS-12	Streambank Stabilization	0	0	0
SS-2	Preservation of Existing Vegetation	67	0	0
SS-4	Hydroseeding	6	0	0
SS-6	Straw Mulch	2	0	0
SS-8	Wood Mulching	0	0	0
SS-9	Earth Dikes/Drainage Swales & Lined Ditches	10	0	0
TC-2	Stabilized Construction Roadway	11	0	0
TC-3	Entrance/Outlet Tire Wash	1	0	0
WE-1	Wind Erosion Control	34	0	0
WM-2	Material Use	11	0	0
WM-6	Hazardous Waste Management	14	0	0
	TOTAL	**1,330**	**189**	**14**

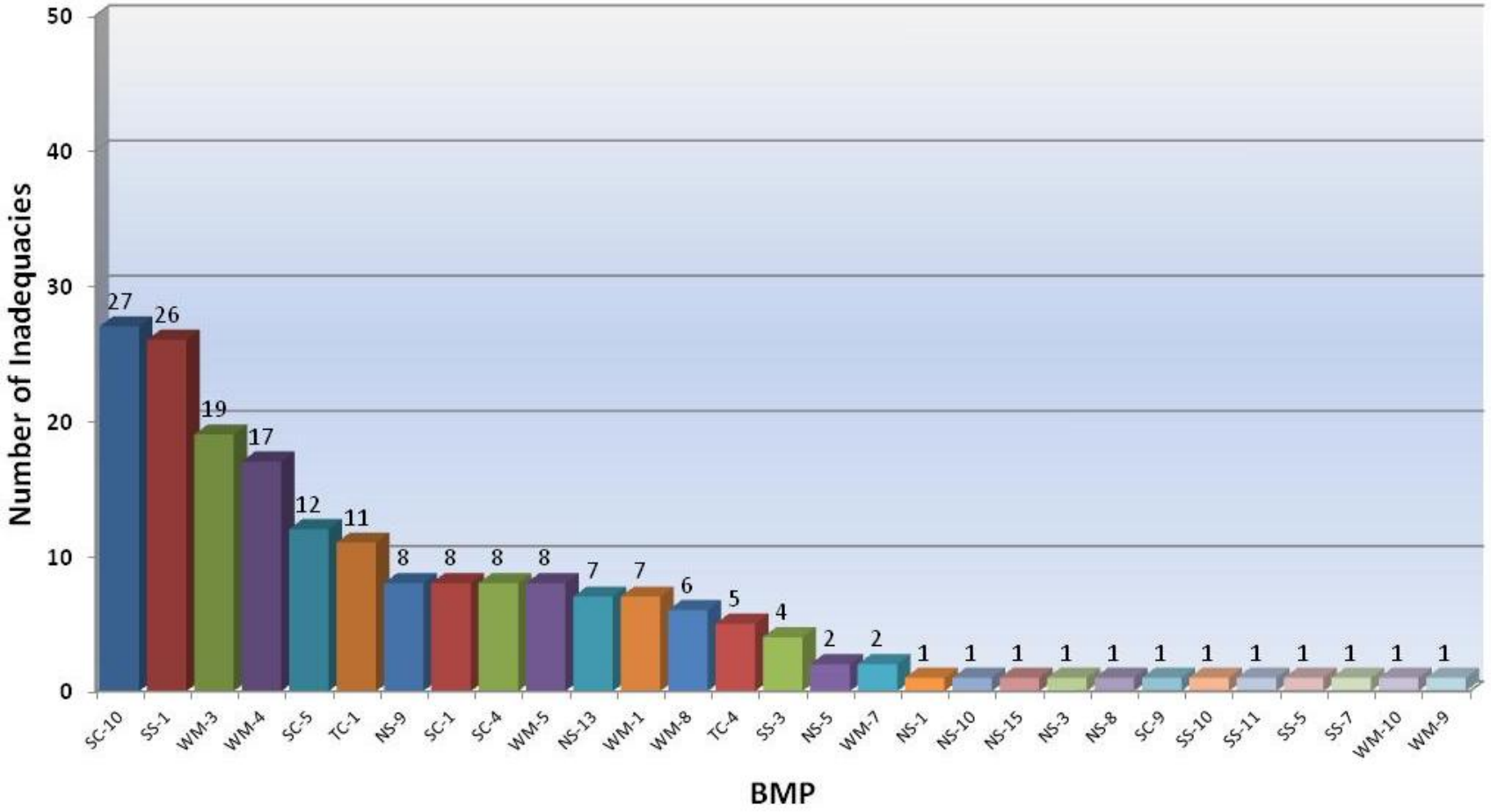


Figure 4-1. BMPs – Sorted by Number of Inadequacies

Figure 4-1 presents the number of inadequacies reported for all 51 BMPs in 2011-12, sorted by most to fewest inadequacies. Those BMPs with zero reported inadequacies in 2011-12 are not presented in Figure 4-1.

Analysis of Table 4-1 and Figure 4-1 provide the following trends for 2011-12:

- Out of 1,330 BMPs reviewed, 189 BMPs, or 14%, were not properly implemented (inadequate).
- Storm Drain Inlet Protection and the next 10 numeric BMPs with the most reported inadequacies accounted for 151 of the 189 (80%) of the reported inadequacies in 2011-2012. A total of 38 inadequacies were reported on the remaining 40 BMPs.
- The highest numbers of inadequacies (27) were reported for storm drain inlet protection (SC-10) and scheduling (SS-1), which had 26 reported inadequacies. SS-1 is considered both in the numeric BMP category and in the contract administration (Alpha rating) category.
- Stockpile management (WM-3), spill prevention and control (WM-4), and fiber rolls (SC-5) had highest moderate number of inadequacies (19, 17 and 12, respectively). WM-4 is considered both in the numeric BMP category and in the contract administration (Alpha rating) category.
- Stabilized construction entrance/exit (TC-1) had 11 inadequacies, followed by vehicle and equipment fueling (NS-9) and silt fence (SC-1), which had 8 inadequacies reported in 2011-2012.

To fully understand trends, the adequacy of the BMPs should also be assessed according to percentage of the inadequate BMPs. Some BMPs were reviewed almost 200 times in 2011-12; partially explaining why a large number of a particular BMP was identified as inadequate. Table 4-2 and Figure 4-2 sort BMPs reviewed in 2011-12 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
NS-5	Clear Water Diversion	2	2	100
NS-13	Material and Equipment Use Over Water	10	7	70
NS-9	Vehicle and Equipment Fueling	13	8	62
SS-11	Slope Drains	2	1	50
SC-9	Straw Bale Barrier	2	1	50
WM-4	Spill Prevention and Control	37	17	46
SS-1	Scheduling	60	26	43
NS-15	Structure Demolition/Removal Near Water	3	1	33
NS-8	Vehicle and Equipment Cleaning	3	1	33
WM-3	Stockpile Management	67	19	28
WM-7	Contaminated Soil Management	9	2	22
SS-10	Outlet Protection/Velocity Dissipation Devices	5	1	20
SS-5	Soil Binders	5	1	20
SC-4	Check Dam	42	8	19
WM-10	Liquid Waste Management	6	1	17
WM-5	Solid Waste Management	57	8	14
SC-5	Fiber Rolls	86	12	14

Table 4-2. BMPs Sorted by Percentage of Inadequacies				
BMP Name	Description	No. Reviewed	No. Inadequacies	% Inadequate
SC-10	Storm Drain Inlet Protection	198	27	14
SC-1	Silt Fence	61	8	13
TC-1	Stabilized Construction Entrance/Exit	88	11	13
SS-3	Hydraulic Mulch	33	4	12
WM-1	Material Delivery and Storage	60	7	12
TC-4	Street Sweeping and Vacuuming	43	5	12
WM-8	Concrete Waste Management	53	6	11
NS-3	Paving and Grinding Operations	12	1	8
NS-10	Vehicle and Equipment Maintenance	14	1	7
SS-7	Geotextiles, Plastic Covers, Erosion Cont Blankets	26	1	4
NS-1	Water Conservation Practices	38	1	3
WM-9	Sanitary/Septic Waste Management	65	1	2
NS-11	Pile Driving Operations	6	0	0
NS-12	Concrete Curing	9	0	0
NS-14	Concrete Finishing	3	0	0
NS-2	Dewatering Operations	6	0	0
NS-4	Temporary Stream Crossing	1	0	0
NS-6	Illicit Connection/Illegal Discharge Detection	20	0	0
NS-7	Potable Water/Irrigation	1	0	0
SC-2	Sediment/Desilting Basin	3	0	0
SC-3	Sediment Trap	3	0	0
SC-6	Gravel Bag Berm	21	0	0
SC-8	Sandbag Barrier	1	0	0
SS-12	Streambank Stabilization	0	0	0
SS-2	Preservation of Existing Vegetation	67	0	0
SS-4	Hydroseeding	6	0	0
SS-6	Straw Mulch	2	0	0
SS-8	Wood Mulching	0	0	0
SS-9	Earth Dikes/Drainage Swales & Lined Ditches	10	0	0
TC-2	Stabilized Construction Roadway	11	0	0
TC-3	Entrance/Outlet Tire Wash	1	0	0
WE-1	Wind Erosion Control	34	0	0
WM-2	Material Use	11	0	0
WM-6	Hazardous Waste Management	14	0	0
	TOTAL	**1,330**	**189**	**14**

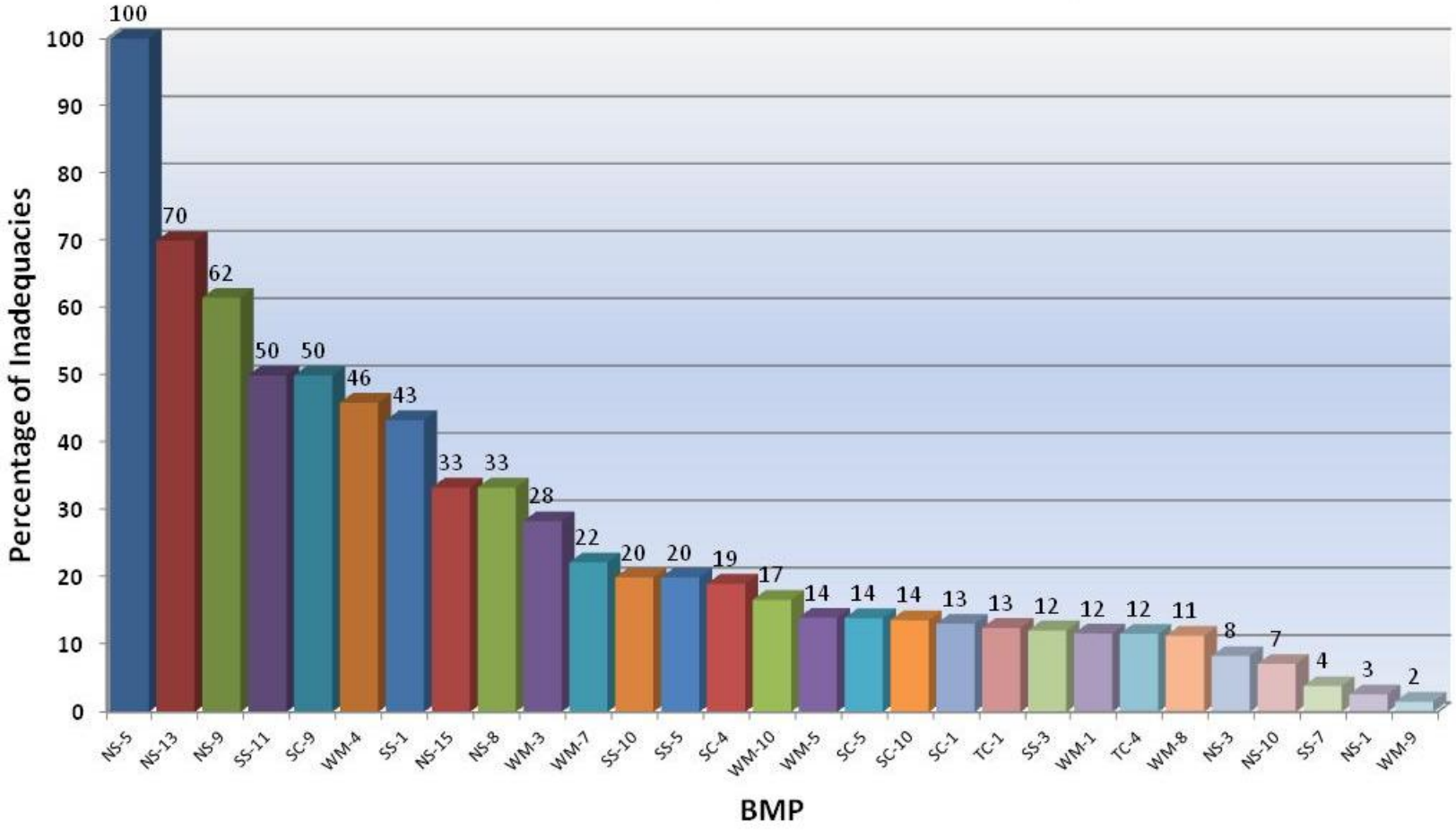


Figure 4-2. BMPs – Sorted by Percentage of Inadequacies

Table 4-2 and Figure 4-2 suggest the following trends based on percentage inadequacies for numeric BMPs in 2011-12:

- 100% of the sandbag barriers (NS-5) BMPs were identified as inadequate, but only two NS-5 BMPs were reviewed.
- 70% of the material and equipment use over water (NS-13) BMPs were identified as inadequate. A total of ten NS-13 BMPs were reviewed.
- 15 of 51 total BMPs reported higher than the average percentage (14%) inadequacies.
- 36 of 51 numeric BMPs reported lower than average percentage (14%) inadequacies. Of these 36 BMPs, 3 BMPs matched the average of 14% inadequacies and 22 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 2011-12, 2010-11 and 2009-10. 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

BMP Name	Description	2011 - 2012			2010 - 2011	2009 - 2010
		No. Reviewed	No. Inadequacies	% Inadequate	% Inadequate	% Inadequate
NS-1	Water Conservation Practices	38	1	3	3	5
NS-2	Dewatering Operations	6	0	0	0	0
NS-3	Paving and Grinding Operations	12	1	8	5	10
NS-4	Temporary Stream Crossing	1	0	0	33	0
NS-5	Clear Water Diversion	2	2	100	0	0
NS-6	Illicit Connection/Illegal Discharge Detection	20	0	0	0	0
NS-7	Potable Water/Irrigation	1	0	0	0	0
NS-8	Vehicle and Equipment Cleaning	3	1	33	0	0
NS-9	Vehicle and Equipment Fueling	13	8	62	60	100
NS-10	Vehicle and Equipment Maintenance	14	1	7	32	15
NS-11	Pile Driving Operations	6	0	0	0	0
NS-12	Concrete Curing	9	0	0	0	0
NS-13	Material and Equipment Use Over Water	10	7	70	29	29
NS-14	Concrete Finishing	3	0	0	7	0
NS-15	Structure Demolition/Removal Near Water	3	1	33	0	0
	NS ALL	**141**	**22**	**16**	**14**	**14**

Table 4-3B. Summary of Sediment Control BMPs						
BMP Name	Description	2011 - 2012			2010 - 2011	2009 - 2010
		No. Reviewed	No. Inadequacies	% Inadequate	% Inadequate	% Inadequate
SC-1	Silt Fence	61	8	13	16	18
SC-2	Sediment/Desilting Basin	3	0	0	0	20
SC-3	Sediment Trap	3	0	0	0	0
SC-4	Check Dam	42	8	19	23	12
SC-5	Fiber Rolls	86	12	14	15	15
SC-6	Gravel Bag Berm	21	0	0	6	14
SC-8	Sandbag Barrier	1	0	0	67	0
SC-9	Straw Bale Barrier	2	1	50	0	100
SC-10	Storm Drain Inlet Protection	198	27	14	15	11
	SC ALL	**417**	**56**	**13**	**17**	**13**

Table 4-3C. Summary of Soil Stabilization BMPs						
BMP Name	Description	2011 - 2012			2010 - 2011	2009 - 2010
		No. Reviewed	No. Inadequacies	% Inadequate	% Inadequate	% Inadequate
SS-1	Scheduling	60	26	43	31	27
SS-2	Preservation of Existing Vegetation	67	0	0	1	1
SS-3	Hydraulic Mulch	33	4	12	6	14
SS-4	Hydroseeding	6	0	0	0	0
SS-5	Soil Binders	5	1	20	0	0
SS-6	Straw Mulch	2	0	0	25	8
SS-7	Geotextiles, Plastic Covers, Erosion Cont Blankets	26	1	4	6	9
SS-8	Wood Mulching	0	0	0	0	0
SS-9	Earth Dikes/Drainage Swales & Lined Ditches	10	0	0	29	0
SS-10	Outlet Protection/Velocity Dissipation Devices	5	1	20	0	33
SS-11	Slope Drains	2	1	50	0	0
SS-12	Streambank Stabilization	0	0	0	0	0
	SS ALL	**216**	**34**	**16**	**12**	**12**

In 2011-12, Table 4-3C shows that the percentage of inadequate soil stabilization BMPs (16%) are slightly more than the average of all BMPs (i.e., 14%) presented in Tables 4-1 and 4-2. In 2011-2012, slope drains (SS-11), scheduling (SS-1), soil binders (SS-5) and outlet protection/velocity dissipation devices (SS-10) reported higher than average inadequacy percentages (50, 43, 20, and 20, respectively). Excluding SS-11, SS-1, SS-5, and SS-10, the remaining soil stabilization BMPs have inadequacies ranging from 12% to 0%, below the overall BMP average of 14%.

Table 4-3D. Summary of Other BMPs (Tracking Control, Wind Erosion, Waste Management)						
BMP Name	Description	2011 - 2012			2010 - 2011	2009 - 2010
		No. Reviewed	No. Inadequacies	% Inadequate	% Inadequate	% Inadequate
TC-1	Stabilized Construction Entrance/Exit	88	11	13	13	18
TC-2	Stabilized Construction Roadway	11	0	0	10	0
TC-3	Entrance/Outlet Tire Wash	1	0	0	0	0
TC-4	Street Sweeping and Vacuuming	43	5	12	5	6
	TC ALL	**143**	**16**	**11**	**9**	**6**
WE-1	Wind Erosion Control	43	5	12	5	4
	WE ALL	**43**	**5**	**12**	**5**	**4**
WM-1	Material Delivery and Storage	60	7	12	4	4
WM-2	Material Use	11	0	0	9	13
WM-3	Stockpile Management	67	19	28	27	37
WM-4	Spill Prevention and Control	37	17	46	35	41
WM-5	Solid Waste Management	57	8	14	13	5
WM-6	Hazardous Waste Management	14	0	0	27	16
WM-7	Contaminated Soil Management	9	2	22	0	0
WM-8	Concrete Waste Management	53	6	11	6	12
WM-9	Sanitary/Septic Waste Management	65	1	2	2	2
WM-10	Liquid Waste Management	6	1	17	0	0
	WM ALL	**379**	**61**	**16**	**13**	**14**

In 2011-12, Table 4-3D shows that the percentage of inadequate tracking control, wind erosion and waste management BMPs are 11%, 12% and 16% respectively; comparable to the average of all BMPs (i.e., 14%) presented in Tables 4-1 and 4-2. In 2011-12, reported percentage of inadequacies for waste management BMPs were slightly higher, respectively, than reported in 2010-11. In 2011-12 four waste management BMPs, reported a higher than average percentage inadequacies percentage; spill prevention and control (WM-4; 46%), stockpile management (WM-3; 28%), contaminated soil management (WM-7; 22%), and liquid waste management (WM-10; 17%).

4.1.1 BMP Performance Trends Over Time

Figure 4-3 shows the performance of BMPs over time for the 2009-10, 2010-11 and 2011-12 construction seasons. Figure 4-3 compares fifteen BMPs with the most inadequacies over time to assess BMP performance trends over time.

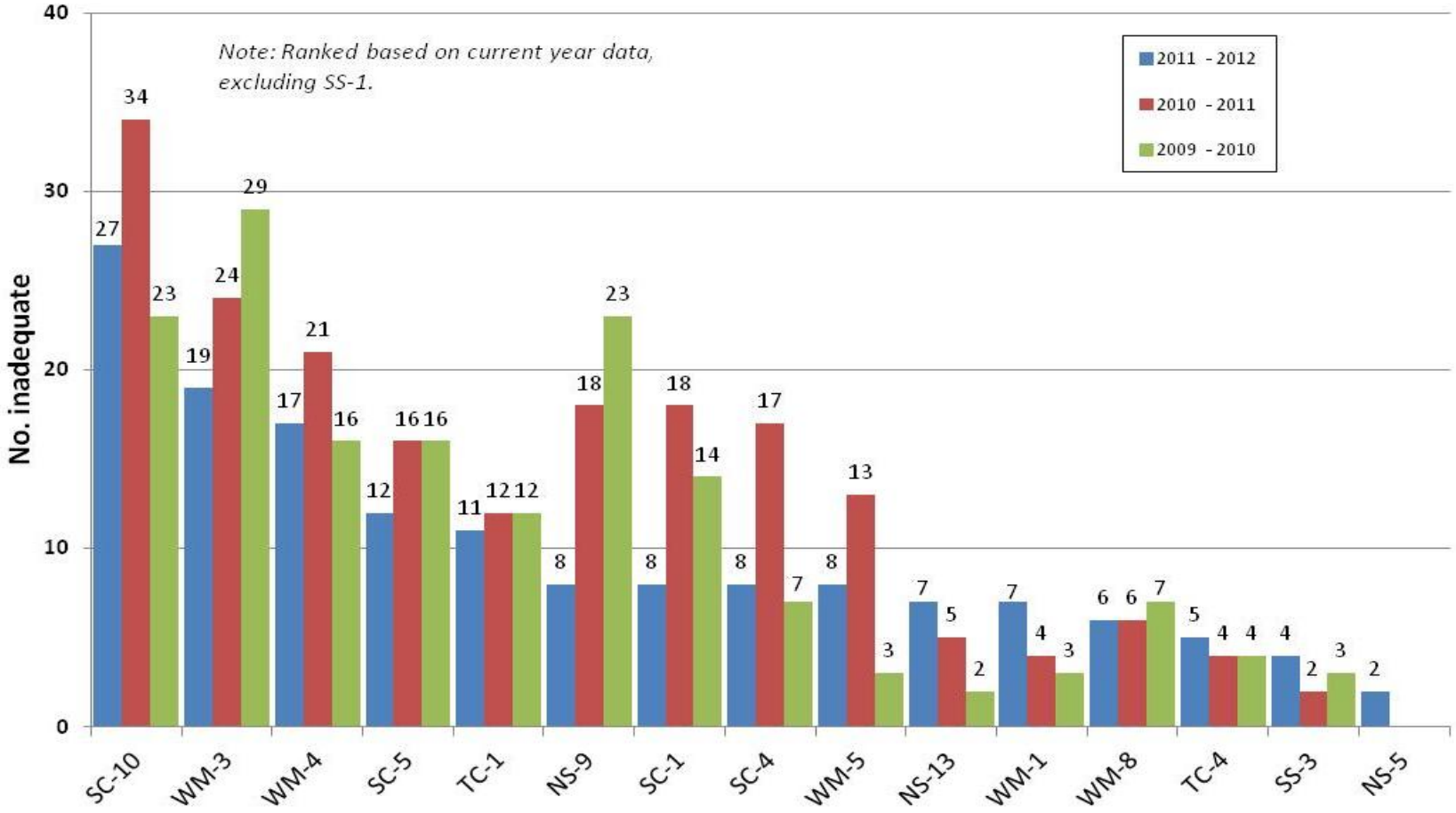


Figure 4-3. BMP Performance Trends over Time

Figure 4-3 shows three general trends:

1. BMPs with similar numbers of inadequacies from 2009 to 2012 include:
   - Storm Drain Inlet Protection (SC-10)
   - Stockpile Management (WM-3)
   - Spill Prevention and Control (WM-4)
   - Fiber Rolls (SC-5)
   - Stabilized Construction Entrance/Exit (TC-1)
   - Solid Waste Management (WM-8)
   - Street Sweeping and Vacuuming (TC-4)
   - Hydraulic Mulch (SS-3)
2. BMPs with declining numbers of inadequacies from 2009 to 2012 include:
   - Stockpile Management (WM-3)
   - Fiber Rolls (SC-5)
   - Stabilized Construction Entrance/Exit (TC-1)
   - Vehicle and Equipment Fueling (NS-9)
   - Solid Waste Management (WM-8)
3. BMPs with slight increases in the numbers of inadequacies from 2009 to 2012:
   - Material and Equipment Use Over Water (NS-13)
   - Material Delivery and Storage (WM-1)
   - Street Sweeping and Vacuuming (TC-4)
   - Hydraulic Mulch (SS-3)

Figure 4-3 shows that the performance of eight BMPs of the most common inadequate BMPs is not changing over time. The performance of stockpile management (WM-3), fiber rolls (SC-5), vehicle and equipment fueling (NS-9) appears to be improving over time, with fewer inadequacies in 2011-12 compared to 2010-11. The number of inadequacies for material and equipment use over water (NS-13) has increased slightly, from 2 in 2009-10 to 7 in 2011-12.

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 2011-12.

Table 4-4. Summary of Alpha BMPs Reviewed				
Alpha BMP Name	Description	No. Reviewed	No. Inadequacies	% Inadequate
SS-1	Scheduling	60	49	82
WM-1	Material Delivery and Storage	60	32	53
WM-5	Solid Waste Management	57	25	44
Alpha 28-30	Training	84	24	29
Alpha 1-9	SWPPP/WPCP	84	10	12
Alpha 10-15	Site Inspection Documentation	84	8	10
WM-4	Spill Prevention and Control	37	8	22
NS-3	Paving and Grinding Operations	12	2	17
NS-6	Illicit Connection/Illegal Discharge Detection	20	2	10
WM-7	Contaminated Soil Management	9	1	11
Alpha 16-19	Sampling and Analysis Plan	84	0	0
Alpha 20-24	Dewatering Plan	84	0	0
Alpha 25	Pre-construction Meeting Records	84	0	0
Alpha 26-27	Active Disturbed Soil Area(s)	84	0	0
WE-1	Wind Erosion Control	34	0	0
WM-6	Hazardous Waste Management	14	0	0
	ALPHA ALL	**891**	**161**	**18**

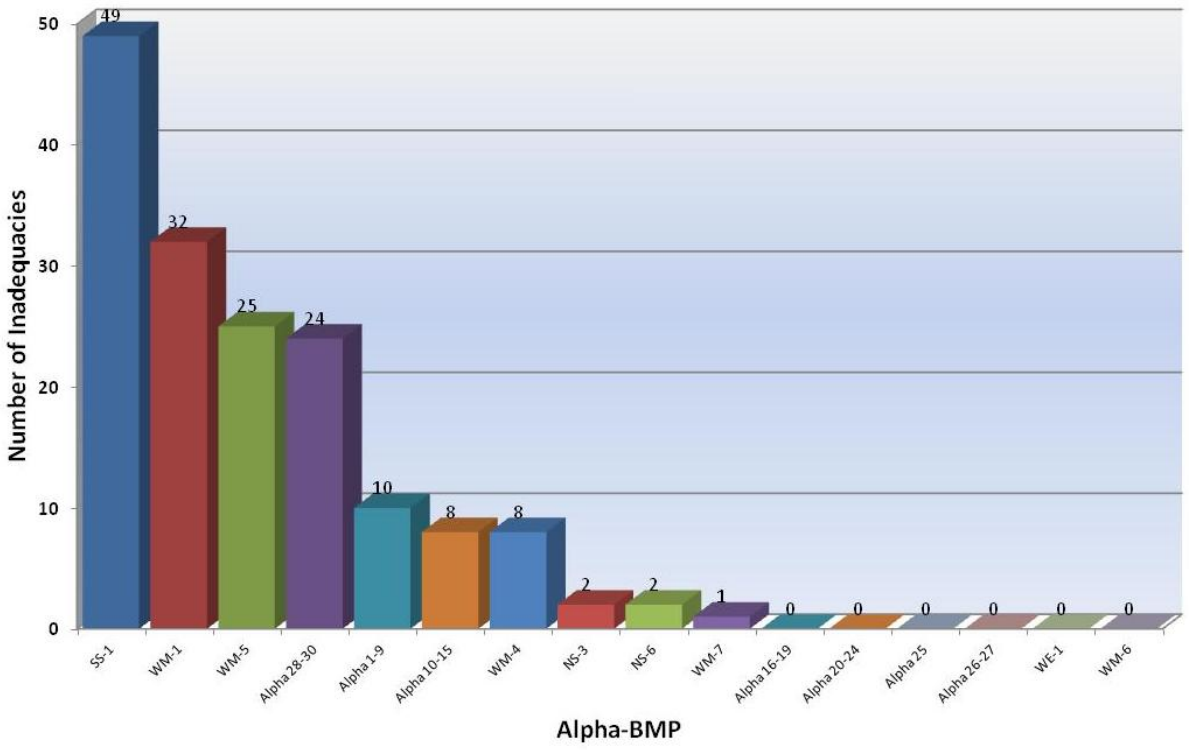


Figure 4-4. Alpha BMPs – Sorted by Number of Inadequacies

Table 4-4 shows that 161 out of 891 (18%) of all alpha BMPs reviewed in 2011-12 were rated as inadequate. Figure 4-4 shows that scheduling (SS-1) has the most inadequate ratings of all BMPs (49), followed by documentation problems associated with material delivery and storage (WM-1) with 32 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 alpha BMPs were reviewed over 50 times; partially explaining why a large number of inadequacies are associated with one particular alpha BMP. 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 2011-12 data to previous years, 2010-11 and 2009-10.

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

Alpha BMP Name	Description	2011 - 2012			2010 - 2011	2009 - 2010
		No. Reviewed	No. Inadequacies	% Inadequate	% Inadequate	% Inadequate
SS-1	Scheduling	60	49	82	81	62
WM-1	Material Delivery and Storage	60	32	53	28	53
WM-5	Solid Waste Management	57	25	44	14	30
Alpha 28-30	Training	84	24	29	10	12
Alpha 10-15	Site Inspection Documentation	84	8	22	1	4
NS-3	Paving and Grinding Operations	12	2	17	10	26
Alpha 1-9	SWPPP/WPCP	84	10	12	10	14
WM-7	Contaminated Soil Management	9	1	11	0	28
NS-6	Illicit Connection/Illegal Discharge Detection	20	2	10	8	3
WM-4	Spill Prevention and Control	37	8	22	22	21
Alpha 16-19	Sampling and Analysis Plan	84	0	0	0	0
Alpha 20-24	Dewatering Plan	84	0	0	0	0
Alpha 25	Pre-construction Meeting Records	84	0	0	0	0
Alpha 26-27	Active Disturbed Soil Area(s)	84	0	0	0	0
WE-1	Wind Erosion Control	34	0	0	11	2
WM-6	Hazardous Waste Management	14	0	0	18	28
	ALPHA ALL	**891**	**161**	**18**	**12**	**14**

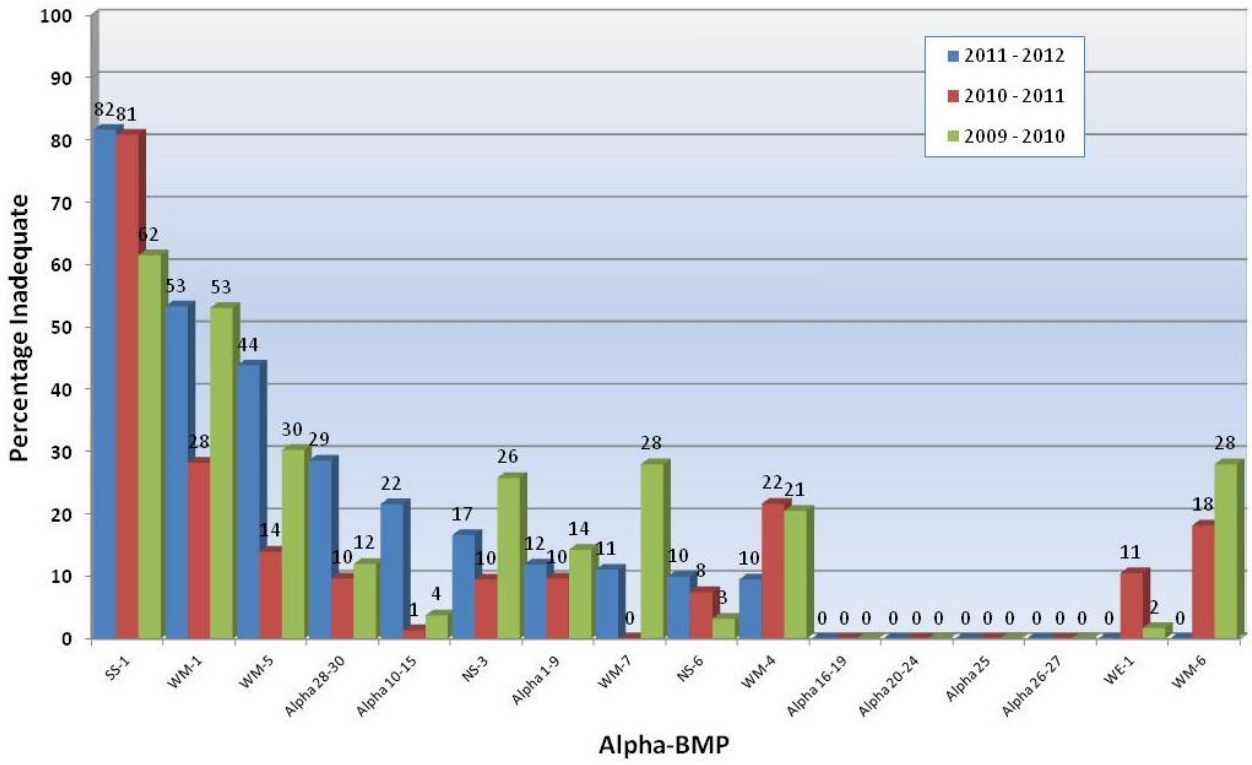


Figure 4-5. Alpha BMPs - Sorted by Percentage of Inadequacies

For 2011-12, Table 4-5 and Figure 4-5 show that the primary alpha BMP inadequacies are scheduling (SS-1; 82%), materials delivery and storage (WM-1; 53%), and solid waste management (WM-5; 44%). In addition to SS-1, WM-1, and WM-5, only training (Alpha 28-30; 29%) and site inspection documentation (Alpha 10-15; 22%) are above the alpha BMP average percentage (18%) inadequacies. The remaining Alpha BMPs have lower percentage inadequacies (0 to 17%).

Table 4-5 and Figure 4-5 also compare the performance of alpha BMPs in 2011-12 to previous years, 2009-10 and 2010-11. Scheduling (SS-1), solid waste management (WM-5), training (Alpha 28-30), site inspection documentation (Alpha 10-15), and illicit connection/illegal discharge detection (NS-6) were the only alpha BMPs to have higher percentages of inadequate BMPs compared to the previous two years.

5. Conclusion

This *Year-End Performance Report – November 2012 (YEPR)* summarizes construction project stormwater compliance reviews conducted between July 1, 2011 and June 30, 2012. These reviews were conducted in accordance with the July 2008 *Construction Compliance Evaluation Plan (CCEP).* 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 2011-12 period, as well as a comparison with data from the previous two years. This assessment concluded that approximately 80% of all project reviews were rated 1A, 1B, 2A, 2B for 2011-12, which was in line with the level of compliance in the previous two years. For 2011-12, 56% of projects received an A alpha rating. Section 4.0 analyzed trends in the data. This analysis concluded that 189 of the 1,330 BMPs reviewed, or 14%, were found to be inadequate. Other trends for the specific types of BMPs are

presented in this section. The general trend over the past three years is that construction stormwater BMPs are protective of stormwater quality with reviews suggesting that 86% of the 1,330 BMPs reviewed in 2011-12 were installed and maintained adequately.